

04/2024

Window Systems ▶ External venetian blinds

External venetian blinds

Technical data

Der SonnenLichtManager

warema

Valid from 1 April 2024 / V1.0 / International



Technical data
Valid from 01.04.2024

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Safety instructions

For detailed information please see the Tech-Data or the installation and operating instructions.

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Ordering from WAREMA

In this document you will find for each product a link to the relevant **Order form**. Open the link or copy it into your browser. Alternatively, you can order directly via **myWAREMA** by opening the link or entering the article number after logging in. Please make sure to register as a customer first.

Drawings

Download your desired drawings: in the digital version of this document, start the download by clicking on the PDF or DWG symbol.

WAREMA tools

Sun Shading Planner
Use our free planning programme to plan your sun protection systems
https://sonnenschutzplaner.de

Collection Assistant
Experience the range of colours and fabrics of the WAREMA collections
https://www.warema.de/Tools/Kollektionsberater.php

Fastener Assistant
Calculate the individual suitable and permissible fixing materials
https://www.warema.com/fastener-assistant

Console Planner
Calculate the exact position of the console, tensile force and wind resistance class
https://konsolenplaner.warema.de/v2/

Dimensions Assistant
Conveniently and easily determine the slat stack height
https://my.warema.com/v2/dimensionAssistant?page=0

More TechData

External venetian blinds
https://sls.warema.com/514644ENINT

Roller shutters
https://sls.warema.com/514648ENINT

Window awnings
https://sls.warema.com/514654ENINT

Insect and pollen protection
https://sls.warema.com/513039ENINT

Railing systems VisioNeo for windows
https://sls.warema.com/959906ENINT

Patio awnings
https://sls.warema.com/514652ENINT

Roof systems
https://sls.warema.com/755716ENINT

Sails
https://sls.warema.com/767443ENINT

Black-out blinds
https://sls.warema.com/513502ENINT

Control systems
https://sls.warema.com/514746ENINT



WAREMA Update
External venetian blinds

News and Highlights

WAREMA SecuKit for external venetian blinds

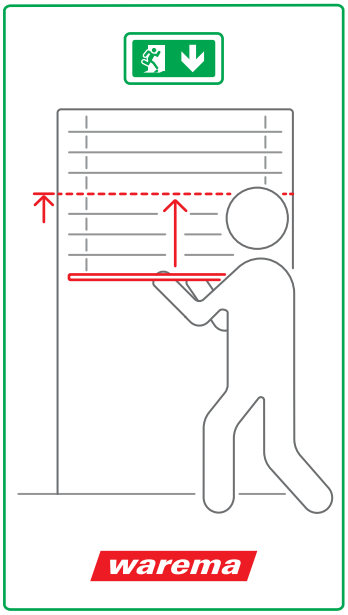
Increased number of applications

With the WAREMA SecuKit for external venetian blinds, it is possible to
quickly clear a second emergency route in an emergency independently of the power supply. The end rail is manually moved upwards and automatically locks into place at the defined height.

Now available:

- Zetra dim-out slat 80 Z (when using guide rails with 2K plastic clip profile)
- Front-mounted external venetian blinds (for non-rotated top rail)

see "WAREMA SecuKit for external venetian blinds", Page 288



External shaft venetian blinds

Revised product portfolio

The new basic external shaft venetian blind with improved stability thanks to positive fit seat of the universal consoles in the lateral guide rail, which permits both bracket and direct installation. Premounted at the factory, the universal console can be installed in various guide rail types for easier installation.

New portfolio overview:

- Basic external shaft venetian blinds: Universal console combinable with various guide rails (individual assembly)
- Shaft external venetian blind system S1: High degree of pre-assembly for cover panel and external venetian blinds (direct installation)



see "External shaft venetian blinds", Page 205

Self-supporting systems - setting new standards

Improved installation and product quality

- Use of the guide rail type 74/75 (incl. 2K plastic clip profiles) makes final installation of external venetian blinds significantly easier. Threading from below into the guide rails or via the optional installation opening is no longer necessary.
- The new guide rail bracket type 7/8 with premounted thread in the bracing permits a direct screw connection without countering from counter nuts.
- The sunken screw heads in the bracket and the thread in the bracing offer an improved look without protruding screw parts.

see "Self-supporting systems", Page 257

Railing systems VisioNeo Sun

Now also available for basic external venetian blinds

The proven VisioNeo Sun railing system is now also available for basic external venetian blinds.

see "VisioNeo Sun railing system for external venetian blinds", Page 278



Change in the dimensioning principle for cover panel depth

For plaster cover panels: external venetian blind window system and front-mounted external venetian blind

Former dimensioning principle: from the back edge of the cover panel to the leading edge of the plaster base plate. Dimensioning principle as of 1/4/2024: from the back edge of the cover panel to the leading edge of the cover panel (not including plaster base plate).

see "External venetian blind window systems", Page 65

see "Front-mounted external venetian blinds", Page 107

Updated cover panel configuration

More options - improved allocation

- New cover panel shapes, bracket designs and angle consoles
- Cable exit at the rear, at the top in the cover panel or at the side in the side cover
- Inward or outward edging on the side covers
- Fixings on the rear cover panel leg

see "Cover panels", Page 410

Expanded construction limit values for top-mounted external venetian blinds for new buildings

see "Top-mounted external venetian blinds for new buildings NA-RA with rail guidance", Page 146

Improved wind speed limits

For Windra flat slats with rail guidance

The permissible wind speeds have improved from an order dimension > 2500 mm to 3000 mm to 22 m/s.

see "Windra flat slats with rail guidance", Page 529

RAL 7039 quartz grey (matt)

New slat colour now available for external venetian blinds as standard (Choice category) for the following slat geometries: 80 S / 80 AF / 80 Z / 73 / 90 / 93. Matching colours are also available for A 37 shutter profiles.



see "External venetian blind slats - Choice colours", Page 16

WAREMA Colour World 2024

Over the course of 2024, we will be updating the WAREMA Colour World to account for the latest market trends and customer demands. There are plenty of new things to look forward to, including new colours and surface qualities to choose from. Stay tuned - we'll keep you up to date!



see "Colours and finishes", Page 12

Discontinued products

- T/M system cover panel
- External venetian blinds with ProVisio
- Printable external venetian blind slats
- FSCH with bead D52 (type 7)
- Double guide rail with bead D52 (type 8)
- FSCH with bead 25-50 (type 9)/FSCH with bead 25-50 (type 17)
- Double guide rail with bead 50-50 (type 10)

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Interesting facts about planning
Colours and finishes

WAREMA Colour World for powder-coated aluminium components

Choose the perfect shade from a wide range of attractive powder colours for your powder-coated aluminium profiles such as guide rails, guide profiles, cover panels, boxes and frames.

The current WAREMA Colour World for powder-coated aluminium components and all available colour charts can be found on our homepage.

Colour categories

The variety and composition of the WAREMA Colour World are constantly updated to reflect the latest market trends and customer demands. The classification into categories helps you to find the right colour for your individual sun shading system.

Highlight
This category contains hand-picked standard colours that reflect the latest market demands and colour trends. With the collections and colour charts for external venetian blind slats, roller shutter curtains and fabrics, the colour shades unite to form the perfect unit.

Variation
Over 50 additional RAL basic colours complement the existing Highlight category.

Individual
For even more individuality and colour diversity, over 100 more colours complete the WAREMA Colour World.

Special version
Not found what you're looking for in the WAREMA Colour World? On request, colours not included in the WAREMA Colour World are also available.



Finishes

The WAREMA Colour World doesn't just offer a wide range of options in terms of colour variety, it also offers a vast array of surface structures and gloss levels. Thanks to the individual characteristics of the WAREMA Colour World, you can perfectly adapt your powder-coated aluminium components to the structural conditions at hand.

The outstanding quality of the coating guarantees long-term satisfaction with our products. This has been independently tested by the German Quality Association for the Coating of Building Materials (GSB). The surface coating with a chrome-free pretreatment complies with the GSB AL 631 directive.

The aluminium parts are delivered in "GSB Sea-Proof" as standard.



Satin finish
Satin finish is a slightly glossy surface with a smooth finish and optimal light and weather resistance.



Matt
A matt surface is distinguished by its smooth matt finish and optimal light and weather resistance.



Fine texture
The fine texture has impressive effects, as characterised by the optimal light and weather resistance of the surface.

Highly weather-resistant powder coating



Highly weather-resistant
The highly weather-resistant finish is particularly suited to all severe weather conditions. It is colour-fast, has a long-lasting uniform finish, does not chalk and is extremely weather-proof. This kind of coating is only available in combination with matt surface structures.

Not able to find the right surface quality? On request, surface qualities not included in the WAREMA standard range are also available.

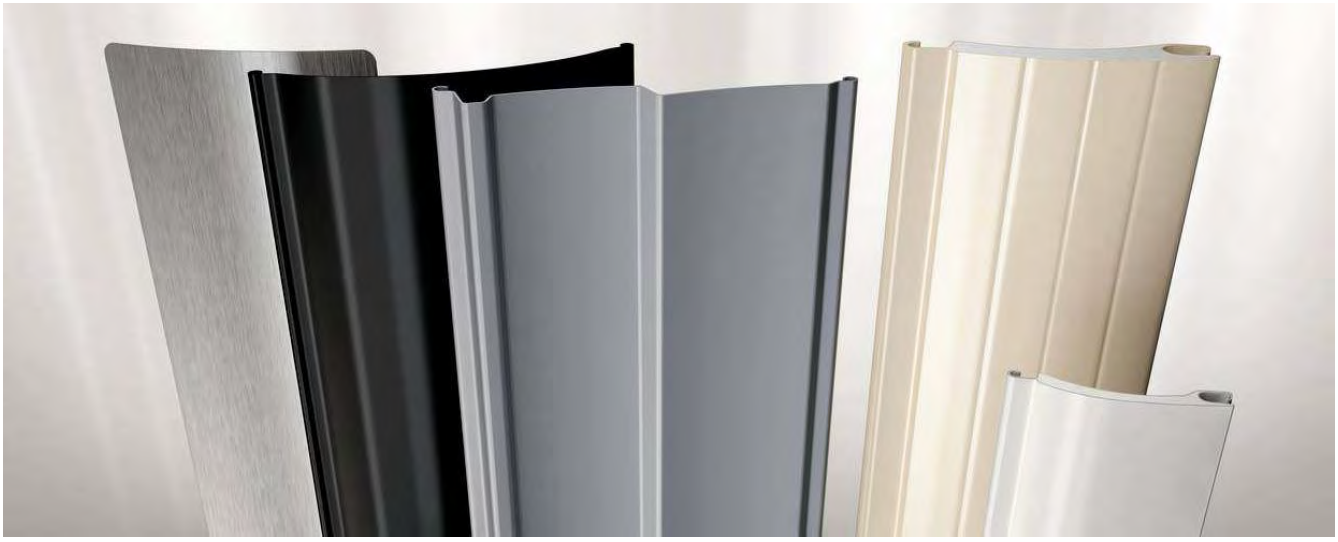
Stay up to date!

The current WAREMA Colour World for powder-coated aluminium components can be found on our homepage or myWAREMA.

Special version
Alternatively, WAREMA offers anodised finishes for numerous extruded aluminium parts.

- natural colours anodised
  - C0
- anodised in colour
  - C31 Light bronze
  - C32 Pale bronze
  - C33 Medium bronze
  - C34 Dark bronze
  - C35 Black

The anodised shades are shown in the anodisation colour chart.



Colouring of external venetian blind components

	Frame components: Cover panels, boxes, profiles, guide rails, end rails	Slats
Material	Aluminium	Aluminium
Surface	Powder-coated	Enamelled to be resistant to corrosion using a special process
Colours	The palette of the RAL CLASSIC colour chart (except camouflage and luminous colours); six DB colours, four anodised-look colours, eight textured colours, further colours according to the WAREMA Colour World	According to WAREMA colour chart for external venetian blind slats, with glossy surface as standard. On request, defined slat colours can also be produced with a matt surface.
Special colours	Available in special colour shades deviating from the WAREMA colour specification at a surcharge	Special slat colours on request

Detailed information on the colour selection can be found in the WAREMA Colour World brochure.





Colours and surfaces for external venetian blind slats in accordance with current collection

External venetian blind slats have a glossy finish as standard (gloss level approx. 80%. Exception: RAL 9005 and W-ELOX, approx. 30%). On request, the colours RAL 7016, 9006, 9007 and DB 703 can also be produced with a matt finish (gloss level approx. 30%) at no extra charge. If choosing Selection matt, always check whether the aluminium parts should also be finished in matt (WAREMA Colour World). WAREMA standard is satin finish.

Windra flat slats only have a glossy finish and are not available in a matt finish.

- Due to the different manufacturing processes, colour differences between the slats and powder-coated aluminium parts cannot be avoided.
- Colour deviations may occur due to printing technology.

External venetian blind slats - Selection colours

Colour number	Colour designation		Price range	External venetian blind slats					
				80 S/ 80 AF/80 Z	73/90/93	60 S/60 AF	100 AF	50 AF	80 WF
RAL 7016	Anthracite grey		1	●	●	●			●
RAL 7022	Umbra grey		1	●	●	●			
RAL 7035	Light grey		1	●	●	●			
RAL 9006	White aluminium		1	●	●	●	●	●	●
RAL 9007	Grey aluminium, similar to DB 702		1	●	●	●	●	●	●
RAL 9016	Traffic white		1	●	●	●			
DB 703	Anthracite iron mica effect		1	●	●	●			●
W 8780	Light bronze		1	●	●	●			

External venetian blind slats - Selection matt colours

Colour number	Colour designation		Price range	External venetian blind slats		
				80 S/ 80 AF/80 Z	73/90/93	60 S/60 AF
RAL 7016 matt	Anthracite grey		1	●	●	●
RAL 9006 matt	White aluminium		1	●	●	●
RAL 9007 matt	Grey aluminium		1	●	●	●
DB 703 matt	Anthracite iron mica effect		1	●	●	●

External venetian blind slats - Choice colours

W-ELOX colours: W-ELOX colours can vary slightly and may have minor irregularities on the coated surface. The slats can deviate slightly from the samples. Colour and gloss level differences are unavoidable if several part orders are placed together.

Colour number	Colour designation		Price range	External venetian blind slats		
				80 S/ 80 AF/80 Z	73/90/93	60 S/60 AF
RAL 1015	Light ivory		1	●	●	
RAL 7038	Agate grey		1	●	●	●
RAL 7039	Quartz grey, matt		1	●	●	
RAL 8014	Sepia brown		1	●	●	
RAL 9005	Jet black, matt		1	●	●	
RAL 9010	Pure white		1	●	●	
W 4800	Light beige		1	●	●	
W 7329	Dark bronze		1	●	●	
W 8800	W-ELOX Natural matt		3	●	●	
W 8802	W-ELOX Gold matt		3	●	●	
W 8803	W-ELOX Bronze matt		3	●	●	

Overview of standard slat colours – External venetian blinds

Standard colour assignment for the end rails or, if necessary, for other powder-coated aluminium parts as follows:

- Slat colour: RAL 9007 - Powder colour: RAL 9007
- Slat colour: W 3048 - Powder colour: RAL 9016
- Slat colour: W 3073 - Powder colour: RAL 9006
- Slat colour: W3240 - Powder colour: RAL 7035

The standard RAL colour allocation is for a satin finish model. Other finishes are available at a surcharge.

Colour number	Colour designation	
RAL 9007	Grey aluminium	
W 3048	White	
W 3073	Natural	
W 3240	Light grey	

Colours for decor films

Enhanced plastic surfaces

Durable: Decor plastic films are inseparably bonded to the plastic profile.

Harmonious appearance

Harmonises the sun shading system with the plastic window: A colour-coordinated sun shading system can be created for practically any commercially available decor films for plastic windows.

Wide variety of special films

Alongside its standard portfolio, WAREMA's programme includes numerous special films: Grained and smooth surfaces, unicolours and wood decor films complement the broad range of colours.

Available plastic decor films for laminating plastic cover panels and plastic guide rails.

- Unless otherwise stated, the decor films have a grained surface as standard.
- The laminated plastic parts have a white, grey or brown basic unit depending on the decor film.
- We reserve the right to make modifications to the range of decor films.
- Colour deviations may occur due to printing technology.

Delivery time:

- The same delivery times apply to standard decor films, anthracite grey 701605-167 and anthracite grey smooth 701605-097, as to standard plastic models in white.
- For other standard decor films, an extension to the delivery time of one working week must be planned for.
- For special decor films, the delivery time is extended by approx. 3-4 weeks.

Standard decor films

Colour number	Colour designation	
1	Anthracite grey	
2	Anthracite grey smooth	
3	Silver grey	
4	Black brown	
6	Dark Oak	
7	Sapele (Mahogany)	
8	Walnut	
9	Golden oak	



Interesting facts about planning
General information

Type key

Type selection

Type key	Operating type	Guidance version	Slat
E 60 A6 S	Motor	Rail guidance	Beaded slat 60 S
E 80 A6 S	Motor	Rail guidance	Beaded slat 80 S
C 60 A6 S	Crank	Rail guidance	Beaded slat 60 S
C 80 A6 S	Crank	Rail guidance	Beaded slat 80 S
E 60 AF A6	Motor	Rail guidance	Flat slat 60 AF
E 80 AF A6	Motor	Rail guidance	Flat slat 80 AF
E 100 AF A6	Motor	Rail guidance	Flat slat 100 AF
C 60 AF A6	Crank	Rail guidance	Flat slat 60 AF
C 80 AF A6	Crank	Rail guidance	Flat slat 80 AF
C 100 AF A6	Crank	Rail guidance	Flat slat 100 AF
E 80 WF A6	Motor	Rail guidance	Windra flat slat 80 WF
E 80 A6 Z	Motor	Rail guidance	Zetra dim-out slat 80 Z
E 73 A6	Motor	Rail guidance	Dim-out slat 73
E 90 A6	Motor	Rail guidance	Dim-out slat 90
E 93 A6	Motor	Rail guidance	Dim-out slat 93
C 80 A6 Z	Crank	Rail guidance	Zetra dim-out slat 80 Z
C 73 A6	Crank	Rail guidance	Dim-out slat 73
C 90 A6	Crank	Rail guidance	Dim-out slat 90
C 93 A6	Crank	Rail guidance	Dim-out slat 93
E 60 A2 S	Motor	Cable guidance	Beaded slat 60 S
E 80 A2 S	Motor	Cable guidance	Beaded slat 80 S
C 60 A2 S	Crank	Cable guidance	Beaded slat 60 S
C 80 A2 S	Crank	Cable guidance	Beaded slat 80 S
E 50 AF A2	Motor	Cable guidance	Flat slat 50 AF
E 60 AF A2	Motor	Cable guidance	Flat slat 60 AF
E 80 AF A2	Motor	Cable guidance	Flat slat 80 AF
E 100 AF A2	Motor	Cable guidance	Flat slat 100 AF
C 50 AF A2	Crank	Cable guidance	Flat slat 50 AF

Type key	Operating type	Guidance version	Slat
C 60 AF A2	Crank	Cable guidance	Flat slat 60 AF
C 80 AF A2	Crank	Cable guidance	Flat slat 80 AF
C 100 AF A2	Crank	Cable guidance	Flat slat 100 AF
E 80 WF A2	Motor	Cable guidance	Windra flat slat 80 WF
E 73 A2	Motor	Cable guidance	Dim-out slat 73
E 90 A2	Motor	Cable guidance	Dim-out slat 90
E 93 A2	Motor	Cable guidance	Dim-out slat 93
C 73 A2	Crank	Cable guidance	Dim-out slat 73
C 90 A2	Crank	Cable guidance	Dim-out slat 90
C 93 A2	Crank	Cable guidance	Dim-out slat 93

Manufacturing tolerances, external venetian blinds

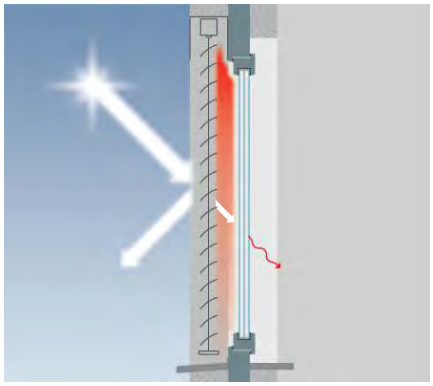
Perfection is in the detail - no wonder, then, that WAREMA sees even the minor details as paramount: each product is manufactured with millimetre precision according to the customer's requirements. Please note that when manufacturing to this degree of precision, small production-related deviations can occur:

Manufacturing tolerance T based on product variant

Product variant	Order width in mm	T in mm	Order height in mm	T in mm
External venetian blind window system / top-mounted external venetian blind / front-mounted external venetian blind	≤ 2000	± 1.5	≤ 1500	± 2
	≤ 4000	± 2	≤ 2500	± 3
	> 4000	± 2.5	> 2500	± 5
Beaded slat / flat slat	≤ 2000	± 1.5	≤ 5000	± 5
	≤ 4000	± 2		
	> 4000	± 2.5		
Dim-out slat with tilting end rail	≤ 2000	± 1.5	≤ 4300	+0/-10
	≤ 4000	± 2		
	> 4000	± 2.5		
Dim-out slat with rigid end rail (no tilting)	≤ 2000	± 1.5	≤ 4300	± 5
	≤ 4000	± 2		
	> 4000	± 2.5		

Summer thermal protection – comfortable temperatures with WAREMA sun shading products

Consideration of summer thermal protection is essential in modern architecture. A well insulated outer facade effectively protects against heat loss in winter, but prevents the heat coming in through the glazing in summer. Therefore, sunlight into the building must be regulated to prevent the rooms from heating up excessively. This often prevents the need for high-energy cooling of the rooms.



Overheating can be most effectively prevented by externally mounted sun shading systems, such as external venetian blinds, awnings or roller shutters. The lower the amount of radiation and heat through the external sun shading systems and glazing, the cooler the rooms remain.

With internal sun shading systems, it is important that the radiation that falls onto the sun shading system through the glazing is reflected back to the outside in the most efficient manner possible. The amount of radiation energy absorbed inside the building will remain there (greenhouse effect).

Likewise, an effective intermediate sun shading system, e.g. in a composite or casement window, must not absorb too much energy, as if so, the space between will get too hot. In addition to excessive heat input, this can cause material problems. High transmittance also leads to a high incidence of energy. The optimum product must be found for the window/sun shading system combination concerned. We are happy to advise you.

Calculating the g_{tot} and F_c values – combination of sun shading system and glazing

The calculation of the value for thermal protection in the summer includes the total solar energy transmittance g_{tot} for the combination of sun shading system and glazing, or the shading factor F_c.

The F_c value is equal to the ratio of the total solar energy transmittance of the sun shading system and glazing combination to the g value of the glazing ($F_c=g_{tot}/g$).

The glazing is thus also always included in the calculation of the F_c value. This means that it is also not possible to specify a fixed F_c value for a sun shading product.

We therefore offer, for the initial assessments, reference values for g_{tot} and F_c values for our sun shading products in different colours and for various glazing options. These are available on our homepage in the Building physics section.

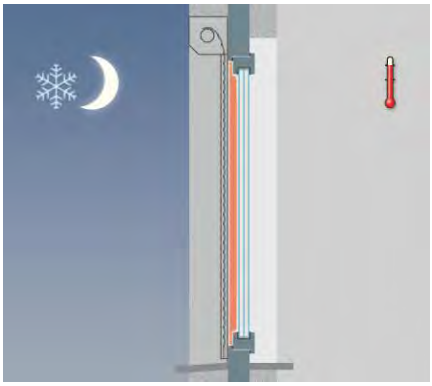
For the calculation of the g_{tot} and F_c values for construction project-specific combinations of sun shading systems and glazing, call the Hotline for building physics and sustainable building.

Building Physics and Sustainable Building hotline
Tel.: +49 9391 20-3025
E-mail bauphysik@warema.de

Winter heat protection - heat energy savings

When lowered and closed as far as possible, sun shading products offer additional thermal resistance, improving the heat transmission coefficient of the window at the same time. We therefore recommend activating existing sun shading products on winter nights. The pleasant side effect of this is that the window panes do not ice over on the outside and less condensation forms on the inside. Internal products, which significantly improve the heat insulation through the reduced thermal transmission to the window, however, can lead to increased condensation formation on the inside of the window and a more severe icing over of outside window panes.

To allow sunray energy to stream into the room unhindered on winter days, the sun shading system must not be activated if at all possible. As glare control, we recommend an internal sun shading system with a high degree of absorptance. The external sun shading system should be activated only if the room becomes too warm.



Let us advise you!

- We will calculate for you the g_{tot} value, the F_c value and the colour rendering index R_a for the sun shading system and glazing combination.
- We will provide you with radiation physics data for WAREMA products (transmittance, reflectance and absorptance)
- We will provide assistance with data for thermal simulations, sound insulation, thermal bridge calculations, and thermal protection in summer and winter.
- We can advise you on sustainability certifications such as DGNB, BNB or LEED.

Building Physics and Sustainable Building hotline
Tel.: +49 9391 20-3025
E-Mail: bauphysik@warema.de

Natural light is important - visual comfort

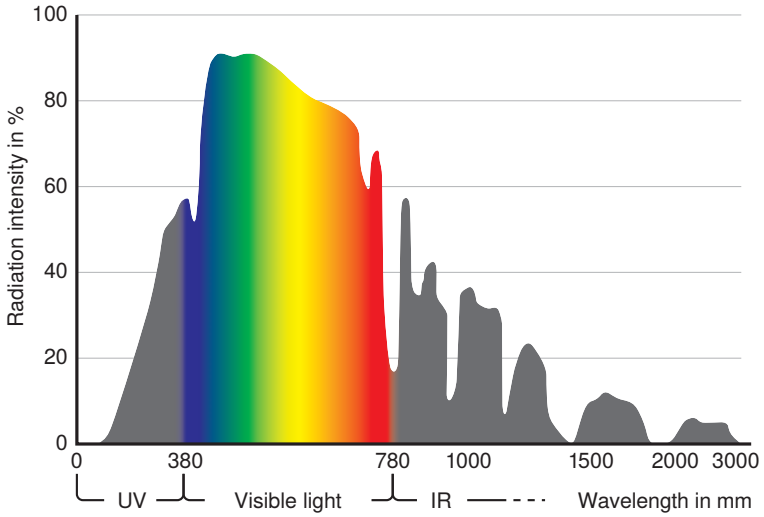
Natural light is very important for the human body. It makes us more efficient and our body clock is also influenced by the changes in light during the course of the day. It is therefore important, even when a sun shading system is activated, to find a compromise between a minimum incidence of energy and a good supply of daylight.

For example, the incidence of energy in a room with an external venetian blind that has dark closed slats is very low, but the room is also very dark. Artificial lighting is required, and this warms up the room again. An external venetian blind with light slats in the horizontal slat position or an awning with light fabric, on the other hand, allow a lot of light, and therefore a high amount of energy, into the room.

Too much light, however, can also cause glare. Therefore, glare protection suitability also plays a key role in the selection of sun shading products. Solutions that interrupt eye contact with extremely light solar discs are especially suitable. These include external venetian blinds and venetian blinds or vertical louvre blinds, roller blinds and awnings with opaque fabrics. Yet glare can sometimes occur even when white external venetian blinds are closed. The amount of light transmission, therefore, must not be too high.

The view out of the window, even with an activated sun shading system, is also important to our feeling of well-being. For most of the day, external venetian blinds or venetian blinds can be set so the view outside can be enjoyed glare-free. Semi-transparent fabrics also allow a view outside. However, because sun shading products with semi-transparent fabrics sometimes allow glare, especially when the sun is low, we recommend, for example for awnings with semi-transparent fabrics, an opaque curtain for internal glare control.

An often underestimated factor for visual comfort is the colour rendering index. This indicates how naturally colours are rendered. 100 means optimal colour rendering. For products with low indices, the colour rendering changes significantly. A white sheet of paper, for example, will appear orange instead of white.



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Basic external venetian blinds

Basic external venetian blinds with rail guidance

Highly flexible

Basic external venetian blinds can be planned uniquely and are easy to integrate into any facade: Thanks to the variable configuration of the individual components, basic external venetian blinds are suited to almost any construction project.

Classic

Securely guided: The rail guidance is the classic among the guidance versions. The reliable lateral guidance provides great stability in windy conditions, good noise reduction, and a low-wear movement of the slats across the guide pins.

Stable

The guide rails are installed with the guide rail brackets or mounted in the reveal.

Application-specific

Different external venetian blind slats can be used according to your individual needs: From stack-optimised beaded slats in the classic design to flat slats for a lower slat stack height and dim-out slat to perfectly darken your room.

Weather-protected

Variable protection: Optional aluminium cover panels in various dimensions and shapes protect the slat stack from weather influences and can be individually adapted to your construction situation on site.

Construction limit values

Maximum order width	5000 mm
Maximum order height	5000 mm
Maximum order area	25 m^2
Maximum order width of the group unit	12000 mm

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Order form

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WAREMA tools

Dimensions Assistant
Fastener Assistant
Sun Shading Planner

see "Navigating the document", Page 5

Components



1	Top rail (tilt rod, bearing)	4	Lateral guidance
2	Slats	5	End rail
3	Tilting tape, lifting tape		

Top rail

– Top rail

see "Top rail", Page 479

Top rail bracket

– Noise optimised top rail bracket for motor operation

see "Top rail bracket", Page 477

Cover panel, optional

– Visible cover panels
– Cover panels embedded in plaster
– Standardised pre-punched cover panels with bracket

see "Cover panels", Page 410

Bearing

– Bearing for slat tilting: Tilting closed/closed
– Bearing for slat tilting: Tilting closed/horizontal

see "Bearing for slat tilting", Page 358

see "Standard configurations", Page 27

Shaft

– Tilt rod

see "Tilt rod", Page 479

Slat

– Beaded slat 60 S
– Beaded slat 80 S
– Flat slat 60 AF
– Flat slat 80 AF
– Flat slat 100 AF
– Windra flat slat 80 WF
– Zetra dim-out slat 80 Z
– Dim-out slat 73
– Dim-out slat 90
– Dim-out slat 93

see "External venetian blind slats", Page 352

Tape

– Tilting tapes
– Loop cords

see "Tapes", Page 480

see "Standard configurations", Page 27

Lifting tape

– Lifting tape 6 mm

see "Lifting tape 6 mm", Page 479

End rail

– End rail, fixed, ellipsoidal
– End rail, fixed (rectangular)
– End rail, fixed (with Zetra slat)
– End rail, swivelling with clip-on slat

see "End rails for external venetian blinds", Page 406

see "Standard configurations", Page 27

Guide variants

– Rail guidance

Guide rail

– FSCH with bead 25-18 (type 2)

Guide rail, optional:

– FSCH with bead 25-18 (type 1)
– FSCH 27-45 (type 70)
– FSCH with bead 25-36 (type 71)
– FSCH 25-28 (type 23)
– FSCH 27-70 (type 36)
– FSCH 27-75 (type 38)
– FSCH 27-80 (type 37)
– FSCH 27-87.5 (type 32)
– FSCH 27-95 (type 31)
– FSCH 27-109 (type 60)
– FSCH 27-117 (type 61)
– FSCH 27-122 (type 30)
– FSCH 27-137.5 (type 39)
– Double guide rail with bead 50-18 (type 3)
– Double FSCH 55K-40 (type 64)
– FSCH 25-50 (type 74)
– FSCH 50-50 (type 75)
– Deep FSCH 27-150 for clinker brick models (type 29)
– Deep FSCH 27-130 for clinker brick models (type 69)

see "Guide rails for external venetian blinds", Page 360

Guide pin

– Guide pins for beaded slats
– Guide pins for flat slats
– Guide pin dim-out slat

see "Guide rails for external venetian blinds", Page 360

Tension cable

Tension cable, type A2

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

Notes on product configuration:

To prevent components located behind the external venetian blind being damaged by wind load, an additional cable guidance in the centre is either mandatory or recommended for rail guidance from a defined width of slat, depending on the slats used:

– Beaded slat: use of an additional tension cable is recommended for a slat size > 3000 mm.
– Flat slat: Use of an additional tension cable is mandatory for slat sizes > 2400 mm and two additional tension cables for slat sizes > 4000 mm.
– Windra flat slat: Use of an additional tension cable is mandatory for slat sizes > 2400 mm.

Arrangement of the additional tension cable: The arrangement must be specified (viewed from inside the room, starting on the left).

Determination of cable length: External venetian blind height + 100 mm

Number of cable guidances: Number depends on the installation situation. For larger facade distances or for installation in the corner area of the facade, additional cable guidances are to be provided.

see "Quantity determination", Page 33

Drive variants

– Motor
– Crank

Motor

– Basic motor for external venetian blinds

Motor optional:

– Super-fast terrace motor (STM)
– Motor with additional collapsible crank ZHK
– Motor with 2 lower limit positions
– Motor with freezing protection
– SMI motor

see "Drive variants", Page 489

Colours

– Slat colours
– WAREMA Colour World
– Anodised C0

Colours, optional:

– Anodised C31
– Anodised C32
– Anodised C33
– Anodised C34
– Anodised C35

see "Colours and finishes", Page 12

see "Colours and surfaces for external venetian blind slats in accordance with current collection", Page 15

Supplementary accessories

– WAREMA SecuKit for external venetian blinds
– Corner joint for external venetian blinds
– External venetian blinds in wind-stable design
– SenSigna, external venetian blind with acoustic signal
– Daylight transport element TLT
– Snap-action switch work setting
– slowturn
– Battery-operated emergency power supply set/battery-operated emergency retraction set
– Battery module UP for external venetian blinds
– Motor with additional collapsible crank ZHK for external venetian blinds
– Emergency power supply kit
– Solar drive for external venetian blinds
– Slat perforation

see "Supplementary accessories", Page 277

Notes

Notes on product configuration

When Windra flat slats are used, only guide rails with clip profiles are available.

Standard configurations

Defined components are used depending on the slat.

Configuration variants	Standard configurations
Slat	
Beaded slats	Bearing for slat tilting: Tilting closed/closed + Tilting tapes + End rail, fixed, ellipsoidal
Flat slat 60 AF / Flat slat 80 AF	Bearing for slat tilting: Tilting closed/horizontal + Tilting tapes + End rail, fixed, ellipsoidal
Flat slat 100 AF	Bearing for slat tilting: Tilting closed/horizontal + Tilting tapes + End rail, fixed (rectangular)
Windra flat slat 80 WF	Bearing for slat tilting: Tilting closed/horizontal + Tilting tapes + End rail, fixed, ellipsoidal
Dim-out slats 73/90/93	Bearing for slat tilting: Tilting closed/horizontal + Loop cords + End rail, swivelling with clip-on slat
Zetra dim-out slat 80 Z	Bearing for slat tilting: Tilting closed/horizontal + Loop cords + End rail, fixed (with Zetra slat)

Construction limit values

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area	Maximum order width of the group unit	Group unit, maximum order area	Maximum order area of unit coupling	Maximum quantity of unit couplings per side
Basic external venetian blinds								
E 60 A6 S	600 mm	5000 mm	5000 mm	25 m^2	12000 mm	30 m^2	13 m^2	2
E 80 A6 S	600 mm	5000 mm	5000 mm	25 m^2	12000 mm	30 m^2	13 m^2	2
C 60 A6 S	450 mm	5000 mm	5000 mm	12 m^2	12000 mm	12 m^2	12 m^2	2
C 80 A6 S	450 mm	5000 mm	5000 mm	12 m^2	12000 mm	12 m^2	12 m^2	2
E 60 AF A6	600 mm	5000 mm	4000 mm	20 m^2	12000 mm	35 m^2	13 m^2	2
E 80 AF A6	600 mm	5000 mm	4000 mm	20 m^2	12000 mm	35 m^2	13 m^2	2
E 100 AF A6	600 mm	5000 mm	4000 mm	20 m^2	12000 mm	35 m^2	13 m^2	2
C 60 AF A6	450 mm	5000 mm	4000 mm	13 m^2	12000 mm	13 m^2	13 m^2	2
C 80 AF A6	450 mm	5000 mm	4000 mm	13 m^2	12000 mm	13 m^2	13 m^2	2
C 100 AF A6	450 mm	5000 mm	4000 mm	13 m^2	12000 mm	13 m^2	13 m^2	2
E 80 WF A6	600 mm	3000 mm	4000 mm	12 m^2	9000 mm	16 m^2	8 m^2	1
E 80 A6 Z	600 mm	4500 mm	1300 mm	15 m^2	12000 mm	24 m^2	13 m^2	2
E 73 A6	600 mm	4500 mm	4300 mm	15 m^2	12000 mm	24 m^2	13 m^2	2
E 90 A6	600 mm	4500 mm	4300 mm	15 m^2	12000 mm	24 m^2	13 m^2	2
E 93 A6	600 mm	4500 mm	4300 mm	15 m^2	12000 mm	24 m^2	13 m^2	2
C 80 A6 Z	450 mm	4500 mm	4300 mm	10 m^2	12000 mm	10 m^2	10 m^2	2
C 73 A6	450 mm	4500 mm	4300 mm	10 m^2	12000 mm	10 m^2	10 m^2	2
C 90 A6	450 mm	4500 mm	4300 mm	10 m^2	12000 mm	10 m^2	10 m^2	2
C 93 A6	450 mm	4500 mm	4300 mm	10 m^2	12000 mm	10 m^2	10 m^2	2

For basic external venetian blinds, the information on "Minimum order width" and "Maximum order width" always refers to the slat length.

- Slat length with FSCH 25-18 (Type 1), FSCH 25-50 (type 74): dimension of back edge of the guide rail minus 65 mm
- Slat length with FSCH 27-70 (Type 36), FSCH 27-75 (Type 38), FSCH 27-80 (Type 37), FSCH 27-87.5 (Type 32), FSCH 27-95 (Type 31), FSCH 27-109.9 (Type 60), FSCH 27-117 (Type 61), FSCH 27-122.5 (Type 30), FSCH 27-137.5 (Type 39), FSCH 25-28 (Type 23), FSCH 27-45 (Type 70): dimension of back edge of the guide rail minus 70 mm

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances in accordance with the "Guideline for assessing the product features of external venetian blinds" apply.

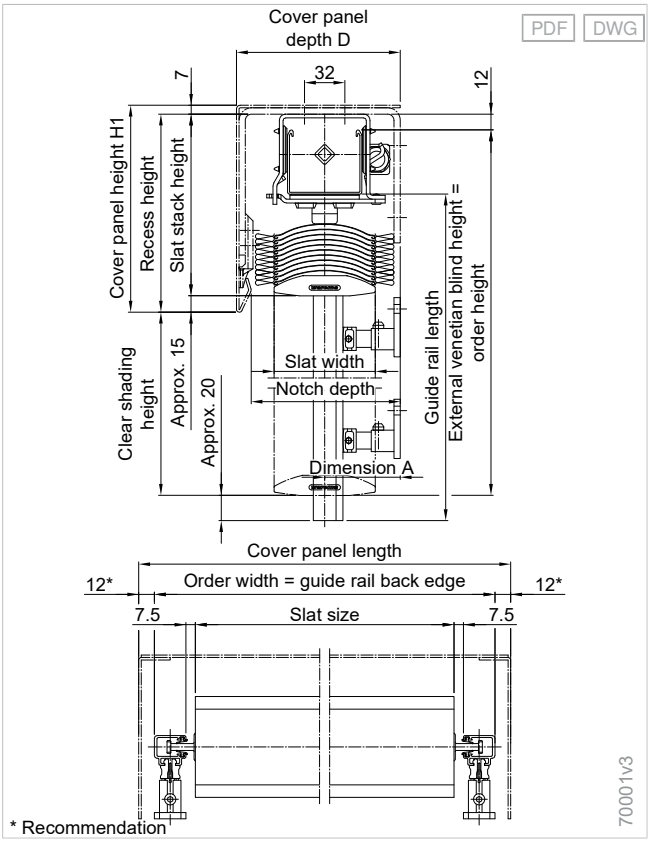
Dimension determination

Configuration view: The order dimensions are determined from interior view, from left to right.

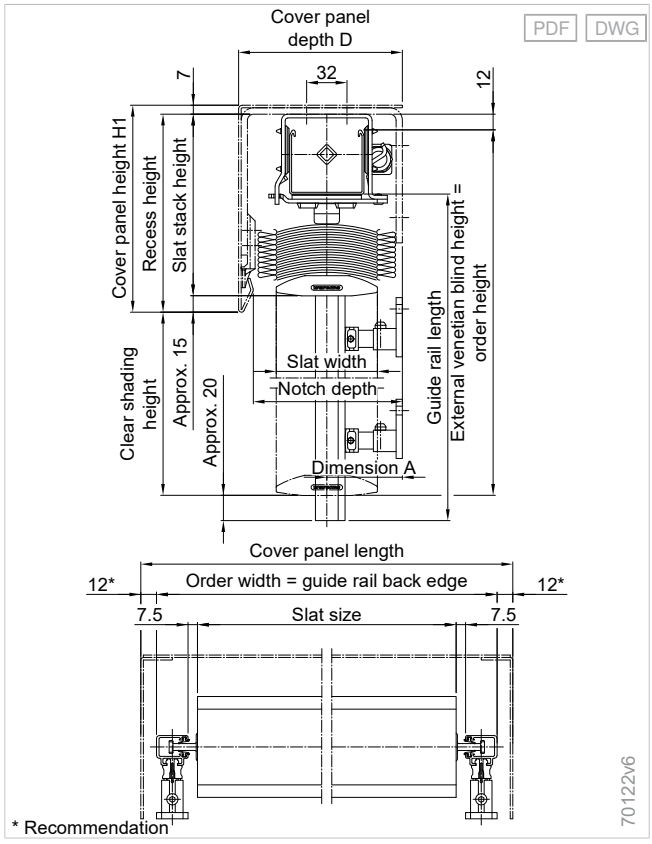
Reference dimension	Value
Slat stack height	See table "Slat stack heights"
Recess height	Slat stack height + 15 mm
Cover panel height H1	Slat stack height + 20 mm
Slat width	60* / 73* / 80** / 90*** / 93*** / 100****
Min. recess depth	Slat width + 40 mm (min. 110 mm)
Min. cover panel order depth	120* / 130** / 140*** / 150****
Min. recess height for dim-out slats	190* / 200** / 205***
Min. cover panel height H1 for dim-out slats 1)	Min. recess height for dim-out slats + 5 mm
Min. cover panel height H1 (round cover panel) for dim-out slats 1)	Min. recess height for dim-out slats + 20 mm

- Beaded slats: The distance from the bottom edge of the top rail to the 1st slat increases to 112 mm from an order height > 2000 mm.
- Dim-out slats: 1) We recommend a minimum cover panel height to ensure overlapping between the bottom edge of the cover panel and the top slat. Background: For dim-out external venetian blinds, the length compensation takes place via the distance between the top slat and the top rail.

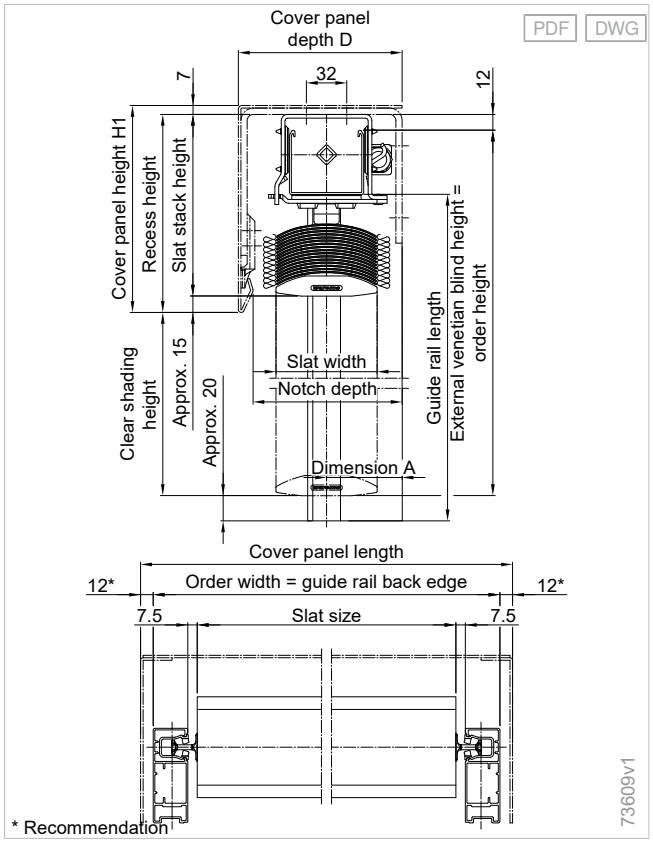
Basic external venetian blinds with rail guidance, angular cover panel, beaded slats



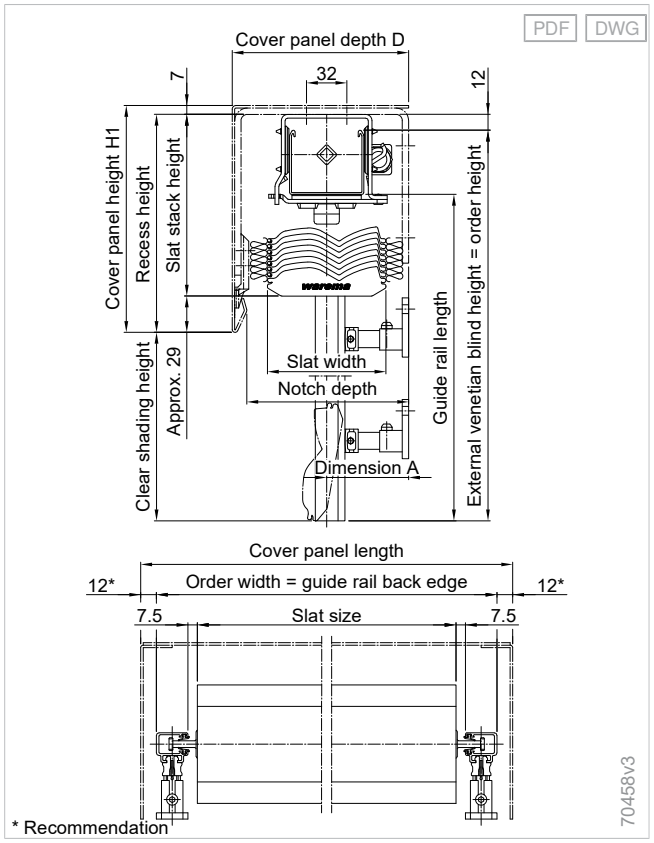
Basic external venetian blinds with rail guidance, angular cover panel, flat slats



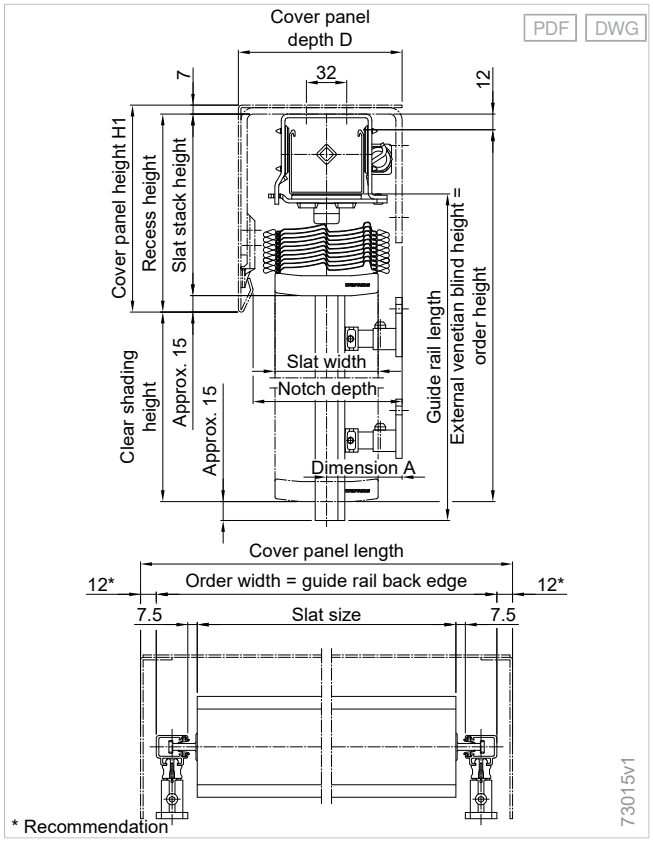
Basic external venetian blinds with rail guidance, angular cover panel, Windra flat slats



Basic external venetian blinds with rail guidance, angular cover panel, dim-out slats size 73, 90, 93



Basic external venetian blinds with rail guidance, angular cover panel, dim-out slats 80 Z



Slat stack height, external venetian blind height

Configuration variants	External venetian blind height [mm] 1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
Basic external venetian blinds												
E 80 A6 S	151	161	171	181	191	201	211	221	231	241	251	261
E 60 A6 S	167	180	193	207	220	233	246	259	273	286	299	312
E 100 AF A6 with eyelets	131	136	141	146	151	157	162	167	172	177	183	188
E 100 AF A6	128	132	137	142	146	151	155	160	165	169	174	178
E 80 AF A6 with eyelets	138	145	151	158	165	172	179	185	192	199	206	213
E 80 AF A6	134	140	146	152	158	164	170	176	182	203	209	215
E 60 AF A6 with eyelets	155	163	172	180	189	197	205	214	222	231	239	247
E 60 AF A6	148	155	161	168	175	182	204	210	217	224	231	238
E 80 WF A6	151	161	171	181	191	201	211	221	231	241	251	261
E 93 A6 / E 90 A6	150	158	166	174	182	190	198	206	214	222	230	238
E 73 A6	162	173	183	194	204	215	226	236	247	257	268	279
E 80 A6 Z	151	161	171	181	191	201	211	221	231	241	251	261

Configuration variants	External venetian blind height [mm] 3400	3600	3800	4000	4200	4300	4400	4600	4800	5000
Basic external venetian blinds										
E 80 A6 S	271	281	291	301	311	316	321	331	341	351
E 60 A6 S	325	339	352	365	378	384	391	405	418	431
E 100 AF A6 with eyelets	193	198	203	209						
E 100 AF A6	198	203	207	212						
E 80 AF A6 with eyelets	219	226	233	240						
E 80 AF A6	221	227	233	239						
E 60 AF A6 with eyelets	256	264	273	281						
E 60 AF A6	244	251	258	265						
E 80 WF A6	271	281	291	301						
E 93 A6 / E 90 A6	246	254	262	270	278	282				
E 73 A6	289	300	310	321	332	337				
E 80 A6 Z	271	281	291	301	311	316				

Slat stack heights are approximate values. For technical reasons, they might be higher or lower.

External venetian blinds with crank drive: The slat stack height is reduced by 20 mm compared to external venetian blinds with motor drive.

External venetian blinds with work setting: The slat stack is 7 mm higher due to lining, art. no. 2012281.

Slat stack height, clear shading height

Configuration variants	Clear shading height [mm] 1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
Basic external venetian blinds												
E 80 A6 S	159	170	180	191	201	212	222	233	243	254	264	275
E 60 A6 S	179	193	207	221	236	250	264	278	292	306	320	334
E 60 AF A6	153	160	167	174	181	204	211	218	225	232	239	246
E 60 AF A6 with eyelets	162	171	179	188	197	206	215	223	232	241	250	258
E 80 AF A6	138	145	151	157	163	169	176	182	203	210	216	222
E 80 AF A6 with eyelets	143	150	157	164	171	178	185	192	199	206	213	220
E 100 AF A6	131	136	140	145	150	154	159	164	169	173	178	198
E 100 AF A6 with eyelets	134	139	145	150	155	161	166	171	177	182	187	193
E 80 WF A6	159	170	180	191	201	212	222	233	243	254	264	275
E 93 A6 / E 90 A6	156	165	173	181	190	198	206	215	223	231	240	248
E 73 A6	171	182	194	205	216	227	238	250	261	272	283	294
E 80 A6 Z	159	170	180	191	201	212	222	233	243	254	264	275

Configuration variants	Clear shading height [mm] 3400	3600	3800	4000	4200	4400	4600
Basic external venetian blinds							
E 80 A6 S	285	296	306	317	328	338	349
E 60 A6 S	349	363	377	391	405	419	433
E 60 AF A6	253	260	267				
E 60 AF A6 with eyelets	267	276	285				
E 80 AF A6	228	234	240				
E 80 AF A6 with eyelets	227	234	241				
E 100 AF A6	203	207	212				
E 100 AF A6 with eyelets	198	203	209				
E 80 WF A6	285	296	306				
E 93 A6 / E 90 A6	256	265	273				
E 73 A6	306	317	328				
E 80 A6 Z	285	296	306				

Slat stack heights are approximate values. For technical reasons, they might be higher or lower.

External venetian blinds with crank drive: The slat stack height is reduced by 20 mm compared to external venetian blinds with motor drive.

External venetian blinds with work setting: The slat stack is 7 mm higher due to lining, art. no. 2012281.

Quantity determination

Number of tapes

Configuration variants	Order height	Slat size	Number	End distance
Beaded slats	0 - 3000 mm	450 - 600 mm	2	85 mm
Beaded slats	0 - 3000 mm	601 - 900 mm	2	115 mm
Beaded slats	0 - 3000 mm	901 - 1100 mm	2	150 mm
Beaded slats	0 - 3000 mm	1101 - 1500 mm	2	250 mm
Beaded slats	0 - 3000 mm	1501 - 2300 mm	3	250 mm
Beaded slats	0 - 3000 mm	2301 - 3200 mm	4	250 mm
Beaded slats	0 - 3000 mm	3201 - 4100 mm	5	250 mm
Beaded slats	0 - 3000 mm	4101 - 5000 mm	6	250 mm
Beaded slats	3001 - 5000 mm	450 - 600 mm	2	85 mm
Beaded slats	3001 - 5000 mm	601 - 900 mm	2	115 mm
Beaded slats	3001 - 5000 mm	901 - 1100 mm	2	150 mm
Beaded slats	3001 - 5000 mm	1101 - 1400 mm	2	250 mm
Beaded slats	3001 - 5000 mm	1401 - 2100 mm	3	250 mm
Beaded slats	3001 - 5000 mm	2101 - 2900 mm	4	250 mm
Beaded slats	3001 - 5000 mm	2901 - 3700 mm	5	250 mm
Beaded slats	3001 - 5000 mm	3701 - 4500 mm	6	250 mm
Beaded slats	3001 - 5000 mm	4501 - 5000 mm	7	250 mm
Flat slats	0 - 4000 mm	450 - 600 mm	2	85 mm
Flat slats	0 - 4000 mm	601 - 900 mm	2	115 mm
Flat slats	0 - 4000 mm	901 - 1000 mm	2	150 mm
Flat slats	0 - 4000 mm	1001 - 1300 mm	2	250 mm
Flat slats	0 - 4000 mm	1301 - 1900 mm	3	250 mm
Flat slats	0 - 4000 mm	1901 - 2600 mm	4	250 mm
Flat slats	0 - 4000 mm	2601 - 3300 mm	5	250 mm
Flat slats	0 - 4000 mm	3301 - 4000 mm	6	250 mm
Flat slats	0 - 4000 mm	4001 - 4700 mm	7	250 mm
Flat slats	0 - 4000 mm	4701 - 5000 mm	8	250 mm
Windra flat slats	0 - 3500 mm	600 - 950 mm	2	85 mm
Windra flat slats	0 - 3500 mm	951 - 1350 mm	3	85 mm
Windra flat slats	0 - 3500 mm	1351 - 1950 mm	4	85 mm
Windra flat slats	0 - 3500 mm	1951 - 2400 mm	5	85 mm
Windra flat slats	0 - 3000 mm	2401 - 3000 mm	6	85 mm
Windra flat slats	3501 - 4000 mm	750 - 950 mm	2	85 mm
Windra flat slats	3501 - 4000 mm	951 - 1200 mm	3	85 mm
Windra flat slats	3501 - 4000 mm	1201 - 1700 mm	4	85 mm
Windra flat slats	3501 - 4000 mm	1701 - 2200 mm	5	85 mm
Windra flat slats	3501 - 4000 mm	2201 - 2600 mm	6	85 mm
Windra flat slats	3501 - 4000 mm	2601 - 3000 mm	7	85 mm
Dim-out slats	0 - 3000 mm	450 - 600 mm	2	85 mm
Dim-out slats	0 - 3000 mm	601 - 900 mm	2	115 mm
Dim-out slats	0 - 3000 mm	901 - 1100 mm	2	150 mm
Dim-out slats	0 - 3000 mm	1101 - 1500 mm	2	250 mm
Dim-out slats	0 - 3000 mm	1501 - 2300 mm	3	250 mm
Dim-out slats	0 - 3000 mm	2301 - 3200 mm	4	250 mm
Dim-out slats	0 - 3000 mm	3201 - 4100 mm	5	250 mm
Dim-out slats	0 - 3000 mm	4101 - 4500 mm	6	250 mm

Configuration variants	Order height	Slat size	Number	End distance
Dim-out slats	3001 - 4300 mm	450 - 600 mm	2	85 mm
Dim-out slats	3001 - 4300 mm	601 - 900 mm	2	115 mm
Dim-out slats	3001 - 4300 mm	901 - 1100 mm	2	150 mm
Dim-out slats	3001 - 4300 mm	1101 - 1400 mm	2	250 mm
Dim-out slats	3001 - 4300 mm	1401 - 2100 mm	3	250 mm
Dim-out slats	3001 - 4300 mm	2101 - 2900 mm	4	250 mm
Dim-out slats	3001 - 4300 mm	2901 - 3700 mm	5	250 mm
Dim-out slats	3001 - 4300 mm	3701 - 4500 mm	6	250 mm
Dim-out slats	3001 - 4300 mm	3701 - 4500 mm	6	250 mm

Minimum end distance: For external venetian blinds with crank drives and lateral gears, maintain a minimum end distance in the top rail:

- For external venetian blinds without work setting: 115 mm
- For external venetian blinds with work setting: 150 mm

Tape distances: The following maximum distances must be maintained between the tapes depending on the slat geometry:

- Beaded slats, dim-out slats: 900 mm
- Flat slats: 700 mm
- Windra flat slats: 600 mm

Number of tension cables

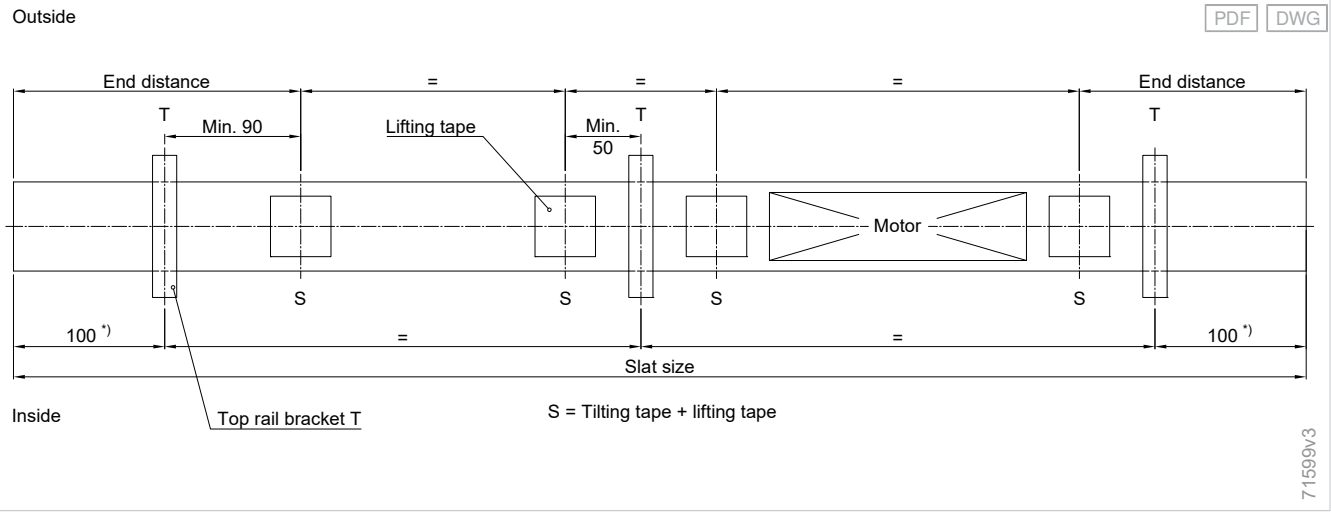
Configuration variants	Slat size	Number
Slat		
Beaded slats	3000 - 5000 mm	1
Flat slats	2400 - 4000 mm	1
Flat slats	4001 - 5000 mm	2
Windra flat slats	2400 - 3000 mm	1

The additional tension cables are **mandatory** for flat slats and Windra flat slats. We recommend using the additional tension cable for beaded slats.

see "Top rail bracket", Page 477

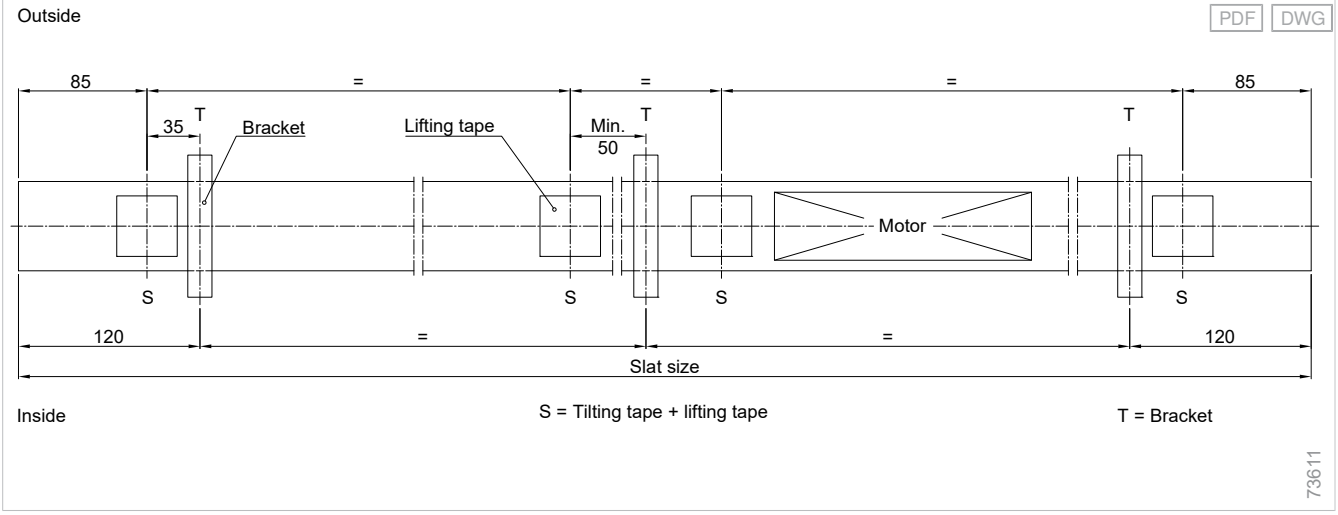
Details

Positioning of bearing and bracket

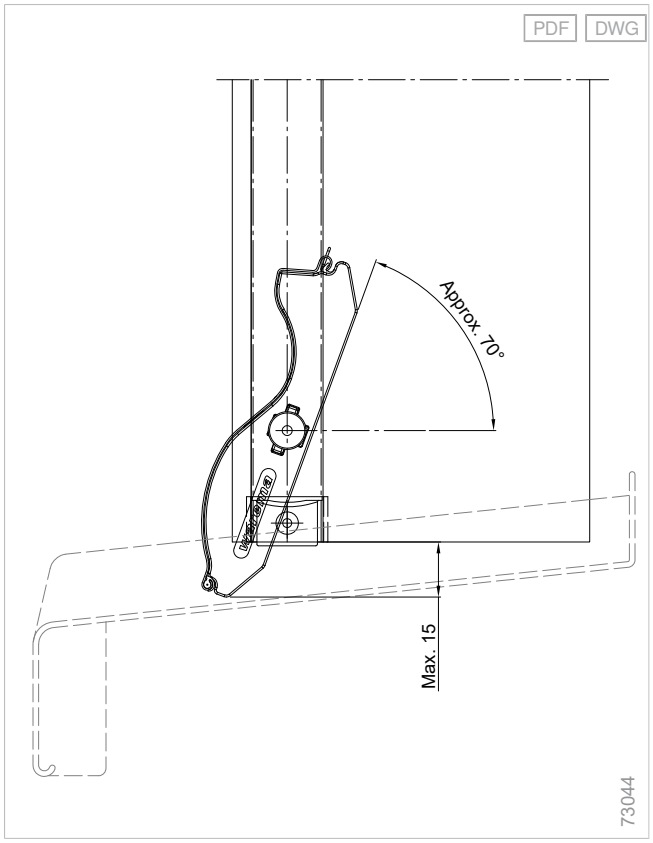


* Valid from slat size 1100 mm, for narrower external venetian blind slats see table "Number of tapes"

Positioning of bearing and bracket for model with Windra flat slats

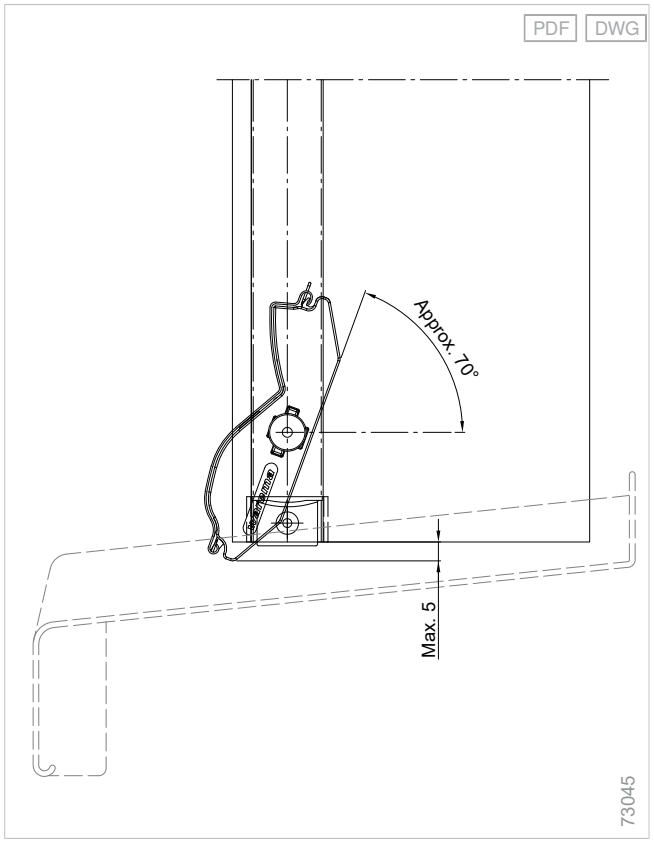


Dim-out slats with tilted end rail (special version for extending the curtain), for size 90 and 93slat



For optimised dim-out in the window sill area.

Dim-out slats with tilted bottom rail (special version for extending the fabric), for size 73 slat

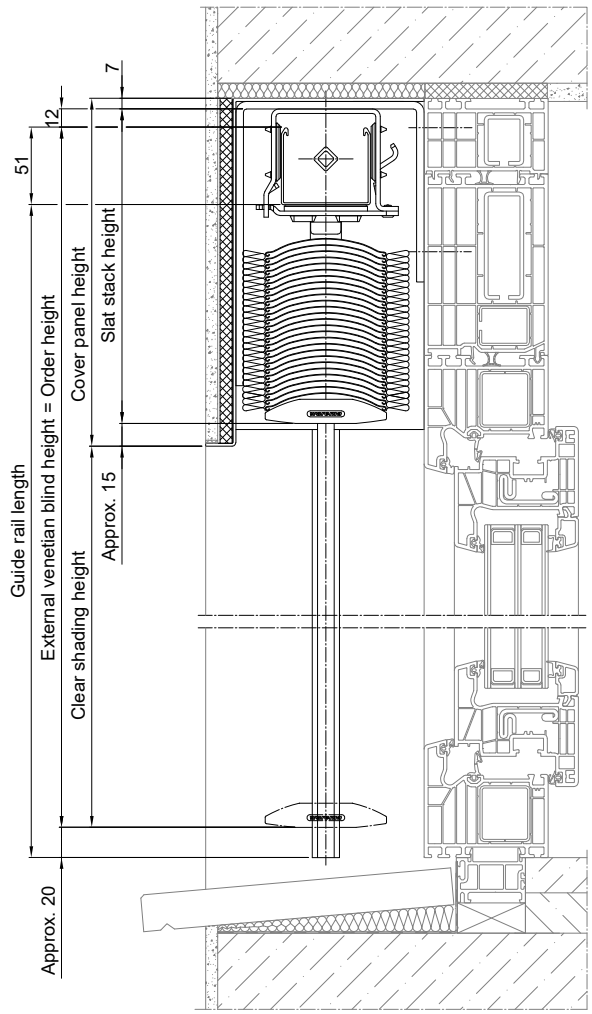


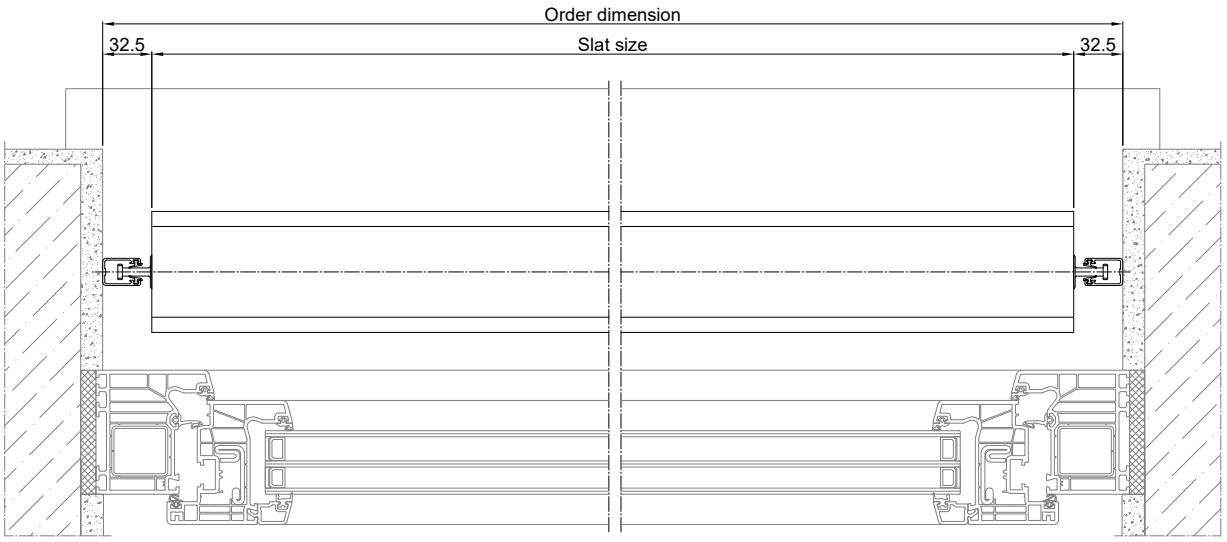
For optimised dim-out in the window sill area.

Mounting examples

Basic external venetian blinds with rail guidance, angular cover panel plaster, beaded slats

PDF DWG

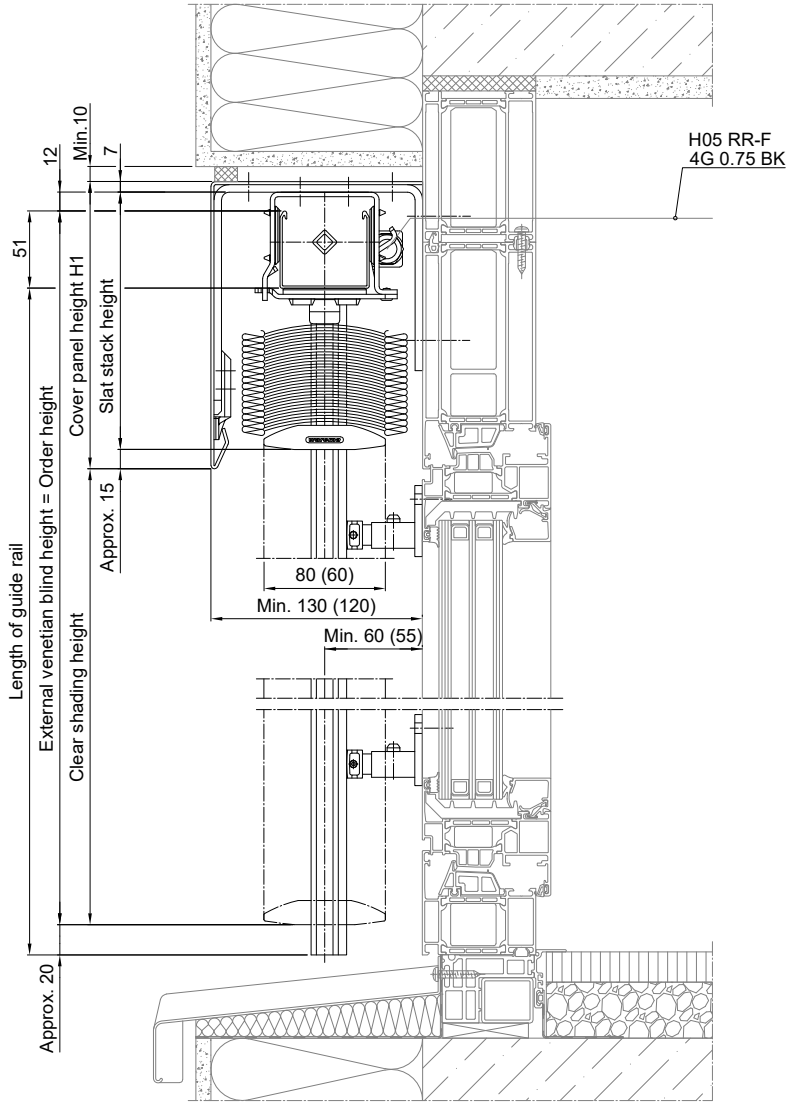


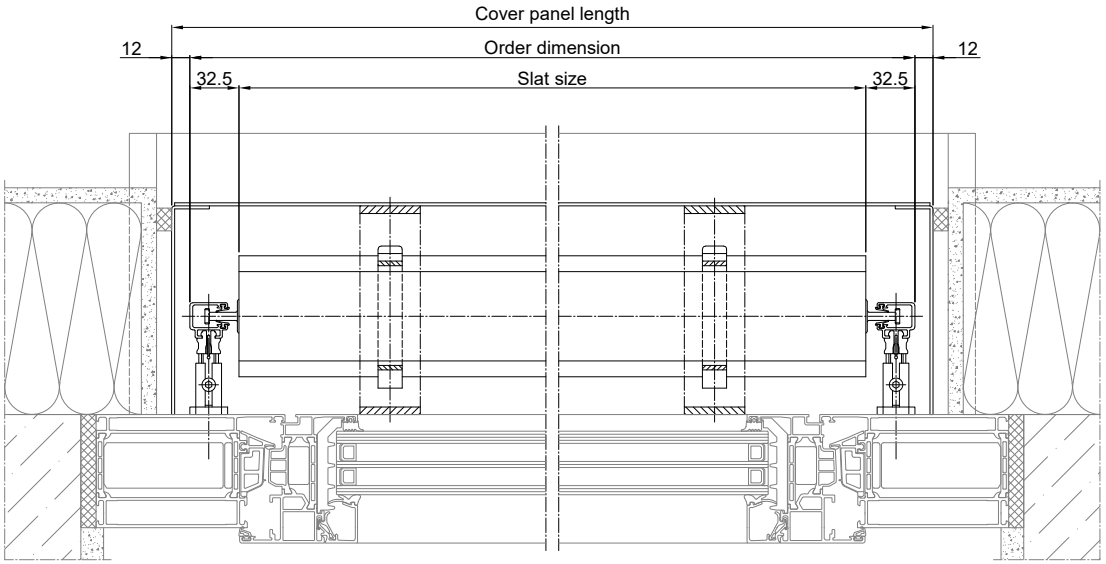


71529v3

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

PDF DWG

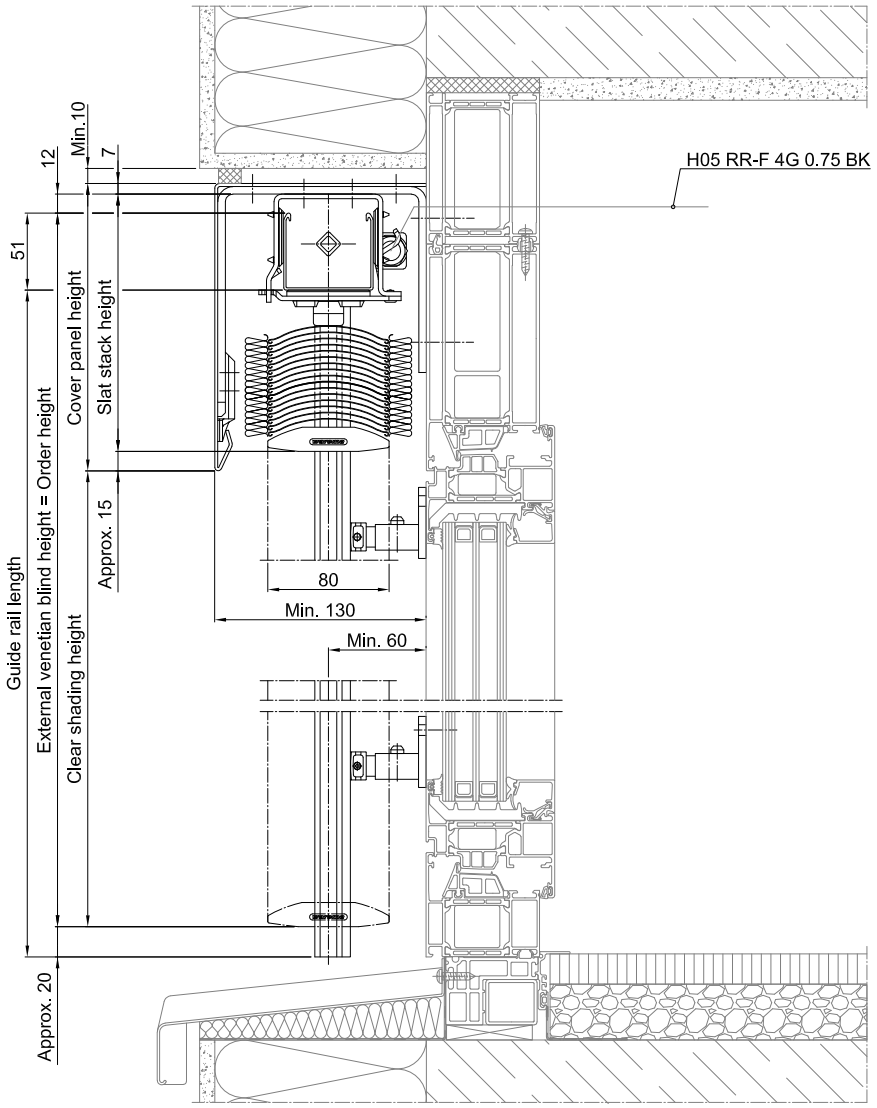


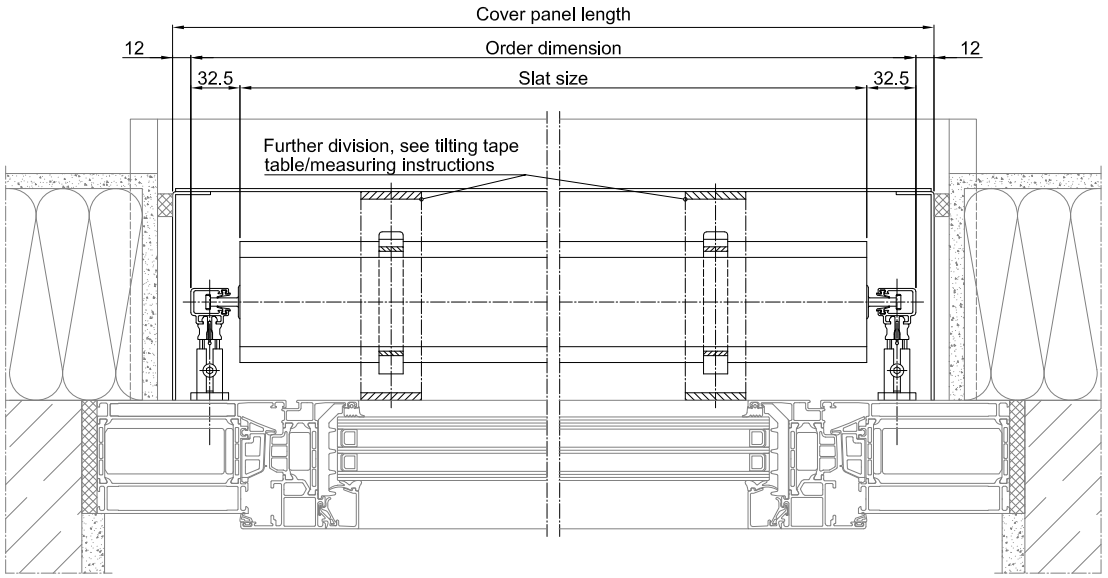


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70119v4

PDF DWG



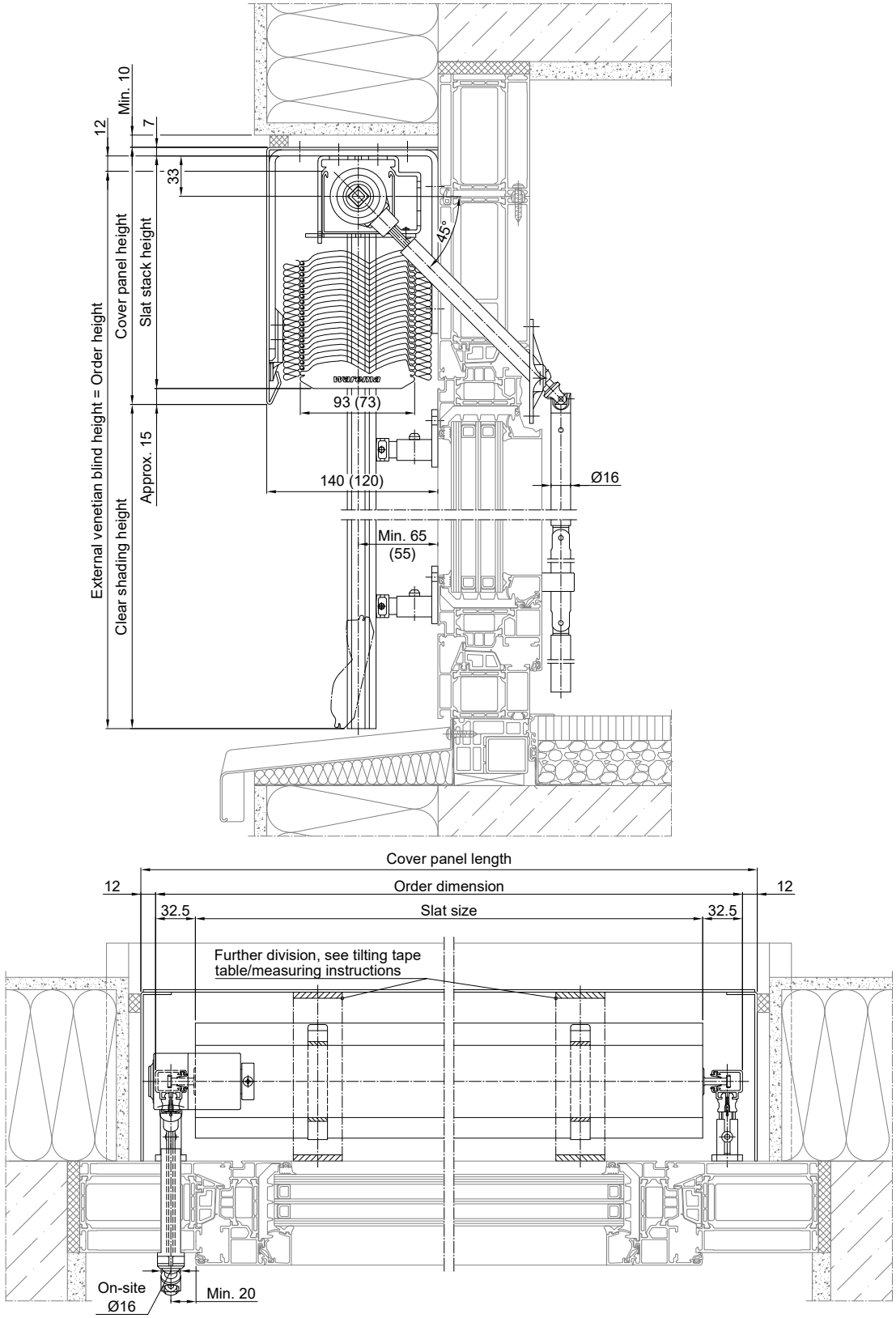


The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

70005v4

Basic external venetian blinds with rail guidance, angular cover panel, dim-out slats size 73 and 93, crank

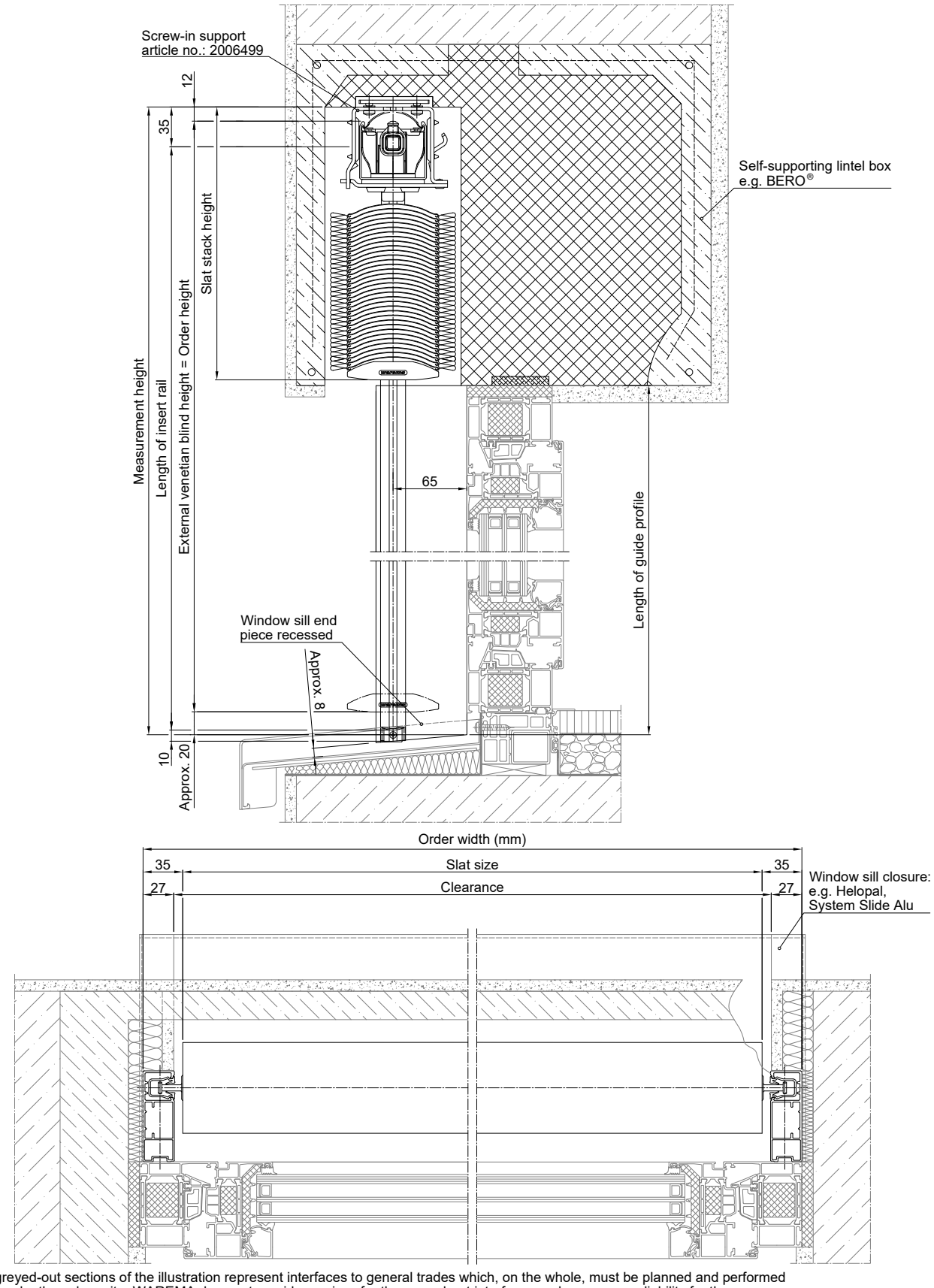
PDF DWG



The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Basic external venetian blinds with rail guidance, installation in on-site lintel box, beaded slats

PDF DWG

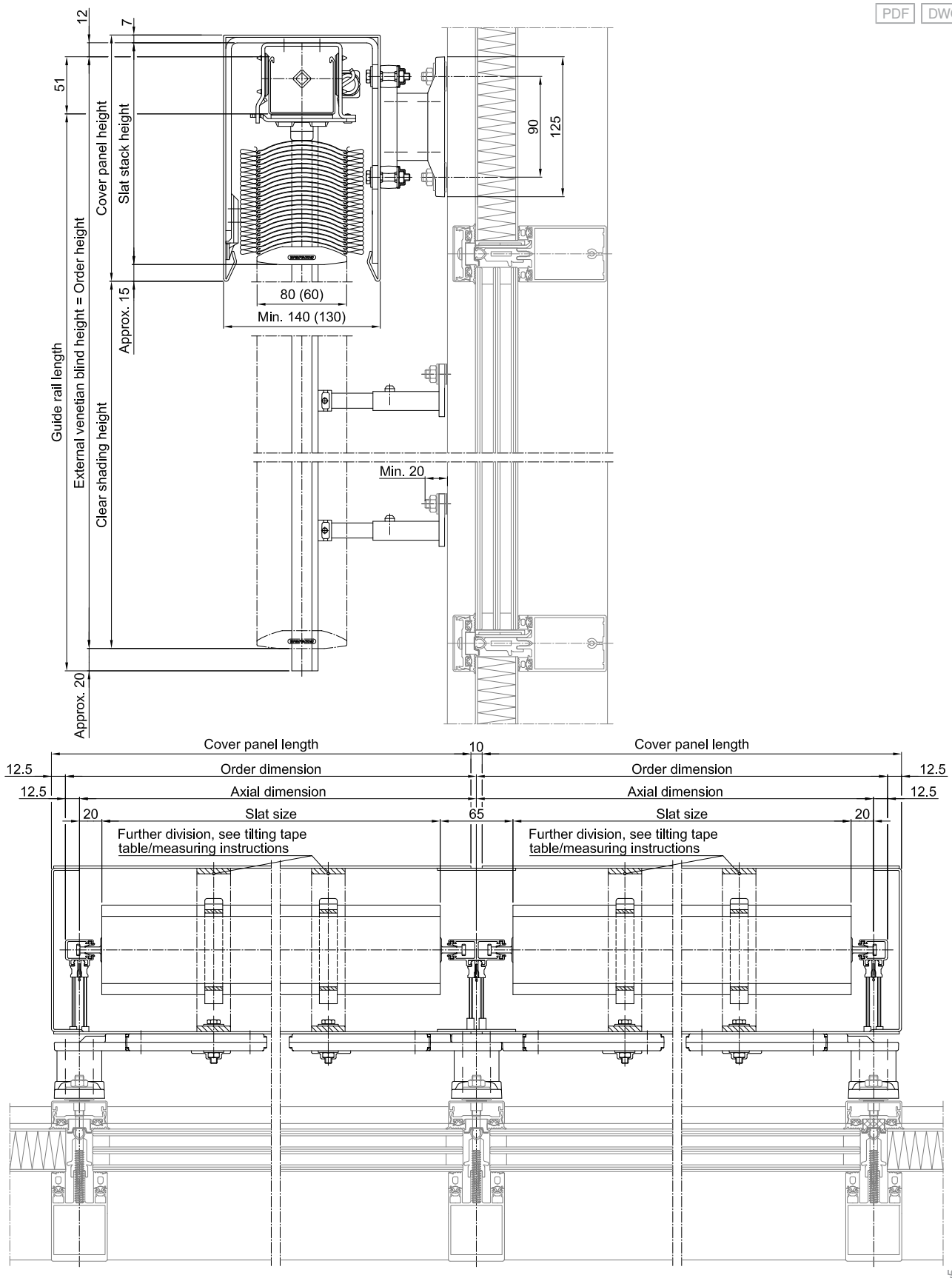


The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

70271v5

Basic external venetian blinds with rail guidance, U-shaped cover panel, beaded slats

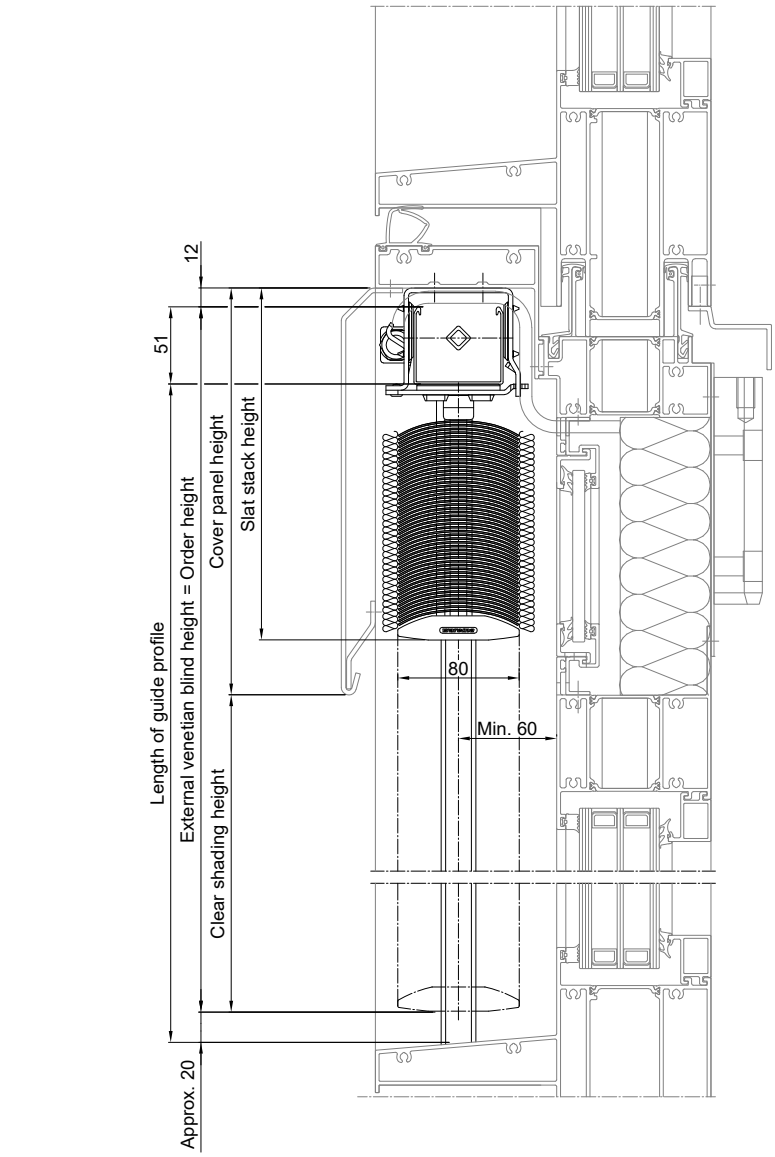
PDF DWG

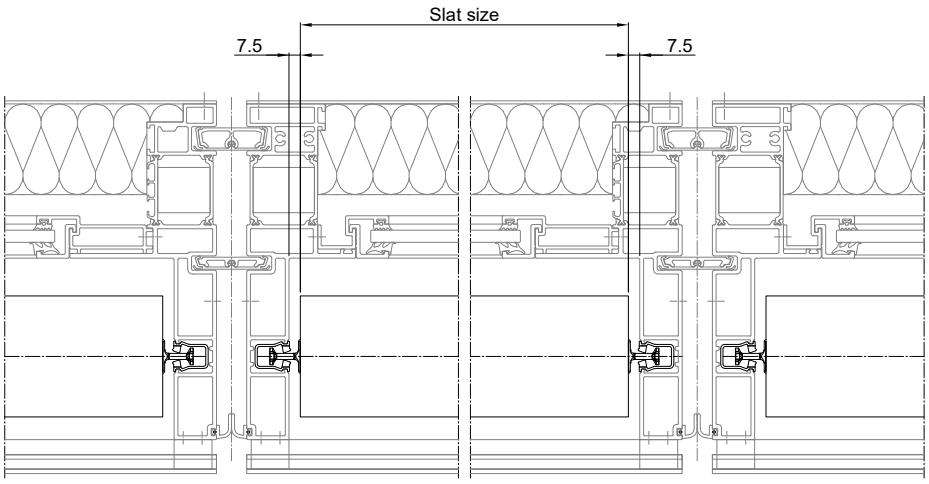


The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Basic external venetian blinds with rail guidance, installation in unitised facade, Windra flat slat, guidance using clip profile in on-site pilaster strips

PDF DWG

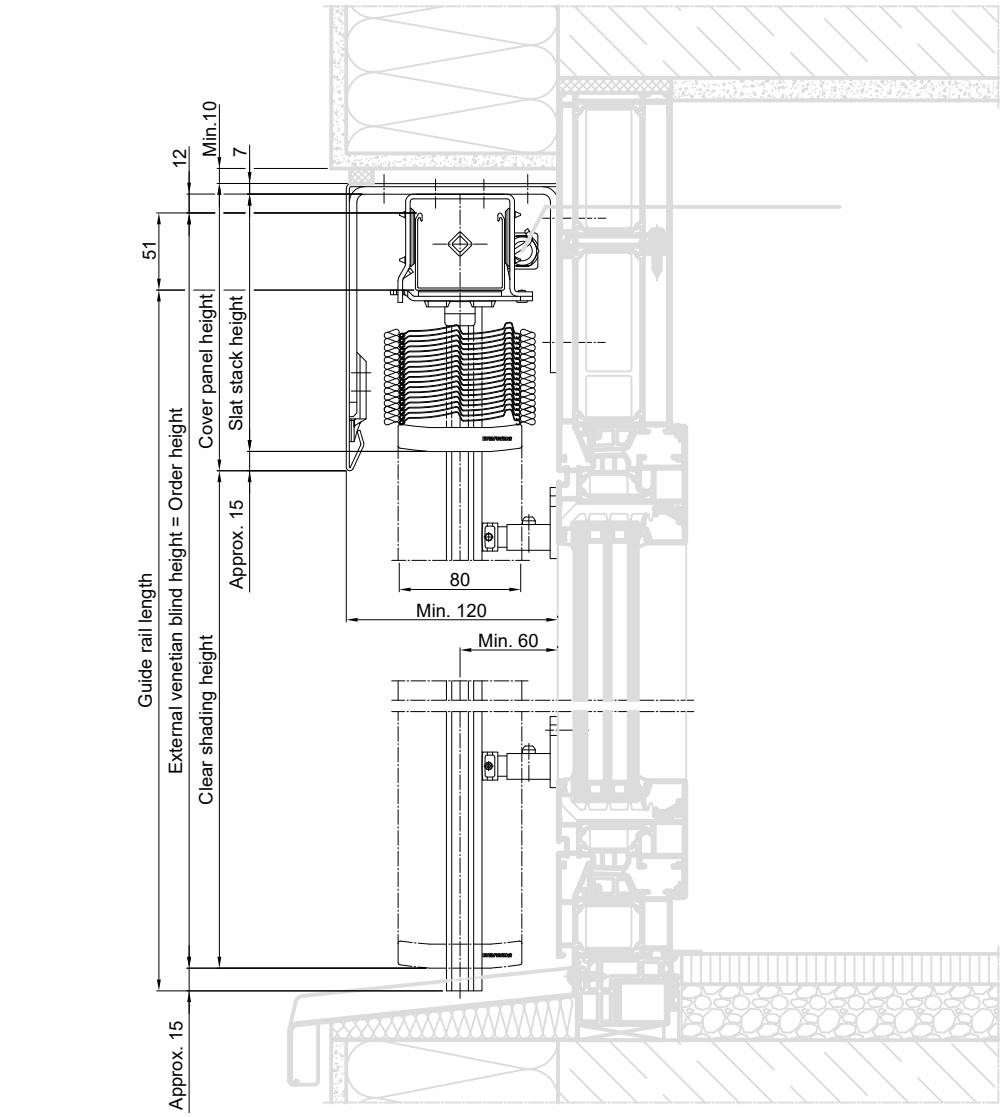


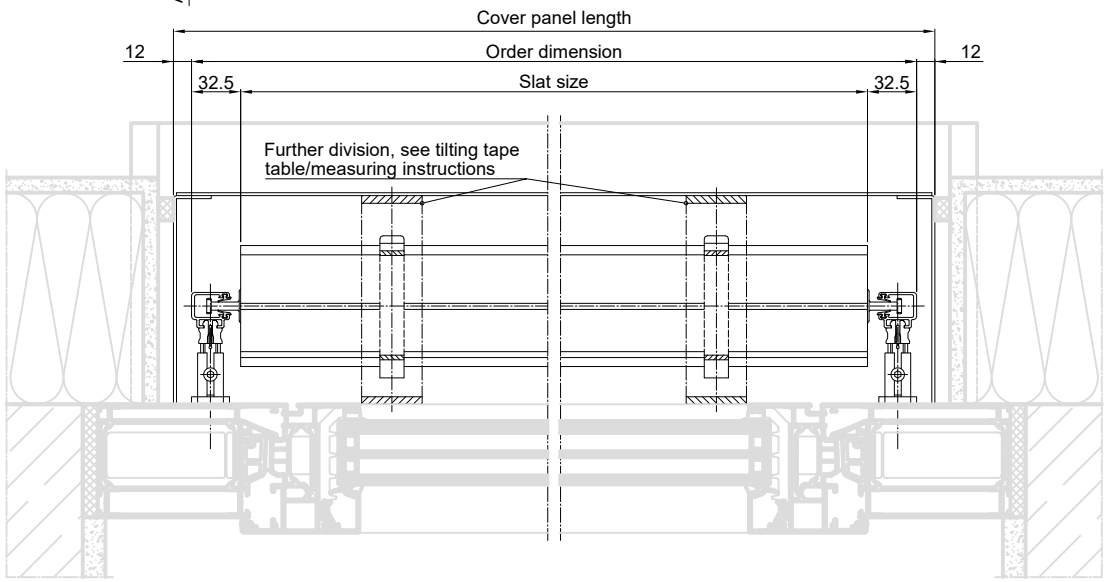


The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

73610

PDF DWG





The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

73025



Basic external venetian blinds

Basic external venetian blinds with cable guidance

Highly flexible

Basic external venetian blinds can be planned uniquely and are easy to integrate into any facade: Thanks to the variable configuration of the individual components, basic external venetian blinds are suited to almost any construction project.

Saves space

Slender and long-lasting: Slats and end rails are guided securely along a tension cable and fastened at the sides with tension cable brackets. The design with cable guidance saves spaces and can be integrated into virtually every facade.

Stable

The lateral guides are fastened with tension cable brackets.

Application-specific

Different external venetian blind slats can be used according to your individual needs: From stack-optimised beaded slats in the classic design to flat slats for a lower slat stack height and dim-out slat to perfectly darken your room.

Weather-protected

Variable protection: Optional aluminium cover panels in various dimensions and shapes protect the slat stack from weather influences and can be individually adapted to your construction situation on site.

Construction limit values

Maximum order width	5000 mm
Maximum order height	4000 mm
Maximum order area	20 m^2
Maximum order width of the group unit	12000 mm

Order here

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Art.-Nr. 2036119

Order form

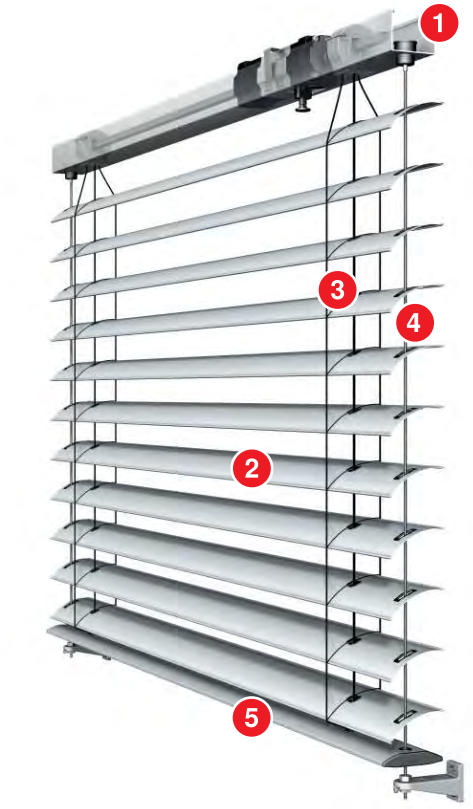
https://docs.warema.com/fi/877896.pdf

WAREMA tools

Dimensions Assistant
Fastener Assistant
Sun Shading Planner

see "Navigating the document", Page 5

Components



1	Top rail (tilt rod, bearing)	4	Lateral guidance
2	Slats	5	End rail
3	Tilting tape, lifting tape		

Top rail

– Top rail

see "Top rail", Page 479

Top rail bracket

– Noise optimised top rail bracket for motor operation

see "Top rail bracket", Page 477

Cover panel, optional

– Visible cover panels
– Cover panels embedded in plaster
– Standardised pre-punched cover panels with bracket

see "Cover panels", Page 410

Bearing

– Bearing for slat tilting: Tilting closed/closed
– Bearing for slat tilting: Tilting closed/horizontal

see "Bearing for slat tilting", Page 358

see "Standard configurations", Page 49

Shaft

– Tilt rod

see "Tilt rod", Page 479

Slat

– Beaded slat 60 S
– Beaded slat 80 S
– Flat slat 60 AF
– Flat slat 80 AF
– Flat slat 100 AF
– Windra flat slat 80 WF
– Dim-out slat 73
– Dim-out slat 90
– Dim-out slat 93

Slat, optional:

– Flat slat 50 AF

see "External venetian blind slats", Page 352

Tape

– Tilting tapes
– Loop cords

see "Standard configurations", Page 49

Lifting tape

– Lifting tape 6 mm

see "Lifting tape 6 mm", Page 479

End rail

– End rail, fixed, ellipsoidal
– End rail, fixed (rectangular)

see "End rails for external venetian blinds", Page 406

see "Standard configurations", Page 49

Guide variants

– Cable guidance

Tension cable

Tension cable, type A2

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

Notes on product configuration:

To prevent components located behind the external venetian blind being damaged by wind load, an additional cable guidance in the centre is mandatory for cable guidance from a defined width of slat, depending on the slats used:

– Beaded slat: Use of an additional tension cable is mandatory for slat sizes > 3000 mm and two additional tension cables for slat sizes > 4000 mm.
– Flat slat: Use of an additional tension cable is mandatory for slat sizes > 3000 mm and two additional tension cables for slat sizes > 4000 mm.
– Windra flat slat: Use of an additional tension cable is mandatory for slat sizes > 2000 mm.
– Dim-out slat: Use of an additional tension cable is mandatory for slat sizes > 3000 mm and two additional tension cables for slat sizes > 4000 mm.

Arrangement of the additional cable guidance: The arrangement must be specified (viewed from inside the room, starting on the left).

Determination of cable length: External venetian blind height + 100 mm

Number of cable guidances: Number depends on the installation situation. For larger facade distances or for installation in the corner area of the facade, additional cable guidances are to be provided.

Windra flat slats and cable guidance configuration variant: Design only permissible with spring tension device and thread end piece. The seat for the thread end piece must be designed for a force per tension cable of 600 N (for example special tension cable bracket SD or SL or threads provided on-site). Required thread reach min. 30 mm.

see "Quantity determination", Page 54

Drive variants

– Motor
– Crank

Motor

– Basic motor for external venetian blinds

Motor optional:

– Super-fast terrace motor (STM)
– Motor with additional collapsible crank ZHK
– Motor with 2 lower limit positions
– Motor with freezing protection
– SMI motor

see "Drive variants", Page 489

Colours

– Slat colours
– WAREMA Colour World
– Anodised C0

Colours, optional:

– Anodised C31
– Anodised C32
– Anodised C33
– Anodised C34
– Anodised C35

see "Colours and finishes", Page 12

see "Colours and surfaces for external venetian blind slats in accordance with current collection", Page 15

Supplementary accessories

– Daylight transport element TLT
– Snap-action switch work setting
– slowturn
– Battery-operated emergency power supply set/battery-operated emergency retraction set
– Battery module UP for external venetian blinds
– Motor with additional collapsible crank ZHK for external venetian blinds
– Emergency power supply kit
– Solar drive for external venetian blinds
– Slat perforation

see "Supplementary accessories", Page 277

Standard configurations

Defined components are used depending on the slat chosen. These components cannot be changed or configured.

Configuration variants	Standard configurations
Slat	
Beaded slats	Bearing for slat tilting: Tilting closed/closed + Tilting tapes + End rail, fixed, ellipsoidal
Flat slat 60 AF / Flat slat 80 AF	Bearing for slat tilting: Tilting closed/horizontal + Tilting tapes + End rail, fixed, ellipsoidal
Flat slat 50 AF / Flat slat 100 AF	Bearing for slat tilting: Tilting closed/horizontal + Tilting tapes + End rail, fixed (rectangular)
Windra flat slat 80 WF	Bearing for slat tilting: Tilting closed/horizontal + Tilting tapes + End rail, fixed, ellipsoidal
Dim-out slats 73/90/93	Bearing for slat tilting: Tilting closed/horizontal + Loop cords + End rail, fixed (rectangular)

Construction limit values

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area	Maximum order width of the group unit	Group unit, maximum order area	Maximum order area of unit coupling	Maximum quantity of unit couplings per side
Basic external venetian blinds								
E 60 A2 S	600 mm	5000 mm	4000 mm	20 m^2	12000 mm	30 m^2	13 m^2	2
E 80 A2 S	600 mm	5000 mm	4000 mm	20 m^2	12000 mm	30 m^2	13 m^2	2
C 60 A2 S	450 mm	5000 mm	4000 mm	12 m^2	12000 mm	12 m^2	12 m^2	2
C 80 A2 S	450 mm	5000 mm	4000 mm	12 m^2	12000 mm	12 m^2	12 m^2	2
E 50 AF A2	600 mm	5000 mm	4000 mm	20 m^2	12000 mm	35 m^2	13 m^2	2
E 60 AF A2	600 mm	5000 mm	4000 mm	20 m^2	12000 mm	35 m^2	13 m^2	2
E 80 AF A2	600 mm	5000 mm	4000 mm	20 m^2	12000 mm	35 m^2	13 m^2	2
E 100 AF A2	600 mm	5000 mm	4000 mm	20 m^2	12000 mm	35 m^2	13 m^2	2
C 50 AF A2	450 mm	5000 mm	4000 mm	13 m^2	12000 mm	13 m^2	13 m^2	2
C 60 AF A2	450 mm	5000 mm	4000 mm	13 m^2	12000 mm	13 m^2	13 m^2	2
C 80 AF A2	450 mm	5000 mm	4000 mm	13 m^2	12000 mm	13 m^2	13 m^2	2
C 100 AF A2	450 mm	5000 mm	4000 mm	13 m^2	12000 mm	13 m^2	13 m^2	2
E 80 WF A2	600 mm	3000 mm	4000 mm	12 m^2	9000 mm	16 m^2	8 m^2	1
E 73 A2	600 mm	4500 mm	4000 mm	15 m^2	12000 mm	24 m^2	13 m^2	2
E 90 A2	600 mm	4500 mm	4000 mm	15 m^2	12000 mm	24 m^2	13 m^2	2
E 93 A2	600 mm	4500 mm	4000 mm	15 m^2	12000 mm	24 m^2	13 m^2	2
C 73 A2	450 mm	4500 mm	4000 mm	10 m^2	12000 mm	10 m^2	10 m^2	2
C 90 A2	450 mm	4500 mm	4000 mm	10 m^2	12000 mm	10 m^2	10 m^2	2
C 93 A2	450 mm	4500 mm	4000 mm	10 m^2	12000 mm	10 m^2	10 m^2	2

For basic external venetian blinds, the information on "Minimum order width" and "Maximum order width" always refers to the slat length.

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances as per the "Guideline for assessing the product features of external venetian blinds" apply.

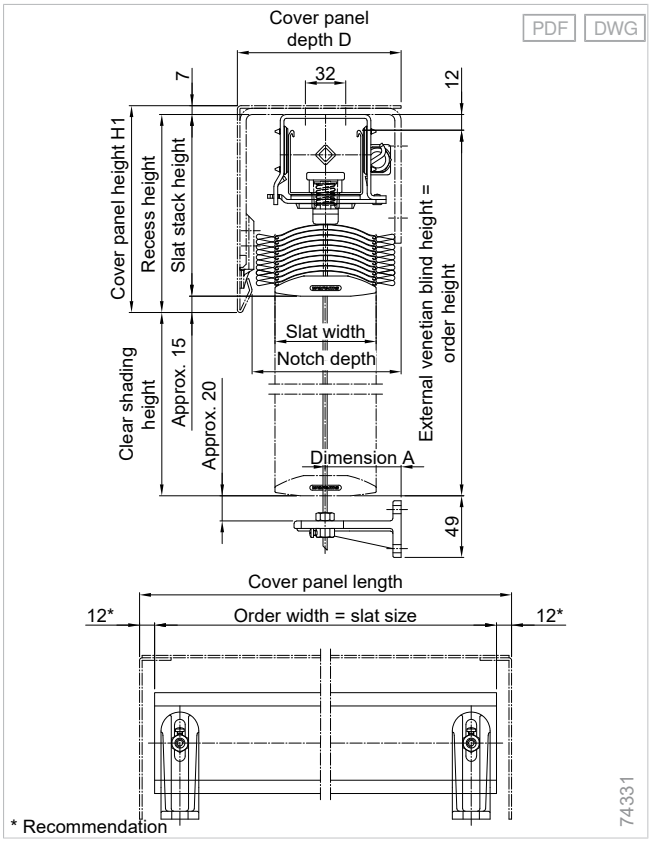
Dimension determination

Configuration view: The order dimensions are determined from interior view, from left to right.

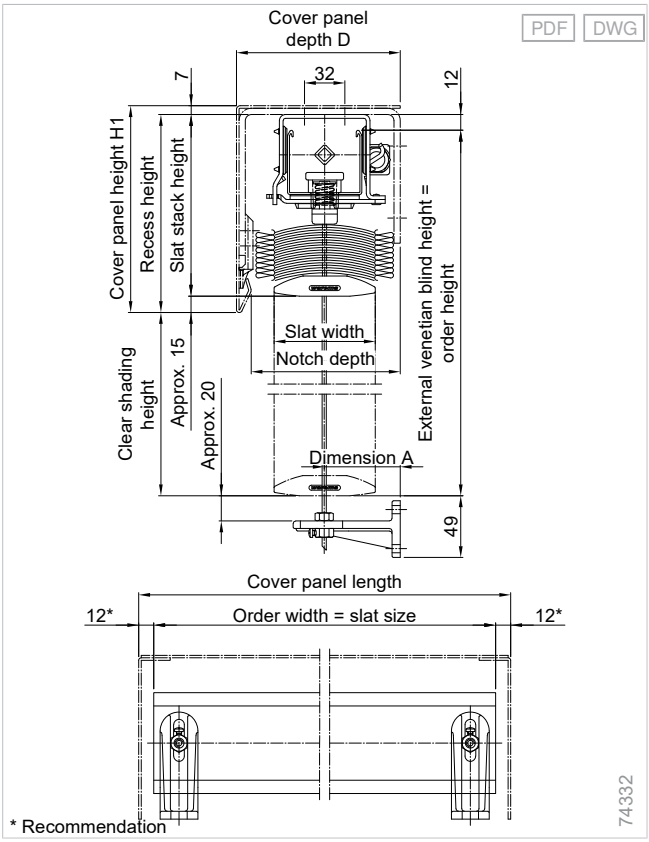
Reference dimension	Value
Slat stack height	See table "Slat stack heights"
Recess height	Slat stack height + 15 mm
Cover panel height H1	Slat stack height + 20 mm
Slat width	50* / 60* / 73* / 80** / 90*** / 93*** / 100****
Min. recess depth	Slat width + 40 mm (min. 110 mm)
Min. cover panel depth T	120* / 130** / 140*** / 150****
Min. recess height for dim-out slats	190* / 205***
Min. cover panel height H1 for dim-out slats 1)	Min. recess height for dim-out slats + 5 mm
Min. cover panel height H1 (round cover panel) for dim-out slats 1	Min. recess height for dim-out slats + 20 mm

- Beaded slats: The distance from the bottom edge of the top rail to the 1st slat increases to 112 mm from an order height > 2000 mm.
- Dim-out slats: 1) We recommend a minimum cover panel height to ensure overlapping between the bottom edge of the cover panel and the top slat. Background: For dim-out external venetian blinds, the length compensation takes place via the distance between the top slat and the top rail.

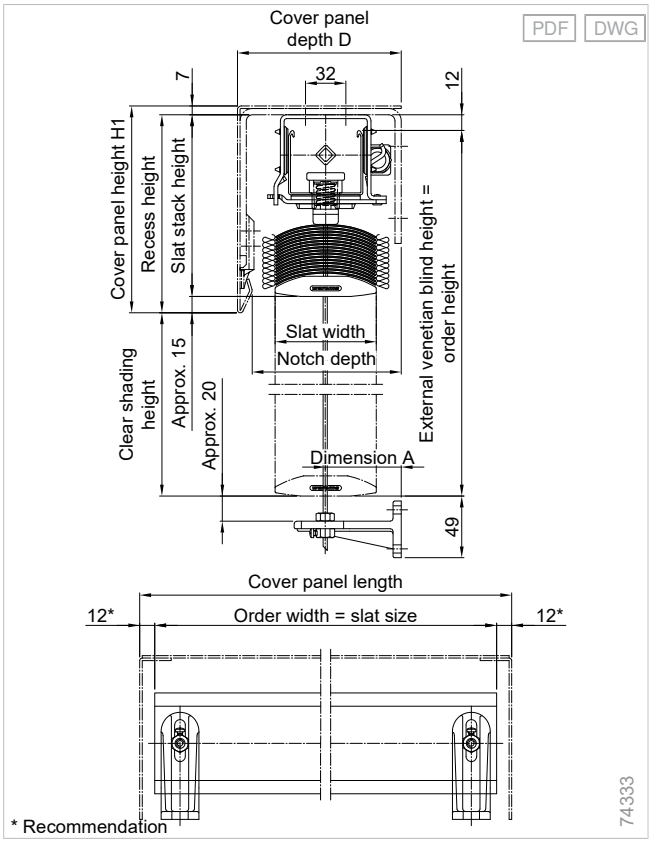
Basic external venetian blinds with cable guidance, angular cover panel, beaded slats



Basic external venetian blinds with cable guidance, angular cover panel, flat slats

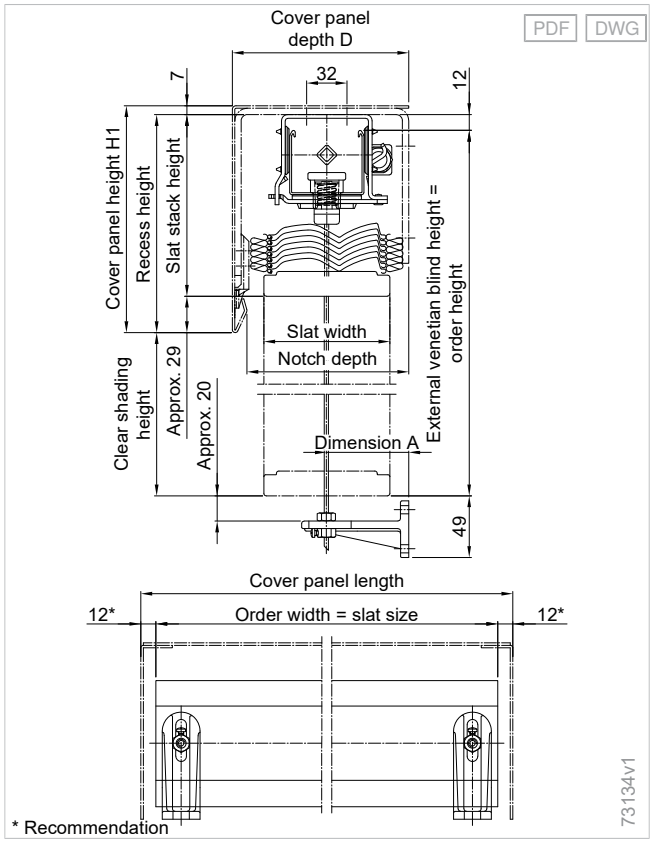


Basic external venetian blinds with cable guidance, angular cover panel, Windra flat slats



* Recommendation

Basic external venetian blinds with cable guidance, angular cover panel, dim-out slats size 73, 90, 93



* Recommendation

Slat stack height, external venetian blind height

Configuration variants	External venetian blind height [mm] 1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
Basic external venetian blinds												
E 80 A2 S	151	161	171	181	191	201	211	221	231	241	251	261
E 60 A2 S	167	180	193	207	220	233	246	259	273	286	299	312
E 100 AF A2 with eyelets	131	136	141	145	150	155	160	165	169	174	179	184
E 100 AF A2	128	132	136	141	145	149	153	157	162	166	170	174
E 80 AF A2 with eyelets	134	139	145	150	156	161	166	172	177	183	188	193
E 80 AF A2	129	133	138	142	147	151	155	160	164	169	173	177
E 60 AF A2 with eyelets	152	159	166	173	180	187	194	201	208	215	222	229
E 60 AF A2	148	154	160	167	173	179	185	191	198	204	210	216
E 50 AF A2 with eyelets	156	166	176	185	195	205	215	225	234	244	254	264
E 50 AF A2	141	148	155	161	168	175	182	189	195	202	209	216
E 80 WF A2	151	161	171	181	191	201	211	221	231	241	251	261
E 73 A2	166	177	187	198	208	219	230	240	251	261	272	283
E 93 A2 / E 90 A2	154	162	170	178	186	194	202	210	218	226	234	242

Configuration variants	External venetian blind height [mm] 3400	3600	3800	4000	4200	4400	4600	4800	5000
Basic external venetian blinds									
E 80 A2 S	271	281	291	301	311	321	331	341	351
E 60 A2 S	325	339	352	365	378	391	405	418	431
E 100 AF A2 with eyelets	189	193	198	203					
E 100 AF A2	178	183	187	191					
E 80 AF A2 with eyelets	199	204	210	215					
E 80 AF A2	182	186	191	195					
E 60 AF A2 with eyelets	236	243	250	257					
E 60 AF A2	222	229	235	241					
E 50 AF A2 with eyelets	274	283	293	303					
E 50 AF A2	223	229	236	243					
E 80 WF A2	271	281	291	301					
E 73 A2	293	304	314	325					
E 93 A2 / E 90 A2	250	258	266	274					

Slat stack heights are approximate values. For technical reasons, they might be higher or lower.

External venetian blinds with crank drive: The slat stack height is reduced by 20 mm compared to external venetian blinds with motor drive.

External venetian blinds with work setting: The slat stack is 7 mm higher due to lining, art. no. 2012281.

Slat stack height, clear shading height

Configuration variants	Clear shading height [mm] 1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200
Basic external venetian blinds												
E 80 A2 S	159	170	180	191	201	212	222	233	243	254	264	275
E 60 A2 S	179	193	207	221	236	250	264	278	292	306	320	334
E 100 AF A2 with eyelets	134	139	144	149	154	159	164	169	174	179	183	188
E 100 AF A2	131	135	139	144	148	152	157	161	165	169	174	178
E 80 AF A2 with eyelets	138	143	149	154	160	166	171	177	182	188	193	199
E 80 AF A2	132	136	141	145	150	154	159	163	168	172	177	181
E 60 AF A2 with eyelets	158	165	172	179	187	194	201	208	216	223	230	237
E 60 AF A2	153	159	166	172	178	185	191	198	204	210	217	223
E 50 AF A2 with eyelets	164	174	185	195	205	216	226	236	247	257	267	278
E 50 AF A2	146	153	160	167	174	181	188	195	202	209	216	224
E 80 WF A2	159	170	180	191	201	212	222	233	243	254	264	275
E 73 A2	175	187	198	209	220	231	243	254	265	276	287	299
E 93 A2 / E 90 A2	161	169	177	186	194	202	211	219	227	236	244	252

Configuration variants	Clear shading height [mm] 3400	3600	3800	4000	4200	4400	4600
Basic external venetian blinds							
E 80 A2 S	285	296	306	317	328	338	349
E 60 A2 S	349	363	377	391	405	419	433
E 100 AF A2 with eyelets	193	198	203				
E 100 AF A2	182	187	191				
E 80 AF A2 with eyelets	204	210	215				
E 80 AF A2	186	190	195				
E 60 AF A2 with eyelets	245	252	259				
E 60 AF A2	230	236	242				
E 50 AF A2 with eyelets	288	298	308				
E 50 AF A2	231	238	245				
E 80 WF A2	285	296	306				
E 73 A2	310	321	332				
E 93 A2 / E 90 A2	261	269	277				

Slat stack heights are approximate values. For technical reasons, they might be higher or lower.

External venetian blinds with crank drive: The slat stack height is reduced by 20 mm compared to external venetian blinds with motor drive.

External venetian blinds with work setting: The slat stack is 7 mm higher due to lining, art. no. 2012281.

Quantity determination

Number of tapes

Configuration variants	Order height	Slat size	Number	End distance
Slat				
Beaded slats	0 - 3000 mm	450 - 600 mm	2	85 mm
Beaded slats	0 - 3000 mm	601 - 900 mm	2	115 mm
Beaded slats	0 - 3000 mm	901 - 1100 mm	2	150 mm
Beaded slats	0 - 3000 mm	1101 - 1500 mm	2	250 mm
Beaded slats	0 - 3000 mm	1501 - 2300 mm	3	250 mm
Beaded slats	0 - 3000 mm	2301 - 3200 mm	4	250 mm
Beaded slats	0 - 3000 mm	3201 - 4100 mm	5	250 mm
Beaded slats	0 - 3000 mm	4101 - 5000 mm	6	250 mm
Beaded slats	3001 - 4000 mm	450 - 600 mm	2	85 mm
Beaded slats	3001 - 4000 mm	601 - 900 mm	2	115 mm
Beaded slats	3001 - 4000 mm	901 - 1100 mm	2	150 mm
Beaded slats	3001 - 4000 mm	1101 - 1400 mm	2	250 mm
Beaded slats	3001 - 4000 mm	1401 - 2100 mm	3	250 mm
Beaded slats	3001 - 4000 mm	2101 - 2900 mm	4	250 mm
Beaded slats	3001 - 4000 mm	2901 - 3700 mm	5	250 mm
Beaded slats	3001 - 4000 mm	3701 - 4500 mm	6	250 mm
Beaded slats	3001 - 4000 mm	4501 - 5000 mm	7	250 mm
Flat slats	0 - 4000 mm	450 - 600 mm	2	85 mm
Flat slats	0 - 4000 mm	601 - 900 mm	2	115 mm
Flat slats	0 - 4000 mm	901 - 1000 mm	2	150 mm
Flat slats	0 - 4000 mm	1001 - 1300 mm	2	250 mm
Flat slats	0 - 4000 mm	1301 - 1900 mm	3	250 mm
Flat slats	0 - 4000 mm	1901 - 2600 mm	4	250 mm
Flat slats	0 - 4000 mm	2601 - 3300 mm	5	250 mm
Flat slats	0 - 4000 mm	3301 - 4000 mm	6	250 mm
Flat slats	0 - 4000 mm	4001 - 4700 mm	7	250 mm
Flat slats	0 - 4000 mm	4701 - 5000 mm	8	250 mm
Windra flat slats	0 - 3500 mm	600 - 950 mm	2	85 mm
Windra flat slats	0 - 3500 mm	951 - 1350 mm	3	85 mm
Windra flat slats	0 - 3500 mm	1351 - 1950 mm	4	85 mm
Windra flat slats	0 - 3500 mm	1951 - 2400 mm	5	85 mm
Windra flat slats	0 - 3500 mm	2401 - 3000 mm	6	85 mm
Windra flat slats	3501 - 4000 mm	750 - 950 mm	2	85 mm
Windra flat slats	3501 - 4000 mm	951 - 1200 mm	3	85 mm
Windra flat slats	3501 - 4000 mm	1201 - 1700 mm	4	85 mm
Windra flat slats	3501 - 4000 mm	1701 - 2200 mm	5	85 mm
Windra flat slats	3501 - 4000 mm	2201 - 2600 mm	6	85 mm
Windra flat slats	3501 - 4000 mm	2601 - 3000 mm	7	85 mm
Dim-out slats	0 - 3000 mm	450 - 600 mm	2	85 mm
Dim-out slats	0 - 3000 mm	601 - 900 mm	2	115 mm
Dim-out slats	0 - 3000 mm	901 - 1100 mm	2	150 mm
Dim-out slats	0 - 3000 mm	1101 - 1500 mm	2	250 mm
Dim-out slats	0 - 3000 mm	1501 - 2300 mm	3	250 mm
Dim-out slats	0 - 3000 mm	2301 - 3200 mm	4	250 mm
Dim-out slats	0 - 3000 mm	3201 - 4100 mm	5	250 mm

Configuration variants	Order height	Slat size	Number	End distance
Dim-out slats	0 - 3000 mm	4101 - 4500 mm	6	250 mm
Dim-out slats	3001 - 4000 mm	450 - 600 mm	2	85 mm
Dim-out slats	3001 - 4000 mm	601 - 900 mm	2	115 mm
Dim-out slats	3001 - 4000 mm	901 - 1100 mm	2	150 mm
Dim-out slats	3001 - 4000 mm	1101 - 1400 mm	2	250 mm
Dim-out slats	3001 - 4000 mm	1401 - 2100 mm	3	250 mm
Dim-out slats	3001 - 4000 mm	2101 - 2900 mm	4	250 mm
Dim-out slats	3001 - 4000 mm	2901 - 3700 mm	5	250 mm
Dim-out slats	3001 - 4000 mm	3701 - 4500 mm	6	250 mm
Dim-out slats	3001 - 4000 mm	3701 - 4500 mm	6	250 mm

Minimum end distance: For external venetian blinds with crank drives and lateral gears, maintain a minimum end distance in the top rail:

- For external venetian blinds without work setting: 115 mm
- For external venetian blinds with work setting: 150 mm

Tape distances: The following maximum distances must be maintained between the tapes depending on the slat geometry:

- Beaded slats, dim-out slats: 900 mm
- Flat slats: 700 mm
- Windra flat slats: 600 mm

Number of tension cables

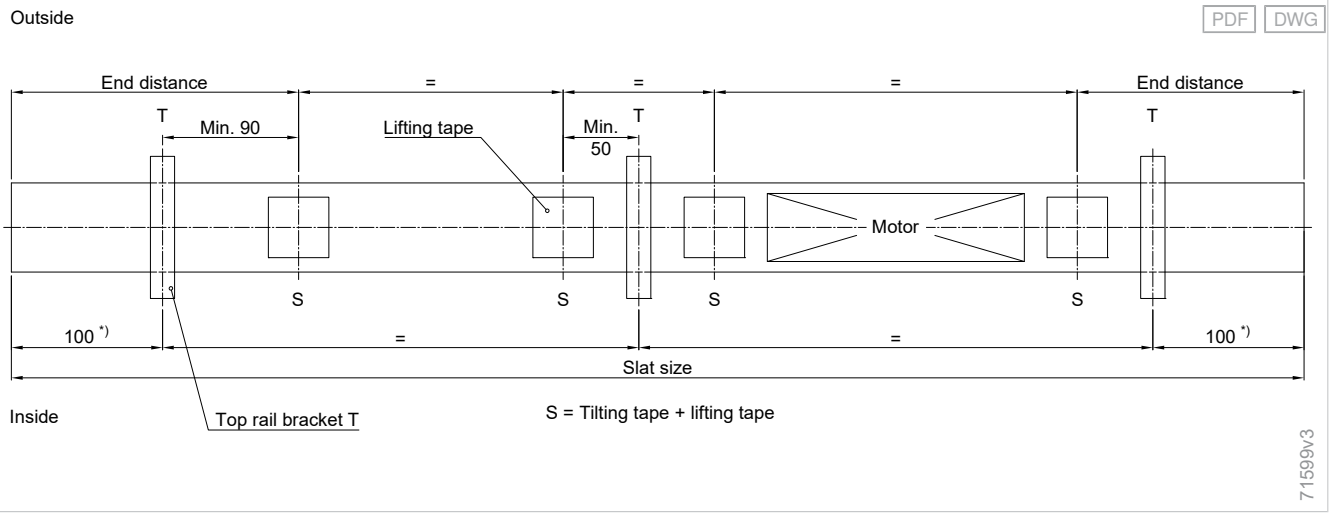
Configuration variants	Slat size	Number
Slat		
Beaded slats / Flat slats / Dim-out slats	0 - 3000 mm	2
Beaded slats / Flat slats / Dim-out slats	3001 - 4000 mm	3
Beaded slats / Flat slats / Dim-out slats	4001 - 5000 mm	4
Windra flat slats	0 - 2000 mm	2
Windra flat slats	2001 - 3000 mm	3

The number corresponds to the total number of tension cables, which are **strictly necessary**.

see "Top rail bracket", Page 477

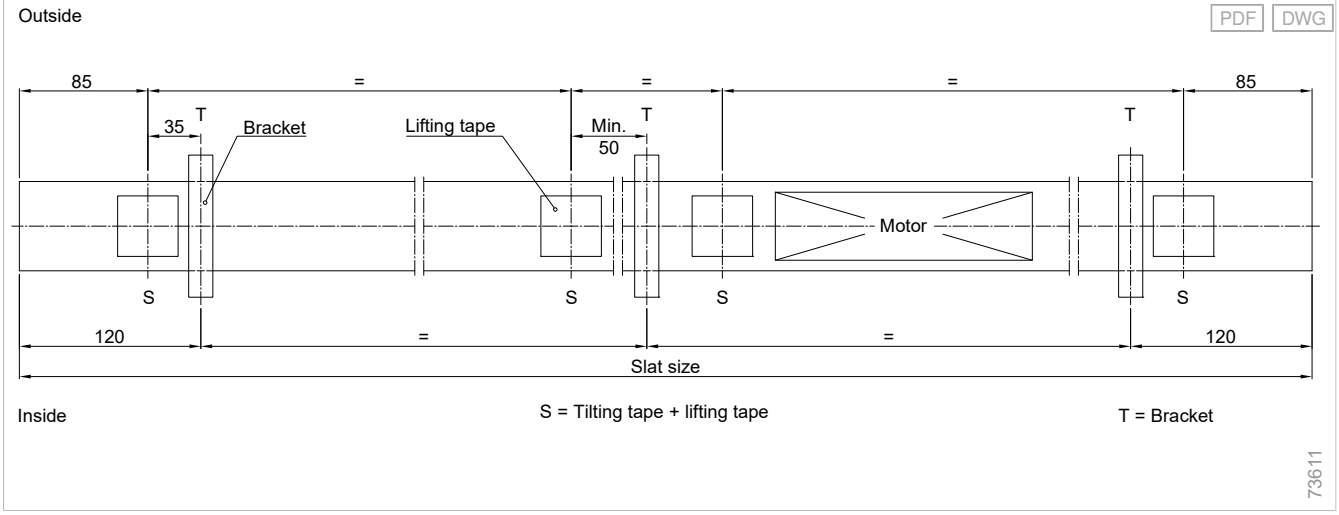
Details

Positioning of bearing and bracket



* Valid from slat size 1100 mm, for narrower external venetian blind slats see table "Number of tapes"

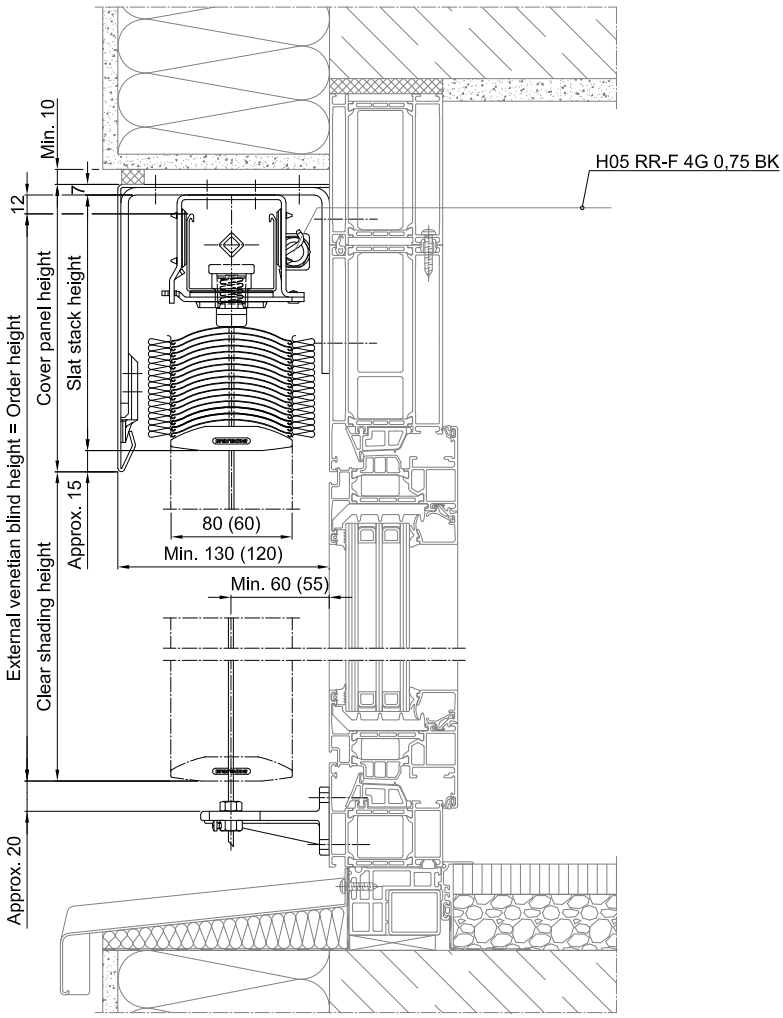
Positioning of bearing and bracket for model with Windra flat slats

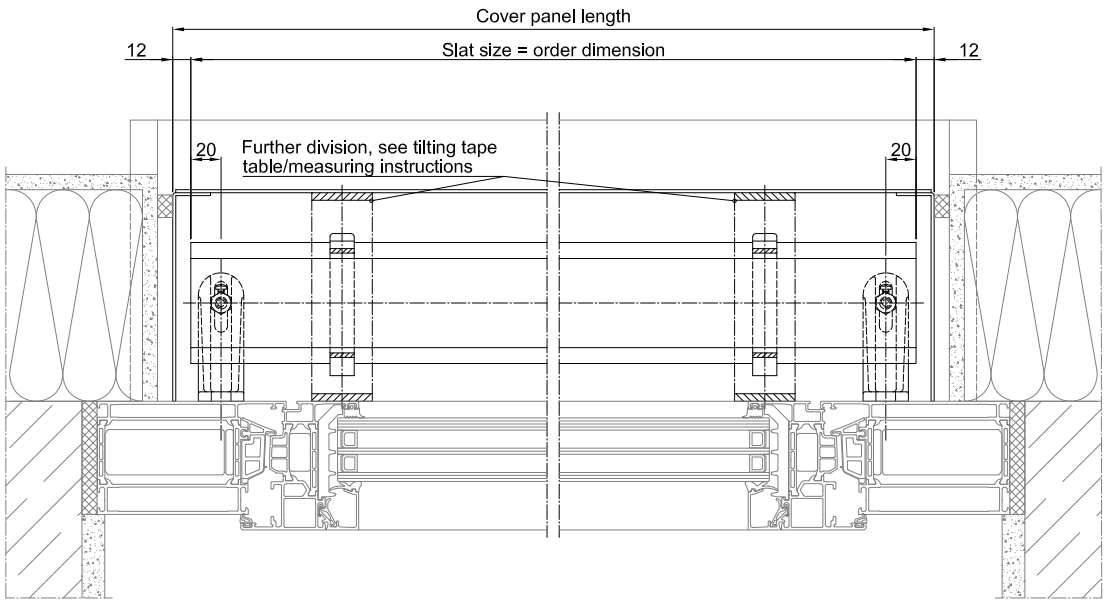


Mounting examples

Basic external venetian blinds with cable guidance, angular cover panel, beaded slats

PDF DWG



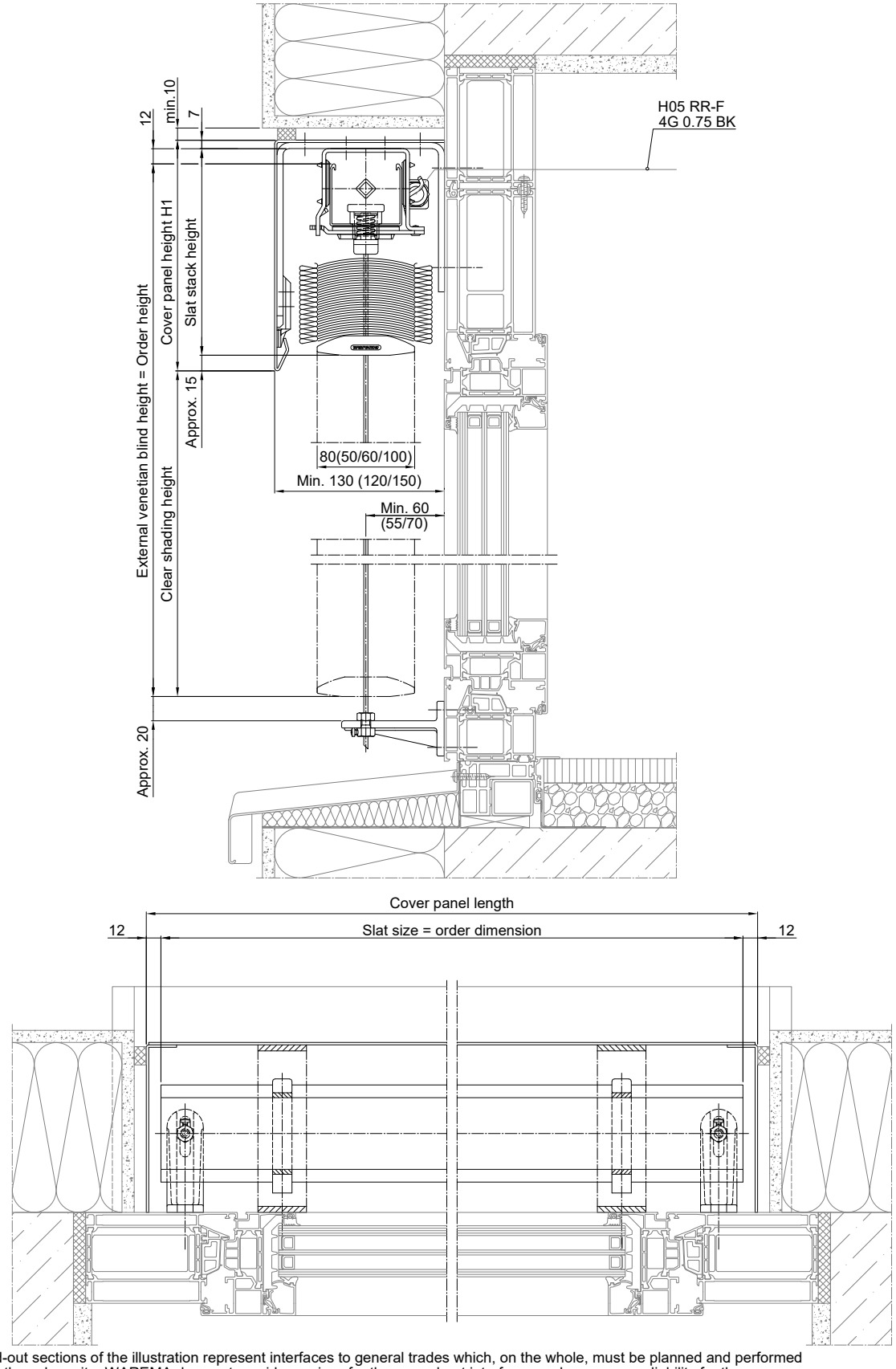


70003v4

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Basic external venetian blinds with cable guidance, angular cover panel, flat slats

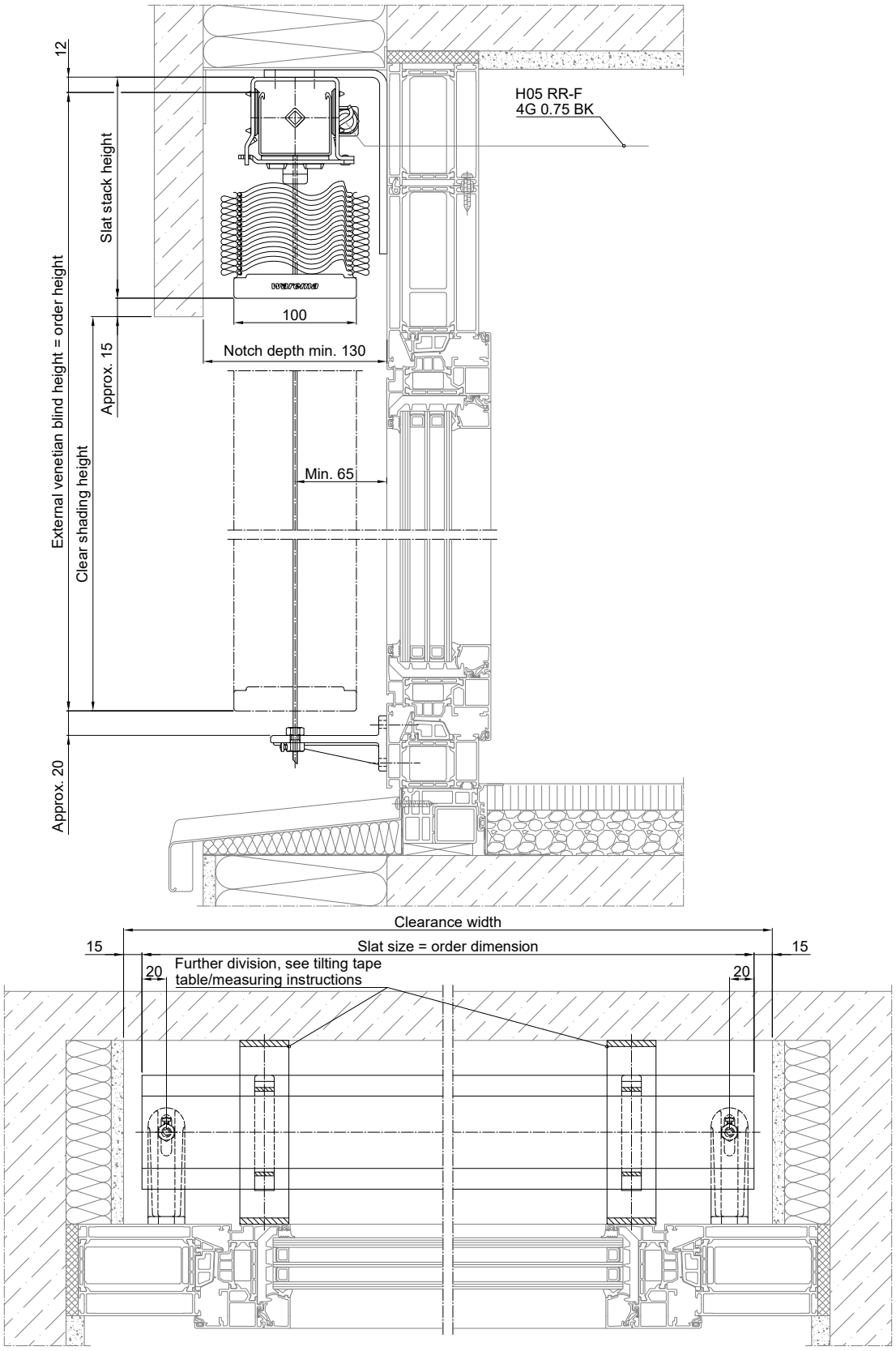
PDF DWG



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70118v3

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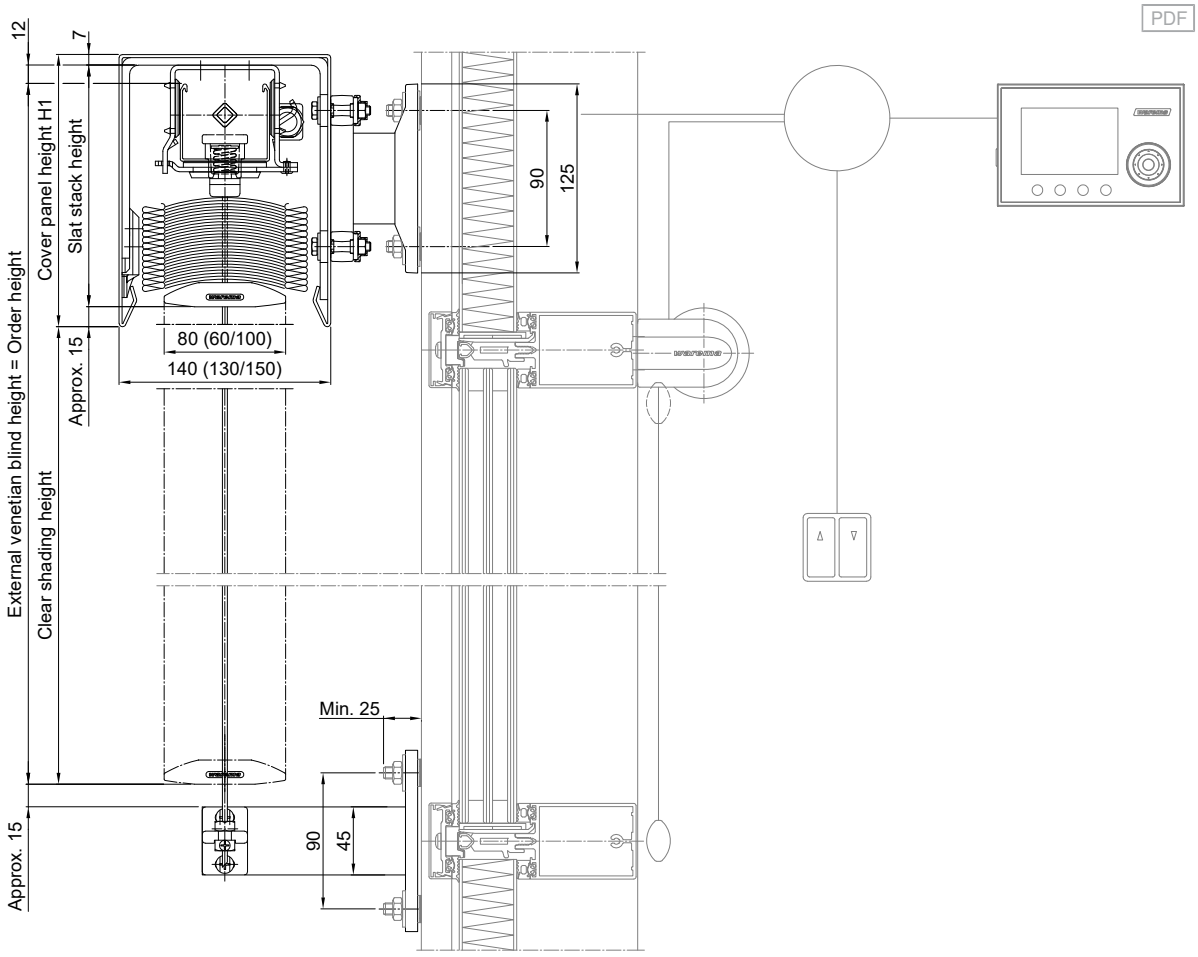


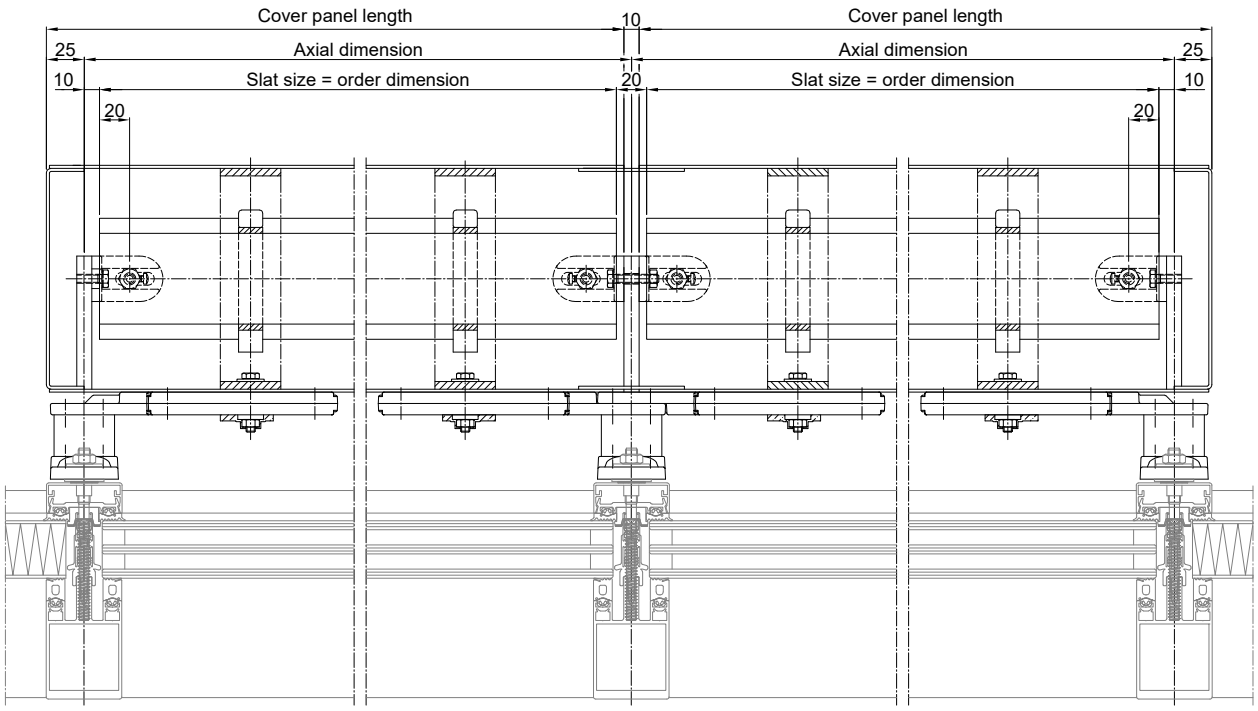
The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

70267v4

Basic external venetian blinds with cable guidance, U-shaped cover panel, flat slats

PDF DWG

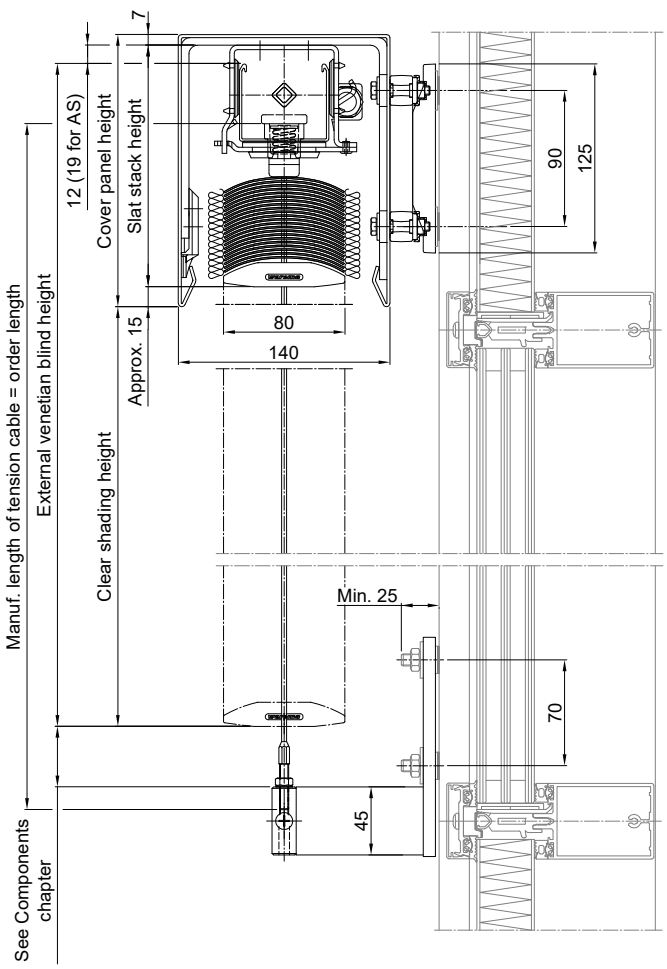


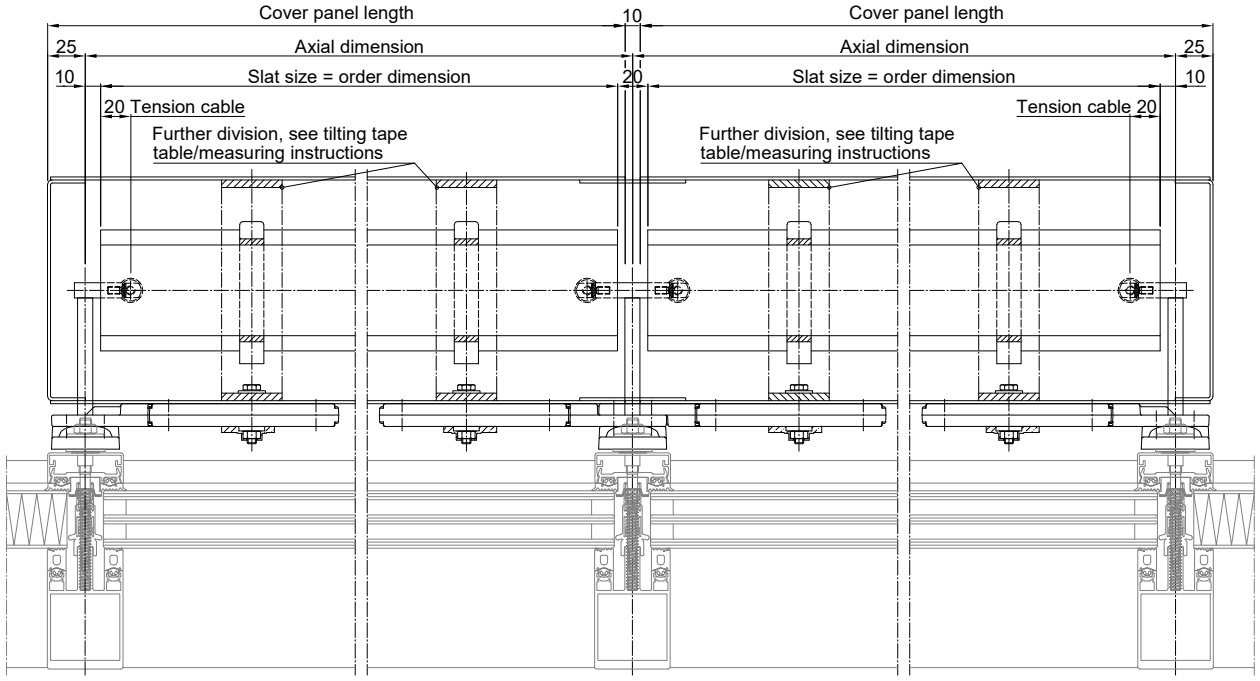


70130v4

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PDF DWG



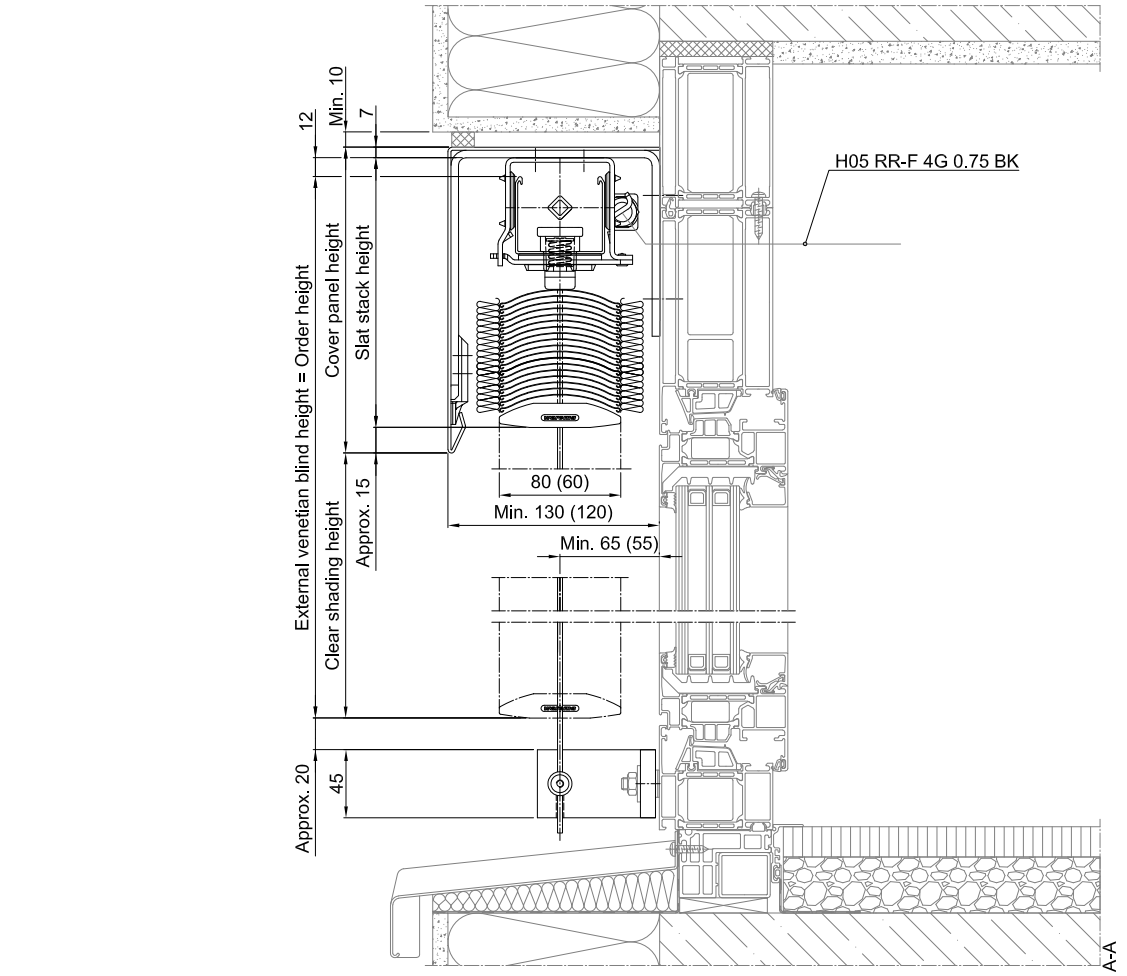


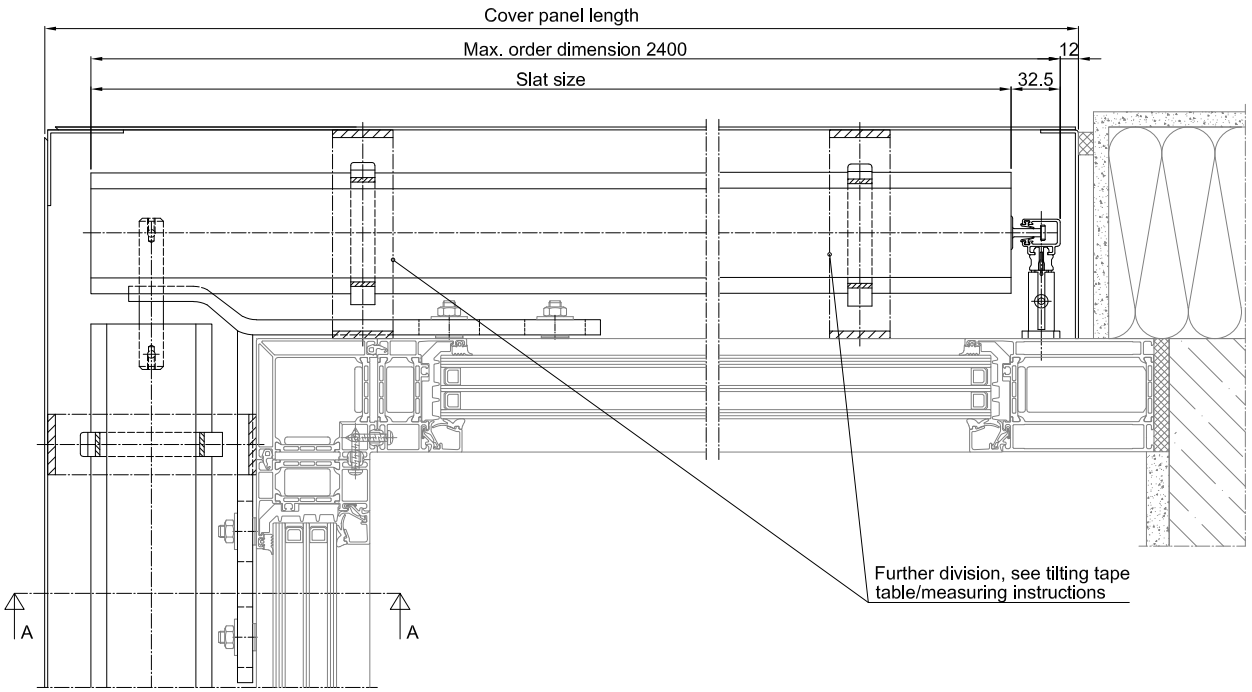
73612

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Basic external venetian blinds with cable guidance, angular cover panel, beaded slats, corner position

PDF DWG



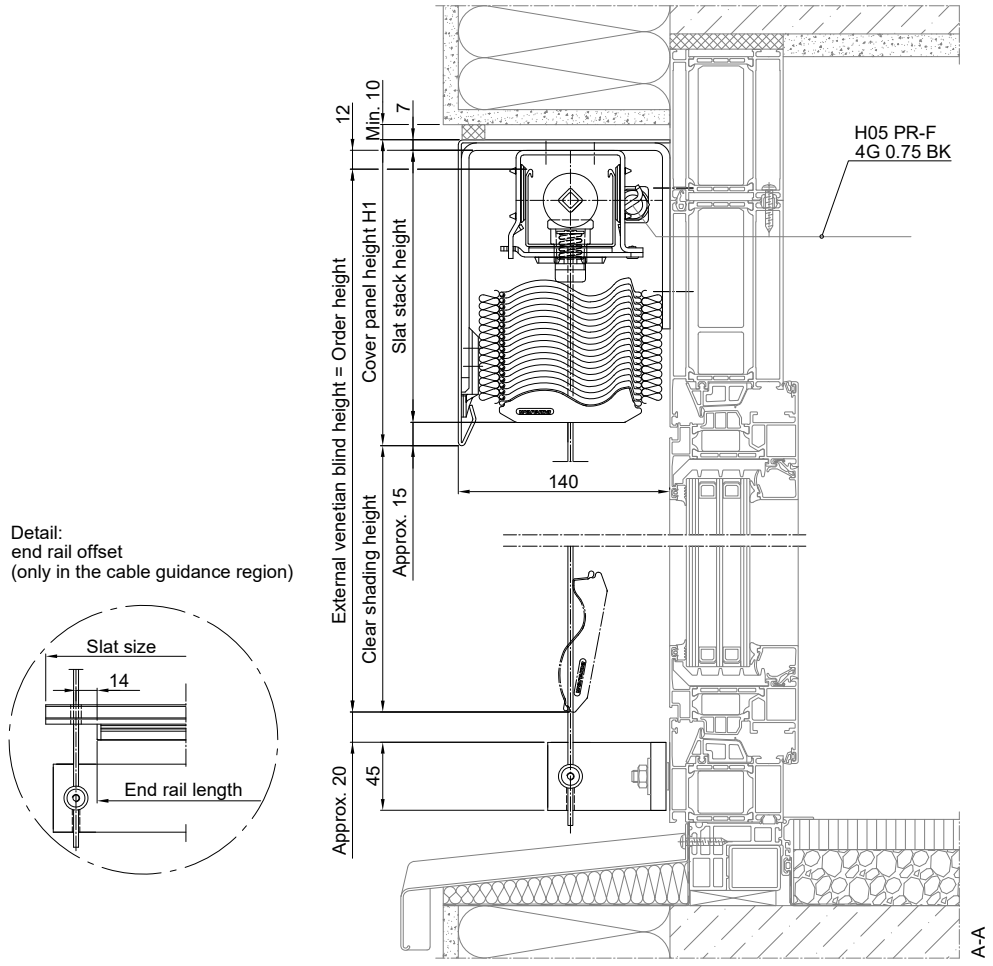


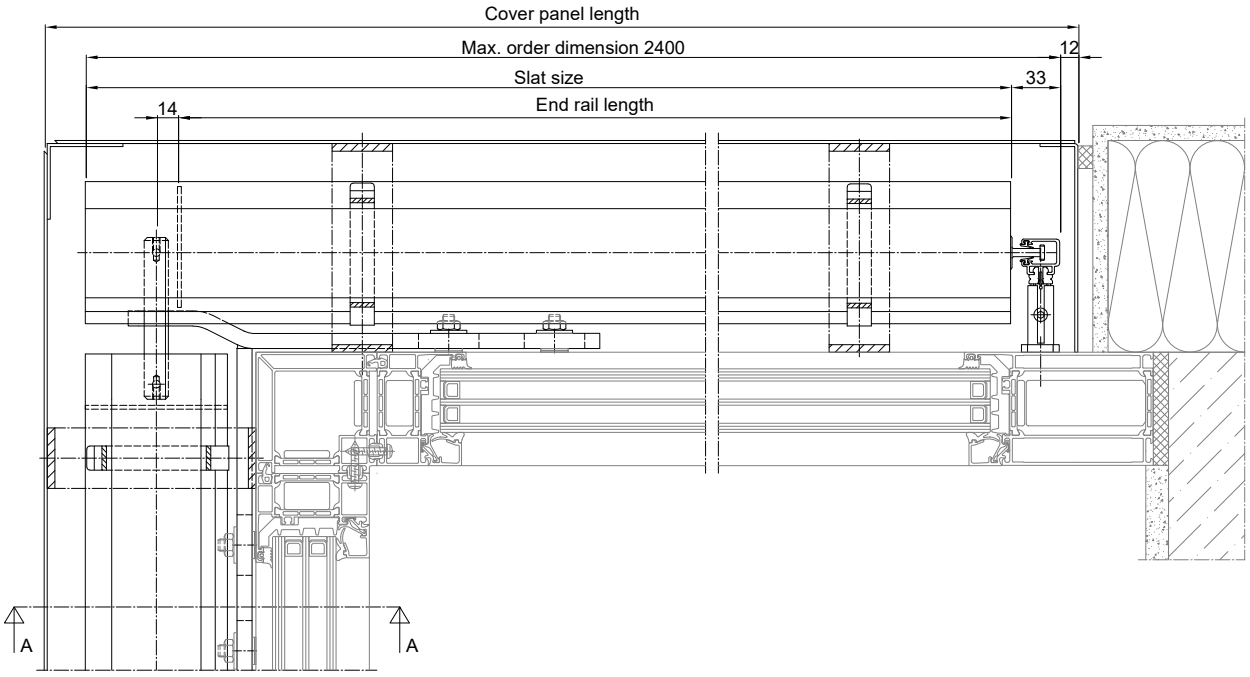
The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

70007v6

Basic external venetian blinds with cable guidance, angular cover panel, dim-out slats size 90, corner position

PDF DWG





The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

70154v6

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External venetian blind window systems

External venetian blind window systems FSR with rail guidance

Seamless

Low installation depth: The aluminium cover panel is matched to the dimensions of the slat and slat stack height. The slat stack is housed completely in the cover panel – even when the height is greater. The plug-in connector disappears into the cover panel.

Classic

Securely guided: The rail guidance is the classic among the guidance versions. The reliable lateral guidance provides great stability in windy conditions, good noise reduction, and a low-wear movement of the slats across the guide pins.

Optimally adaptable

Perfectly matched: Individual cover panel folds can be integrated into any on-site situation.

Protected from insects

Enhancement of functions from the factory: The optional insect screen offers effective protection against insects when your windows and doors are open.

Pre-assembled

High degree of premounting: The sophisticated design, with a premounted slat stack, reduces the installation time. The guide rails are used for fixing in the structure.

Construction limit values

Maximum order width	4000 mm
Maximum order height	4000 mm
Maximum order area	16 m^2
Maximum order width of the group unit	4000 mm

Order here

myWAREMA

Art.-Nr. 2036131

Order form

https://docs.warema.com/fi/2029419.pdf

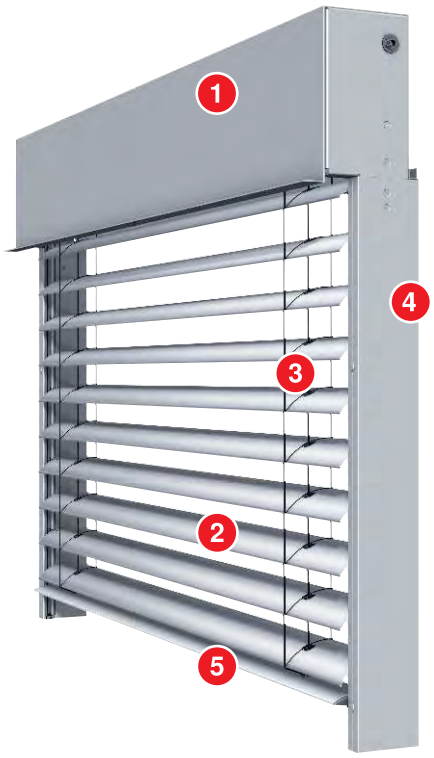
https://docs.warema.com/fi/2008676.pdf

WAREMA tools

Dimensions Assistant
Fastener Assistant
Sun Shading Planner

see "Navigating the document", Page 5

Components



1	Cover panel	4	Lateral guidance
2	Slats	5	End rail
3	Tilting tape, lifting tape		

Cover panel

Cover panel FSR with rail guidance

Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

- Cover panels closed by side closures on both sides
- Fixing the cover panel using the guide rails: The cover panel is connected to the guide rails by the side closures, the guide rails are screw-fixed to the window frame or in the reveal
- Designed both as a screen and also for complete integration below the external plaster as a plaster base type with plaster base plate (plaster base plate made of polystyrene with material thickness of 8 mm)

Additional cover panel fixing: In external venetian blinds with additional cable guidance, an additional cover panel fixing is absolutely essential.

see "Detailed information on cover panels", Page 72

Product variants that can be used

- E 80 A6 S
- E 80 AF A6
- E 80 AF A6 with eyelets
- E 80 WF A6
- E 80 A6 Z
- E 73 A6
- E 90 A6
- E 93 A6

Guide variants

- Guide rails for external venetian blinds

Guide rail

- FSCH 27-75 (type 38)
- FSCH 27-80 (type 37)
- FSCH 27-87.5 (type 32)
- FSCH 27-95 (type 31)
- FSCH 27-109 (type 60)
- FSCH 27-117 (type 61)
- FSCH 27-122 (type 30)
- FSCH 27-137.5 (type 39)
- Double FSCH 55K-40 (type 64)

see "Guide rails for external venetian blinds", Page 360

Tension cable

Additional cable guidance

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

To prevent components located behind the external venetian blind being damaged by wind load, an additional cable guidance in the centre is either mandatory or recommended for rail guidance from a defined width of slat, depending on the slats used:

- Beaded slats: from a slat size > 3000 mm (recommended)
- Flat slats (incl. Windra flat slat): from a slat size > 2400 mm (mandatory)
- Dim-out slats: no additional tension cable required

Arrangement of the additional cable guidance: The arrangement must be specified (viewed from inside the room, starting on the left)

Determination of cable length: External venetian blind height + 100 mm

Drive variants

– Motor

Motor

– Basic motor for external venetian blinds

Motor optional:

– Super-fast terrace motor (STM)
– Motor with 2 lower limit positions
– Motor with freezing protection
– SMI motor

see "Drive variants", Page 489

Colours

– Slat colours
– WAREMA Colour World
– Anodised C0

Colours, optional:

– Anodised C31
– Anodised C32
– Anodised C33
– Anodised C34
– Anodised C35

see "Colours and finishes", Page 12

see "Colours and surfaces for external venetian blind slats in accordance with current collection", Page 15

Insect screen optional

– Integrated insect screen roller blind
– Integrated insect screen swivel door

Supplementary accessories

– WAREMA SecuKit for external venetian blinds
– VisioNeo Sun railing system
– Corner joint for external venetian blinds
– External venetian blinds in wind-stable design
– SenSigna, external venetian blind with acoustic signal
– Daylight transport element TLT
– Snap-action switch work setting
– slowturn
– Integrated lintel insulation for external venetian blinds
– Battery module UP for external venetian blinds
– Emergency power supply kit
– Slat perforation
– Integrated insect screen

see "Supplementary accessories", Page 277

Product characteristics

External venetian blind window systems are specially developed for exterior insulation and finish systems (EIFS). These are integrated into the facade in a concealed form or set coloured accents on the facade as a visible system. The system can be easily integrated into the facade and requires minimum installation work. The fixing in an on-site shaft is also possible.

External venetian blind window systems are suitable for:

– Retrofitting on existing buildings
– New buildings

External venetian blind window systems fulfil three functions:

– Daylight control
– Visual privacy
– Heat protection

Notes

Notes on product configuration

– **Different tilting systems for external venetian blinds with flat slats:** External venetian blind moves down with the slats closed to the outside and moves up with the slats closed to the inside at approx. 55° (Windra flat slat excluded).
– **For slat sizes of 2400 mm and greater:** To prevent damage from wind load on components that are behind the external venetian blind, plan for an additional central cable guidance for external venetian blinds with flat slats.
– **Note on the model with additional cable guidance:**
  – When ordering, the arrangement of additional cable guidances must be specified, starting from inside left.
  – An additional cover panel fixing is absolutely necessary.
– **Without premounting for Windra flat slat:** The external venetian blinds are not delivered premounted in the box.

Construction limit values

- **Several external venetian blinds in one cover panel:** A maximum of 3 external venetian blinds can be integrated in one cover panel.
- **Pre-installation:** Mechanically coupled external venetian blinds are not supplied premounted.

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area	Maximum order width of the group unit	Group unit, maximum order area	Maximum order area of unit coupling	Maximum quantity of unit couplings per side
Basic external venetian blinds								
E 80 A6 S	680 mm	4000 mm	4000 mm	16 m^2	4000 mm	16 m^2	13 m^2	1
E 80 AF A6	680 mm	4000 mm	4000 mm	16 m^2	4000 mm	16 m^2	13 m^2	1
E 80 WF A6	680 mm	3000 mm	4000 mm	12 m^2	4000 mm	16 m^2	8 m^2	1
E 80 A6 Z	680 mm	4000 mm	4000 mm	15 m^2	4000 mm	16 m^2	13 m^2	1
E 73 A6	680 mm	4000 mm	4000 mm	15 m^2	4000 mm	16 m^2	13 m^2	1
E 90 A6	680 mm	4000 mm	4000 mm	15 m^2	4000 mm	16 m^2	13 m^2	1
E 93 A6	680 mm	4000 mm	4000 mm	15 m^2	4000 mm	16 m^2	13 m^2	1

For external venetian blind window systems with rail guidance, the information on "Minimum order width" and "Maximum order width" always refers to the back edge of the guide rails.

Order width > 4000 mm on request

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

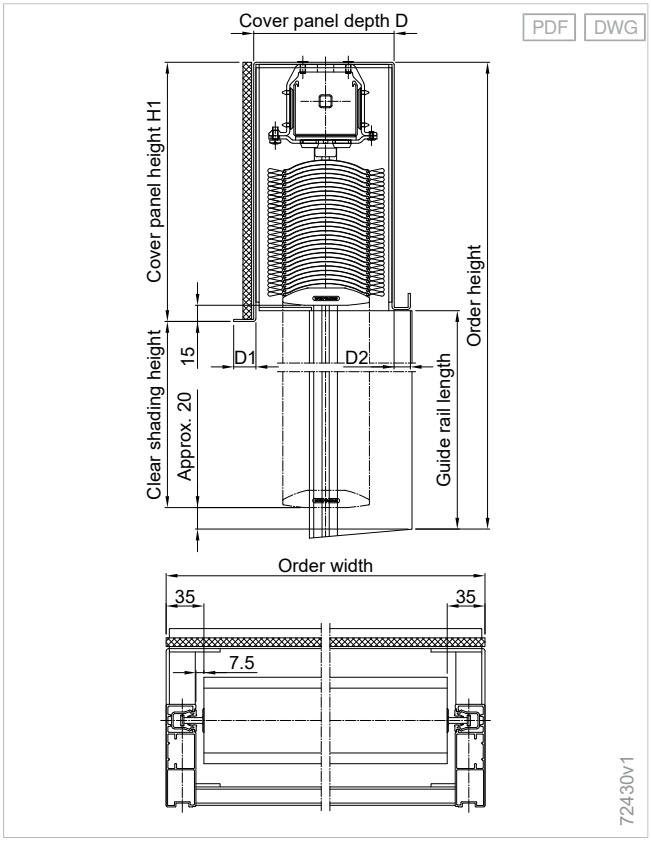
Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances in accordance with the "Guideline for assessing the product features of external venetian blinds" apply.

Dimension determination

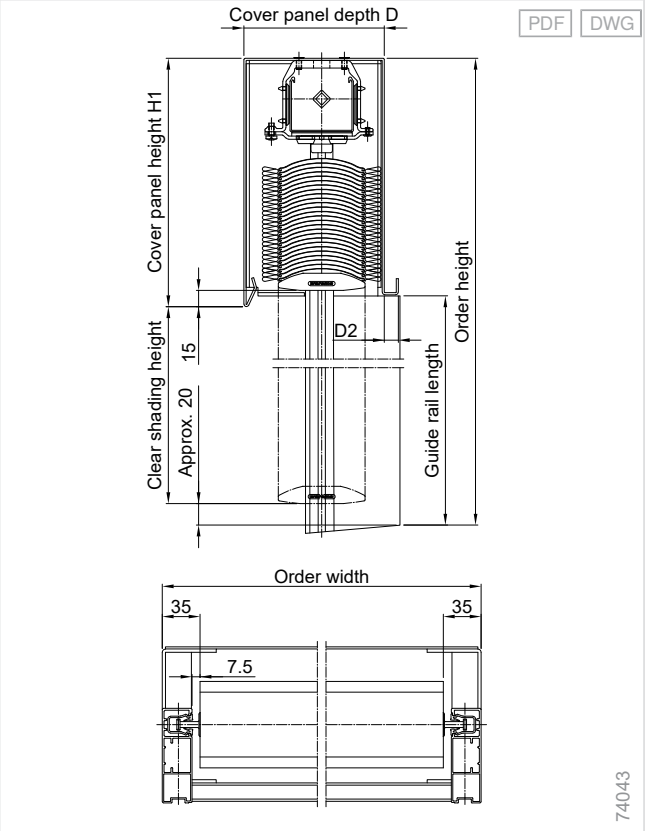
Configuration view: The order dimensions are determined from interior view, from left to right.

Reference dimension	Dimension determination
Order width	Back edge of the guide rail to back edge of the guide rail
Order height	Bottom edge of guide rail to top edge of cover panel
Cover panel height H1	see detailed information on cover panel
Cover panel depth T	see detailed information on cover panel

External venetian blind window system FSR with rail guidance, cover panel plaster

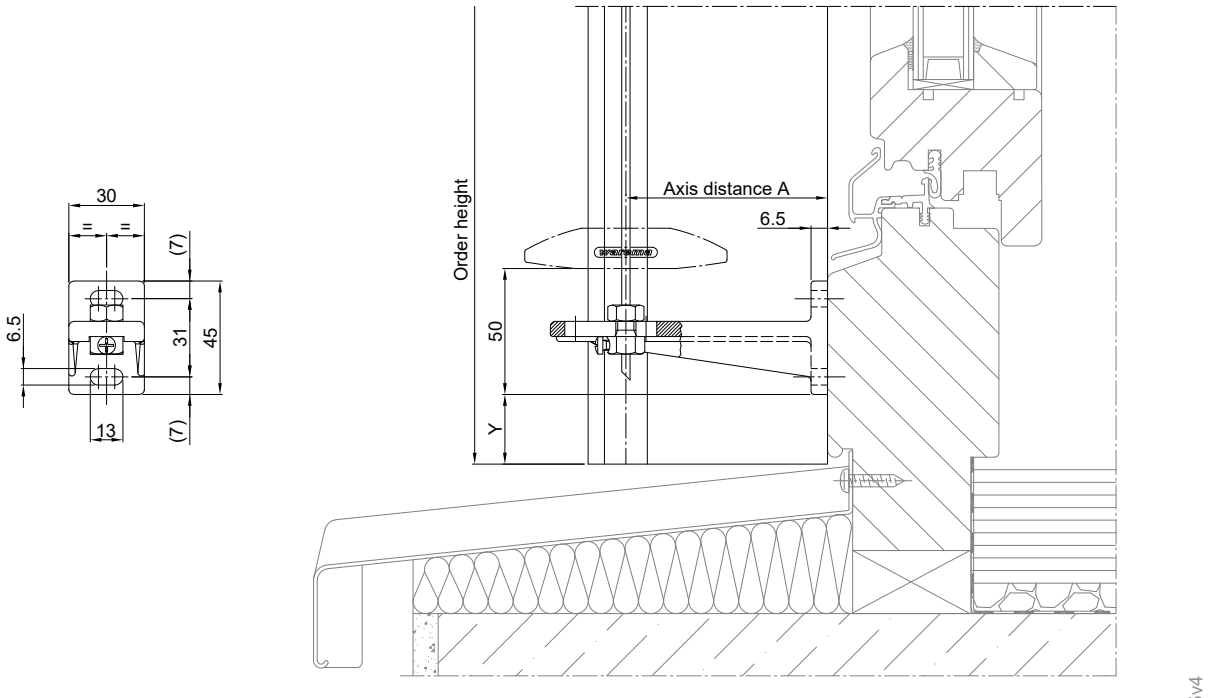


External venetian blind window systems FSR with rail guidance, cover panel rectangular



Measuring instructions for additional cable guidance

PDF DWG



For slat widths > 2400 mm and versions with flat slats, the use of wind protection using an additional tension cable is required. Specify dimension Y when ordering.

Detailed information on cover panels

Cover panel height H1:

210 mm, 240 mm, 270 mm and 300 mm

Deviating cover panel heights are available as options.

Possible cover panel models:

E = rectangular model (U-shaped cover panel)

P = plaster base type (plaster cover panel)

Cover panel designation consists of cover panel model + cover panel depth T + cover panel back fold

Cover panel designation example: **PS-0**

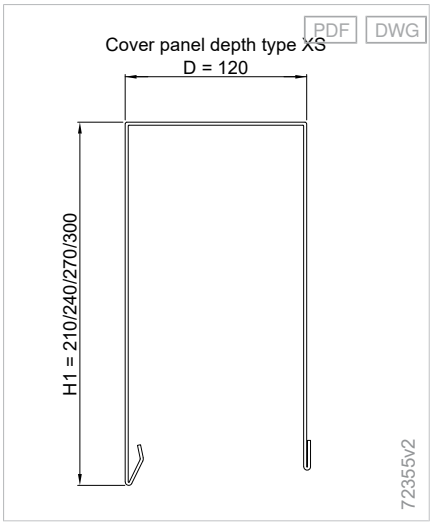
Cover panel dimensions

Cover panel model	Cover panel depth T	Cover panel back fold T2
E	XS = 120 mm	0
E	S = 135 mm	0
E	L = 150 mm	0
E	S = 130 mm	Variable*
E	L = 145 mm	Variable*
P	S = 125 mm	0
P	L = 140 mm	0
P	S = 120 mm	Variable*
P	L = 135 mm	Variable*

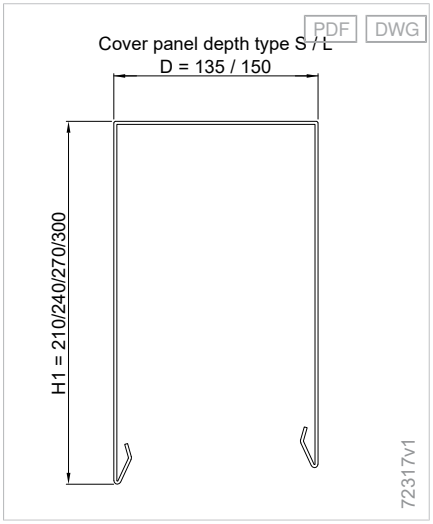
* Cover panel back fold, see "Detailed information on guide profiles", table "Allocation of cover panel/guide profile"

Dim-out slats E 90 A6 and E 93 A6 with cover panel depth XS and S not available

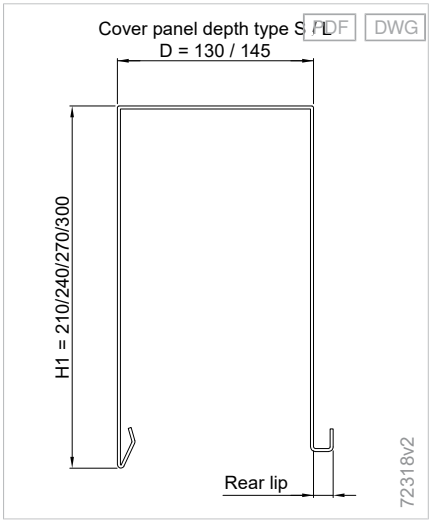
External venetian blind window systems FSR, cover panel rectangular, XS



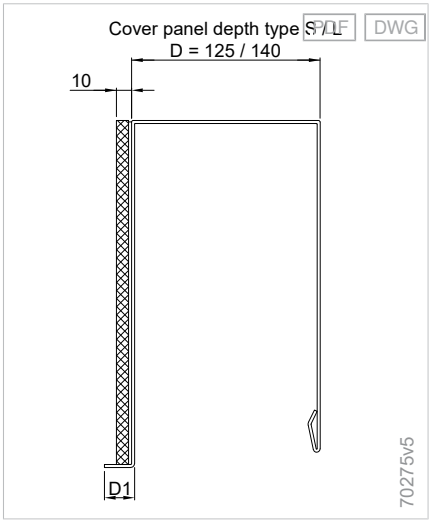
External venetian blind window systems FSR, cover panel rectangular



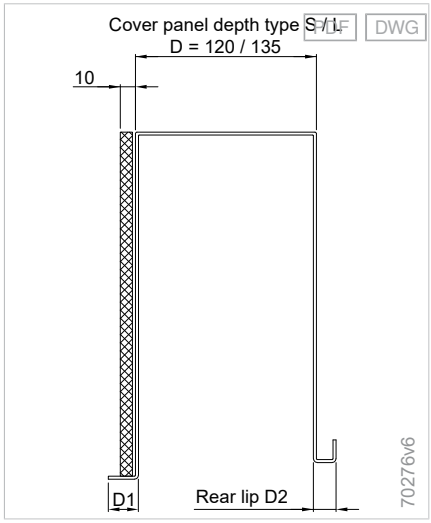
External venetian blind window systems FSR, cover panel rectangular, cover panel back fold



External venetian blind window systems FSR, cover panel plaster



External venetian blind window systems FSR, cover panel plaster, cover panel back fold



Detailed information on guide profiles

Allocation of cover panel/guide profile

Cover panel designation	Permissible slat width	Allocated guide profile	Cover panel back fold T2	Suitable rear insulation thickness
EXS-0	73/80	Guide rail 27x75	0	
ES-0 / PS-0	73/80	Guide rail 27x80	0	
ES-15 / PS-15	73/80	Guide rail 27x87	15	15
ES-20 / PS-20	73/80	Guide rail 27x95	20	20
ES-30 / PS-30	73/80	Guide rail 27x109	30	30
ES-35 / PS-35	73/80	Guide rail 27x109	35	
ES-40 / PS-40	73/80	Guide rail 27x117	40	40
ES-48 / PS-48	73/80	Guide rail 27x122	48	
EL-0 / PL-0	73/80/90/93	Guide rail 27x87	0	
EL-13 / PL-13	73/80/90/93	Guide rail 27x95	13	
EL-30 / PL-30	73/80/90/93	Guide rail 27x117	30	30
EL-35 / PL-35	73/80/90/93	Guide rail 27x117	35	
EL-40 / PL-40	73/80/90/93	Guide rail 27x122	40	40

Bottom rail stack protrusion

Maximum order height without stack protrusion (maximum clear shading height without stack protrusion) in mm

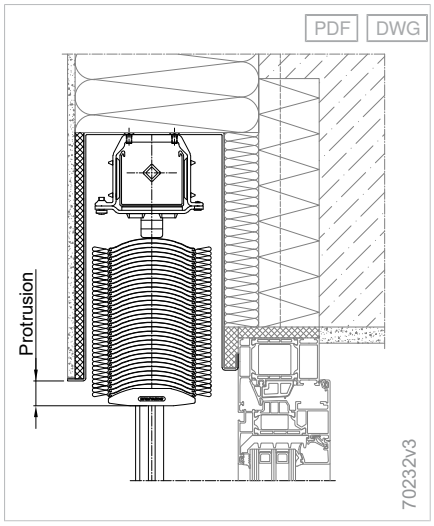
Types	Cover panel height H1 = 210 mm	Cover panel height H1 = 240 mm	Cover panel height H1 = 270 mm	Cover panel height H1 = 300 mm	Approx. stack increase per 100 mm of additional height (mm)
E 80 A6 S	2100 (1870)	2700 (2440)	3300 (3010)	3900 (3580)	5
E 80 AF A6	2800 (2570)	3400 (3140)	4000 (3710)	4000 (3680)	3
E 80 AF A6 (with eyelets)	3000 (2770)	3800 (3540)	4000 (3710)	4000 (3680)	3
E 80 A6 Z	2100 (1870)	2700 (2440)	3300 (3010)	3900 (3580)	5
E 73 A6	1700 (1470)	2200 (1940)	2800 (2510)	3400 (3080)	5
E 90 A6	2300 (2070)	3000 (2740)	3800 (3510)	4000 (3680)	4
E 93 A6	2300 (2070)	3000 (2740)	3800 (3510)	4000 (3680)	4
E 80 WF A6	2100 (1870)	2700 (2440)	3300 (3010)	3900 (3580)	5

Slat stack heights are approximate values and for technical reasons, they might be higher or lower. Stack parallelism with retracted external venetian blind: +/- 10 mm

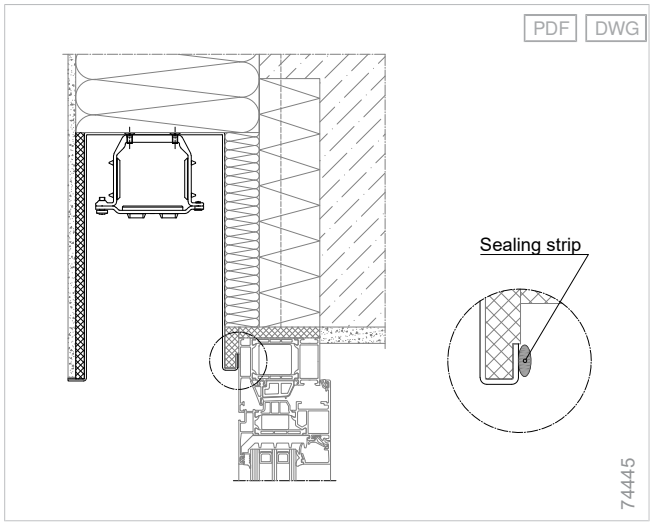
Rail/cable combination: For external venetian blinds with combined rail and cable lateral guidance, the maximum order heights without stack protrusion of the units with cable guidance must be used as a basis.

Model with insect screen swivel door: In combination with insect screen swivel door, the external venetian blind must retract completely into the box.

Stack protrusion



External venetian blind window systems FSR, cover panel plaster, sealing strip



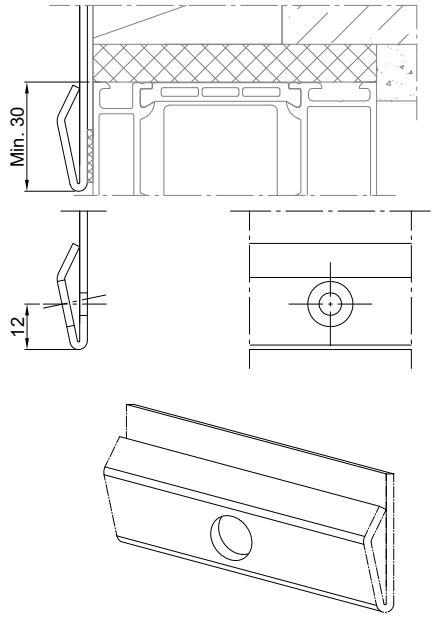
Optional sealing strip applied at the factory

Additional fixing on the rear side of the cover panel

- Additional fixing hole in order to guarantee that the rear side of the cover panel is in flat contact with the window frame
- Minimum overlap on window frame of 30 mm required
- 1 drilled hole, central up to a cover panel width of 2000 mm as standard
- 2 drilled holes for 1/3 and 2/3 up to a cover panel width of 4000 mm as standard

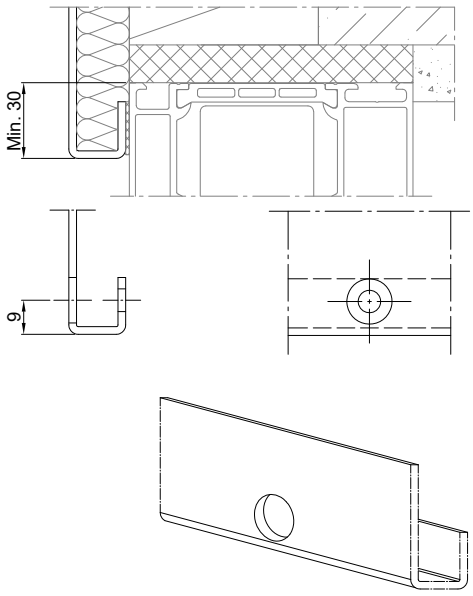
Model for cover panels without cover panel back fold

PDF DWG



Model for cover panels with cover panel back fold

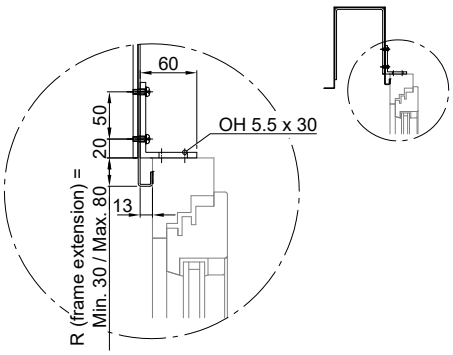
PDF DWG



Additional cover panel fixing

External venetian blind window systems FSR, additional cover panel fixing, cover panel back fold

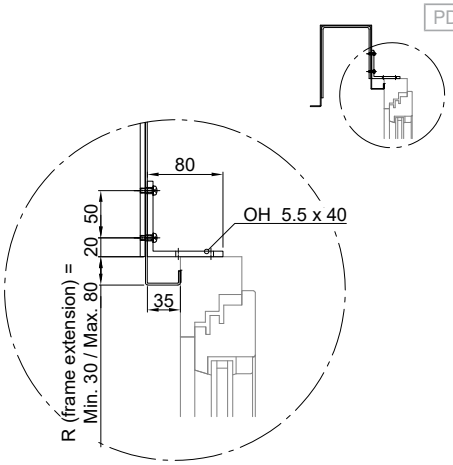
PDF DWG



Angle bracket 80x60x6, art. no. 508314

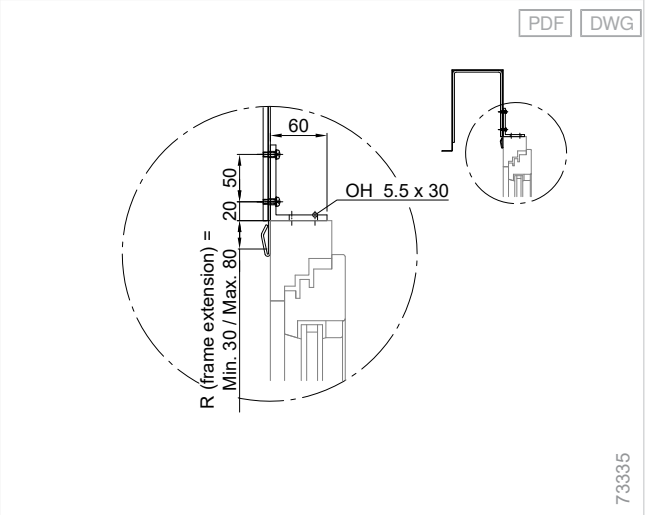
External venetian blind window systems FSR, additional cover panel fixing, without cover panel back fold

PDF DWG



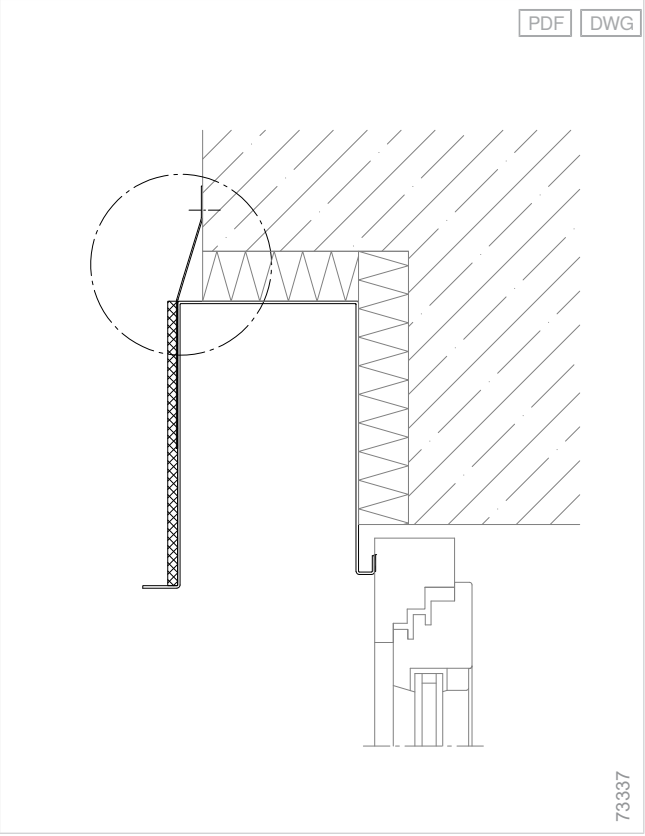
Angle bracket 80x60x6, art. no. 508314

External venetian blind window systems FSR, additional cover panel fixing, cover panel back fold for insect screen



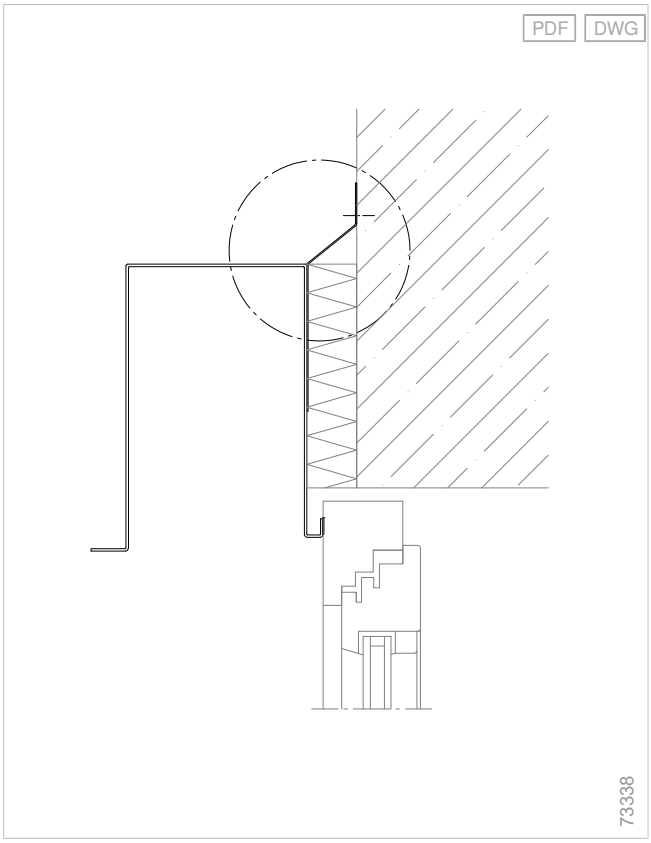
Angle bracket 80x80x6, art. no. 504082

Additional cover panel fixing via mounting strap (mounting strap, outside)



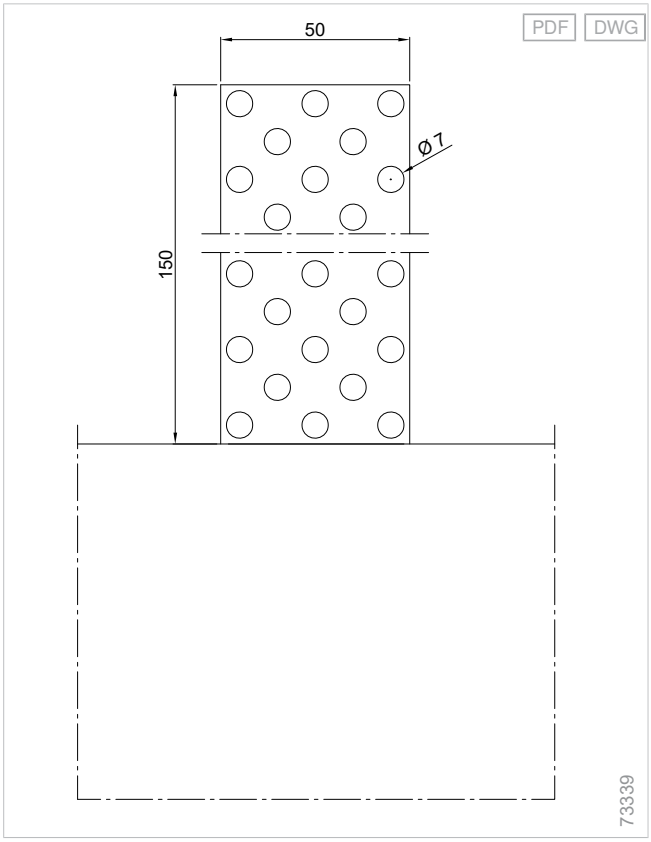
Mounting strap 268x50, Art.-Nr.: 502041

Additional cover panel fixing via mounting strap (mounting strap, inside)



Mounting strap 268x50, art. no.: 502041

Mounting plate details view



Additional product information

Detailed information on cable exit

Standard cable exit: at the rear or the side

Lateral cable exit sealing: with a lateral cable exit on the side or on the top, the motor line is sealed by means of a plug-in grommet.

Cable excess:

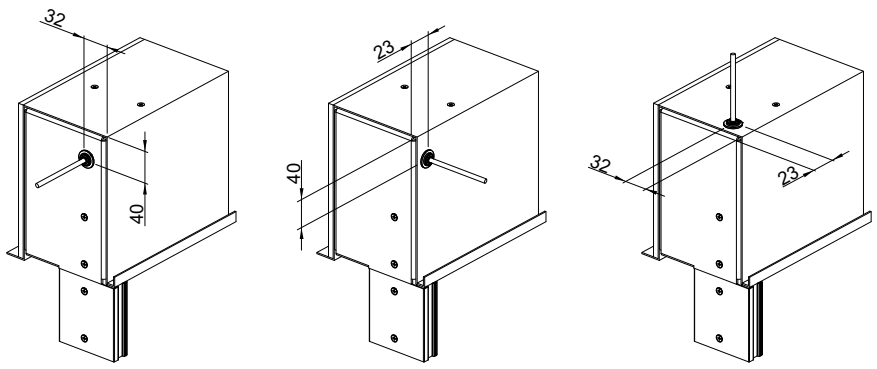
- 1000 mm as standard
- Also optionally 5000 mm or 10000 mm

As standard, the Hirschmann coupling is placed within the cover panel with clamped cable whip. **A cable whip without plug connector with an open end and ferrules comes out of the cover panel.**

We recommend that the cable whip be guided directly into the building for connection to prevent a further plug-in connection outside the cover panel!

Cable exit options

PDF DWG



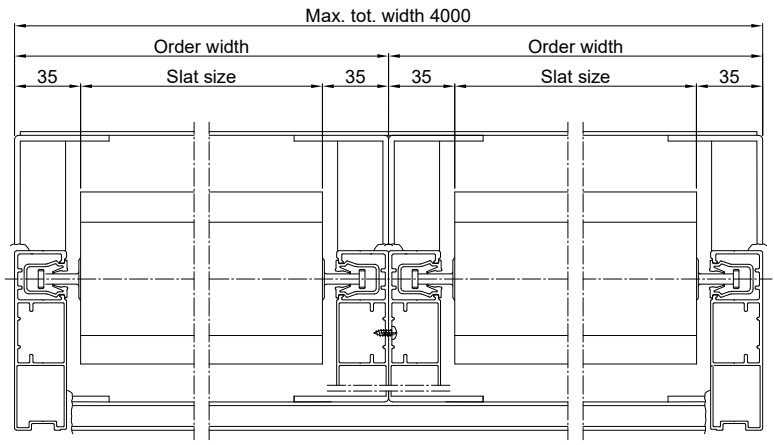
Side (S) Rear (R) Top (T)

72316

Detailed information on combinations, rail guidance

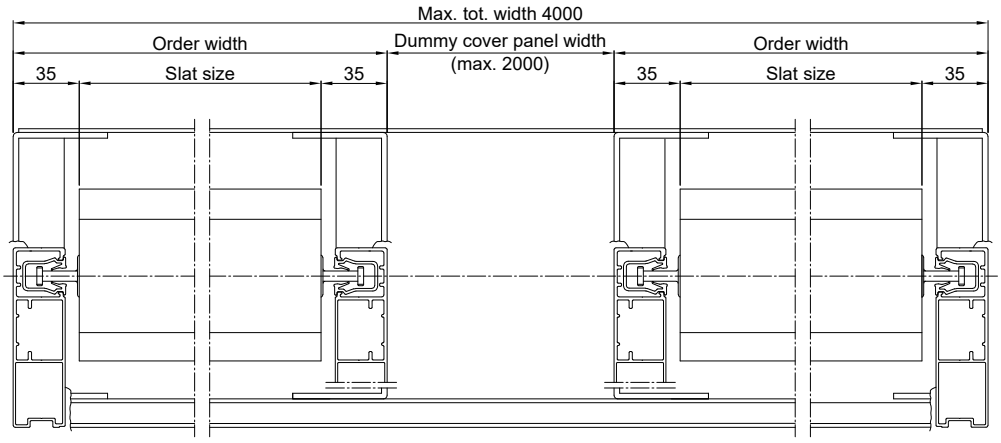
Continuous cover panel without expansion joint

PDF DWG



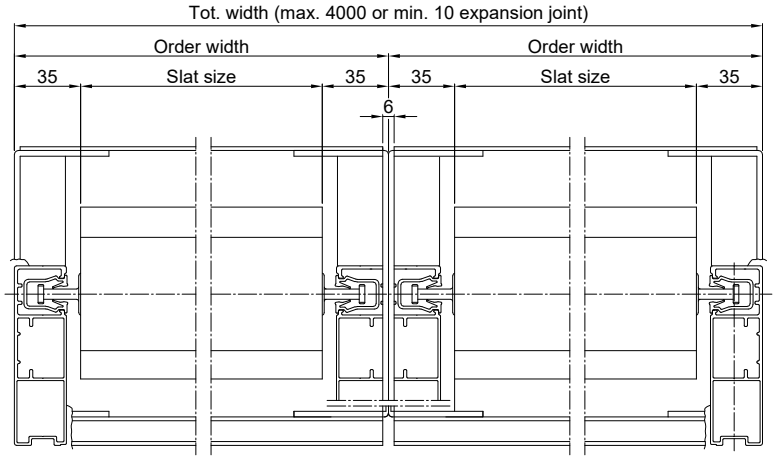
FSR rail guidance, continuous cover panel without expansion joint, external venetian blinds and dummy cover panels within one cover panel

PDF DWG



FSR rail guidance, combination with separate cover panels

PDF DWG



- Up to a total width of max. 4000 mm, the cover panels are butt-jointed.
- From a total cover panel width of > 4000 mm with expansion joint, min. 10 mm.
- Mechanical coupling across separate cover panels not possible!

Detailed information on insect screens (supplementary accessory)

Construction limit values

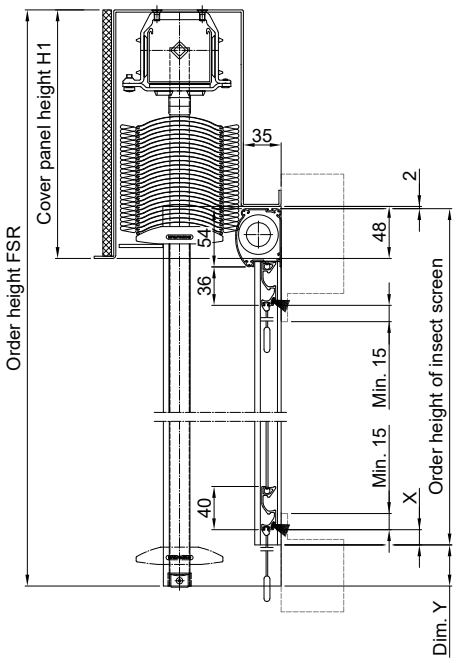
	Model	Min. width	Max. width	Min. height	Max. height	Max. area
Swivel door, one-wing	For doors	500 mm	1300 mm	1800 mm	2500 mm	2.5 m^2
	For windows	500 mm	1300 mm	600 mm	1800 mm	2.5 m^2
Swivel door, two-wing	For doors	900 mm	2600 mm	1800 mm	2500 mm	5.0 m^2
	For windows	900 mm	2600 mm	600 mm	1800 mm	5.0 m^2
Roller blind		650 mm	2000 mm	600 mm	2400 mm	5.0 m^2

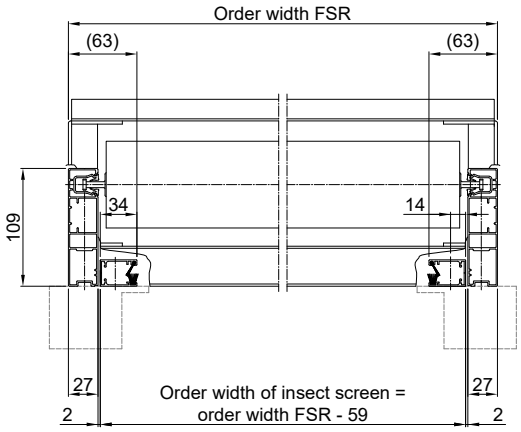
When ordering: Please specify door or window model.

Note on two-wing swivel doors: The maximum width per wing = half of the entire width

External venetian blind window systems FSR with insect screen roller blind

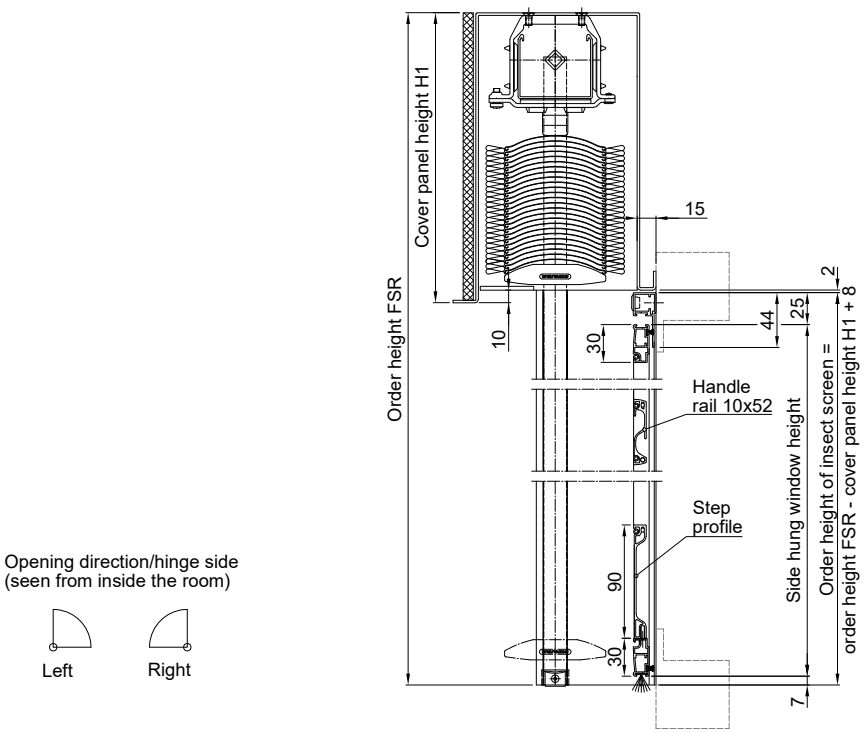
PDF DWG

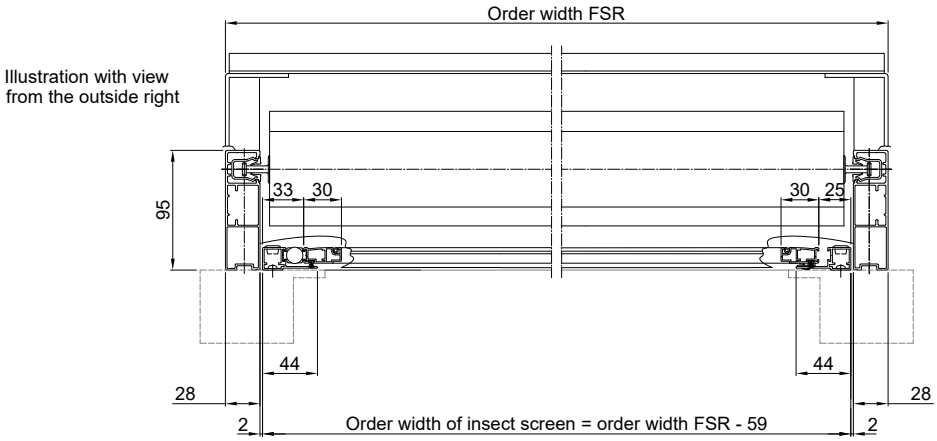


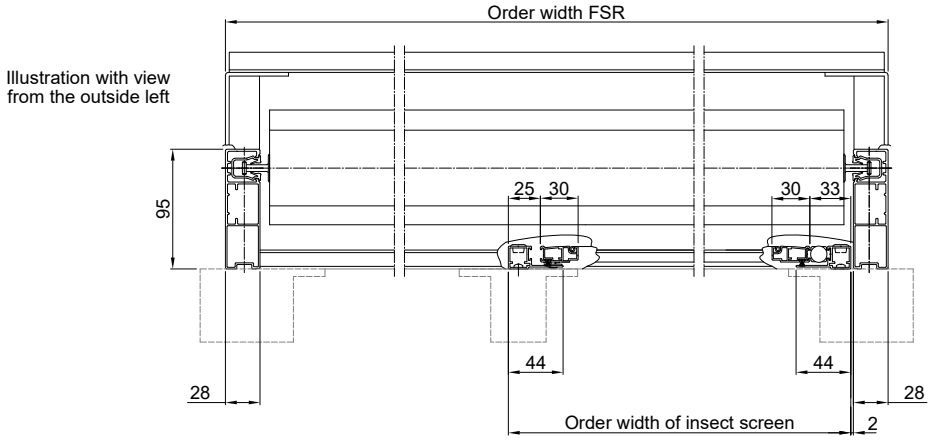


70226v6

PDF DWG



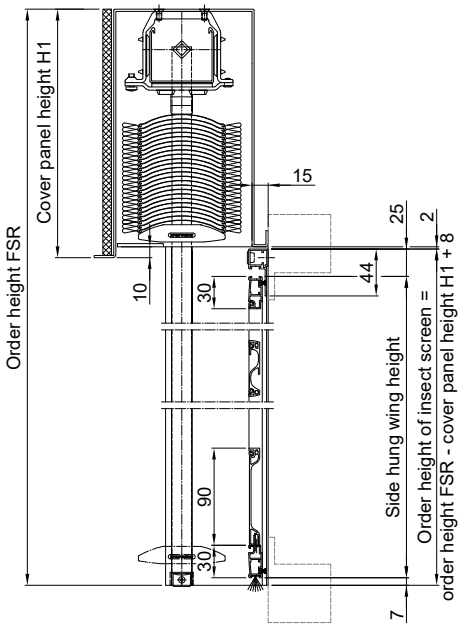


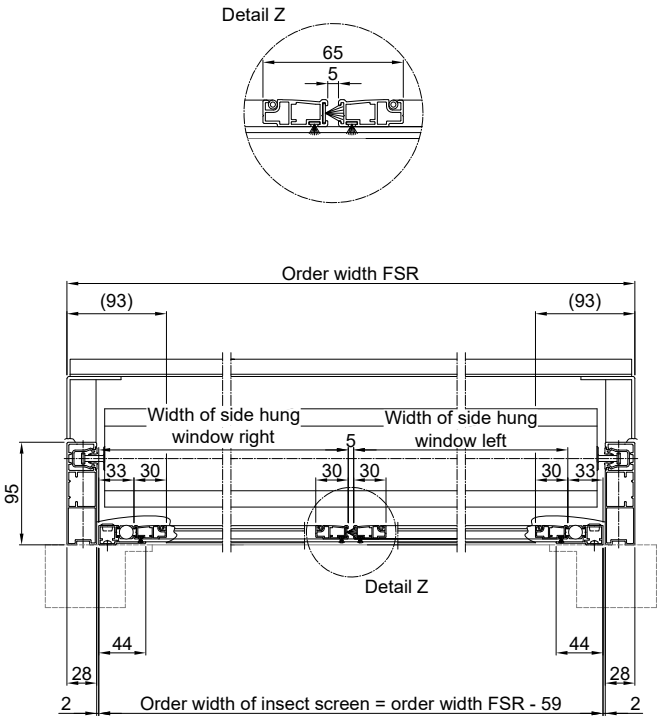


70227v3

External venetian blind window systems FSR with insect screen swivel door, two-wing

PDF DWG

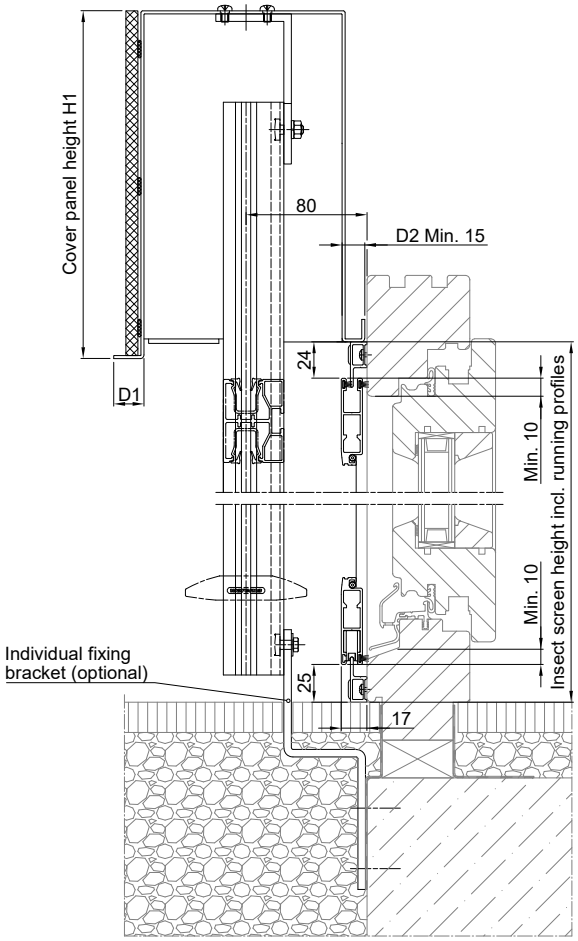


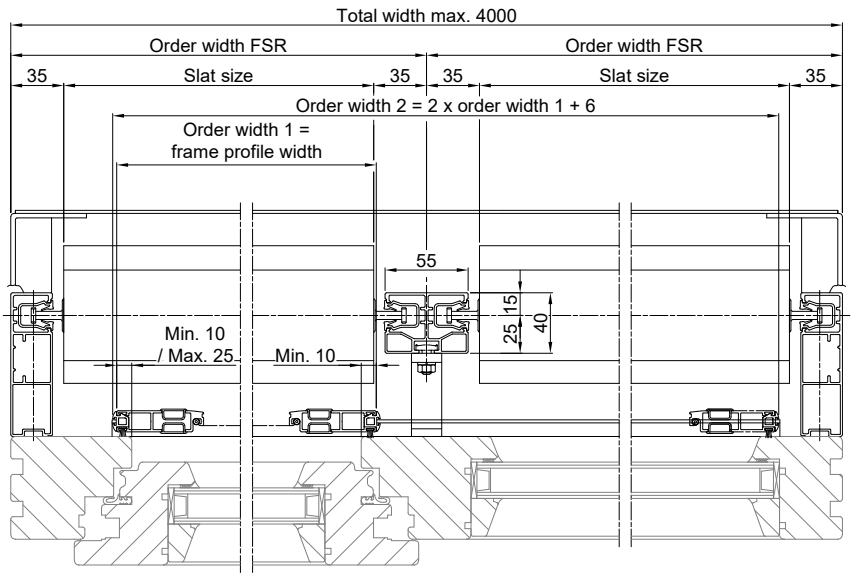


70228v3

Double guide profile FSCH 55K-40, self-supporting, for insect screen sash frame

PDF DWG





70252v7

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

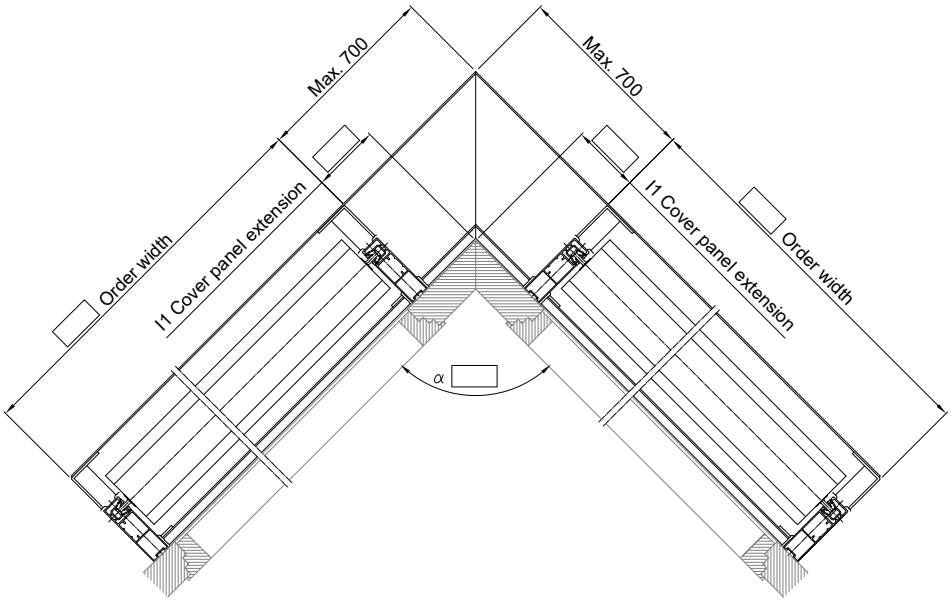
Cover panel extensions/corners

Minimum protrusion for corners

Corner element	Cover panel model	Angle α	l1 min
Outer angle	Cover panel with back-fold	90° - 119°	40
		120° - 149°	35
		150° - 180°	40
	Cover panel without rear fold	90° - 119°	55
		120° - 149°	45
		150° - 180°	40
Inner angle	Cover panel in rectangular model	90° - 119°	50
		120° - 149°	45
		150° - 180°	40
	Cover panel in plaster base type	90° - 119°	35
		120° - 149°	35
		150° - 180°	40

Outer angle

PDF DWG

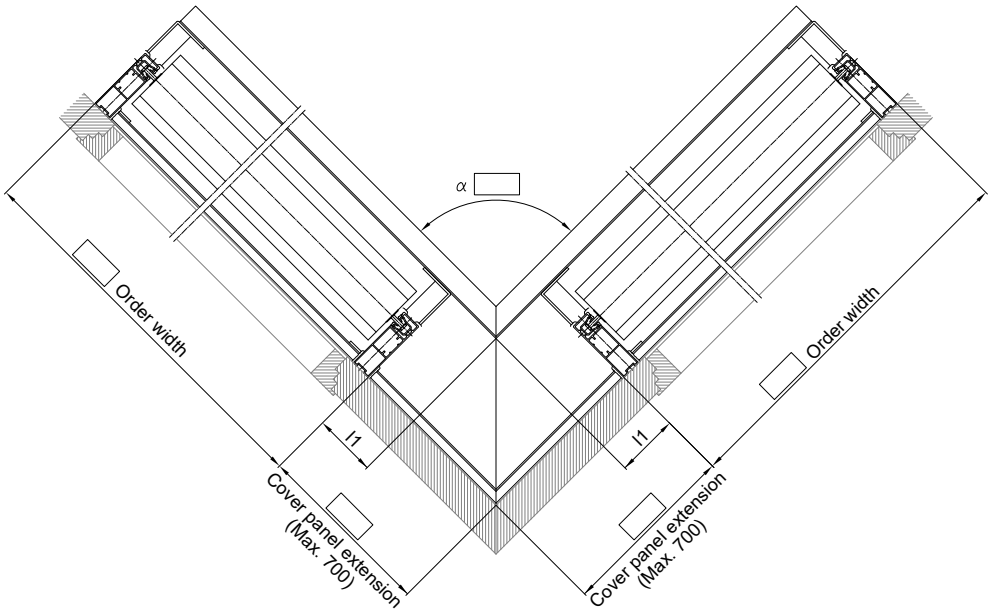


The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

70286v3

Inner angle

PDF DWG

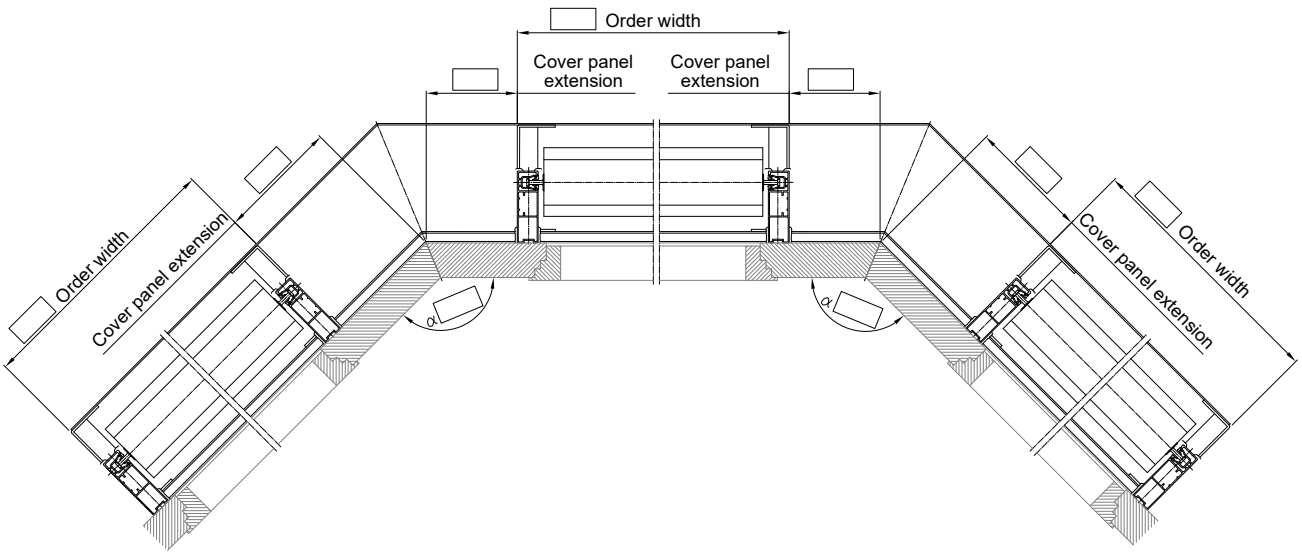


70287v3

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Outer angle oriel

PDF DWG

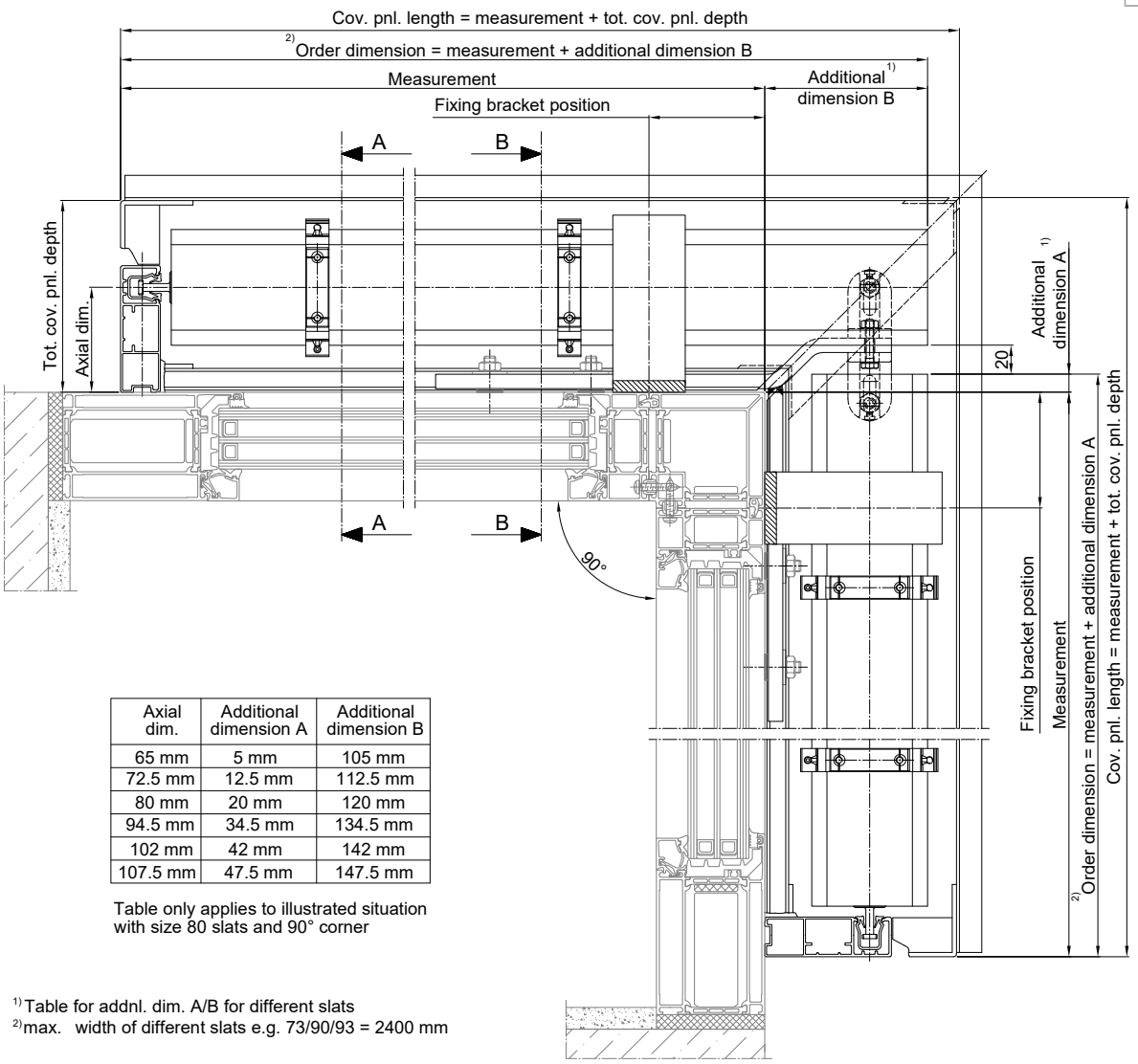


70288v3

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Corner position cable/rail combination

PDF DWG

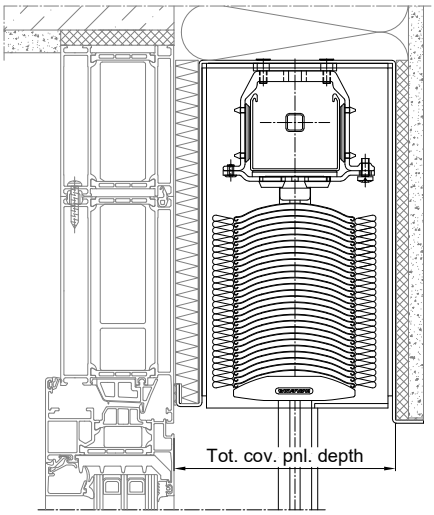


Axial dim.	Additional dimension A	Additional dimension B
65 mm	5 mm	105 mm
72.5 mm	12.5 mm	112.5 mm
80 mm	20 mm	120 mm
94.5 mm	34.5 mm	134.5 mm
102 mm	42 mm	142 mm
107.5 mm	47.5 mm	147.5 mm

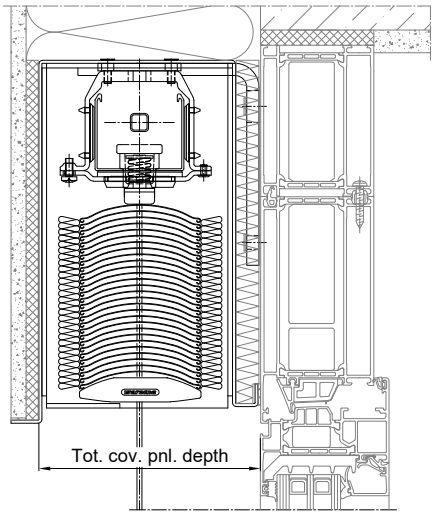
Table only applies to illustrated situation with size 80 slats and 90° corner

1) Table for addnl. dim. A/B for different slats
2) max. width of different slats e.g. 73/90/93 = 2400 mm

Cut A-A



Cut B-B



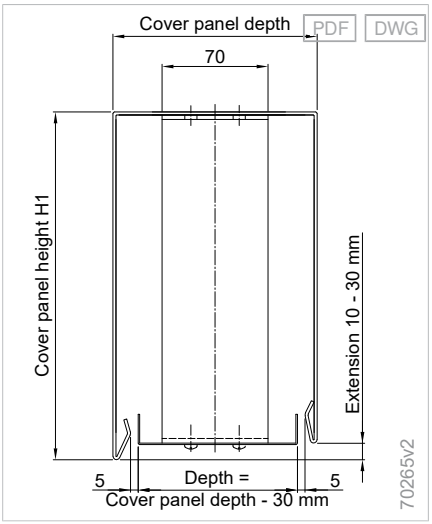
The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

70391v5

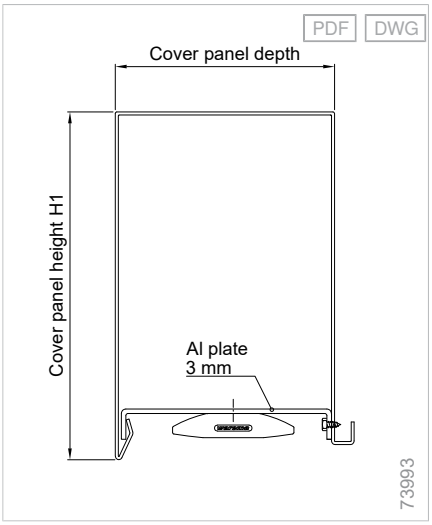
To determine the cover panel heights, the cable guidance construction limit value table must be used as a basis for the cable/rail combination model

Optional dummy cover panels and dummy end rails

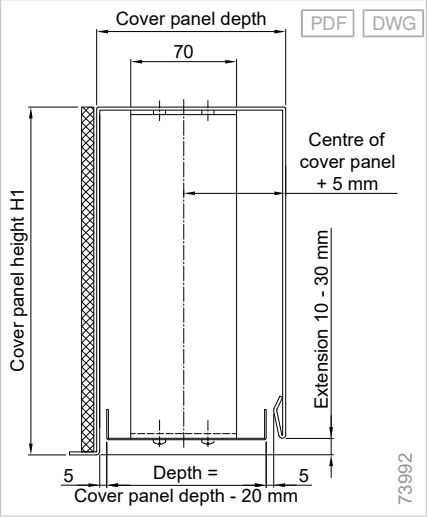
External venetian blind window systems FSR, U-shaped cover panel, dummy cover panel



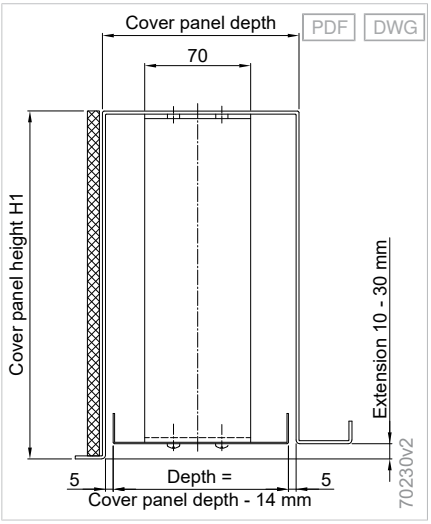
External venetian blind window systems FSR, U-shaped cover panel, dummy end rail



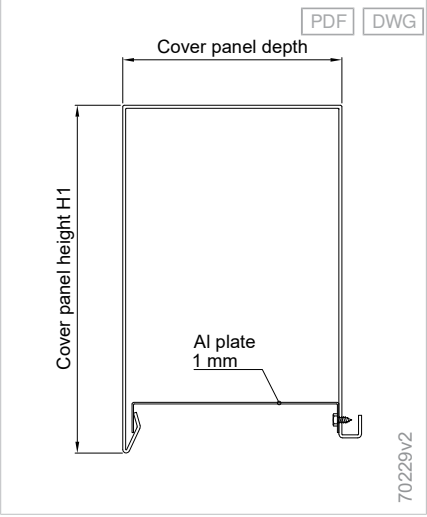
External venetian blind window systems FSR, U-shaped cover panel plaster, dummy cover panel



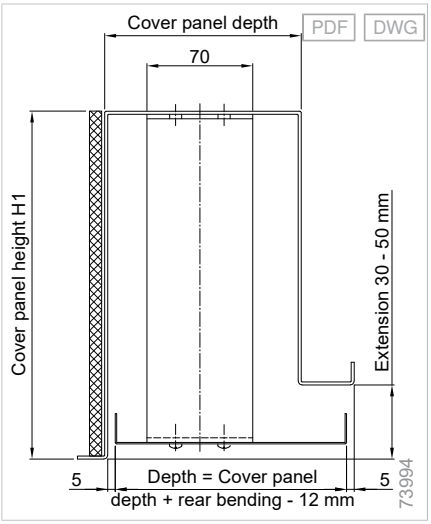
External venetian blind window systems FSR, U-shaped cover panel plaster, dummy cover panel



External venetian blind window systems FSR, U-shaped cover panel, dummy cover panel



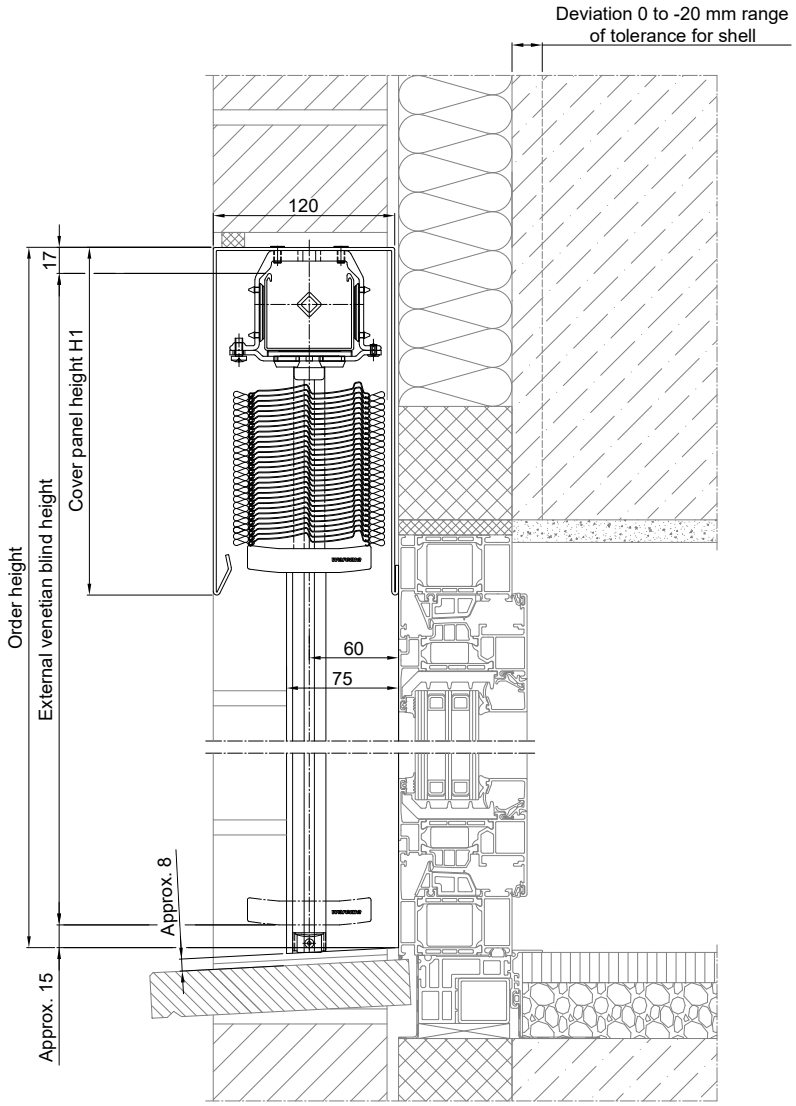
External venetian blind window systems FSR, U-shaped cover panel plaster, dummy cover panel

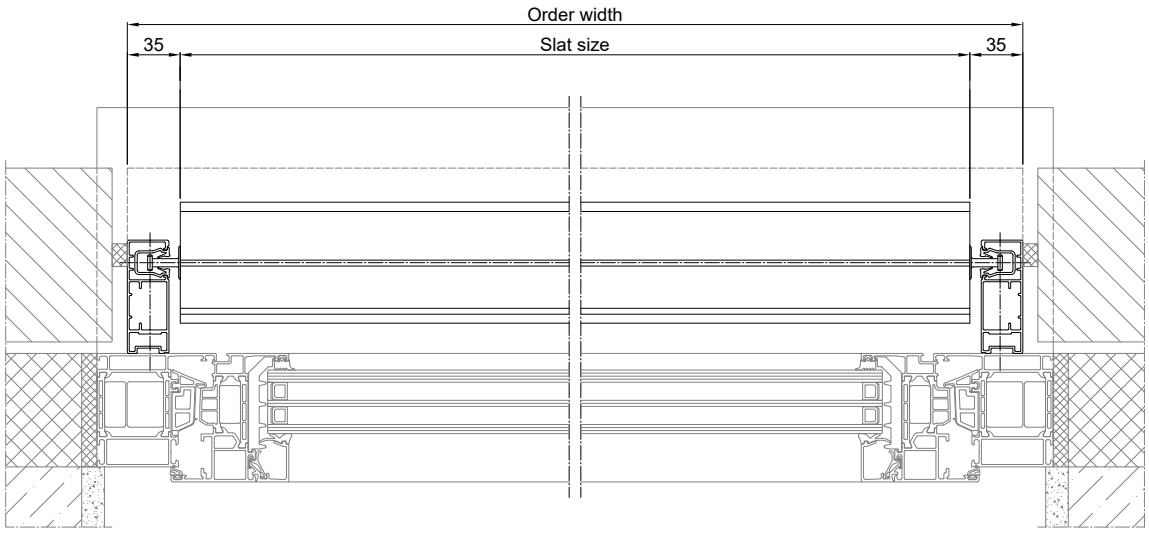


Mounting examples

External venetian blind window system FSR with rail guidance, cover panel XS, Zetra slat 80 Z

PDF DWG

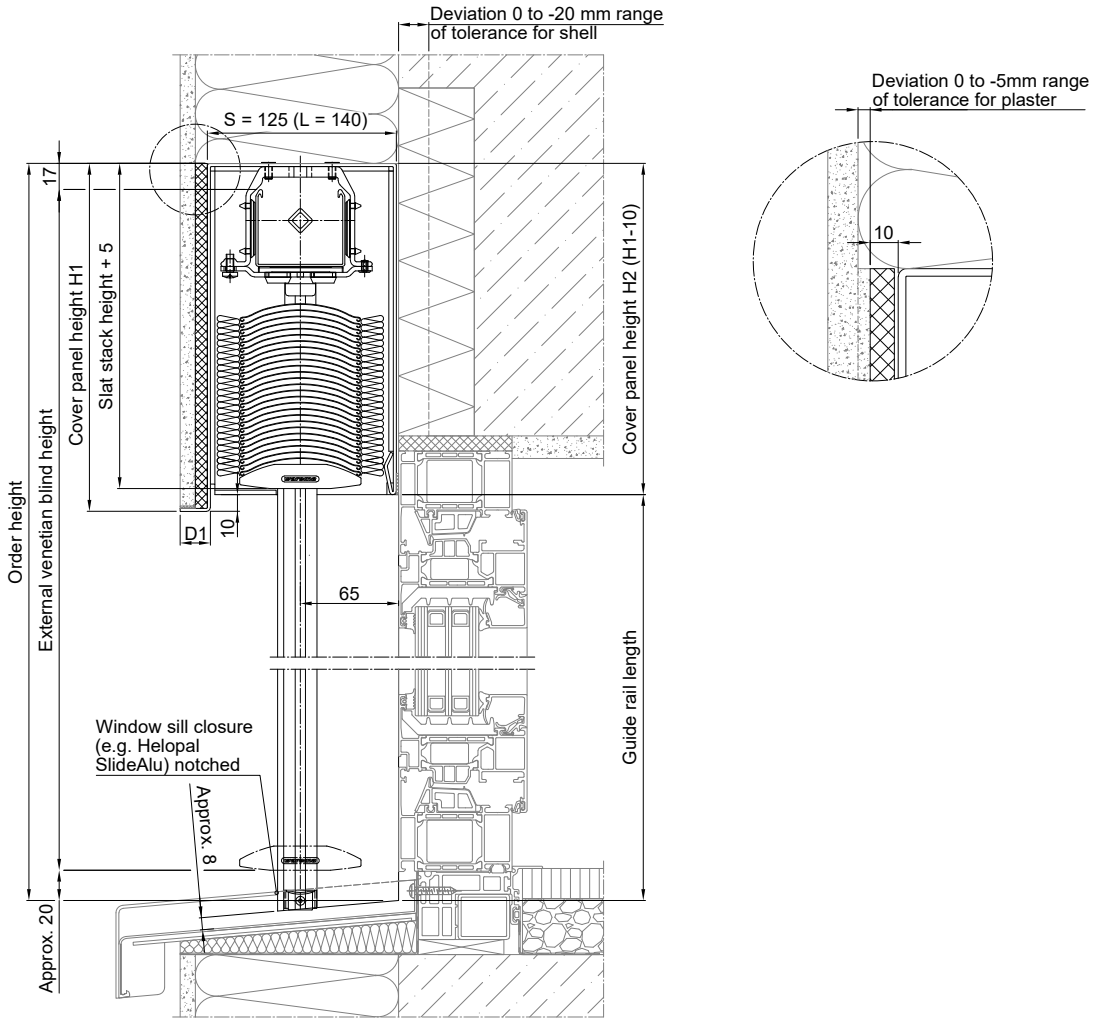


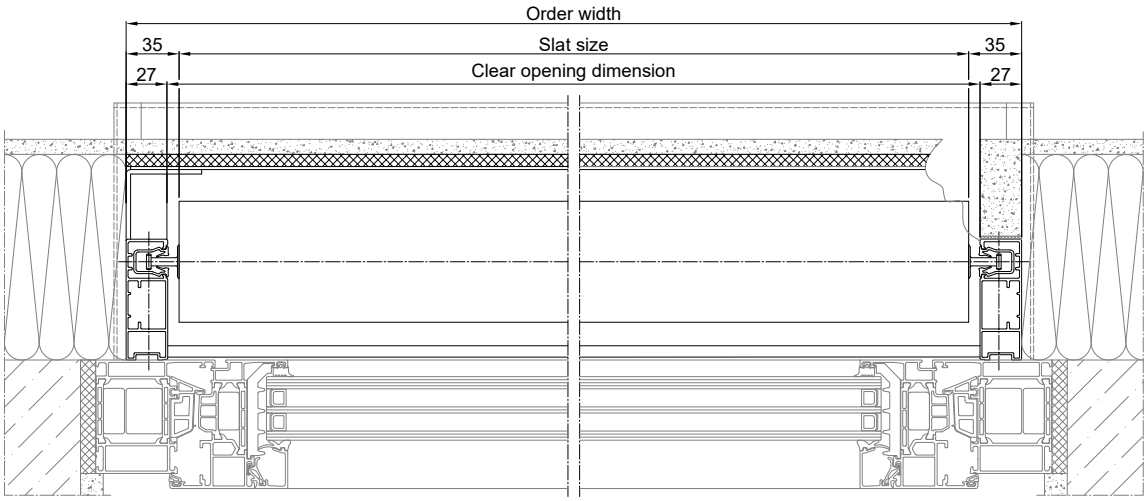


73027v2

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

PDF DWG

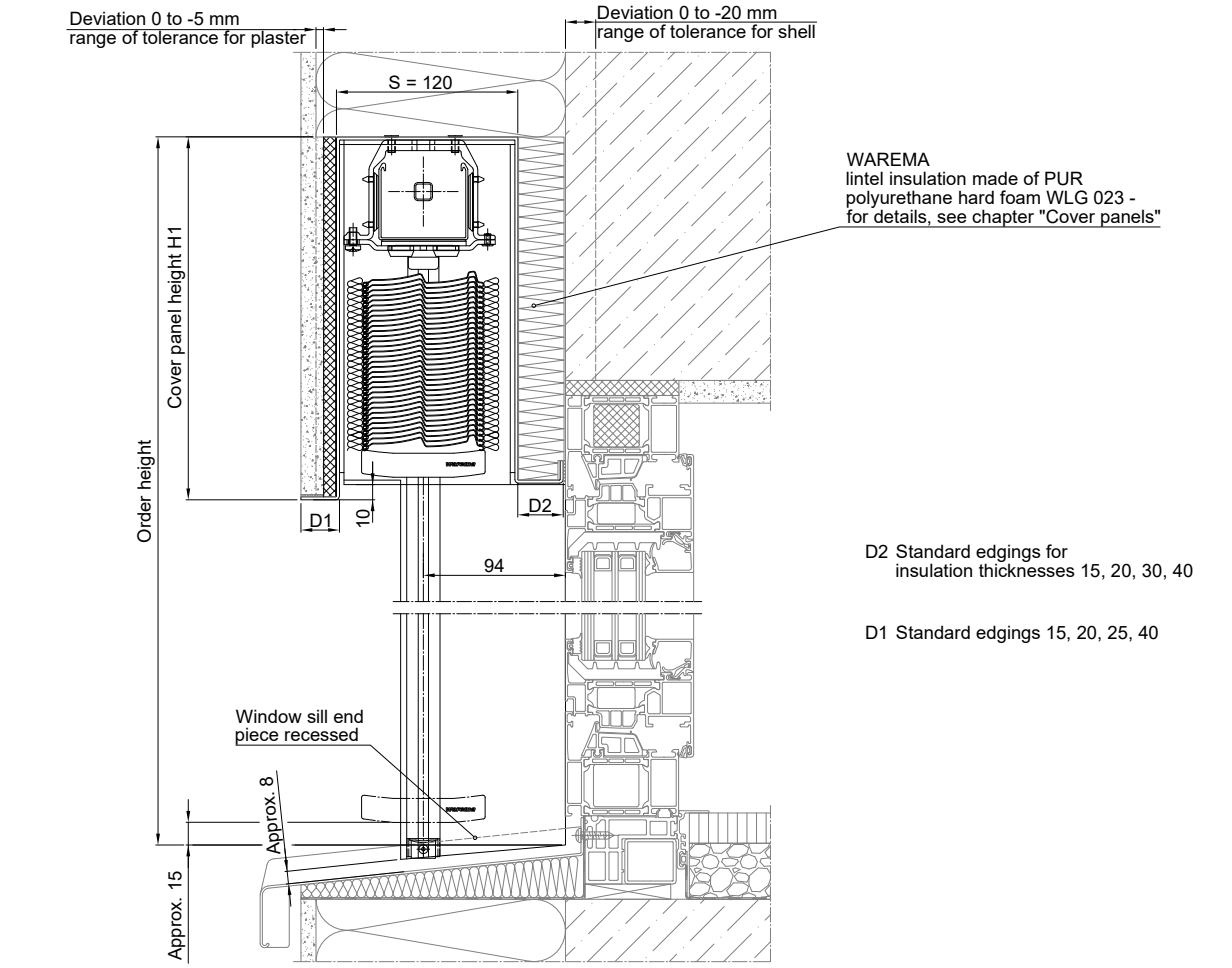


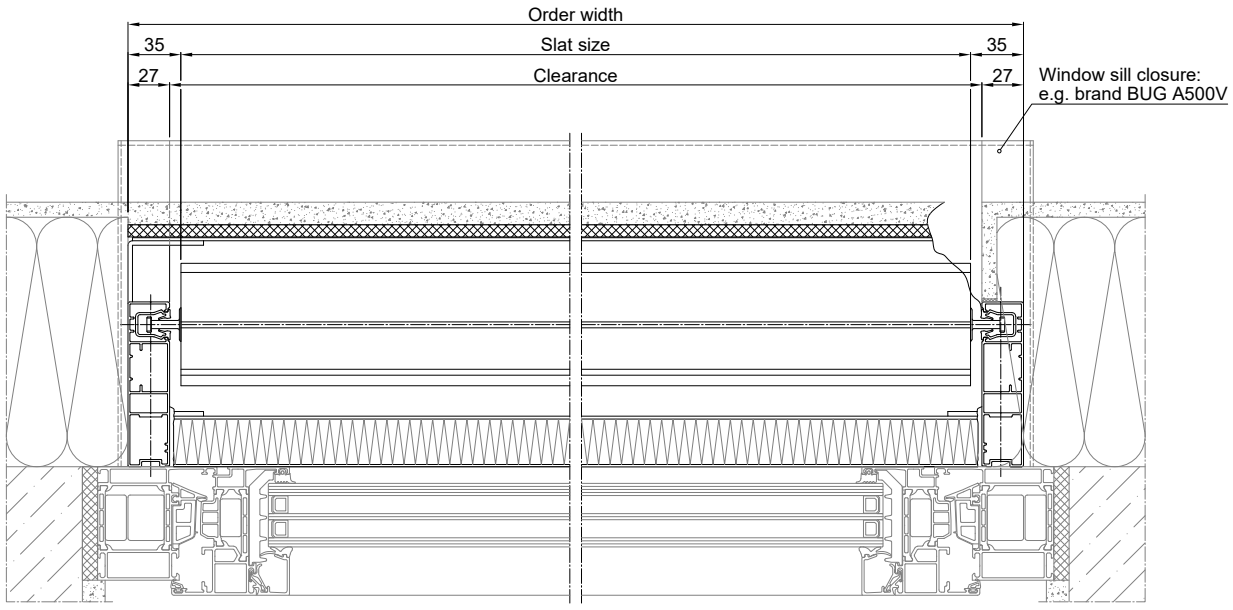


70058v5

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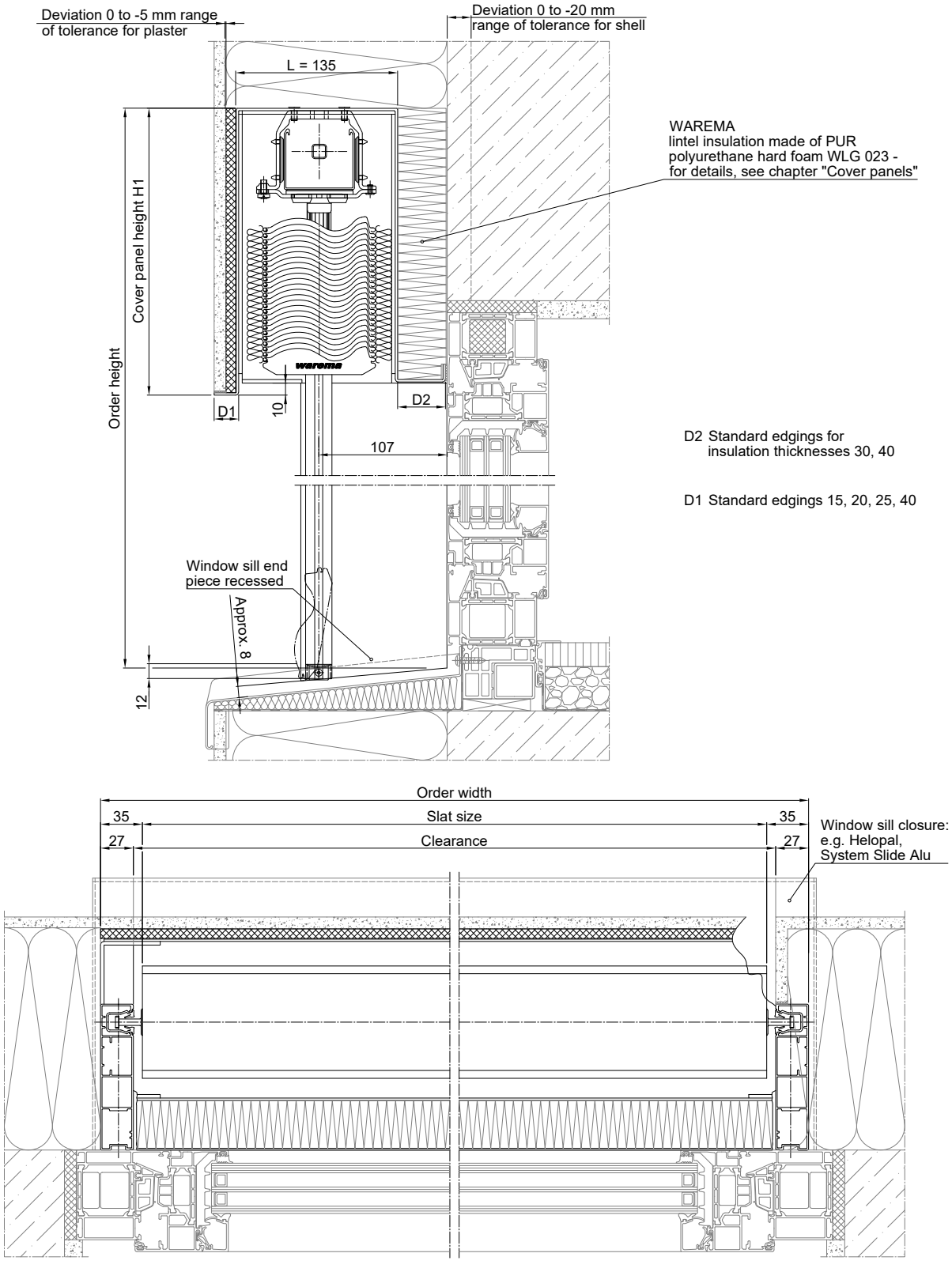




73028v1

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

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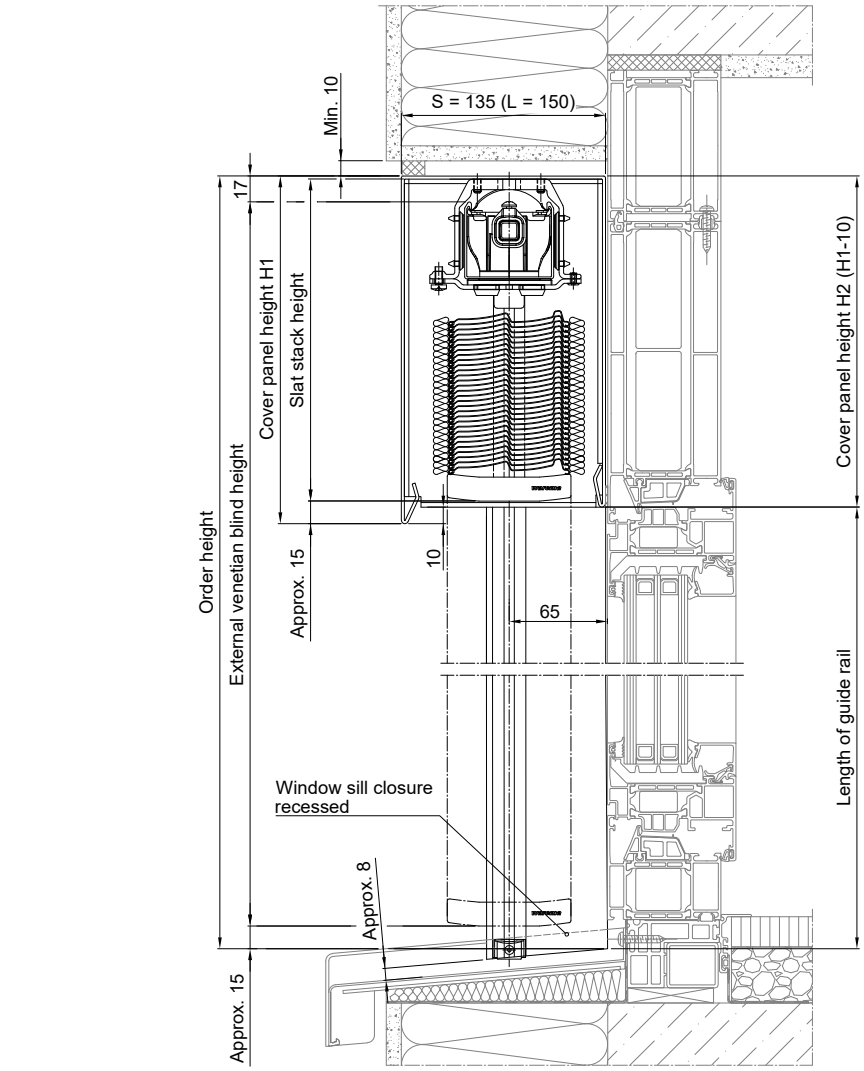


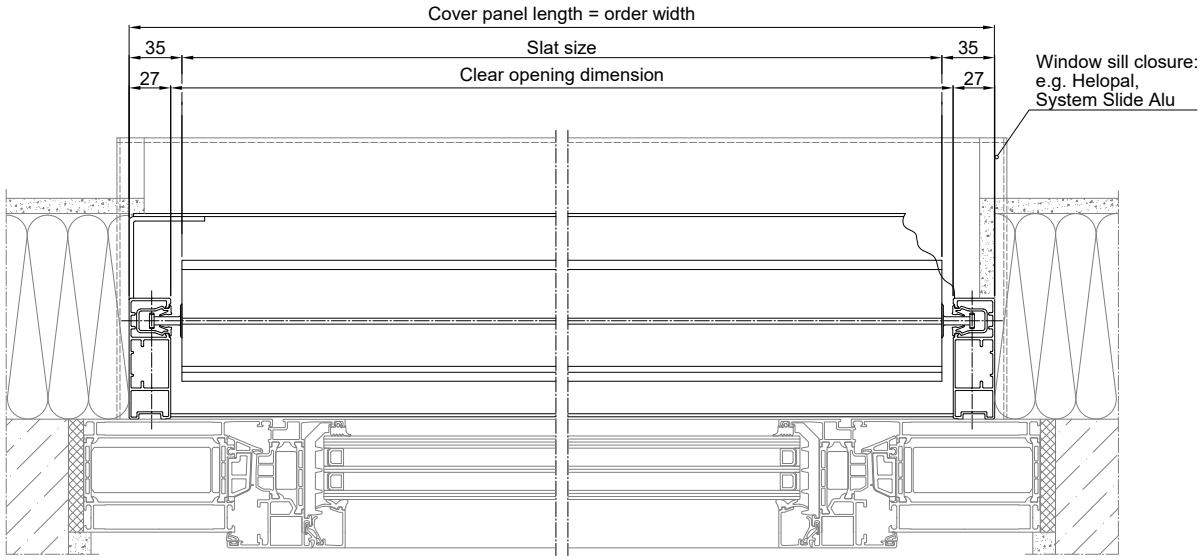
The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

70027v5

External venetian blind window system with rail guidance, cover panel ES-0, Zetra slat 80 Z

PDF DWG



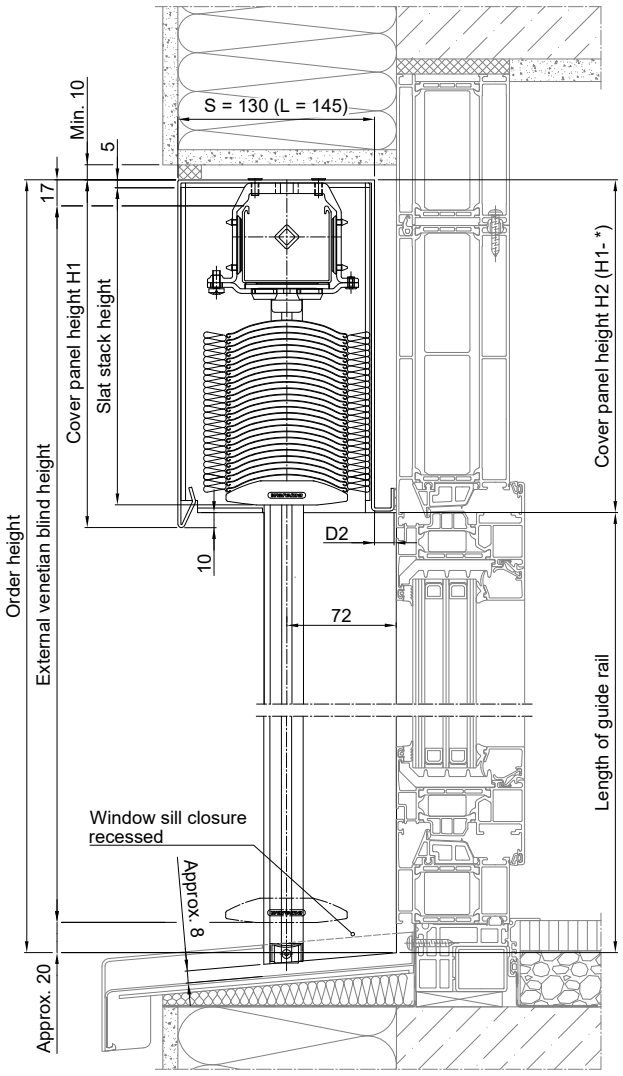


The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

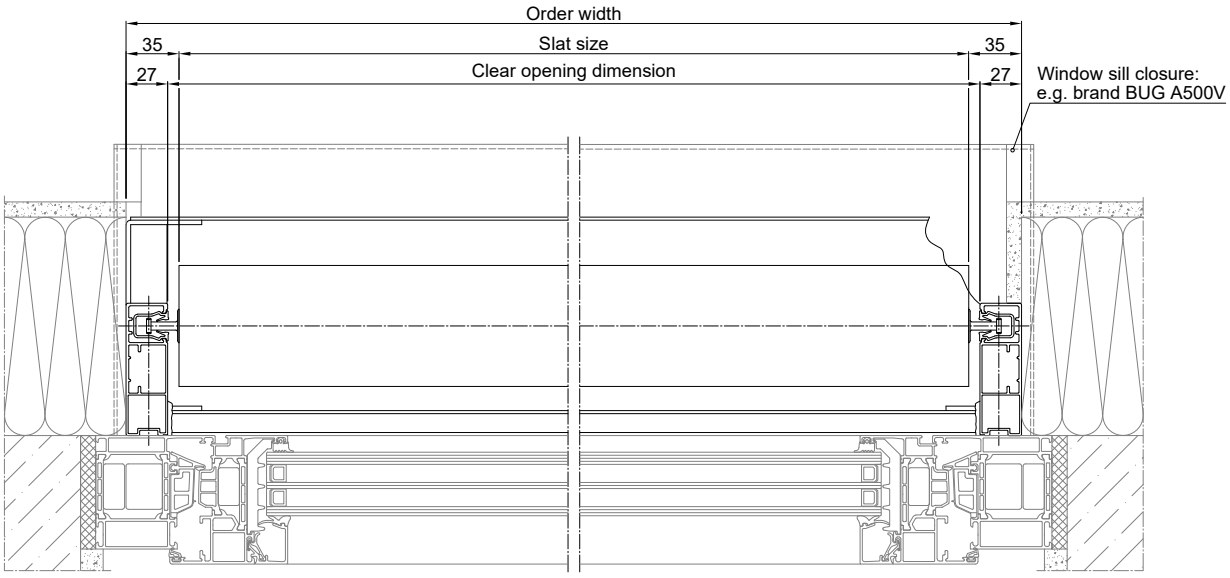
73029v2

External venetian blind window system with rail guidance; cover panel ES with variable rear bending; beaded slats

PDF DWG



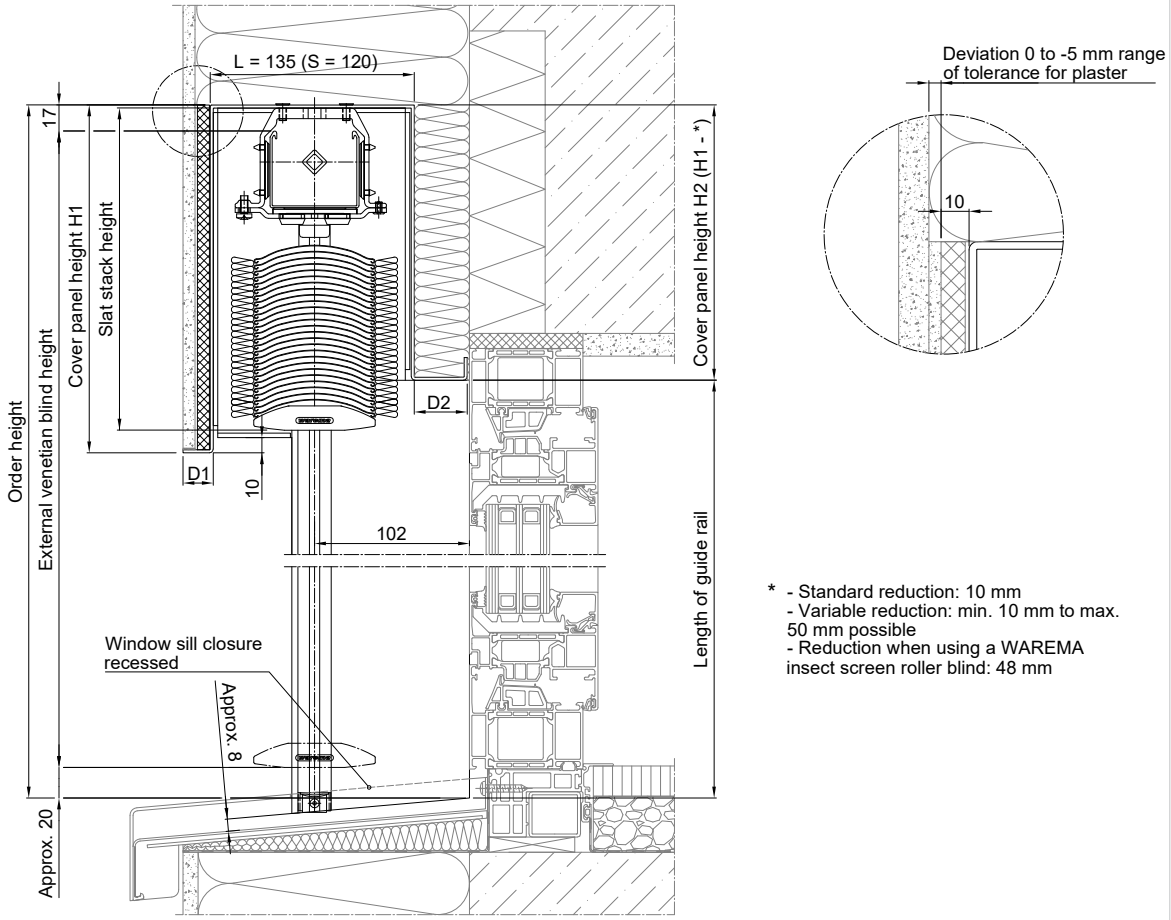
* Cover panel height 10 mm as standard reduction. Variable reduction from min. 10 mm to max. 50 mm possible



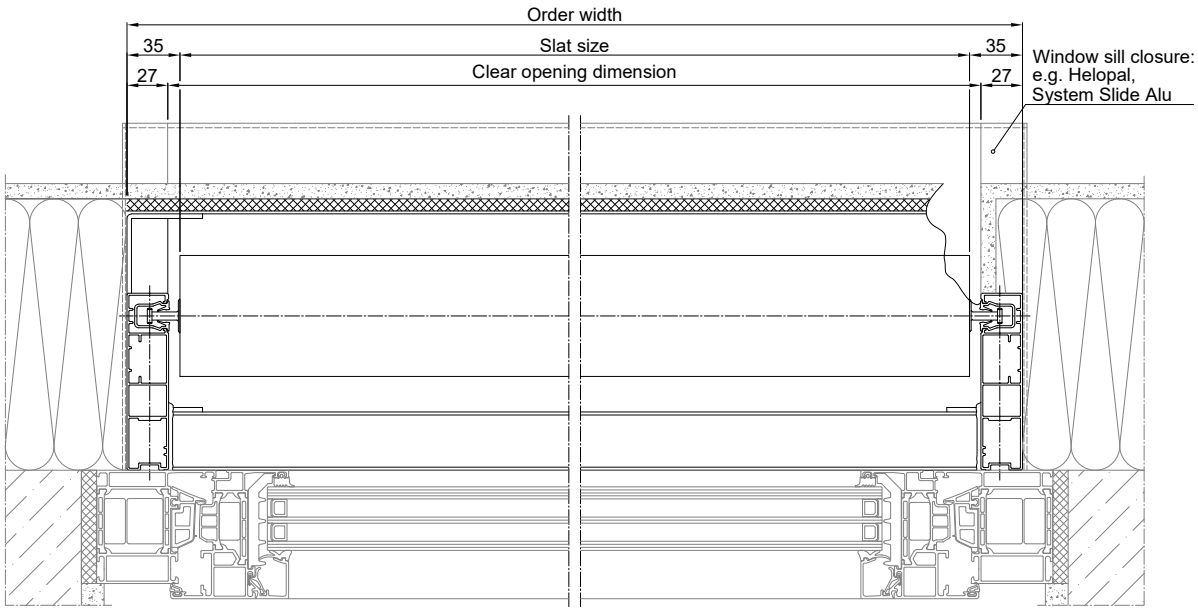
70056v5

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

PDF DWG



* - Standard reduction: 10 mm
- Variable reduction: min. 10 mm to max. 50 mm possible
- Reduction when using a WAREMA insect screen roller blind: 48 mm

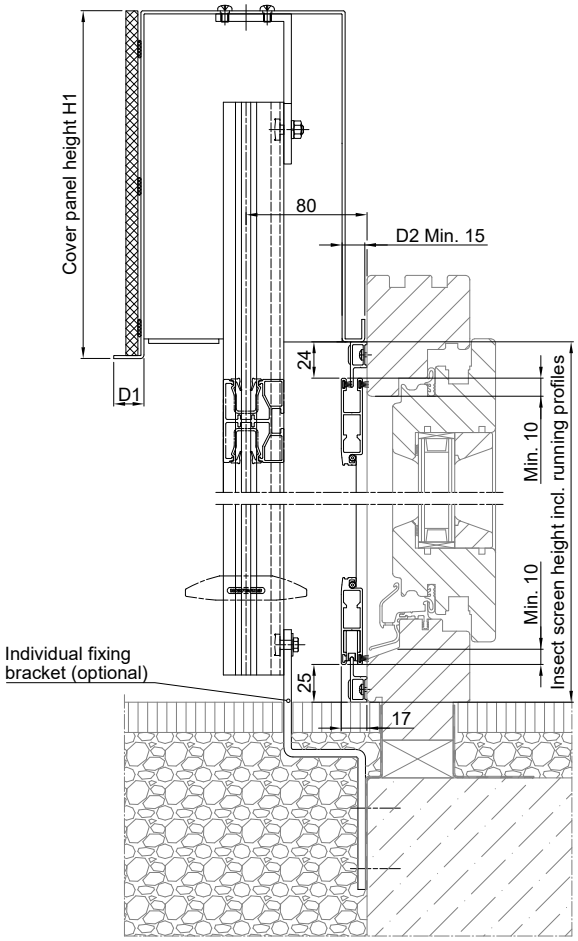


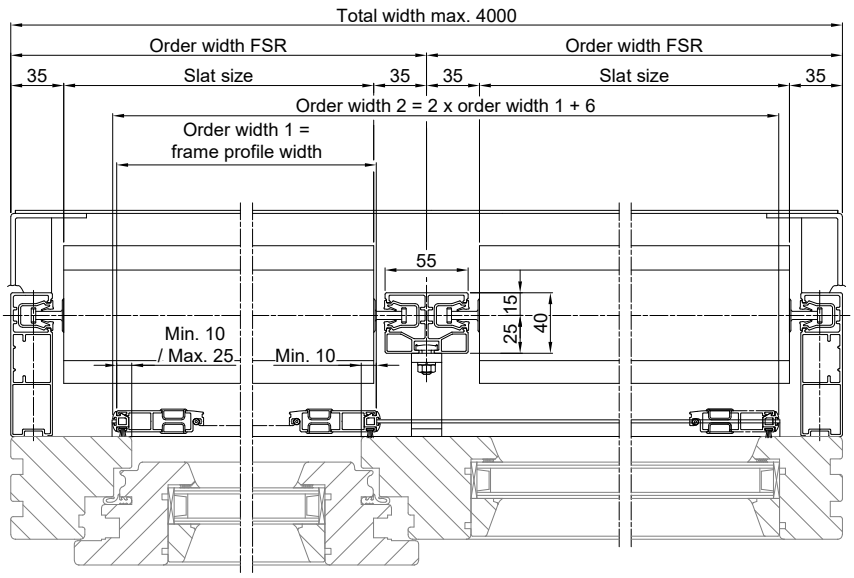
70060v5

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Double guide profile FSCH 55K-40, self-supporting, for insect screen sash frame

PDF DWG





70252v7

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.



External venetian blind window systems

External venetian blind window systems FSR with cable guidance

Flexibly adjustable

Opaque from the outside but with a view out from the inside: The external sun shading system consisting of connected horizontal slats combines thermal protection, glare control, and visual privacy with an adjustable view out.

Seamless

Low installation depth: The aluminium cover panel is matched to the dimensions of the slat and slat stack height and is discreetly integrated into the structure. The slat stack is housed completely in the cover panel – even when the height is greater. The plug-in connector disappears into the cover panel.

Saves space

The cable guidance saves spaces and can be integrated into virtually every facade. The slender, lateral tension cables reliably guide the slats over the end rail.

Floating

Light look: The combination of the cover panel embedded in plaster and the cable guidance appears to be floating.

Solid

High degree of premounting: The sophisticated design, with a premounted slat stack, reduces the installation time. The mounting brackets are used for fixing in the structure. Tension cable brackets secure the lateral cable guidance.

Construction limit values

Maximum order width	4000 mm
Maximum order height	4000 mm
Maximum order area	16 m^2
Maximum order width of the group unit	4000 mm

Order here

myWAREMA

Art.-Nr. 2036132

Order form

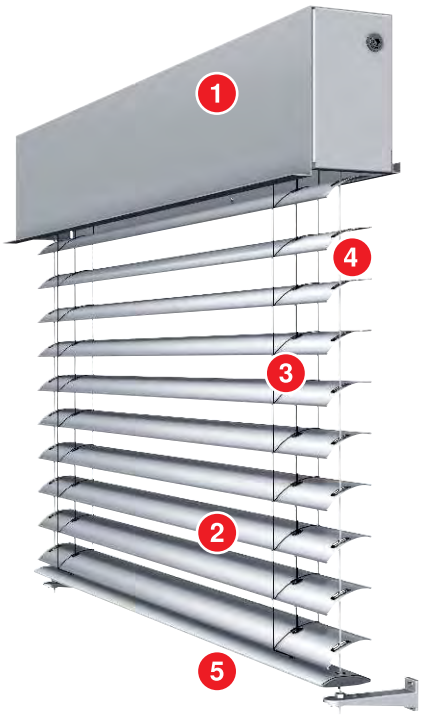
https://docs.warema.com/fi/2008676.pdf

WAREMA tools

Dimensions Assistant
Fastener Assistant
Sun Shading Planner

see "Navigating the document", Page 5

Components



1	Cover panel	4	Lateral guidance
2	Slats	5	End rail
3	Tilting tape, lifting tape		

Cover panel

FSR cover panel with cable guidance

Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

- Cover panels closed by side closures on both sides
- Cover panel fixed to the facade using mounting bracket
- Designed both as a screen and also for complete integration below the external plaster as a plaster base type with plaster base plate (plaster base plate made of polystyrene with material thickness of 8 mm)

Slat size > 3000 mm: An additional mounting bracket is absolutely essential to stabilise the cover panel.

see "Detailed information on cover panels", Page 72

Product variants that can be used

- E 80 A2 S
- E 80 AF A2
- E 80 AF A2 with eyelets
- E 73 A2
- E 90 A2
- E 93 A2

Guide variants

- Cable guidance

see "Cable guidance", Page 390

Tension cable

Tension cable

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

Additional cable guidance from a slat size > 3000 mm:

To prevent components located behind the external venetian blind being damaged by wind load, be sure to plan for an additional cable guidance for rail guidance from a slat length of > 3000 mm.

Arrangement of the additional cable guidance: The arrangement must be specified (viewed from inside the room, starting on the left)

Determination of cable length: External venetian blind height + 100 mm

see "Number of tension cables", Page 99

Drive variants

- Motor

Motor

- Basic motor for external venetian blinds

Motor optional:

- Super-fast terrace motor (STM)
- Motor with 2 lower limit positions
- Motor with freezing protection
- SMI motor

see "Drive variants", Page 489

Colours

- Slat colours
- WAREMA Colour World
- Anodised C0

Colours, optional:

- Anodised C31
- Anodised C32
- Anodised C33
- Anodised C34
- Anodised C35

see "Colours and finishes", Page 12

see "Colours and surfaces for external venetian blind slats in accordance with current collection", Page 15

Supplementary accessories

- Daylight transport element TLT
- Snap-action switch work setting
- slowturn
- Integrated lintel insulation for external venetian blinds
- Battery module UP for external venetian blinds
- Emergency power supply kit
- Slat perforation

see "Supplementary accessories", Page 277

Product characteristics

External venetian blind window systems are specially developed for exterior insulation and finish systems (EIFS). These are integrated into the facade in a concealed form or set coloured accents on the facade as a visible system. The system can be easily integrated into the facade and requires minimum installation work. The fixing in an on-site shaft is also possible.

External venetian blind window systems are suitable for:

- Retrofitting on existing buildings
- New buildings

External venetian blind window systems fulfil three functions:

- Daylight control
- Visual privacy
- Heat protection

Notes

Notes on product configuration

Different tilting systems for external venetian blinds with flat slats: External venetian blind moves down with the slats closed to the outside and moves up with the slats closed to the inside at approx. 55° (Windra flat slat excluded).

Construction limit values

- **Several external venetian blinds in one cover panel:** A maximum of 3 external venetian blinds can be integrated in one cover panel.
- **Pre-installation:** Mechanically coupled external venetian blinds are not supplied premounted.

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area	Maximum order width of the group unit	Group unit, maximum order area	Maximum order area of unit coupling	Maximum quantity of unit couplings per side
Basic external venetian blinds								
E 80 A2 S	660 mm	4000 mm	4000 mm	16 m^2	4000 mm	16 m^2	13 m^2	1
E 80 AF A2	660 mm	4000 mm	4000 mm	16 m^2	4000 mm	16 m^2	13 m^2	1
E 73 A2	660 mm	4000 mm	4000 mm	15 m^2	4000 mm	16 m^2	13 m^2	1
E 90 A2	660 mm	4000 mm	4000 mm	15 m^2	4000 mm	16 m^2	13 m^2	1
E 93 A2	660 mm	4000 mm	4000 mm	15 m^2	4000 mm	16 m^2	13 m^2	1

For external venetian blind window systems with cable guidance, the information on "Minimum order width" and "Maximum order width" always refers to the cover panel length (= order width).

Order width > 4000 mm available on request

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

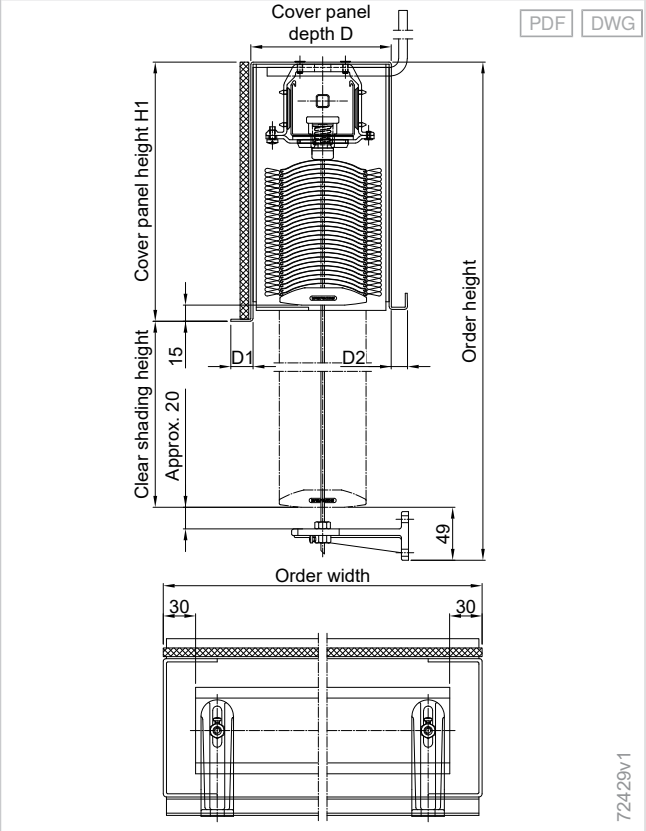
Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances in accordance with the "Guideline for assessing the product features of external venetian blinds" apply.

Dimension determination

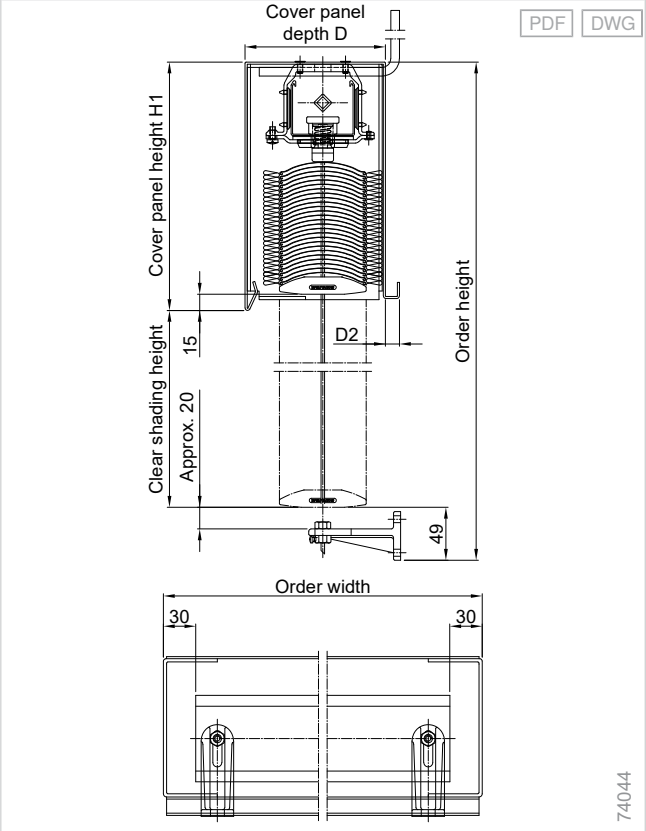
Configuration view: The order dimensions are determined from interior view, from left to right.

Reference dimension	Dimension determination
Order width	Slat size + 60 mm
Order height	Bottom edge of tension cable bracket to top edge of cover panel
Cover panel height H1	see detailed information on cover panel
Cover panel depth T	see detailed information on cover panel

External venetian blind window systems FSR with cable guidance, cover panel plaster



External venetian blind window systems FSR with cable guidance, cover panel rectangular



Quantity determination

Number of tension cables

Slat size	Number
0 - 3000 mm	2
3001 - 4000 mm	3

Additional cover panel fixing with number of tension cables > 3 pieces:
the cover panel has to be additionally supported for each additional tension cable. One BG 72 mounting bracket is required for each tension cable.

Detailed information on cover panels

Cover panel height H1:

210 mm, 240 mm, 270 mm and 300 mm

Deviating cover panel heights are available as options.

Possible cover panel models:

E = rectangular model (U-shaped cover panel)

P = plaster base type (plaster cover panel)

Cover panel designation consists of cover panel model + cover panel depth T + rear cover panel fold

Cover panel designation example: **PS-0**

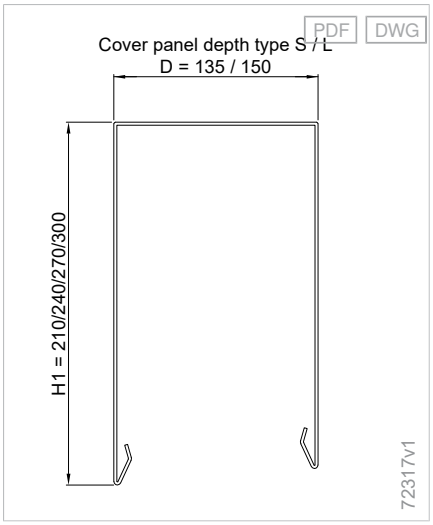
Cover panel dimensions

Cover panel model	Cover panel depth T	Rear cover panel fold
E	S = 135 mm	0
E	L = 150 mm	0
E	S = 130 mm	Variable*
E	L = 145 mm	Variable*
P	S = 125 mm	0
P	L = 140 mm	0
P	S = 120 mm	Variable*
P	L = 135 mm	Variable*

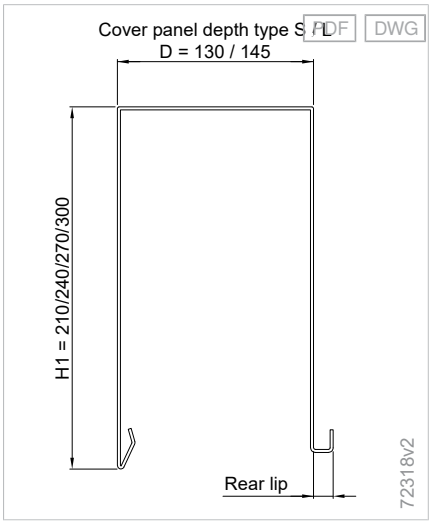
* Rear cover panel fold can be ordered in a version that is infinitely variable between 15 mm and 90 mm

Dim-out slats E 90 A2 and E 93 A2 with cover panel depth S not available.

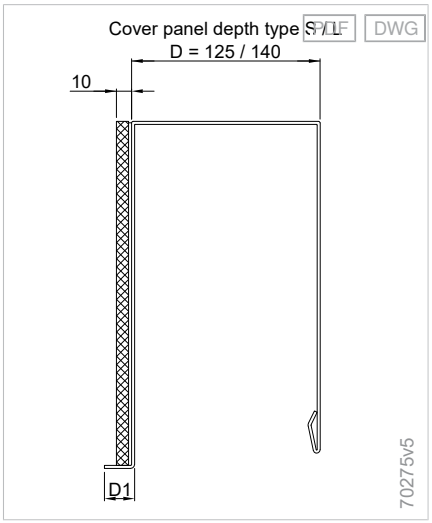
External venetian blind window systems FSR, cover panel rectangular



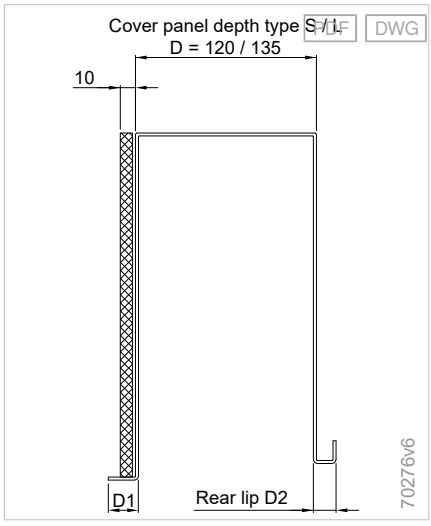
External venetian blind window systems FSR, cover panel rectangular, cover panel back fold



External venetian blind window systems FSR, cover panel plaster



External venetian blind window systems FSR, cover panel plaster, cover panel back fold

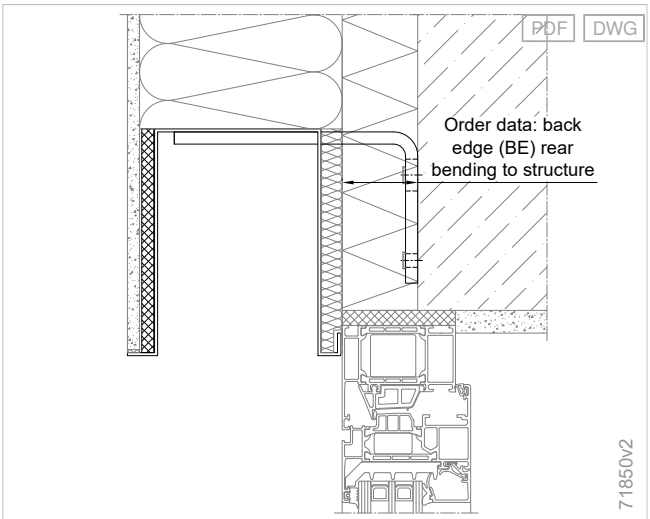


Cover panel fixing distance

Maximum cover panel fixing distance

Cover panel depth	Max. distance of cover panel back edge to leading edge of mounting substructure
S = 130 mm	85 mm
L = 145 mm	75 mm

Back edge of cover panel back fold to structure for bracket length



End rail stack protrusion

Maximum order height without stack protrusion (maximum clear shading height without stack protrusion) in mm

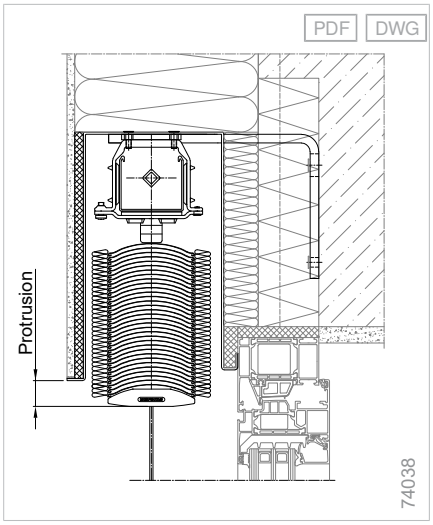
Types	H1 = 210 mm	H1 = 240 mm	H1 = 270 mm	H1 = 300 mm	Approx. stack increase per 100 mm of additional height (mm)
E 80 A2 S	2000 (1741)	2600 (2311)	3200 (2881)	3800 (3451)	5
E 80 AF	3500 (3241)	4000 (3711)	4000 (3681)	4000 (3651)	3
E 80 AF (with eyelets)	3200 (2941)	4000 (3711)	4000 (3681)	4000 (3651)	3
E 73 A2	1600 (1341)	2100 (1811)	2700 (2381)	3300 (2951)	5
E 90 A2	2200 (1941)	2900 (2611)	3700 (3381)	4000 (3651)	4
E 93 A2	2200 (1941)	2900 (2611)	3700 (3381)	4000 (3651)	4

Slat stack heights are approximate values and for technical reasons, they might be higher or lower. Stack parallelism with retracted external venetian blind: +/- 10 mm

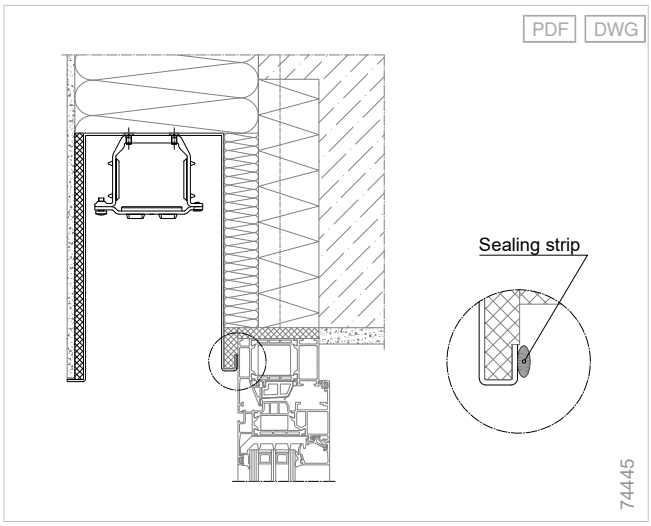
Rail/cable combination: For external venetian blinds with combined rail and cable lateral guidance, the maximum order heights without stack protrusion of the units with cable guidance must be used as a basis.

Model with insect screen swivel door: In combination with insect screen swivel door, the external venetian blind must retract completely into the box.

Stack protrusion



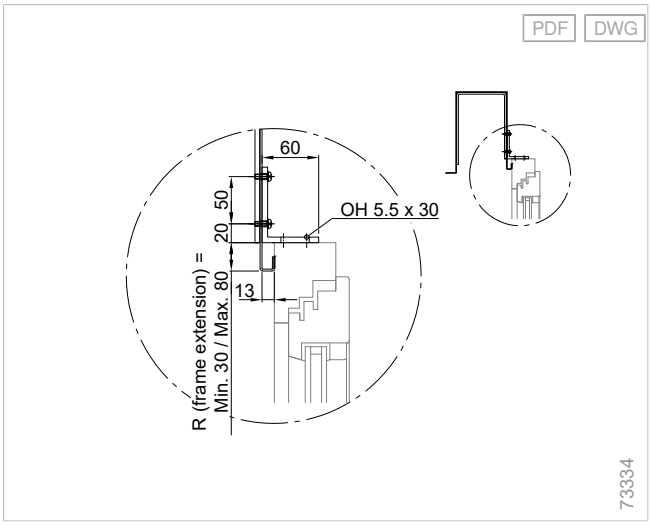
External venetian blind window systems FSR, cover panel plaster, sealing strip



Optional sealing strip applied at the factory

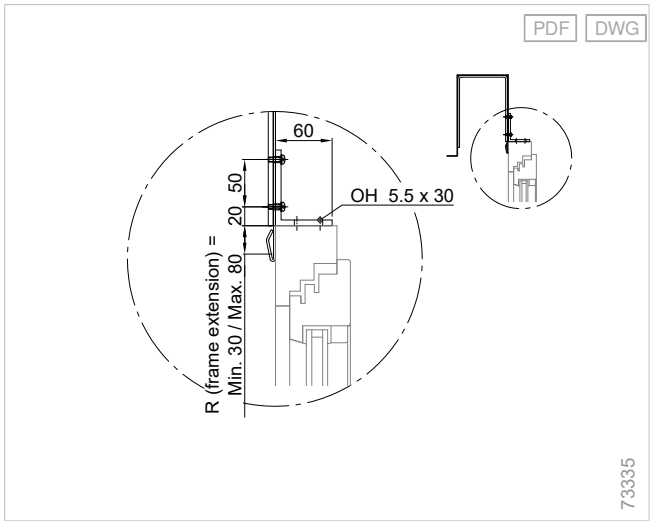
Additional cover panel fixing

External venetian blind window systems FSR, additional cover panel fixing, cover panel back fold



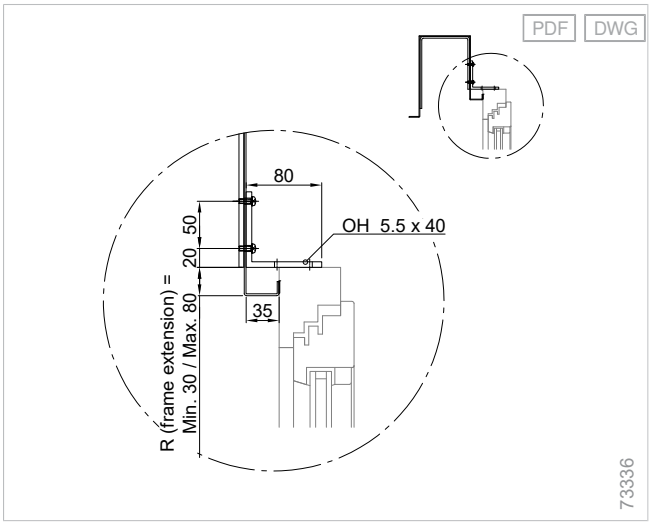
Angle bracket 80x60x6, art. no. 508314

External venetian blind window systems FSR, additional cover panel fixing, cover panel back fold for insect screen



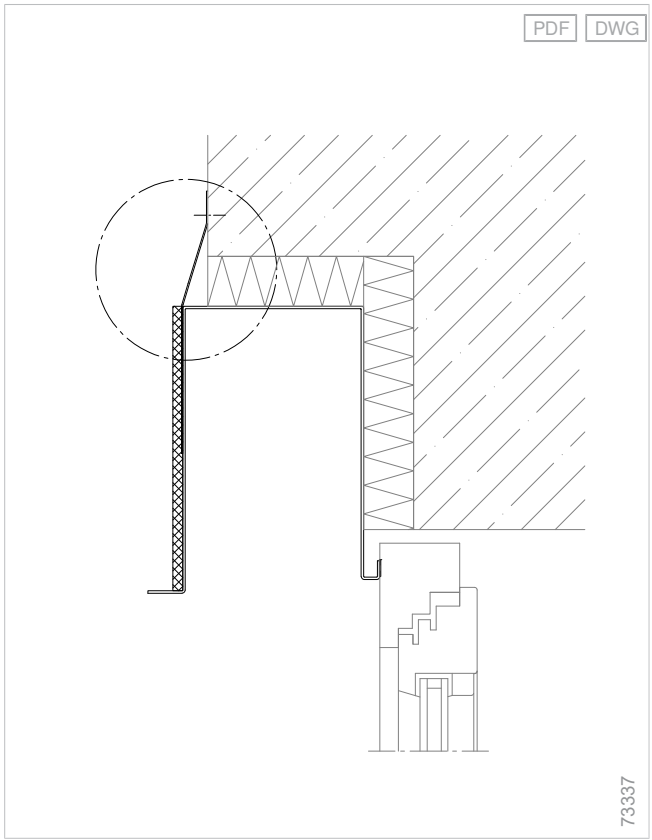
Angle bracket 80x80x6, art. no. 504082

External venetian blind window systems FSR, additional cover panel fixing, without cover panel back fold



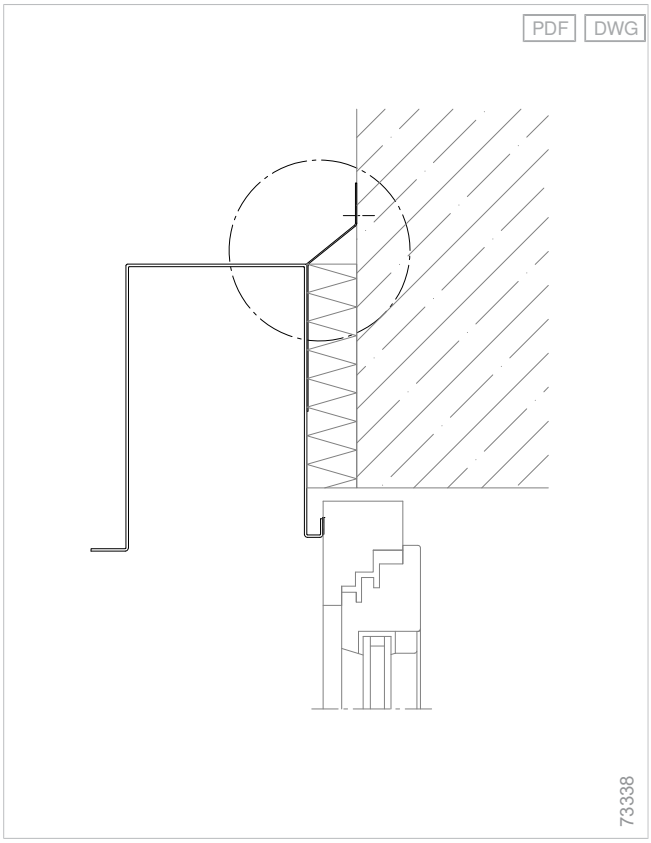
Angle bracket 80x60x6, art. no. 508314

Additional cover panel fixing via mounting strap (mounting strap, outside)



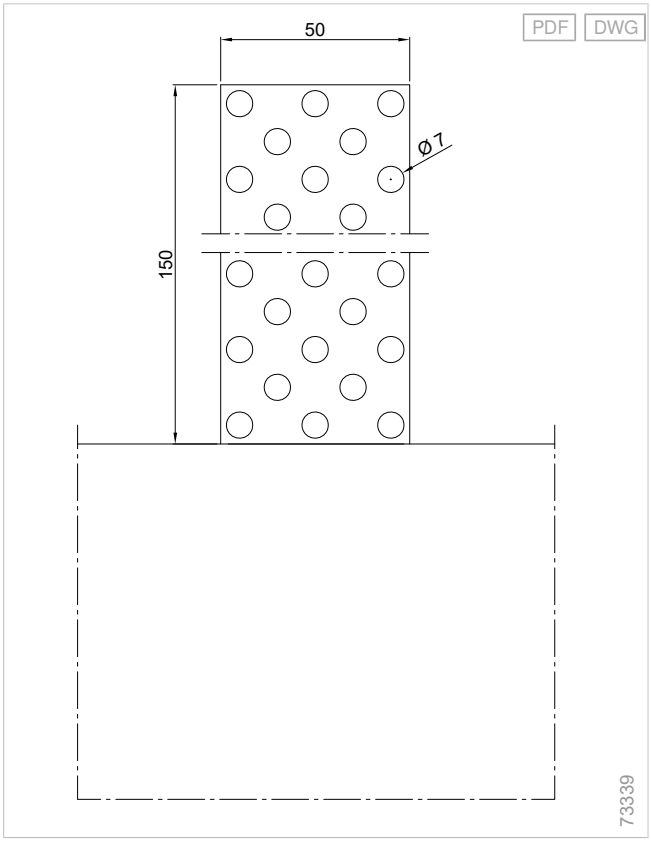
Mounting strap 268x50, Art.-Nr.: 502041

Additional cover panel fixing via mounting strap (mounting strap, inside)



Mounting strap 268x50, art. no.: 502041

Mounting plate details view



Additional product information

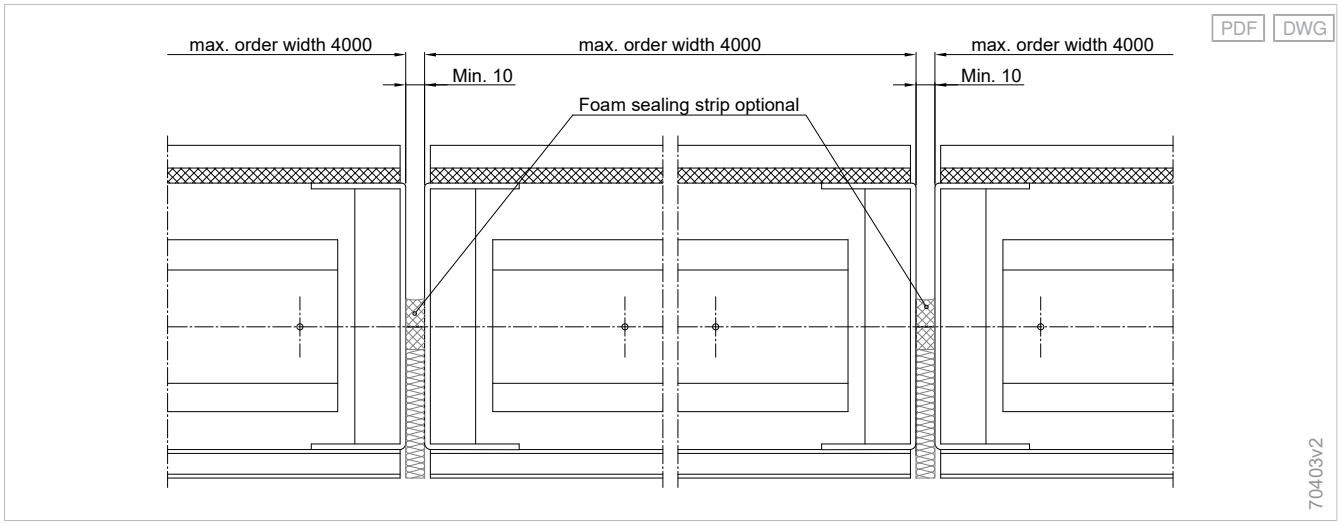
Detailed information on cable exit

Information on the cable exit in external venetian blind window systems can be found with the information on external venetian blind window systems with rail guidance.

see "Detailed information on cable exit", Page 78

Detailed information on combinations, cable guidance

Continuous cover panel with expansion joint



see "Detailed information on combinations, rail guidance", Page 79

Cover panel extensions/corners

Information on the external venetian blind window systems FSR with cover panel extensions and on corner positions can be found with the information on external venetian blind window systems with rail guidance.

see "Cover panel extensions/corners", Page 84

Dummy cover panels/dummy end rails

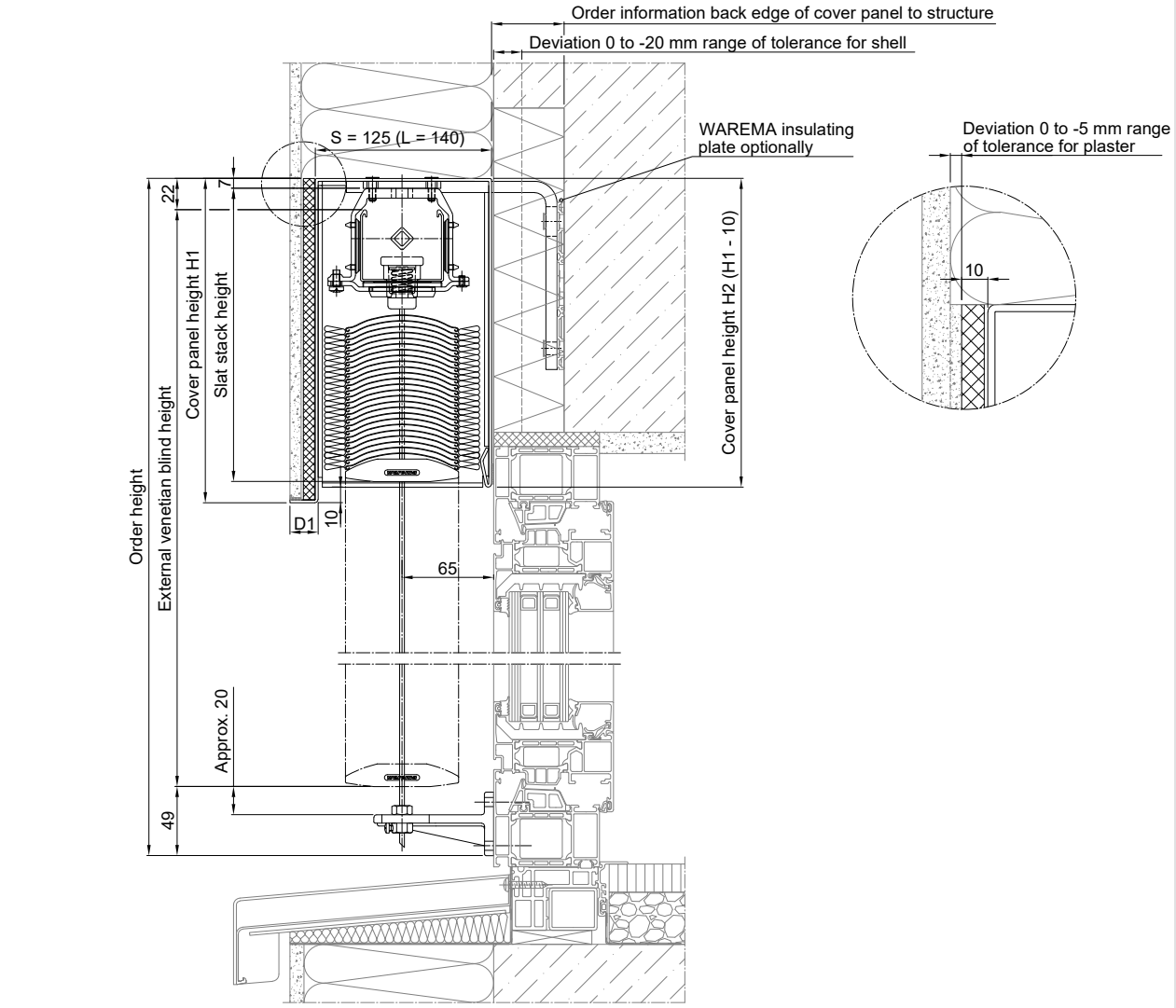
Information on external venetian blind window systems FSR with dummy cover panels and dummy end rails can be found under External venetian blind window systems with rail guidance.

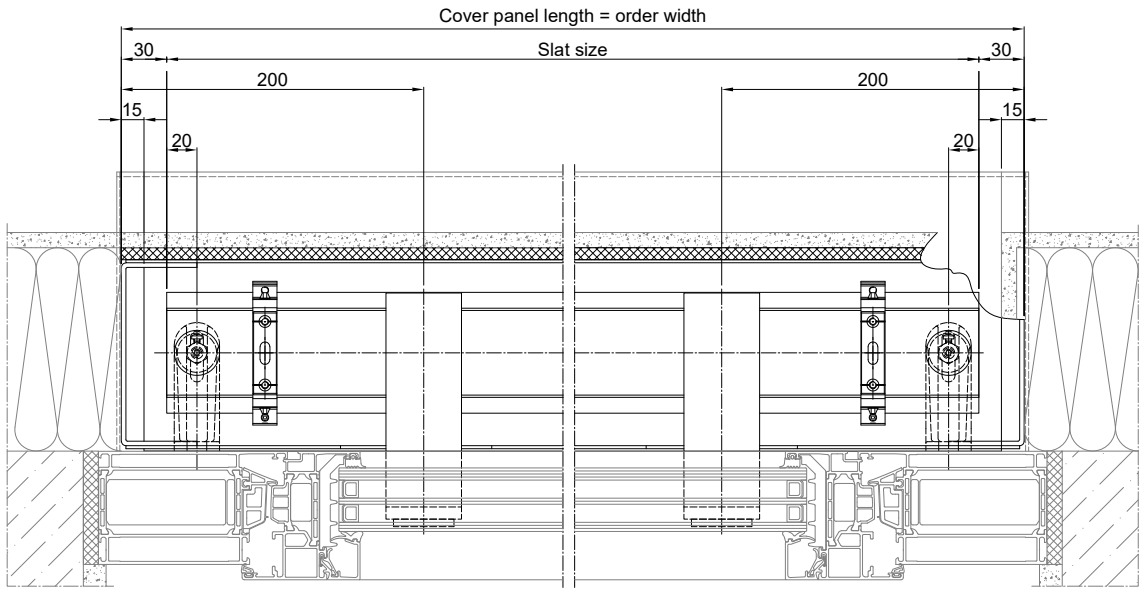
see "Optional dummy cover panels and dummy end rails", Page 87

Mounting examples

External venetian blind window system with cable guidance; cover panel PS-0; beaded slats

PDF DWG

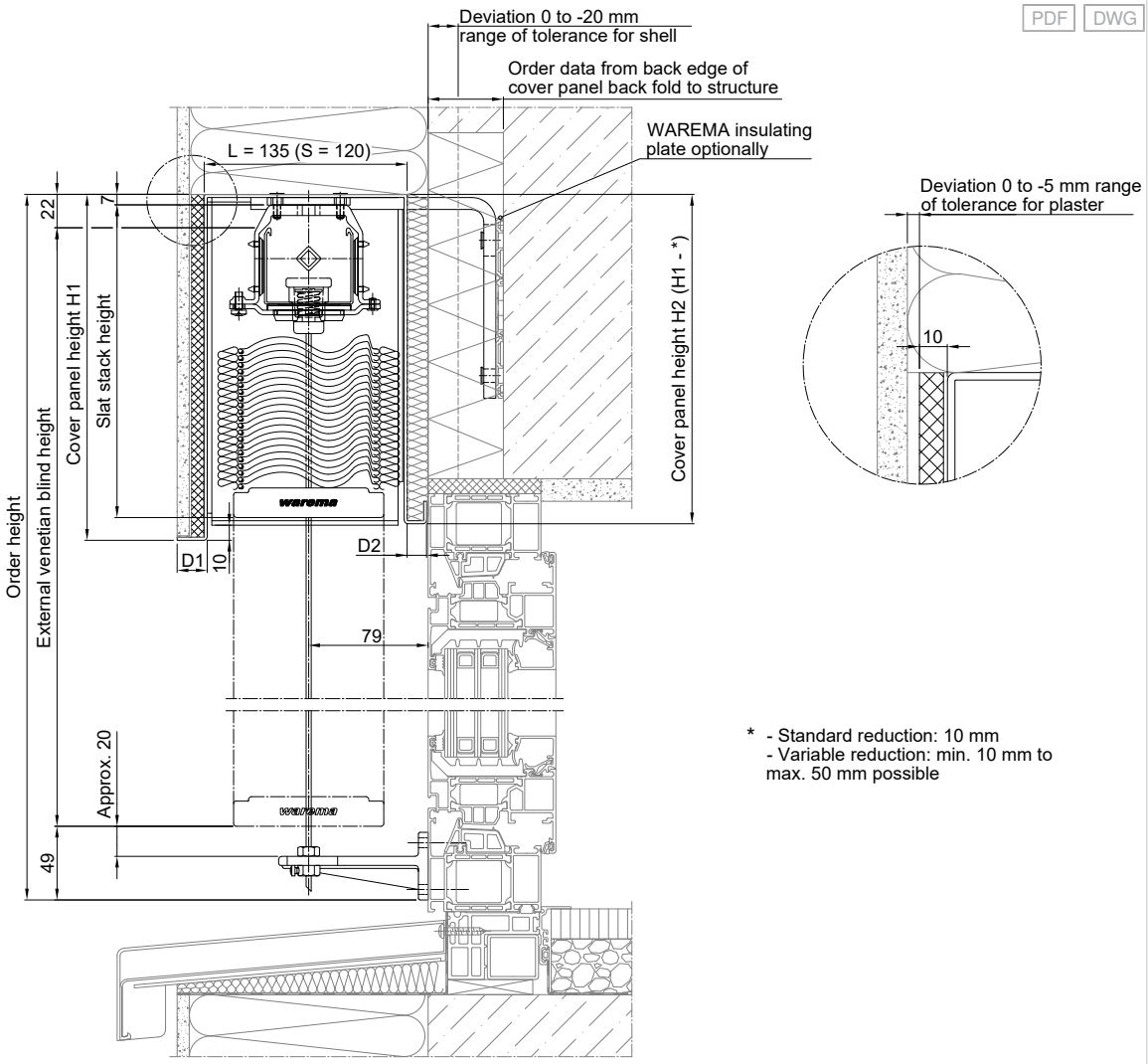


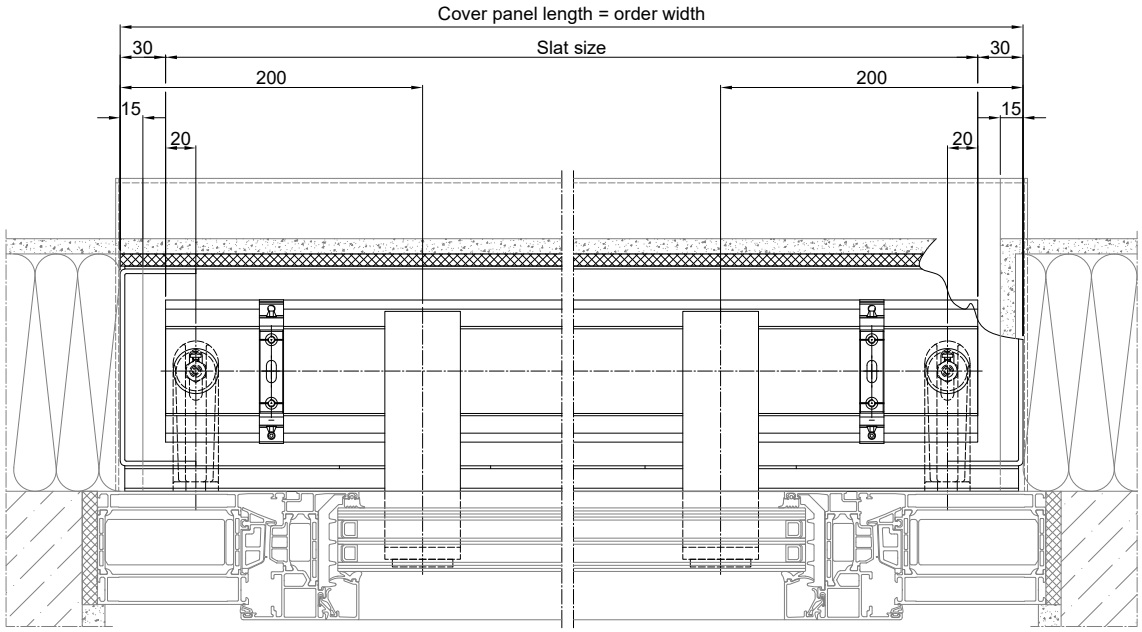


The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

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Contents

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Front-mounted external venetian blinds R10 128



Front-mounted external venetian blinds

Front-mounted external venetian blinds R6

Flexibly adjustable

Opaque from the outside but with a view out from the inside: The external sun shading system consisting of connected horizontal slats combines thermal protection, glare control, and visual privacy with an adjustable view out.

Universal

Ideal for new buildings, retrofits and renovations: Installed in front of the window, this system suits any design of building – unobtrusively embedded in plaster or with a visible box as a design element.

Saves space

Ideal for conventional window and door heights in residential buildings: The box with special storage of the slat stack ensures a compact housing of the external venetian blind stack in front of the window, and brings as much light as possible into the room.

Pre-assembled

Front-mounted systems in a compact design: The box with the slat stack already premounted is placed on the guide rails and mounted in front of the window as one unit.

Uniform appearance

Cross-system combinations: The front-mounted models of external venetian blinds, roller shutters and window awnings feature boxes that look the same or similar. When combined, they create a harmonious facade appearance with sun shading systems that are matched to the particular use of the room.

Construction limit values

Maximum order width	4000 mm
Maximum order height	4000 mm
Maximum order area	16 m^2
Maximum order width of the group unit	6000 mm

Order here

myWAREMA

Art.-Nr. 2036117

Order form

https://docs.warema.com/fi/877924.pdf

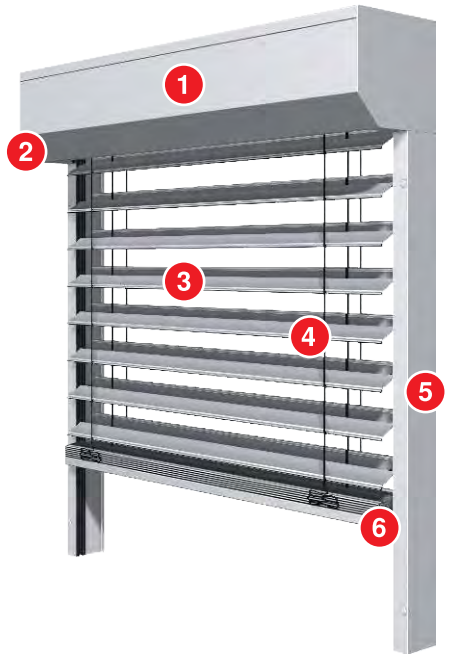
WAREMA tools

Dimensions Assistant
Fastener Assistant
Sun Shading Planner

see "Navigating the document", Page 5

Components

Front-mounted external venetian blind, R6 rectangular, Zetra slat



1	Box	4	Loop cord, lifting tape
2	Inspection cover	5	Lateral guidance
3	Slats (Zetra slats 80 Z)	6	End rail

Box

Boxes for front-mounted external venetian blinds

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised

- The boxes are fixed onto the guide rails
- Boxes are closed on 4 sides
- Cut edges are concealed
- Side covers made of diecast aluminium
- Designed both as a screen or for complete integration below the external plaster as a plaster base type with plaster base plate (plaster base plate made of polystyrene with material thickness of 8 mm)
- With plaster pieces, the box can be laterally embedded in plaster up to 30 mm (with standard plaster base type)

Additional box fastening: For plaster base types of order widths of 1500 mm and greater, we recommend an additional box fastening.

see "Box dimensions", Page 113

Product variants that can be used

- E 80 A6 S
- E 80 AF A6
- E 80 A6 Z
- E 73 A6

Guide variants

- Rail guidance

Guide rail

- FSCH 30-68 (type 50)

Guide rail, optional:

- Front-mounted guide rails, bracket installation (for box shape Rectangular, Round, Square)

see "Guide rail with 2K plastic clip profile (front-mounted external venetian blinds)", Page 370

Tension cable

Additional cable guidance

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

To prevent components located behind the external venetian blind being damaged by wind load, an additional cable guidance in the centre is either mandatory or recommended for rail guidance from a defined width of slat, depending on the slats used:

- Beaded slats: from a slat size > 3000 mm (recommended)
- Flat slats (incl. Windra flat slat): from a slat size > 2400 mm (mandatory)
- Dim-out slats: no additional tension cable required

Arrangement of the additional cable guidance: The arrangement must be specified (viewed from inside the room, starting on the left)

Determination of cable length: External venetian blind height + 100 mm

Drive variants

- Motor

see "Drive variants", Page 489

Colours

- Slat colours
- WAREMA Colour World
- Anodised C0

Colours, optional:

- Anodised C31
- Anodised C32
- Anodised C33
- Anodised C34
- Anodised C35

see "Colours and finishes", Page 12

see "Colours and surfaces for external venetian blind slats in accordance with current collection", Page 15

Supplementary accessories

- WAREMA SecuKit for external venetian blinds
- VisioNeo Sun railing system
- SenSigna, external venetian blind with acoustic signal
- Daylight transport element TLT
- slowturn
- Integrated lintel insulation for external venetian blinds
- Battery module UP for external venetian blinds
- Emergency power supply kit
- Solar drive for external venetian blinds
- Slat perforation
- WAREMA SecuKit

see "Supplementary accessories", Page 277

Notes

Different tilting systems for external venetian blinds with flat slats: External venetian blind moves down with the slats closed to the outside and moves up with the slats closed to the inside at approx. 55°.

For further information, see the chapter "Basic external venetian blinds" for the relevant product variant.

Construction limit values

Several external venetian blinds in one box: A maximum of 3 external venetian blinds can be integrated in one box.

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area	Maximum order width of the group unit	Group unit, maximum order area
Basic external venetian blinds						
E 80 A6 S	680 mm	4000 mm	4000 mm	16 m^2	6000 mm	24 m^2
E 80 AF A6	680 mm	4000 mm	4000 mm	16 m^2	6000 mm	24 m^2
E 80 A6 Z	680 mm	4000 mm	4000 mm	15 m^2	6000 mm	24 m^2
E 73 A6	680 mm	4000 mm	4000 mm	15 m^2	6000 mm	24 m^2

For front-mounted external venetian blinds, the information on "Minimum order width" and "Maximum order width" always refers to the back edge of the guide rails.

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances as per the "Guideline for assessing the product features of external venetian blinds" apply.

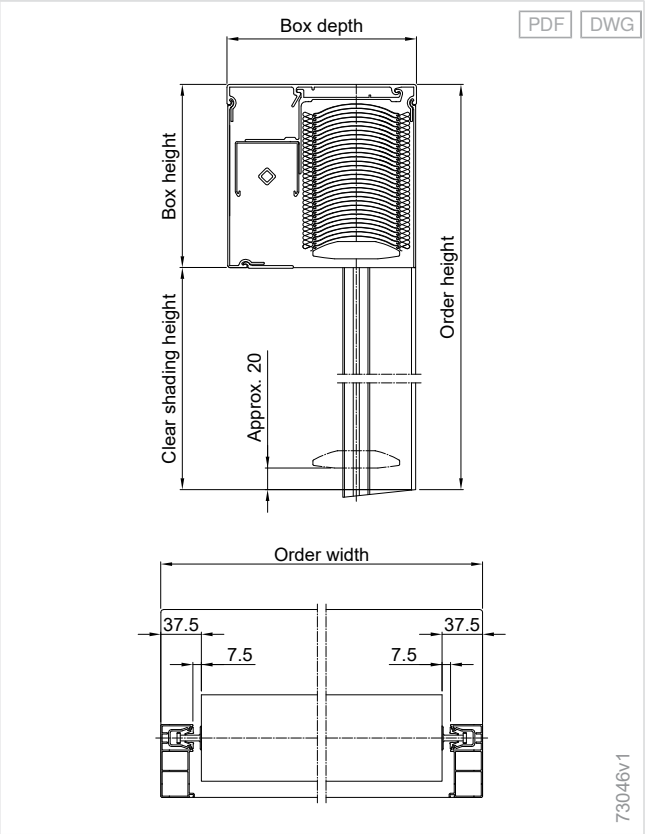
Dimension determination

Configuration view: The order dimensions are determined from interior view, from left to right.

Reference dimension	Dimension determination
Order width	Back edge of the guide rails to the back edge of the guide rails
Order height	Bottom edge of the guide rail to top edge of the box
Box height	see box dimensions for each box shape
Box depth	see box dimensions for each box shape

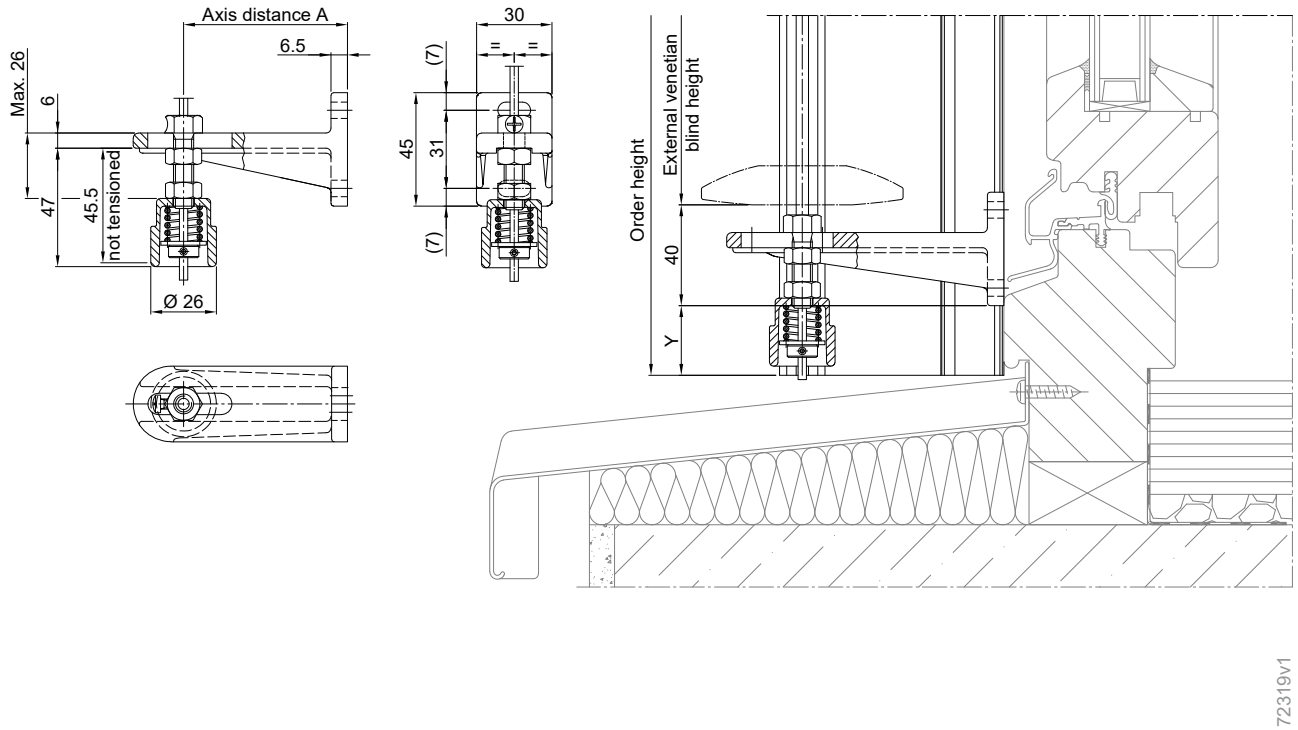
- **Box size:** please indicate desired box size.
- **Plaster pieces:** specified if necessary (standard 26 mm plaster pieces included with box shape plaster, otherwise optional)
- **Guide rails with sloped cut:** please observe the information on dimension determination of the order height in the chapter Components/Guide rails.

Order dimension determination for front-mounted external venetian blind R6



Measuring instructions for additional cable guidance

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– For slat widths > 2400 mm and versions with flat slats, the use of wind protection using an additional tension cable is required. Specify dimension Y when ordering.
– **Axis distance A:** 50-75 mm, art. no. 101029, 72-100 mm, art. no. 101030

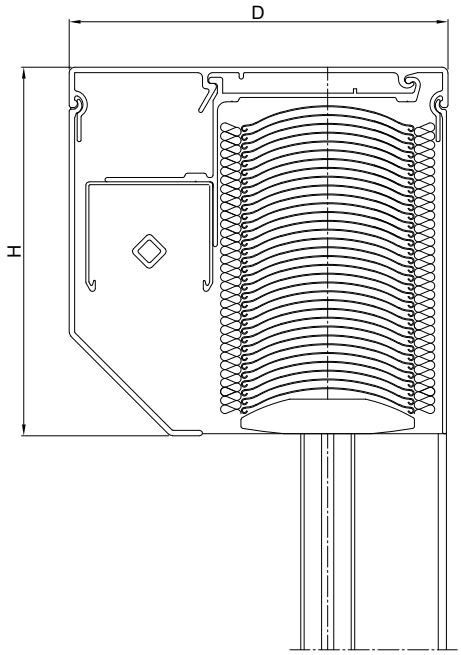
Box dimensions

Box shape R6, rectangular

Box size	Height H	Depth D
170	169 mm	174 mm
190	189 mm	194 mm

R6 Rectangular

PDF DWG

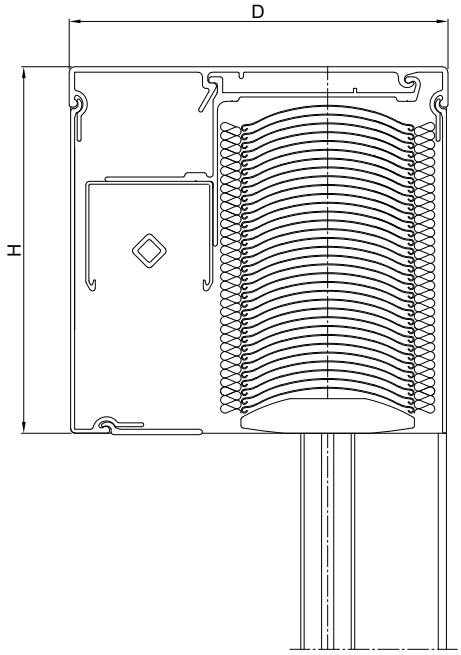


Box shape R6, square

Box size	Height H	Depth D
170	169 mm	174 mm
190	189 mm	194 mm

R6 Square

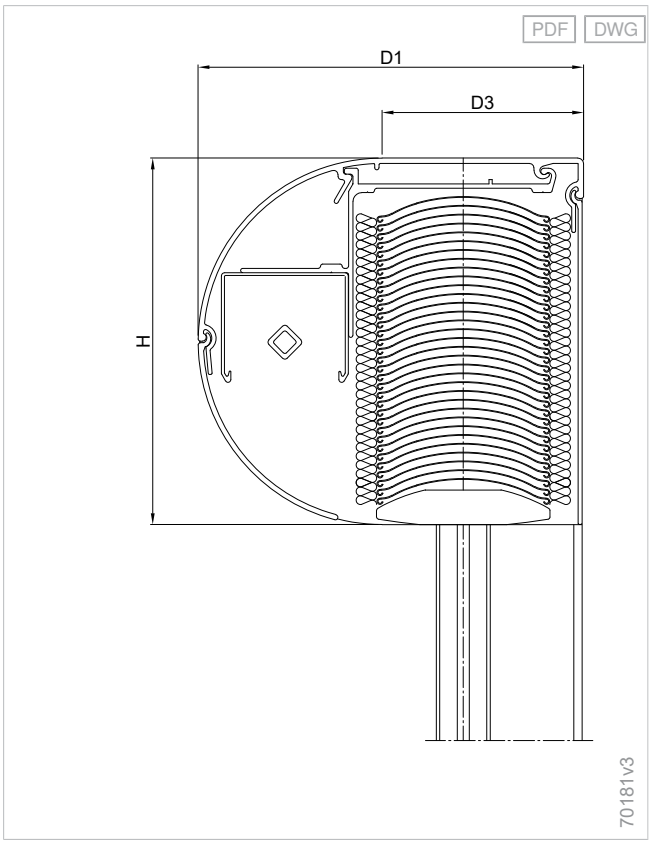
PDF DWG



Box shape R6, round

Box size	Height H	Depth D
170	169 mm	177 mm
190	189 mm	197 mm

R6 Round

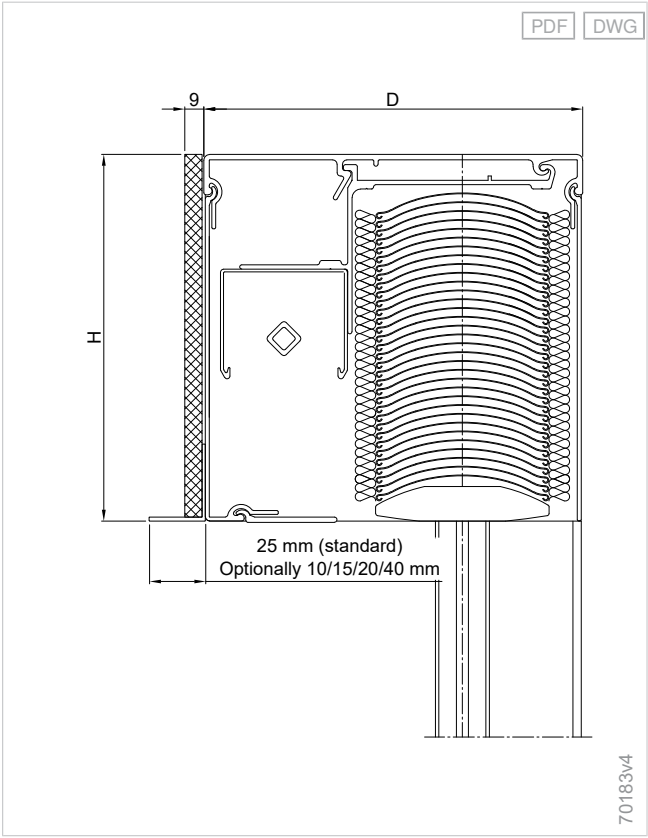


Box shape R6, plaster

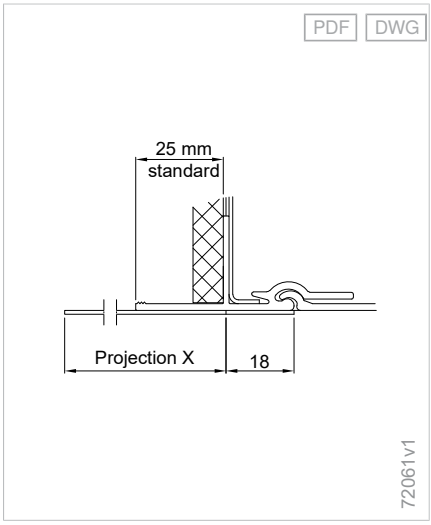
Box size	Height H	Depth D
170	169 mm	174 mm
190	189 mm	194 mm

- Box end rails with a projection in intermediate sizes are available upon enquiry.
- The projection of the box end rail must be 15 mm for an exterior insulation and finish system (EIFS).
- The box end rail is used as a visual closure and is not suitable for bearing loads from the insulation.

R6 Plaster



Lengthened box end rail



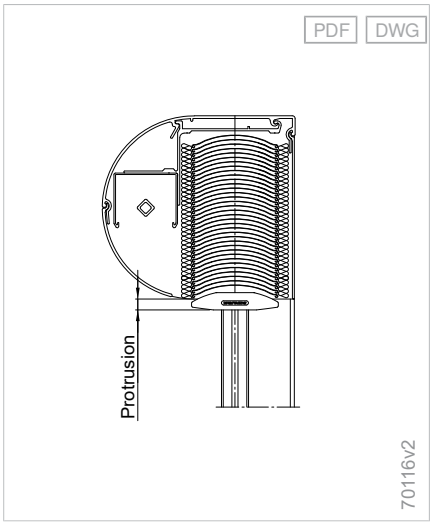
End rail stack protrusion

Maximum order height without stack protrusion (maximum clear shading height without stack protrusion) in mm

Types	Box height = 170 mm	Box height = 190 mm	Approx. protrusion per 100 mm additional height
E 80 A6 S	2600 (2410)	3000 (2790)	5
E 80 AF A6	3550 (3360)	4000 (3790)	3
E 80 AF A6 (with eyelets)	3600 (3410)	4000 (3790)	3
E 80 A6 Z	2600 (2410)	3000 (2790)	5
E 73 A6	2180 (1990)	2560 (2350)	5

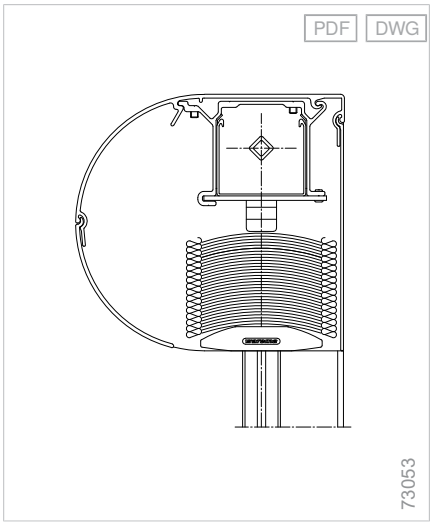
Slat stack heights are approximate values and for technical reasons, they might be higher or lower. Stack parallelism with retracted external venetian blind: +/- 10 mm

Overhang of bottom rail



Details

Front-mounted external venetian blinds R6, model with non-rotated top rail



The top rail is fitted above the slat for the following models:

- Models with flat slats, depending on the external venetian blind height, box size and equipment
- Models with SecuKit optional extras

Additional product information

Detailed information on cable exit

Standard cable exit: at the rear

Lateral cable exit sealing: with a lateral cable exit on the side or on the top, the motor line is sealed by means of a plug-in grommet.

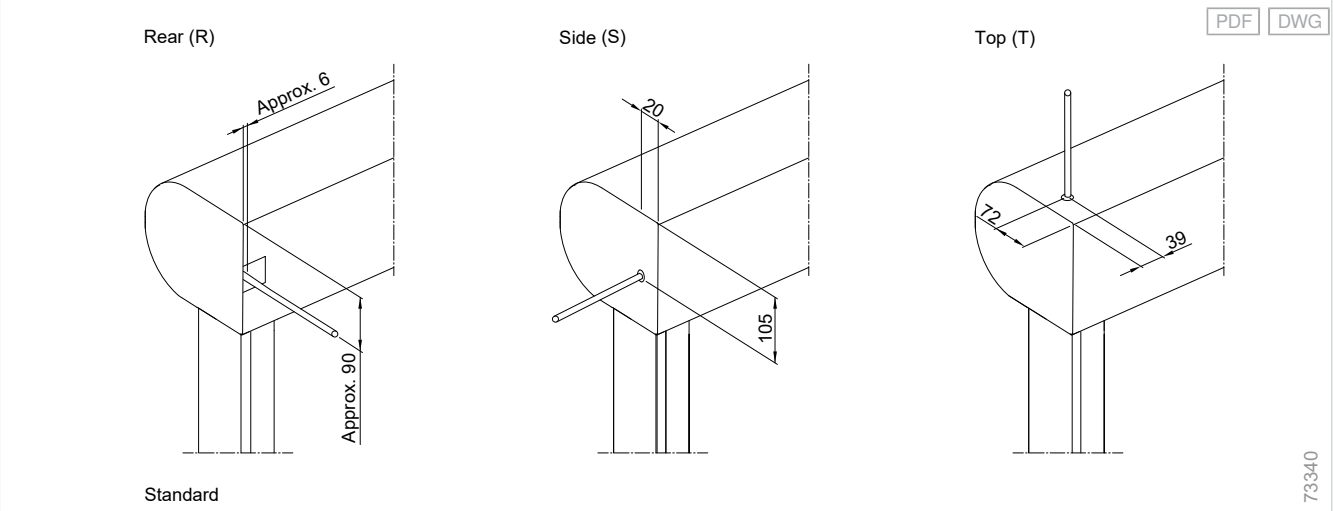
Cable excess:

- 1000 mm as standard
- Also optionally 5000 mm or 10000 mm

As standard, the Hirschmann coupling is placed within the box with clamped cable whip. **A cable whip without plug connector with an open end and ferrules comes out of the box.**

We recommend that the cable whip be guided directly into the building for connection to prevent a further plug-in connection outside the box!

Front-mounted external venetian blinds, motor line outlet



Group units

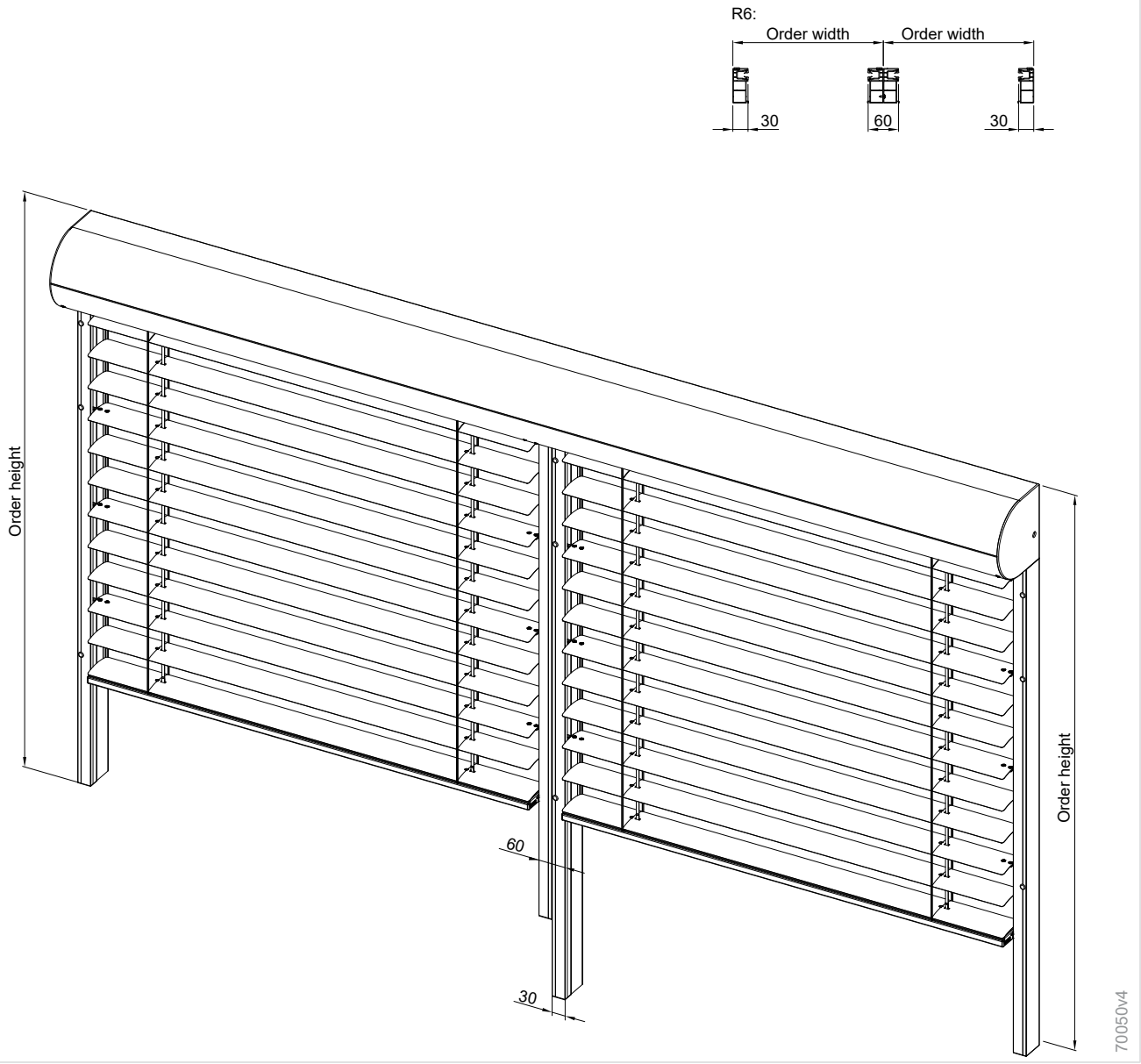
Multi-part front-mounted external venetian blinds with continuous box and individually running external venetian blind curtains. The individual external venetian blind curtains can be either coupled or installed with a single drive for units of the same height. For external venetian blind curtains of different heights, coupling is not possible, meaning that only single drives are possible.

- **Order data:** always seen from inside, from left to right
- **Beginning and end position:** please indicate on order form
  - 2-part units: beginning position – end position
  - 3-part units: beginning position – middle position – end position

The maximum box width for R6 continuous boxes is 6000 mm.

Front-mounted external venetian blinds R6, order data for middle rail

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Additional box fastening

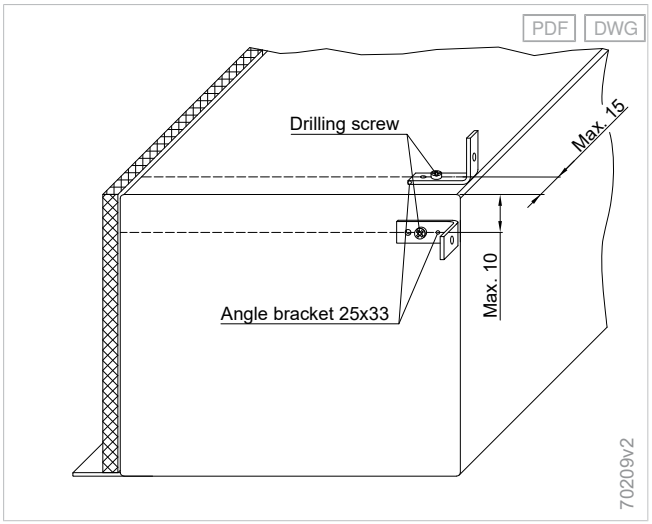
- We recommend additional box fastening using mounting brackets for order widths over 1500 mm.
- These angle brackets are supplied as standard for models with plaster pieces or for box shape Plaster.

Scope of delivery:

- Angle bracket 25x33
- Per angle bracket: 2 drilling screws DIN 7504-3.5x13

- The fixing brackets can alternatively be positioned at the top or at the side.
- Do not use any screws longer than the ones supplied in the scope of delivery.
- The maximum distances (10 and 15 mm) must be observed.
- The angle bracket can also be turned and moved along the lines shown
- Drilled hole for on-site installation 4.2 mm

Additional box fastening positioning



Connection bracket for rear side of box

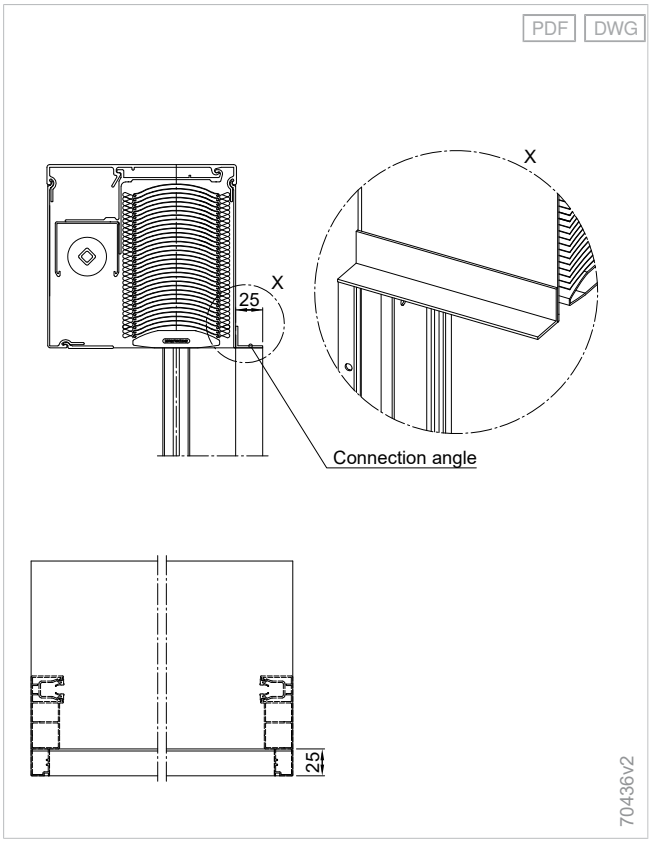
If the installation situation results in a gap between the box and the window, this can be closed on the rear side of the box using an optional connection bracket.

A gap can result:

- With R6 design with FSCH 30-92 (= R10 guide rails)
- With a design with railing system VisioNeo Sun for external venetian blinds

The variant with a connection bracket on the rear side of the box must be indicated separately when ordering.

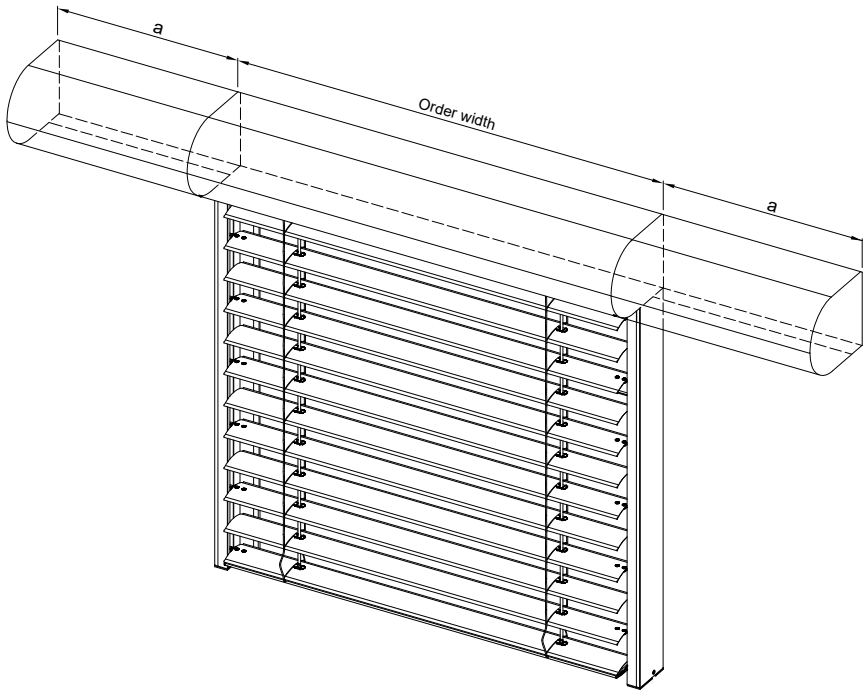
Connection bracket for rear side of box



Box extensions/corners

Front-mounted external venetian blinds, box extension type 6

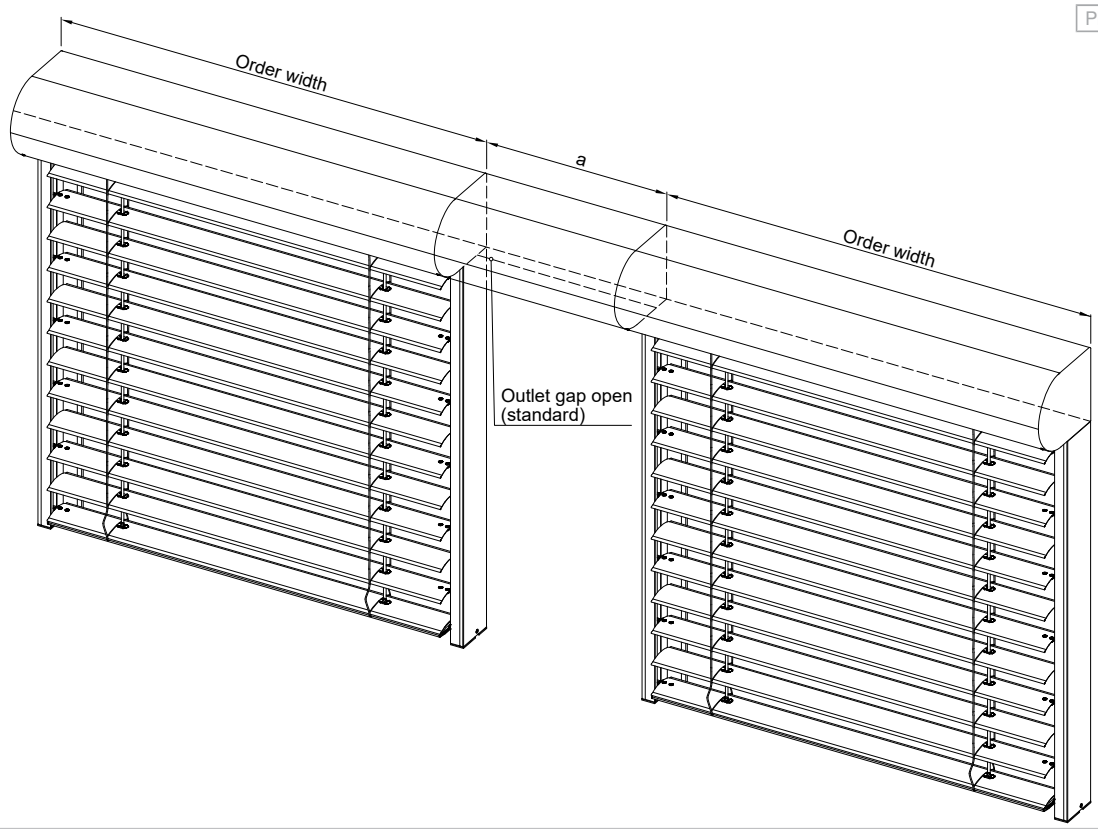
PDF DWG



Dimension a min. 35 mm; for use of lateral plaster pieces dimension a min. 55 mm

Front-mounted external venetian blinds, box extension type 7 (dummy box)

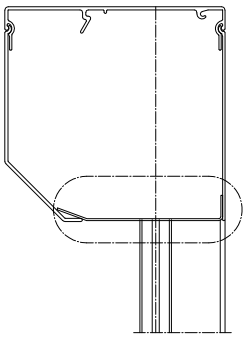
PDF DWG



Dimension a min. 20 mm

Front-mounted external venetian blinds R6, dummy box, outlet gap closed (optional)

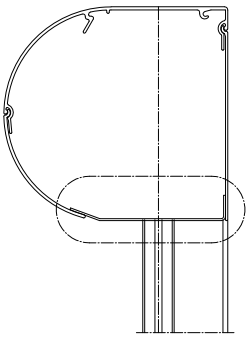
PDF DWG



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Front-mounted external venetian blinds R6, round box shape, dummy box, outlet gap closed (optional)

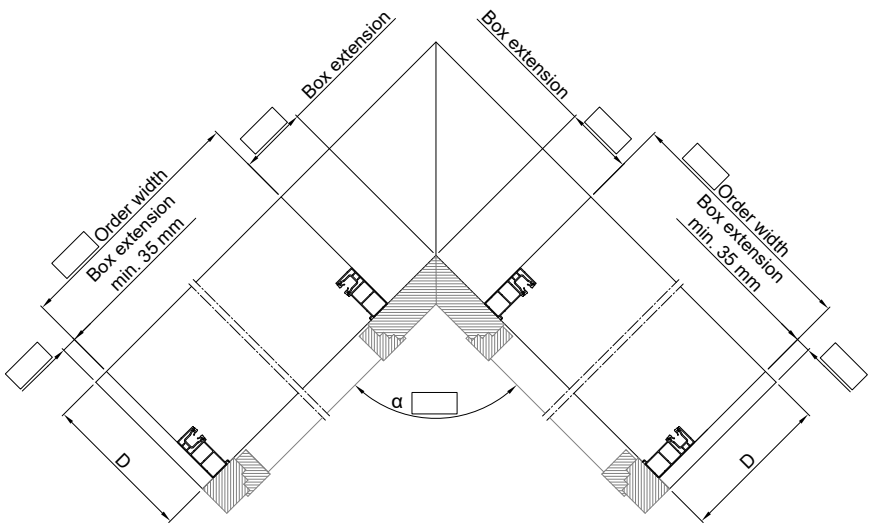
PDF DWG

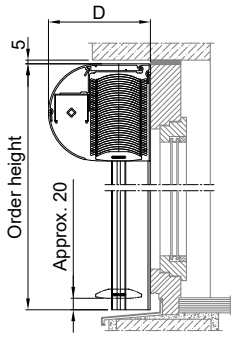


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Front-mounted external venetian blind R6, outer angle corner position

PDF DWG



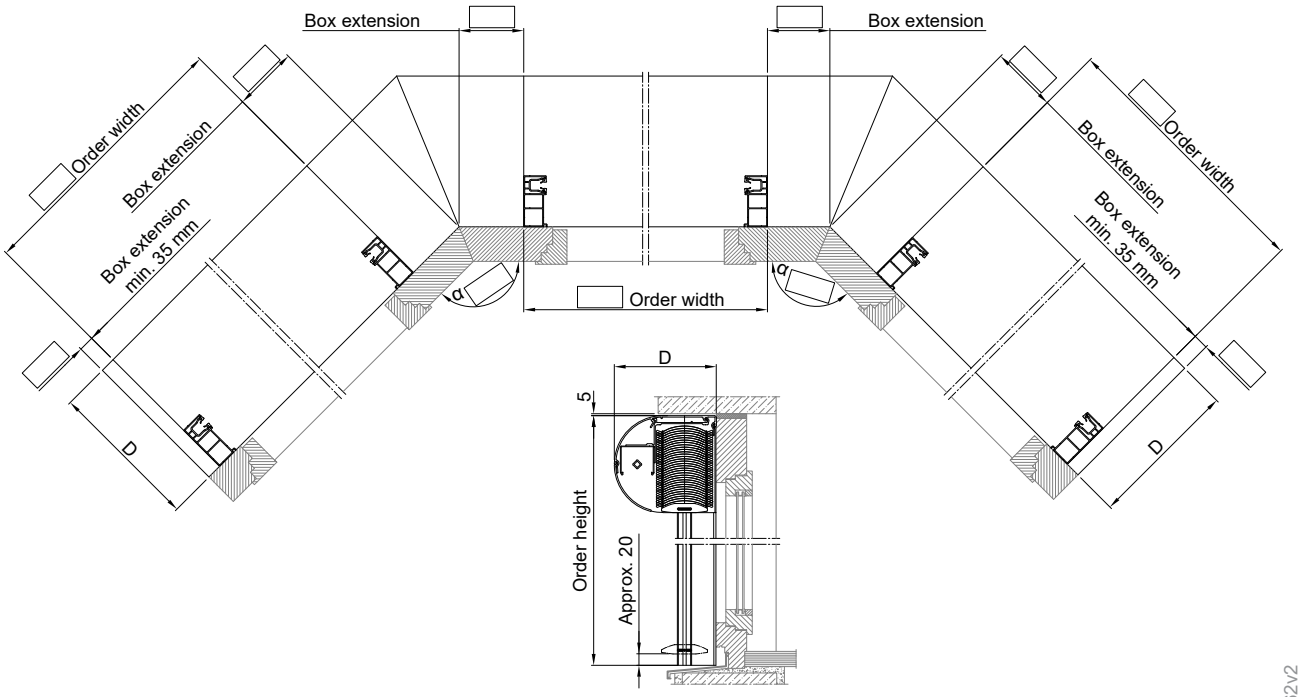


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Front-mounted external venetian blind R6, outer angle corner position/oriel

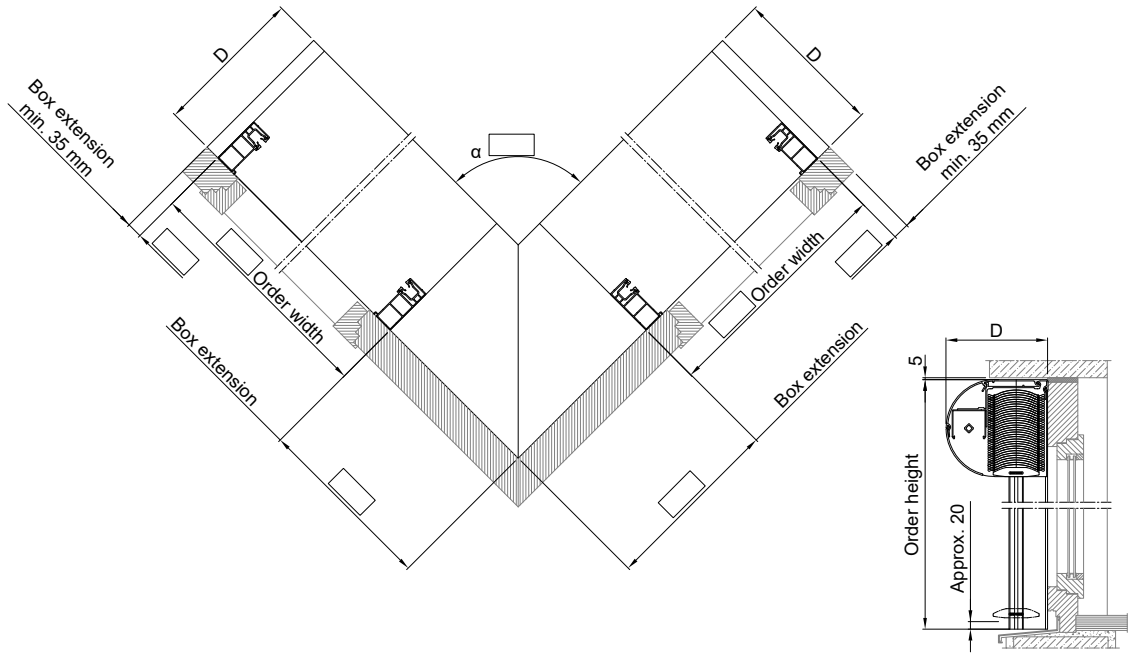
PDF DWG



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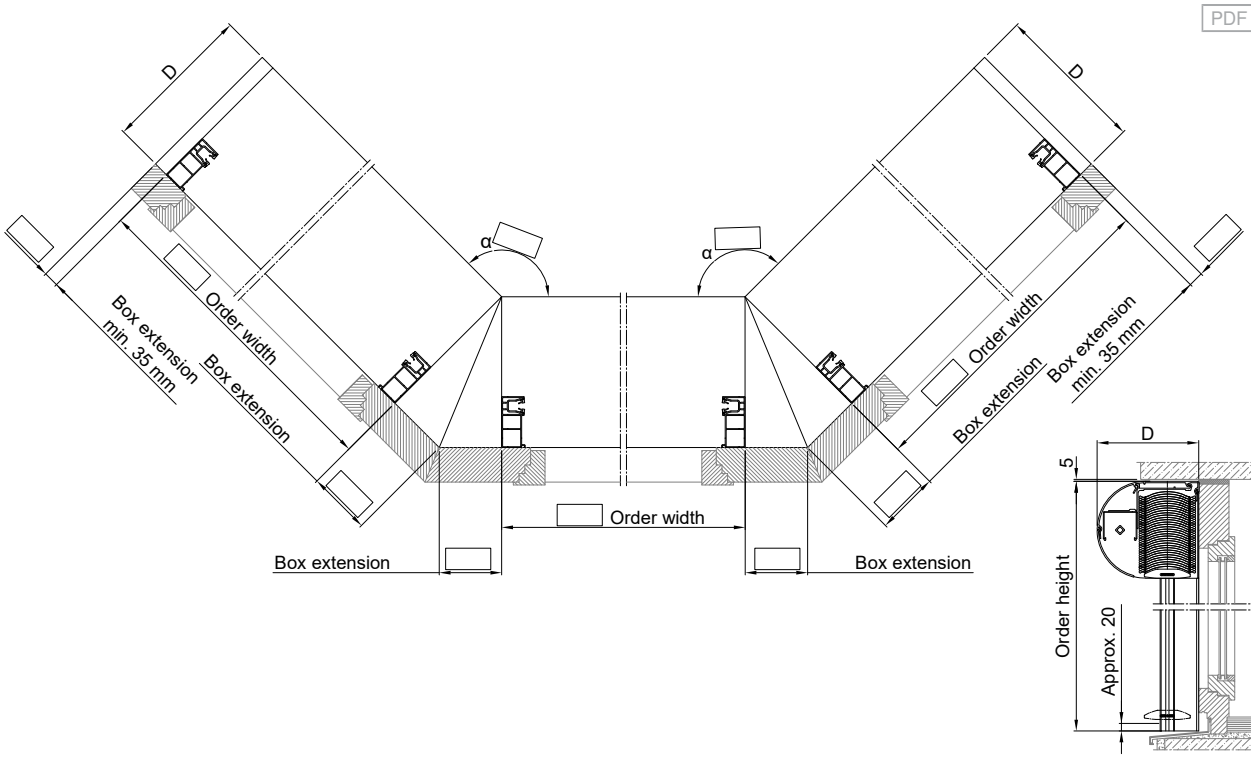
Front-mounted external venetian blind R6, inner angle corner position

PDF DWG



The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Front-mounted external venetian blinds R6, inner angle/oriel

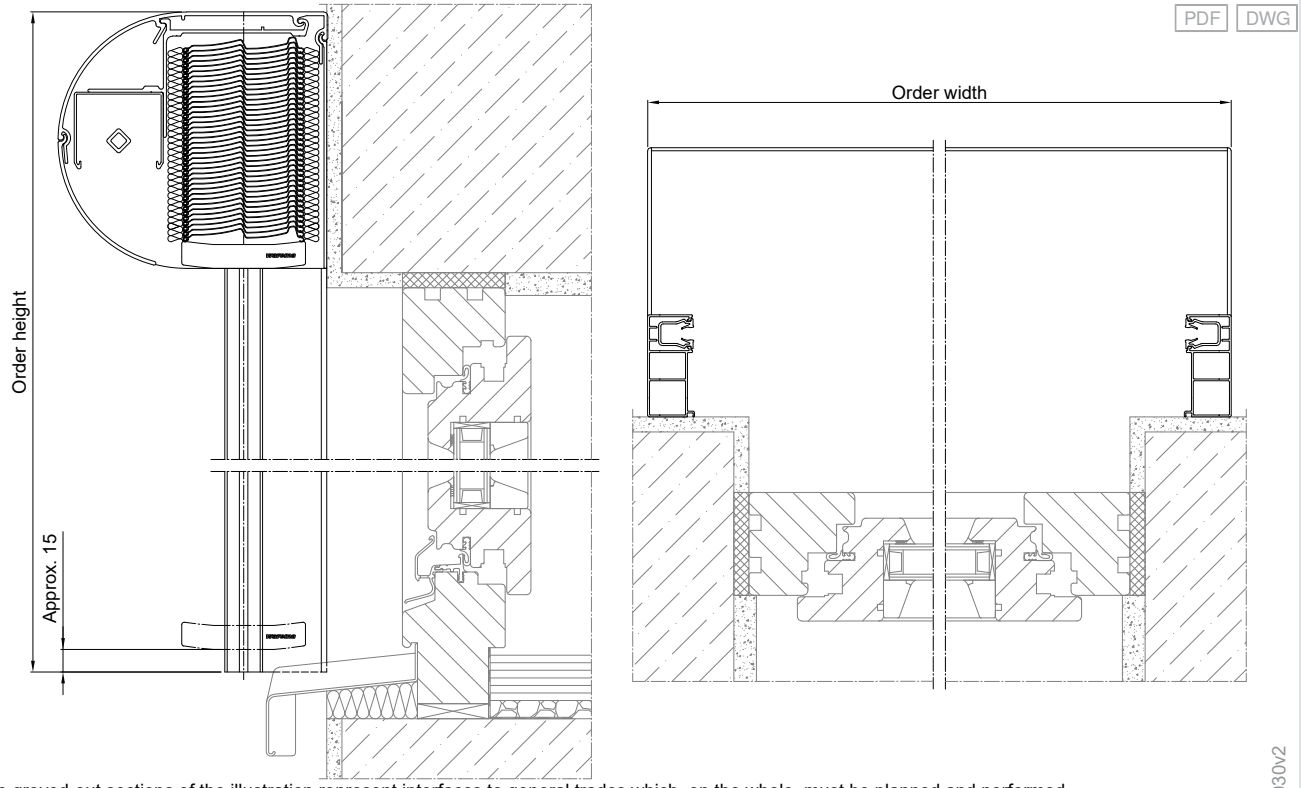


The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Mounting examples

Front-mounted external venetian blind R6, installation in front of the reveal, round box shape, Zetra slat 80 Z

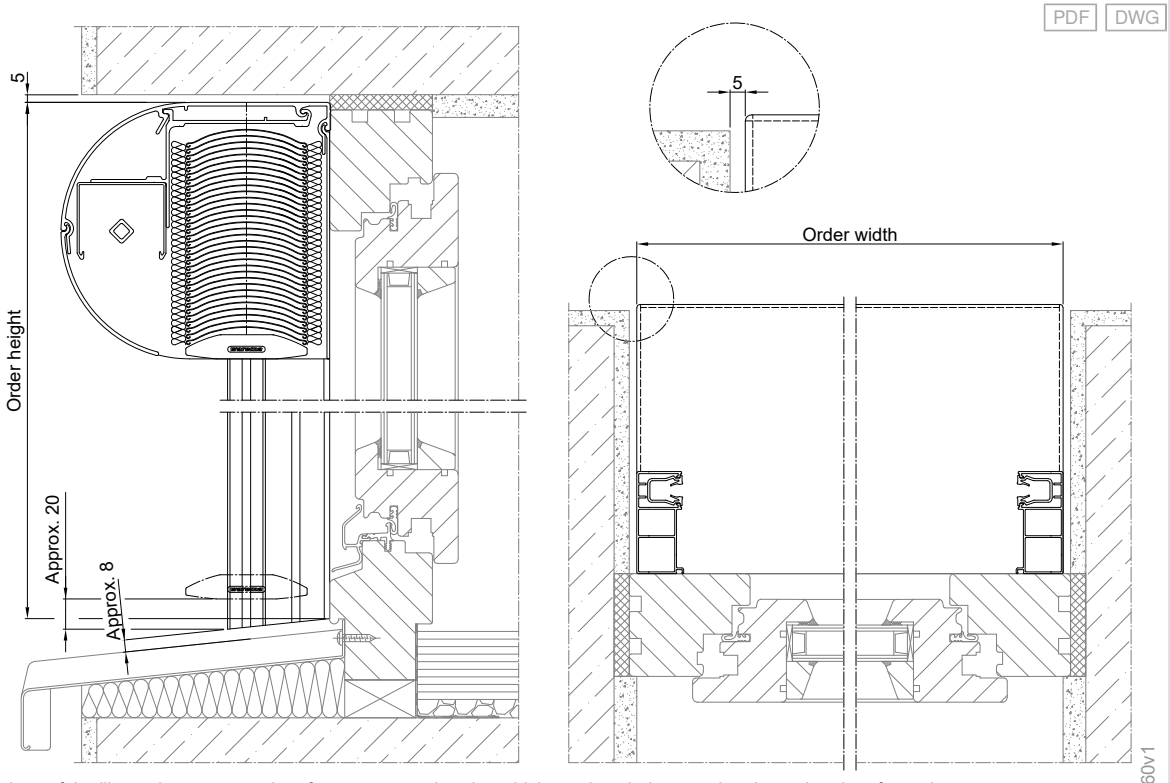
PDF DWG



The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Front-mounted external venetian blind R6, installation in the reveal, round box shape

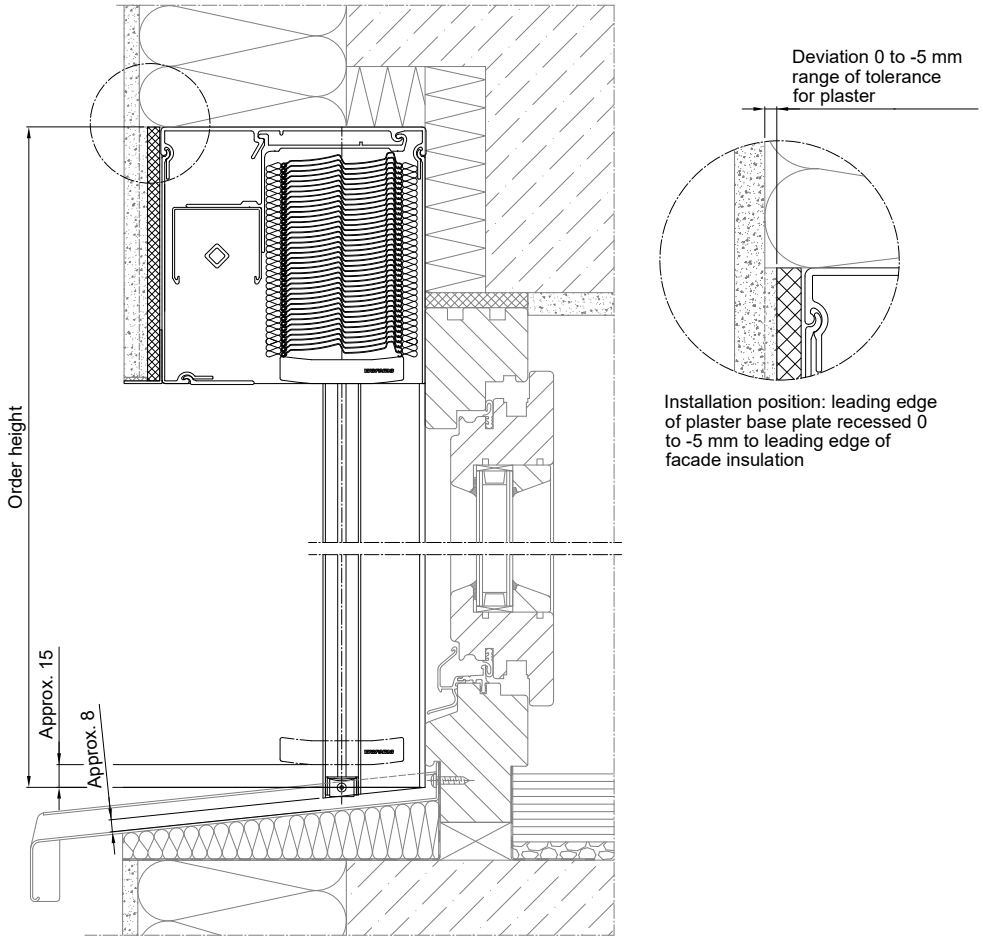
PDF DWG

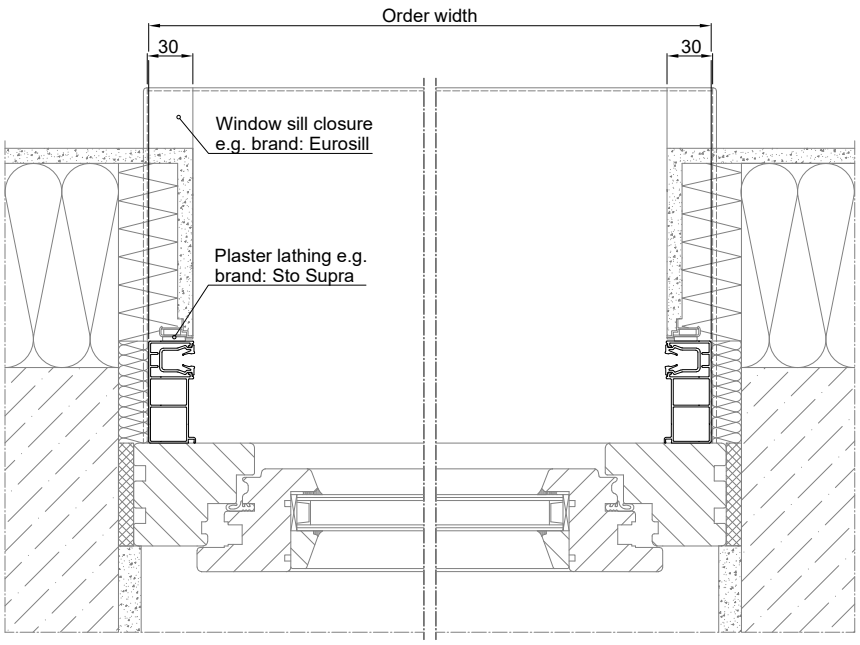


The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Front-mounted external venetian blind R6, installation in the reveal, plaster box shape, Zetra slat 80 Z

PDF DWG



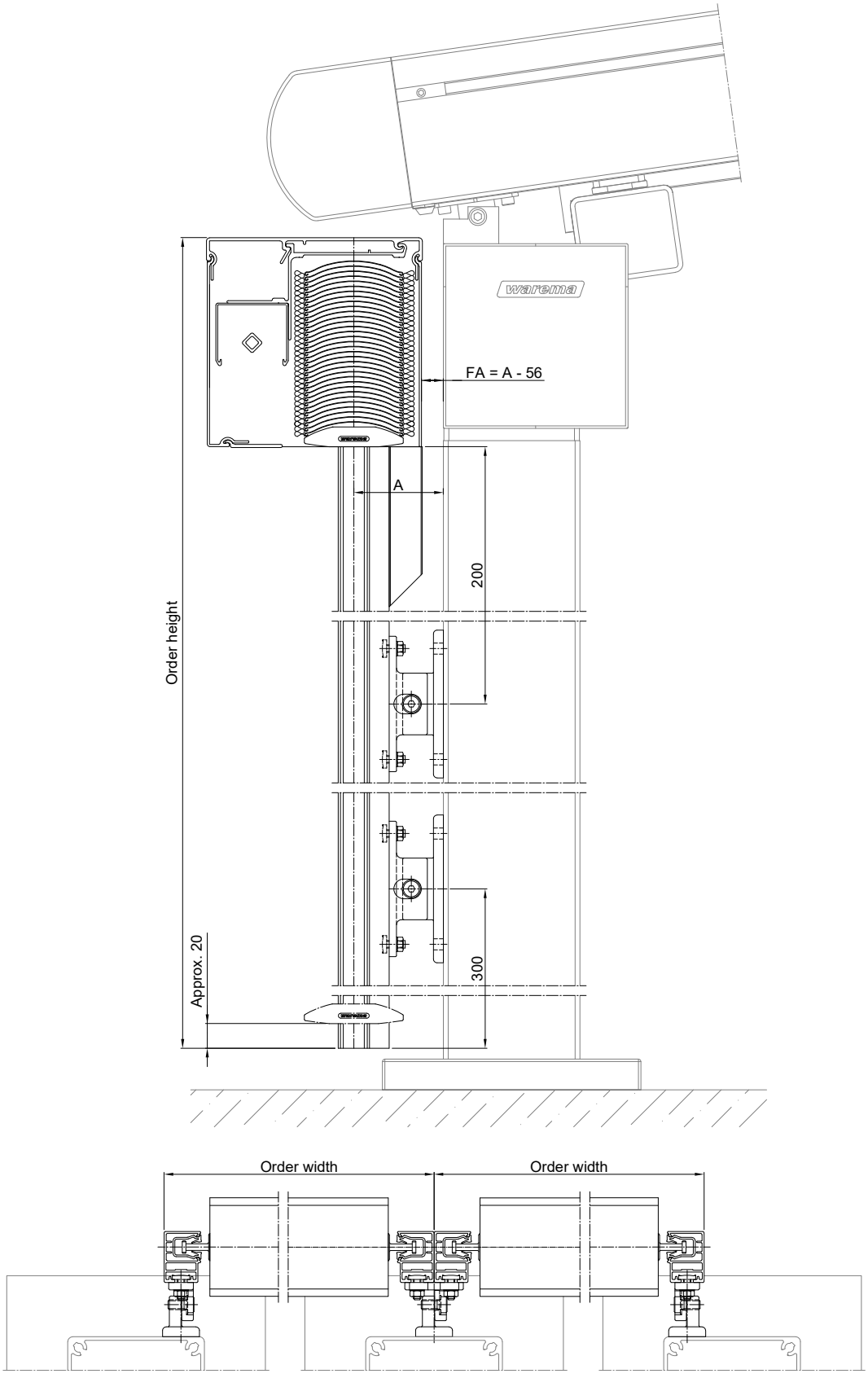


The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

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Front-mounted external venetian blind R6, guide rails with bracket mounting (installation situation: installation on WAREMA pergola awning)

PDF DWG

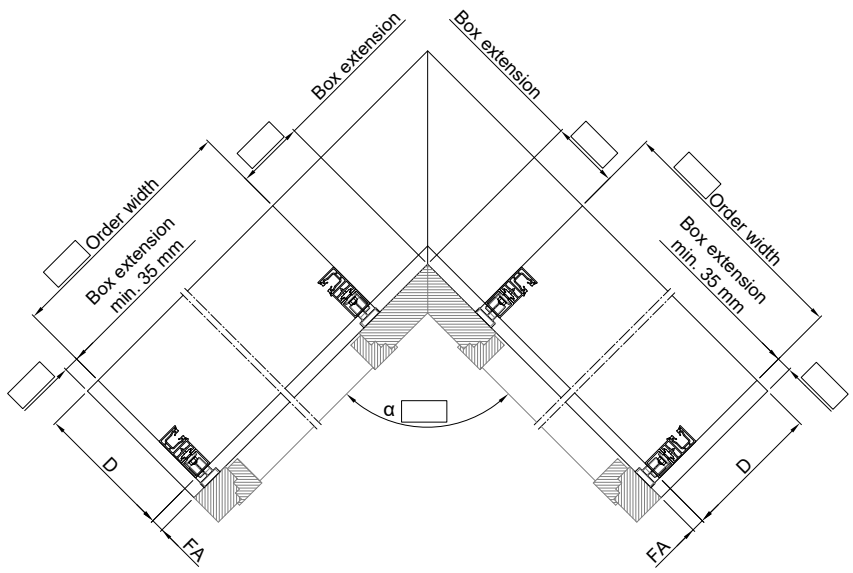


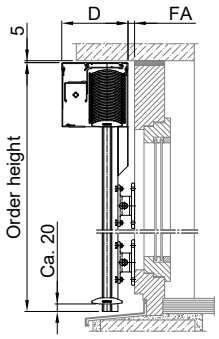
The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

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Front-mounted external venetian blind R6, bracket mounting, outer angle corner position (situation: installation on the conservatory)

PDF DWG





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The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Permissible wind speeds:

- **Installation on conservatories:** When installing on conservatories where windows are opened and draughts occur, the permissible wind speeds for each of the slats used must be reduced by 3 Beaufort classes.
- **Additional guy rope:** For a version with beaded slats, an additional guy rope is required from a width of 2400 mm. With flat slats, the additional guy rope from a width of 2400 mm is specified as standard in any case. No additional guy rope is required with dim-out slats.
- **Limitations with opened conservatory or patio roofs:** Due to the exposure to wind, the front-mounted external venetian blind with bracket mounting is only partially suitable for installation on opened conservatory or patio roofs!

see "External venetian blind wind speed limits", Page 527



Front-mounted external venetian blinds

Front-mounted external venetian blinds R10

Flexibly adjustable

Opaque from the outside but with a view out from the inside: The external sun shading system consisting of connected horizontal slats combines thermal protection, glare control, and visual privacy with an adjustable view out.

Universal

Ideal for new buildings, retrofits and renovations: Installed in front of the window, this system suits any design of building – unobtrusively embedded in plaster or with a visible box as a design feature.

Saves space

Ideal for conventional window and door heights in residential buildings: The box with special storage of the slat stack ensures a compact housing of the external venetian blind stack in front of the window, and brings as much light as possible into the room.

Pre-assembled

Front-mounted systems in a compact design: The box with the slat stack already premounted is placed on the guide rails and mounted in front of the window as one unit.

Protected from insects as standard

Insect screen roller blind integrated in the deep box within the construction limit values as standard.

Construction limit values

Maximum order width	4000 mm
Maximum order height	4000 mm
Maximum order area	16 m^2
Maximum order width of the group unit	6000 mm

Order here

myWAREMA

Art.-Nr. 2036118

Order form

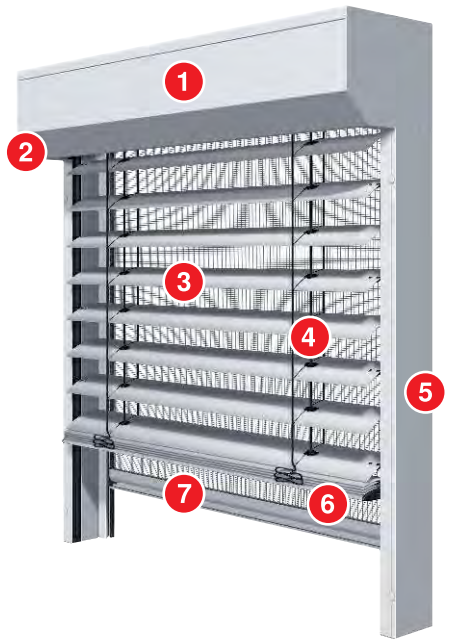
https://docs.warema.com/fi/877924.pdf

WAREMA tools

Dimensions Assistant
Fastener Assistant
Sun Shading Planner

see "Navigating the document", Page 5

Components



1	Box	5	Lateral guidance
2	Inspection cover	6	End rail
3	Slats	7	Insect screen roller blind
4	Tilting tape, lifting tape		

Box

Boxes for front-mounted external venetian blinds

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised

- The boxes are fixed onto the guide rails
- Boxes are closed on 4 sides
- Cut edges are concealed
- Side covers made of diecast aluminium
- Designed both as a screen or for complete integration below the external plaster as a plaster base type with plaster base plate (plaster base plate made of polystyrene with material thickness of 8 mm)
- With plaster pieces, the box can be laterally embedded in plaster up to 30 mm (with standard plaster base type)

Additional box fastening: For plaster base types of order widths of 1500 mm and greater, we recommend an additional box fastening.

see "Box dimensions", Page 113

Product variants that can be used

- E 80 A6 S
- E 80 AF A6
- E 80 A6 Z
- E 73 A6

Guide variants

- Rail guidance

Guide rail

- FSCH 30-92 (type 51)

see "Guide rails for external venetian blinds", Page 360

Tension cable

Additional cable guidance

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

To prevent components located behind the external venetian blind being damaged by wind load, an additional cable guidance in the centre is either mandatory or recommended for rail guidance from a defined width of slat, depending on the slats used:

- Beaded slats: from a slat size > 3000 mm (recommended)
- Flat slats (incl. Windra flat slat): from a slat size > 2400 mm (mandatory)
- Dim-out slats: no additional tension cable required

Arrangement of the additional cable guidance: The arrangement must be specified (viewed from inside the room, starting on the left)

Determination of cable length: External venetian blind height + 100 mm

Drive variants

- Motor

see "Drive variants", Page 489

Colours

- Slat colours
- WAREMA Colour World
- Anodised C0

Colours, optional:

- Anodised C31
- Anodised C32
- Anodised C33
- Anodised C34
- Anodised C35

see "Colours and finishes", Page 12

see "Colours and surfaces for external venetian blind slats in accordance with current collection", Page 15

Insect screen

- Integrated insect screen roller blind

Insect screen, optional:

- Integrated insect screen swivel door

Supplementary accessories

- WAREMA SecuKit for external venetian blinds
- SenSigna, external venetian blind with acoustic signal
- Daylight transport element TLT
- slowturn
- Integrated lintel insulation for external venetian blinds
- Battery module UP for external venetian blinds
- Emergency power supply kit
- Solar drive for external venetian blinds
- Slat perforation
- Integrated insect screen

see "Supplementary accessories", Page 277

Notes

Different tilting systems for external venetian blinds with flat slats: External venetian blind moves down with the slats closed to the outside and moves up with the slats closed to the inside at approx. 55°.

For further information, see the chapter "Basic external venetian blinds" for the relevant product variant.

Construction limit values

Several external venetian blinds in one box: A maximum of 3 external venetian blinds can be integrated in one box.

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area	Maximum order width of the group unit	Group unit, maximum order area
Basic external venetian blinds						
E 80 A6 S	680 mm	4000 mm	4000 mm	16 m^2	6000 mm	24 m^2
E 80 AF A6	680 mm	4000 mm	4000 mm	16 m^2	6000 mm	24 m^2
E 80 A6 Z	680 mm	4000 mm	4000 mm	15 m^2	6000 mm	24 m^2
E 73 A6	680 mm	4000 mm	4000 mm	15 m^2	6000 mm	24 m^2
Insect and pollen protection						
Insect screen roller blind with soft-raise function	710 mm	2000 mm	2500 mm	5 m^2		15 m^2

For front-mounted external venetian blinds, the information on "Minimum order width" and "Maximum order width" always refers to the back edge of the guide rails.

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances as per the "Guideline for assessing the product features of external venetian blinds" apply.

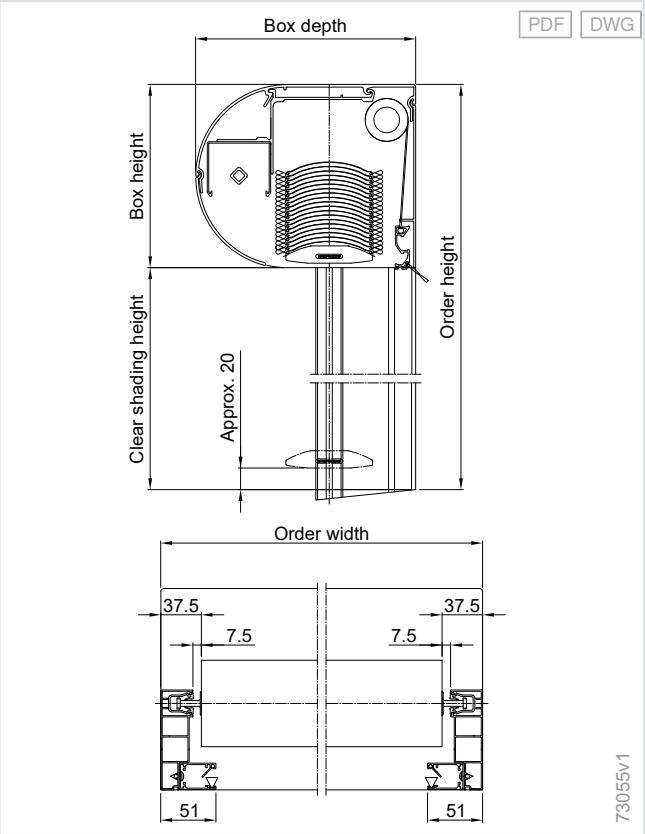
Dimension determination

Configuration view: The order dimensions are determined from interior view, from left to right.

Reference dimension	Dimension determination
Order width	Back edge of the guide rails to the back edge of the guide rails
Order height	Bottom edge of the guide rail to top edge of the box
Box height	see box dimensions for each box shape
Box depth	see box dimensions for each box shape

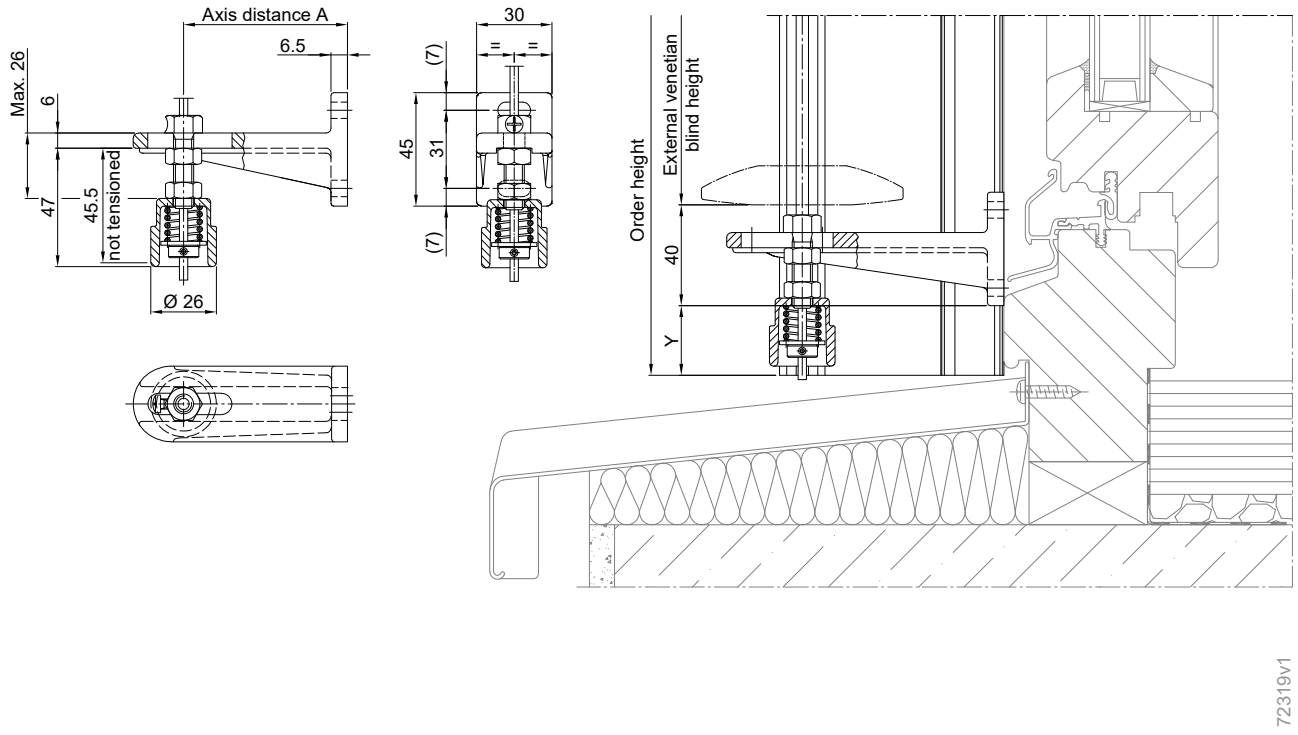
- **Box size:** please indicate desired box size.
- **Plaster pieces:** specified if necessary (standard 26 mm plaster pieces included with box shape plaster, otherwise optional)
- **Guide rails with sloped cut:** please observe the information on dimension determination of the order height in the chapter Components/Guide rails.

Order dimension determination for front-mounted external venetian blind R10



Measuring instructions for additional cable guidance

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- For slat widths > 2400 mm and versions with flat slats, the use of wind protection using an additional tension cable is required. Specify dimension Y when ordering.
- **Axis distance A:** 50-75 mm, art. no. 101029, 72-100 mm, art. no. 101030

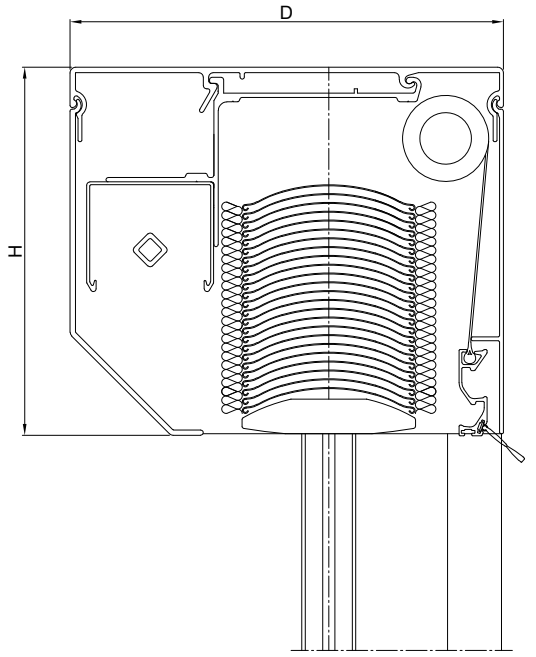
Box dimensions

Box shape R10, rectangular

Box sizes	H	D
170	169 mm	200 mm
190	189 mm	220 mm

R10 Rectangular

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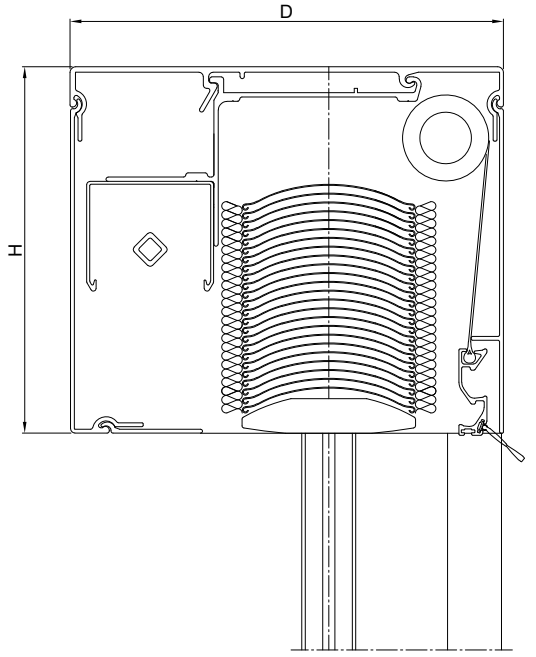


Box shape R10, square

Box sizes	H	D
170	169 mm	200 mm
190	189 mm	220 mm

R10 Square

PDF DWG

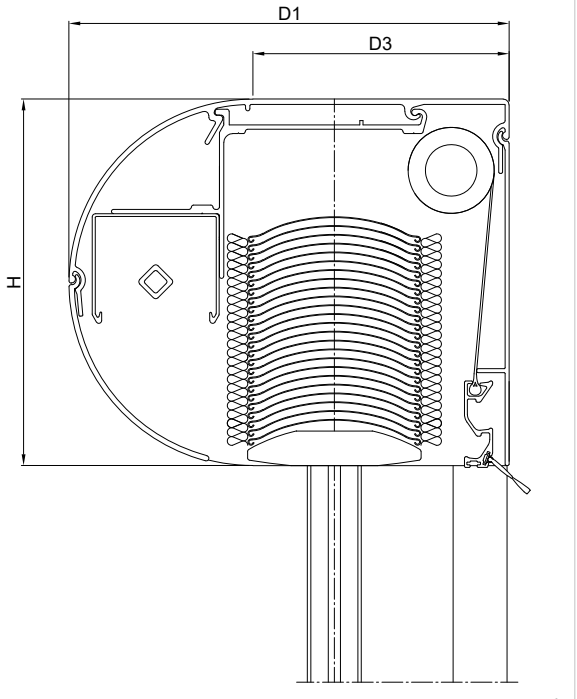


Box shape R10, round

Box sizes	H	D
170	169 mm	203 mm
190	189 mm	223 mm

R10 Round

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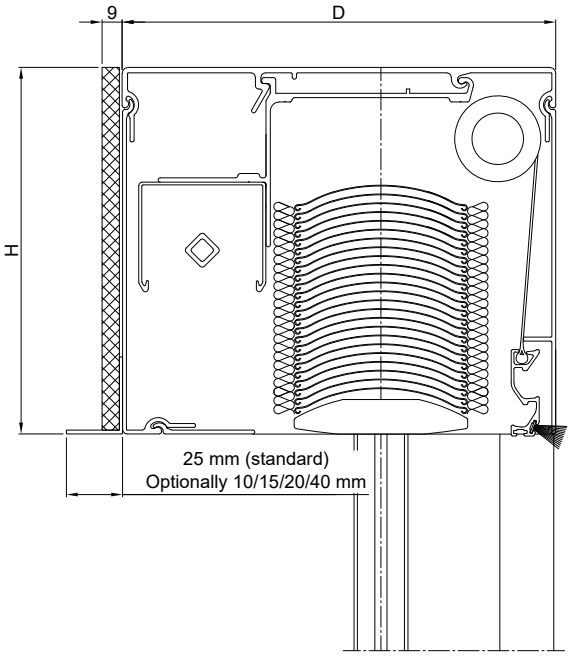


Box shape R10, plaster

Box sizes	H	D
170	169 mm	200 mm
190	189 mm	220 mm

R10 Plaster

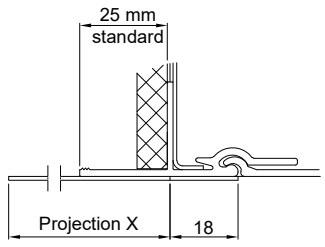
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- Box end rails with a projection in intermediate sizes are available upon enquiry.
- The projection of the box end rail must be 15 mm for an exterior insulation and finish system (EIFS).
- The box end rail is used as a visual closure and is not suitable for bearing loads from the insulation.

Lengthened box end rail

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End rail stack protrusion

Maximum order height without stack protrusion (maximum clear shading height without stack protrusion) in mm

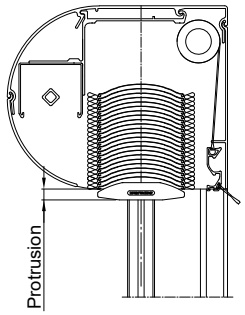
Insect screen equipment	Types	Box height = 170 mm	Box height = 190 mm	Approx. protrusion per 100 mm additional height
with integrated insect screen roller blind	E 80 A6 S	2100 (1910)	2500 (2290)	5
	E 80 AF A6	2500 (2310)	2500 (2290)	3
	E 80 A6 Z	2100 (1910)	2500 (2290)	5
	E 73 A6	1710 (1520)	2090 (1880)	5
Without integrated insect screen roller blind	E 80 A6 S	2600 (2410)	3000 (2790)	5
	E 80 AF A6	3550 (3360)	4000 (3790)	3
	E 80 AF A6 (with eyelets)	3600 (3410)	4000 (3790)	3
	E 80 A6 Z	2600 (2410)	3000 (2790)	5
	E 73 A6	2180 (1990)	2560 (2350)	5

Slat stack heights are approximate values and for technical reasons, they might be higher or lower. Stack parallelism with retracted external venetian blind: +/- 10 mm

Model with insect screen swivel door: In combination with insect screen swivel door, the external venetian blind must retract completely into the box.

Overhang of bottom rail

PDF DWG

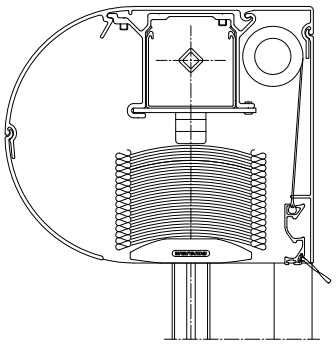


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Details

Front-mounted external venetian blinds R10, model with non-rotated top rail

PDF DWG



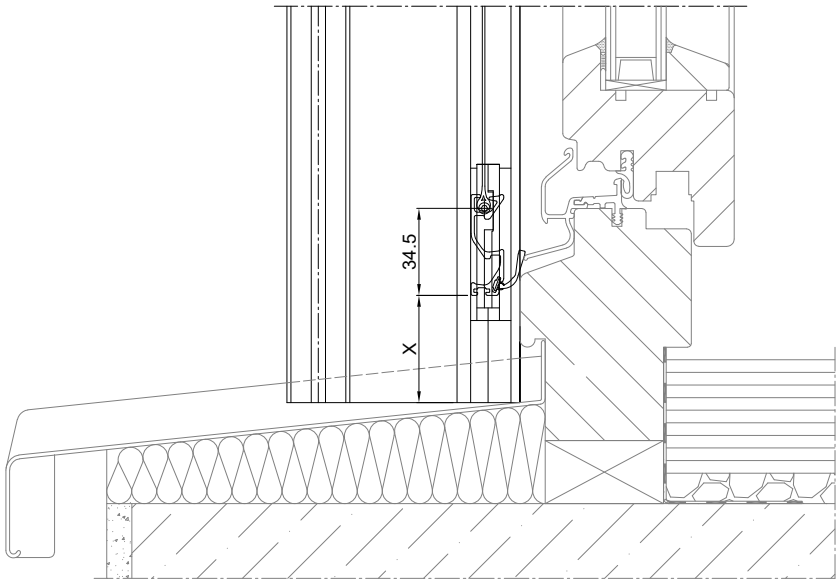
70115v2

The top rail is fitted above the slat for the following models:

- Models with flat slats, depending on the external venetian blind height, box size and equipment
- Models with SecuKit optional extras

Factory setting of the insect screen

PDF DWG

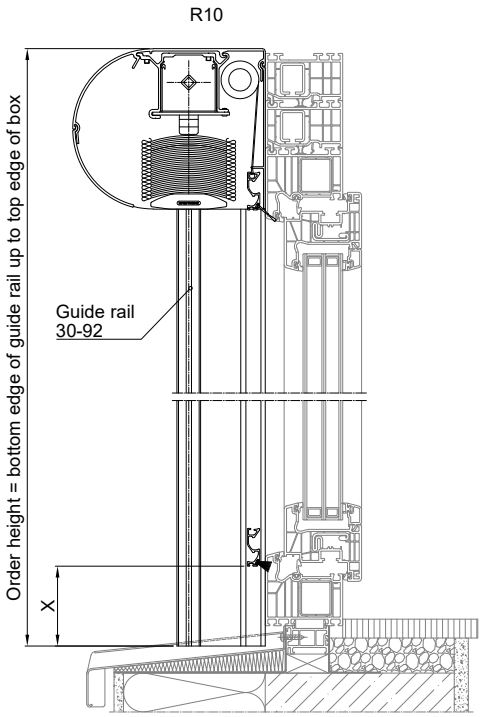


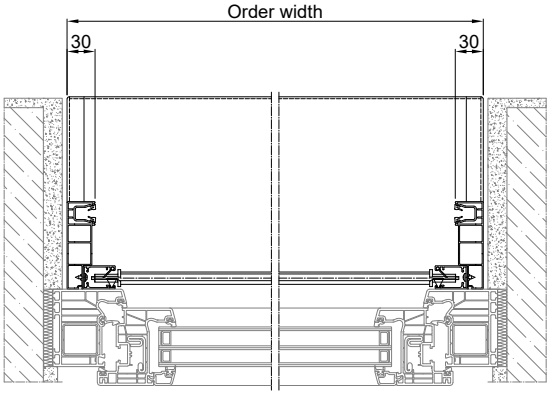
70071v2

"X" = bottom edge of handle rail to bottom edge of guide profile; default setting "X" = 10 mm

Front-mounted external venetian blind R10 with integrated insect screen ex-works

PDF DWG



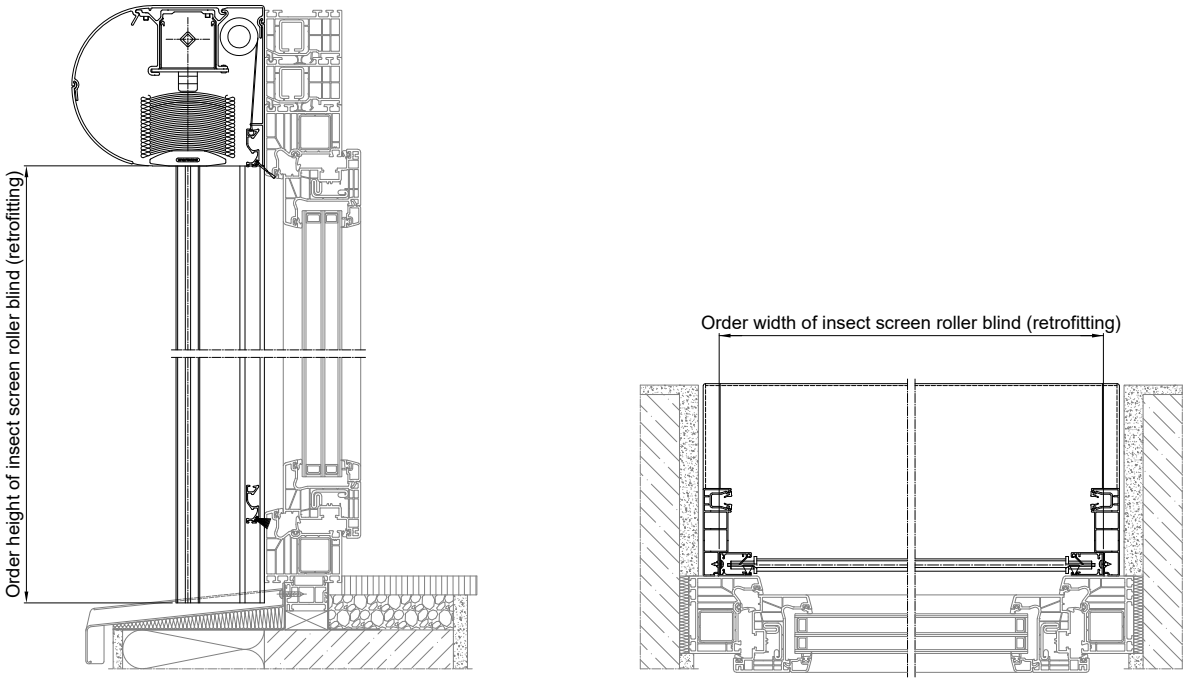


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The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Front-mounted external venetian blind R10, measurement of insect screen roller blind for repeat order

PDF DWG



74004

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Additional product information

Detailed information on cable exit

Standard cable exit: at the rear

Lateral cable exit sealing: with a lateral cable exit on the side or on the top, the motor line is sealed by means of a plug-in grommet.

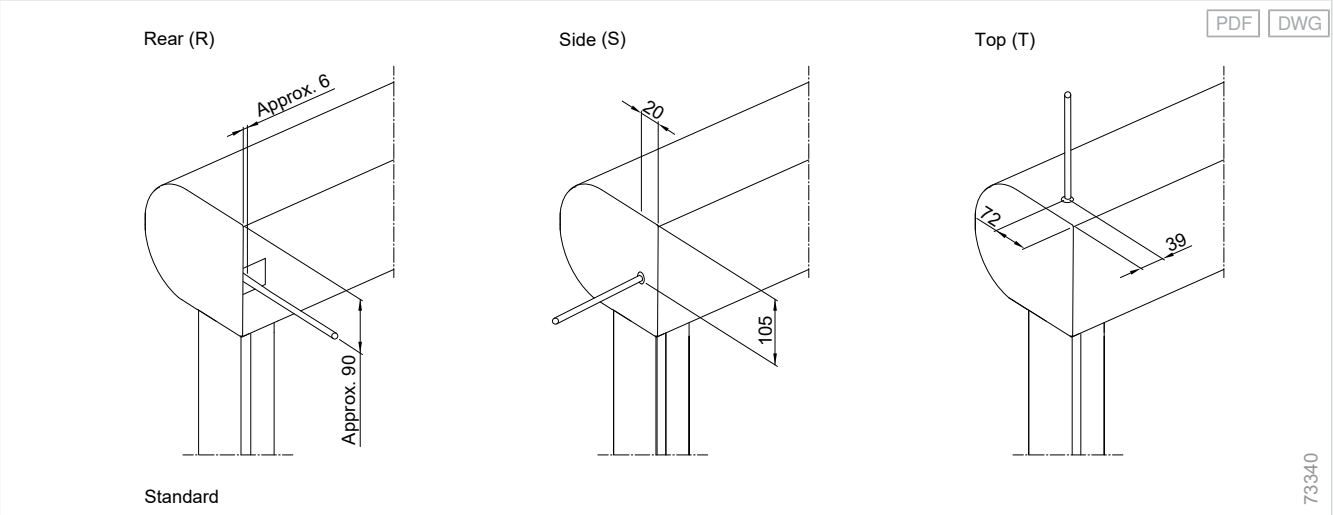
Cable excess:

- 1000 mm as standard
- Also optionally 5000 mm or 10000 mm

As standard, the Hirschmann coupling is placed within the box with clamped cable whip. **A cable whip without plug connector with an open end and ferrules comes out of the box.**

We recommend that the cable whip be guided directly into the building for connection to prevent a further plug-in connection outside the box!

Front-mounted external venetian blinds, motor line outlet



Group units

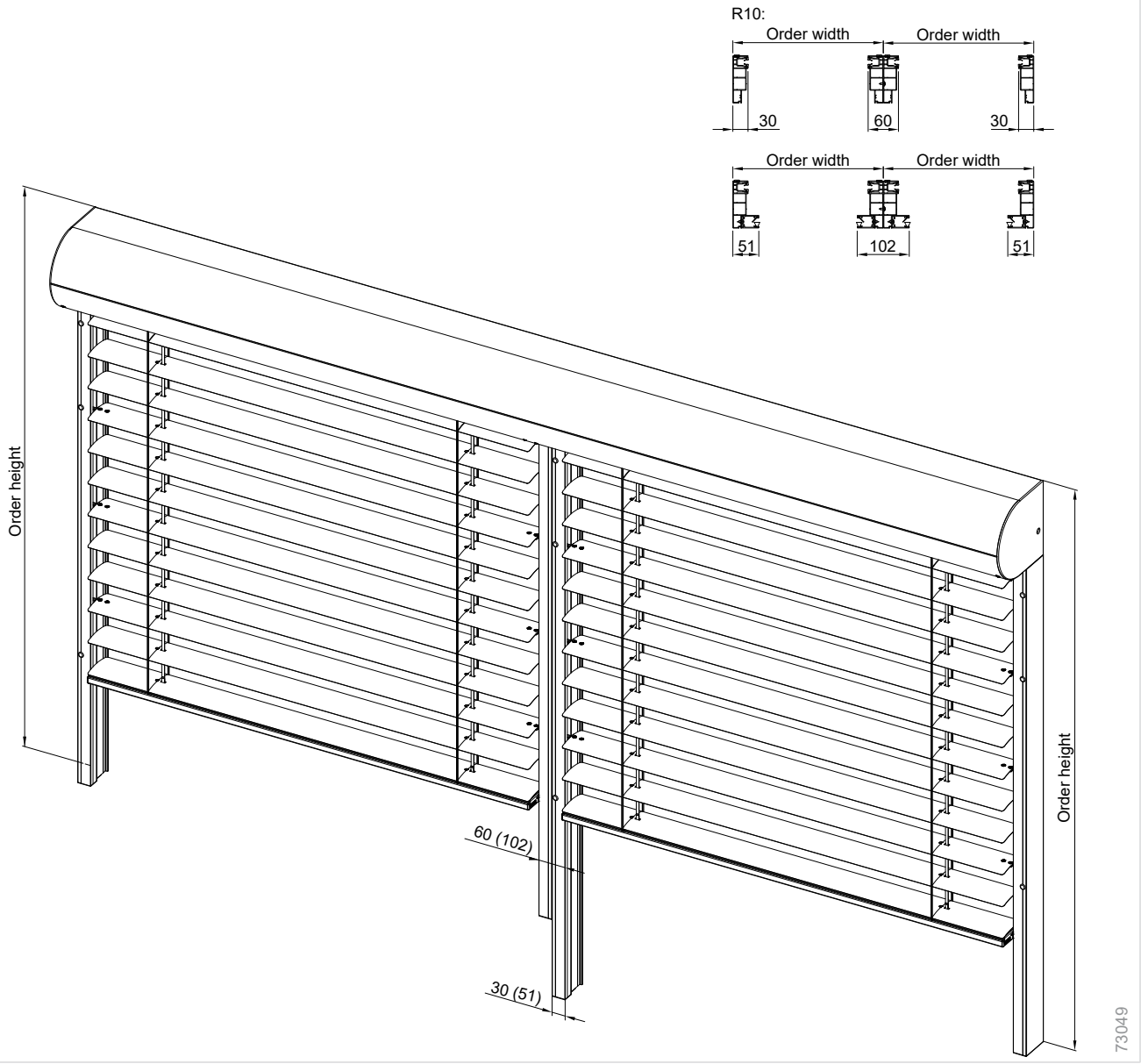
Multi-part front-mounted external venetian blinds with continuous box and individually running external venetian blind curtains. The individual external venetian blind curtains can be either coupled or installed with a single drive for units of the same height. For external venetian blind curtains of different heights, coupling is not possible, meaning that only single drives are possible.

- **Order data:** always seen from inside, from left to right
- **Beginning and end position:** please indicate on order form
  - 2-part units: beginning position – end position
  - 3-part units: beginning position – middle position – end position

The maximum box width for R6 continuous boxes is 6000 mm.

Front-mounted external venetian blinds R10, order data for middle rail

PDF DWG



Additional box fastening

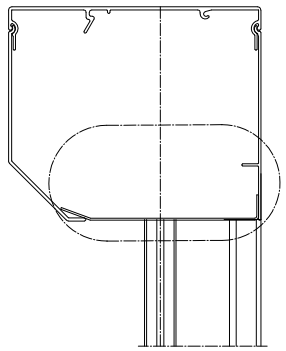
Information on additional box fastening can be found under Front-mounted external venetian blinds R6.

see "Additional box fastening", Page 118

Box extensions/corners

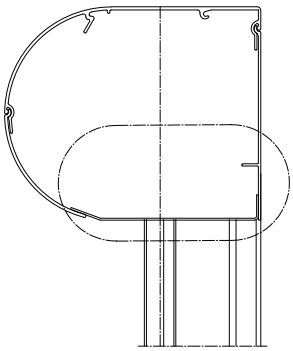
Front-mounted external venetian blinds R10, dummy box, outlet gap closed (optional)

PDF DWG



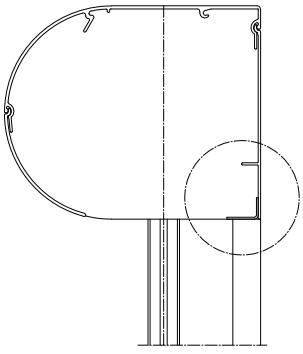
Front-mounted external venetian blinds R10, round box shape, dummy box, outlet gap closed (optional)

PDF DWG



Front-mounted external venetian blinds R10 (without insect screen), round box shape, dummy box, outlet gap closed (optional)

PDF DWG



Further information and designs on box extensions and corner positions can be found with the information on the R6 front-mounted external venetian blinds.

see "Box extensions/corners", Page 119

Detailed information on insect screen swivel door

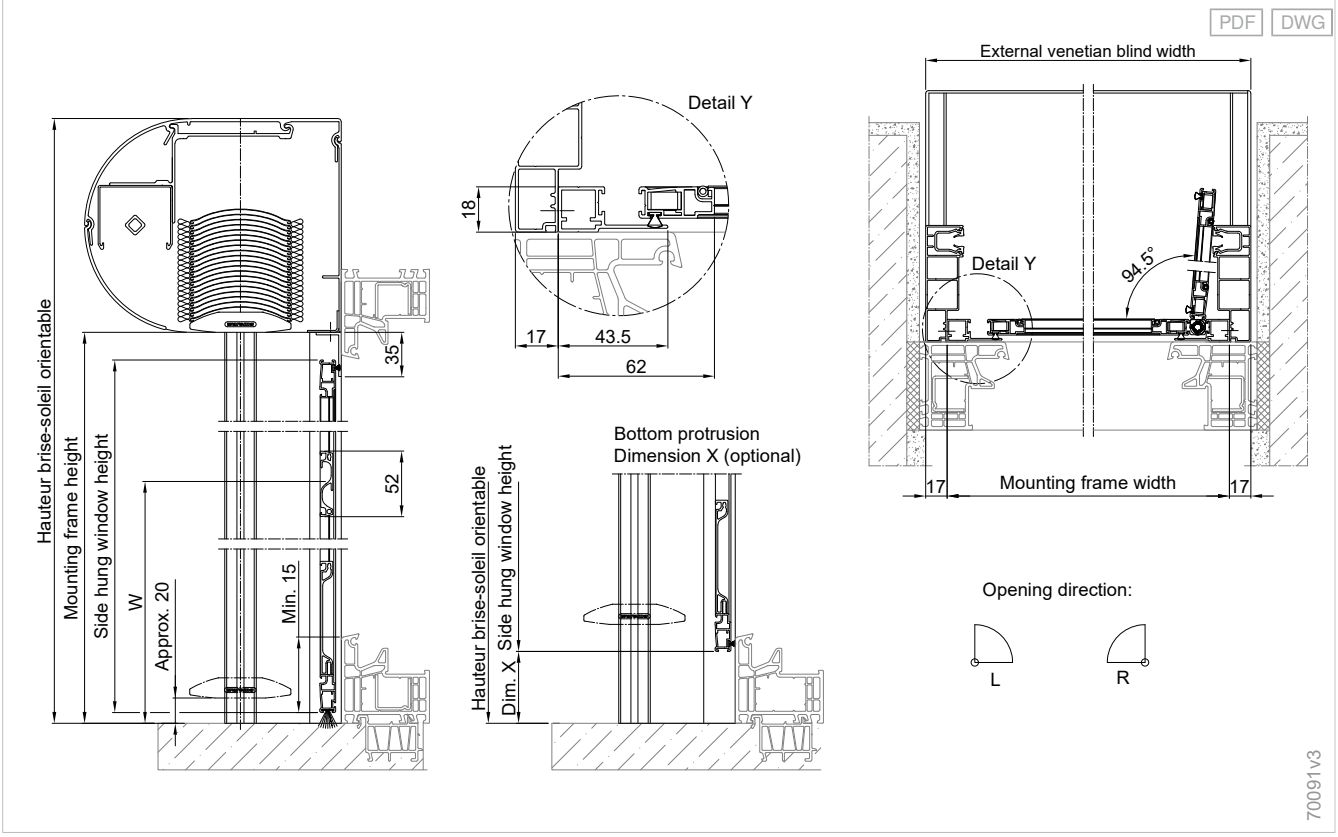
Construction limit values with insect screen swivel door

	Min. width	Max. width	Min. height	Max. height	Max. area
One-wing	500 mm	1300 mm	700 mm	2700 mm	2.7 m^2
Two-wing	1000 mm	2600 mm	700 mm	2700 mm	5.4 m^2

From an order height of 1900 mm: a step profile and a sash bar with integrated handle rail are included as standard. If no “W” dimension is specified, the sash bar will be positioned centrally in the insect screen swivel door.

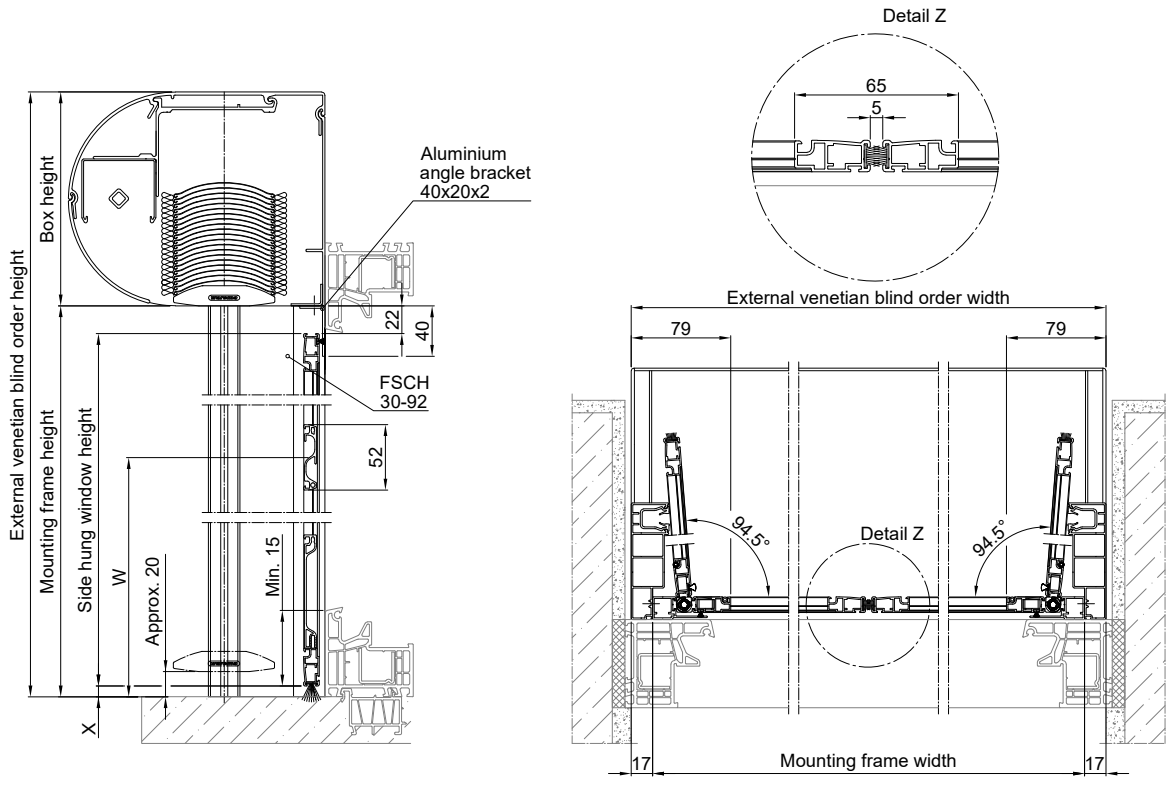
Subsequent orders: For subsequent orders, please state the box size. Alternatively, the insect screen swivel door can be ordered subsequently using WA and the item number.

Swivel door, one-wing



Front-mounted external venetian blind R10, swivel door, two-wing

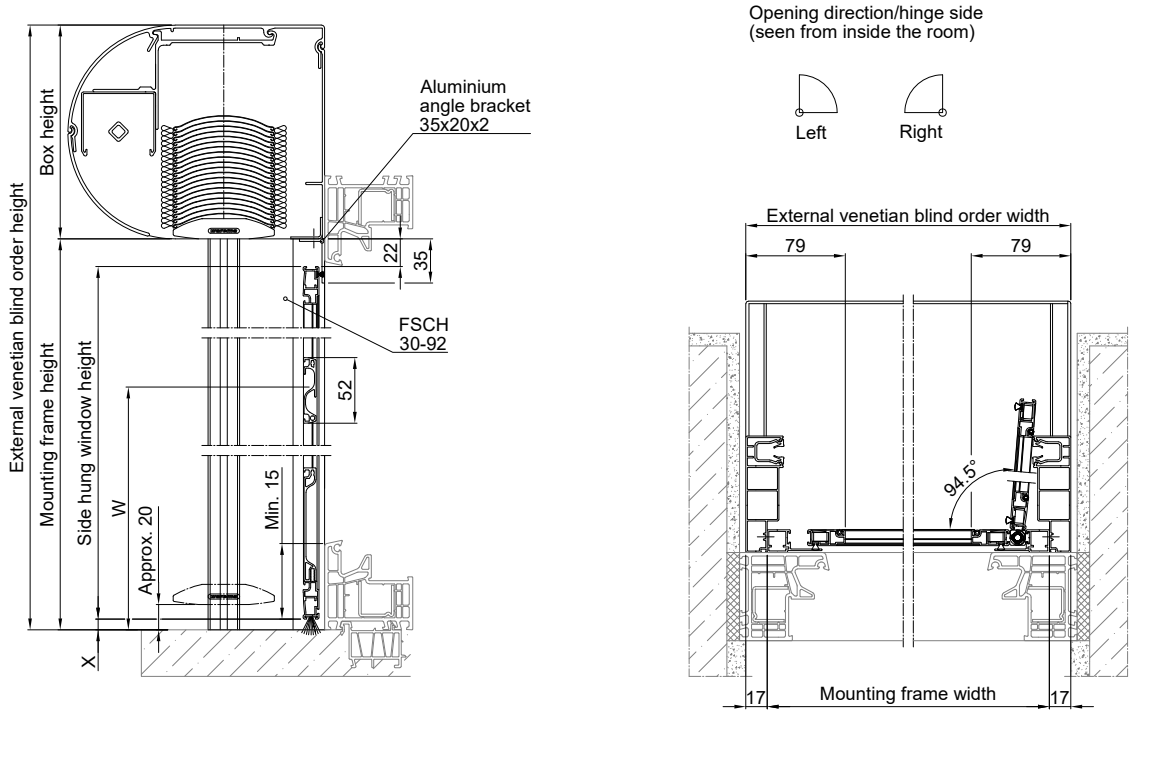
PDF DWG



70104v3

Front-mounted external venetian blind R10, measurement of swivel door for repeat order

PDF DWG

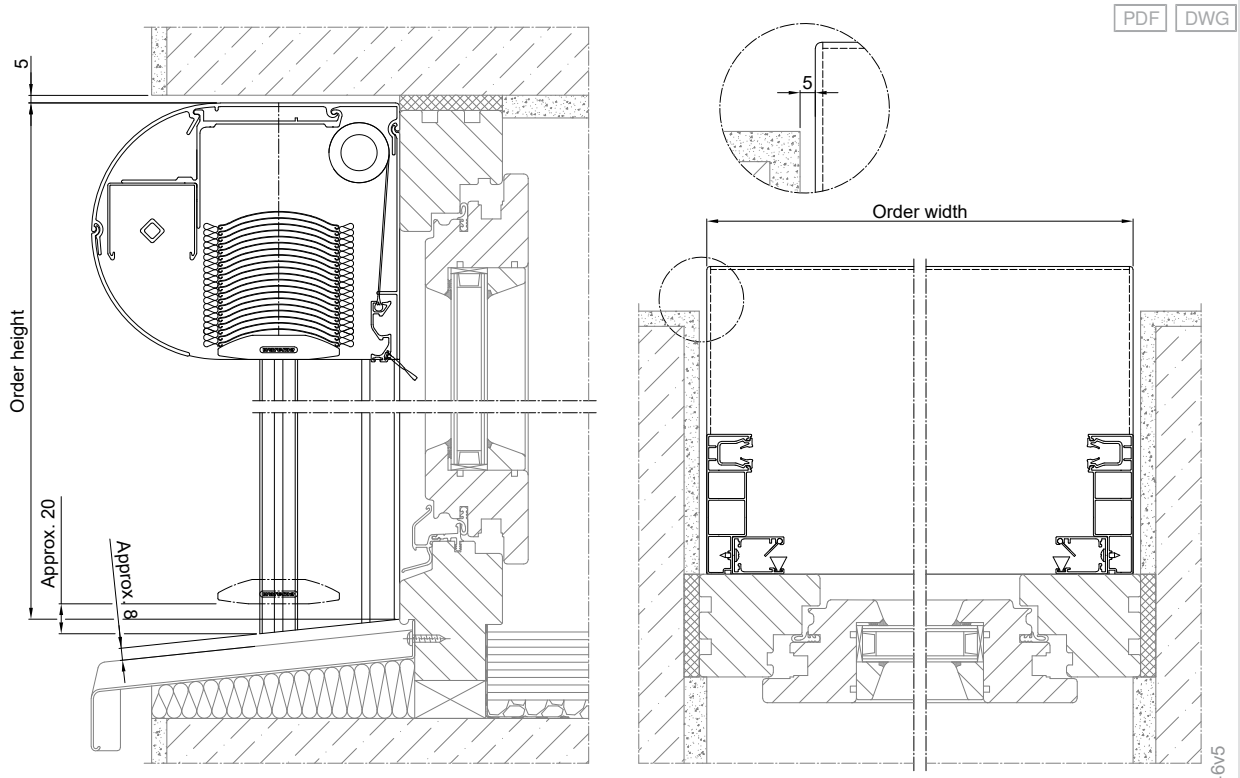


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Mounting examples

Measuring instructions: Installation in the reveal

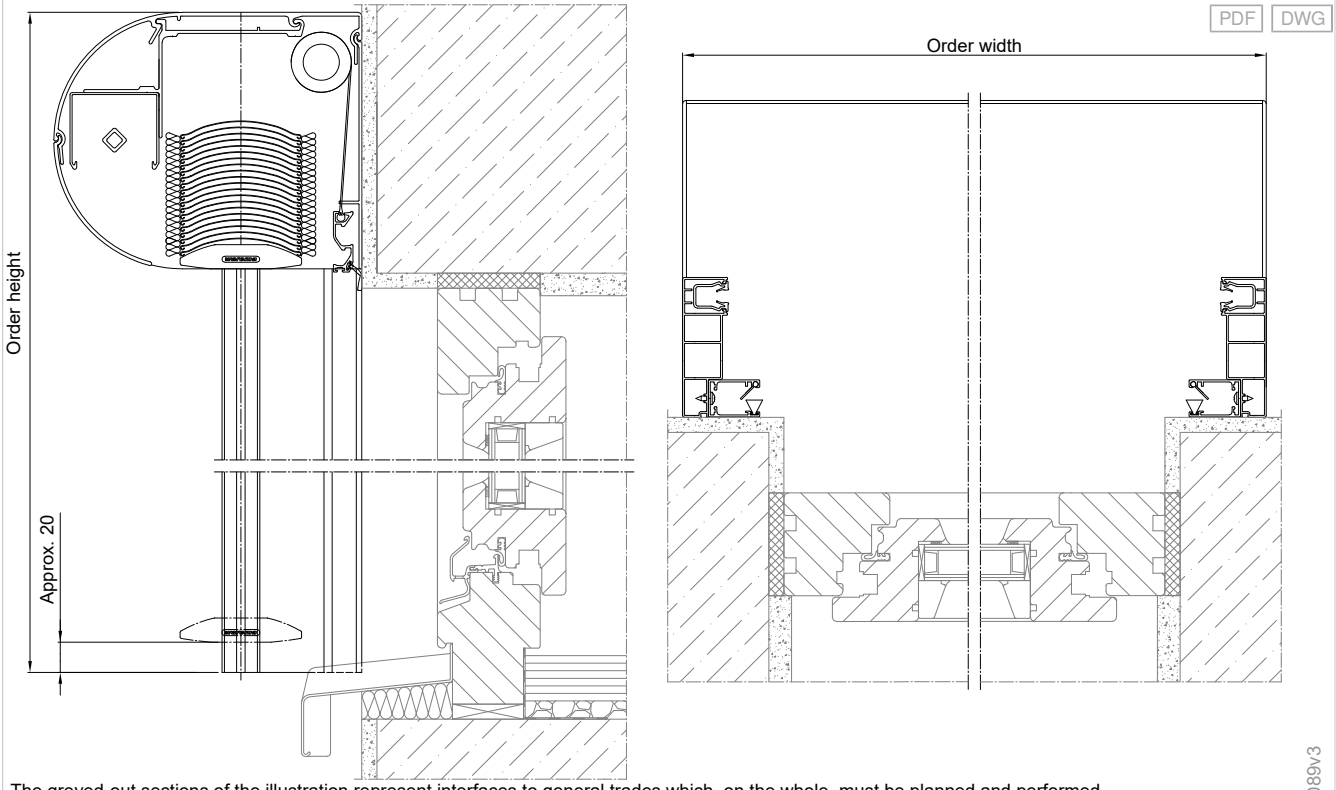
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The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

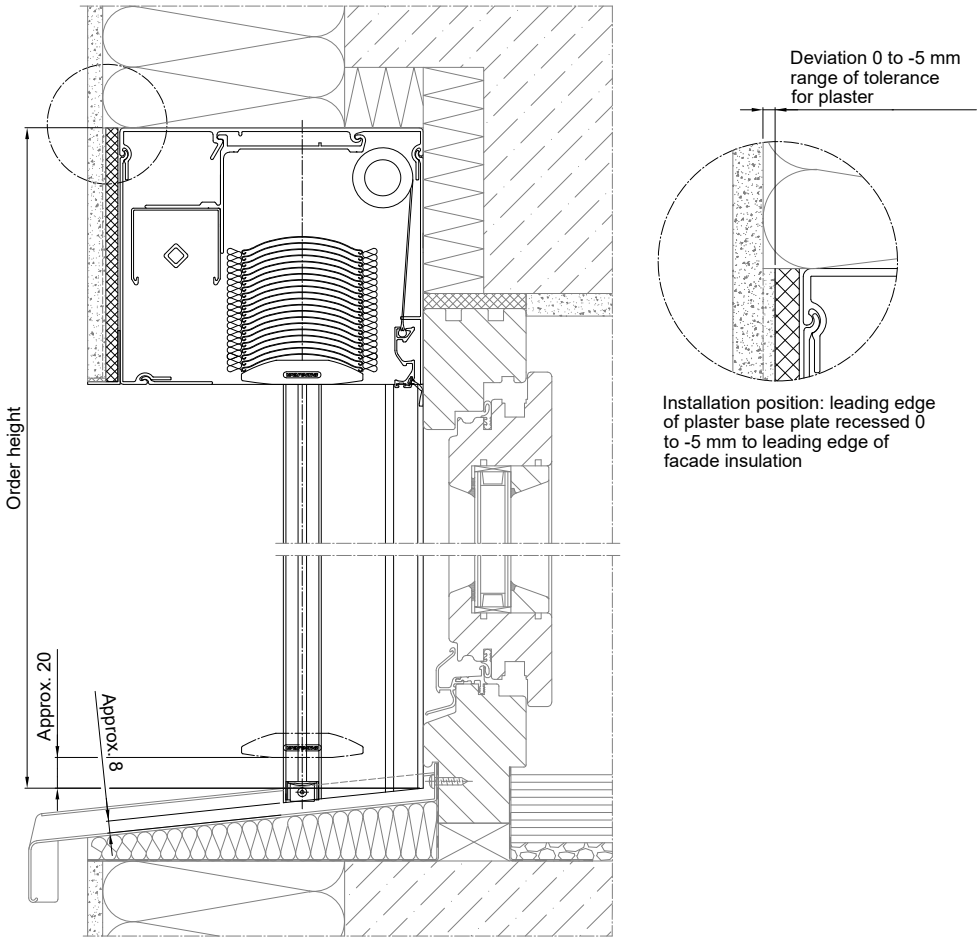
Measuring instructions: Installation in front of the reveal

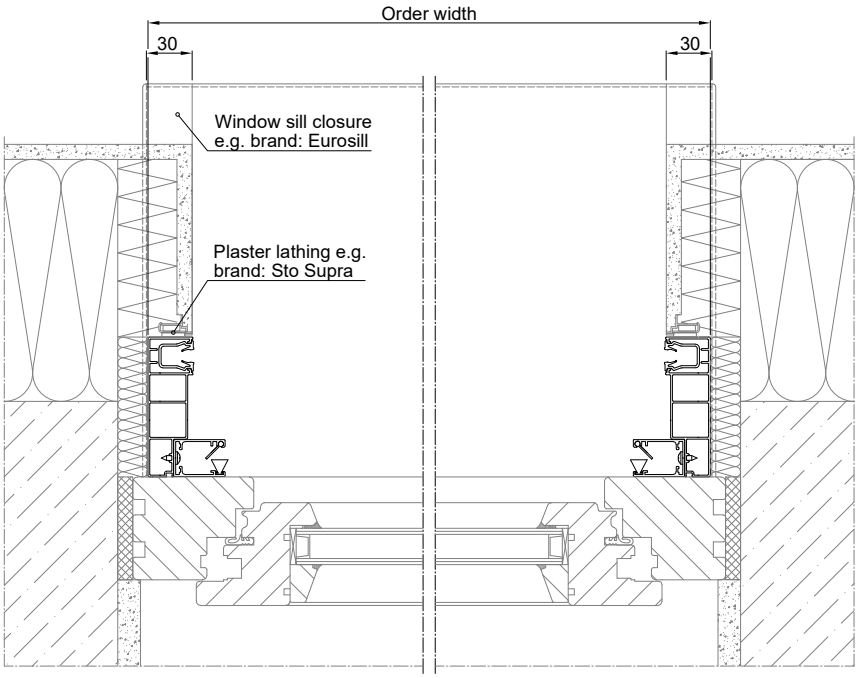
PDF DWG



The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

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70047v9

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

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Top-mounted external venetian blinds

Top-mounted external venetian blinds for new buildings NA-RA with rail guidance

Flexibly adjustable

Opaque from the outside but with a view out from the inside: The external sun shading system consisting of connected horizontal slats combines thermal protection, glare control, and visual privacy with an adjustable view out.

Economical

A single source: The top-mounted system is attached to the window and installed together with the window in just one step.

Suitable for construction

Various modification options to suit on-site requirements: Foamed boxes are available in masonry thickness in different depths and heights, for monolithic masonry or clinker construction, and with two different shaft openings.

Classic

Securely guided: The rail guidance is the classic among the guidance versions. The reliable lateral guidance provides great stability in windy conditions, good noise reduction, and a low-wear movement of the slats across the guide pins.

Well integrated

The front sides of the guide profiles can be fully plastered.

Construction limit values

Maximum order width	4500 mm
Maximum order height	4000 mm
Maximum order area	16 m^2
Maximum order width of the group unit	4500 mm

Order here

myWAREMA

Art.-Nr. 2036115

Order form

https://docs.warema.com/fi/2029419.pdf

https://docs.warema.com/fi/2013944.pdf

https://docs.warema.com/fi/877927.pdf

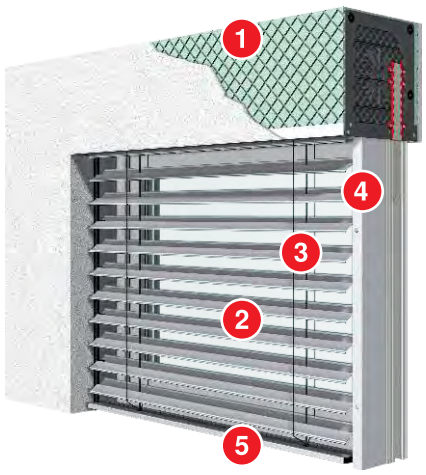
WAREMA tools

Dimensions Assistant
Fastener Assistant
Sun Shading Planner
Structural console tool

see "Navigating the document", Page 5

Components

NA-RA, masonry box with Zetra slat



1	Box	4	Lateral guidance
2	Slats (Zetra slat 80 Z)	5	End rail
3	Loop cord, lifting tape		

Box

Size 120 shaft, masonry box

Box sizes	300x250, 365x250, 300x300, 365x300, 425x300
Material	Polystyrene
Material colour	Green

- **Side cover:** Plastic, injection moulded part, grey; including mounting sleeve for fixing the connecting tab
- **Box fastening:**
  - For box widths of 1500 mm and greater, the box is fitted with perforated tape for extra fixing to the structure.
  - If the use of perforated tapes is not possible, they can be replaced with ceiling fasteners or mounting brackets.

+ Box end rail

Box end rail, outside

Material	Aluminium, extruded
Surface	Plain
Optional surface	Powder-coated
Depth	13 mm

13 mm standard projection, can optionally be extended up to 80 mm.

see "Masonry box, size 120 shaft", Page 153

Size 130 shaft, clinker construction

Box sizes	300x300, 345x300, 365x300
Material	Polystyrene
Material colour	Green

- **Side cover:** Plastic, injection moulded part, grey; including mounting sleeve for fixing the connecting tab
- **Box fastening:**
  - For box widths of 1500 mm and greater, the box is fitted with perforated tape for extra fixing to the structure.
  - If the use of perforated tapes is not possible, they can be replaced with ceiling fasteners or mounting brackets.

see "Box for clinker construction, size 130 shaft", Page 154

Box, optional

Size 140 shaft, masonry box

Box sizes	300x250, 365x250, 300x300, 365x300, 425x300
Material	Polystyrene
Material colour	Green

- **Side cover:** Plastic, injection moulded part, green; including mounting sleeve for fixing the connecting tab
- **Box fastening:**
  - For box widths of 1500 mm and greater, the box is fitted with perforated tape for extra fixing to the structure.
  - If the use of perforated tapes is not possible, they can be replaced with ceiling fasteners or mounting brackets.
- **Size 140 shaft depth:** The size 140 shaft depth allows the use of an integrated insect screen, either as an insect screen roller blind, a fixed frame or an insect screen swivel door. In addition, a size 140 shaft opening is required when using size 90 and 93 slats due to the extra space required.

+ Box end rail

Box end rail, outside

Material	Aluminium, extruded
Surface	Plain
Optional surface	Powder-coated
Depth	13 mm

13 mm standard projection, can optionally be extended up to 80 mm.

see "Masonry box, size 140 shaft", Page 153

Size 150 shaft, clinker construction

Box sizes	300x300, 345x300, 365x300
Material	Polystyrene
Material colour	Green

- **Side cover:** Plastic, injection moulded part, green; including mounting sleeve for fixing the connecting tab
- **Box fastening:**
  - For box widths of 1500 mm and greater, the box is fitted with perforated tape for extra fixing to the structure.
  - If the use of perforated tapes is not possible, they can be replaced with ceiling fasteners or mounting brackets.
- **Size 150 shaft depth:** The size 150 shaft depth allows the use of an integrated insect screen, either as an insect screen roller blind, a fixed frame or an insect screen swivel door. In addition, a size 150 shaft opening is required when using size 90 and 93 slats due to the extra space required.

see "Box for clinker construction, size 150 shaft", Page 154

Window connection

Window connection using plastic profile

Material	Plastic
Material colour	White

Plastic profile integrated/bonded in the insulating wedge of the box. Reinforcement with inserted stiffener profile made of steel.

see "For window connection using plastic profile, integrated into the insulating wedge (standard fixing)", Page 156

Window connection, optional

Clip fixing, plastic

Material	Plastic
Material colour	White

Comprised of base profile and window adapter profile made of plastic

see "Window connection using clip fixing, plastic", Page 157

Clip fixing, steel

Material	Steel
Surface	Zinc-coated

Comprised of plastic base profile, white, and window adapter profile made of steel

see "Window connection using clip fixing, steel", Page 157

Product variants that can be used

- E 80 A6 S
- E 80 AF A6
- E 80 AF A6 with eyelets
- E 80 A6 Z
- E 73 A6
- E 90 A6
- E 93 A6
- E 80 WF A6

Guide variants

- Rail guidance

Guide rail

- FSCH 27-70 (type 36)
- FSCH 27-95 (type 31)
- FSCH 27-87.5 (type 32)

Guide rail, optional:

- FSCH 27-70 (type 65), clamping pin installation
- FSCH 27-87 (type 67), clamping pin installation
- FSCH 27-95 (type 68), clamping pin installation
- Deep FSCH 27-130 for clinker brick models (type 69)
- Deep FSCH 27-150 for clinker brick models (type 29)
- FSCH with bead 25-18 (type 2)

see "Guide rails for external venetian blinds", Page 360

Tension cable

Additional cable guidance

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

To prevent components located behind the external venetian blind being damaged by wind load, an additional cable guidance in the centre is either mandatory or recommended for rail guidance from a defined width of slat, depending on the slats used:

- Beaded slats: from a slat size > 3000 mm (recommended)
- Flat slats (incl. Windra flat slat): from a slat size > 2400 mm (mandatory)
- Dim-out slats: no additional tension cable required

Arrangement of the additional cable guidance: The arrangement must be specified (viewed from inside the room, starting on the left)

Determination of cable length: External venetian blind height + 100 mm

Drive variants

- Motor

Motor

- Basic motor for external venetian blinds

Motor optional:

- Super-fast terrace motor (STM)
- Motor with 2 lower limit positions
- Motor with freezing protection
- SMI motor

see "Drive variants", Page 489

Colours

- Slat colours
- WAREMA Colour World
- Anodised C0

Colours, optional:

- Anodised C31
- Anodised C32
- Anodised C33
- Anodised C34
- Anodised C35

see "Colours and finishes", Page 12

see "Colours and surfaces for external venetian blind slats in accordance with current collection", Page 15

Insect screen optional

- Integrated insect screen roller blind
- Integrated insect screen swivel door

see "Detailed information on insect screens (supplementary accessory)", Page 162

Supplementary accessories

- WAREMA SecuKit for external venetian blinds
- VisioNeo Sun railing system
- Corner joint for external venetian blinds
- SenSigna, external venetian blind with acoustic signal
- Daylight transport element TLT
- Snap-action switch work setting
- slowturn
- Battery module UP for external venetian blinds
- Emergency power supply kit
- Slat perforation
- Integrated insect screen

see "Supplementary accessories", Page 277

Notes

Notes on product configuration

- **Different tilting systems for external venetian blinds with flat slats:** External venetian blind moves down with the slats closed to the outside and moves up with the slats closed to the inside at approx. 55° (Windra flat slat excluded).
- **Without premounting for Windra flat slat, clinker brick box and mechanically coupled external venetian blinds:** The external venetian blinds are not delivered premounted in the box.

Construction limit values

- **Several external venetian blinds in one box:** A maximum of 3 external venetian blinds can be integrated in one box.
- **Premounting for mechanically coupled external venetian blinds:** For mechanically coupled external venetian blinds and the clinker brick variant (K), external venetian blinds are not supplied premounted in boxes.

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area	Maximum order width of the group unit	Group unit, maximum order area	Maximum order area of unit coupling	Maximum quantity of unit couplings per side
Basic external venetian blinds								
E 80 A6 S	680 mm	4500 mm	4000 mm	16 m^2	4500 mm	16 m^2	13 m^2	1
E 80 AF A6	680 mm	4500 mm	4000 mm	16 m^2	4500 mm	16 m^2	13 m^2	1
E 80 WF A6	680 mm	3000 mm	4000 mm	12 m^2	4500 mm	16 m^2	8 m^2	1
E 80 A6 Z	680 mm	4500 mm	4000 mm	15 m^2	4500 mm	16 m^2	13 m^2	1
E 73 A6	680 mm	4500 mm	4000 mm	15 m^2	4500 mm	16 m^2	13 m^2	1
E 90 A6	680 mm	4500 mm	4000 mm	15 m^2	4500 mm	16 m^2	13 m^2	1
E 93 A6	680 mm	4500 mm	4000 mm	15 m^2	4500 mm	16 m^2	13 m^2	1

For top-mounted external venetian blinds, the information on "Minimum order width" and "Maximum order width" always refers to the back edge of the box.

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances as per the "Guideline for assessing the product features of external venetian blinds" apply.

Dimension determination

Configuration view: The order dimensions are determined from interior view, from left to right.

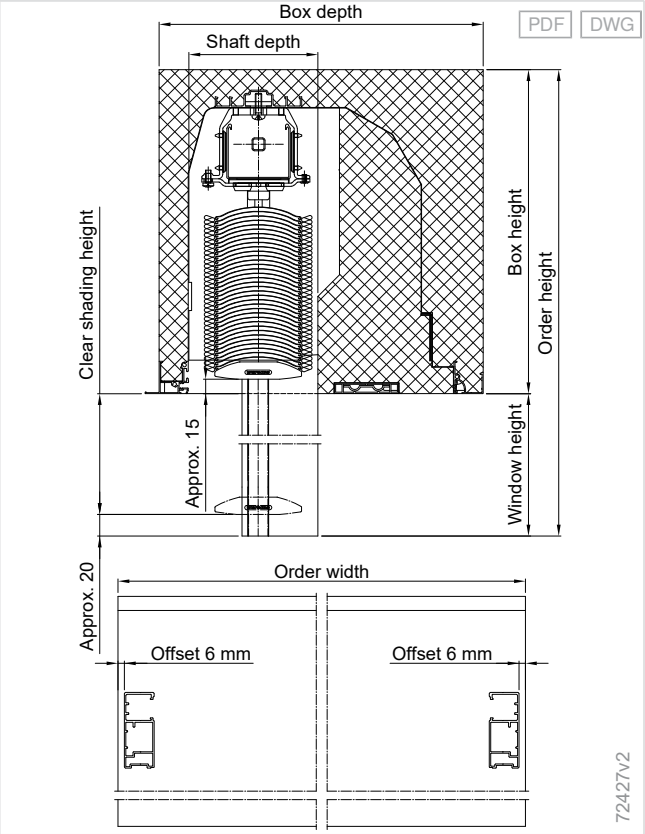
Reference dimension	Dimension determination
Order width	Window frame width = box width
Order height	Bottom edge of the guide rail to top edge of the box
Box height	see box dimensions
Box depth	see box dimensions

- Available information on window profile: manufacturer, type, window frame thickness
- Indicate desired box size
- Note offset (see dimension drawings)
- Note connection to window sill
- Minimum distance between the box top edge and lintel: 10 mm

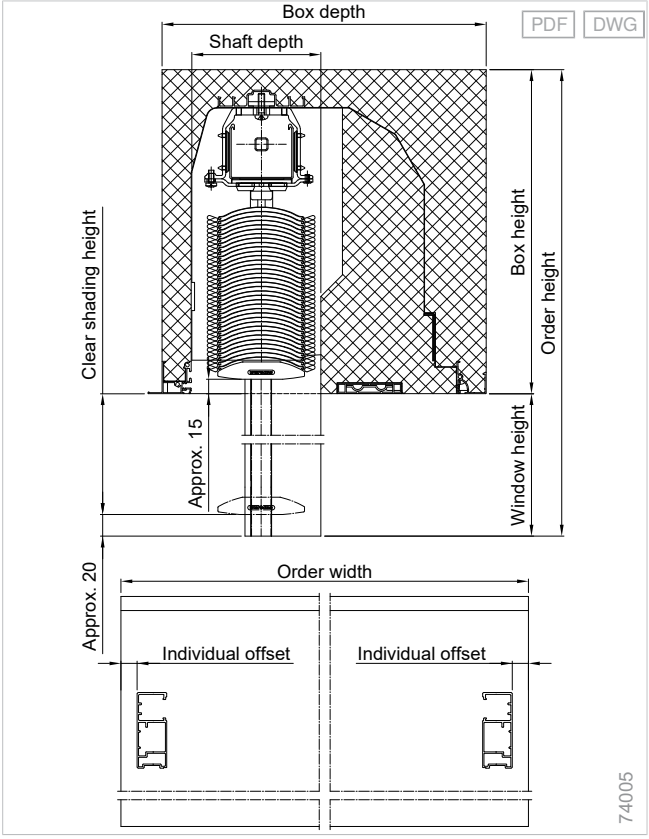
Note on measuring:

The box width corresponds to the width of the window frame and should, depending on the size of the window, be at least 20 mm, but no more than 60 mm narrower than the width of the masonry opening. This is necessary to ensure best possible application of PU foam in the area of the side cover and the masonry. Any valid guidelines and regulations must be complied with.

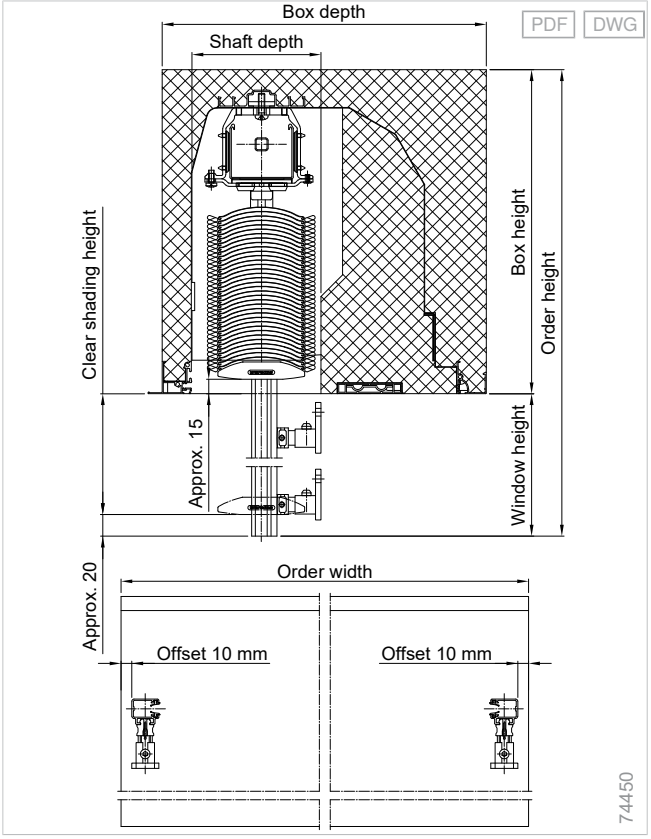
NA-RA dimension determination, rail guidance, standard offset 6 mm



NA-RA dimension determination, rail guidance, individual offset

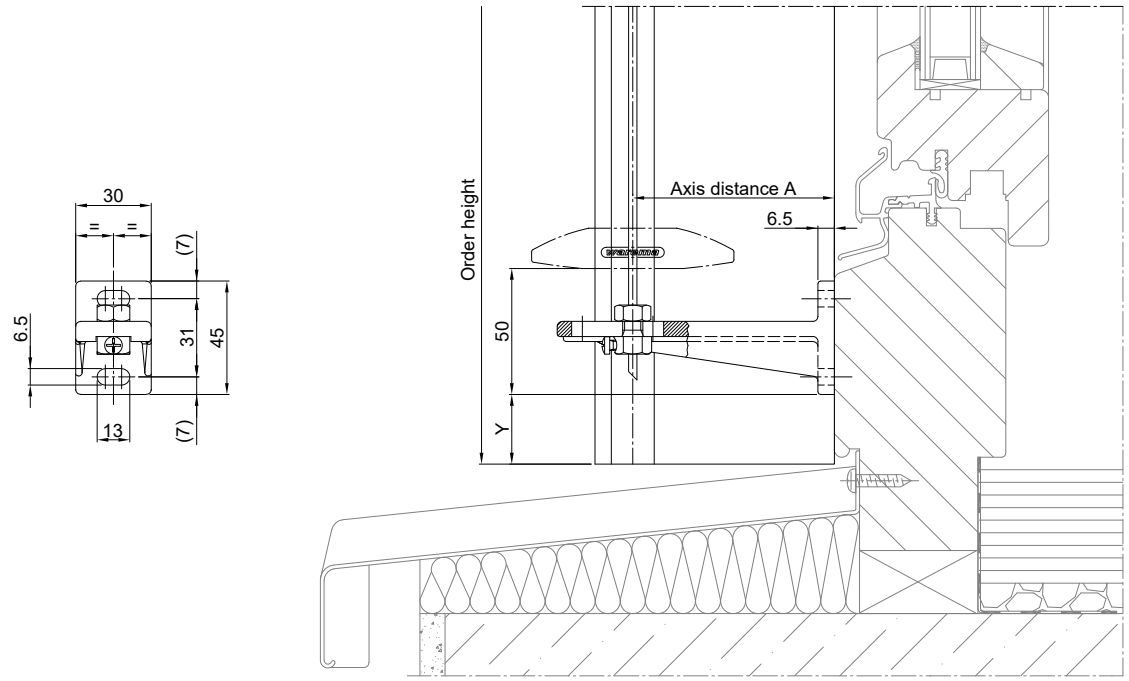


Top-mounted external venetian blinds for new buildings NA-RA with rail guidance, masonry, shaft size 120, beaded slats, stand-off installation



Measuring instructions for additional cable guidance

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For slat widths > 2400 mm and versions with flat slats, the use of wind protection using an additional tension cable is required. Specify dimension Y when ordering.

Box types

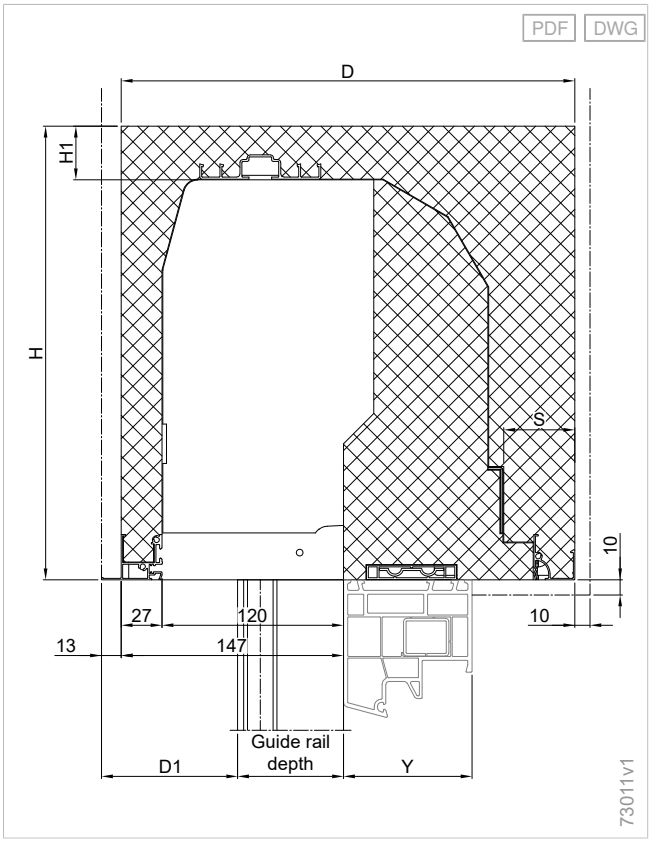
- **Fixing:**
  - By bolting or clipping on the bottom of the window frame depending on window connection.
  - Lateral fixing using connecting tabs which are fixed to the side cover using a premounted mounting sleeve.
- **Box width above 1500 mm:**
  - The box is fitted as standard with perforated tape for extra fixing to the structure for box widths starting at 1500 mm (regardless of whether a single or group unit).
  - If the use of perforated tapes is not possible, they can be replaced with ceiling fasteners.

Masonry box, size 120 shaft

Box dimensions

Box sizes	Guide rail	Depth D	Depth D1	Height H	Height H1
300x250	70 mm	300 mm	90 mm	250 mm	25 mm
300x300	70 mm	300 mm	90 mm	300 mm	35 mm
365x250	70 mm	365 mm	90 mm	250 mm	25 mm
365x300	70 mm	365 mm	90 mm	300 mm	35 mm
425x300	70 mm	425 mm	90 mm	300 mm	35 mm

NA-RA, masonry box, size 120 shaft

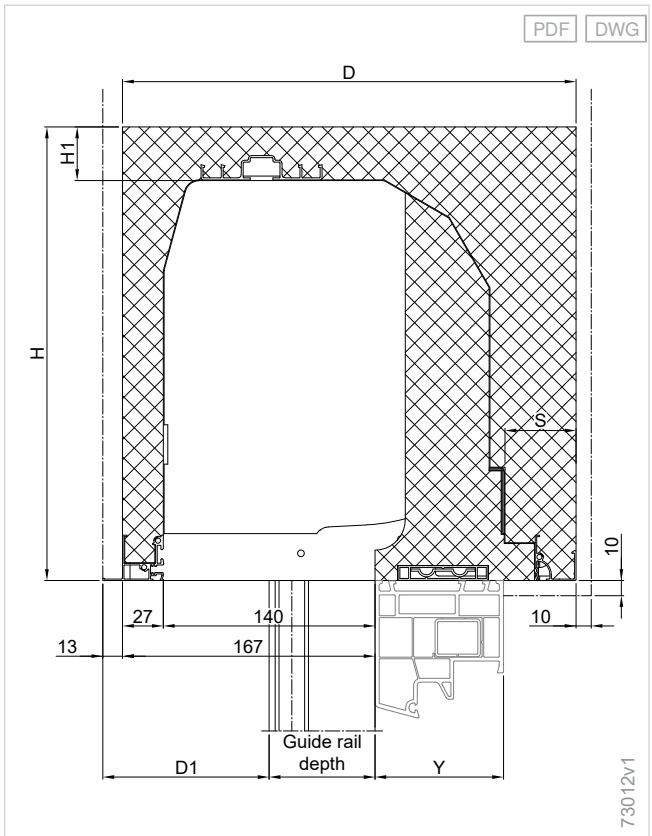


Masonry box, size 140 shaft

Box dimensions

Box sizes	Guide rail	Depth D	Depth D1	Height H	Height H1
300x250	87.5/95 mm	300 mm	92.5/85 mm	250 mm	25 mm
300x300	87.5/95 mm	300 mm	92.5/85 mm	300 mm	35 mm
365x250	87.5/95 mm	365 mm	92.5/85 mm	250 mm	25 mm
365x300	87.5/95 mm	365 mm	92.5/85 mm	300 mm	35 mm
425x300	87.5/95 mm	425 mm	92.5/85 mm	300 mm	35 mm

NA-RA, masonry box, size 140 shaft

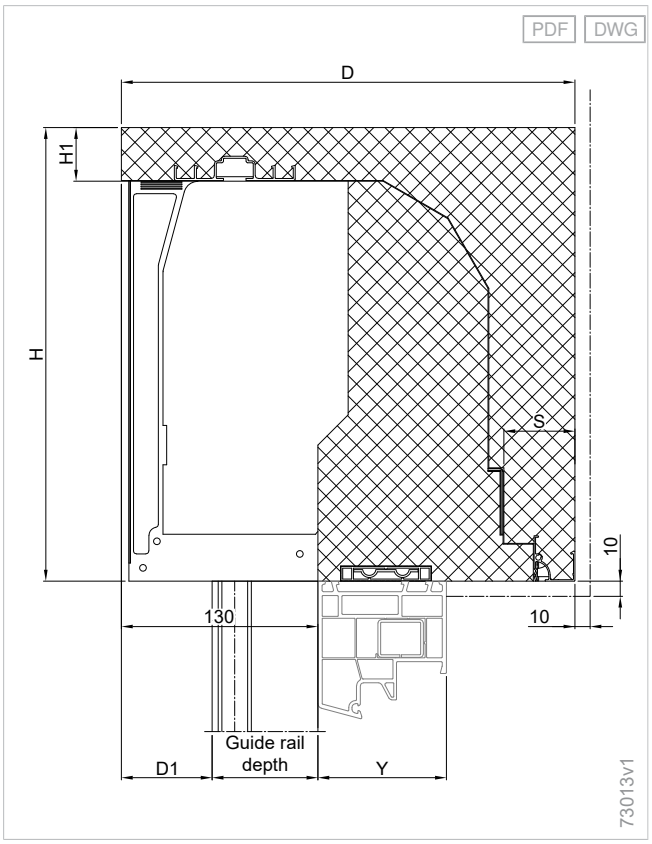


Box for clinker construction, size 130 shaft

Box dimensions

Box sizes	Guide rail	Depth D	Depth D1	Height H	Height H1
300x300	70 mm	300 mm	60 mm	300 mm	35 mm
345x300	70 mm	345 mm	60 mm	300 mm	35 mm
365x300	70 mm	365 mm	60 mm	300 mm	35 mm

NA-RA, box for clinker construction, size 130 shaft

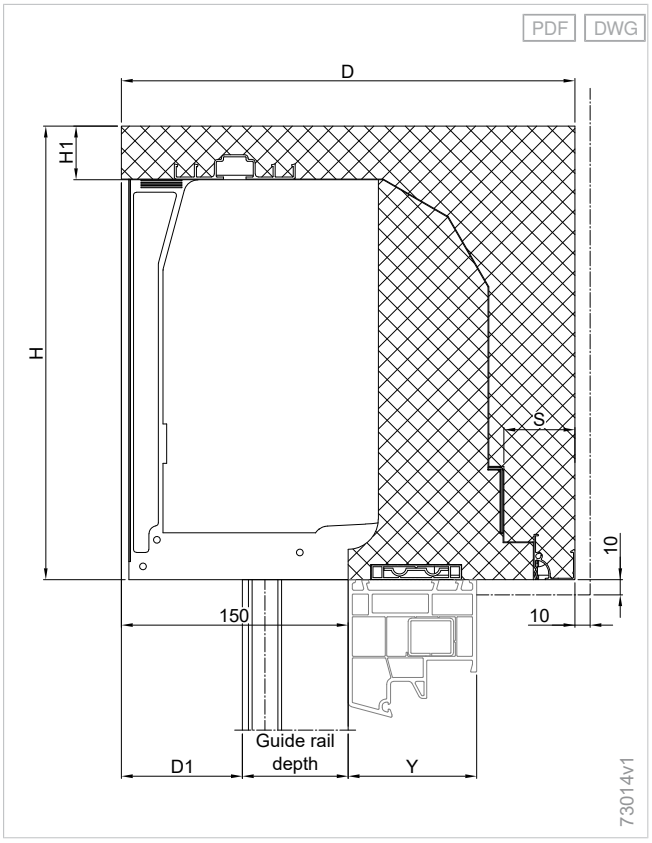


Box for clinker construction, size 150 shaft

Box dimensions

Box sizes	Guide rail	Depth D	Depth D1	Height H	Height H1
300x300	87.5/95 mm	300 mm	62.5/55 mm	300 mm	35 mm
345x300	87.5/95 mm	345 mm	62.5/55 mm	300 mm	35 mm
365x300	87.5/95 mm	365 mm	62.5/55 mm	300 mm	35 mm

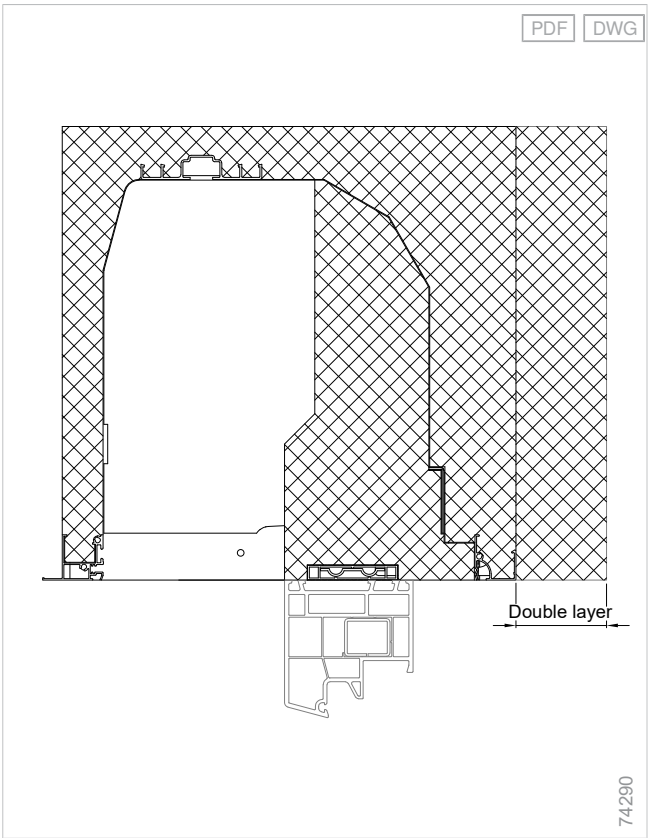
NA-RA, box for clinker construction, size 150 shaft



Top-mounted boxes for new buildings with double box layering

Top-mounted boxes for new buildings in standard sizes can also be adjusted for different masonry thicknesses by means of double box layering.

Top-mounted external venetian blinds for new buildings NA-RA, masonry, 120 mm shaft, double layer

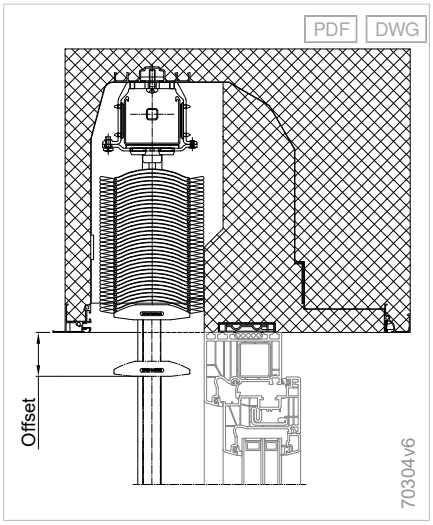


End rail stack protrusion

Maximum order height without stack protrusion (maximum clear shading height without stack protrusion) in mm

Types	Box height 250 mm	Box height 300 mm	Approx. stack increase per 100 mm of additional height (mm)
E 80 A6 S	2600 (2330)	3200 (2880)	5
E 80 AF A6	3300 (3030)	4000 (3680)	3
E 80 AF A6 (with eyelets)	3700 (3430)	4000 (3680)	3
E 73 A6	2100 (1830)	2800 (2480)	5
E 80 A6 Z	2600 (2330)	3200 (2880)	5
E 90 A6	2800 (2530)	3800 (3480)	4
E 93 A6	2800 (2530)	3800 (3480)	4
E 80 WF A6	2600 (2330)	3200 (2880)	5

Overhang of end rail



Slat stack heights are approximate values and for technical reasons, they might be higher or lower. Stack parallelism with retracted external venetian blind: +/- 10 mm

Rail/cable combination: For external venetian blinds with combined rail and cable lateral guidance, the maximum order heights without stack protrusion of the units with cable guidance must be used as a basis.

Model with insect screen swivel or swinging door: In combination with insect screen swivel or swinging door, the external venetian blind must retract completely into the box.

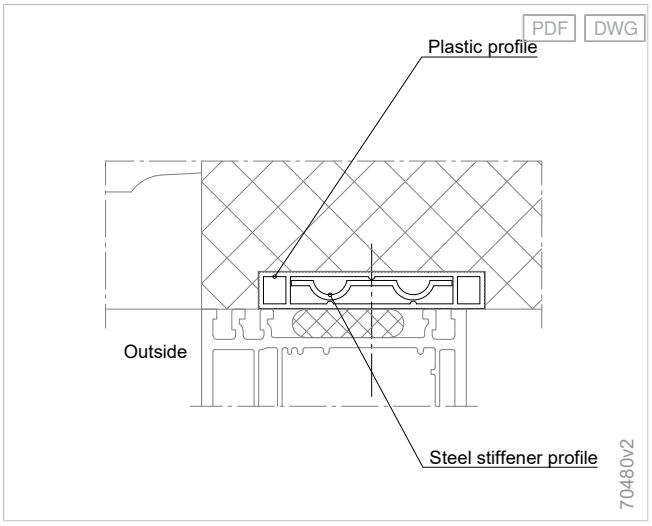
For window connection using plastic profile, integrated into the insulating wedge (standard fixing)

Sealing of connecting joint: The connecting joint between the window frame and the top-mounted box must be sealed in accordance with the on-site conditions. The use of structural consoles is possible to improve the structural strength.

- Plastic profile, white, integrated/bonded in the insulating wedge of the lintel box
- Inside with additional inserted stiffener profile made of steel
- The box is screwed across the window width onto the window frame from below through the plastic and steel profile
- Area moment of inertia of steel stiffener profile: ly = 0.89 cm^4

Maximum window frame thickness: Can be used regardless of the window frame thickness

Plastic profile with additional stiffener profile made of steel (standard)



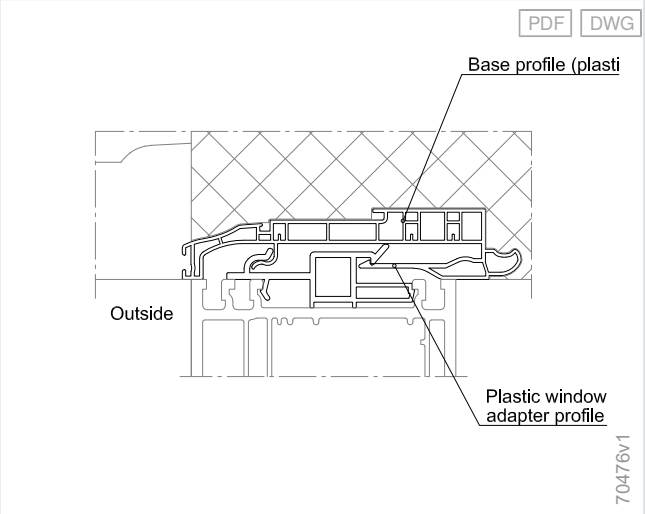
Window connection using clip fixing, plastic

Sealing of connecting joint: The connecting joint between the window frame and the top-mounted box must be sealed in accordance with the on-site conditions.

- For a permanent connection across the entire window width
- The plastic window adapter profile, white, is clipped into the respective plastic window or screwed in via a universal window adapter profile for all other windows.
- Base profile integrated/bonded in the insulating wedge
- The box is then pushed onto the window adapter profile and clipped into position using the integrated base profile
- Available for all box sizes

Can be used for the following window frame thicknesses: min. 70 mm, without maximum limitation

Clip fixing via plastic window adapter profile (optional)



Window connection using clip fixing, steel

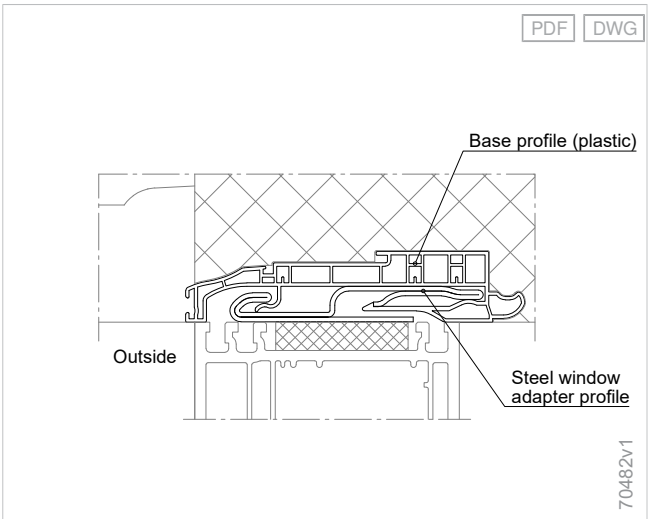
Sealing of connecting joint: The connecting joint between the window frame and the top-mounted box must be sealed in accordance with the on-site conditions. The use of structural consoles is possible to improve the structural strength.

- Recommended for order widths of 1600 mm or greater for increased window rigidity
- Short and long models available
- The steel window adapter profile is bolted onto the window frame from above.
- Basic profile integrated/bonded in the insulating wedge
- The box is then pushed onto the window adapter profile and clipped into position using the integrated base profile
- Model available for all box sizes
- Area moment of inertia, steel window adapter profile:
  - Long profile Iy = 8.3 cm^4
  - Short profile Iy = 2.4 cm^4

Can be used for the following window frame thicknesses:

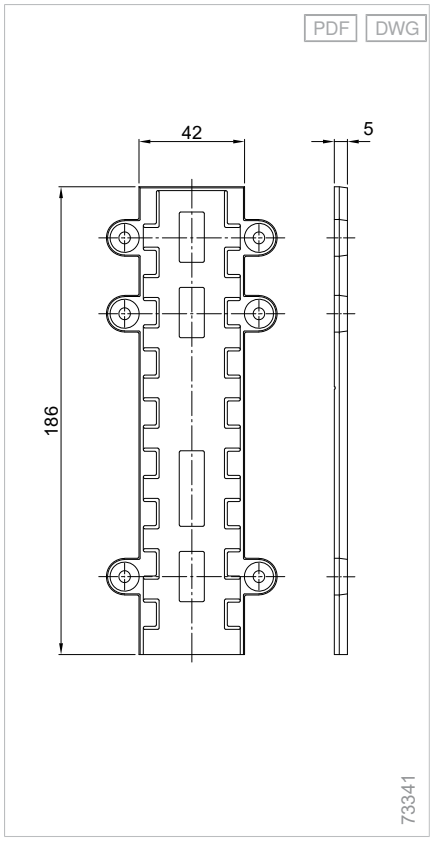
- Long clip profile: 70-92 mm: With a window frame thickness of 92 mm or greater, we recommend that the short window adapter profile always be used for ease of installation.
- Short clip profile: min. 70 mm, without maximum limitation

Clip fixing via steel window adapter profile (optional)

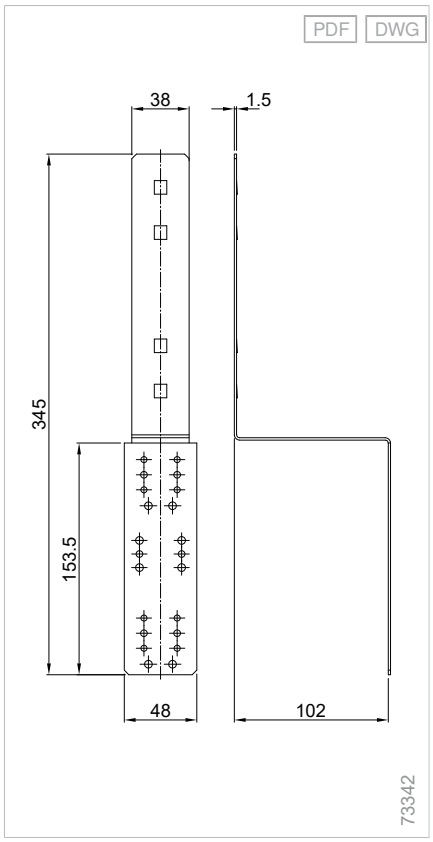


Standard fixation of box on window

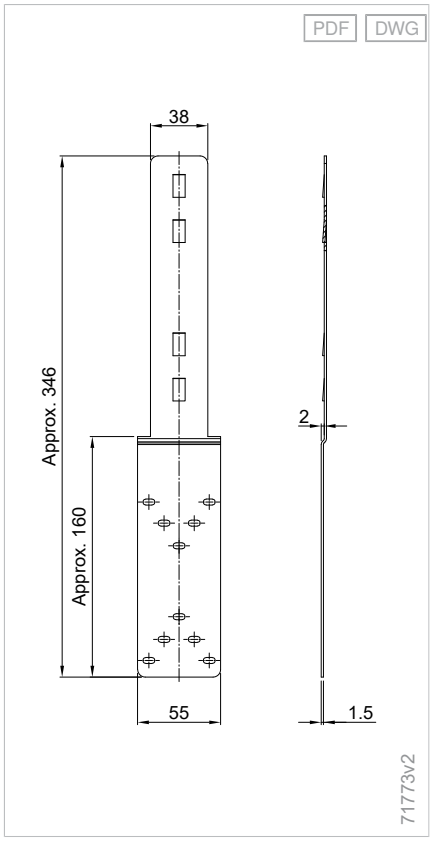
Mounting sleeve



Z tab, at an angle of 90°, for box extension type 5



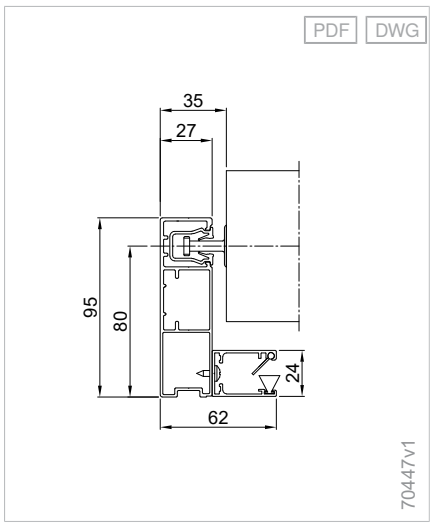
Universal connecting tab



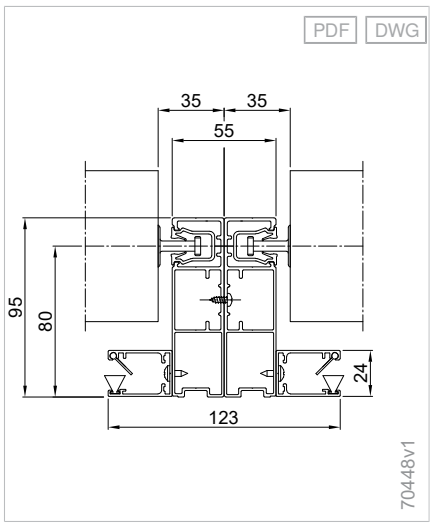
Allocation of shaft depth/guide profile

Shaft depth	Permissible slat width	Allocated guide profile
120/130 mm	73/80	FSCH 27-70/ FSCH 27-130
140/150 mm	73/80	FSCH 27-95/ FSCH 27-150
140/150 mm	90/93	FSCH 27-87

Guide profile with guide rail for insect screen roller blind



Guide profile with guide rail for insect screen roller blind (centre situation)



A shaft opening of at least 140 mm is required for the integration of an insect screen roller blind.

Additional product information

Detailed information on cable exit

Standard cable exit: left or right at end of box

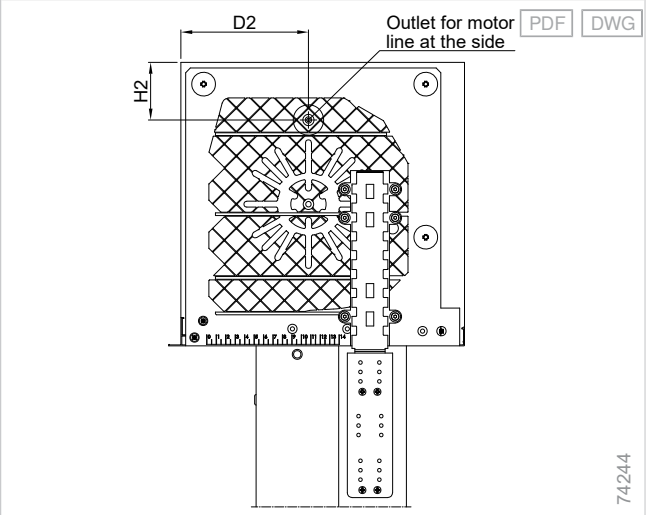
Cable excess:

- 1000 mm as standard
- Also optionally 5000 mm or 10000 mm

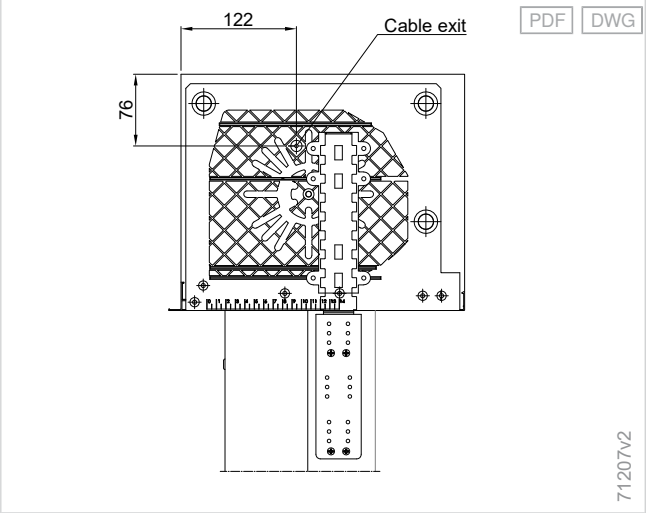
As standard, the Hirschmann coupling is placed within the box with clamped cable whip. **A cable whip without plug connector with an open end and ferrules comes out of the box.**

We recommend that the cable whip be guided directly into the building for connection to prevent a further plug-in connection outside the box!

Top-mounted external venetian blinds for new buildings NA-RA with rail guidance, masonry, cable exit



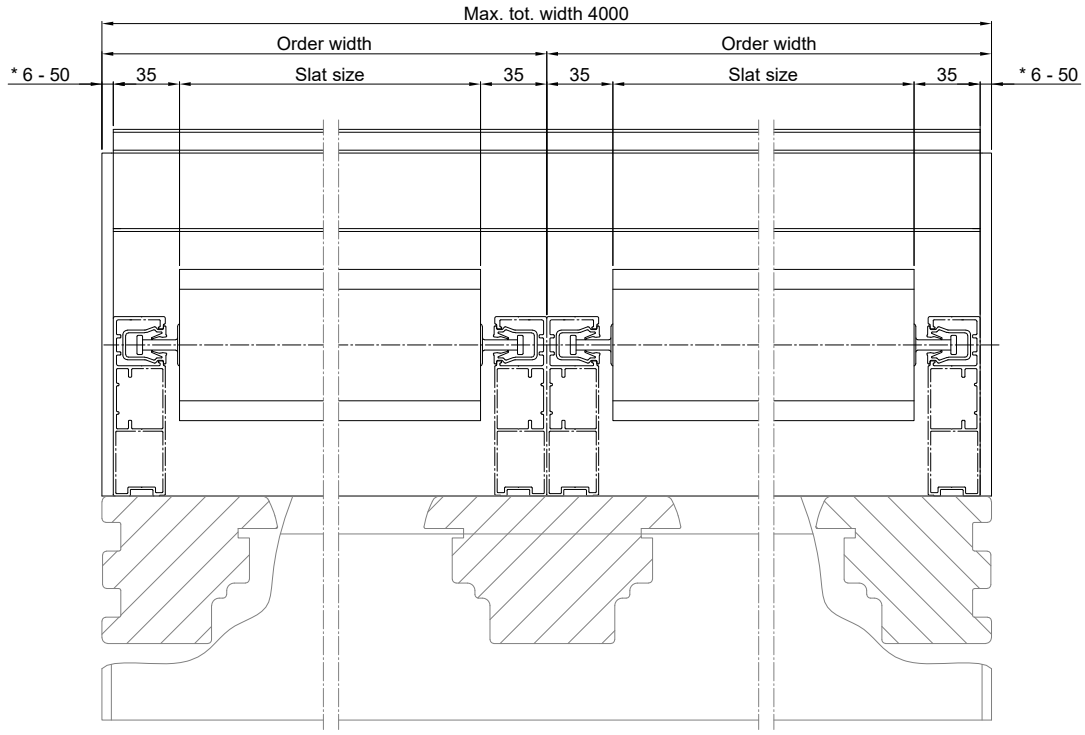
Cable size 250 box cable exit



Detailed information on combinations

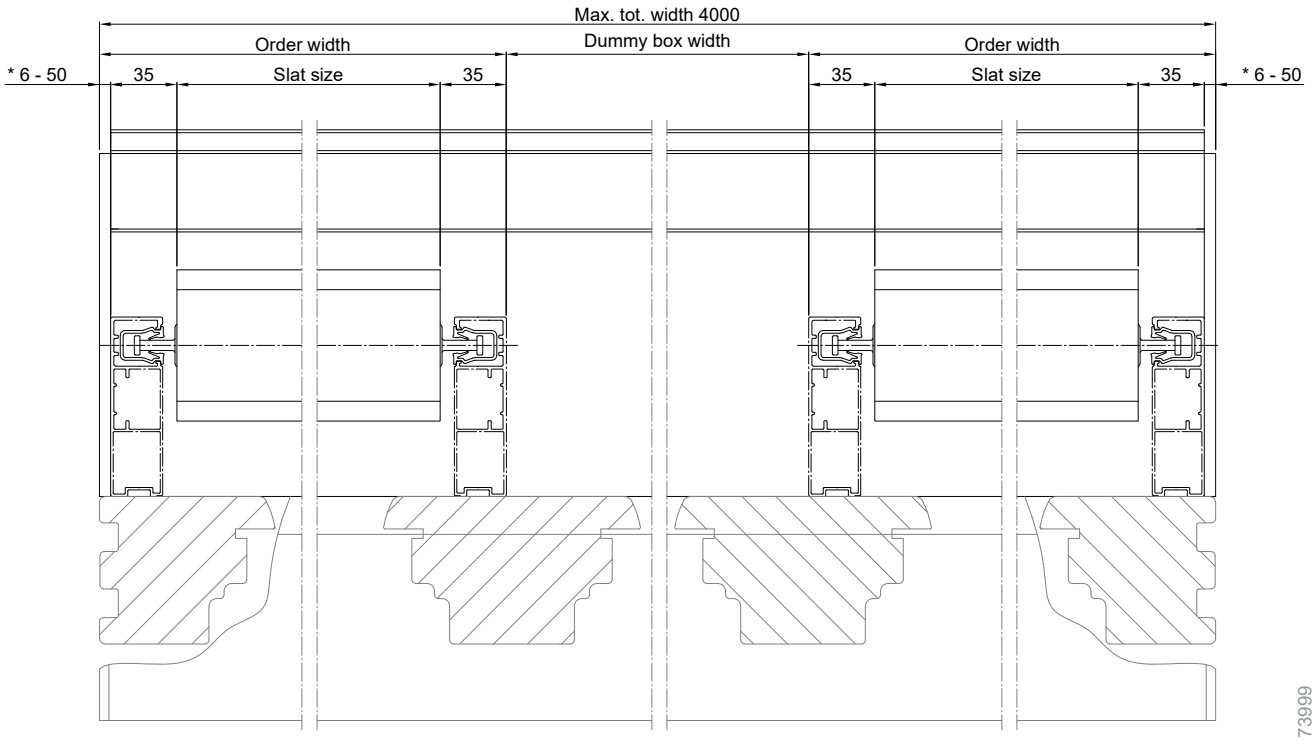
Top-mounted external venetian blind for new buildings NA-RA, measuring instructions for combinations

PDF DWG



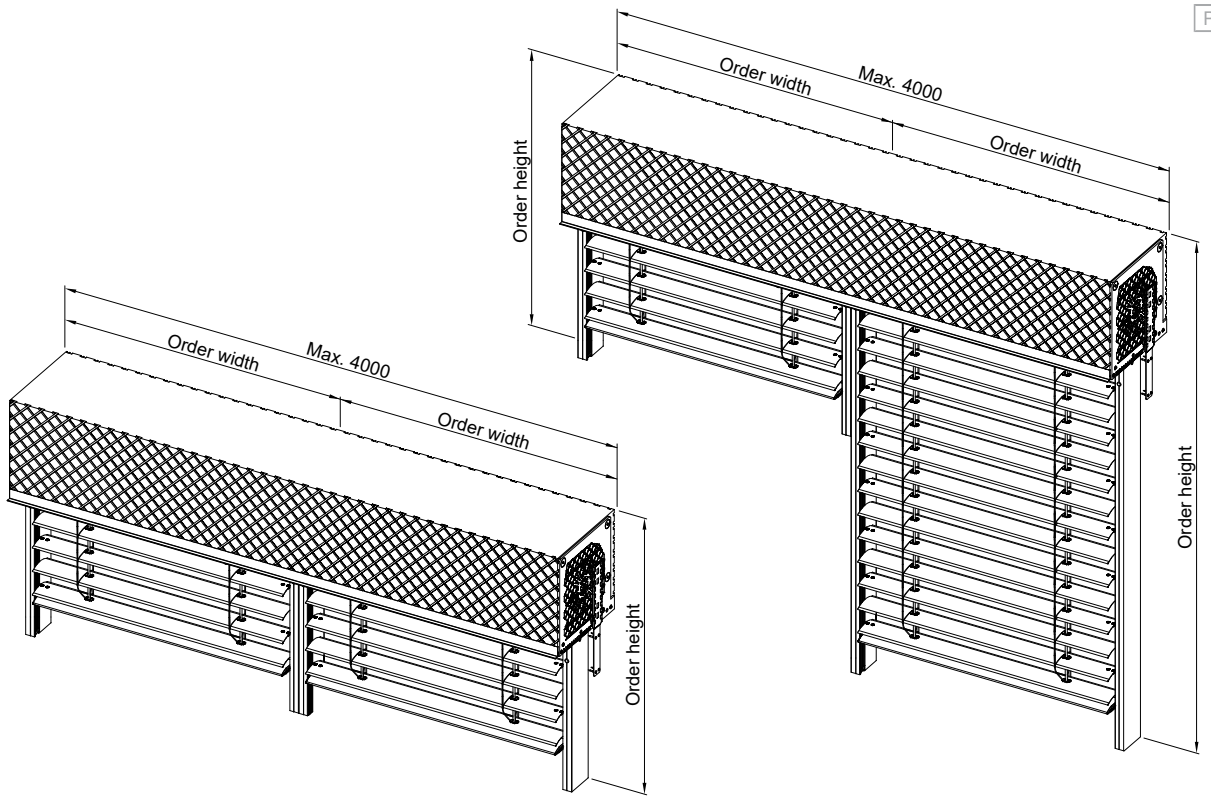
Top-mounted external venetian blind NA-RA, external venetian blinds and dummy cover inside one box

PDF DWG



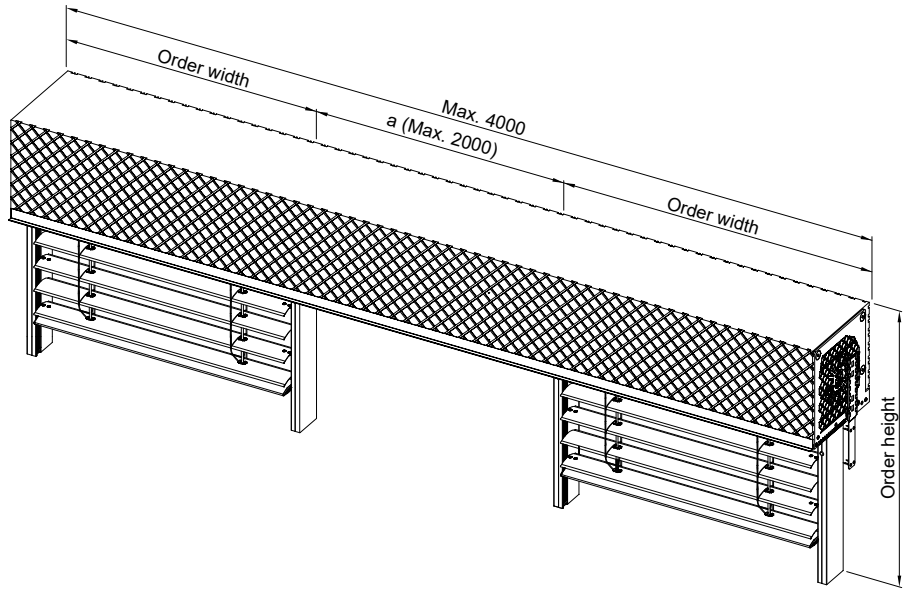
Combinations of continuous cover panel strip

PDF DWG



Combinations of continuous cover panel strip with dummy cover panels

PDF DWG



Detailed information on insect screens (supplementary accessory)

Construction limit values

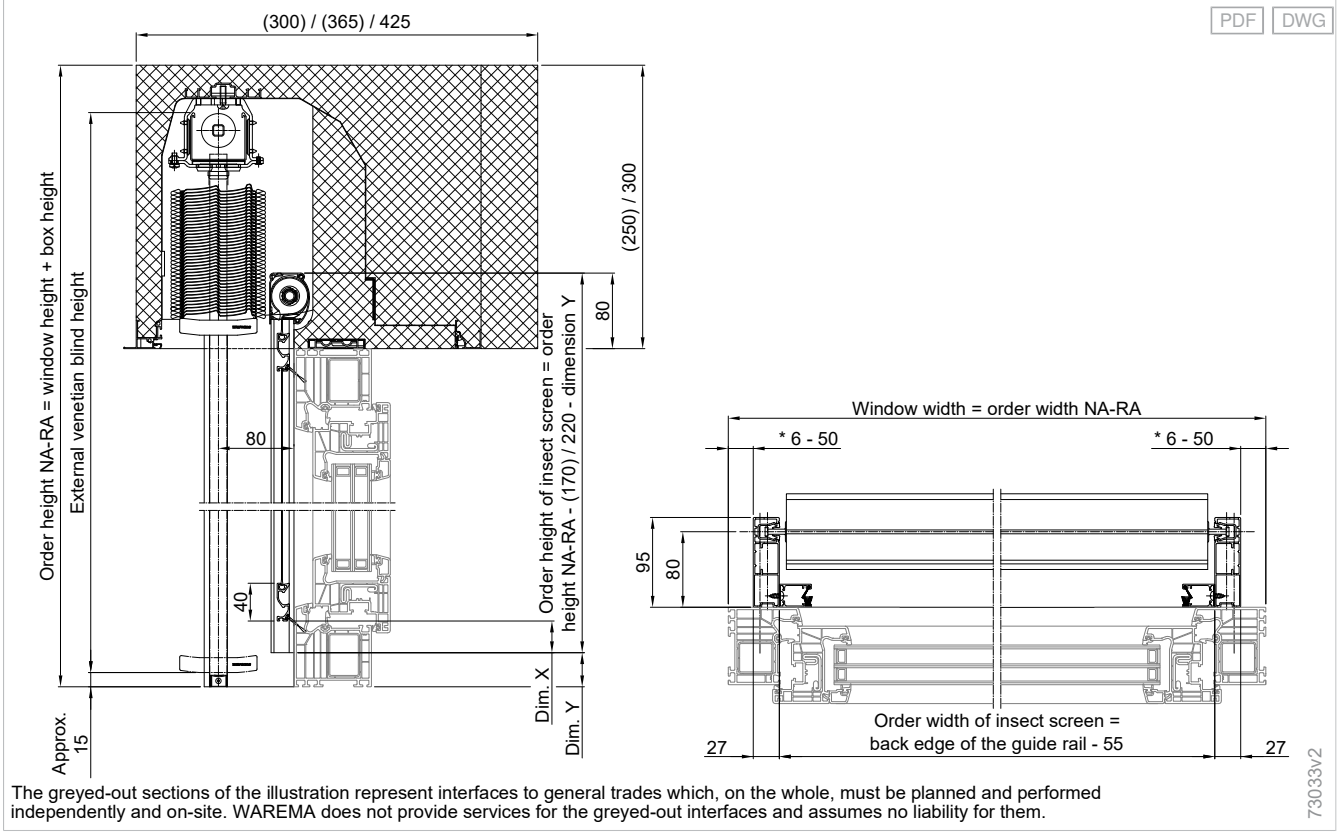
	Model	Min. width	Max. width	Min. height	Max. height	Max. area
Swivel door, one-wing	For doors	500 mm	1300 mm	1800 mm	2500 mm	2.5 m^2
	For windows	500 mm	1300 mm	600 mm	1800 mm	2.5 m^2
Swivel door, two-wing	For doors	900 mm	2600 mm	1800 mm	2500 mm	5.0 m^2
	For windows	900 mm	2600 mm	600 mm	1800 mm	5.0 m^2
Insect screen roller blind		650 mm	2000 mm	600 mm	2400 mm	5.0 m^2

When ordering: Please specify door or window model.

Note on two-wing swivel doors: The maximum width per wing = half of the entire width

Exclusion: For type 90/93 or guide profile 27x87 or guide profile 27x70, an insect screen is **not possible**!

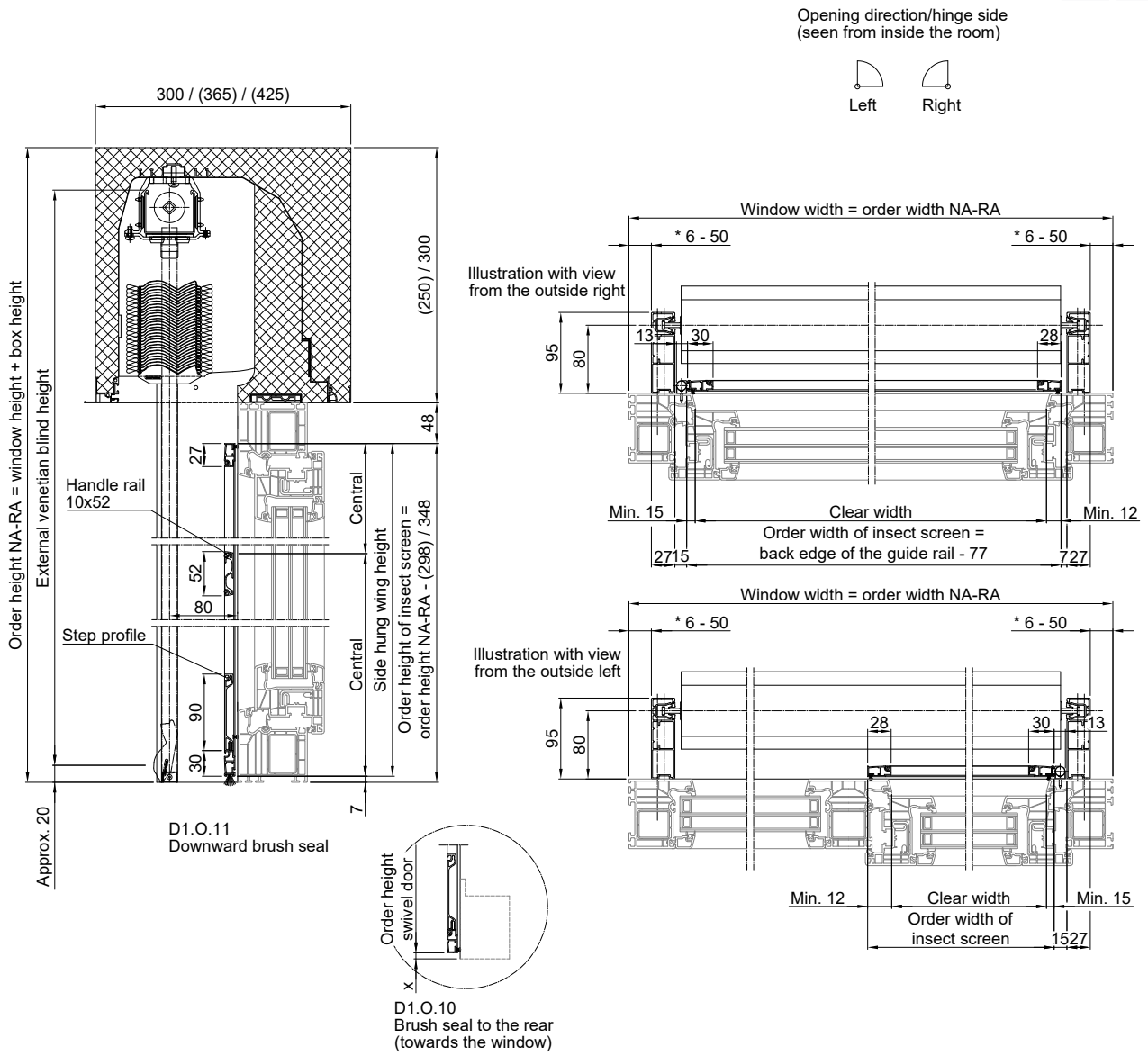
Top-mounted external venetian blind for new buildings NA-RA, masonry box, Zetra slat 80 Z, insect screen roller blind



The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Top-mounted external venetian blind for new buildings with insect screen swivel door, one-wing

PDF DWG

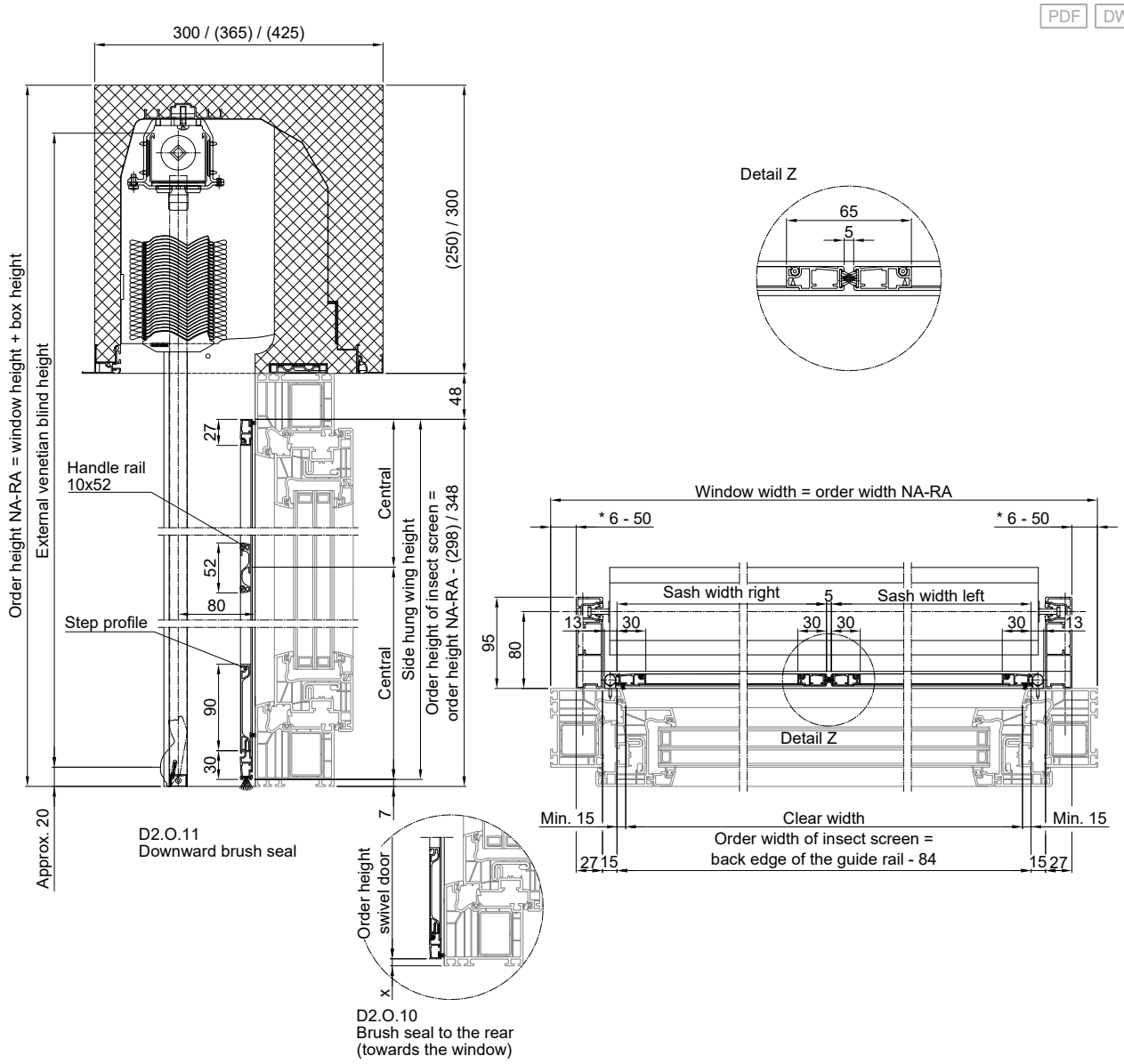


70313v6

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Top-mounted external venetian blind for new buildings with insect screen swivel door, two-wing

PDF DWG



The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

70316v7

Box extensions/corners

Minimum offset dimension for inner angle

Angle α	L1 min
90°	100 mm
135°	41.5 mm
180°	0 mm

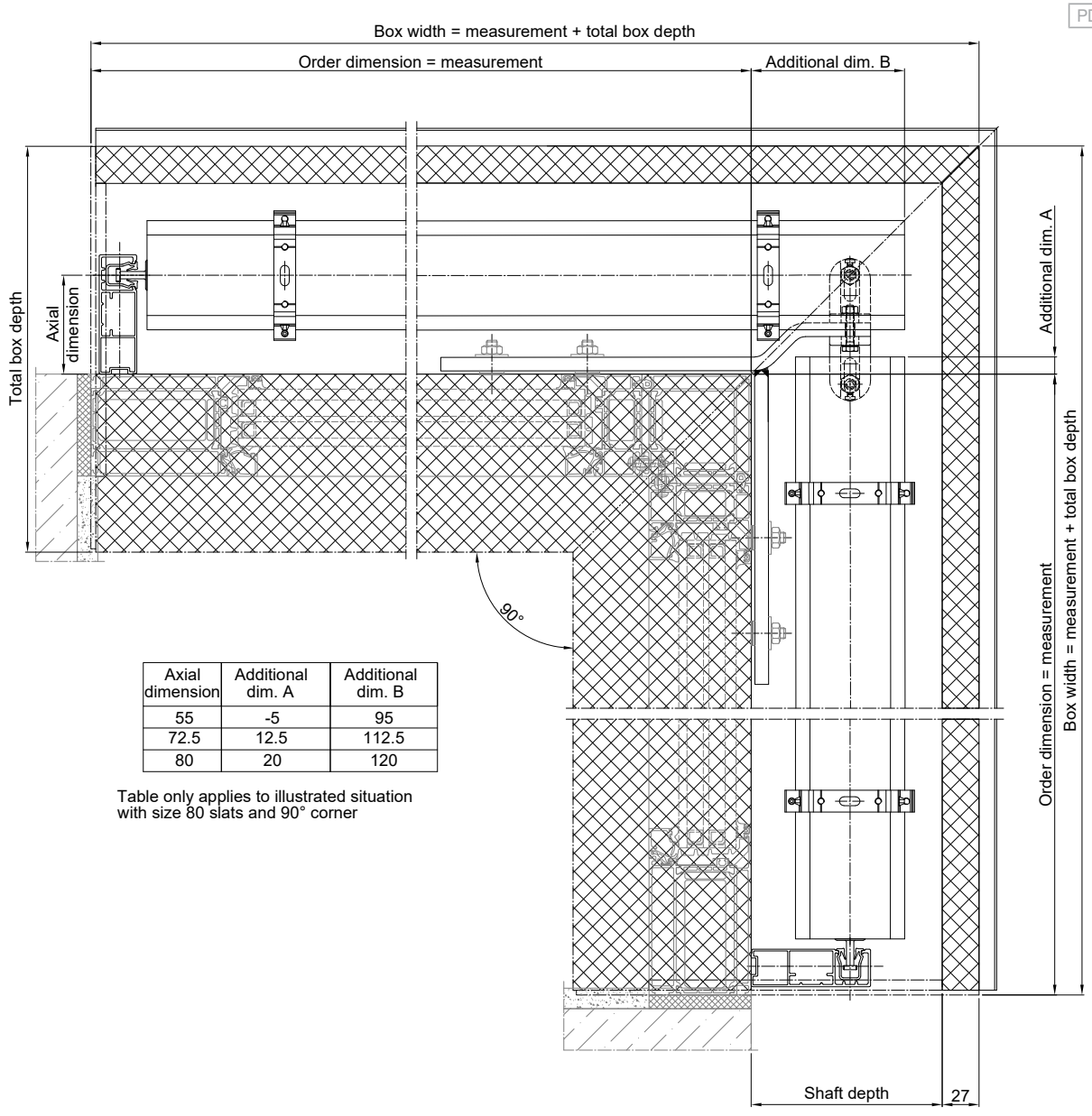
For other angles, the minimum offset can be calculated using the following formula:

Offset = 100/tan(α/2)

2 stabilising angle brackets per corner are supplied for screw the boxes to the corner.

Corner position cable/rail combination

PDF DWG



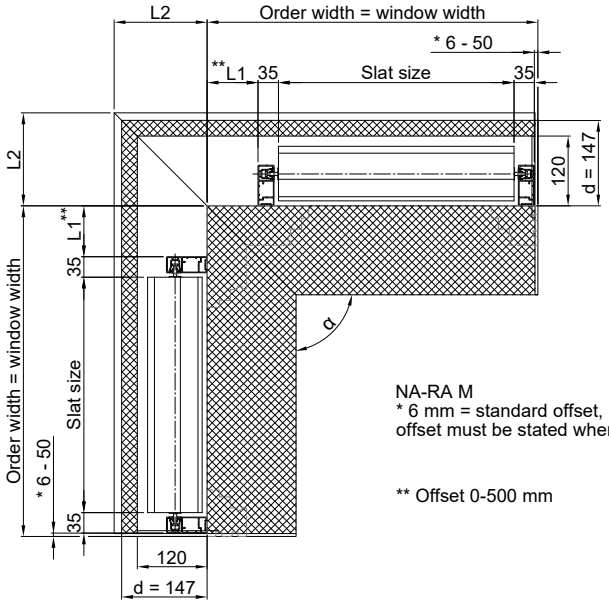
Axial dimension	Additional dim. A	Additional dim. B
55	-5	95
72.5	12.5	112.5
80	20	120

Table only applies to illustrated situation with size 80 slats and 90° corner

Lintel box outer angle

PDF DWG

Outer angle 90°-180°
NA-RA M



NA-RA M
* 6 mm = standard offset, deviating offset must be stated when ordering

** Offset 0-500 mm

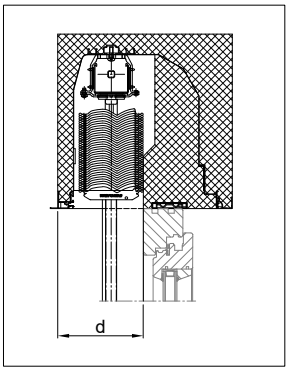


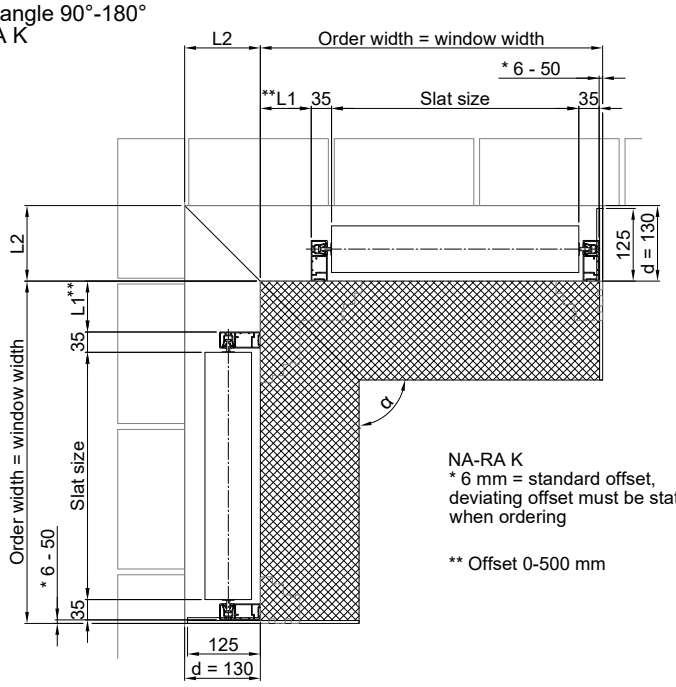
Illustration with size 120 shaft. Size 140 shaft on request.

70460v2

Clinker brick box outer angle

PDF DWG

Outer angle 90°-180°
NA-RA K



NA-RA K
* 6 mm = standard offset, deviating offset must be stated when ordering

** Offset 0-500 mm

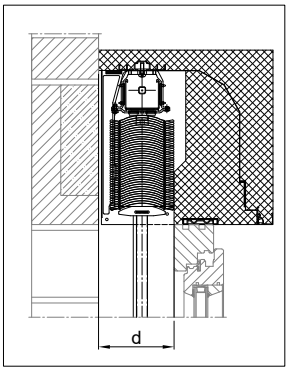


Illustration with size 120 shaft. Size 140 shaft on request.

70457v3

Wall housing inner angle

PDF DWG

Inner angle 90°-180°
NA-RA M

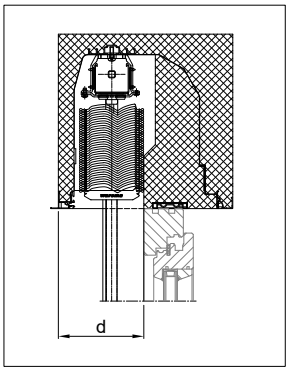
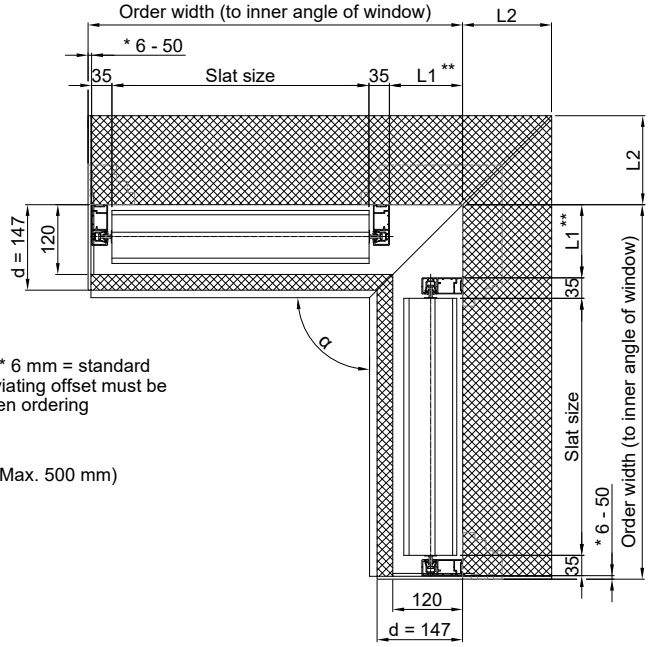


Illustration with size 120 shaft. Size 140 shaft on request.



NA-RA M * 6 mm = standard offset, deviating offset must be stated when ordering

** Offset (Max. 500 mm)

70462v3

Clinker brick box inner angle

PDF DWG

Inner angle 90°-180°
NA-RA K

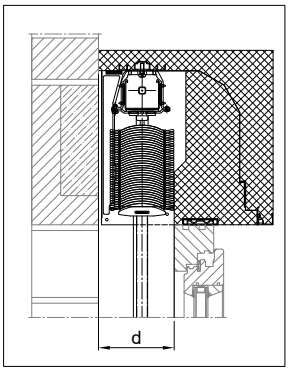
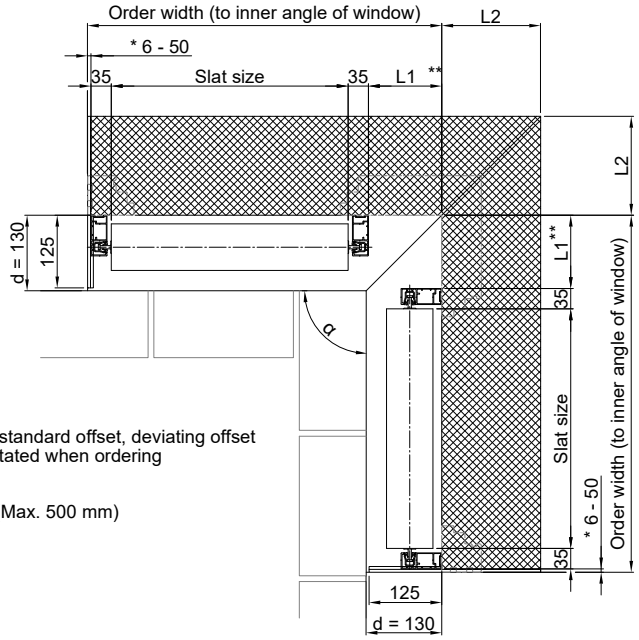


Illustration with size 120 shaft. Size 140 shaft on request.



NA-RA K
* 6 mm = standard offset, deviating offset must be stated when ordering

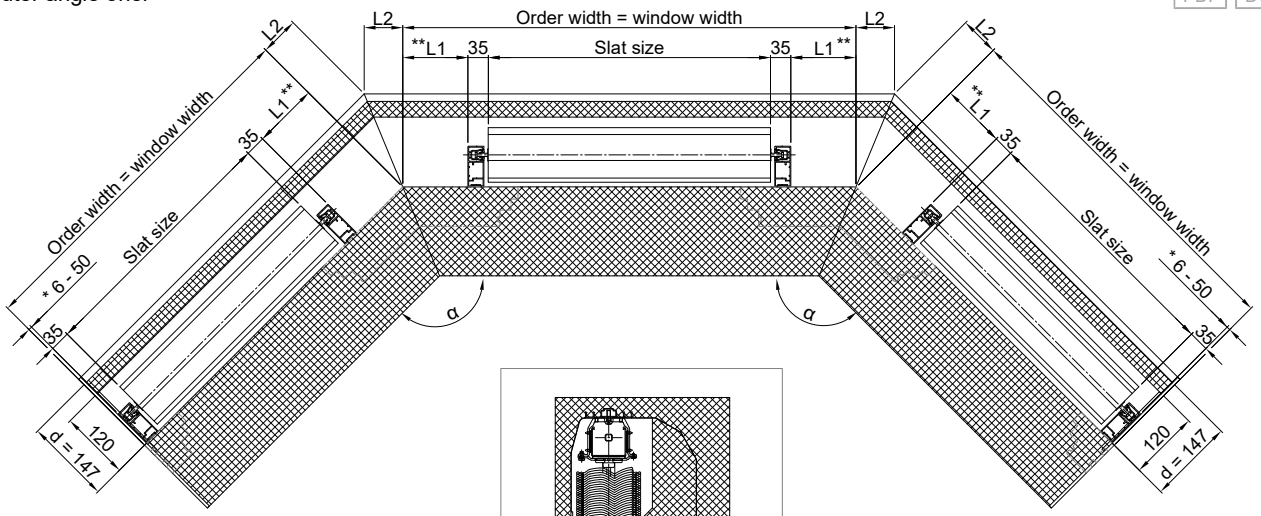
** Offset (Max. 500 mm)

70461v3

Oriel lintel box outer angle

Outer angle oriel

PDF DWG



Calculation bases:
-> d = 147
-> L2 = (d+13) / tan(α/2)

* 6 mm = standard offset, deviating offset must be stated when ordering

** Offset 0-500 mm

Illustration with size 120 shaft. Size 140 shaft on request.

70456v2

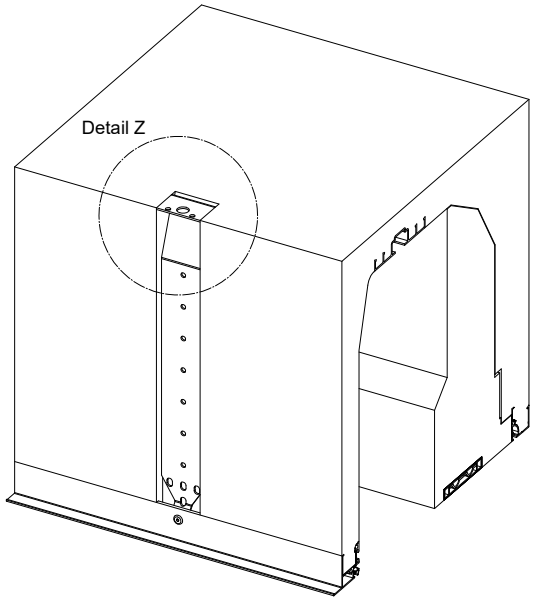
Additional box fastening

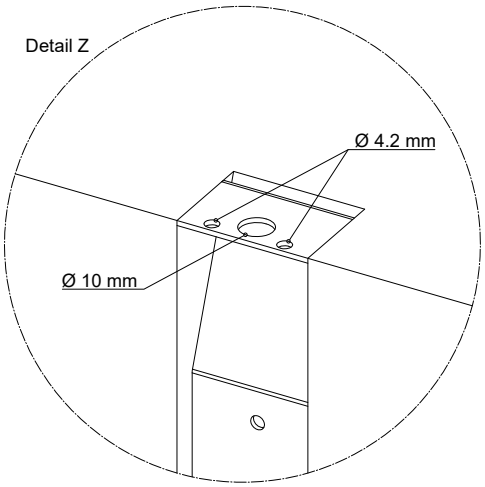
Number of additional box fastenings required

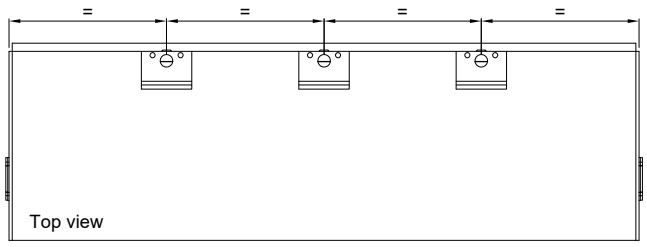
Box model shape	Box width	Number of box fastenings
Without mitre	Up to 4000 mm	0
Without mitre	4001 to 4500 mm	1
Unilateral mitre	Up to 4500 mm	1
Mitre on both sides	Up to 4500 mm	2

Top-mounted external venetian blinds for new buildings NA-RA, ceiling installation

PDF DWG





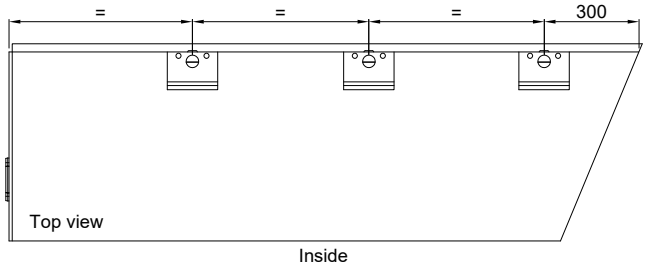


Inside

Number of ceiling installation

Rail guidance	up to 1m	up to 2m	up to 3m	up to 4m
	0	0	0	0

Cable guidance	up to 1m	up to 2m	up to 3m	up to 4m
1 Curtain	0	1	1	2
2 Curtains	0	1	1	2
3 Curtains	0	1	2	3

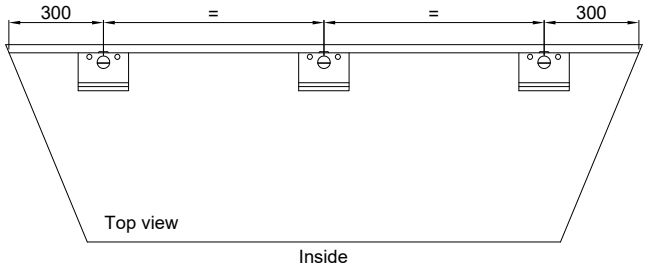


Inside

Number of ceiling installation

Rail guidance	up to 1m	up to 2m	up to 3m	up to 4m
per box	1	1	1	1

Cable guidance	up to 1m	up to 2m	up to 3m	up to 4m
1 Curtain	1	2	2	3
2 Curtains	1	2	2	3
3 Curtains	1	2	3	4



Inside

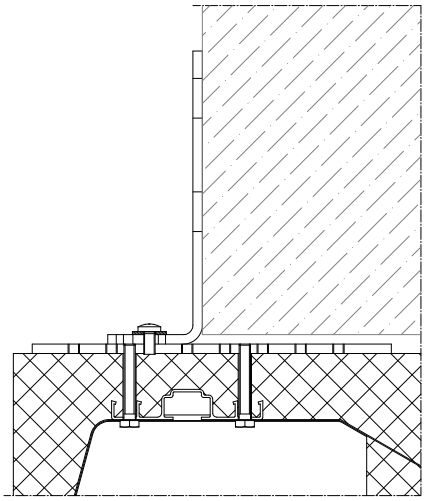
Number of ceiling installation

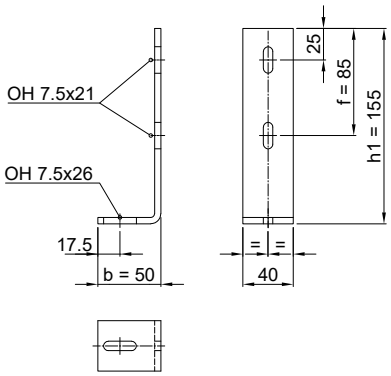
Rail guidance	up to 1m	up to 2m	up to 3m	up to 4m
per box	2	2	2	2

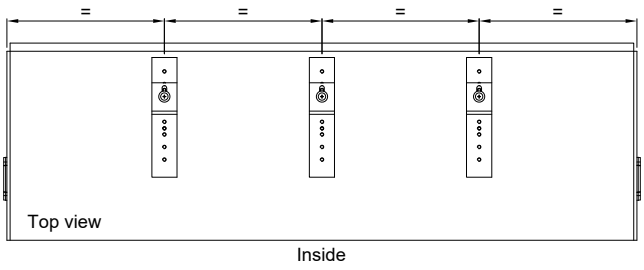
Cable guidance	up to 1m	up to 2m	up to 3m	up to 4m
1 Curtain	2	3	3	4
2 Curtains	2	3	3	4
3 Curtains	2	3	4	5

70478v3

PDF DWG



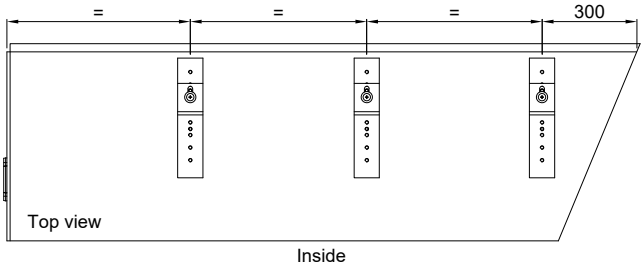




No. fixing straps, standard

Rail guidance	up to 1m	up to 2m	up to 3m	up to 4m
	0	0	0	0

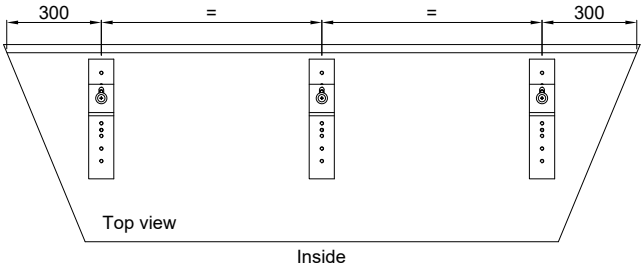
Cable guidance	up to 1m	up to 2m	up to 3m	up to 4m
1 Curtain	0	1	1	2
2 Curtains	0	1	1	2
3 Curtains	0	1	2	3



No. fixing straps, standard

Rail guidance	up to 1m	up to 2m	up to 3m	up to 4m
per box	1	1	1	1

Cable guidance	up to 1m	up to 2m	up to 3m	up to 4m
1 Curtain	1	2	2	3
2 Curtains	1	2	2	3
3 Curtains	1	2	3	4



No. fixing straps, standard

Rail guidance	up to 1m	up to 2m	up to 3m	up to 4m
per box	2	2	2	2

Cable guidance	up to 1m	up to 2m	up to 3m	up to 4m
1 Curtain	2	3	3	4
2 Curtains	2	3	3	4
3 Curtains	2	3	4	5

70477v2

Structural console

Applications of structural consoles

Design	Box size	Use possible?
Masonry	300x250	NO
	300x300	NO
	365x250	NO
	365x300	YES
	425 x 300	YES
Clinker brick	300x300	NO
	345x300	YES
	365 x 300	YES

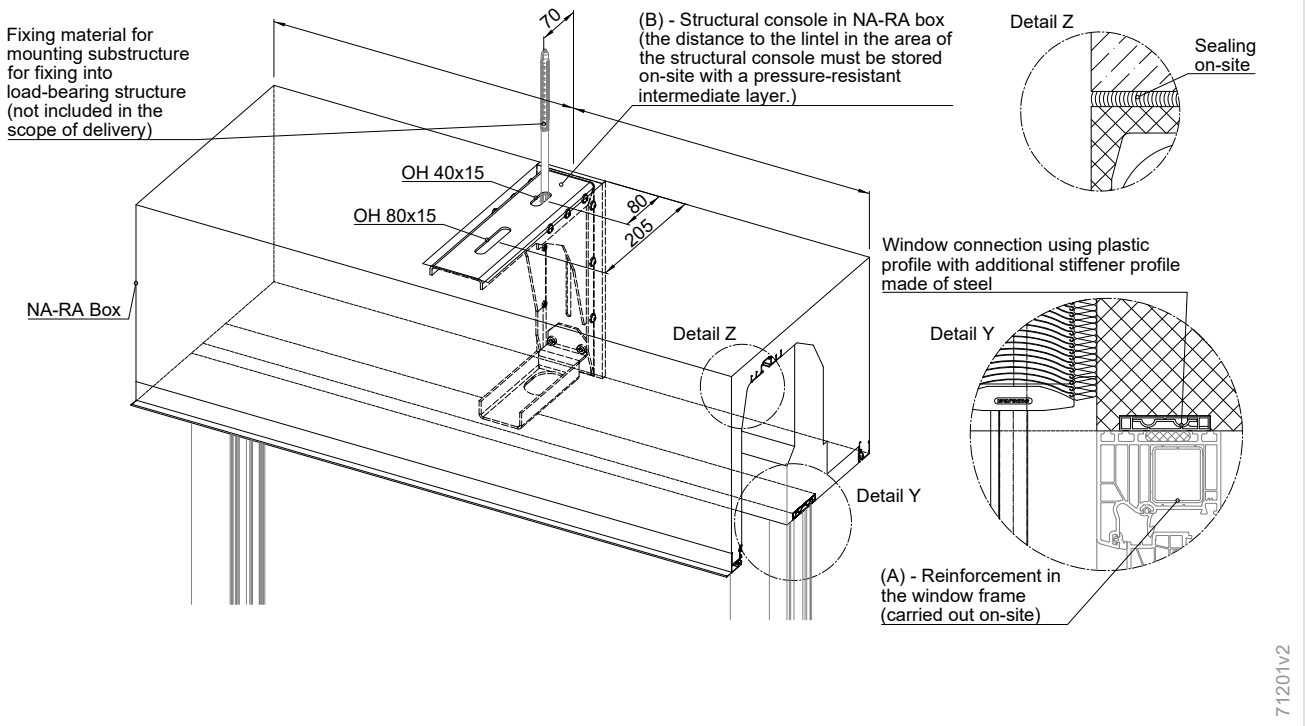
The structural console is only executable for the following window connections:

- Plastic profile with stiffener profile made of steel
- Clip fixing via steel window adapter profile.

- Note: The maximum window frame width of 105 mm may not be exceeded in connection with the structural console and the 300/365 mm box.
- To fasten, the window frame must be screwed to the steel profile at every 250 mm.
- The measuring load is determined to be 1.0 kN and is considered with a partial safety coefficient of 1.4. The load figure is to be viewed as a calculated value for determining the required consoles.
- The minimum distance between two structural consoles must be at min. 600 mm.

Top-mounted external venetian blinds for new buildings NA-RA, version with structural console

PDF DWG



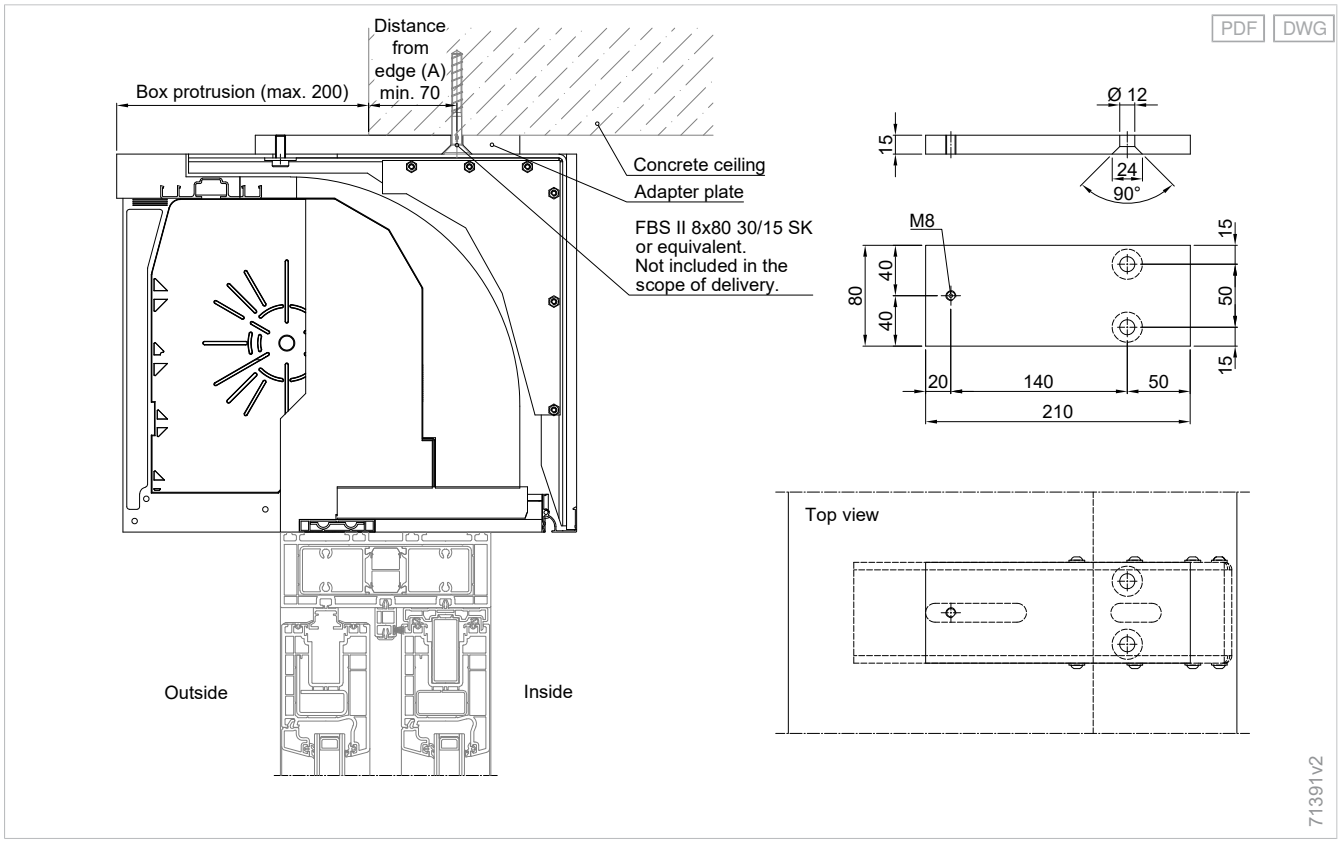
Structural console with adapter plate

Edge distance (A) per box protrusion

Box protrusion	Edge distance (A)
200 mm	70 mm
190 mm	80 mm
180 mm	90 mm
170 mm	100 mm
160 mm	110 mm
150 mm	120 mm
140 mm	130 mm

- The edge distance (A) must be at least 70 mm.
- The adapter plate must be fixed to the ceiling with “FSB II 8x80 30/15 SK countersunk head” concrete screws or at least equivalent fixing materials.
- The structural layout is based on the installation situation with the concrete ceiling.
- The notes on the structural console must be observed.

Structural console with adapter plate



Structural console for lifting / sliding doors

Modern architecture with living spaces flooded with light, thanks to large window surfaces. Wide lifting/sliding doors are often used here. The structural console has been developed especially for this installation situation with a large cover frame depth. With the structural console, top-mounted boxes for new buildings are mounted especially stably onto large widths. The structural console is screwed in outside the box. This makes it easier to handle and access.

The planner or customer is responsible for determining the structural strength (wind load) on the basis of the window profile selected.

If the required standard classes are not achieved either by the window frame or a window frame reinforcement, the structural strength can be improved by using structural consoles.

Load bearing capacity of the structural console: 1.0 kN

The load-bearing capacity only applies under the following on-site conditions:

- Mounting substructure with sufficient load-bearing capacity
- Use of suitable fixing material
- Rests on the full surface of the console, pressure resistant lining

Number of structural consoles: Specify the required quantity when ordering.

Structural console for lifting / sliding doors, usable with:

Top-mounted external venetian blind for new buildings NA-RA,

- with size 140 shaft, masonry box
- Box sizes: 365x300 mm, 425x300 mm
- Window connection: plastic profile and reinforcement profile made of steel

Delivery condition: Structural consoles are embedded in the box and must be firmly screwed to the structure on site..
Important information on positioning:

- The structural consoles are aligned symmetrically, if not specified otherwise.
- The distance between the middle side cover/side cover and structural console must be at least 150 mm.
- The minimum distance between two structural consoles must be min. 600 mm.
- To fix in place, the insulating wedge must be screwed to the window profile every 250 mm from below.

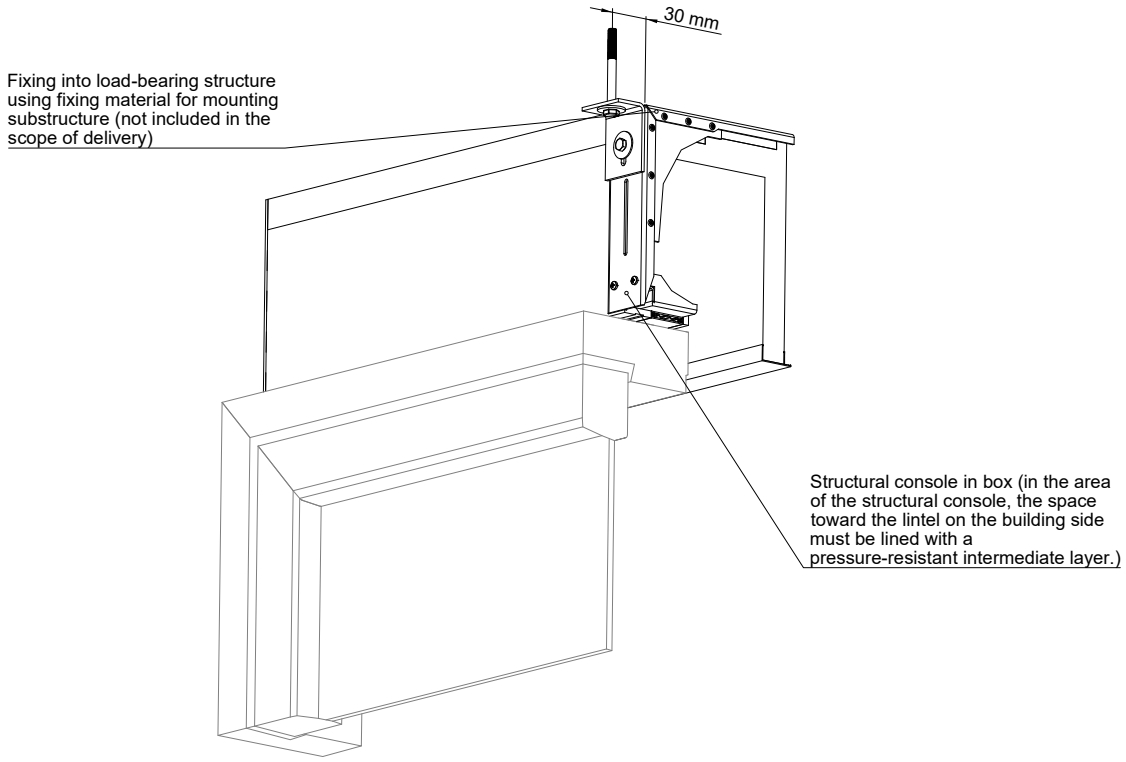
Structural console for lift and slide doors (based on example NA-RA)



To check the structural strength and determine any required structural consoles, our Structural console tool is available to you. You can find this in myWAREMA under Services & Tools.

Top-mounted system for new buildings, inspection access outside, structural console for lift and slide door

PDF DWG



Box with integrated fan

Passive fan for ventilating closed rooms (supply air)

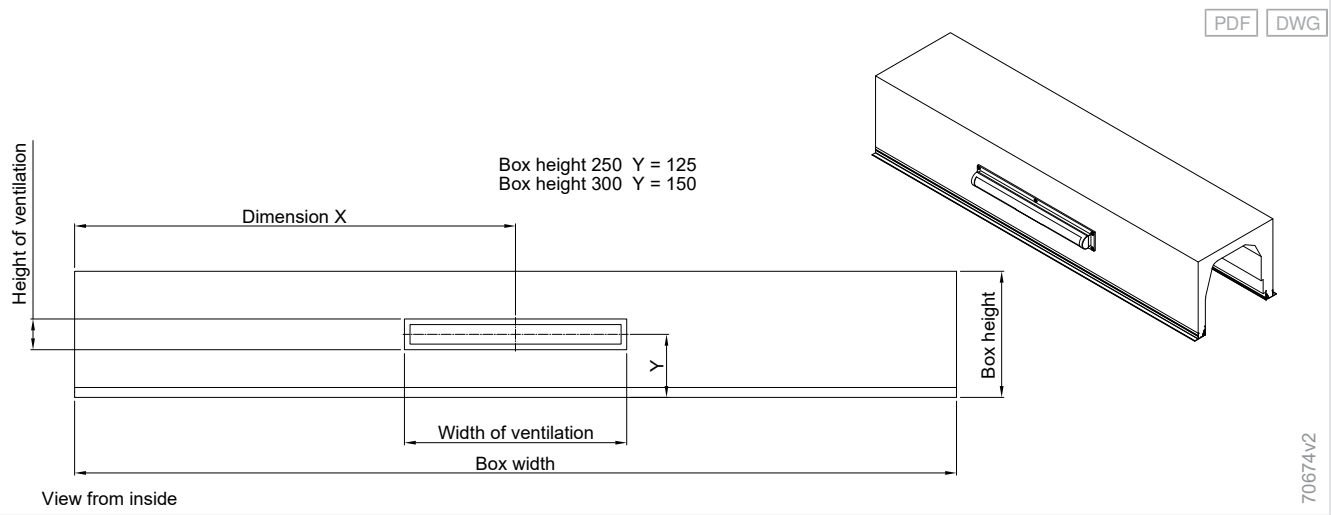
Available brands: Siegenia AEROMAT midi, AERECO ZUROH 100 or ZUROH 110

- Can be used as an air vent opening for a central exhaust air system
- Pressure compensation between outside and inside air (pressure differential principle)
- Available for internal and external revisions, for all box dimensions
- Specify dimension X, brand and number of desired fan elements
- Data sheet upon request

In general, only supply air systems may be used (exhaust air is not possible via the lintel box).

To order the product variant with integrated fan system, use the supplemental order form for Box Accessories, art. no. 2010110.

Box with integrated fan



Box with ventilation cutting

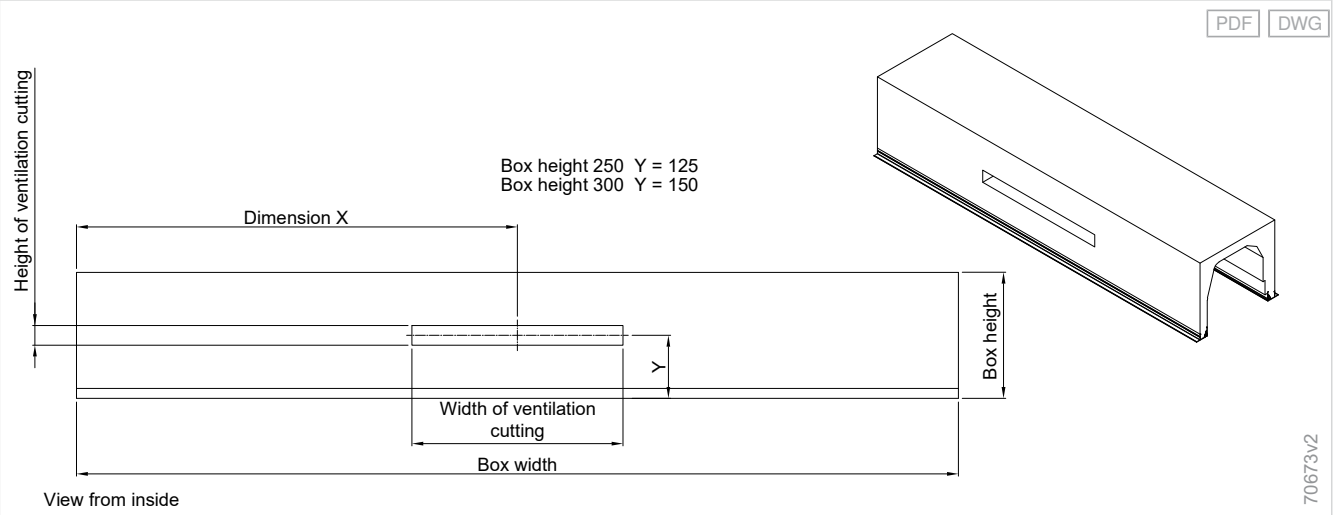
Ventilation cutting for on-site fan unit to hold a passive window fan for ventilating closed rooms (supply air)

- Specify number and dimensions of milled areas, brand and dimension X
- Data sheet upon request
- Individual technical clarification about product variants with ventilation cutting can be obtained from Applied Engineering

Only supply air systems may be used (exhaust air is not possible via the lintel box).

To order the product variant with ventilation cutting, use the supplemental order form for Box Accessories, art. no. 2010110.

Box with ventilation cutting



Heat insulation

You can find all the test values available to us on our homepage.

NA-RA sound insulation

You can find information on the sound absorbing coefficients, taking account of the existing test certificates (measurement according to EN ISO 10140) on our homepage.

Fire behaviour

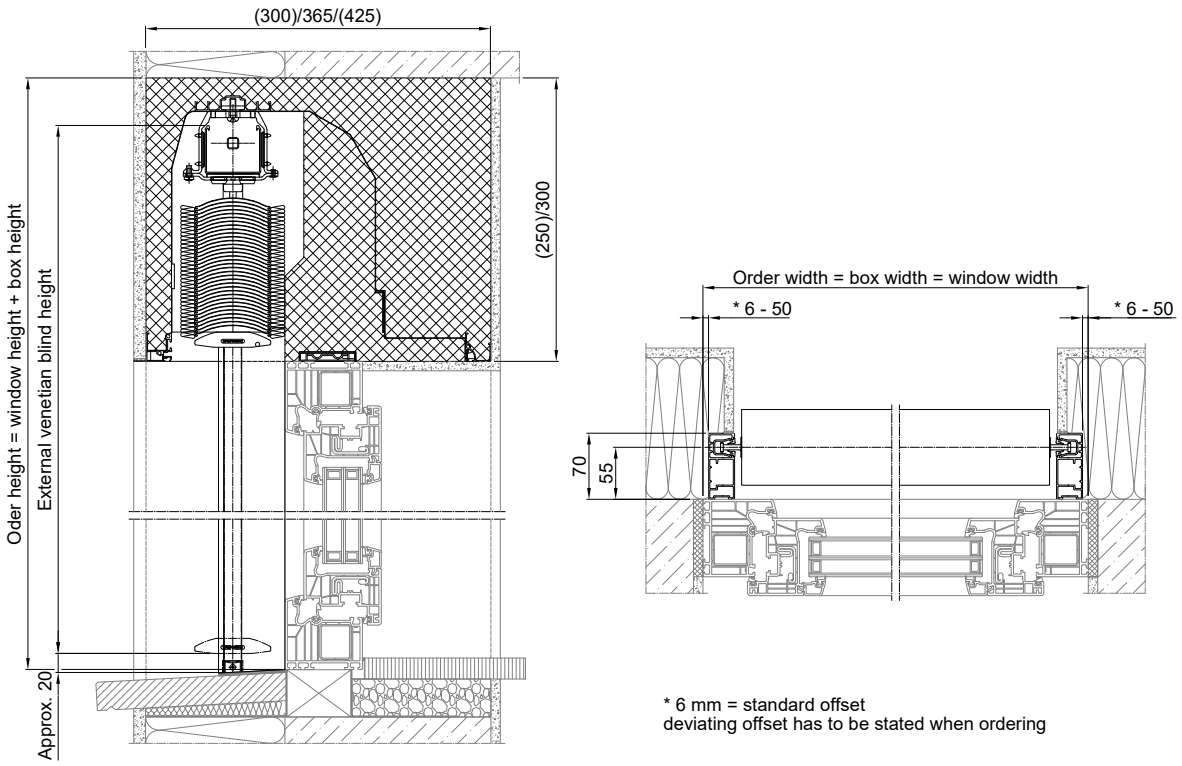
Fire behaviour: Fire behaviour of EPS foams Styropor®, Neopor®, Peripor®: according to Euro class E

Building materials class: B1, flame retardant

Mounting examples

Measuring instructions for top-mounted external venetian blind: Box shape M; 120 mm shaft

PDF DWG



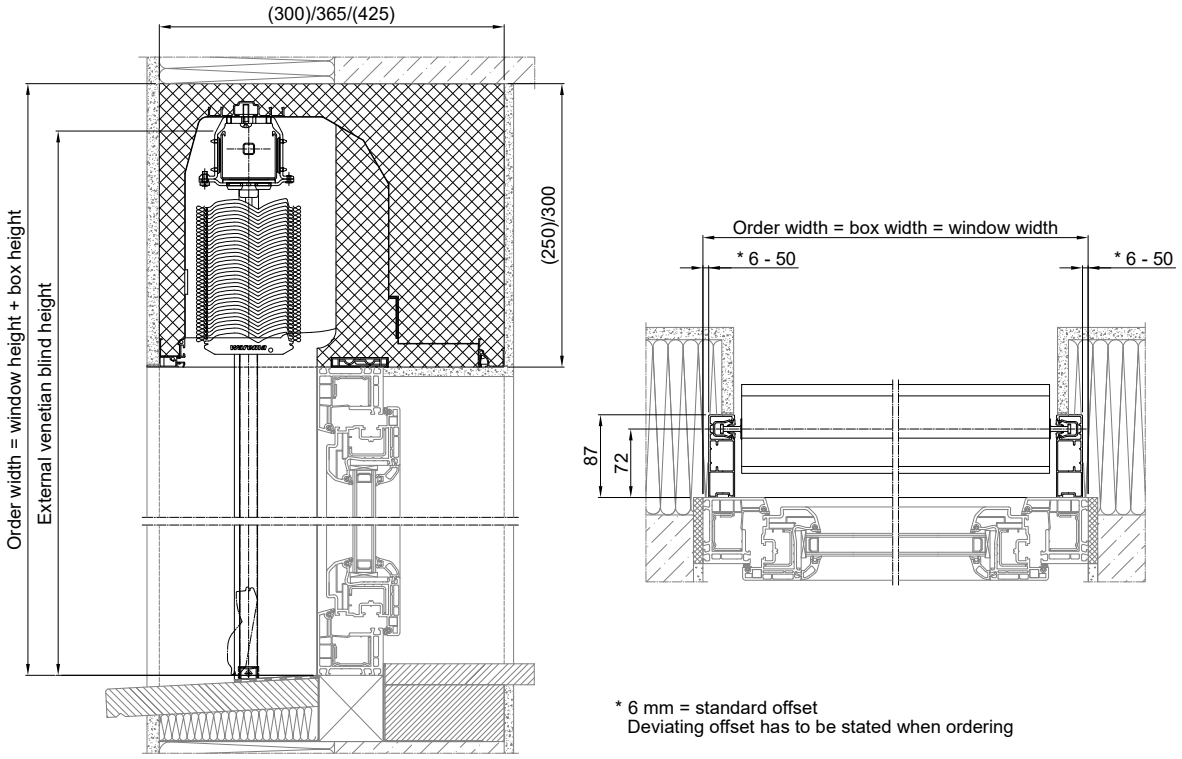
* 6 mm = standard offset
deviating offset has to be stated when ordering

70312v5

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Measuring instructions for top-mounted external venetian blind: Box shape M; 140 mm shaft

PDF DWG



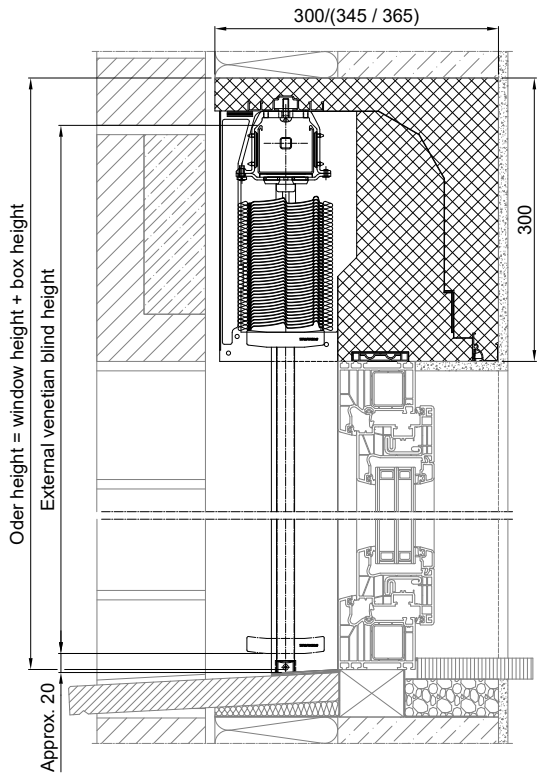
* 6 mm = standard offset
Deviating offset has to be stated when ordering

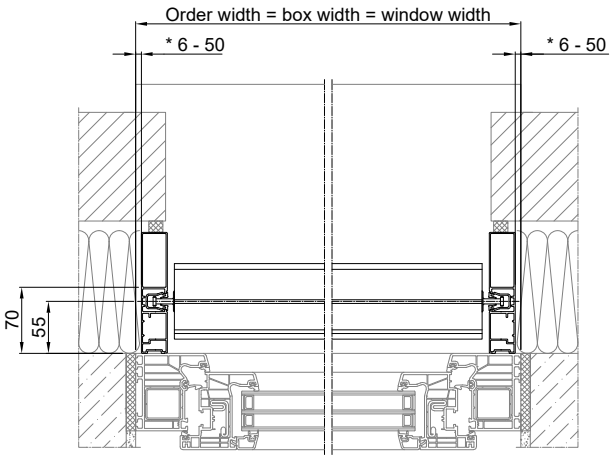
70314v5

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Top-mounted external venetian blind for new buildings NA-RA, box for clinker construction, 130 mm shaft, Zetra slat 80 Z

PDF DWG





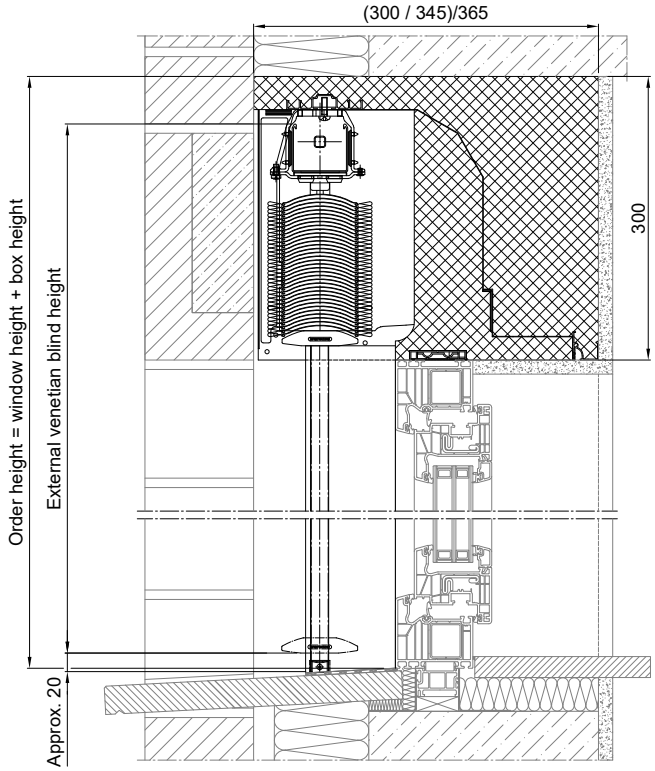
* 6 mm = standard offset
deviating offset has to be stated when ordering

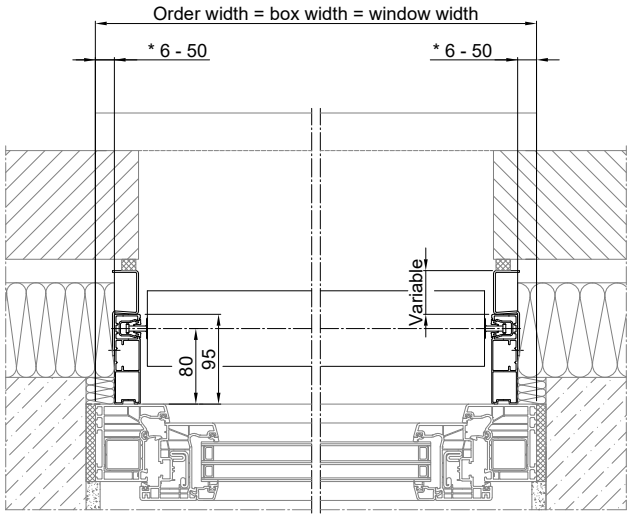
73034v1

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Measuring instructions for top-mounted external venetian blind: Box shape K; 150 mm shaft

PDF DWG





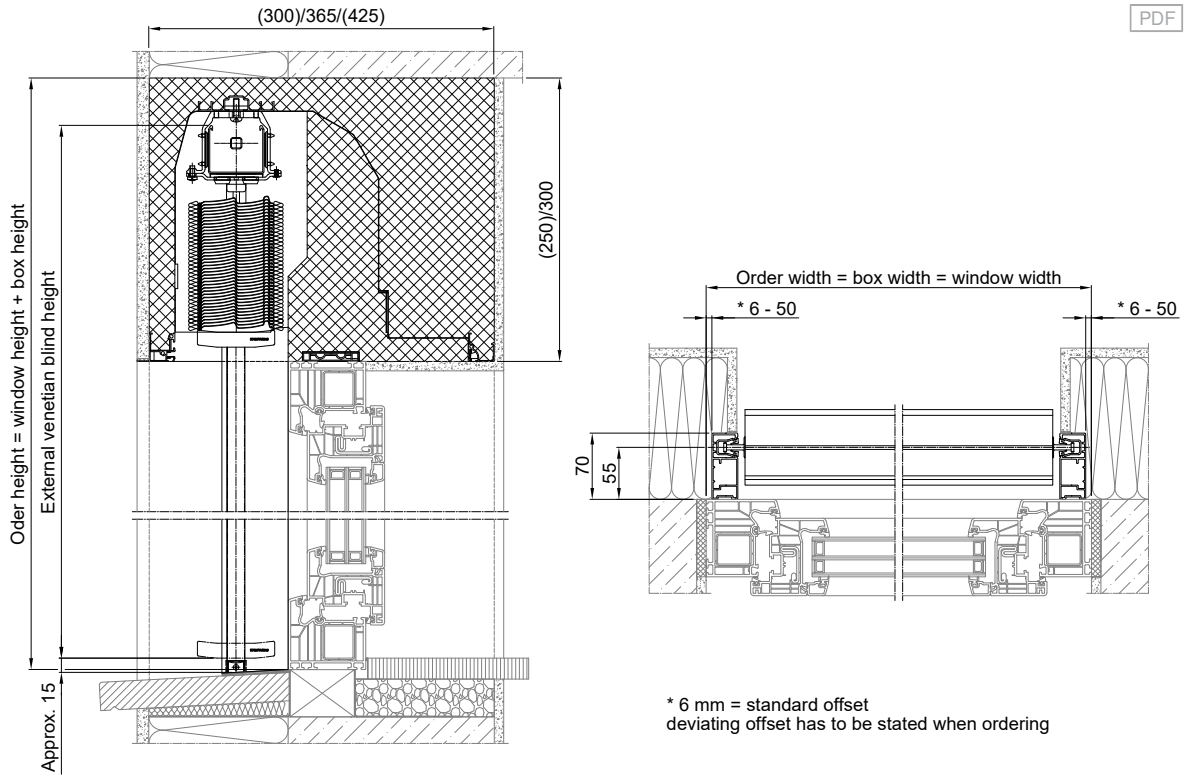
* 6 mm = standard offset
Deviating offset must be stated when ordering

70301v4

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Top-mounted external venetian blinds for new buildings NA-RA, masonry box, 120 mm shaft, Zetra slat 80 Z

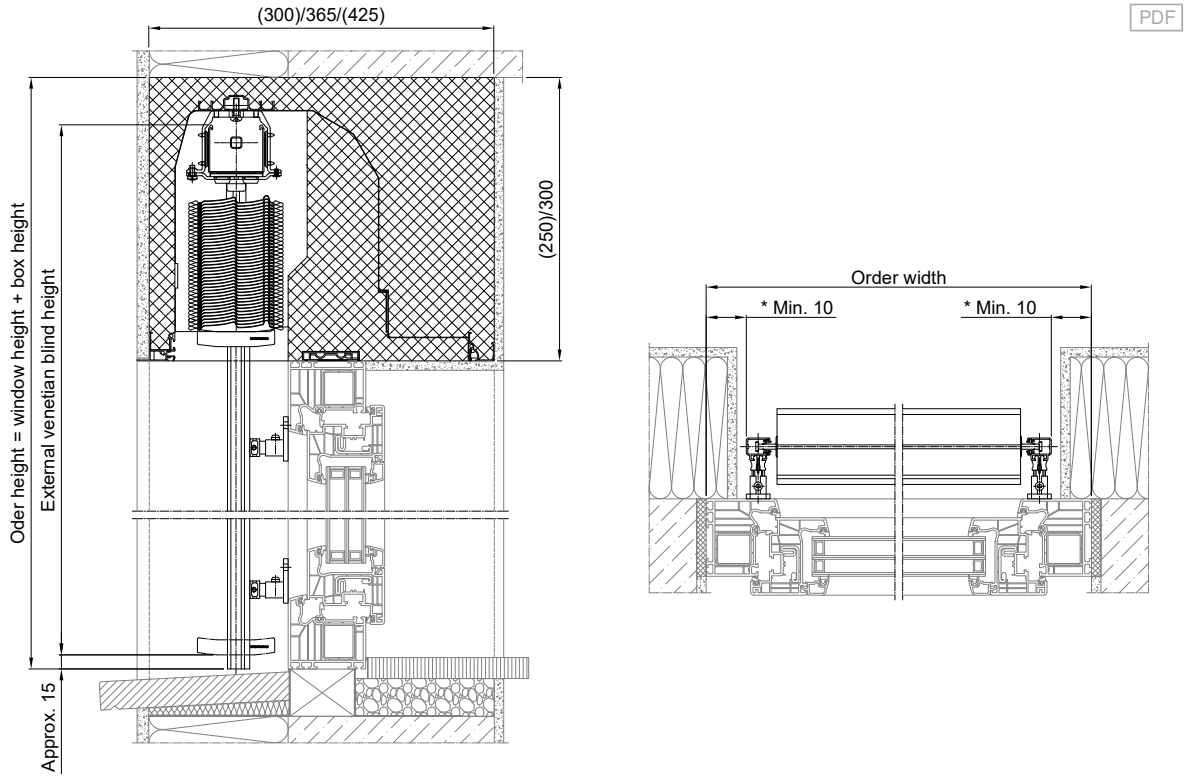
PDF DWG



The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Top-mounted external venetian blinds for new buildings NA-RA with rail guidance, masonry, shaft size 120, dim-out slats 80 Z, stand-off installation

PDF DWG



The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

* min. 10 = offset when using guide rail type 2

The actual offset must be stated when ordering



Top-mounted external venetian blinds

Top-mounted external venetian blinds for new buildings NA-RA with cable guidance

Flexibly adjustable

Opaque from the outside but with a view out from the inside: The external sun shading system consisting of connected horizontal slats combines thermal protection, glare control, and visual privacy with an adjustable view out.

Economical

A single source: The top-mounted system is attached to the window and installed together with the window in just one step.

Suitable for construction

Various modification options to suit on-site requirements: Foamed boxes are available in masonry thickness in different depths and heights, for monolithic masonry or clinker construction, and with two different shaft openings.

Saves space

Slender and long-lasting: Slats and end rails are guided securely along a tension cable and fastened at the sides with tension cable brackets. The design with cable guidance saves spaces and can be integrated into virtually every facade.

Floating

Light look: The combination of the top-mounted box for new buildings and the cable guidance appears to be floating.

Construction limit values

Maximum order width	4000 mm
Maximum order height	4000 mm
Maximum order area	16 m^2
Maximum order width of the group unit	4000 mm

Order here

myWAREMA

Art.-Nr. 2036116

Order form

https://docs.warema.com/fi/2013944.pdf

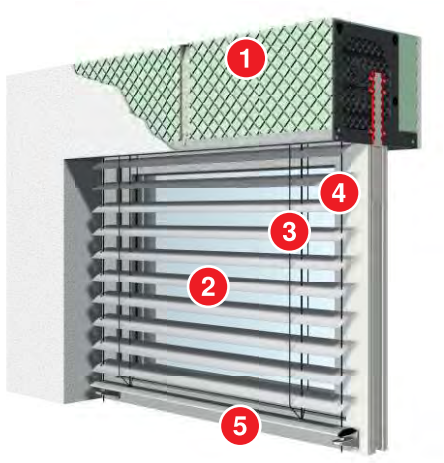
https://docs.warema.com/fi/877927.pdf

WAREMA tools

Dimensions Assistant
Fastener Assistant
Sun Shading Planner
Structural console tool

see "Navigating the document", Page 5

Components



1	Box	4	Lateral guidance
2	Slats	5	End rail
3	Tilting tape, lifting tape		

Box

Size 120 shaft, masonry box

Box sizes	300x250, 365x250, 300x300, 365x300, 425x300
Material	Polystyrene
Material colour	Green

- **Side cover:** Plastic, injection moulded part, grey; including mounting sleeve for fixing the connecting tab
- **Box fastening:**
  - For box widths of 1500 mm and greater, the box is fitted with perforated tape for extra fixing to the structure.
  - If the use of perforated tapes is not possible, they can be replaced with ceiling fasteners or mounting brackets.

+ Box end rail

Box end rail, outside

Material	Aluminium, extruded
Surface	Plain
Optional surface	Powder-coated
Depth	13 mm

13 mm standard projection, can optionally be extended up to 80 mm.

see "Masonry box, size 120 shaft", Page 153

Size 130 shaft, clinker construction

Box sizes	300x300, 345x300, 365x300
Material	Polystyrene
Material colour	Green

- **Side cover:** Plastic, injection moulded part, grey; including mounting sleeve for fixing the connecting tab
- **Box fastening:**
  - For box widths of 1500 mm and greater, the box is fitted with perforated tape for extra fixing to the structure.
  - If the use of perforated tapes is not possible, they can be replaced with ceiling fasteners or mounting brackets.

see "Box for clinker construction, size 130 shaft", Page 154

Box, optional

Size 140 shaft, masonry box

Box sizes	300x250, 365x250, 300x300, 365x300, 425x300
Material	Polystyrene
Material colour	Green

- **Side cover:** Plastic, injection moulded part, green; including mounting sleeve for fixing the connecting tab
- **Box fastening:**
  - For box widths of 1500 mm and greater, the box is fitted with perforated tape for extra fixing to the structure.
  - If the use of perforated tapes is not possible, they can be replaced with ceiling fasteners or mounting brackets.
- **Size 140 shaft depth:** The size 140 shaft depth allows the use of an integrated insect screen, either as an insect screen roller blind, a fixed frame or an insect screen swivel door. In addition, a size 140 shaft opening is required when using size 90 and 93 slats due to the extra space required.

+ Box end rail

Box end rail, outside

Material	Aluminium, extruded
Surface	Plain
Optional surface	Powder-coated
Depth	13 mm

13 mm standard projection, can optionally be extended up to 80 mm.

see "Masonry box, size 140 shaft", Page 153

Size 150 shaft, clinker construction

Box sizes	300x300, 345x300, 365x300
Material	Polystyrene
Material colour	Green

- **Side cover:** Plastic, injection moulded part, green; including mounting sleeve for fixing the connecting tab
- **Box fastening:**
  - For box widths of 1500 mm and greater, the box is fitted with perforated tape for extra fixing to the structure.
  - If the use of perforated tapes is not possible, they can be replaced with ceiling fasteners or mounting brackets.
- **Size 150 shaft depth:** The size 150 shaft depth allows the use of an integrated insect screen, either as an insect screen roller blind, a fixed frame or an insect screen swivel door. In addition, a size 150 shaft opening is required when using size 90 and 93 slats due to the extra space required.

see "Box for clinker construction, size 150 shaft", Page 154

Window connection

Window connection using plastic profile

Material	Plastic
Material colour	White

Plastic profile integrated/bonded in the insulating wedge of the box. Reinforcement with inserted stiffener profile made of steel.

see "For window connection using plastic profile, integrated into the insulating wedge (standard fixing)", Page 156

Window connection, optional

Clip fixing, plastic

Material	Plastic
Material colour	White

Comprised of base profile and window adapter profile made of plastic

see "Window connection using clip fixing, plastic", Page 157

Clip fixing, steel

Material	Steel
Surface	Zinc-coated

Comprised of plastic base profile, white, and window adapter profile made of steel

see "Window connection using clip fixing, steel", Page 157

Product variants that can be used

- E 80 A2 S
- E 80 AF A2
- E 80 AF A2 with eyelets
- E 73 A2
- E 90 A2
- E 93 A2

Guide variants

- Cable guidance

see "Cable guidance", Page 390

Tension cable

Tension cable

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

Additional cable guidance from a slat size > 3000 mm:

To prevent components located behind the external venetian blind being damaged by wind load, be sure to plan for an additional cable guidance for rail guidance from a slat length of > 3000 mm.

Arrangement of the additional cable guidance: The arrangement must be specified (viewed from inside the room, starting on the left)

Determination of cable length: External venetian blind height + 100 mm

see "Number of tension cables", Page 185

Drive variants

- Motor

Motor

- Basic motor for external venetian blinds

Motor optional:

- Super-fast terrace motor (STM)
- Motor with 2 lower limit positions
- Motor with freezing protection
- SMI motor

see "Drive variants", Page 489

Colours

- Slat colours
- WAREMA Colour World
- Anodised C0

Colours, optional:

- Anodised C31
- Anodised C32
- Anodised C33
- Anodised C34
- Anodised C35

see "Colours and finishes", Page 12

see "Colours and surfaces for external venetian blind slats in accordance with current collection", Page 15

Supplementary accessories

- Daylight transport element TLT
- Snap-action switch work setting
- slowturn
- Battery module UP for external venetian blinds
- Emergency power supply kit
- Slat perforation

see "Supplementary accessories", Page 277

Notes

Different tilting systems for external venetian blinds with flat slats: External venetian blind moves down with the slats closed to the outside and moves up with the slats closed to the inside at approx. 55°.

For further information, see the chapter "Basic external venetian blinds" for the relevant product variant.

Construction limit values

- **Several external venetian blinds in one box:** A maximum of 3 external venetian blinds can be integrated in one box.
- **Premounting for mechanically coupled external venetian blinds:** For mechanically coupled external venetian blinds and the clinker brick variant (K), external venetian blinds are not supplied premounted in boxes.

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area	Maximum order width of the group unit	Group unit, maximum order area	Maximum order area of unit coupling	Maximum quantity of unit couplings per side
Basic external venetian blinds								
E 80 A2 S	680 mm	4000 mm	4000 mm	16 m^2	4000 mm	16 m^2	13 m^2	1
E 80 AF A2	680 mm	4000 mm	4000 mm	16 m^2	4000 mm	16 m^2	13 m^2	1
E 73 A2	680 mm	4000 mm	4000 mm	15 m^2	4000 mm	16 m^2	13 m^2	1
E 90 A2	680 mm	4000 mm	4000 mm	15 m^2	4000 mm	16 m^2	13 m^2	1
E 93 A2	680 mm	4000 mm	4000 mm	15 m^2	4000 mm	16 m^2	13 m^2	1

For top-mounted external venetian blinds, the information on "Minimum order width" and "Maximum order width" always refers to the back edge of the box.

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances as per the "Guideline for assessing the product features of external venetian blinds" apply.

Dimension determination

Configuration view: The order dimensions are determined from interior view, from left to right.

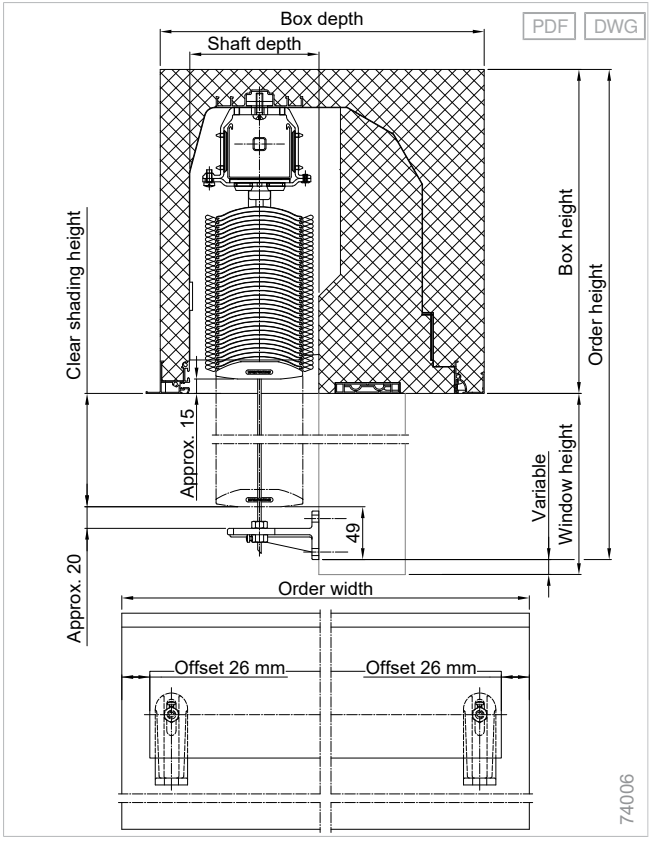
Reference dimension	Dimension determination
Order width	Window frame width = box width
Order height	Bottom edge of the guide rail to top edge of the box
Box height	see box dimensions
Box depth	see box dimensions

- Available information on window profile: manufacturer, type, window frame thickness
- Please indicate desired box size
- Note offset (see dimension drawings)
- Note connection to window sill
- Minimum distance between the box top edge and lintel: 10 mm

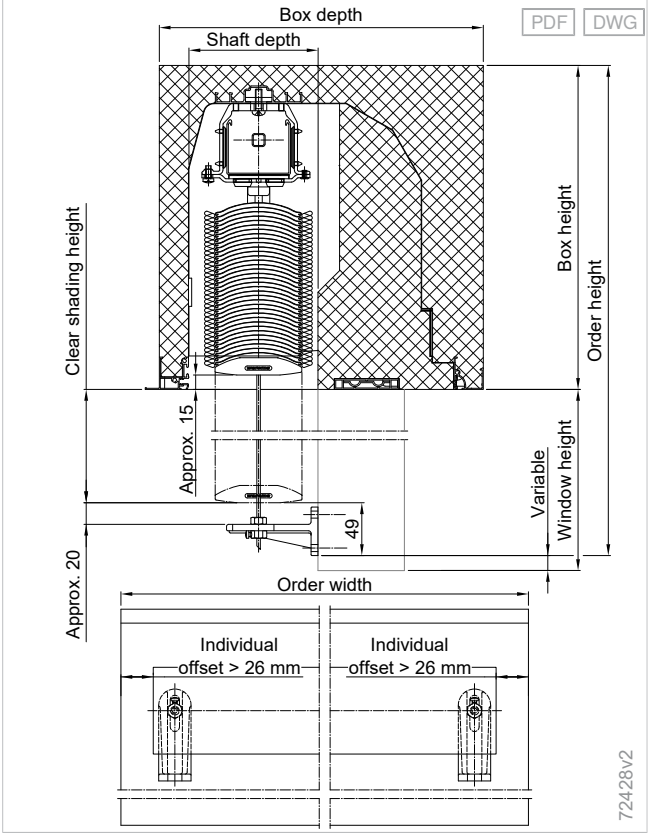
Note on measuring:

The box width corresponds to the width of the window frame and should, depending on the size of the window, be at least 20 mm, but no more than 60 mm narrower than the width of the masonry opening. This is necessary to ensure best possible application of PU foam in the area of the side cover and the masonry. Any valid guidelines and regulations must be complied with.

NA-RA dimension determination, cable guidance, standard offset 26 mm



NA-RA dimension determination, cable guidance, offset > 26 mm



Quantity determination

Number of tension cables

Slat size	Number
0 - 3000 mm	2
3001 - 4000 mm	3

Box types

Information on the possible box designs can be found with the information on top-mounted external venetian blinds for new buildings NA-RA with rail guidance.

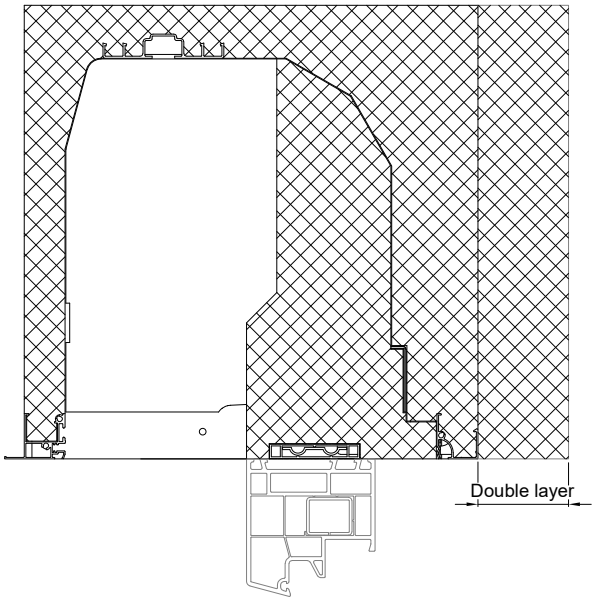
see "Box types", Page 152

Top-mounted boxes for new buildings with double box layering

Top-mounted boxes for new buildings in standard sizes can also be adjusted for different masonry thicknesses by means of double box layering.

Top-mounted external venetian blinds for new buildings NA-RA, masonry, 120 mm shaft, double layer

PDF DWG



End rail stack protrusion

Maximum order height without stack protrusion (maximum clear shading height without stack protrusion) in mm

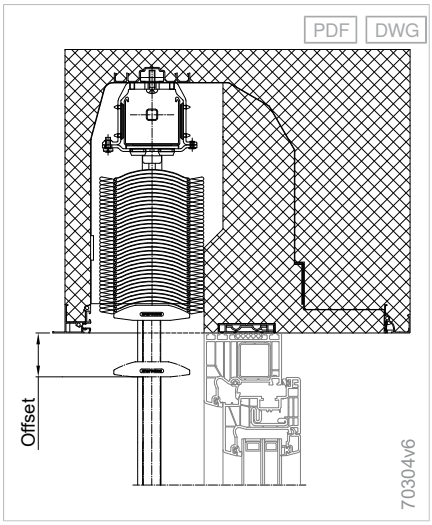
Types	Box height 250 mm	Box height 300 mm	Approx. stack increase per 100 mm of additional height (mm)
E 80 A2 S	2600 (2301)	3200 (2851)	5
E 80 AF	4000 (3701)	4000 (3651)	3
E 80 AF (with eyelets)	4000 (3701)	4000 (3651)	3
E 73 A2	2100 (1801)	2800 (2451)	5
E 90 A2	2800 (2501)	3800 (3451)	4
E 93 A2	2800 (2501)	3800 (3451)	4

Slat stack heights are approximate values and for technical reasons, they might be higher or lower. Stack parallelism with retracted external venetian blind: +/- 10 mm

Rail/cable combination: For external venetian blinds with combined rail and cable lateral guidance, the maximum order heights without stack protrusion of the units with cable guidance must be used as a basis.

Model with insect screen swivel or swinging door: In combination with insect screen swivel or swinging door, the external venetian blind must retract completely into the box.

Overhang of end rail



Window connection

Information on the window connection be found with the information on top-mounted external venetian blinds for new buildings NA-RA with rail guidance.

see "For window connection using plastic profile, integrated into the insulating wedge (standard fixing)", Page 156

Standard fixation of box on window

Information on the standard fixation of box on window can be found with the information on top-mounted external venetian blinds for new buildings NA-RA with rail guidance.

see "Standard fixation of box on window", Page 158

Additional product information

Detailed information on cable exit

Information on the cable exit can be found with the information on top-mounted external venetian blinds for new buildings NA-RA with rail guidance.

see "Detailed information on cable exit", Page 159

Box extensions/corners

Information on box extensions and corner positions can be found with the information on top-mounted external venetian blinds for new buildings NA-RA with rail guidance.

see "Box extensions/corners", Page 165

Additional box fastening

Number of additional box fastenings required

Box model shape	Box width	Number of blinds	Number of box fastenings
Without mitre	Up to 1000 mm	Up to 3	0
	Up to 2000 mm	Up to 3	1
	Up to 3000 mm	Up to 2	1
		3	2
	Up to 4000 mm	Up to 2	2
		3	3
Unilateral mitre	Up to 1000 mm	Up to 3	1
	Up to 2000 mm	Up to 3	2
	Up to 3000 mm	Up to 2	2
		3	3
	Up to 4000 mm	Up to 2	3
		3	4
Mitre on both sides	Up to 1000 mm	Up to 3	2
	Up to 2000 mm	Up to 3	3
	Up to 3000 mm	Up to 2	3
		3	4
	Up to 4000 mm	Up to 2	4
		3	5

The drawings for the additional box fastening can be found with the information on top-mounted external venetian blinds for new buildings NA-RA with rail guidance.

see "Additional box fastening", Page 168

Structural console

Information on structural consoles be found with the information on top-mounted external venetian blinds for new buildings NA-RA with rail guidance.

see "Structural console", Page 171

Box with fans

Information on fans can be found with the information on top-mounted external venetian blinds for new buildings NA-RA with rail guidance.

see "Box with integrated fan", Page 175

Heat insulation

You can find all the test values available to us on our homepage.

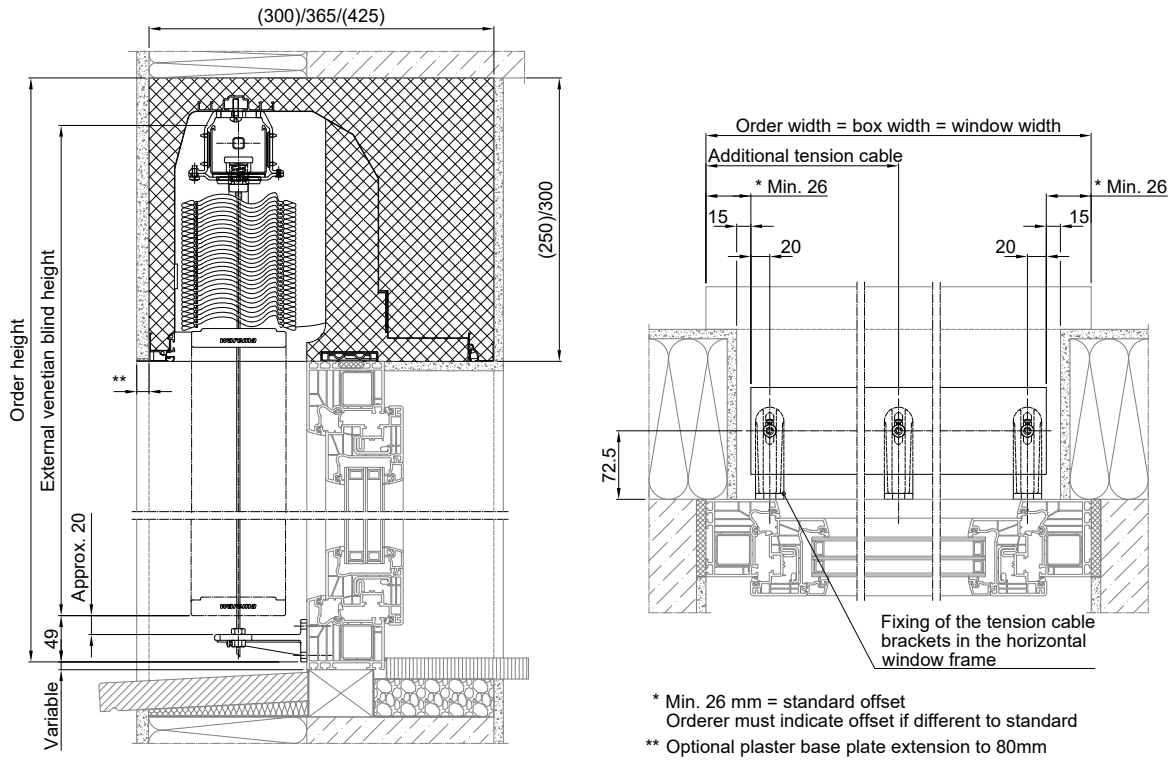
NA-RA sound insulation

You can find information on the sound absorbing coefficients, taking account of the existing test certificates (measurement according to EN ISO 10140) on our homepage.

Mounting examples

Measuring instructions for top-mounted external venetian blind: Box shape M; 140 mm shaft

PDF DWG



* Min. 26 mm = standard offset
Orderer must indicate offset if different to standard

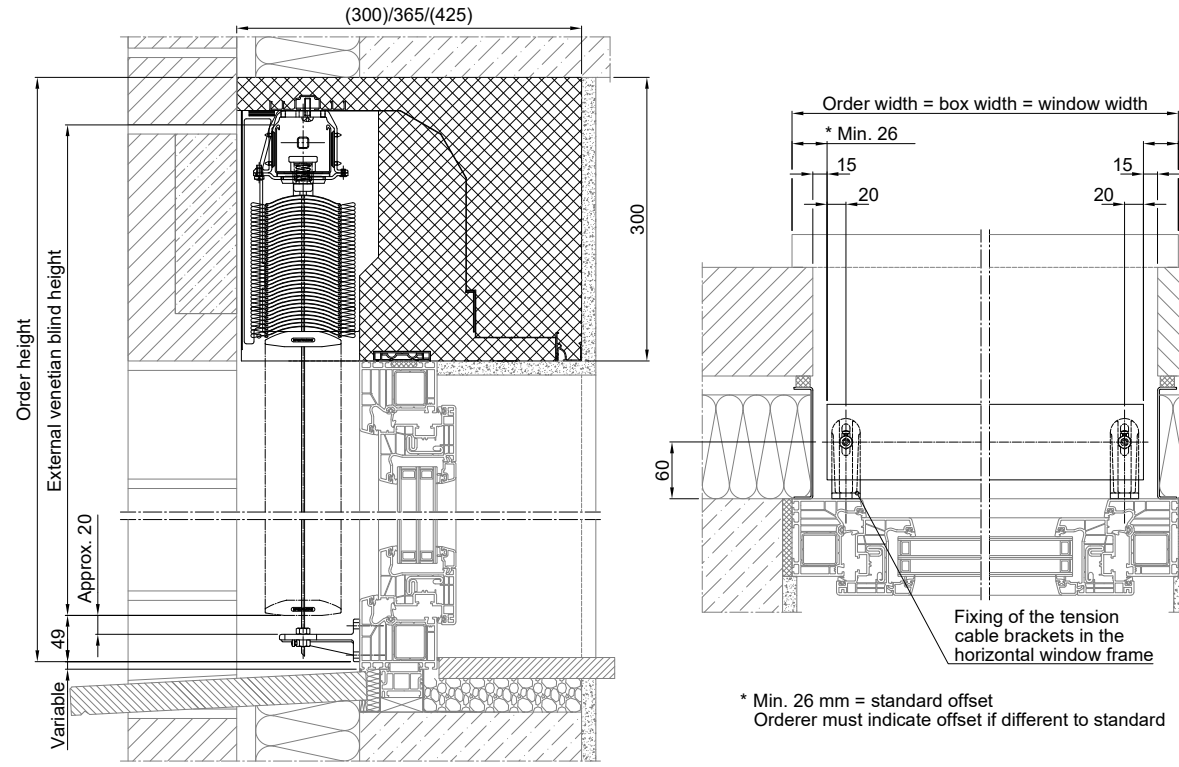
** Optional plaster base plate extension to 80mm

70495v2

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Measuring instructions for top-mounted external venetian blind: Box shape K; 130 mm shaft

PDF DWG



* Min. 26 mm = standard offset
Orderer must indicate offset if different to standard

70497v2

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.



Top-mounted external venetian blinds

Top-mounted external venetian blinds AU-RA

Flexibly adjustable

Opaque from the outside but with a view out from the inside: The external sun shading system consisting of connected horizontal slats combines thermal protection, glare control, and visual privacy with an adjustable view out.

Cost-optimised

Affordable top-mounted system: The cost-optimised top-mounted external venetian blind AU-RA is suitable for new buildings and renovations.

Compact

Plastic box system: The plastic components are resistant to UV rays and to the weather. The compact box is integrated into the thin window opening together with the window. It can either be visible from the outside in white plastic, blended in with an aluminium front cover, or hidden as a plaster base type. The inside is always plaster base type.

Economical

A single source: The top-mounted system is attached to the window and installed together with the window in just one step.

Uniform appearance

Cross-system combinations: The top-mounted models of external venetian blinds AU-RA and roller shutters AU-RO feature boxes with a uniform appearance. When combined, they create a harmonious facade appearance with sun shading systems that are matched to the particular use of the room.

Construction limit values

Maximum order width	3000 mm
Maximum order height	3000 mm
Maximum order area	9 m^2

Order here

myWAREMA

Art.-Nr. 2020981

Order form

https://docs.warema.com/fi/2021598.pdf

WAREMA tools

Structural console tool
Fastener Assistant
Sun Shading Planner

see "Navigating the document", Page 5

Components



1	Box	4	Lateral guidance
2	Slats	5	End rail
3	Tilting tape, lifting tape		

Box

Plastic basic model

Box sizes	240
Box model	Closed on 4 sides
Material	Plastic, hollow chamber profile
Surface	Plastic
Optional surface	Laminated
Material colour	White

Additional box fastening: For external venetian blinds with additional cable guidance, an additional box fastening via mounting bracket is absolutely essential.

+ Side cover

AU-RA side covers

Material	Plastic
Material colour	White

– Side cover incl. side cover insulation
– Side covers are brown for boxes in laminated designs.

+ Front cover, optional

Model with aluminium front cover

Material	Aluminium, folded
Surface	Powder-coated

see "Box types", Page 195

Plaster model, box end rail outside (optional)

Box sizes	240
Box model	Closed on 4 sides
Material	Plastic, hollow chamber profile
Surface	Plastic
Material colour	White

+ Box end rail
– Box end rail outside, projection 25 mm
– Box end rail outside, projection 50 mm

Box end rail optional:
– Box end rail outside, projection shortened

see "Box types", Page 195

Plaster model, box end rail inside (optional)

Box sizes	240
Box model	Closed on 4 sides
Material	Plastic, hollow chamber profile
Surface	Plastic
Material colour	White

+ Box end rail
– Box end rail, inside, projection 20 mm

see "Box types", Page 195

Window connection

Clip fixing, plastic

Material	Plastic
Material colour	White

Comprised of base profile and window adapter profile made of plastic

see "Clip fixing, plastic", Page 197

Window connection, optional

Clip fixing, steel

Material	Steel
Surface	Zinc-coated

Comprised of plastic base profile, white, and window adapter profile made of steel

see "Clip fixing, steel", Page 197

Product variants that can be used

– E 80 A6 S
– E 80 AF A6
– E 80 A6 Z

Guide variants

– Rail guidance

Guide rail

– FSCH 27-80 (type 37)

Guide rail, optional:

– FSCH 27-80 (type 66), clamping pin installation

see "Guide rails for external venetian blinds", Page 360

Tension cable

Additional cable guidance with flat slats

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

To prevent damage from wind load on components that are behind the external venetian blind, plan for an additional central cable guidance in the centre when using flat slats from a slat size > 2400 mm.

Arrangement of the additional cable guidance: The arrangement must be specified (viewed from inside the room, starting on the left)

Determination of cable length: External venetian blind height + 100 mm

Drive variants

– Motor

Motor

– Basic motor for external venetian blinds

Motor optional:

– Super-fast terrace motor (STM)
– Motor with 2 lower limit positions
– Motor with freezing protection
– SMI motor

see "Drive variants", Page 489

Colours

– Slat colours
– WAREMA Colour World
– Anodised C0

Colours, optional:

– Anodised C31
– Anodised C32
– Anodised C33
– Anodised C34
– Anodised C35

see "Colours and finishes", Page 12

see "Colours and surfaces for external venetian blind slats in accordance with current collection", Page 15

Notes

Different tilting systems for external venetian blinds with flat slats: External venetian blind moves down with the slats closed to the outside and moves up with the slats closed to the inside at approx. 55°.

For further information, see the chapter "Basic external venetian blinds" for the relevant product variant.

Supplementary accessories

– WAREMA SecuKit for external venetian blinds
– SenSigna, external venetian blind with acoustic signal
– Battery module UP for external venetian blinds
– Emergency power supply kit
– slowturn

see "Supplementary accessories", Page 277

Construction limit values

- **Several external venetian blinds in one box:** A maximum of 2 external venetian blinds can be integrated in one box.
- **Pre-installation:** The external venetian blind stack is generally not premounted in the box at the factory.

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area	Maximum order width of the group unit	Group unit, maximum order area
Basic external venetian blinds						
E 80 A6 S	680 mm	3000 mm	3000 mm	9 m^2	3000 mm	9 m^2
E 80 AF A6	680 mm	3000 mm	3000 mm	9 m^2	3000 mm	9 m^2
E 80 A6 Z	600 mm	3000 mm	3000 mm	9 m^2	3000 mm	9 m^2

For top-mounted external venetian blinds, the information on "Minimum order width" and "Maximum order width" always refers to the back edge of the box.

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances as per the "Guideline for assessing the product features of external venetian blinds" apply.

Box laminate: For the variant with laminated box, the maximum width is restricted to 2000 mm.

Dimension determination

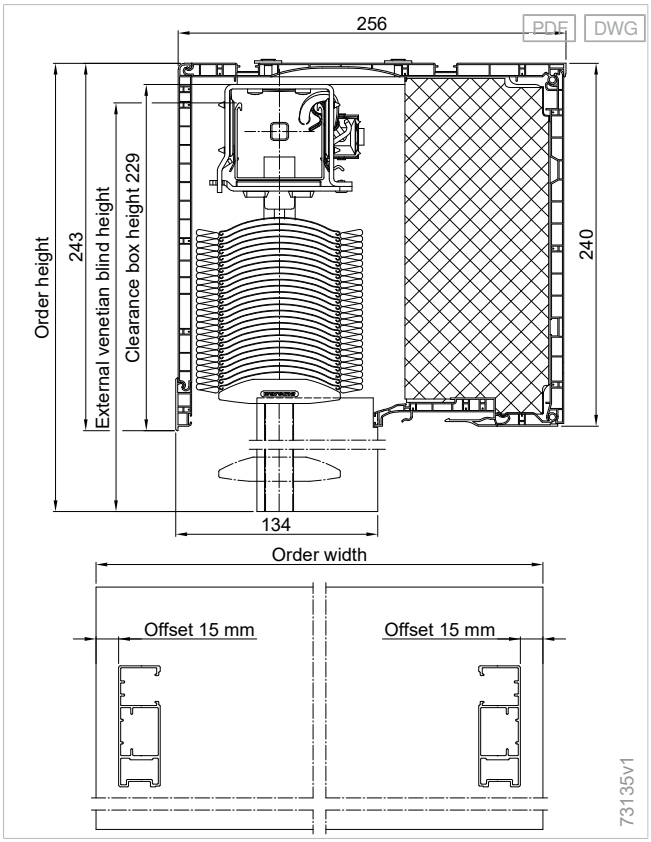
Configuration view: The order dimensions are determined from interior view, from left to right.

Reference dimension	Dimension determination
Order width	Window frame width = box width
Order height	Bottom edge of the guide rail to top edge of the box
Box height	240 mm
Box depth	256 mm

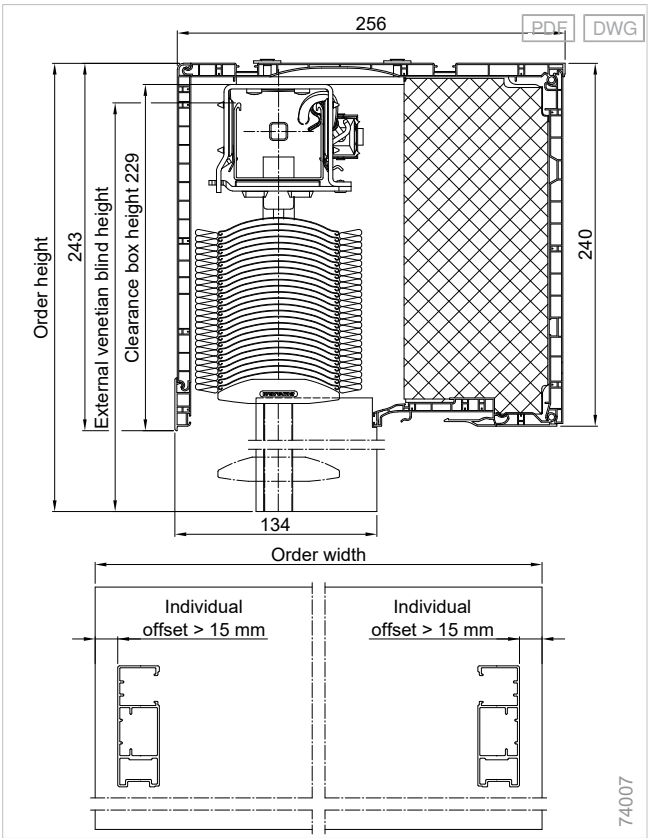
- **Information on window profile required:** manufacturer, type, window frame thickness
- Note standard offsets for the guide rails
- Note connection to window sill
- **Minimum distance between the box top edge and lintel:** 10 mm

Note on measuring:
The box width = width of the window frame, this should be at least 20 mm, but no more than 60 mm narrower than the width of the masonry opening. This is necessary to ensure best possible application of PU foam in the area of the side cover and the masonry. Any valid guidelines and regulations must be complied with.

Measuring instructions for top-mounted external venetian blind AU-RA, standard offset 15 mm



Top-mounted external venetian blind AU-RA dimension determination, offset > 15 mm

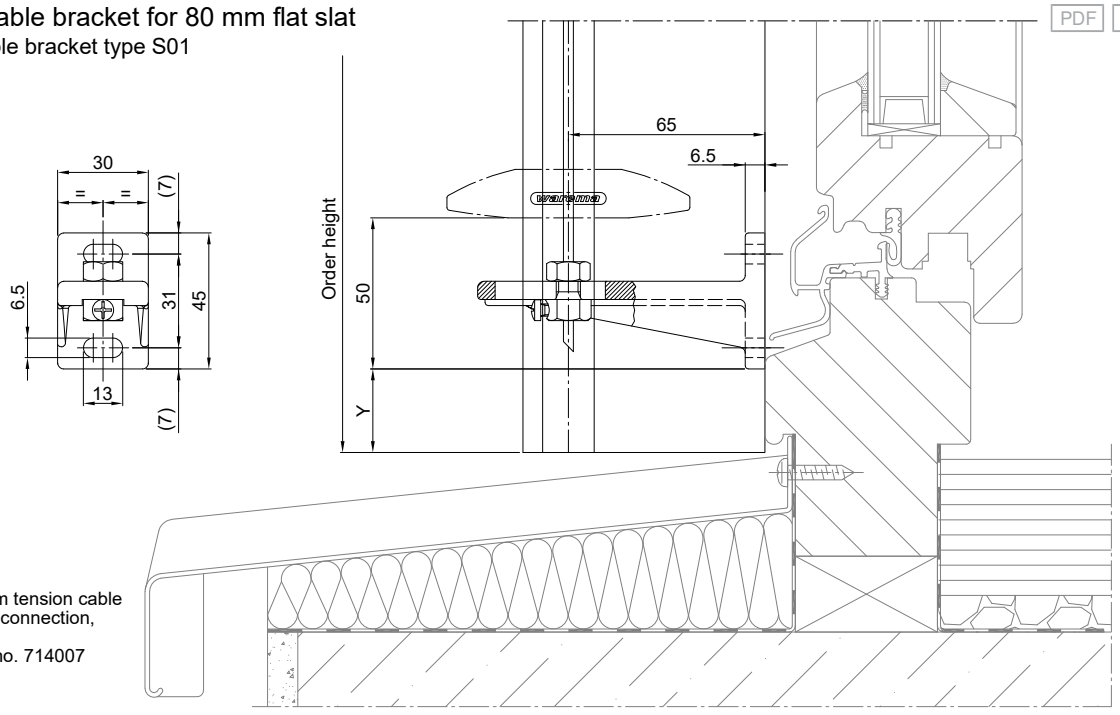


Measuring instructions for additional cable guidance

Tension cable bracket for 80 mm flat slat

Tension cable bracket type S01

PDF DWG



Diecast aluminium tension cable bracket w/ screw connection, art. no. 514006, and nut M8, art. no. 714007

Please provide dimension Y when ordering.

71161v1

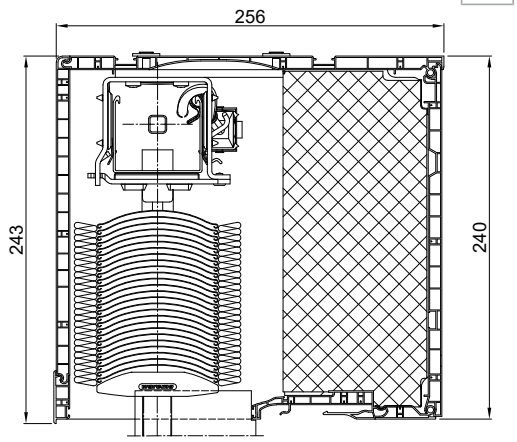
For slat widths > 2400 mm and versions with flat slats, the use of wind protection using an additional tension cable is required. Specify dimension Y when ordering.

Box types

- Box end rail inside, plastic, white, 20 mm projection; incl. 8 mm plaster base plate
- Box end rail outside, aluminium, plain (optionally powder-coated); projection in standard 25 mm or 50 mm; incl. 8 mm plaster base plate

Box made of plastic, white (standard)

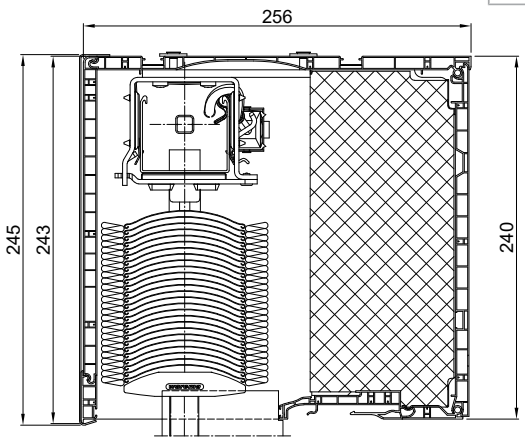
PDF DWG



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Aluminium front cover, folded (optional)

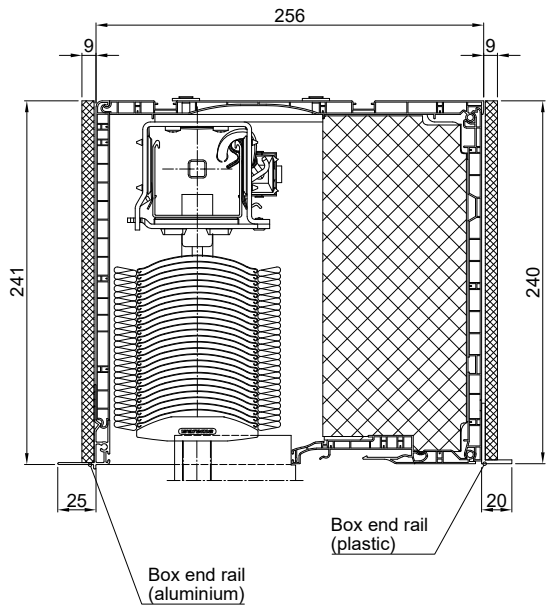
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Top-mounted external venetian blinds AU-RA, plaster

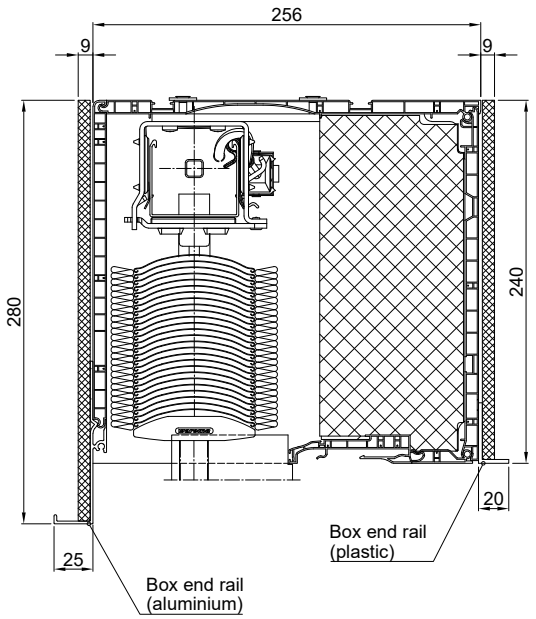
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AU-RA plaster model, extension to side of box (optional)

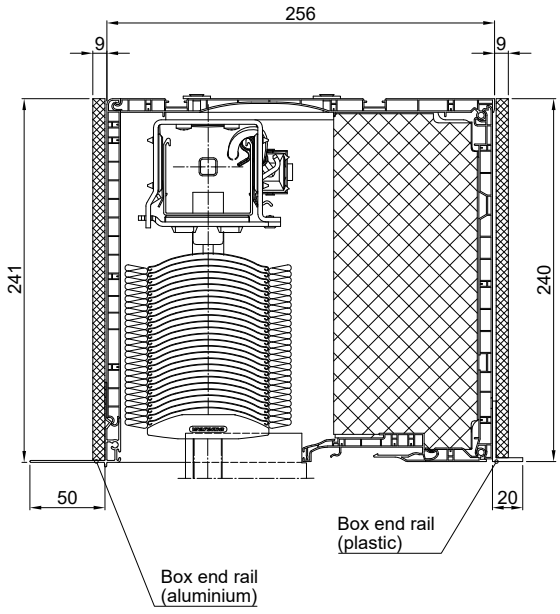
PDF DWG



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Top-mounted external venetian blinds AU-RA, plaster

PDF DWG



71155v3

Window connection via clip fixing

Clip fixing, plastic

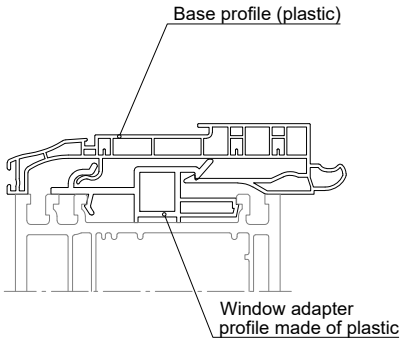
Sealing of connecting joint: The connecting joint between the window frame and the top-mounted box must be sealed in accordance with the on-site conditions.

- For a permanent connection across the entire window width
- Plastic base profile: Premounted between the side covers of the box
- The plastic window adapter profile, white, is clipped into the respective plastic window or screwed in via a universal window adapter profile for all other windows.
- The box is then pushed onto the window adapter profile and clipped into position using the integrated base profile.

Can be used for the following window frame thicknesses: 70–92 mm

Clip fixing via plastic window adapter profile

PDF DWG



Clip fixing, steel

Sealing of connecting joint: The connecting joint between the window frame and the top-mounted box must be sealed in accordance with the on-site conditions. The use of structural consoles is possible to improve the structural strength.

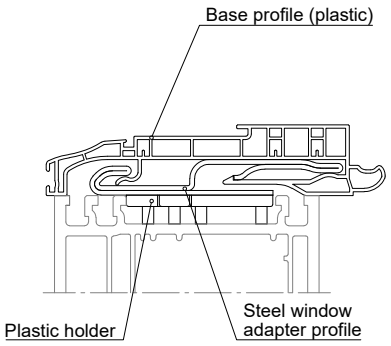
- Steel window adapter profile recommended from order widths of 1600 mm or greater for increased window rigidity
- Short and long models available
- The steel window adapter profile is screwed directly onto the window frame from above, aligned using plastic holder, available for all common window profiles (the window adapter profile is bolted directly onto the window frame for smooth windows or windows without allocation).
- Area moment of inertia, steel window adapter profile:
  - Long profile I_y = 8.3 cm⁴
  - Short profile I_y = 2.4 cm⁴
- The box is then pushed onto the window adapter profile and clipped into position using the integrated base profile
- Plastic base profile, white: Premounted between the side covers of the box

Can be used for the following window frame thicknesses:

- Long window adapter profile 70-92 mm
- Above a window frame thickness of 92 mm, we recommend that the short window adapter profile be used for ease of installation

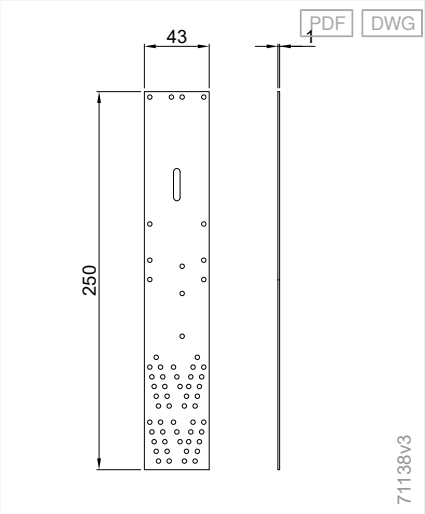
Clip fixing via steel window adapter profile (optional)

PDF DWG



Standard fixation of box on window

Connecting tab



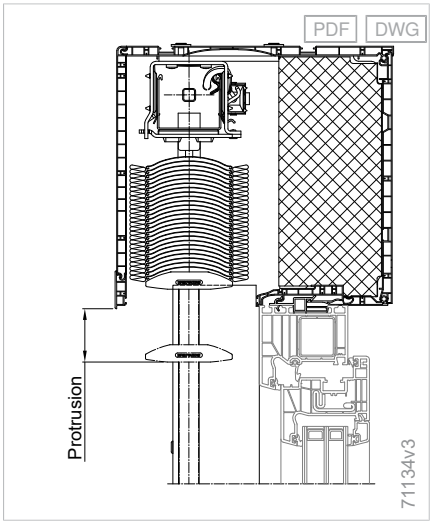
End rail stack protrusion

Maximum order height without stack protrusion (maximum clear shading height without stack protrusion) (mm)

Types	Box height 240 mm	Approx. stack increase per 100 mm of additional height (mm)
E 80 A6 S	2600 (2340)	5
E 80 AF A6	3000 (2740)	3
E 80 A6 Z	2600 (2340)	5

Slat stack heights are approximate values and for technical reasons, they might be higher or lower. Stack parallelism with retracted external venetian blind: +/- 10 mm

Overhang of bottom rail



Additional product information

Detailed information on cable exit

Standard cable exit: left or right at end of box

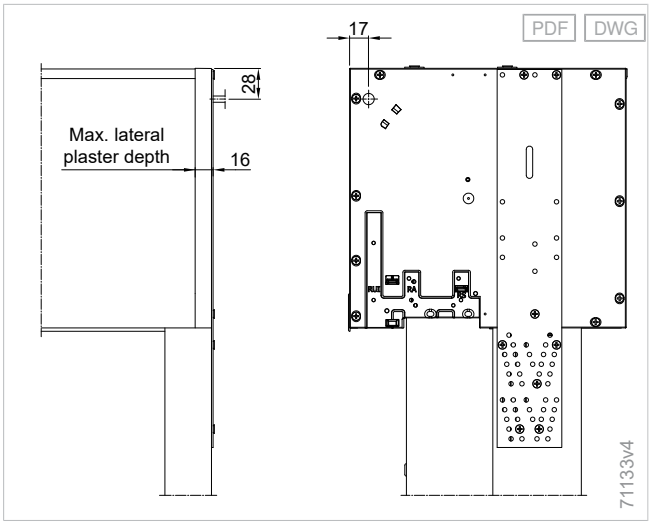
Cable excess:

- 1000 mm as standard
- Also optionally 5000 mm or 10000 mm

As standard, the Hirschmann coupling is placed within the box with clamped cable whip. **A cable whip without plug connector with an open end and ferrules comes out of the box.**

We recommend that the cable whip be guided directly into the building for connection to prevent a further plug-in connection outside the box!

Possible cable exit



Detailed information on combinations

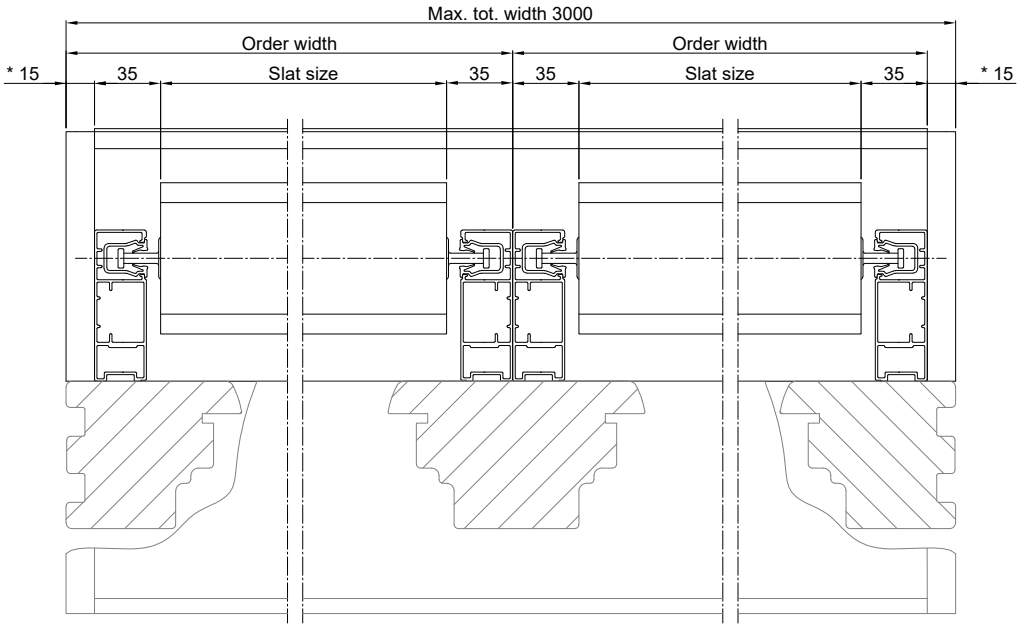
Multi-part external venetian blinds with continuous box and individually running external venetian blind curtains. The individual external venetian blind curtains can be either coupled or installed with a single drive for units of the same height. For external venetian blind curtains of different heights, coupling is not possible, meaning that only single drives are possible.

- Order data: Always seen from inside, from left to right
- 2-part units: place state beginning position and end position on the order form

- Maximum continuous box width: 3000 mm.
- Maximum number of individual external venetian blind curtains within a continuous box

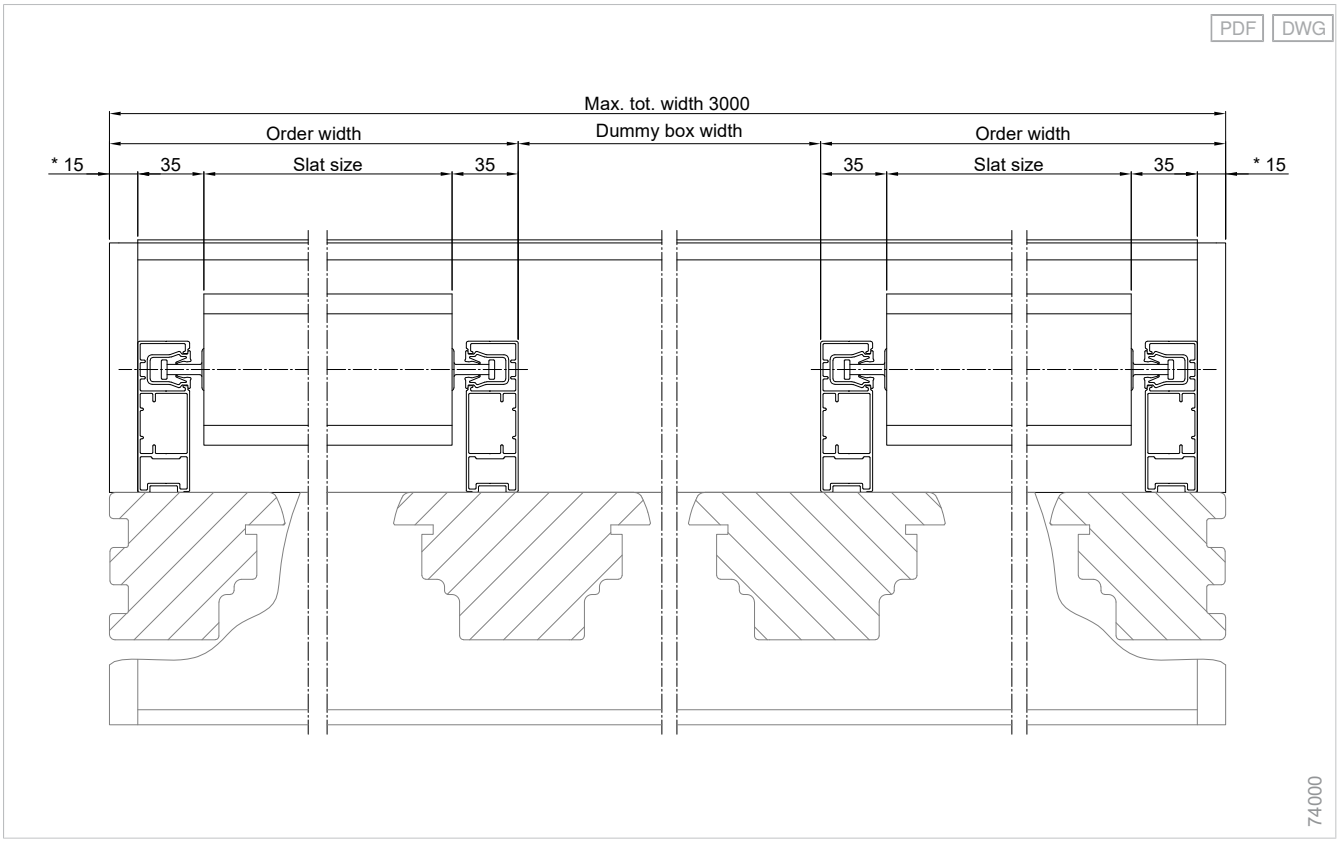
Measuring instructions for combinations (max. two external venetian blinds in one box)

PDF DWG



*15 mm = standard offset. Deviating offsets must be specified by the orderer.

Measuring instructions for combinations with central dummy box



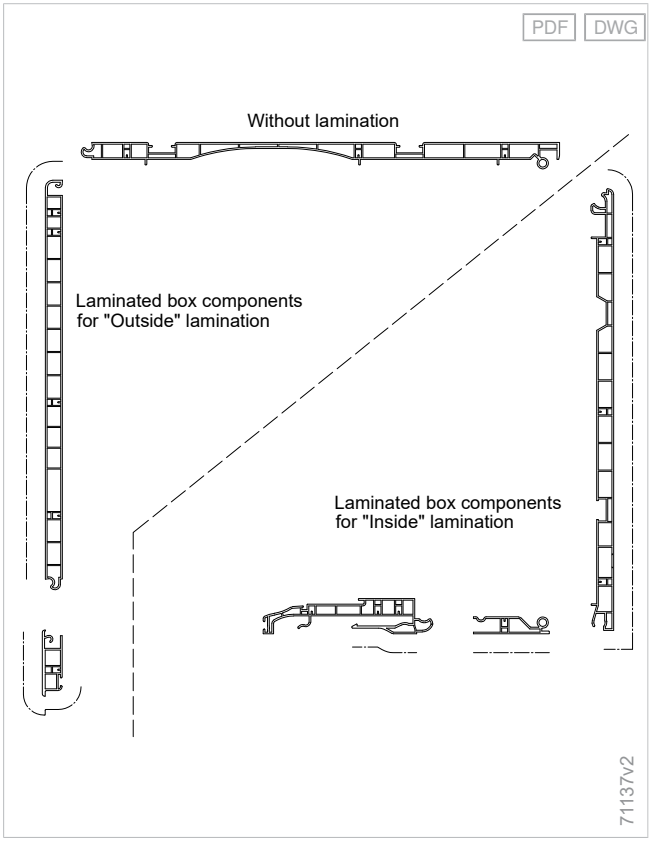
* Standard offset 15 mm; In case of a deviating offset, this must be specified by the orderer.

Laminated boxes

To optimally match the appearance of the sun shading system to the on-site laminated plastic windows, visible plastic parts of the sun shading system can optionally be supplied in a laminated design. In addition to several standard decor films, a wide range of special decor films is also available to choose from.

- Laminated boxes available in full or partial lamination
  - Partial lamination means lamination on the outside
  - Full lamination means lamination on the inside and outside.
- Boxes with a box end rail on the outside or an aluminium front cover are only possible with full lamination
- Maximum width of laminated boxes: 2000 mm

AU-RO/AU-RA, box: laminated areas, fully/partially laminated

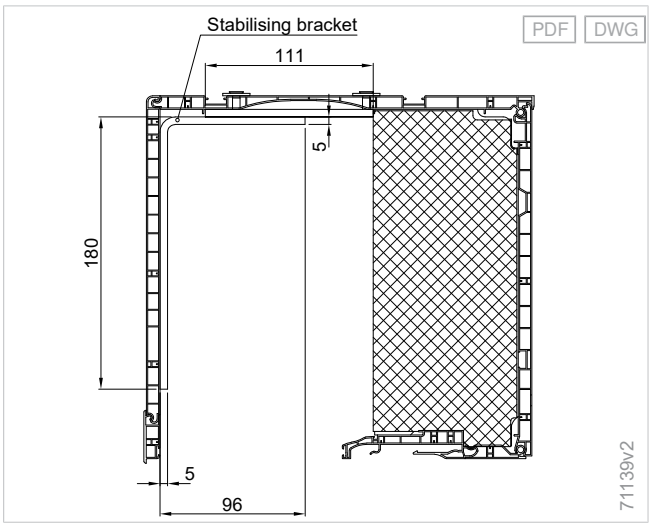


see "Colours for decor films", Page 17

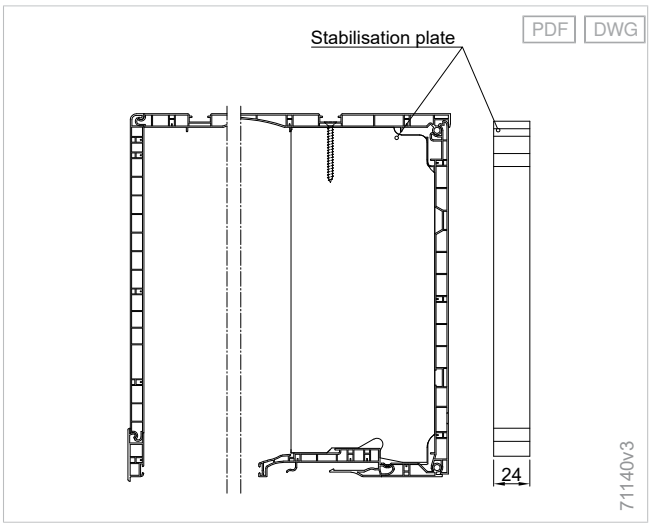
Box reinforcement

In order to make the box as stable as necessary, the box is braced with a stiffener bracket and a stabilisation place if it has an order width of more than 2000 mm.

Stiffener brackets



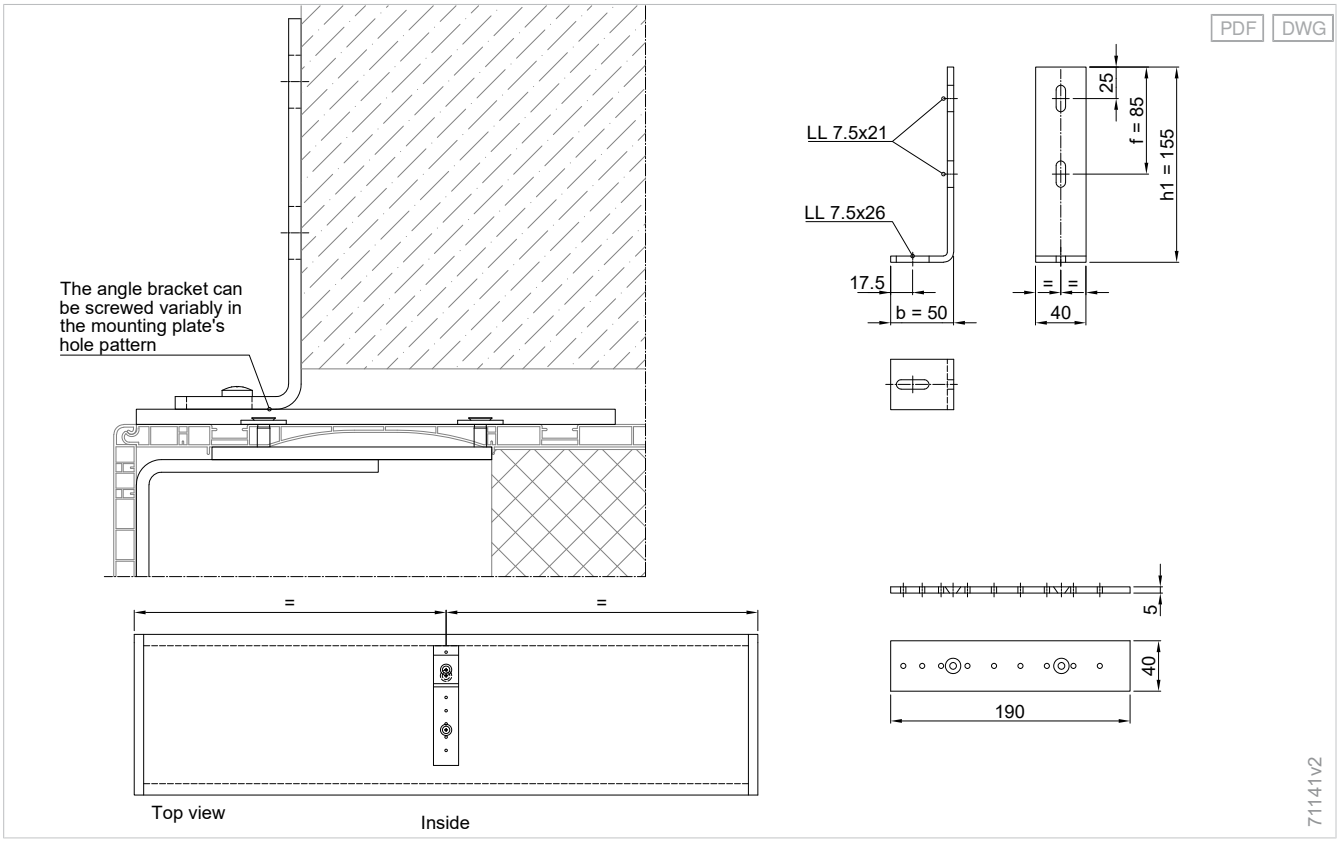
Stabilisation plate



Additional box fastening

External venetian blinds with an additional central tension cable require a box fastening via a mounting bracket to allow the masonry to absorb the cable force. The items are specified with load optimisation by WAREMA.

Mounting bracket



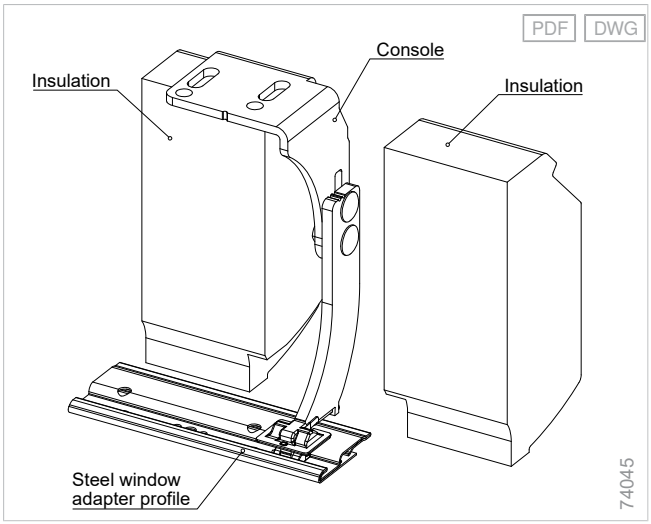
Structural console

The planner or customer is responsible for determining the structural strength (wind load) on the basis of the window profile selected.

Gradual improvement of the structural strength (wind load)

- **If the required standard classes are not achieved:** if neither the window frame nor the window frame reinforcement (A) improve the structural strength, you can optionally use a steel window adapter profile (B) for the external venetian blind box.
- **If the required structural strength is still not achieved:** use optionally available structural consoles (C) to allow the structure to absorb the load.

Structural console components



Components for optimising the structural strength:

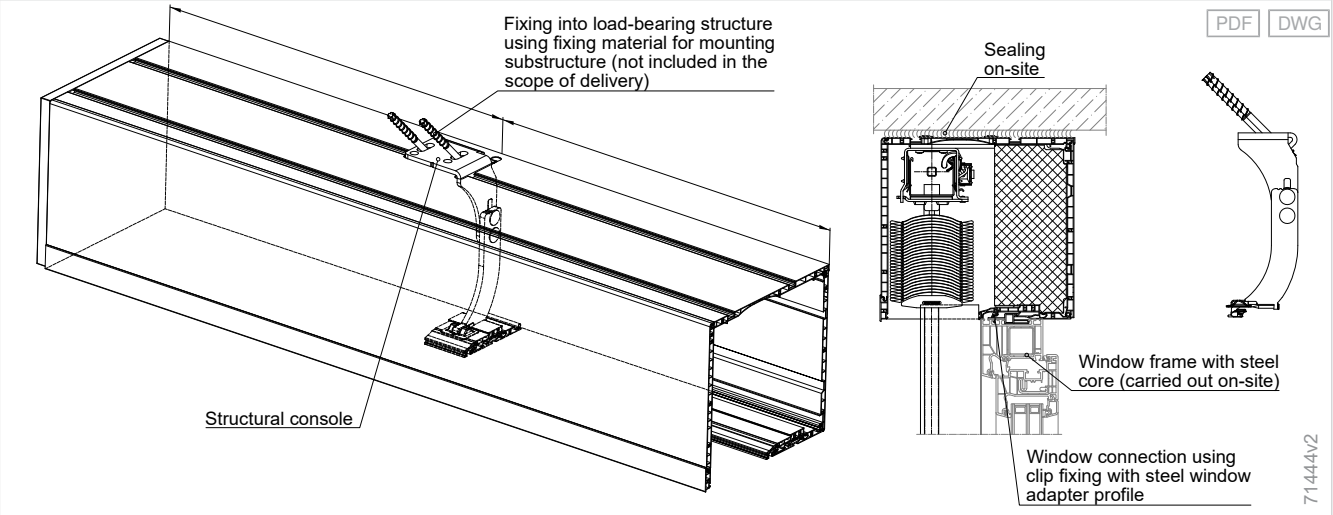
Reinforcement via window adapter profile made of steel (B), see also detail Y:

- Window adapter profile made of steel (via the entire order dimension) to increase the window's moment of inertia (recommended from order width > 1600 mm)
- Area moment of inertia of steel window adapter profile: Ix = 0.23 cm⁴, Iy = 8.3 cm⁴

Additional structural console (C) for the box (optional)

- Requirements: steel window adapter profile
- Structural consoles are supplied as accessories for installation on site.
- The structural consoles must be fixed to the load-bearing structure/lintel on-site.
- The fixing material (not included in the scope of delivery) must be adjusted to the mounting substructure.
- The insulating wedge is supplied in 1 piece and must be fitted after the console has been installed and insulated on-site to compensate for building tolerances.
- The bottom part of the structural console is detachable when necessary.
- Load bearing capacity of the structural console with box size 24 = 1.0 kN

AU-RA, model with structural console



Exemplary figure. You can obtain an exact illustration for the use in the top-mounted external venetian blind AU-RA from the Application Engineering Department.

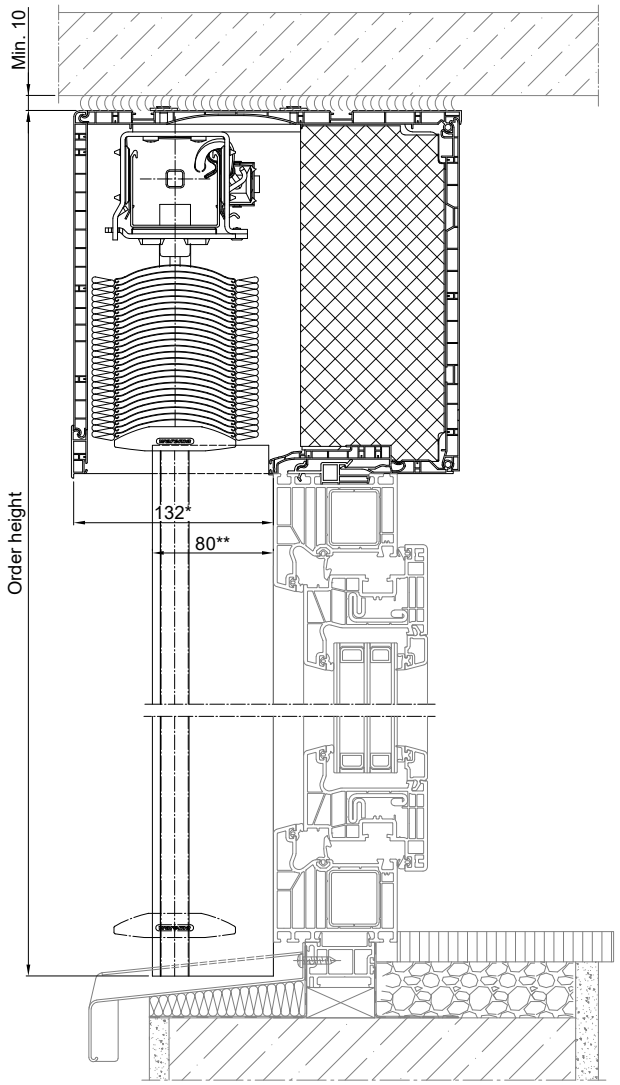
Heat insulation

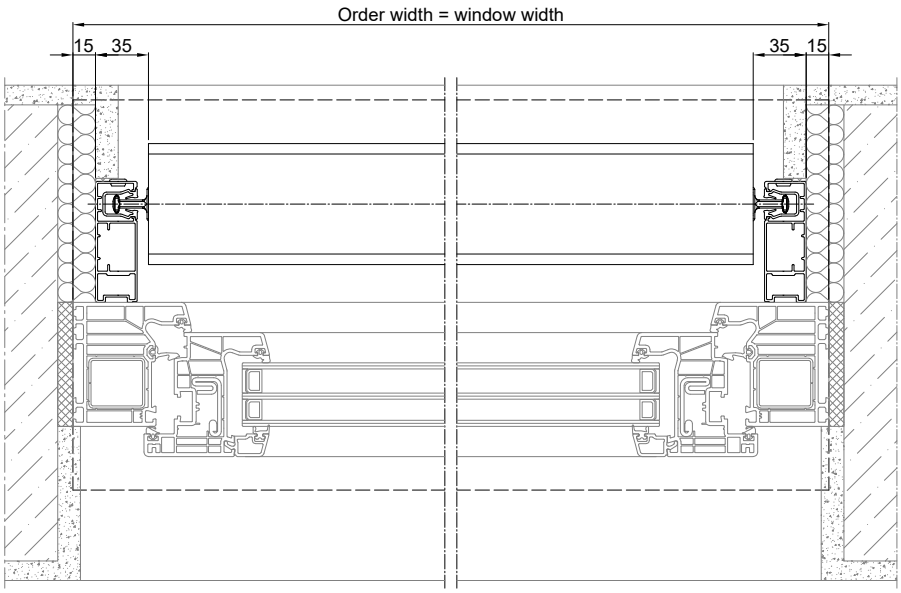
You can find all the test values available to us on our homepage.

Mounting examples

AU-RA with aluminium guide rails

PDF DWG





* Distance from outer edge of box to outer layer of window frame

** Distance from outer edge of guide rails to outer layer of window frame

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

71157v3

Contents

External shaft venetian blinds

External shaft venetian blinds 206
Basic external shaft venetian blinds 207
Shaft external venetian blind system S1 217



External venetian blinds

External shaft venetian blinds

Flexibly adjustable

Opaque from the outside but with a view out from the inside: The external sun shading system consisting of connected horizontal slats combines thermal protection, glare control, and visual privacy with an adjustable view out.

Integrable

Get the best from the on-site conditions: Shaft systems are suitable for installation in on-site shafts or lintel boxes.

Invisible

Unobtrusively integrated into the building structure: When raised, the sun shading system disappears into the shaft.

Installed in no time

Premounted system: The subassemblies are put together and then fastened to the guide rails in one step.

Useful

Depending on the model, the external shaft venetian blinds are available with or without a cover panel.

Construction limit values

Maximum order width	4000 mm
Maximum order height	4000 mm
Maximum order area	16 m^2

Order here

myWAREMA

Art.-Nr. 2036190

Art.-Nr. 2036191

Order form

https://docs.warema.com/fi/877938.pdf

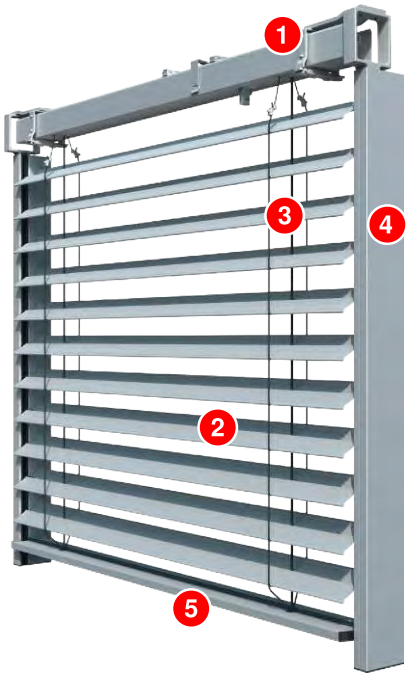
WAREMA tools

Fastener Assistant
Sun Shading Planner

see "Navigating the document", Page 5

Basic external shaft venetian blinds

Components



1	Top rail fixing	4	Lateral guidance
2	Slats	5	End rail
3	Loop cord, lifting tape		

Top rail

Top rail fixing

- The premounted subassembly consisting of a universal adapter, bracket lug and top rail bracket is inserted into the guide rail contour.
- The external venetian blind with stack is fixed by attaching the top rail to the top rail bracket.
- For external venetian blinds with additional cable guidance, additional on-site top rail fixing is absolutely necessary.

Top rail

Material	Aluminium, extruded
Surface	Plain
Optional surface	Powder-coated, Anodised
Profile	C profile
Width	59 mm
Height	51 mm

Top rail bracket

Noise optimised top rail bracket for motor operation

Material	Aluminium
Surface	Plain

Including bead for noise optimisation, black

Product variants that can be used

- E 73 A6
- E 80 A6 Z
- E 90 A6
- E 93 A6
- E 60 AF A6
- E 80 AF A6
- E 100 AF A6
- E 60 A6 S
- E 80 A6 S
- C 73 A6
- C 80 A6 Z
- C 90 A6
- C 93 A6
- C 60 AF A6
- C 80 AF A6
- C 100 AF A6
- C 60 A6 S
- C 80 A6 S

Guide variants

- Rail guidance

Guide rail

- FSCH 25-50 (type 74)
- FSCH 25-28 (type 23)
- FSCH 27-70 (type 36)
- FSCH 27-80 (type 37)
- FSCH 27-95 (type 31)
- FSCH 27-122 (type 30)
- FSCH 50-50 (type 75)
- Double FSCH 55K-40 (type 64)

see "Guide rails for external venetian blinds", Page 360

Tension cable

Additional cable guidance

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

To prevent components located behind the external venetian blind being damaged by wind load, an additional cable guidance in the centre is either mandatory or recommended for rail guidance from a defined width of slat, depending on the slats used:

- Beaded slats: from a slat size > 3000 mm (recommended)
- Flat slats (incl. Windra flat slat): from a slat size > 2400 mm (mandatory)
- Dim-out slats: no additional tension cable required

Arrangement of the additional cable guidance: The arrangement must be specified (viewed from inside the room, starting on the left)

Determination of cable length: External venetian blind height + 100 mm

Drive variants

- Crank
- Motor

see "Drive variants", Page 489

Colours

- Slat colours
- WAREMA Colour World
- Anodised C0

Colours, optional:

- Anodised C31
- Anodised C32
- Anodised C33
- Anodised C34
- Anodised C35

see "Colours and finishes", Page 12

see "Colours and surfaces for external venetian blind slats in accordance with current collection", Page 15

Supplementary accessories

- WAREMA SecuKit
- VisioNeo Sun railing system
- SenSigna, external venetian blind with acoustic signal
- Daylight transport element TLT
- Snap-action switch work setting
- slowturn
- Battery module UP
- Motor with additional collapsible crank ZHK for external venetian blinds
- Emergency power supply kit
- Slat perforation

see "Supplementary accessories", Page 277

Product characteristics

For this product, first the guide rails and then the external venetian blind are installed.

The following mounting variants are possible:

- Bracket installation for guide rail type 74/75
- Direct installation with support profiles

Notes

Notes on product configuration

A crank outlet cannot be fitted in the vicinity of the universal adapter (from -30 mm to +15 mm). The crank outlet must be installed before or after the universal adapter.

Construction limit values

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area	Maximum order width of the group unit	Group unit, maximum order area	Maximum order area of unit coupling	Maximum quantity of unit couplings per side
Basic external venetian blinds								
E 73 A6	600 mm	4000 mm	4000 mm	15 m^2	12000 mm	24 m^2	13 m^2	2
E 80 A6 Z	600 mm	4000 mm	4000 mm	15 m^2	12000 mm	24 m^2	13 m^2	2
E 90 A6	600 mm	4000 mm	4000 mm	15 m^2	12000 mm	24 m^2	13 m^2	2
E 93 A6	600 mm	4000 mm	4000 mm	15 m^2	12000 mm	24 m^2	13 m^2	2
E 60 AF A6	600 mm	4000 mm	4000 mm	16 m^2	12000 mm	35 m^2	13 m^2	2
E 80 AF A6	600 mm	4000 mm	4000 mm	16 m^2	12000 mm	35 m^2	13 m^2	2
E 100 AF A6	600 mm	4000 mm	4000 mm	16 m^2	12000 mm	35 m^2	13 m^2	2
E 60 A6 S	600 mm	4000 mm	4000 mm	16 m^2	12000 mm	30 m^2	13 m^2	2
E 80 A6 S	600 mm	4000 mm	4000 mm	16 m^2	12000 mm	30 m^2	13 m^2	2
C 73 A6	450 mm	4000 mm	4000 mm	10 m^2	12000 mm	10 m^2	10 m^2	2
C 80 A6 Z	450 mm	4000 mm	4000 mm	10 m^2	12000 mm	10 m^2	10 m^2	2
C 90 A6	450 mm	4000 mm	4000 mm	10 m^2	12000 mm	10 m^2	10 m^2	2
C 93 A6	450 mm	4000 mm	4000 mm	10 m^2	12000 mm	10 m^2	10 m^2	2
C 60 AF A6	450 mm	4000 mm	4000 mm	13 m^2	12000 mm	13 m^2	13 m^2	2
C 80 AF A6	450 mm	4000 mm	4000 mm	13 m^2	12000 mm	13 m^2	13 m^2	2
C 100 AF A6	450 mm	4000 mm	4000 mm	13 m^2	12000 mm	13 m^2	13 m^2	2
C 60 A6 S	450 mm	4000 mm	4000 mm	12 m^2	12000 mm	12 m^2	12 m^2	2
C 80 A6 S	450 mm	4000 mm	4000 mm	12 m^2	12000 mm	12 m^2	12 m^2	2

For basic external shaft venetian blinds, the information on "Minimum order width" and "Maximum order width" always refers to the slat length.

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances in accordance with the "Guideline for assessing the product features of external venetian blinds" apply.

External venetian blinds with additional cable guidance: An additional on-site top rail fixing is absolutely necessary.

For order widths > 2000 mm: Use additional top rail brackets in accordance with the bracket diagram.

For order widths > 2000 mm to 3000 mm: Use optional auxiliary cover panel

Maximum width without additional top rail bracket: 2000 mm (slat length)

Dimension determination

Configuration view: The order dimensions are determined from interior view, from left to right.

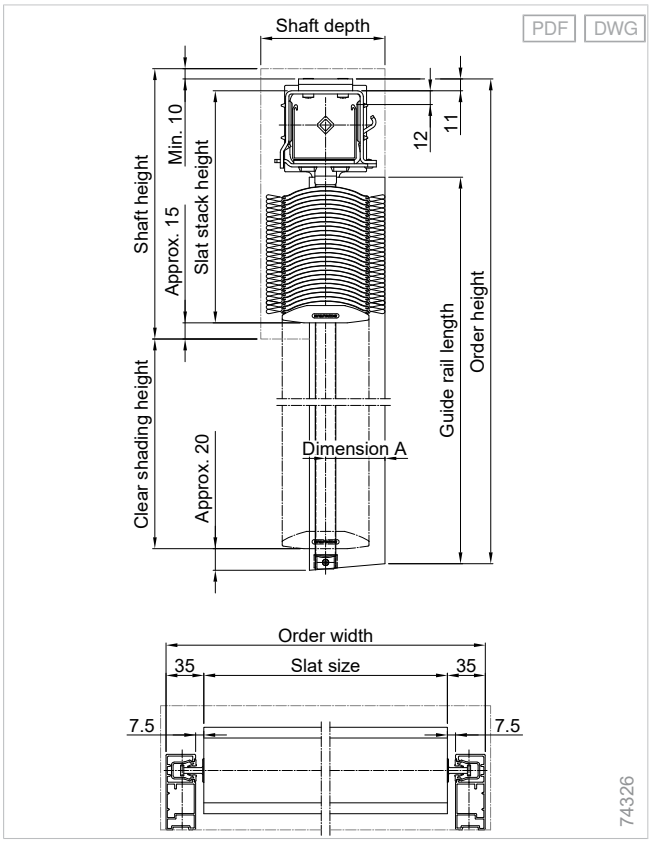
Reference dimension	Value
Order width	Back edge of the guide rail to back edge of the guide rail
Slat stack height	See the product variant concerned in the basic external venetian blinds area
Minimum shaft height*	Slat stack height + 30 mm
Order height	Top edge of the bracket lug to bottom edge of the guide rail

*We recommend a minimum shaft height to ensure overlapping between the bottom edge of the cover panel and the top slat.

Background: For dim-out external venetian blinds, the length compensation takes place via the distance between the top slat and the top rail.

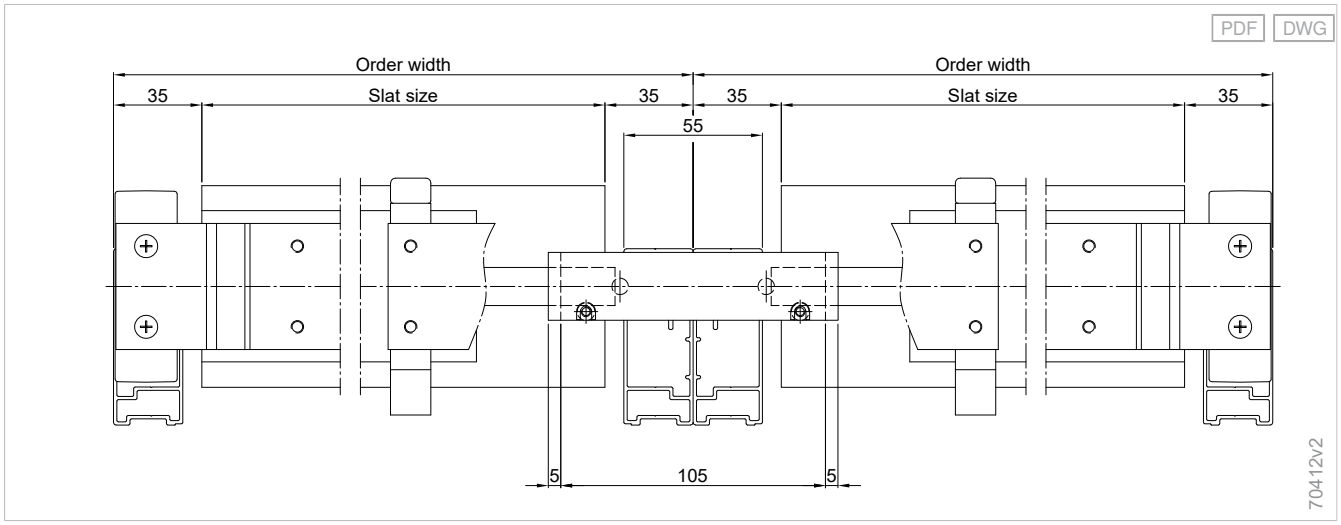
- Minimum shaft height for slat width 73 = 205 mm
- Minimum shaft height for slat width 90/93 = 220 mm

Basic external shaft venetian blinds, beaded slats



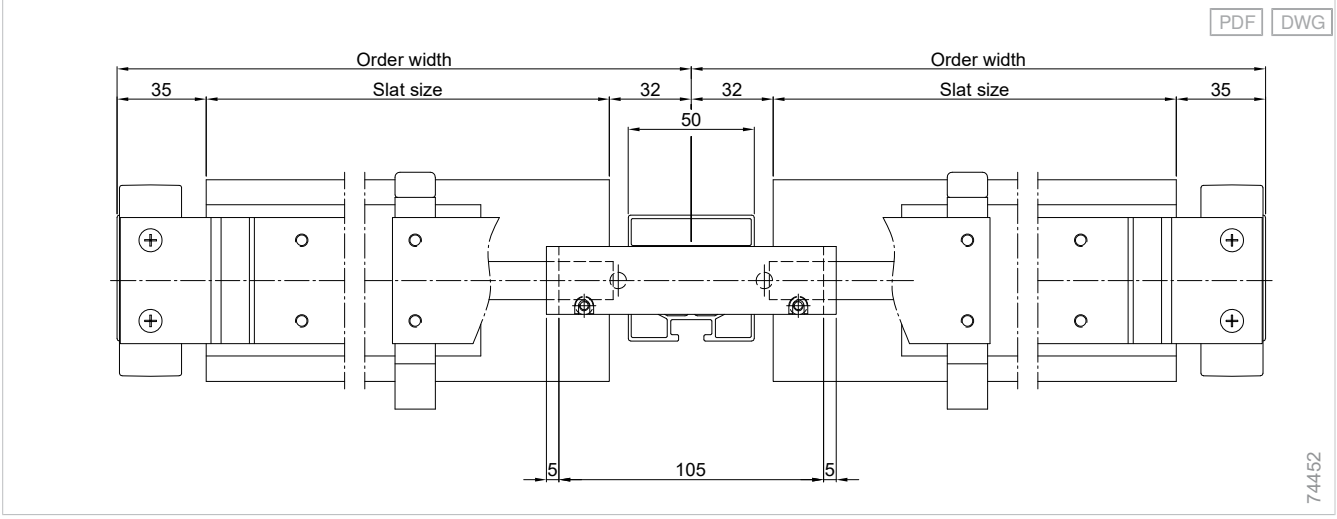
Details

Basic external shaft venetian blinds, coupling situation



Coupling situation with bei FSCH 27-70 (type 36), FSCH 27-80 (type 37), FSCH 27-95 (type 31), FSCH 27-122 (type 30)

Basic external shaft venetian blinds, coupling situation



Coupling situation with FSCH 25-50 (type 74), FSCH 50-50 (type 75)

Additional product information

Detailed information on guide profiles

Allocation of shaft depth/guide profile

Shaft depth min.	Permissible slat width	Allocated guide profile
120 mm	60/73/80	Guide rail 27x70
130 mm	60/73/80/90/93	Guide rail 27x80
145 mm	60/73/80/90/93	Guide rail 27x95
172.5 mm	60/73/80/90/93	Guide rail 27x122

Stiffener cover panel

With the optional stiffener cover panel, self-supporting external venetian blinds over 2000 mm are possible without brackets to be attached on-site.

Advantage:

- **Less installation work:** Using the stiffener cover panels, top rail brackets no longer need to be installed on-site.
- **The premounted cover panel must only be placed on the top rail. The cover panel is fixed using the central top rail bracket.**

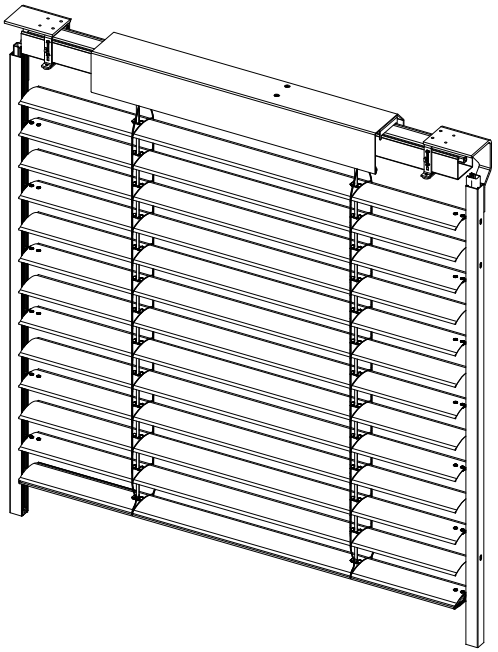
On-site, the following requirements must be fulfilled for models with stiffener cover panels:

Slat width	Shaft depth D	Axis distance A
60 / 73	Min. 120 mm	55 mm
80	Min. 120 mm	60 mm
90 / 93	Mn. 130 mm	65 mm

- The slat stack heights and construction limit values correspond to those of the respective basic type, however the construction is limited to a maximum width and height of 4000 mm.
- When using stiffener cover panels, the maximum blind area is limited to 10.8 m² and the order width to 3000 mm.
- A WMS/EWFS Plug receiver cannot be installed inside the cover panel.

The length of the cover panel is ascertained using the following formula: stiffener cover panel width = slat size – 350 mm

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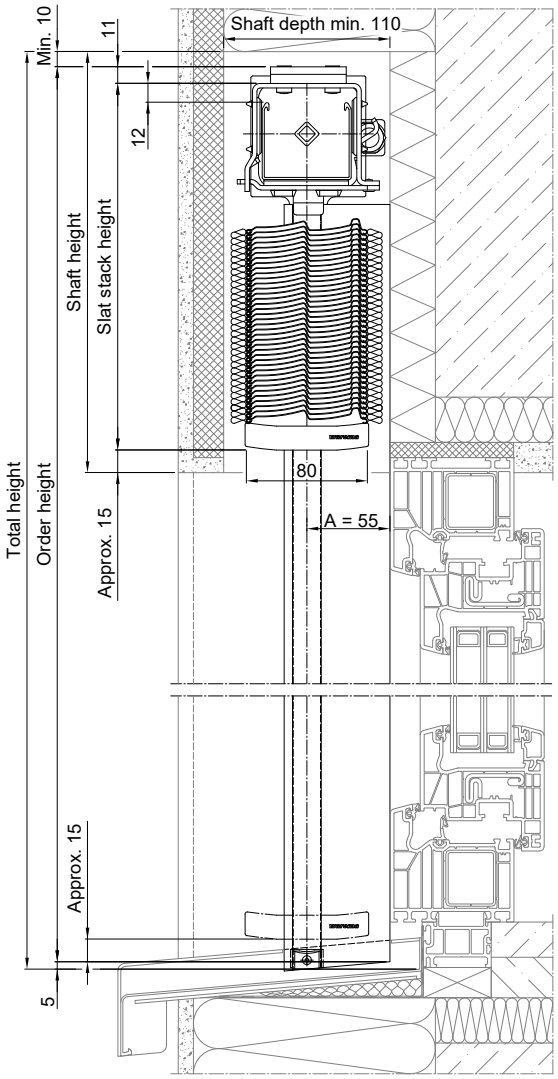


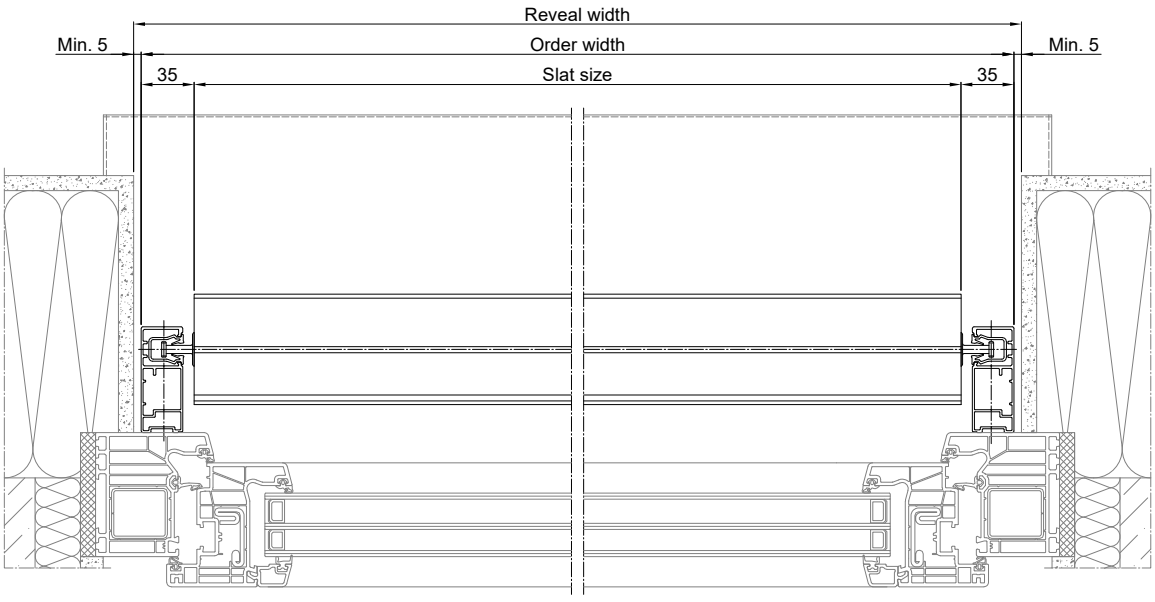
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Mounting examples

Basic external shaft venetian blinds, dim-out slats 80 Z

PDF DWG



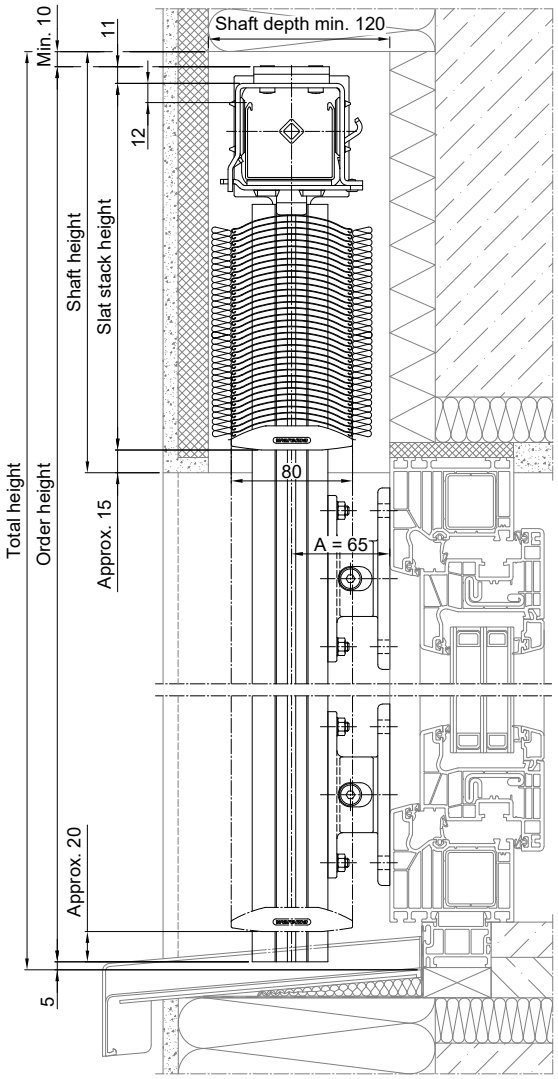


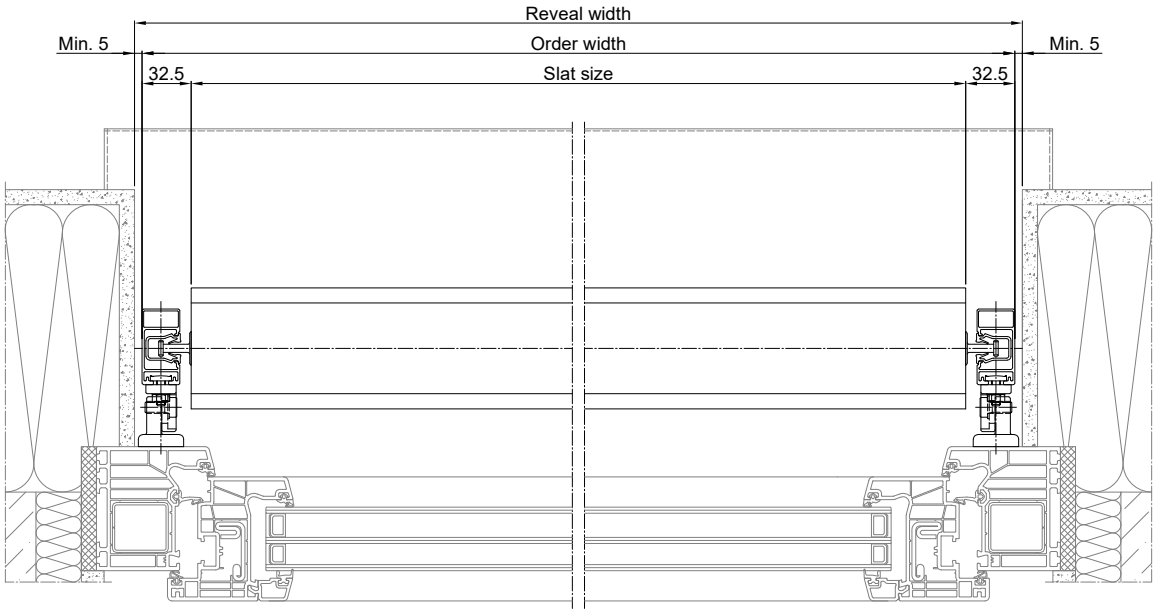
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Basic external shaft venetian blinds, beaded slats, stand-off installation

PDF DWG



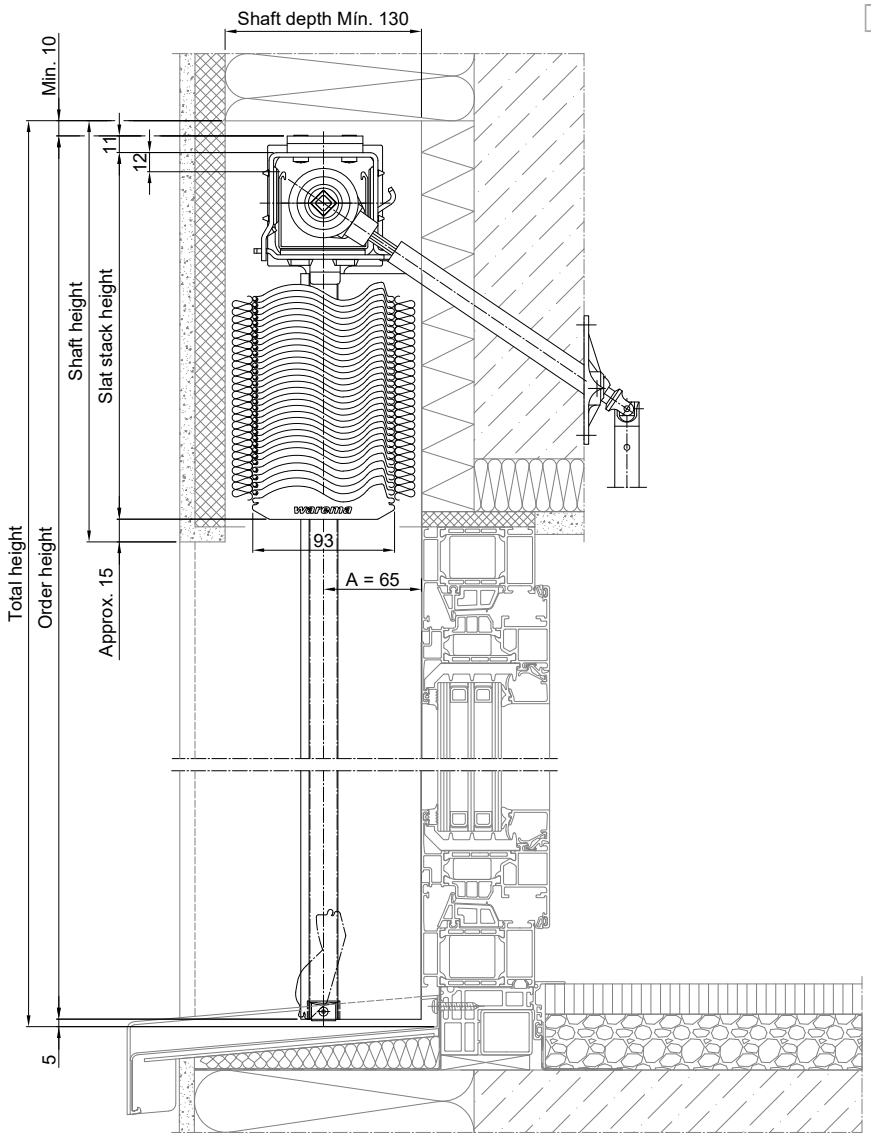


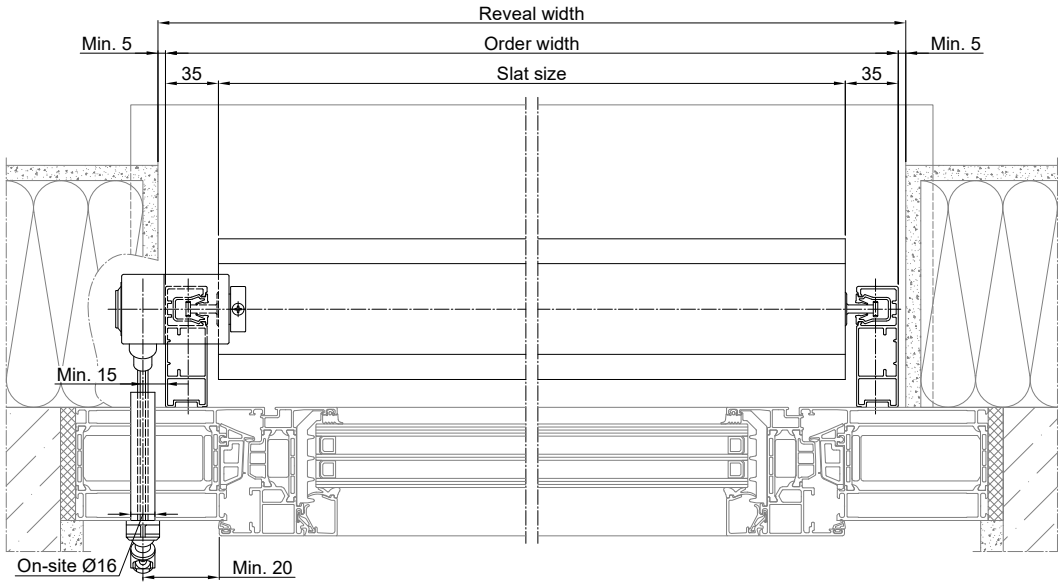
74453

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Basic external shaft venetian blinds, dim-out slats size 73, 90, 93, crank

PDF DWG



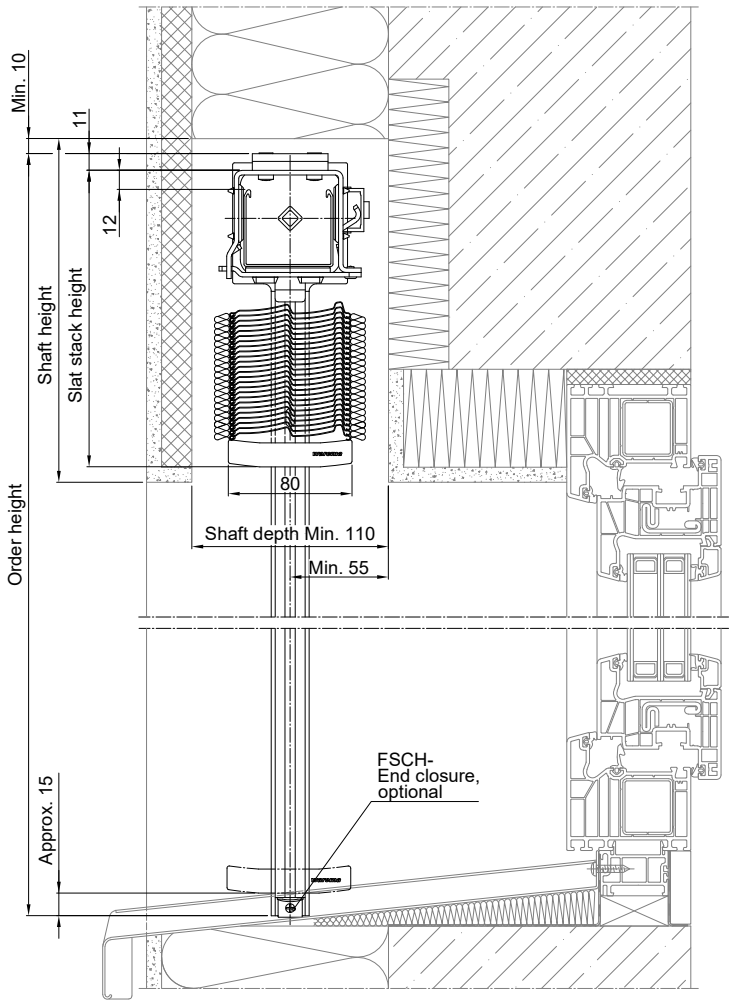


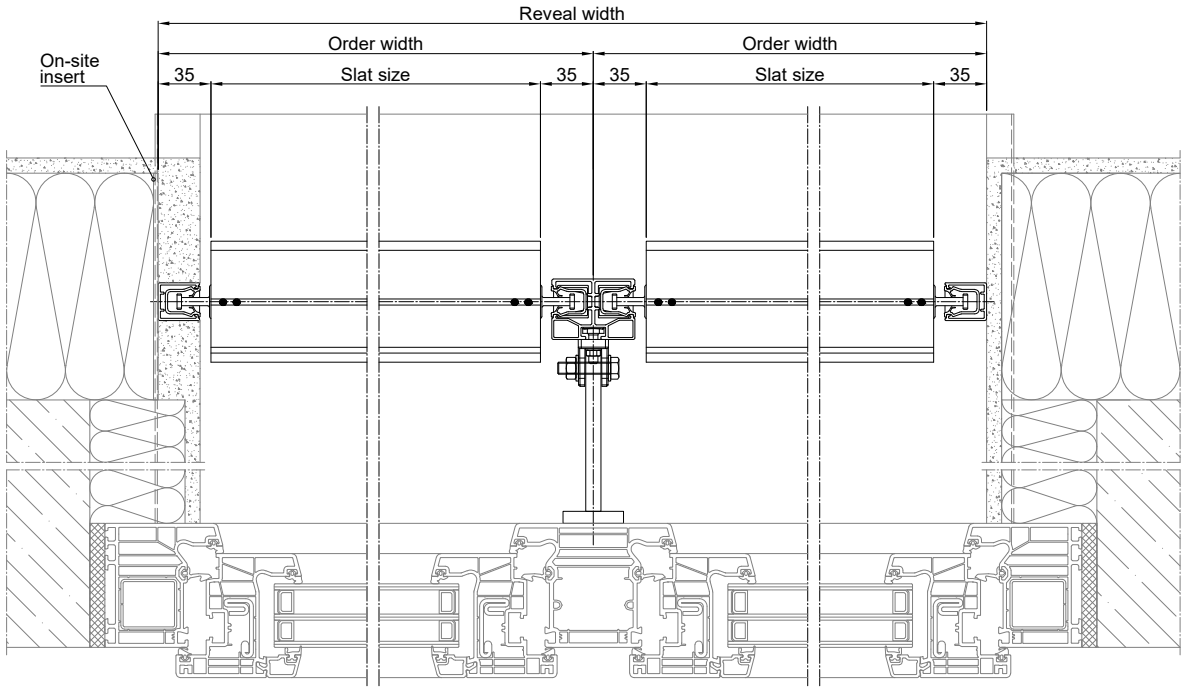
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Basic external shaft venetian blinds, dim-out slat 80 Z

PDF DWG





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74502

Shaft external venetian blind system S1

Components



1	Auxiliary cover panel	4	Lateral guidance
2	Slats	5	End rail
3	Tilting and lifting tape		

Top rail

Cover panels for shaft model

Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised
Height	95 mm
Depth	115 mm

- For stiffening the top rail to allow greater widths
- The cover panel is closed on both sides for stiffening, allowing larger order dimensions.
- Side closures connected to the guide rails to allow self-supporting installation
- The external venetian blind cover panel is supplied with premounted top rail brackets, connector adapters and built-in external venetian blinds.
- The cover panel is installed by the self-supporting connector adapter on the guide rails.

Cover panel length > 3000 mm: In units with additional cable guidance, an additional on-site cover panel fixing is absolutely essential.

Product variants that can be used

- E 60 A6 S
- E 80 A6 S
- E 60 AF A6
- E 80 AF A6
- E 80 A6 Z
- E 73 A6
- E 90 A6
- E 93 A6

Guide variants

- Rail guidance

Guide rail

- FSCH 27-70 (type 36)
- FSCH 27-80 (type 37)
- FSCH 27-95 (type 31)

see "Guide rails for external venetian blinds", Page 360

Tension cable

Additional cable guidance

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

To prevent components located behind the external venetian blind being damaged by wind load, an additional cable guidance in the centre is either mandatory or recommended for rail guidance from a defined width of slat, depending on the slats used:

- Beaded slats: from a slat size > 3000 mm (recommended)
- Flat slats (incl. Windra flat slat): from a slat size > 2400 mm (mandatory)
- Dim-out slats: no additional tension cable required

Arrangement of the additional cable guidance: The arrangement must be specified (viewed from inside the room, starting on the left)

Determination of cable length: External venetian blind height + 100 mm

Drive variants

- Motor

see "Drive variants", Page 489

Colours

- Slat colours
- WAREMA Colour World
- Anodised C0

Colours, optional:

- Anodised C31
- Anodised C32
- Anodised C33
- Anodised C34
- Anodised C35

see "Colours and finishes", Page 12

see "Colours and surfaces for external venetian blind slats in accordance with current collection", Page 15

Supplementary accessories

- WAREMA SecuKit for external venetian blinds
- SenSigna, external venetian blind with acoustic signal
- Daylight transport element TLT
- Snap-action switch work setting
- slowturn
- Battery module UP for external venetian blinds
- Emergency power supply kit
- Slat perforation
- Integrated insect screen

see "Supplementary accessories", Page 277

Construction limit values

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area
Basic external venetian blinds				
E 60 A6 S / E 80 A6 S	680 mm	4000 mm	4000 mm	16 m^2
E 60 AF A6 / E 80 AF A6	680 mm	4000 mm	4000 mm	16 m^2
E 80 A6 Z / E 73 A6 / E 90 A6 / E 93 A6	680 mm	4000 mm	4000 mm	15 m^2

For shaft external venetian blind systems S1, the information on "Minimum order width" and "Maximum order width" always refers to the back edge of the guide rails.

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances in accordance with the "Guideline for assessing the product features of external venetian blinds" apply.

Dimension determination

Configuration view: The order dimensions are determined from interior view, from left to right.

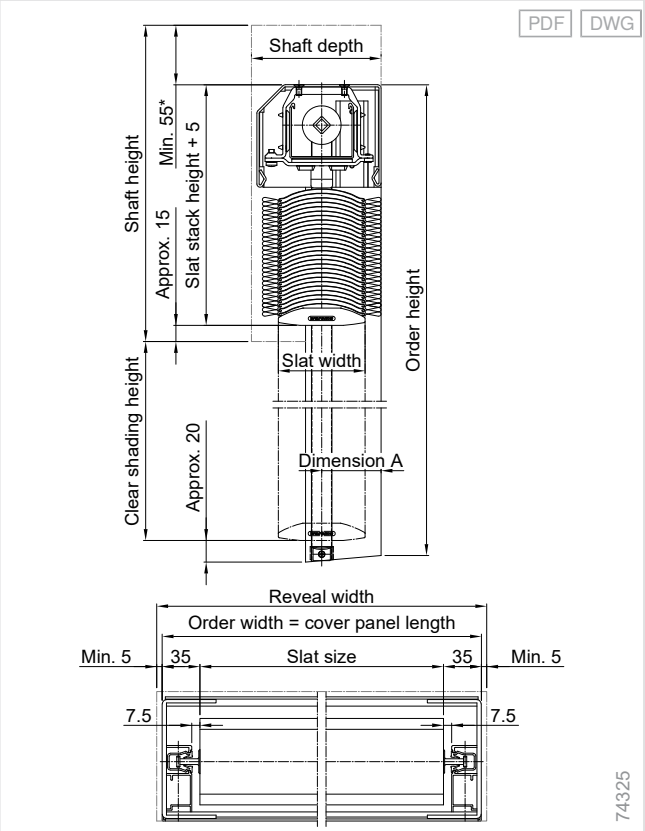
Reference dimension	Value
Order width	Order width = cover panel length or back edge of the guide rails
Slat stack height	See the product variant concerned in the basic venetian blinds area
Minimum shaft height *	Slat stack height + 30 mm
Order height	Total height - 15 mm, i.e. top edge of the cover panel to bottom edge of the guide rails
Special case of reduced shaft depth	
Minimum shaft height with reduced slat depth	Slat stack height + 75 mm
Order height with reduced slat depth	Total height - 60 mm

* We recommend a minimum shaft height to ensure overlapping between the bottom edge of the cover panel and the top slat.

Background: For dim-out external venetian blinds, the length compensation takes place via the distance between the top slat and the top rail.

- Minimum shaft height for slat width 73/80 Z = 205 mm
- Minimum shaft height for slat width 90/93 = 220 mm

Shaft system for external venetian blinds S1, beaded slats



* < 130 mm: min. 55 mm, > 130 mm: min. 10 mm

Detailed information on guide profiles

Allocation of shaft depth/guide profile

Shaft depth min.	Permissible slat width	Allocated guide profile
130 mm	60/73/80	FSCH 27x70
140 mm	60/73/80/90/93	FSCH 27x80
150 mm	60/73/80/90/93	FSCH 27x95*

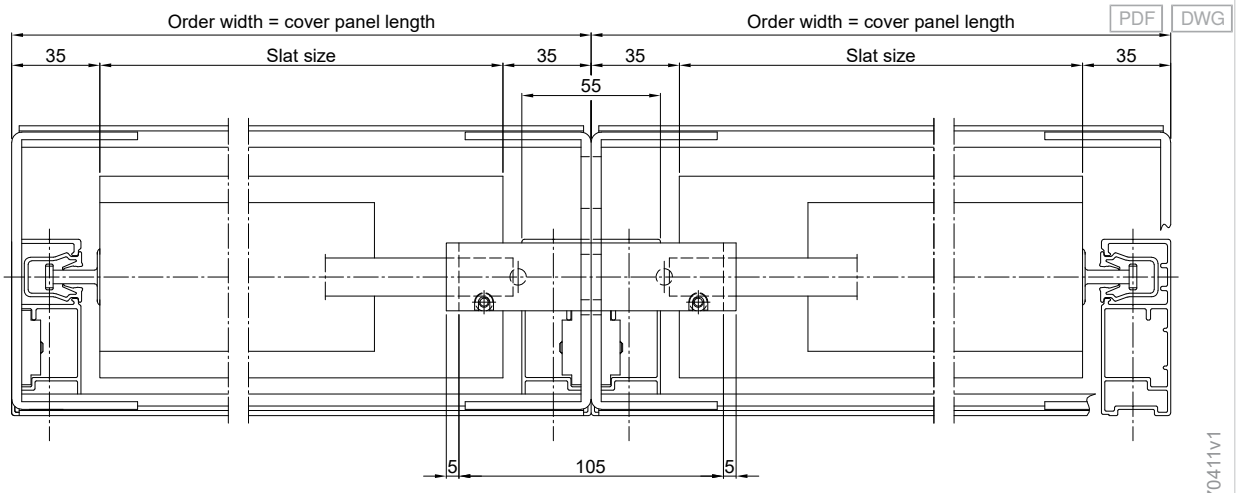
The minimum shaft depth of 130 mm can be reduced by 10 mm if the shaft is min. 55 mm higher than the top edge of the cover panel and the window height is min. 1000 mm.

*Guide profile 27x95 required for models with an insect screen roller blind.

Additional product information

Detailed information on combinations

Coupling situation for coupled individual units (max. 3 external venetian blinds side by side)



The individual external venetian blinds are supplied loose.

Detailed information on insect screens (supplementary accessory)

Construction limit values

	Model	Min. width	Max. width	Min. height	Max. height	Max. area
Swivel door, one-wing	For doors	500 mm	1300 mm	1800 mm	2500 mm	2.5 m^2
	For windows	500 mm	1300 mm	600 mm	1800 mm	2.5 m^2
Swivel door, two-wing	For doors	900 mm	2600 mm	1800 mm	2500 mm	5.0 m^2
	For windows	900 mm	2600 mm	600 mm	1800 mm	5.0 m^2
Insect screen roller blind		650 mm	2000 mm	600 mm	2400 mm	5.0 m^2

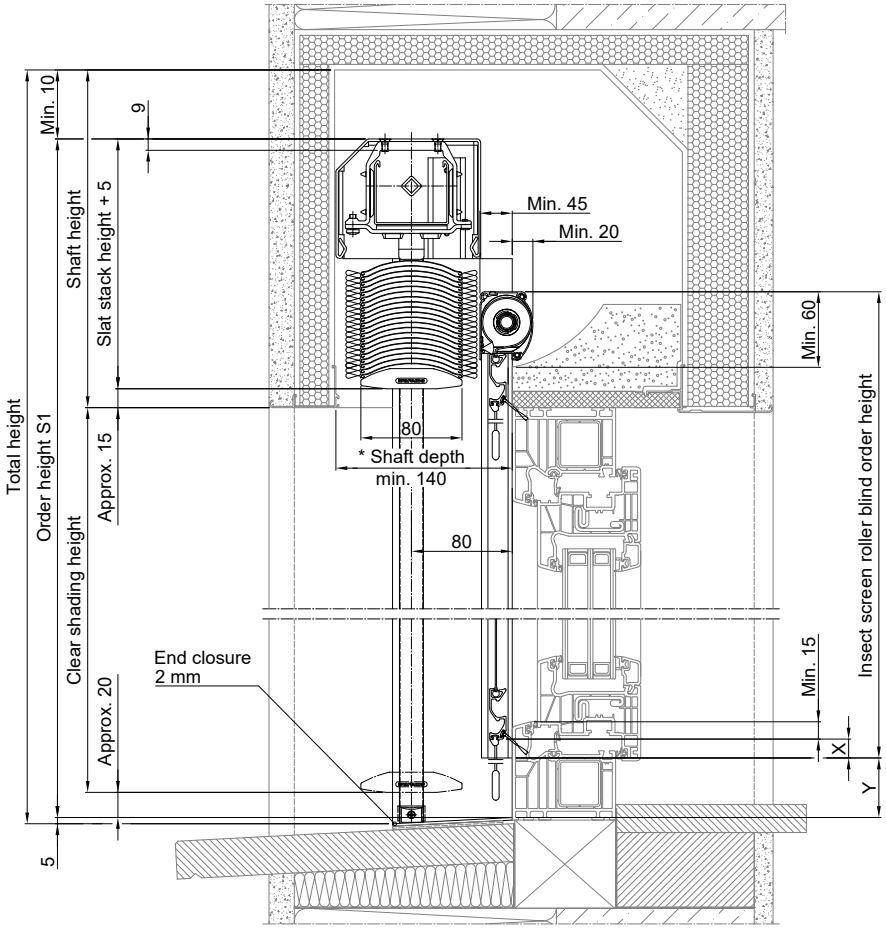
When ordering: Please specify door or window model.

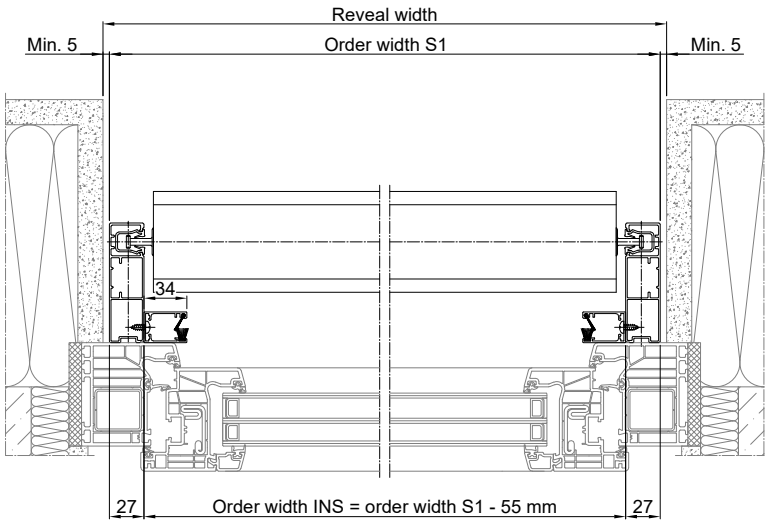
Note on two-wing swivel doors: The maximum width per wing = half of the entire width

Insect screen roller blind not possible in conjunction with slat widths of 90 and 93 mm.

Measuring instructions with insect screen roller blind

PDF DWG



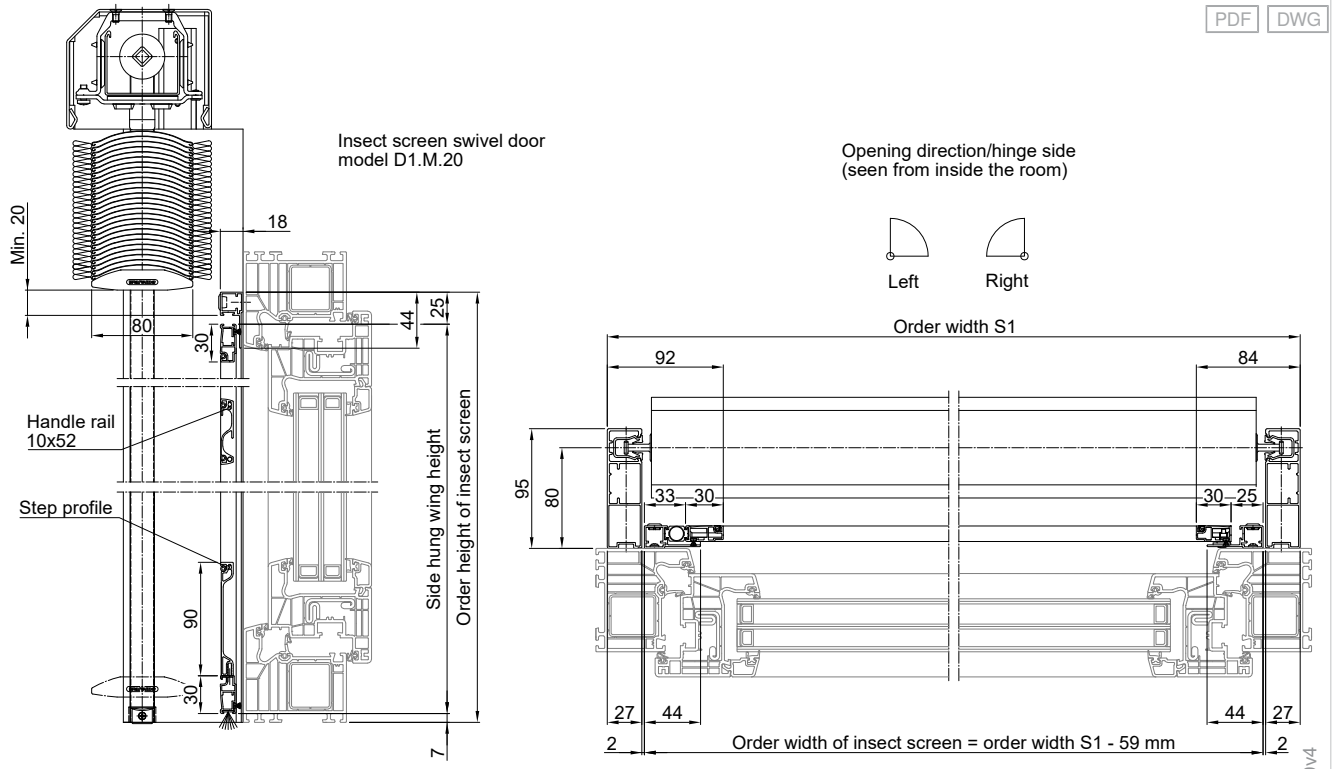


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The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Measuring instructions with insect screen swivel door, one-wing

PDF DWG

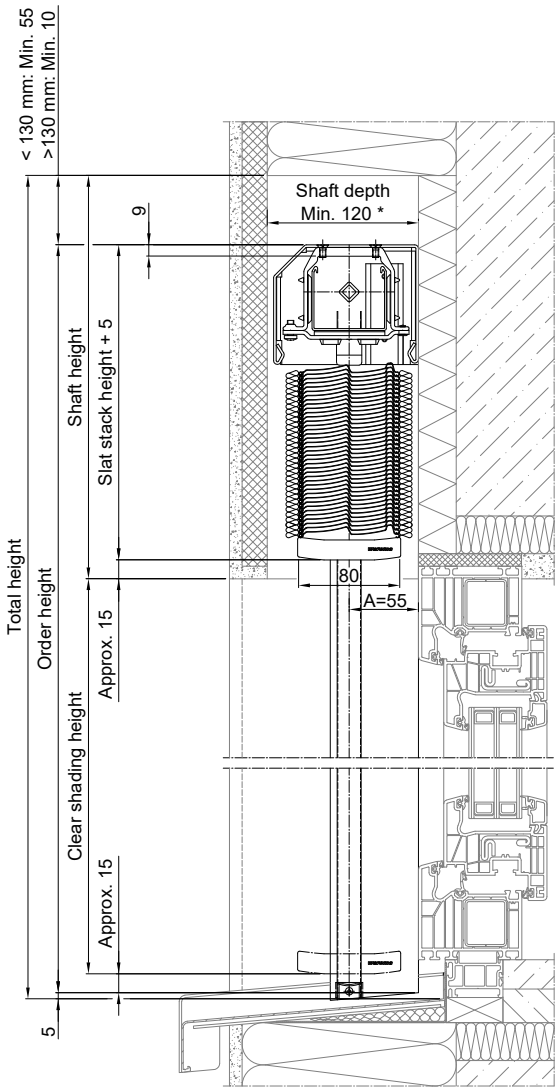


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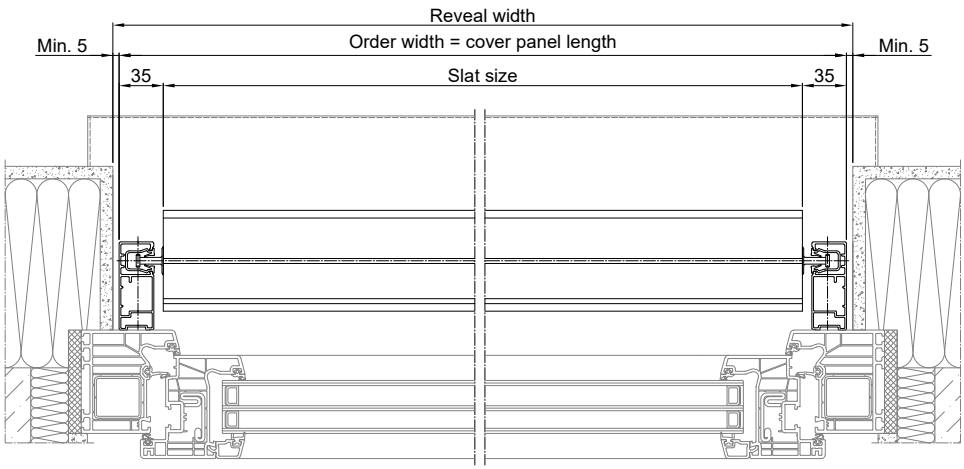
Mounting examples

External shaft venetian blinds S1, reduced shaft depth, Zetra slat 80 Z

PDF DWG



* The minimum shaft depth can be 120 mm if the distance between the top edge of the shaft and the top edge of the cover panel is min. 55 mm and the window height is min. 1000 mm.

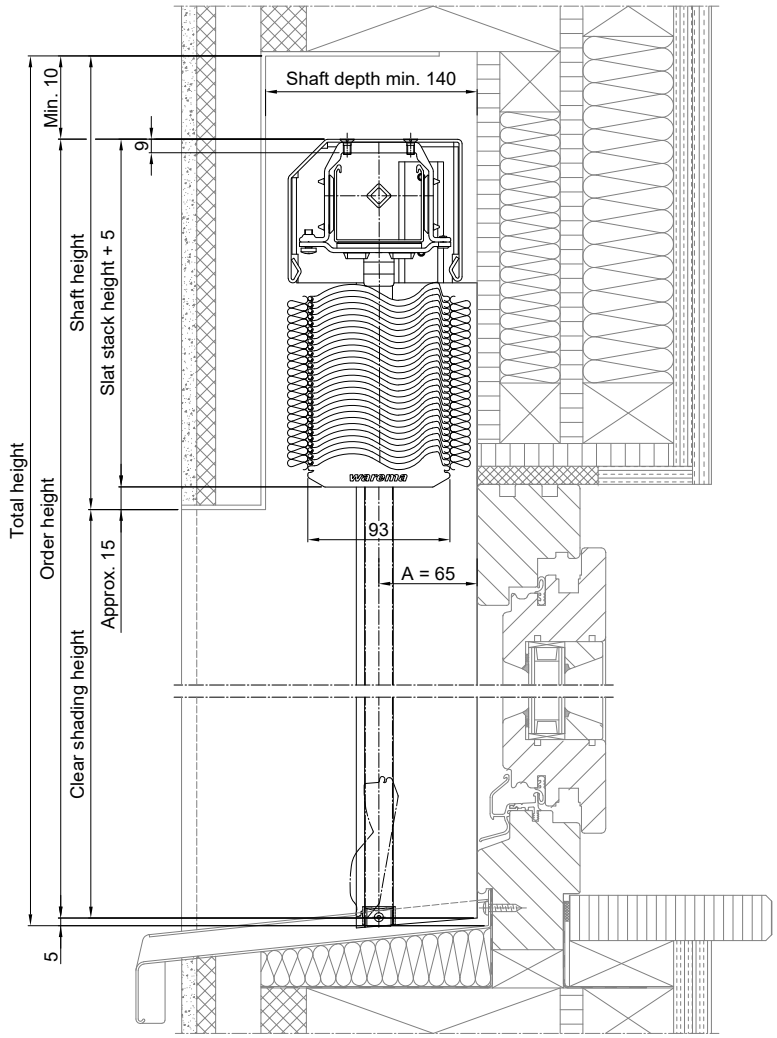


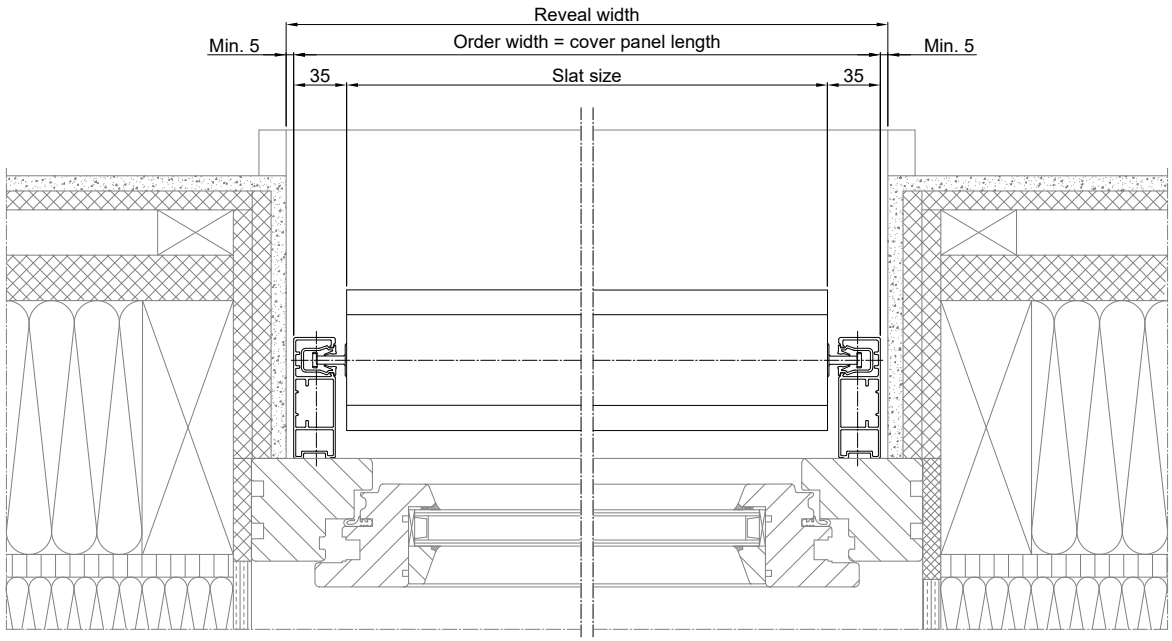
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The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Shaft model S1; dim-out slat size 93

PDF DWG





70413v3

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

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Asymmetrical external venetian blinds

Asymmetrical external venetian blinds E 80 AF SR

Asymmetrical

External venetian blinds suitable for architecturally demanding window shapes: Protects sloped windows in gable rooms or triangular windows in conservatories with a slope of 5 to 52 degrees, and windows sloped at the bottom, from sunlight.

Glare-free

Flexible daylight utilisation and controlled incidence of sunlight: The individually positioned slats protect from direct sunlight, provide visual privacy, and allow glare-free daylight into the room.

Made to measure

Seamless transitions: If your situation involves a classic window and a directly connected sloped window, asymmetrical external venetian blinds can be combined with conventional basic external venetian blinds.

Sophisticated

The asymmetrical external venetian blind closes at the bottom using a projectable end rail.

Solar-powered

Motor drive without a mains connection: The solar drive, available as an option depending on the drive type, makes convenient electrical operation possible. Without laborious line routing - ideal for installing the sun shading system later.

Construction limit values

Maximum order width	2510 mm
Maximum order height	3900 mm
Maximum order area	7 m^2

Order here

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Art.-Nr. 2044869

Order form

https://docs.warema.com/fi/877922.pdf

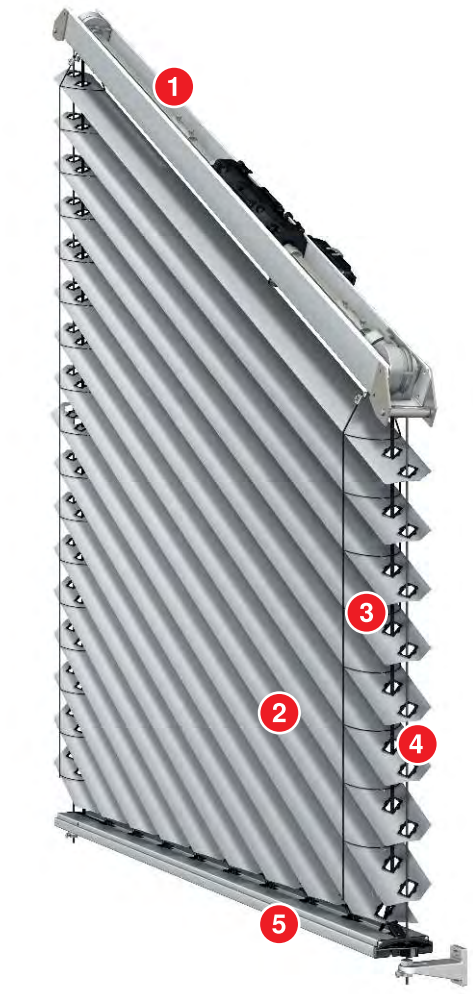
https://docs.warema.com/fi/877916.pdf

WAREMA tools

Fastener Assistant
Sun Shading Planner

see "Navigating the document", Page 5

Components



1	Top rail (tilt rod, bearing)	4	Lateral guidance
2	Slats	5	End rail
3	Tilting tape, lifting tape		

Top rail

Top rail

Material	Aluminium, extruded
Surface	Plain
Optional surface	Powder-coated, Anodised
Profile	C profile
Width	59 mm
Height	51 mm

+ Top rail bracket

Top rail bracket

Material	Aluminium
Surface	Plain

see "Top rail bracket", Page 477

Bearing

Bearing for slat tilting: Tilting closed/horizontal

- Comprising wedge segment from Teflon-containing plastic
- Maintenance-free, enclosed
- Segment tilting to prevent automatic adjustment of slats
- External venetian blind moves down with the slats closed to the outside and moves up with the slats horizontal

Slat

Flat slat 80 AF

Installation type	Convex
Material	Aluminium
Surface	Enamelled
Width	80 mm

Tape

Tilting tapes

Material	Polyester, with aramid reinforcement
Material colour	Black
Material colour, optional	Grey

- Each slat is attached to the top web of the tilting tape and threaded between the double webs.
- Special heavy-duty version with double webs

Lifting tape

Lifting tape 6 mm

Material	Polyester
Material colour	Black
Material colour, optional	Grey

Shaft

Tilt rod

Material	Galvanised steel
Surface	Plain
Profile	Square tube
Width	12 mm
Height	12 mm

End rail

Projectable end rail

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	80 mm
Height	21.5 mm

Telescopic end rail with end caps, consisting of an inner and an outer profile. The inner profile is guided in the outer profile with plastic bearings to prevent the profiles from touching. Additional tilting tapes are flexibly integrated into plastic gliders to keep to the smallest possible overhangs of the tilting tape. Short slats are permanently guided over plastic gliders and plastic pins in at least one of the profiles.

Guide variants

- Cable guidance

see "Cable guidance", Page 390

Tension cable

Tension cable

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

Drive variants

- Motor

see "Drive variants", Page 489

Colours

- Slat colours
- WAREMA Colour World
- Anodised C0

Colours, optional:

- Anodised C31
- Anodised C32
- Anodised C33
- Anodised C34
- Anodised C35

see "Colours and finishes", Page 12

see "Colours and surfaces for external venetian blind slats in accordance with current collection", Page 15

Supplementary accessories

- Emergency power supply kit
- Solar drive for external venetian blinds

see "Supplementary accessories", Page 277

Construction limit values

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area
Asymmetrical external venetian blinds				
Asymmetrical external venetian blinds E 80 AF SR	700 mm	2510 mm	3900 mm	7 m^2

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances as per the "Guideline for assessing the product features of external venetian blinds" apply.

Dimension determination

Configuration view: The order dimensions are determined from interior view, from left to right.

Basics of determining dimensions and angles

Planning dimensions

A = short side (cover panel top edge to bottom edge of tension cable bracket)

B = width = axis of wind protection

C = long side (cover panel top edge to bottom edge of tension cable bracket)

D = diagonal

F = blind area

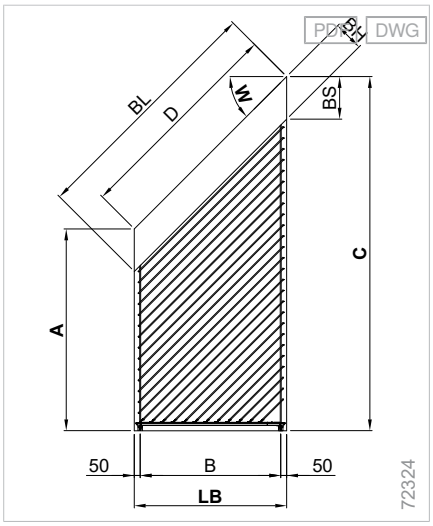
BH = cover panel height (see cover panel heights table)

BL = cover panel length

BS = vertical cover panel height

LB = reveal width

W = inclination angle from horizontal



Calculation formulas

Description	Abbreviation	Formula
Inclination angle	W	tanW = (C - A) / LB
Short side	A	A = C - (LB x tanW)
Reveal width	LB	LB = (C - A) / tanW
Long side	C	C = (LB x tanW) + A
Width	B	B = LB - 2x50
Cover panel height	BH	See table "Cover panel heights or slat stack heights"
Vertical cover panel height	BS	BS = BH / cosW
Diagonal	D	D = LB / cosW
Cover panel length	BL	BL = Root(BS^2 - BH^2) + D
Blind area	F	F = {(A + C) / 2} x LB

The determination of the inclination angle W and of cos W is made by calculating tanW via the "Determination of inclination angle" table (see Step 3 "Checking feasibility").

In order to calculate the blind area F, the values in meters must be entered.

Step 1: Selecting shape of unit according to window shape

Select product variant suitable for window shape from SR1 to SR8.

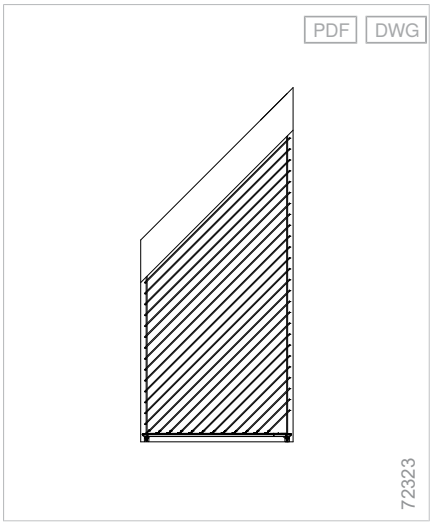
Pay attention to 'left' and 'right' variants.

The view of the external venetian blinds is always from the interior of the room.

For this example:

Selected shape: SR1 L

Shape SR1 L



Step 2: Determining dimensions

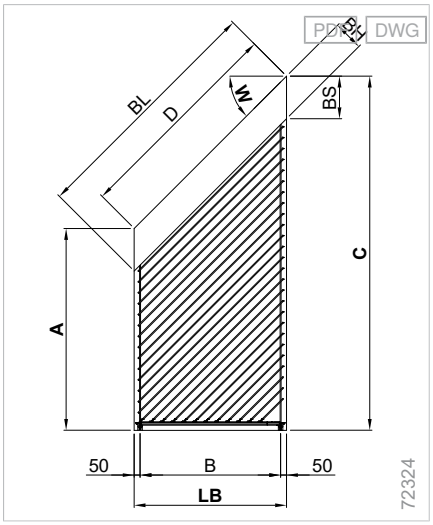
The required dimensions are adapted to the shape of the external venetian blind and the planned type of installation (in the reveal or in front of the facade):

For this example

Reveal width (LB)	1530 mm
Short side (A)	716 mm
Long side (C)	2000 mm

Table, notes:

If necessary, the inclination angle W between the top rail and the horizontal rail may also required.



Step 3: Checking feasibility

Determine inclination angle W.

There are 3 possibilities:

- The inclination angle corresponds to the roof pitch
- Calculate the inclination angle - conveniently with the WAREMA sun shading planner
- Calculate the inclination angle by hand

For this example, the angle is calculated by hand.

The inclination angle is calculated using the following formula:
W = (C - A) / LB) = (2000 - 716) / 1530 = 0.8392

You can determine the inclination angle using the table "Determination of inclination angle".

In the column "tan W", find the number that is closest to your calculated value (0.8392) and read the corresponding angle (0.8391: W = 40°) from the centre of the line. Alternatively, the inclination angle can also be determined without the table, using the arctangent function of a calculator.

Determination of inclination angle and review of order dimensions

tan W	Inclination angle W of top rail (°)	cos W	Min. width B (mm)	Max. width B (mm)
0.0875	5	0.9962	750	2510
0.1051	6	0.9945	750	2510
0.1228	7	0.9925	750	2500
0.1405	8	0.9903	750	2500
0.1584	9	0.9877	750	2490
0.1763	10	0.9848	740	2480
0.1944	11	0.9816	740	2480
0.2126	12	0.9781	740	2470
0.2309	13	0.9744	740	2460
0.2493	14	0.9703	730	2450
0.2679	15	0.9659	720	2440
0.2867	16	0.9613	720	2430
0.3057	17	0.9563	720	2420
0.3249	18	0.9511	720	2410
0.3443	19	0.9455	710	2390
0.3640	20	0.9397	710	2380
0.3839	21	0.9336	700	2370
0.4040	22	0.9272	700	2350
0.4245	23	0.9205	700	2330
0.4452	24	0.9135	700	2320
0.4663	25	0.9063	700	2300
0.4877	26	0.8988	700	2280
0.5095	27	0.8910	700	2260
0.5317	28	0.8829	700	2250
0.5543	29	0.8746	700	2220
0.5774	30	0.8660	700	2200

tan W	Inclination angle W of top rail (°)	cos W	Min. width B (mm)	Max. width B (mm)
0.6009	31	0.8572	700	2180
0.6249	32	0.8480	700	2160
0.6494	33	0.8387	700	2140
0.6745	34	0.8290	700	2110
0.7002	35	0.8192	700	2090
0.7265	36	0.8090	700	2070
0.7536	37	0.7986	700	2040
0.7813	38	0.7880	700	2010
0.8098	39	0.7771	700	1990
0.8391	40	0.7660	700	1960
0.8693	41	0.7547	700	1930
0.9004	42	0.7431	700	1910
0.9325	43	0.7314	700	1880
0.9657	44	0.7193	700	1850
1.0000	45	0.7071	700	1820
1.0355	46	0.6947	730	1820
1.0724	47	0.6820	760	1820
1.1106	48	0.6691	800	1820
1.1504	49	0.6561	840	1820
1.1918	50	0.6428	900	1790
1.2349	51	0.6293	970	1730
1.2799	52	0.6157	1050	1670

Minimum height for the short side A = 180 mm

Maximum height for the long side C = 3900 mm

Maximum curtain area F = 7 m^2

Check the order dimension with the determined inclination angle W and the limit dimensions specified for the inclination.

Example

Dimension	Dimension determination
Maximum width	B = 1960 mm
Minimum width	B = 700 mm
Measured reveal width	LB = 1530 mm
Width	B = 1530 mm - 2 x 50 mm = 1430 mm
Maximum height long side	C = 3900 mm
Measured height long side	C = 2000 mm
Minimum height short side	A = 180 mm
Measured height short side	A = 716 mm
Maximum curtain area	F = 7 m^2
Calculated blind area	F = 2.08 m^2

Conclusion: The planned asymmetrical external venetian blind is feasible without any changes.

Possible changes if limit exceeded:

- If maximum width B is exceeded, the asymmetrical external venetian blind needs to be vertically split.
- If maximum height C is exceeded, the asymmetrical external venetian blind needs to be horizontally split.
- If maximum curtain area F is exceeded, the asymmetrical external venetian blind needs to be vertically split.

Step 4: Calculate measurement and order asymmetrical external venetian blind

Use our measuring instructions, order forms and the WAREMA sun shading planner for measurement in order to create a detailed order sketch.

One measurement of all required widths and heights is sufficient. The inclination angle does not have to be measured; it only serves to check the feasibility (see Step 3).

We recommend using our WAREMA sun shading planner to verify the feasibility of our external venetian blinds and to determine deduction measurements and order dimensions. This allows you to automatically create a drawing containing all data relevant for the order. This drawing can of course also be used for ordering!

The required cover panel length only has to be specified if it needs to cover more than just the width of the top rail or if you require a special cut for the lateral closure of the panel.

If only the cover panel type is stated, we manufacture the cover panel to match the external venetian blind.

Delivery of external venetian blinds includes installation instructions, an individual mounting diagram, operating instructions and a special drill template for easy installation.

Make sure to pass on the measuring sketches to your installation department to ensure proper mounting of the asymmetrical external venetian blinds and optimum slat closure.

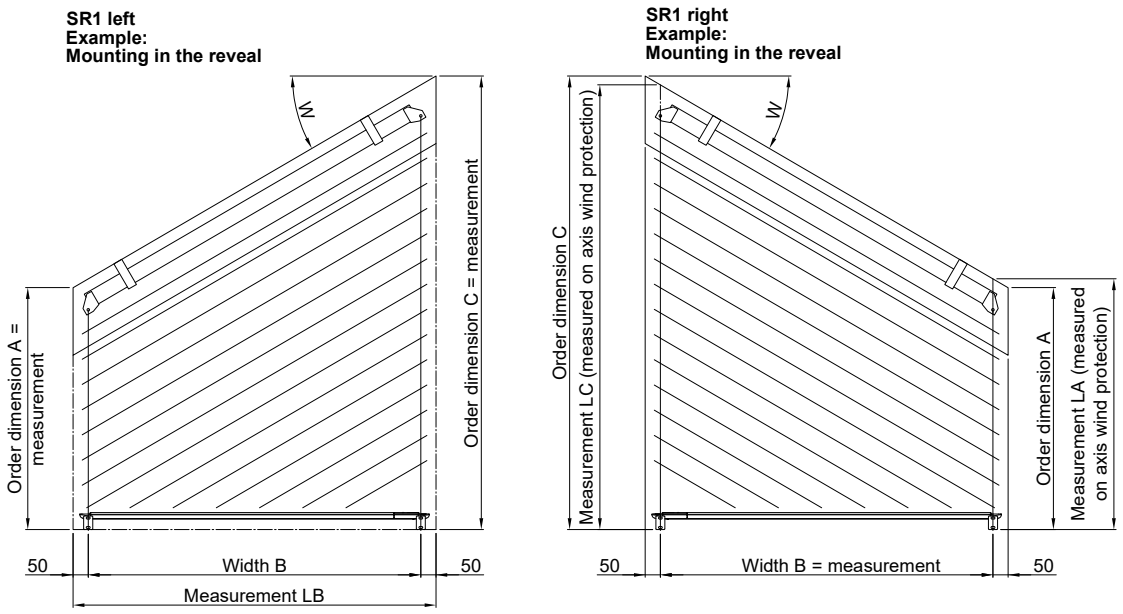
Please note when ordering:

- The view of the external venetian blinds is always from the interior of the room.
- Specify left or right model.
- The motor is always positioned on the highest side of the external venetian blind, between the first and second beating.

Details

Dimension determination for model SR1

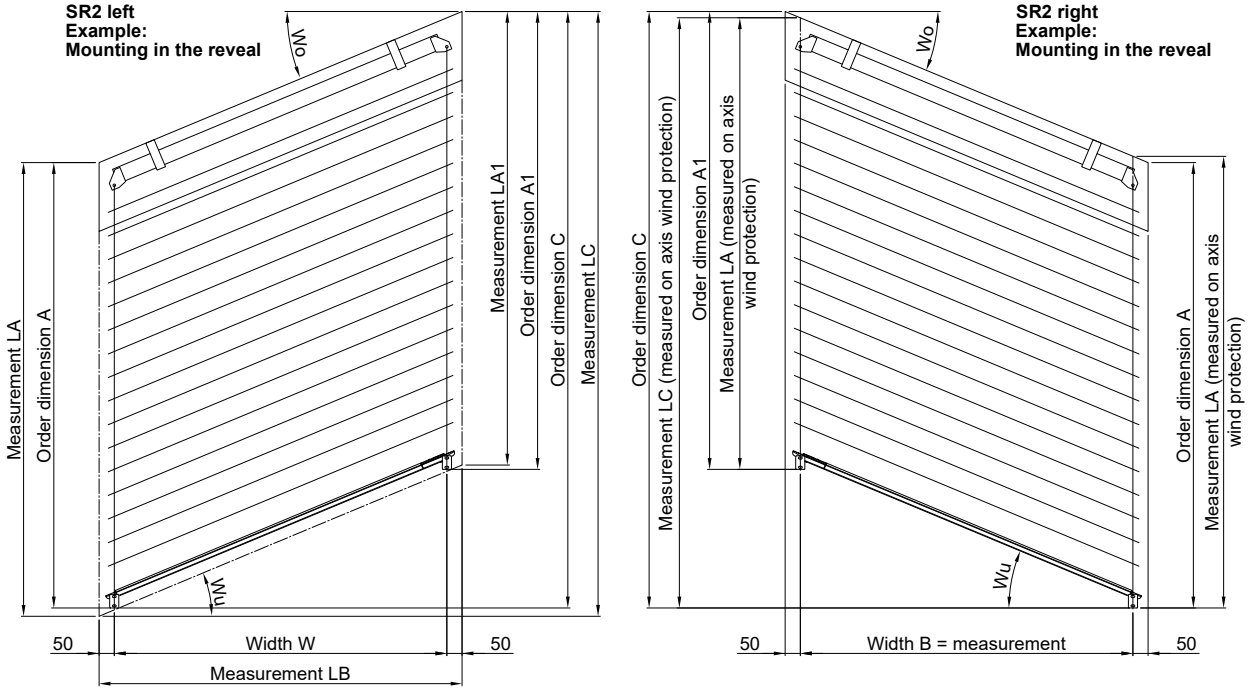
PDF DWG



73344

Dimension determination for model SR2

PDF DWG



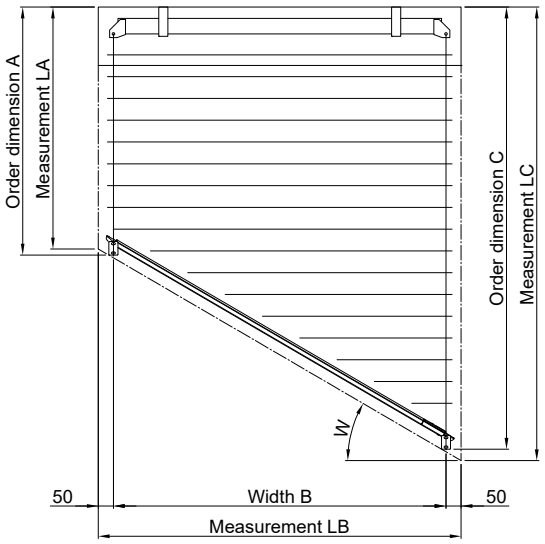
Attention: executable for Wu-Wo= 0 or Wu-Wo > 5° and/or vice versa

73345

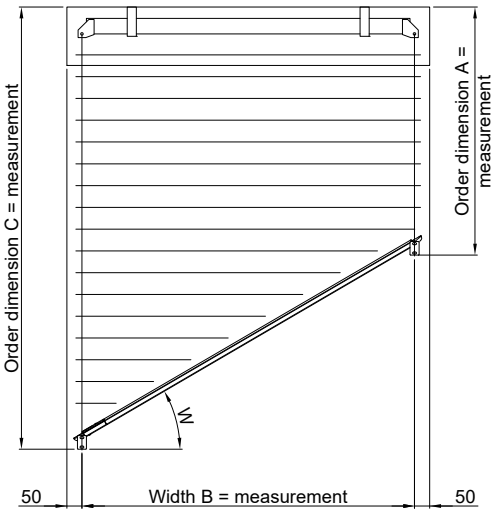
Dimension determination for model SR3

PDF DWG

SR3 left
Example:
Mounting in the reveal



SR3 right
Example:
Mounting in front of the reveal

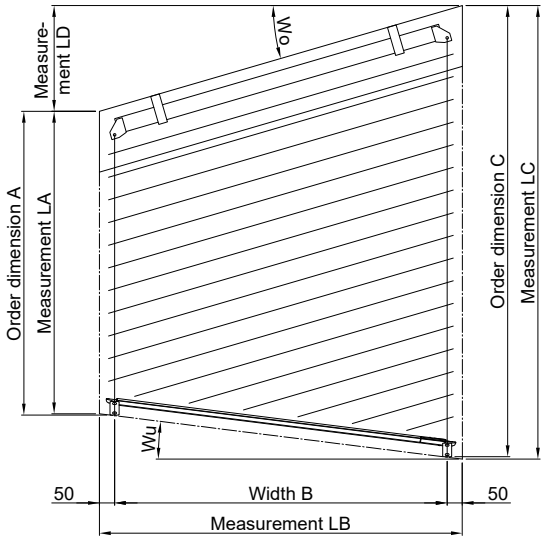


73346

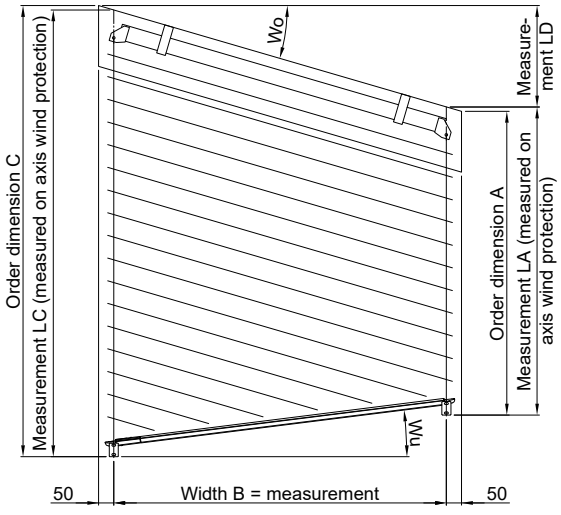
Dimension determination for model SR4

PDF DWG

SR4 left
Example:
Mounting in the reveal



SR4 right
Example:
Mounting in front of the reveal



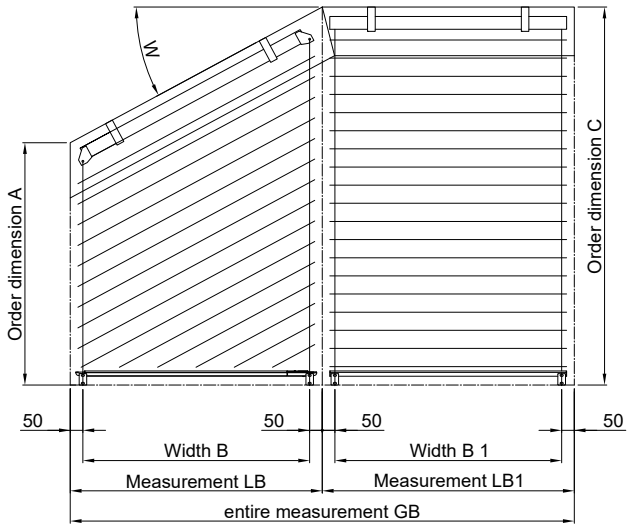
Attention: executable for Wo + Wu < 60°

73347

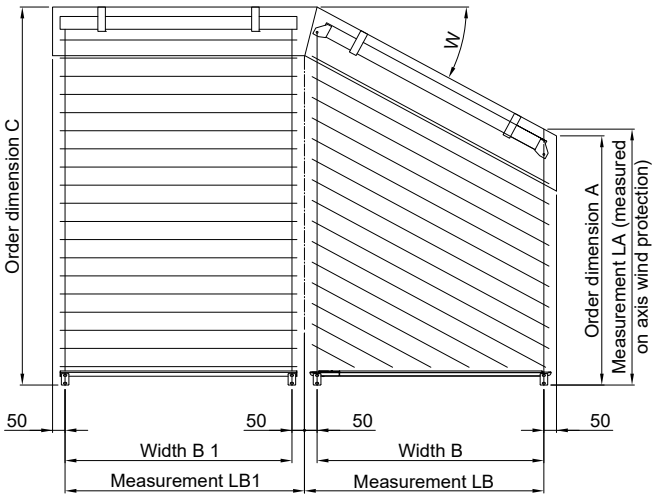
Dimension determination for model SR5

PDF DWG

SR5 left
Example:
Mounting in the reveal



SR5 right
Example:
Mounting in front of the reveal

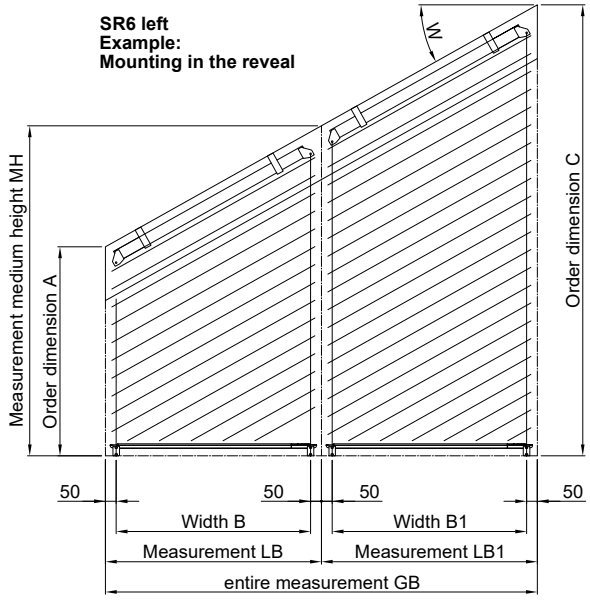


73348

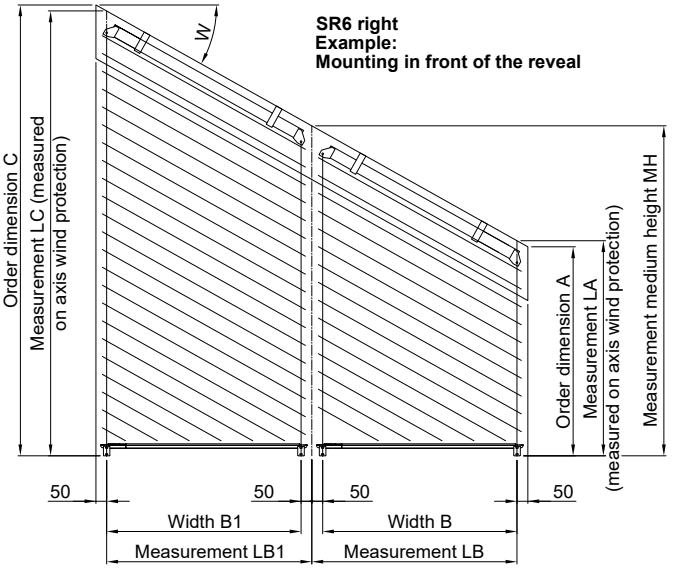
Dimension determination for model SR6

PDF DWG

SR6 left
Example:
Mounting in the reveal



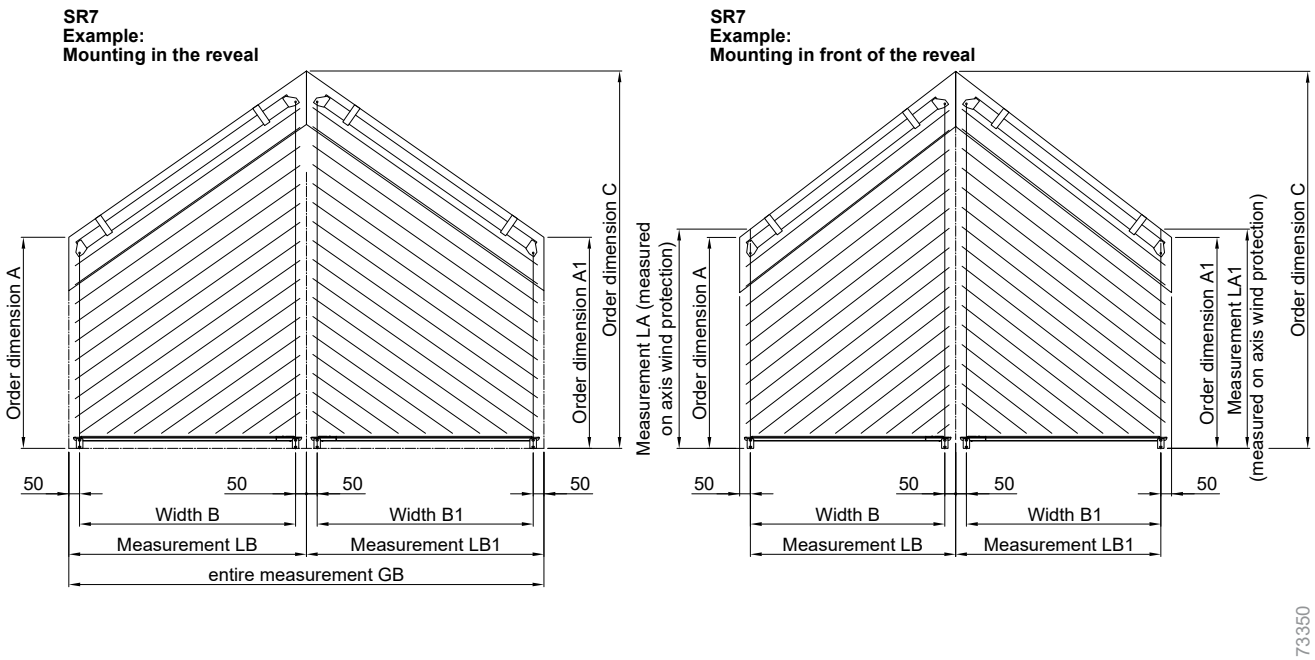
SR6 right
Example:
Mounting in front of the reveal



73349

Dimension determination for model SR7

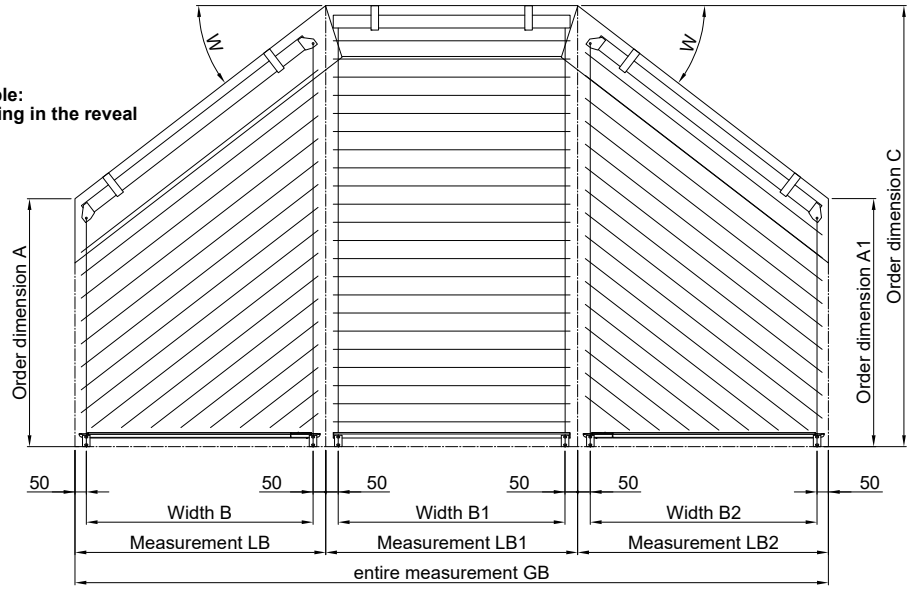
PDF DWG



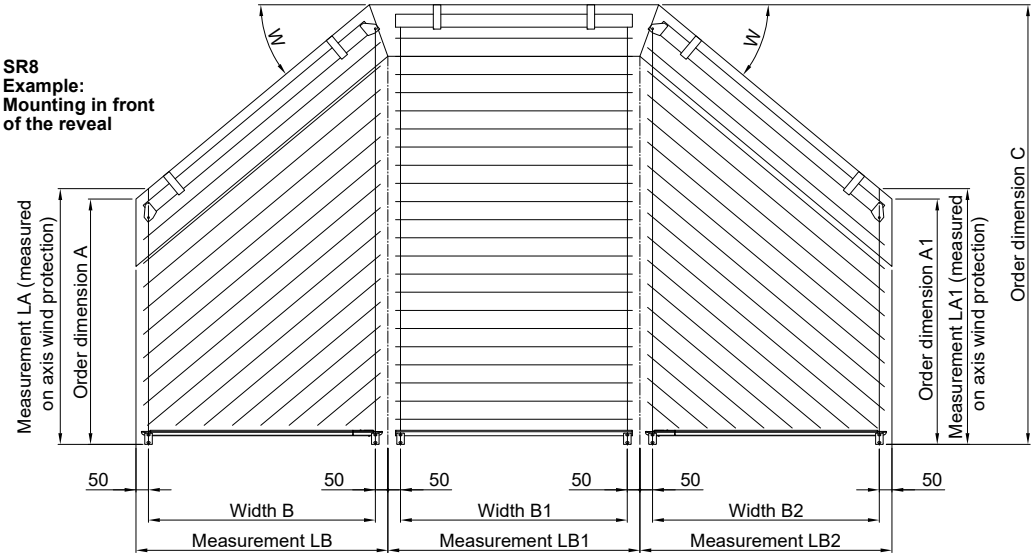
Dimension determination for model SR8

PDF DWG

SR8
Example:
Mounting in the reveal

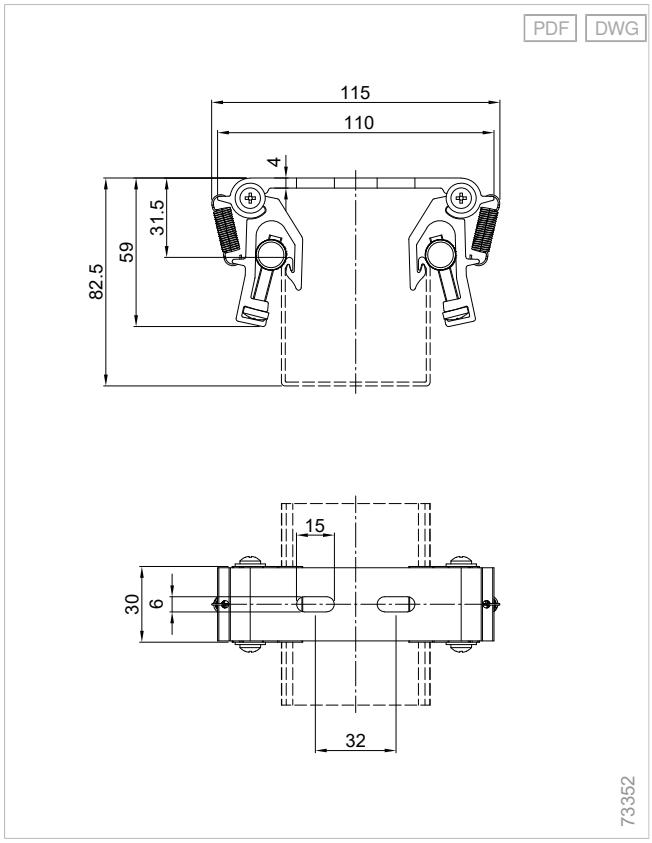


SR8
Example:
Mounting in front of the reveal



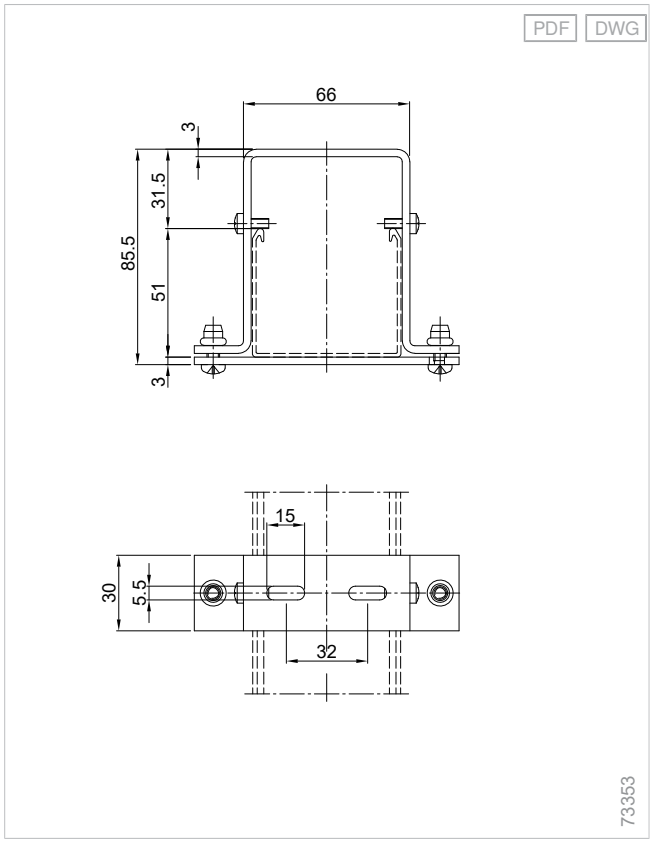
73351

Top rail bracket for asymmetrical external venetian blind (standard)



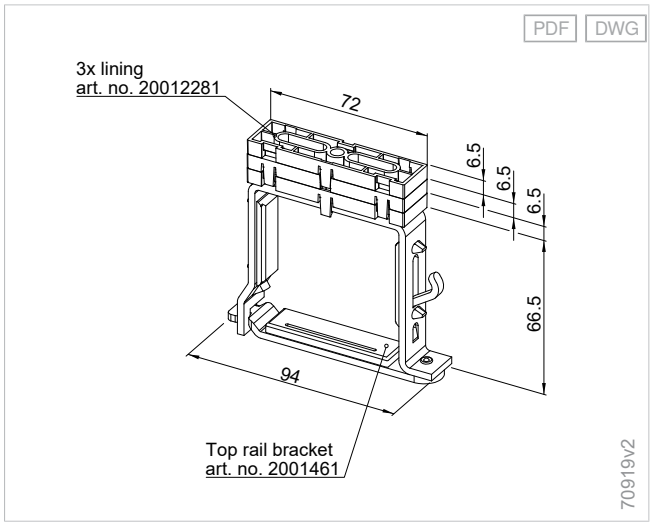
Powder coating not possible!

Top rail bracket for asymmetrical external venetian blind (optional)



Powder coating available!

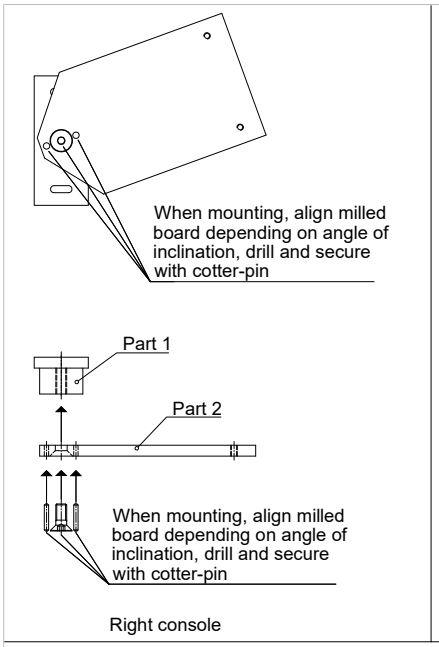
Bracket for asymmetrical external venetian blind (standard, if additional central bracket required)



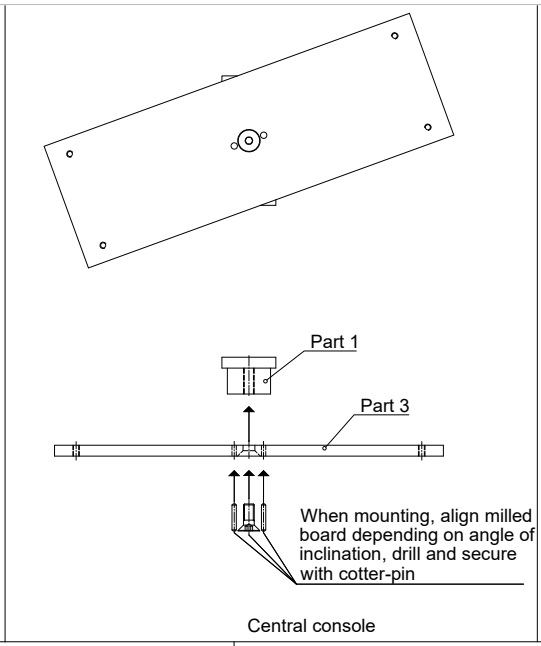
Powder coating available!

Cover panel console for asymmetrical external venetian blinds on transom and mullion facade

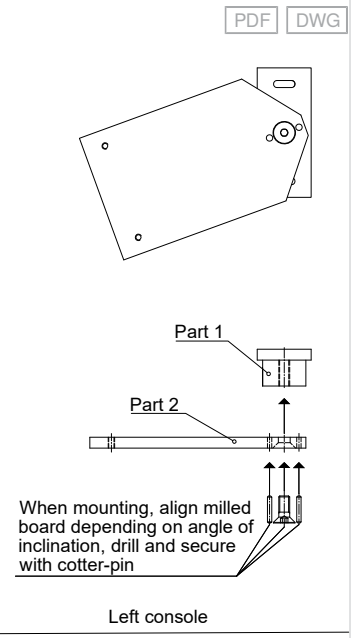
PDF DWG



Right console

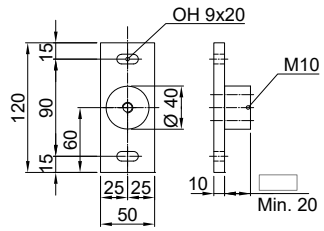


Central console



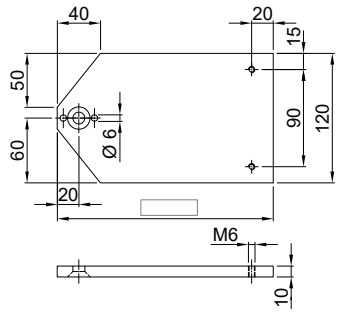
Left console

Part 1

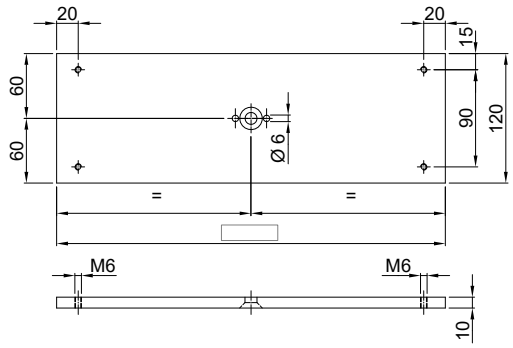


Note:
Relevant dimensions will be defined by WAREMA after receipt of order

Part 2

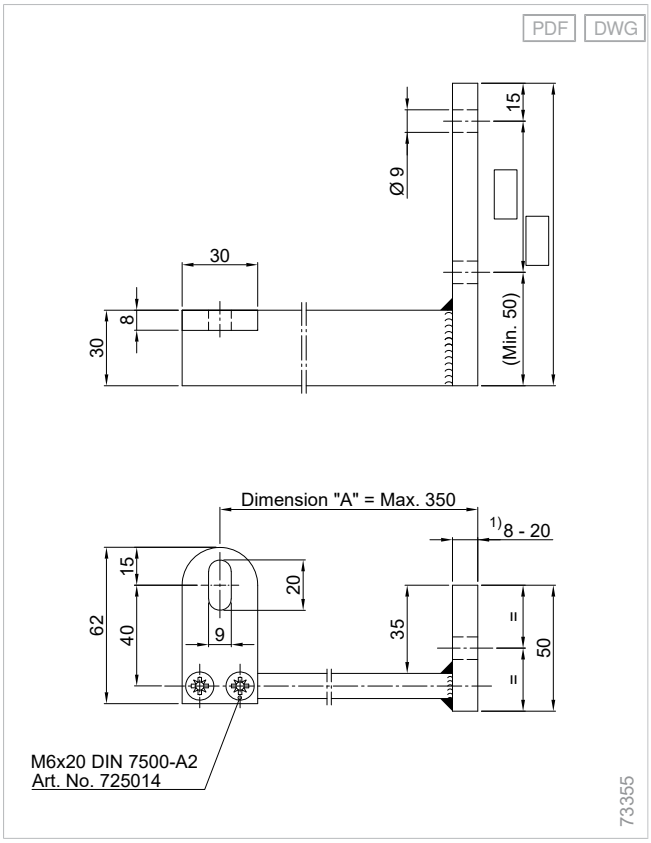


Part 3



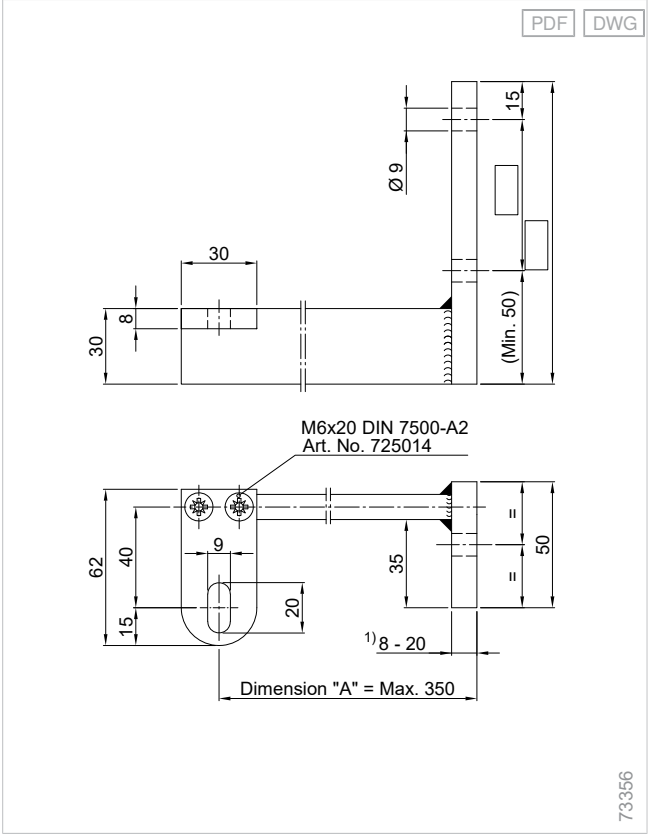
73354

Tension cable bracket for asymmetrical external venetian blind on transom and mullion facade (left model)



1) The thickness of the base plate is to be statically calculated according to projection dimension A

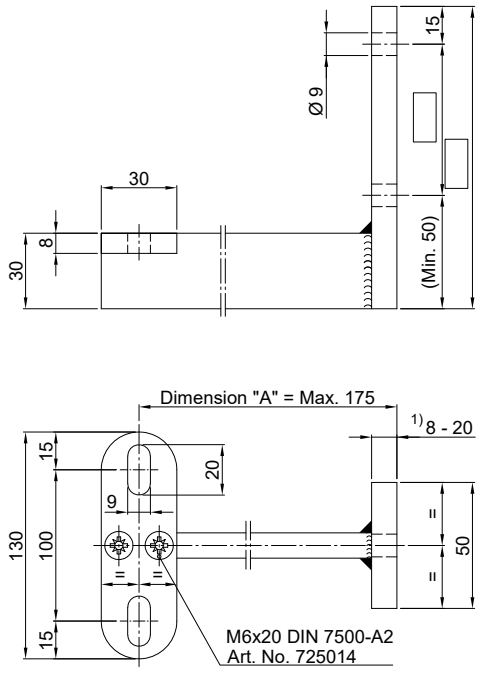
Tension cable bracket for asymmetrical external venetian blind on transom and mullion facade (right model)



1) The thickness of the base plate is to be statically calculated according to projection dimension A

Tension cable bracket for asymmetrical external venetian blinds on transom and mullion facades (central model)

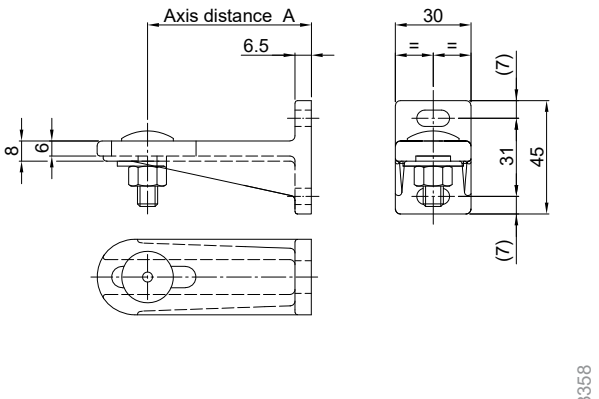
PDF DWG



1) Base plate thickness must be statically calculated according to projection dimension A.

Tension cable bracket type S01

PDF DWG



Tension cable bracket allocation each according to axis distance A:

- Axis distance 50-75 mm, tension cable bracket art. no. 101029 (plain)
- Axis distance 72-100 mm, tension cable bracket art. no. 101030 (plain)
- Axis distance 97-135 mm, tension cable bracket art. no. 101031 (plain)
- Axis distance 132-180 mm, tension cable bracket art. no. 101032 (plain)
- Tension cable bracket made of diecast aluminium
- Screw connection art. no. 746132
- Nut M8 art. no. 714007
- Washer DIN 9021 A8.4 art. no. 742007

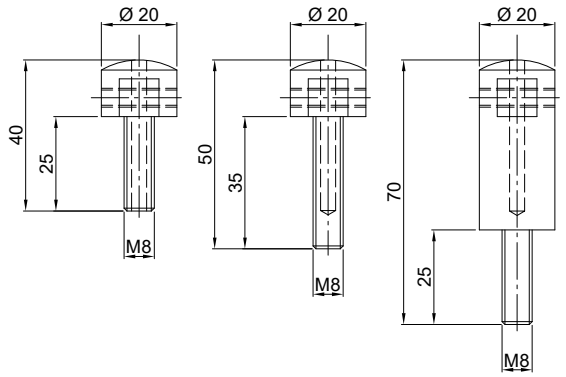
Tension screw for guy rope

PDF DWG

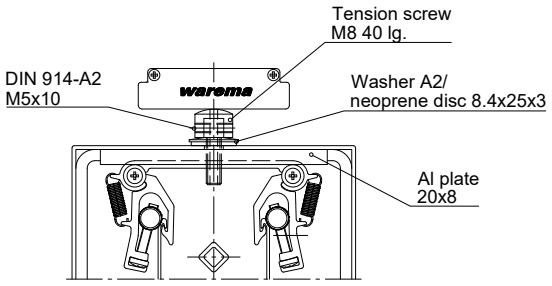
Tension screw 40 lg.
Art. no. 557230

Tension screw 50 lg.
Art. no. 746178

Tension screw 70 lg.
Art. no. 746179



Mounting example
Cable tension on cover panel



Additional product information

Determining the approximate cover panel length

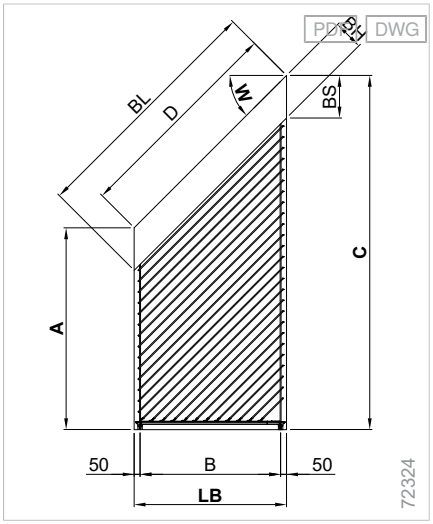
BL = LB x f + z

BL = cover panel length

LB = reveal width

f = factor depending on angle (see following table)

z = depending on angle (see following table)



Values for calculating the approximate cover panel length

Inclination angle W of top rail (°)	Factor f	Allowance z (mm)
5	1.004	30
6	1.006	30
7	1.008	40
8	1.010	40
9	1.012	50
10	1.015	50
11	1.019	60
12	1.022	60
13	1.026	70
14	1.031	70
15	1.035	80
16	1.040	90
17	1.046	90
18	1.051	100
19	1.058	100
20	1.064	110
21	1.071	120
22	1.079	120
23	1.086	130
24	1.095	130
25	1.103	140
26	1.113	150
27	1.122	150
28	1.133	160
29	1.143	170
30	1.155	170
31	1.167	180
32	1.179	190
33	1.192	190
34	1.206	200

Inclination angle W of top rail (°)	Factor f	Allowance z (mm)
35	1.221	210
36	1.236	220
37	1.252	230
38	1.269	230
39	1.287	240
40	1.305	250
41	1.325	260
42	1.346	270
43	1.367	280
44	1.390	290
45	1.414	300
46	1.440	310
47	1.466	320
48	1.494	330
49	1.524	340
50	1.556	360
51	1.589	370
52	1.624	380

Please note: Values given are for a cover panel height BH of 300 mm. Only use for bids or quotations! Order lengths are to be given as exact dimensions (for calculations see formula overview).

Cover panel heights or slat stack heights

Height long side C (mm)	Package height (mm)	Cover panel height BH (mm) for SR.01, SR.02 and SR.06	Cover panel height BH (mm) for SR.07 and SR.09
1000	150	205	235
1200	160	205	235
1400	168	205	235
1600	175	205	235
1800	182	205	235
2000	188	210	240
2200	195	215	245
2400	202	225	255
2600	210	230	260
2800	215	235	265
3000	222	245	275
3200	230	250	280
3400	235	255	285
3600	242	265	295
3800	250	270	300
3900	253	275	305

Attention: To avoid any visible gap between the bottom edge of the cover panel and the closed top slat, we recommend adhering to the minimum cover panel heights (205 mm for SR.01/SR.02/SR.06 or 235 mm for SR.07/SR.08).

For combinations of several units (shapes SR5 to SR8) the uniform cover panel height BH for all units results from the cover panel height for the tallest asymmetrical external venetian blind!

Minimum cover panel depth

Cover panel model	Minimum cover panel depth
SR.01	140 mm
SR.02	140 mm
SR.06	150 mm
SR.07	150 mm
SR.09	150 mm

Technical information

For technical reasons, a small triangular area in the lower part of the tall side of the external venetian blind always remains unshaded.

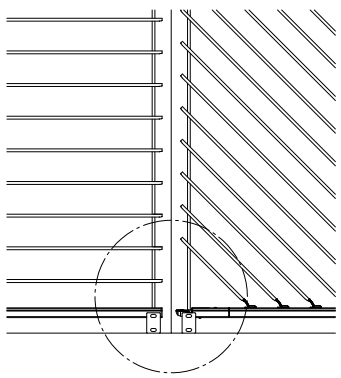
Even small measurement differences can result in a slat being more or less recessed. Therefore: adjust dimensions for laterally reversed external venetian blinds!

Installation instructions:

For lowered asymmetrical external venetian blinds, the end rail is supported by tension screws. This is not the case for basic external venetian blinds. A small gap must be present between the top edge of the end rail and the closed slats.

Asymmetrical external venetian blinds, unshaded area (details view for sloped horizontal units)

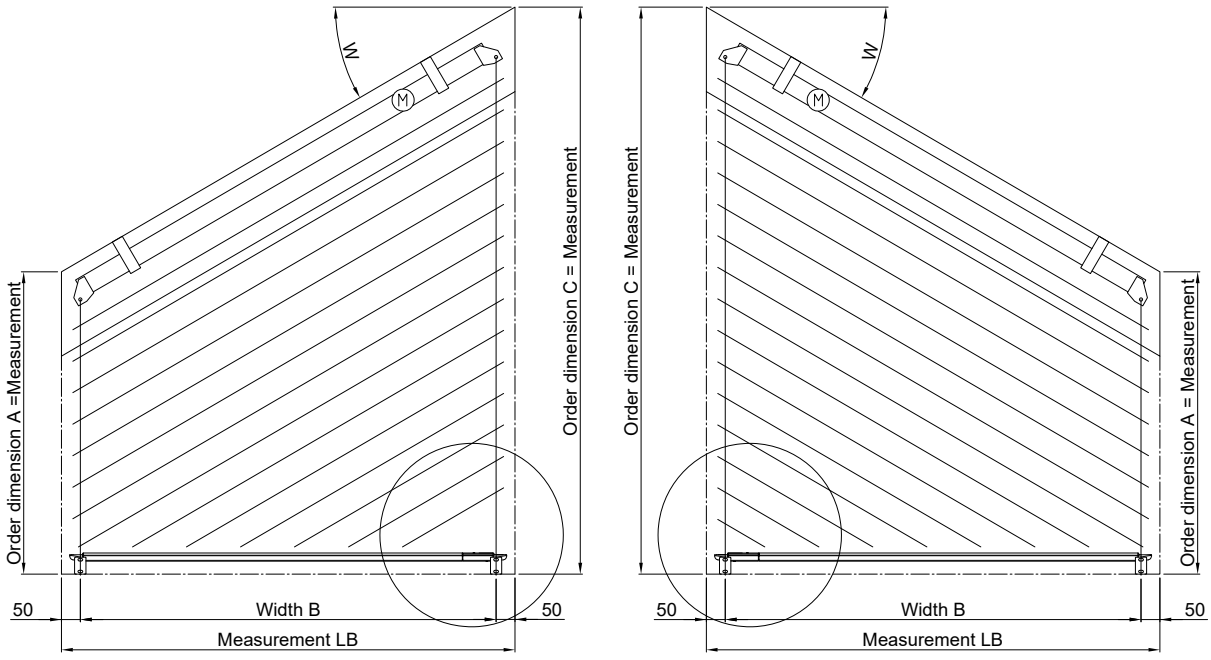
PDF DWG



73360

Asymmetrical external venetian blinds, unshaded area (position)

PDF DWG



73359

Example of a typical gable window consisting of several window elements

For typical gable windows, two asymmetrical and one straight external venetian blind are often required.The design of the straight external venetian blind (E 80 AF SRG) matches the asymmetrical external venetian blind. The cover panel height corresponds to the cover panel height of the highest asymmetrical external venetian blind.

Depending on the field of application, several straight external venetian blinds can be installed between the asymmetrical external venetian blinds. Every asymmetrical external venetian blind requires its own drive. For technical reasons, technically coupled external venetian blinds are not possible.

Anti-freeze comfort switch-off

The supplementary accessory 'Anti-freeze comfort switch-off' protects the asymmetrical external venetian blinds from damage due to incorrect operation.

Anti-freeze comfort switch-off



Sun Shading Planner

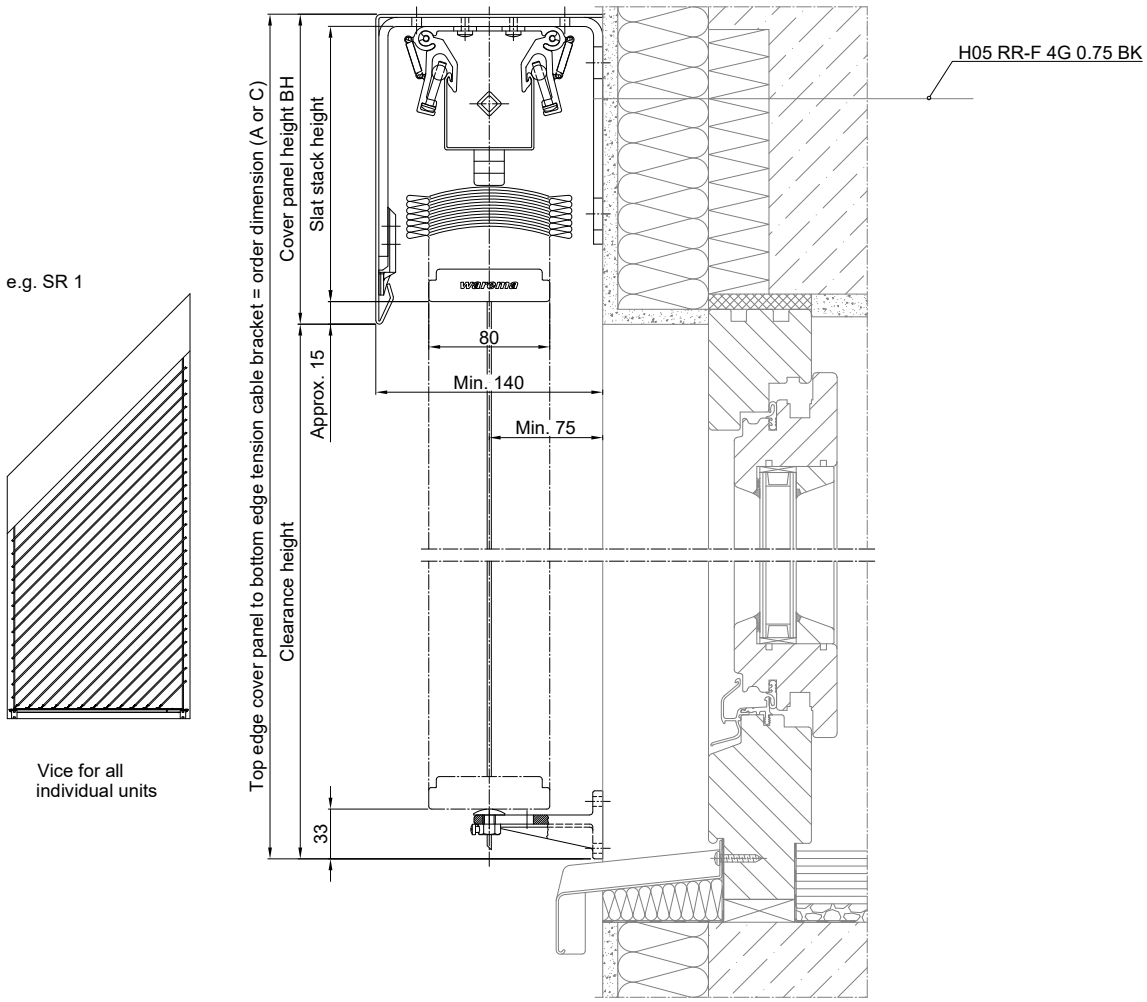
Use our free planning programme to plan your sun protection systems

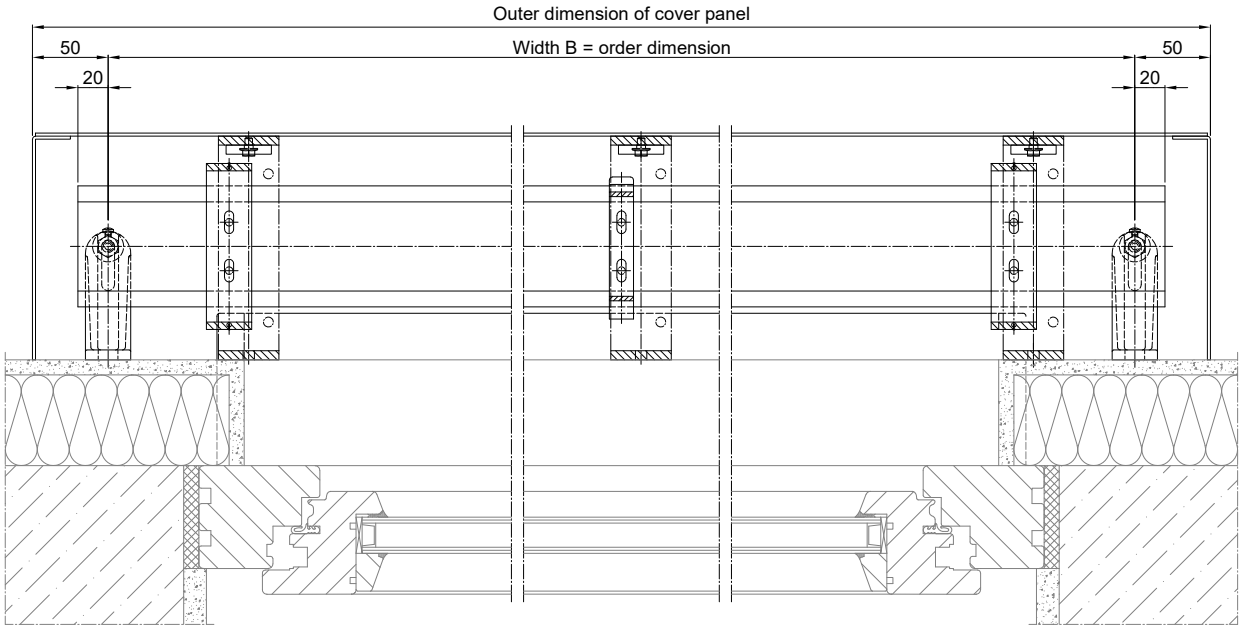
https://sonnenschutzplaner.com/

Mounting examples

Individual asymmetrical external venetian blind unit; installation in front of the reveal; angular cover panel

PDF DWG



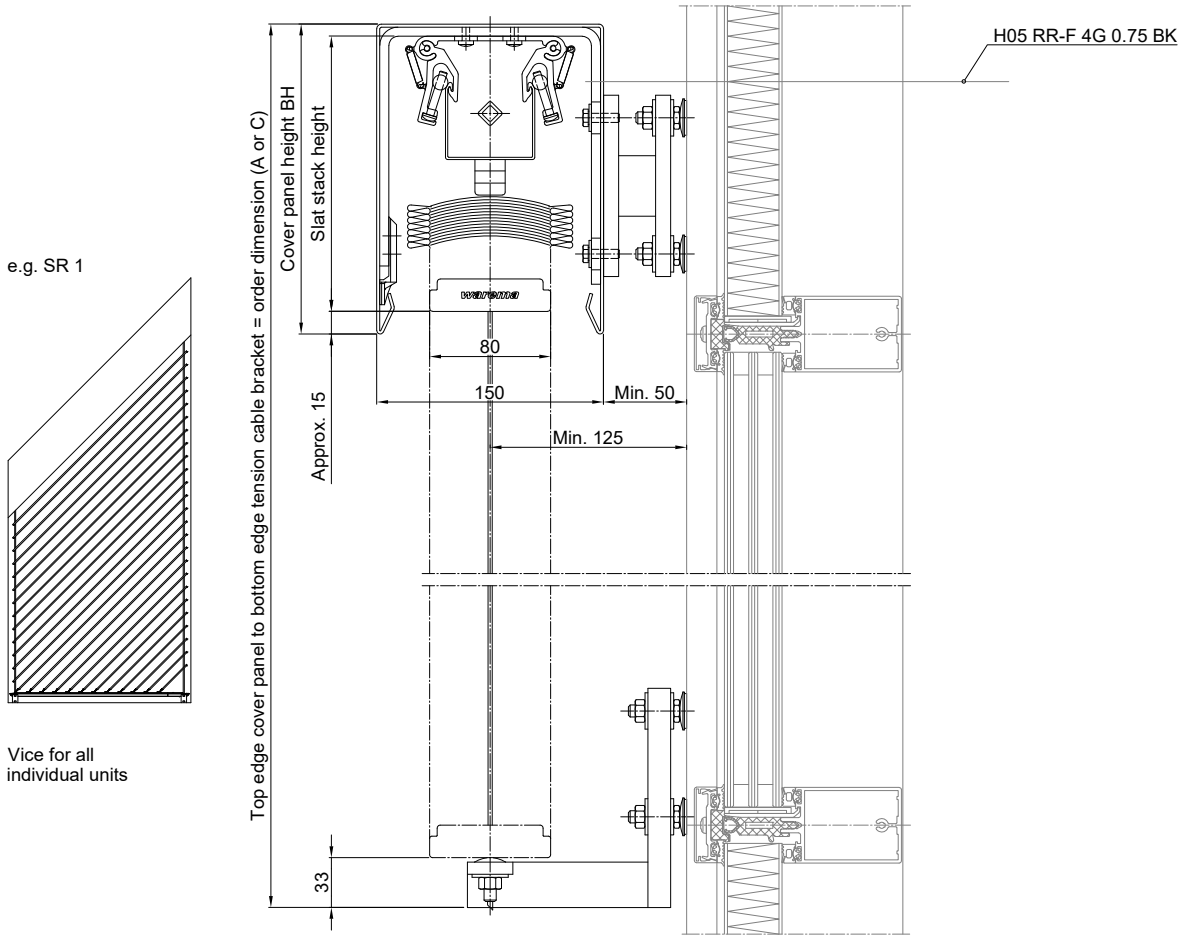


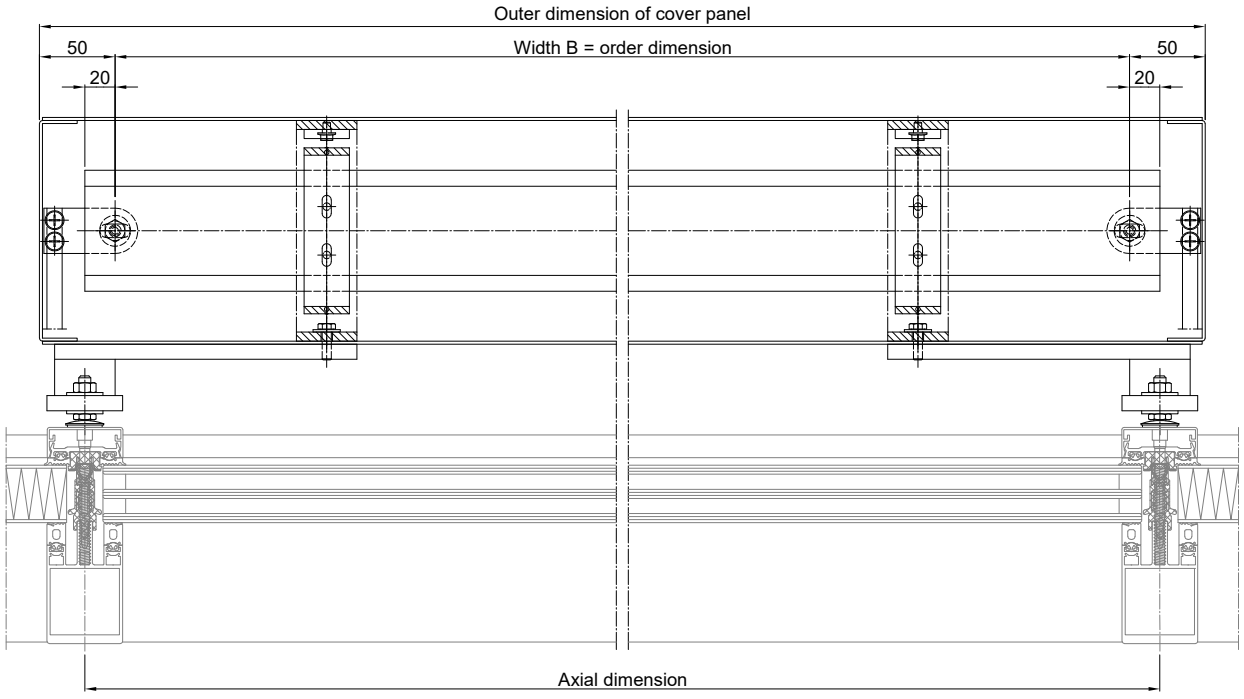
71642v2

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Asymmetrical external venetian blind individual unit; installed on transom and mullion facade; U-shaped cover panel

PDF DWG



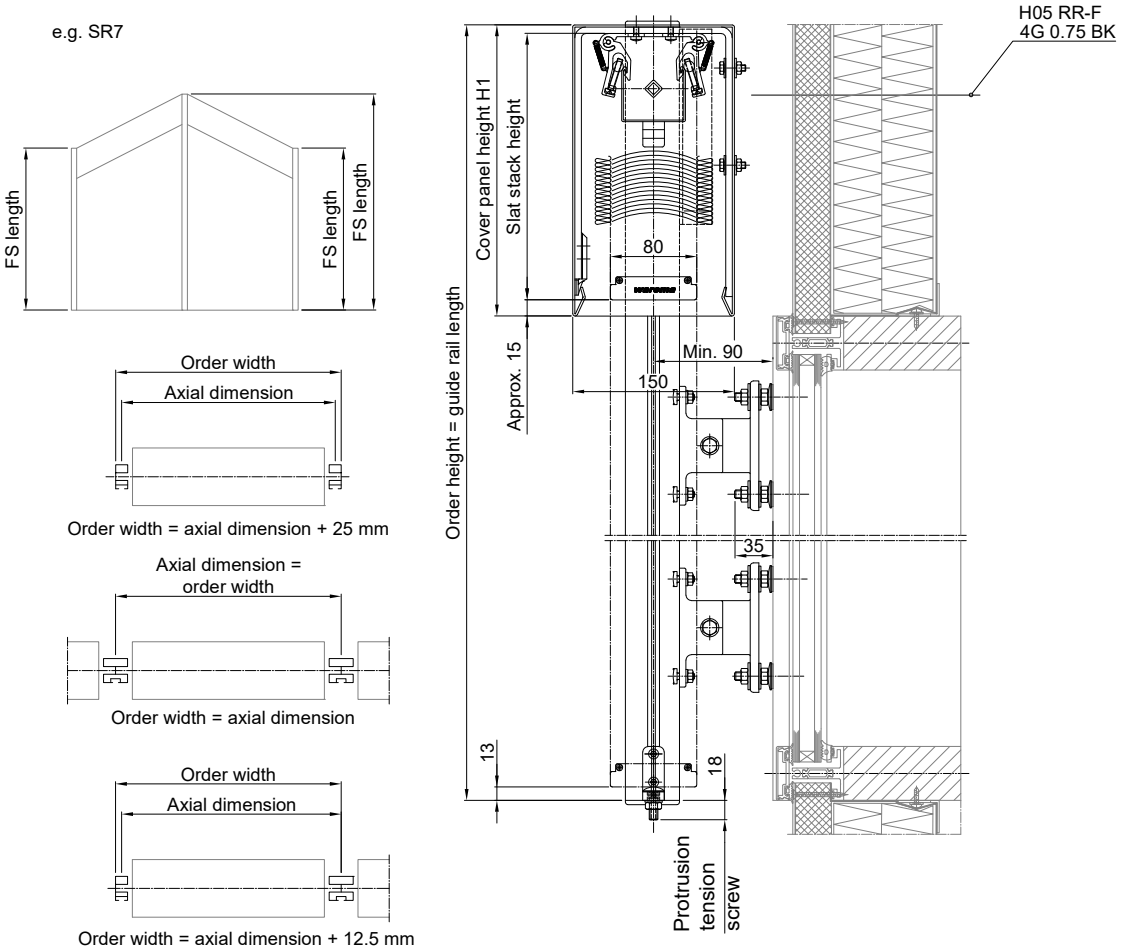


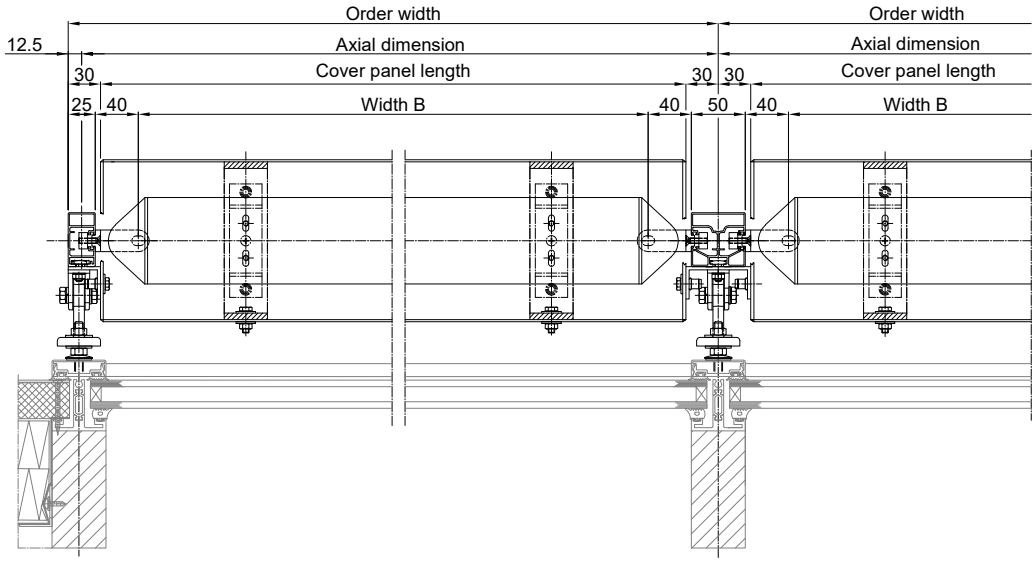
71661v1

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Asymmetrical external venetian blind group unit, cover panels installed between guide rails with FSCH 25x50 mm and 50x50 mm, U-shaped cover panel

PDF DWG

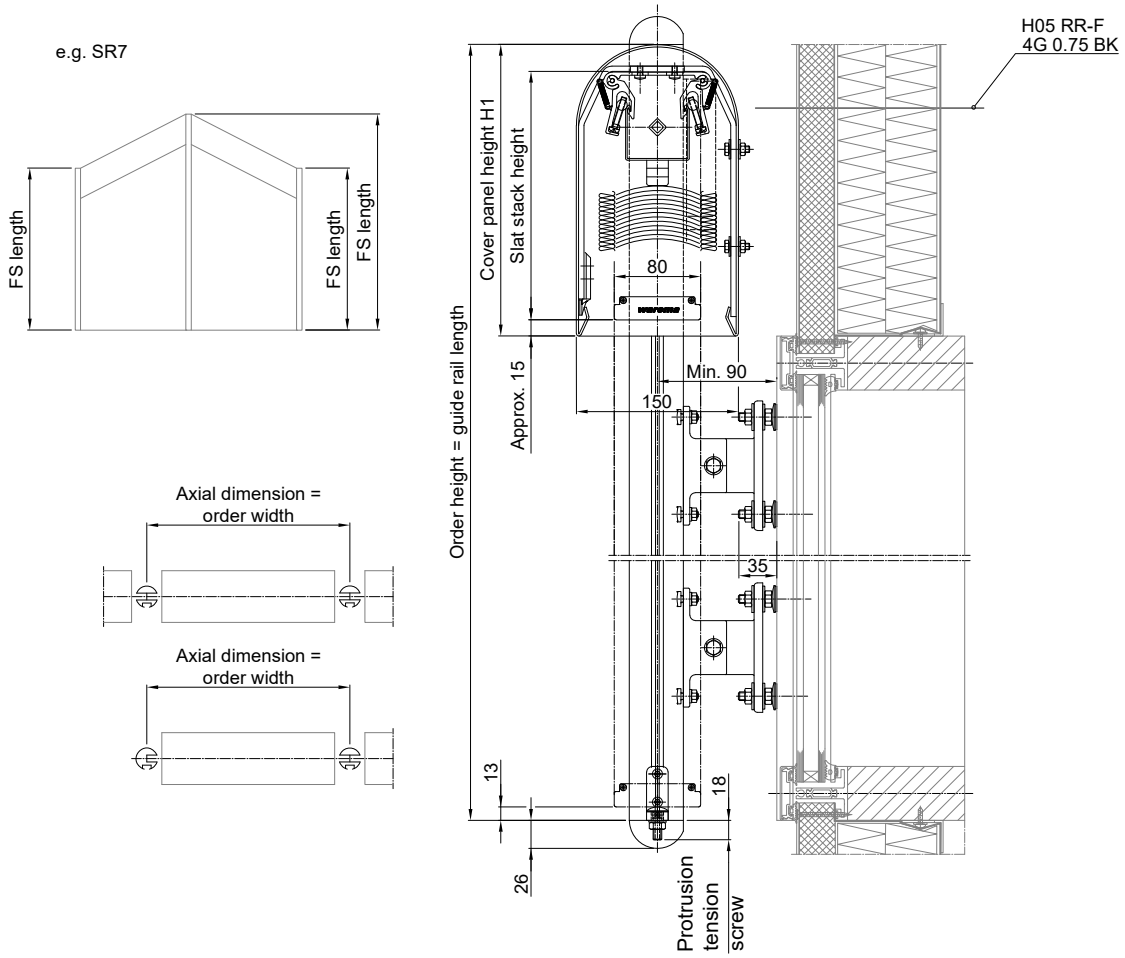


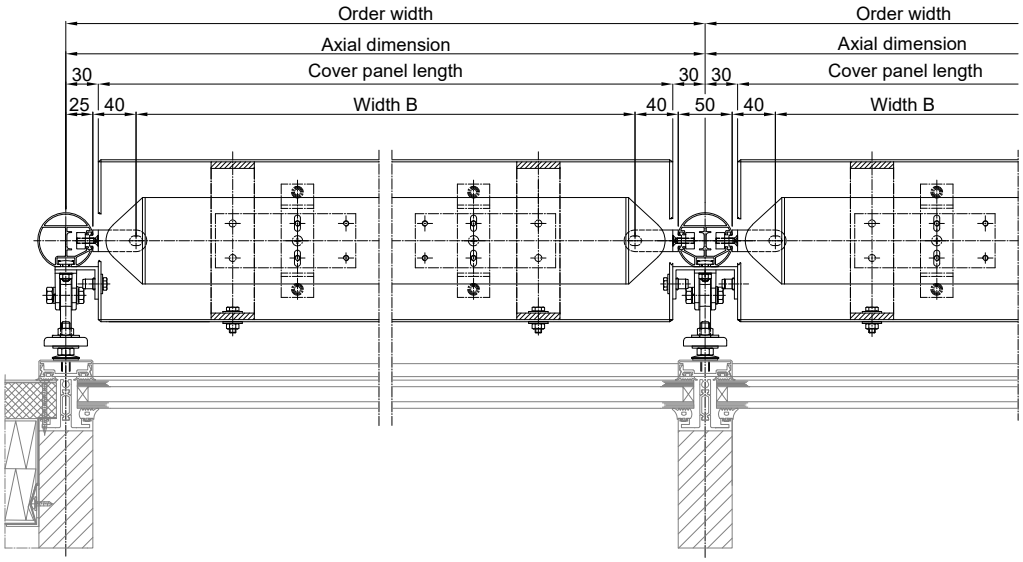


74034v1

Asymmetrical external venetian blind group units; cover panels installed between guide rails with guide rail Ø 52 mm, round-shaped cover panel

PDF DWG





74033v1

Asymmetrical external venetian blinds E 80 AF SRG horizontal combination

Components



1	Top rail (tilt rod, bearing)	4	Lateral guidance
2	Slats	5	End rail
3	Tilting and lifting tape		

Top rail

Top rail

Material	Aluminium, extruded
Surface	Plain
Optional surface	Powder-coated, Anodised
Profile	C profile
Width	59 mm
Height	51 mm

+ Top rail bracket

Top rail bracket

Material	Aluminium
Surface	Plain

see "Top rail bracket", Page 477

Bearing

Bearing for slat tilting: Tilting closed/horizontal

- Comprising wedge segment from Teflon-containing plastic
- Maintenance-free, enclosed
- Segment tilting to prevent automatic adjustment of slats
- External venetian blind moves down with the slats closed to the outside and moves up with the slats horizontal

Slat

Flat slat 80 AF

Installation type	Convex
Material	Aluminium
Surface	Enamelled
Width	80 mm

Tape

Tilting tapes

Material	Polyester, with aramid reinforcement
Material colour	Black
Material colour, optional	Grey

- Each slat is attached to the top web of the tilting tape and threaded between the double webs.
- Special heavy-duty version with double webs

Lifting tape

Lifting tape 6 mm

Material	Polyester
Material colour	Black
Material colour, optional	Grey

Shaft

Tilt rod

Material	Galvanised steel
Surface	Plain
Profile	Square tube
Width	12 mm
Height	12 mm

End rail

End rail, fixed (rectangular)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	80 mm
Height	20 mm

Guide variants

– Cable guidance

see "Cable guidance", Page 390

Tension cable

Guide rails guidance variant with additional cable guidance from slat size > 2400 mm

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

To prevent damage from wind load on components that are behind the external venetian blind, be sure to plan for an additional central cable guidance for flat slats with a slat size > 2400 mm. For flat slats with a slat size > 4000 mm, two additional tension cables are required.

Arrangement of the additional cable guidance: The arrangement must be specified (viewed from inside the room, starting on the left)

Number of cable guidances: Number depends on the installation situation. For greater distances to the facade or for installation in the corner area of the facade, additional cable guidances are to be provided.

Determination of cable length: External venetian blind height + 100 mm

see "Number of tension cables", Page 253

Drive variants

– Motor

see "Drive variants", Page 489

Colours

– Slat colours
– WAREMA Colour World
– Anodised C0

Colours, optional:

– Anodised C31
– Anodised C32
– Anodised C33
– Anodised C34
– Anodised C35

see "Colours and finishes", Page 12

see "Colours and surfaces for external venetian blind slats in accordance with current collection", Page 15

Supplementary accessories

– Emergency power supply kit
– Solar drive for external venetian blinds

see "Supplementary accessories", Page 277

Construction limit values

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area
Asymmetrical external venetian blinds				
Asymmetrical external venetian blinds E 80 AF SRG horizontal combination	560 mm	4960 mm	4000 mm	20 m^2

Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances as per the "Guideline for assessing the product features of external venetian blinds" apply.

Dimension determination

Quantity determination

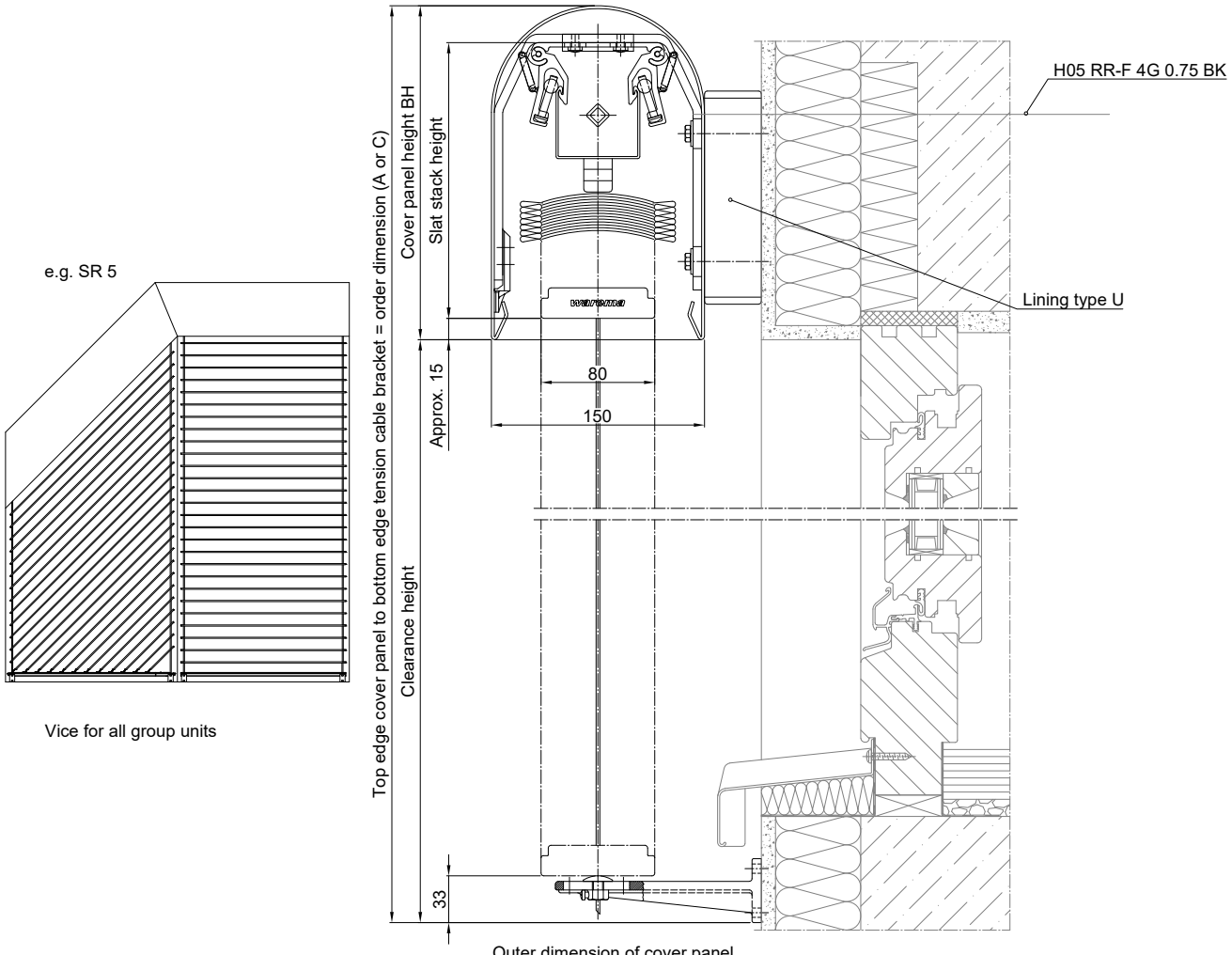
Number of tension cables

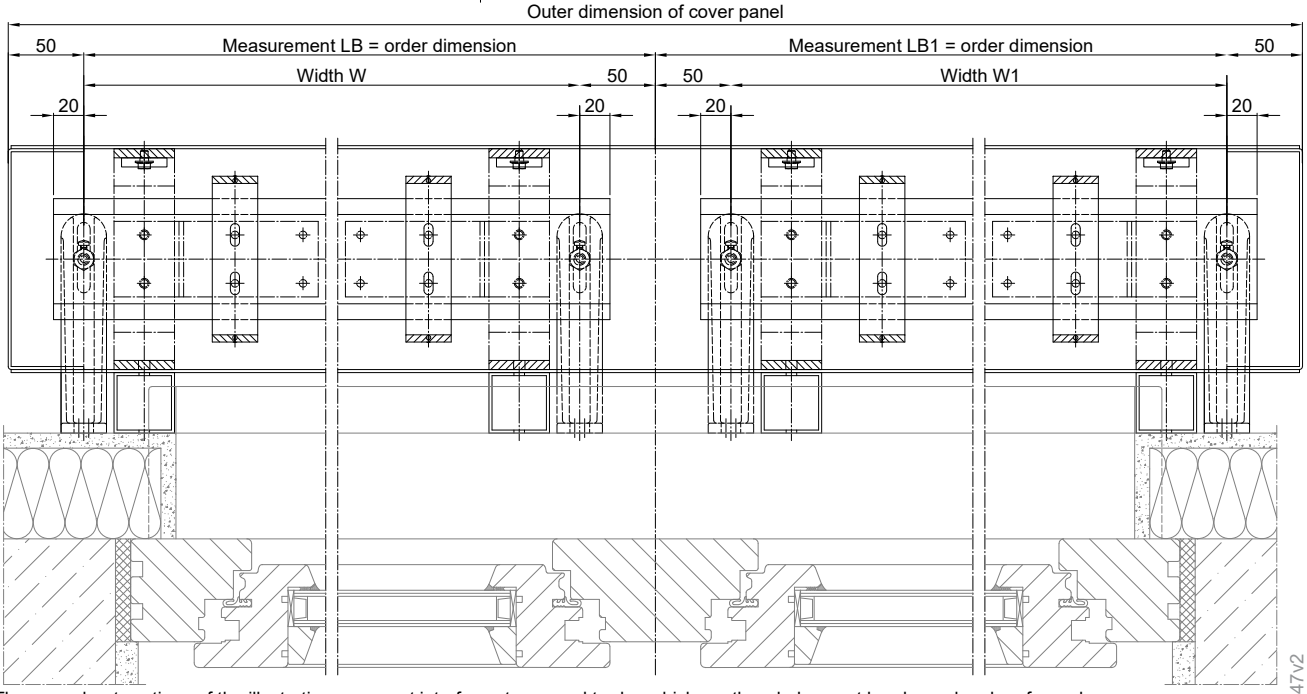
Slat size	Number
0 - 3000 mm	2
3001 - 4000 mm	3
4001 - 5000 mm	4

Mounting examples

Asymmetrical external venetian blind group unit; installation in front of the reveal; round-shaped cover panel

PDF DWG

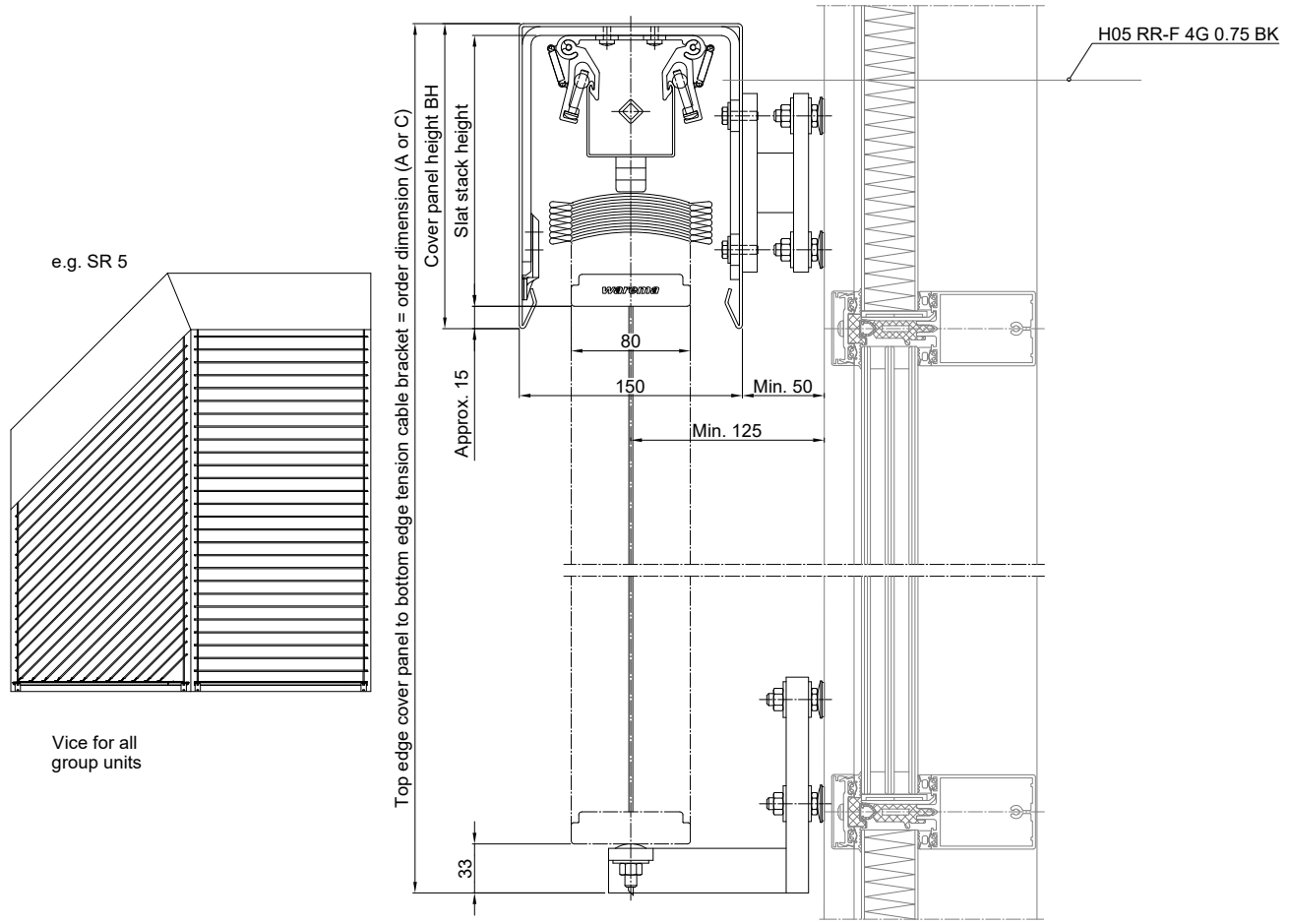


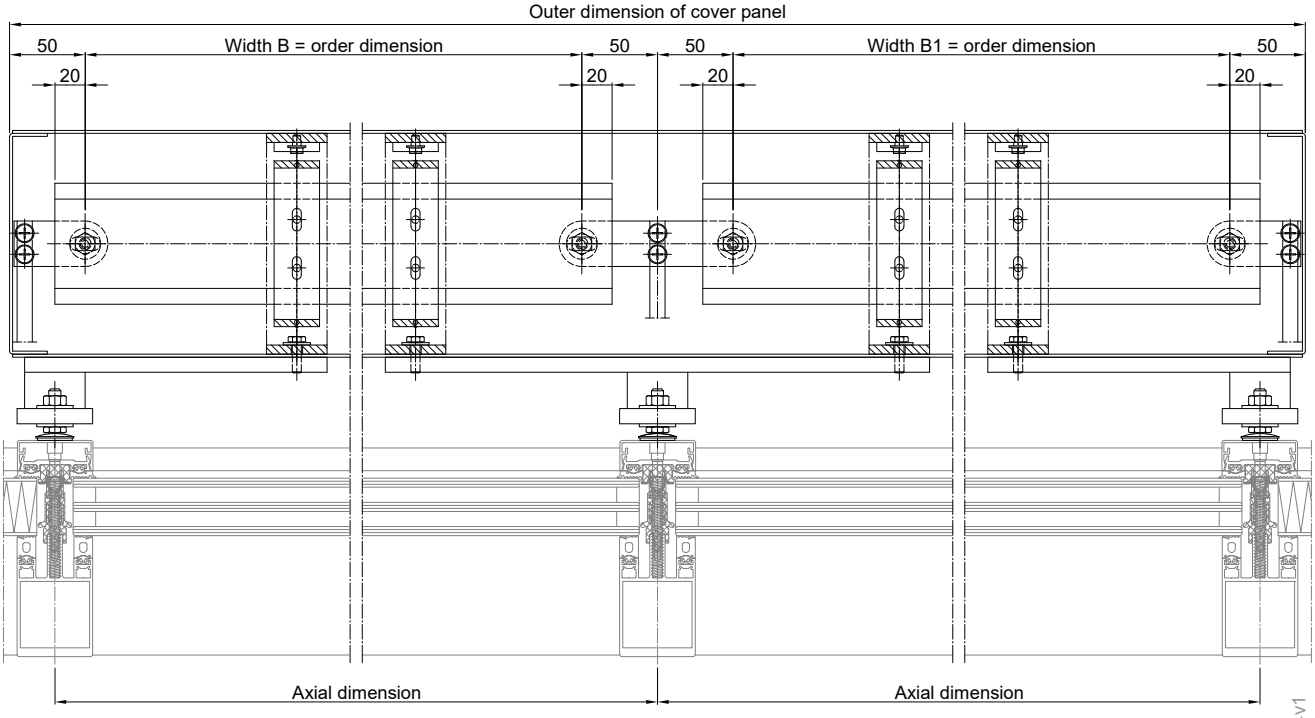


The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Asymmetrical external venetian blind group unit; installed on transom and mullion facade; U-shaped cover panel

PDF DWG





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Contents

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Self-supporting external venetian blinds 258



Self-supporting systems

Self-supporting external venetian blinds

Flexibly adjustable

Opaque from the outside but with a view out from the inside: The external sun shading system consisting of connected horizontal slats combines thermal protection, glare control, and visual privacy with an adjustable view out.

Widely applicable

Universal system: To be used for transom and mullion facades, conservatories, retrofitting on insulated facades, or renovations.

Broad selection of variants

Visible in front of the facade: To perfect your design, we have a wide range of cover panel variants and types of guide rails for selection.

Well fixed

The cover panel is installed as a self-supporting model using the guide rails: It is mounted either on or between the guide rails and does not require a separate connection to the structure.

Quick installation

Time-saving premounting: Cover panel brackets and external venetian blind brackets are premounted in the cover panel at the factory. The cover panel consoles and the guide rail brackets are also premounted on the guide rails.

Construction limit values

Maximum order width	4000 mm
Maximum order height	5000 mm
Maximum order area	13 m^2

Order here

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Art.-Nr. 2016526

Order form

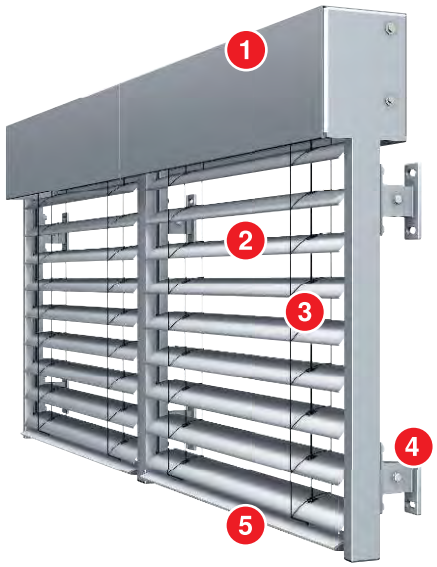
https://docs.warema.com/fi/877908.pdf

WAREMA tools

Dimensions Assistant
Fastener Assistant
Sun Shading Planner

see "Navigating the document", Page 5

Components



1	Cover panel	4	Lateral guidance
2	Slats	5	End rail
3	Tilting tape, lifting tape		

Cover panel

- U-shaped cover panel BL06
- U-shaped cover panel BL07
- U-shaped cover panel BL08
- U-shaped cover panel BL09

see "U-shaped cover panels", Page 415

Product variants that can be used

- E 60 A6 S
- E 80 A6 S
- E 60 AF A6
- E 80 AF A6
- E 100 AF A6
- E 80 A6 Z
- E 73 A6
- E 90 A6
- E 93 A6
- E 80 WF A6

Guide variants

- Rail guidance

Guide rail

- FSCH 25-50 (type 74)
- FSCH 50-50 (type 75)

see "Guide rails for external venetian blinds", Page 360

Tension cable

Additional cable guidance

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

To prevent components located behind the external venetian blind being damaged by wind load, an additional cable guidance in the centre is either mandatory or recommended for rail guidance from a defined width of slat, depending on the slats used:

- Beaded slats: from a slat size > 3000 mm (recommended)
- Flat slats (incl. Windra flat slat): from a slat size > 2400 mm (mandatory)
- Dim-out slats: no additional tension cable required

Arrangement of the additional cable guidance: The arrangement must be specified (viewed from inside the room, starting on the left)

Determination of cable length: External venetian blind height + 100 mm

Drive variants

- Motor

see "Drive variants", Page 489

Colours

- Slat colours
- WAREMA Colour World
- Anodised C0

Colours, optional:

- Anodised C31
- Anodised C32
- Anodised C33
- Anodised C34
- Anodised C35

see "Colours and finishes", Page 12

see "Colours and surfaces for external venetian blind slats in accordance with current collection", Page 15

Supplementary accessories

- External venetian blinds in wind-stable design
- SenSigna, external venetian blind with acoustic signal
- Daylight transport element TLT
- Snap-action switch work setting
- slowturn
- Battery module UP for external venetian blinds
- Emergency power supply kit
- Slat perforation

see "Supplementary accessories", Page 277

Product characteristics

Self-supporting external venetian blinds in two models:

- **When the cover panel is mounted between the guide rails**, individual cover panels are fixed to the guide rails using angle brackets with two side closures. The guide rails will give the impression of being continuous.
- **Where cover panels are mounted on the guide rails**, cover panels are fixed to the guide rail at the end using side closures and at the cover panel joint using overlapping consoles. The cover panels will give the impression of being continuous.

Self-supporting external venetian blinds are only attached to the window or the facade by means of the guide rail brackets.

The cover panel is mounted on the guide rails and does not require any connection to the facade or the structure.

For both systems, the cover panel brackets and the external venetian blind brackets are premounted in the cover panel at the factory. The cover panel consoles and the guide rail brackets are also premounted on the guide rail.

Notes

- **Cover panel depth:** Usually 150 mm
- **Flat slat order width > 2400 mm:** For flat slats, an additional tension cable in the middle of the external venetian blind is required for order widths of 2400 mm and greater.

For further information, see the chapter "Basic external venetian blinds" for the relevant product variant.

Notes on product configuration

The Windra flat slat as well as the Zetra dim-out slat can be used exclusively for cover panel assembly on the guide rails.

Construction limit values

- **Cover panel depth:** Usually 150 mm
- **Flat slat order width > 2400 mm:** For flat slats, an additional tension cable in the middle of the external venetian blind is required for order widths of 2400 mm and greater.

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area	Maximum order width of the group unit	Group unit, maximum order area	Maximum order area of unit coupling	Maximum quantity of unit couplings	Maximum quantity of unit couplings per side
Basic external venetian blinds									
E 60 A6 S	600 mm	4000 mm	5000 mm	13 m^2	12000 mm	26 m^2	13 m^2	2	1
E 80 A6 S	600 mm	4000 mm	5000 mm	13 m^2	12000 mm	26 m^2	13 m^2	2	1
E 60 AF A6	600 mm	4000 mm	4000 mm	13 m^2	12000 mm	32 m^2	13 m^2	2	1
E 80 AF A6	600 mm	4000 mm	4000 mm	13 m^2	12000 mm	32 m^2	13 m^2	2	1
E 100 AF A6	600 mm	4000 mm	4000 mm	13 m^2	12000 mm	32 m^2	13 m^2	2	1
E 80 A6 Z	600 mm	4000 mm	4300 mm	13 m^2	12000 mm	24 m^2	13 m^2	2	1
E 73 A6	600 mm	4000 mm	4300 mm	13 m^2	12000 mm	24 m^2	13 m^2	2	1
E 90 A6	600 mm	4000 mm	4300 mm	13 m^2	12000 mm	24 m^2	13 m^2	2	1
E 93 A6	600 mm	4000 mm	4300 mm	13 m^2	12000 mm	24 m^2	13 m^2	2	1

For self-supporting external venetian blinds, the information on "Minimum order width" and "Maximum order width" refers to the axis of the guide rails (FSCH 50-50) or to the back edge of the guide rails (FSCH 25-50) depending on the guide rail selected.

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances in accordance with the "Guideline for assessing the product features of external venetian blinds" apply.

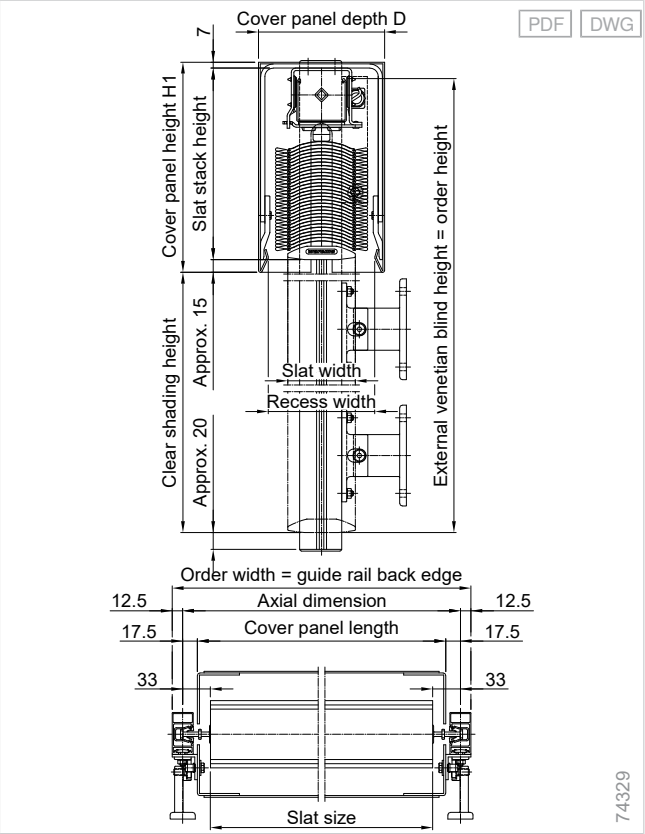
Dimension determination

Configuration view: The order dimensions are determined from interior view, from left to right.

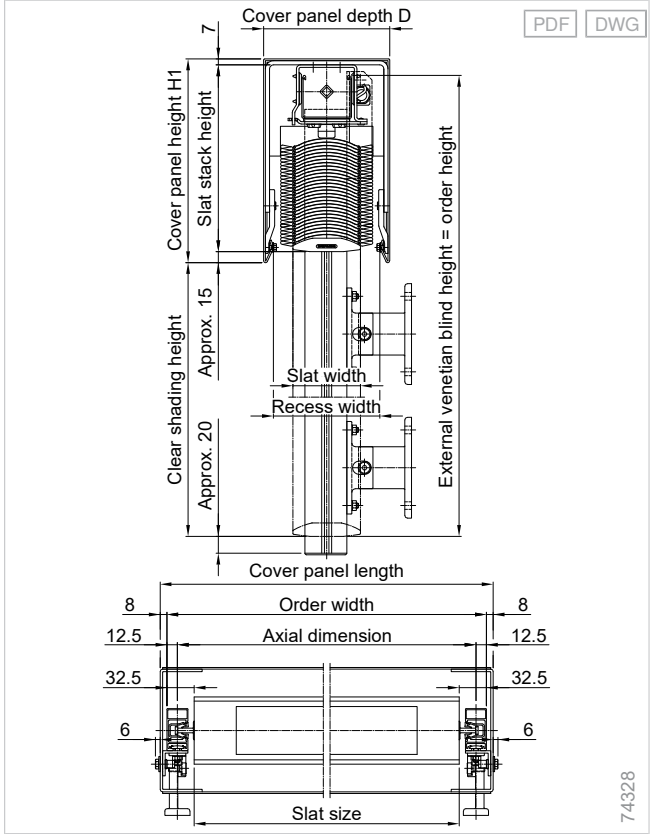
From external venetian blind height > 3000 mm a third guide rail bracket is required.

Reference dimension	Dimension determination
Order width	Back edge of the guide rails
Order height	Bottom edge of end rail to top edge of top rail

Self-supporting venetian blinds, U-shaped cover panel, cover panel installed between the guide rails

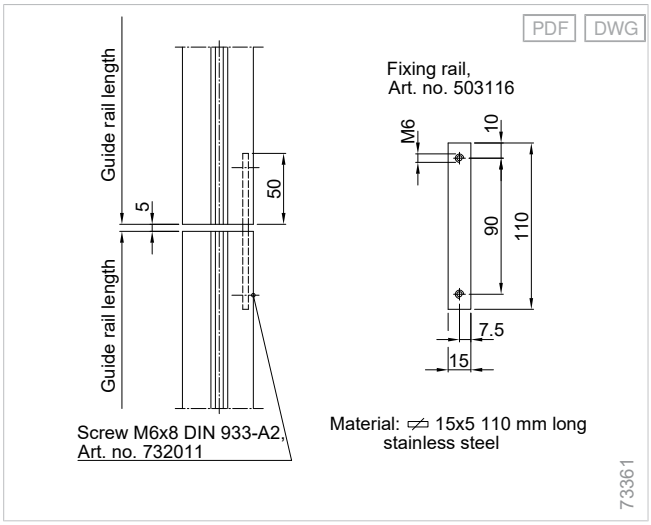


Self-supporting venetian blinds, U-shaped cover panel, cover panel installed on the guide rails



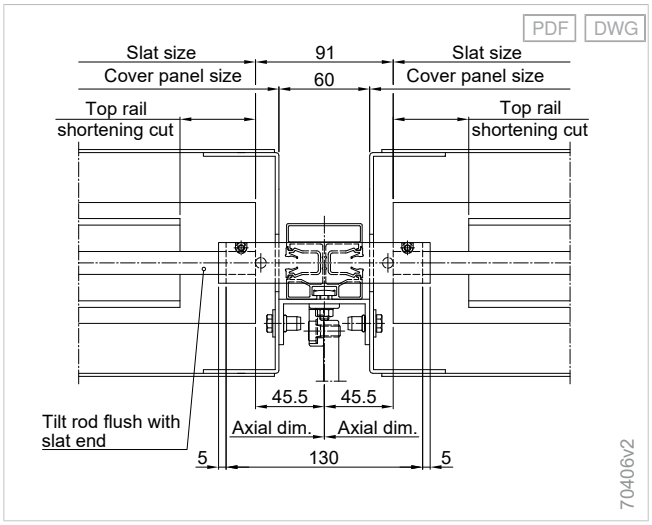
Details

Connection of the guide rails with cover panels installed between guide rails

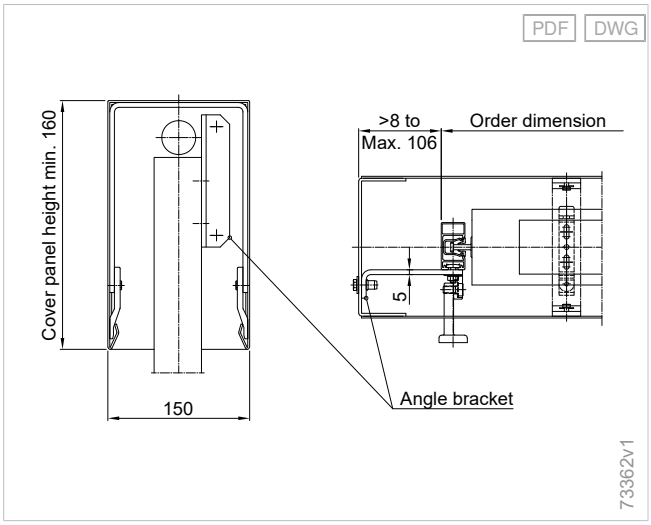


Tighten screw M6x8 only at one guide rail so that the heat emission can be absorbed.

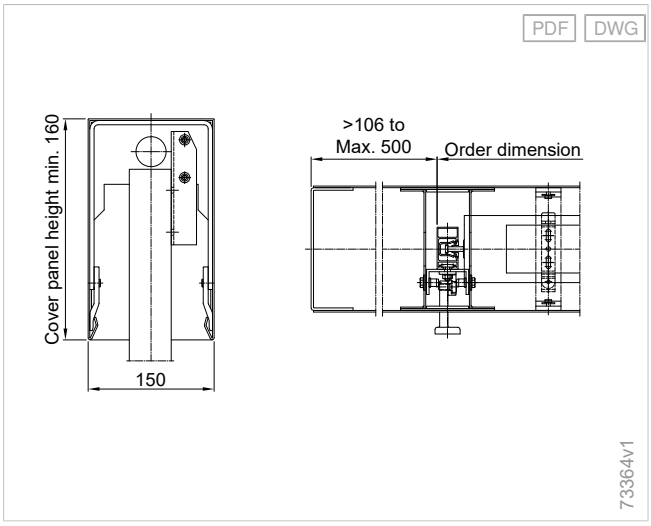
Coupling situation for cover panel installation between guide rails



Cover panel extension up to max. 106 mm for guide rail type 9 with U-shaped cover panel



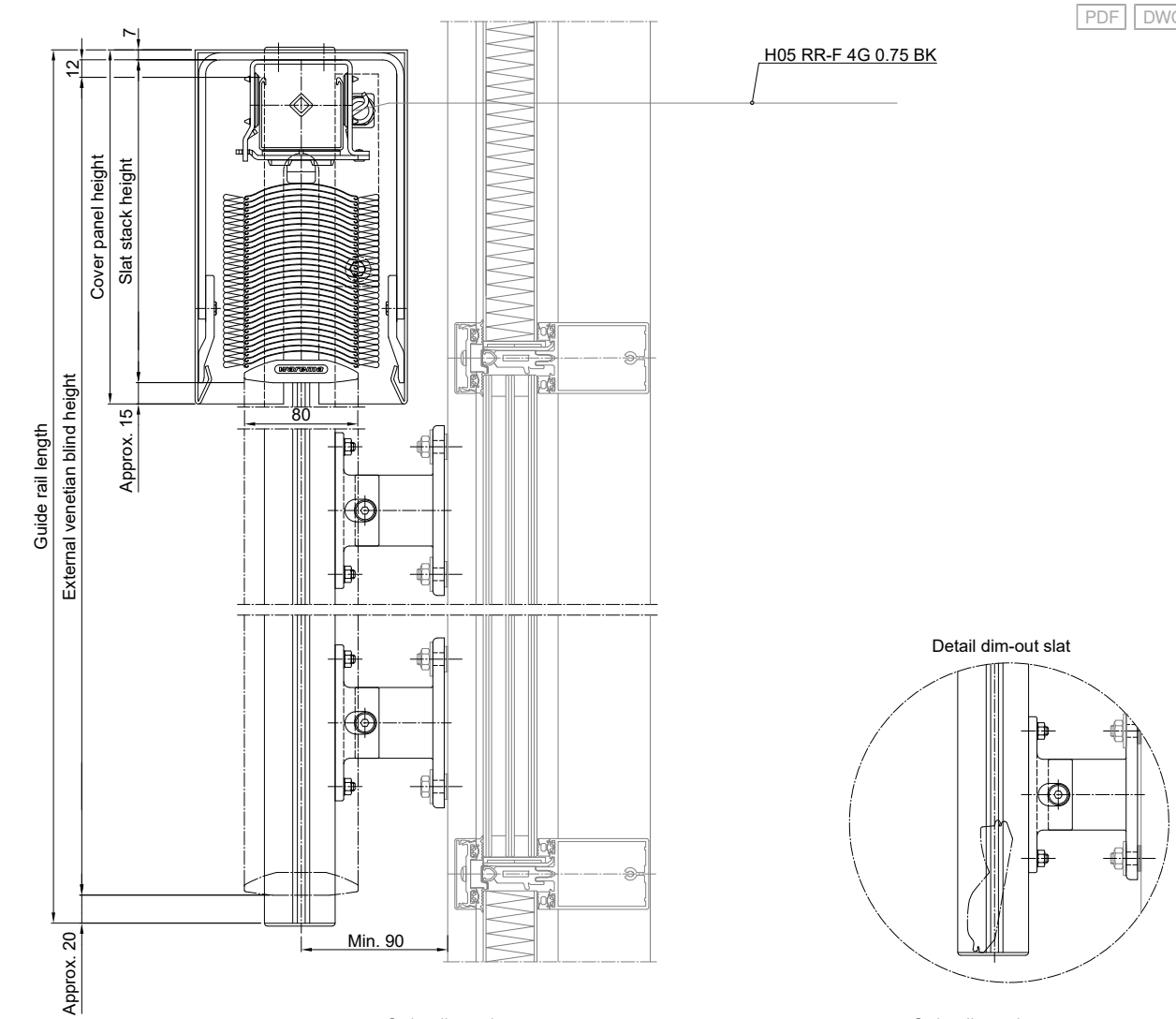
Cover panel extension size 106 mm up to max. 500 mm for guide rail type 9 with U-shaped cover panel

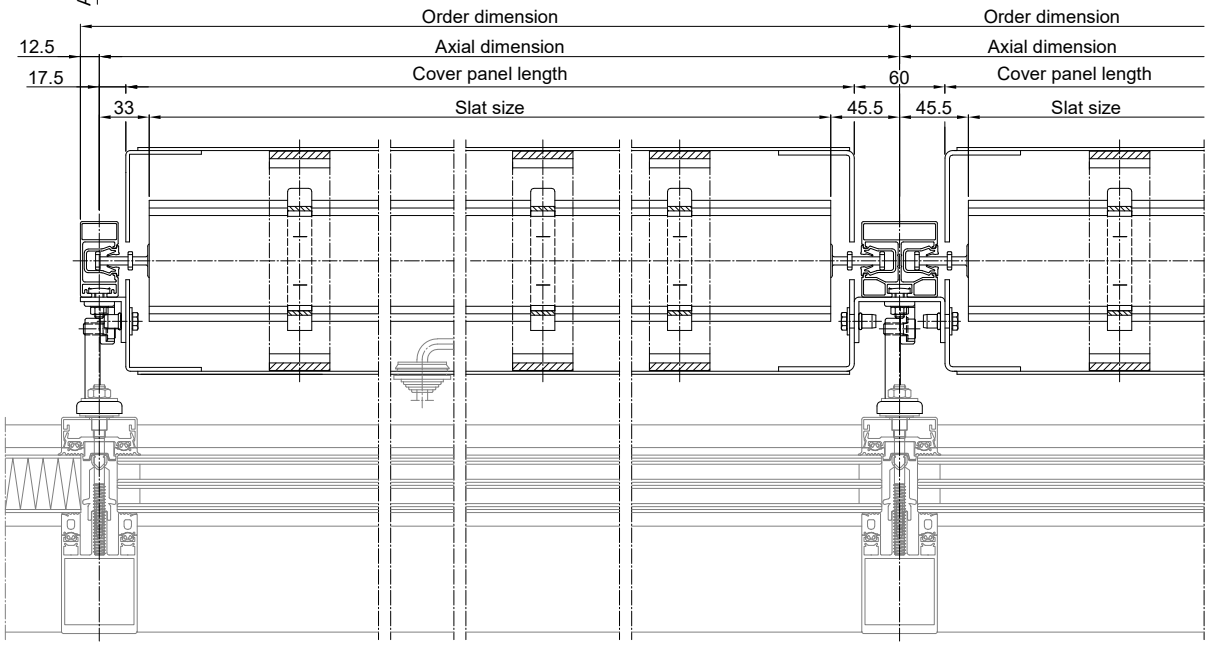


Mounting examples

Cover panels installed between the guide rails; beaded slats; 50x50 or 25x50 mm guide rail; U-shaped cover panel; installation on transom and mullion facade

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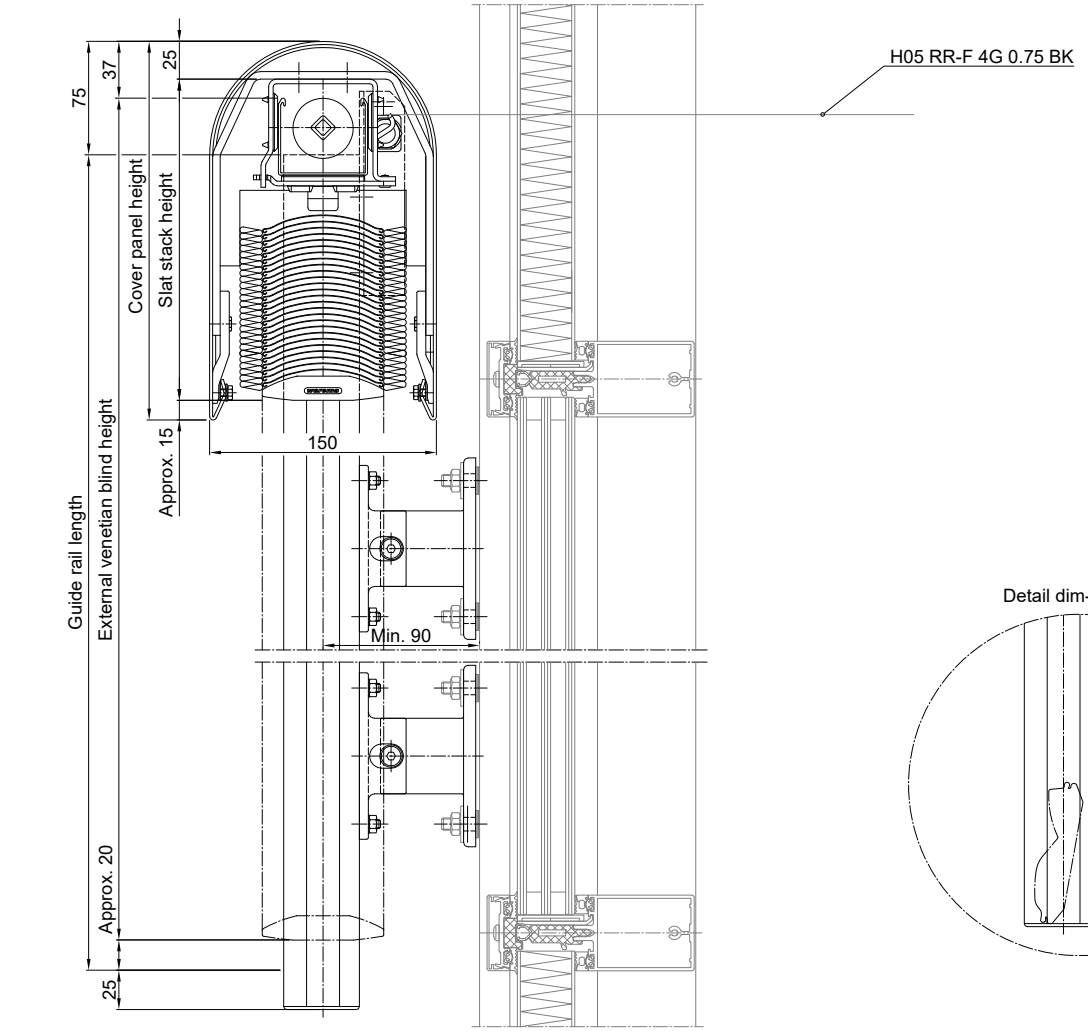


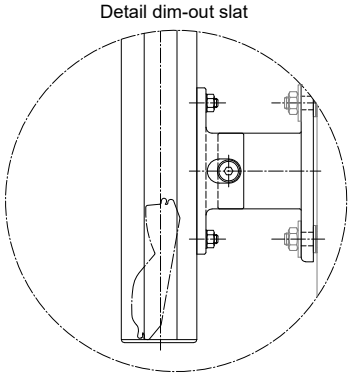
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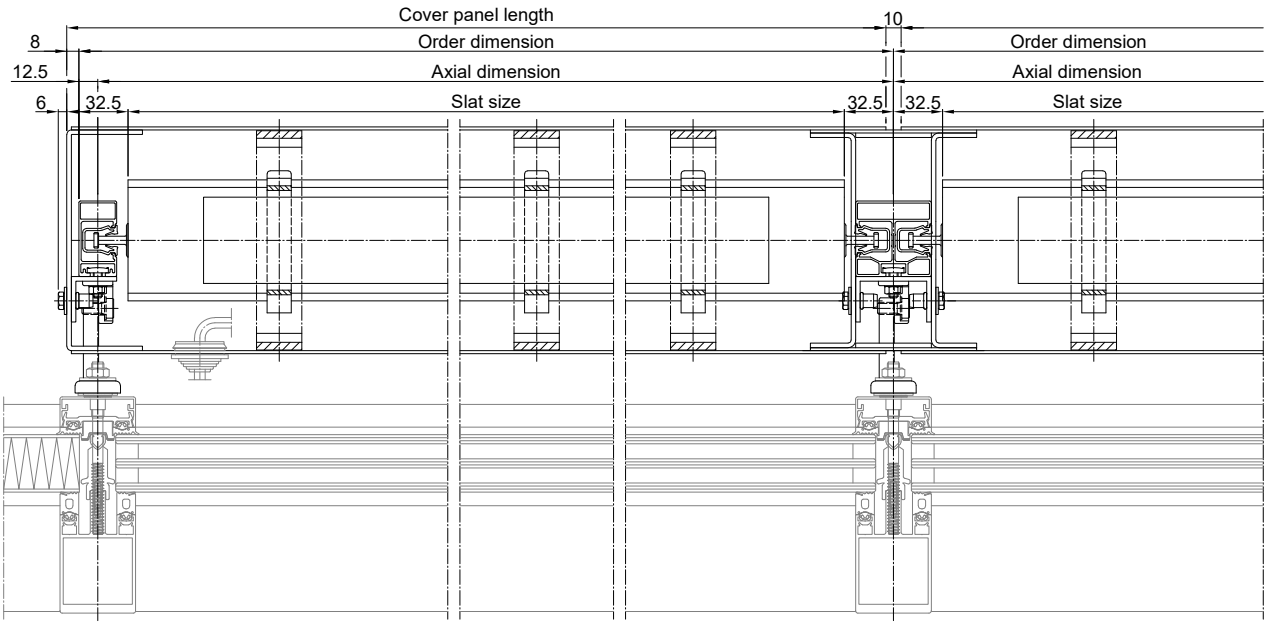
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Self-supporting external venetian blinds, cover panels installed on guide rails, beaded slats, Ø 52 mm guide rails, round-shaped cover panel, installation on transom and mullion facade

PDF DWG





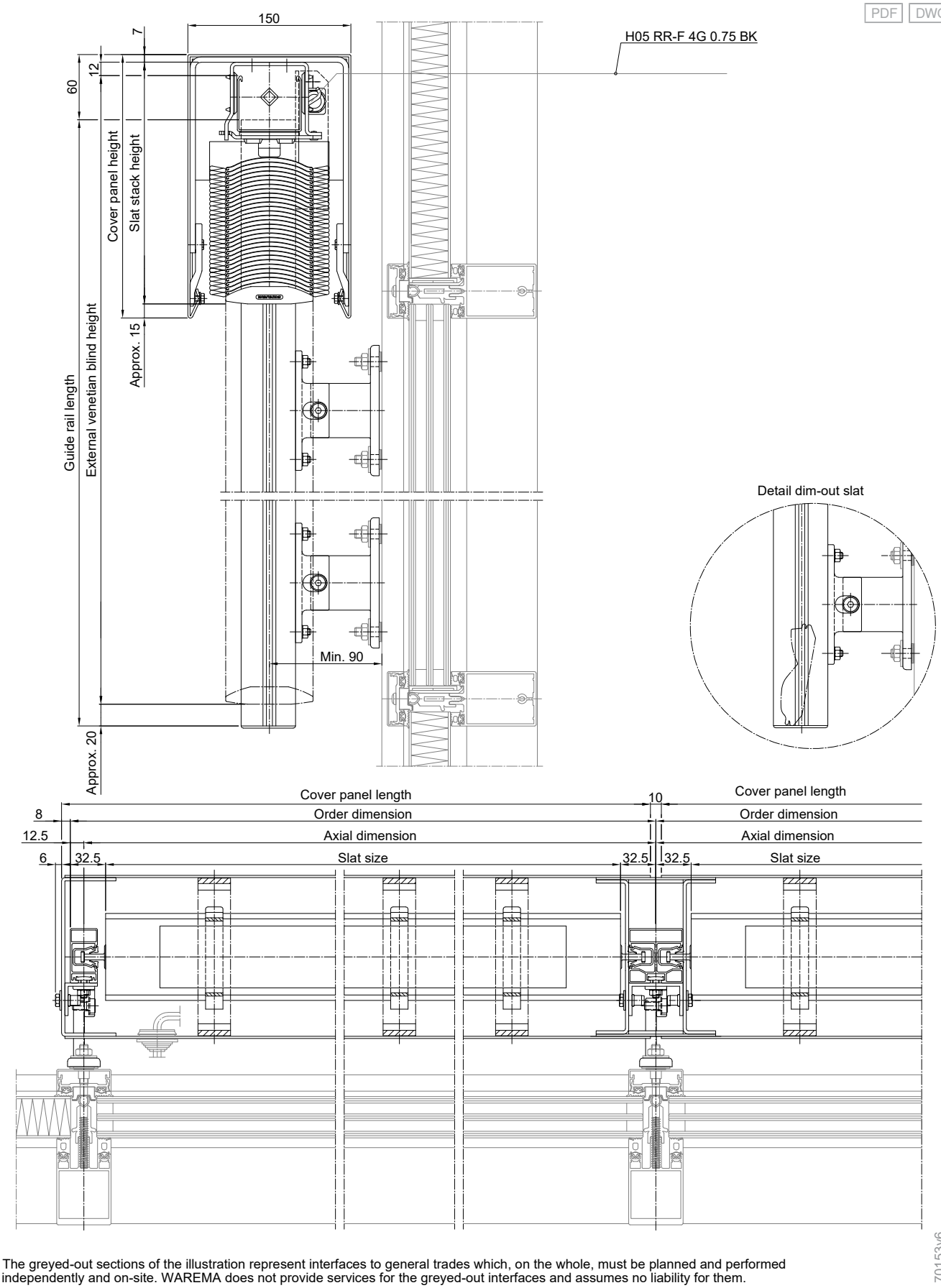


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Self-supporting external venetian blinds, cover panels installed on guide rails, beaded slats, 50x50 or 25x50 mm guide rail, U-shaped cover panel, installation on transom and mullion facade

PDF DWG



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External venetian blinds

External venetian blinds with cable guidance

Well lit

Flexible use: The construction combining cable guidance and special slats allows light in to all the right places – with no glare.

Slim

Compact dimensions: The 50 mm narrow, flat aluminium slats without eyelets ensure a smaller height of the slat stack and the cover panel.

Safely guided

Slender and long-lasting: Slats and end rails are guided securely along a tension cable and fastened at the sides with tension cable brackets. The design with cable guidance saves spaces and can be integrated into virtually every facade.

Reflection-free

Indirect illumination: A reflection against the ceiling provides uniform illumination for the room and prevents distracting reflections.

Useful

In line with your requirements and installation situation: With the cover panel optionally available in various dimensions and shapes.

Construction limit values

Maximum order width	5000 mm
Maximum order height	4000 mm
Maximum order area	20 m^2
Maximum order width of the group unit	12000 mm

Order here

myWAREMA

Art.-Nr. 2020294

Order form

https://docs.warema.com/fi/877890.pdf

WAREMA tools

Dimensions Assistant
Fastener Assistant
Sun Shading Planner

see "Navigating the document", Page 5

Components



1	Top rail (tilt rod, bearing)	4	Lateral guidance
2	Slats	5	End rail
3	Tilting tape, lifting tape		

Top rail

Top rail

Material	Aluminium, extruded
Surface	Plain
Optional surface	Powder-coated, Anodised
Profile	C profile
Width	59 mm
Height	51 mm

+ Top rail bracket

Top rail bracket

Material	Aluminium
Surface	Plain

see "Top rail bracket", Page 477

Bearing

Bearing for slat tilting: Tilting closed/closed

- Comprising wedge segment from Teflon-containing plastic
- Maintenance-free, enclosed
- Segment tilting to prevent automatic adjustment of slats
- External venetian blind moves down with the slats closed to the outside and moves up with the slats closed to the inside

Slat

External venetian blind slats

Material	Aluminium
Surface	Enamelled

- Flat slats, curved
- Slat width 50 mm
- All cutouts in the slats without eyelets

Tape

Tilting tapes

- Each slat is attached to the top web of the tilting tape and threaded between the double webs.

Material	Polyester, with aramid reinforcement
Material colour	Black
Material colour, optional	Grey

Lifting tape

Lifting tape 6 mm

Material	Polyester
Material colour	White
Material colour, optional	Black, Grey

Shaft

Tilt rod

Material	Galvanised steel
Surface	Plain
Profile	Square tube
Width	12 mm
Height	12 mm

End rail

End rail, fixed (rectangular)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	50 mm
Height	20 mm

Guide variants

– Cable guidance

see "Cable guidance", Page 390

Tension cable

Tension cable

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

Additional cable guidance from a slat size > 3000 mm:

To prevent damage from wind load on components that are behind the external venetian blind, an additional central cable guidance must be planned for slat dimensions > 3000 mm. Two additional tension cables are required for slat sizes > 4000 mm.

Arrangement of the additional cable guidance: The arrangement must be specified (viewed from inside the room, starting on the left)

Number of cable guidances: The number of cable guidances depends on the installation situation. For larger distances to the facade or for installation in the corner area of the facade, additional cable guidances are to be provided.

Determination of cable length: External venetian blind height + 100 mm.

see "Number of tension cables", Page 273

Drive variants

– Motor
– Crank

Motor

– Basic motor for external venetian blinds

Motor optional:

– Motor with position feedback
– Motor with 2 lower limit positions
– Motor with freezing protection
– SMI motor

see "Drive variants", Page 489

Colours

– Slat colours
– WAREMA Colour World
– Anodised C0

Colours, optional:

– Anodised C31
– Anodised C32
– Anodised C33
– Anodised C34
– Anodised C35

see "Colours and finishes", Page 12

Supplementary accessories

– Daylight transport element TLT
– slowturn
– Battery module UP for external venetian blinds
– Emergency power supply kit
– Slat perforation

see "Supplementary accessories", Page 277

Type selection

Configuration variants	Type key
Drive variants + Slat + Guide variants	
Basic motor for external venetian blinds + 50 mm slat for external venetian blinds + Cable guidance	E 50 A1
Crank + 50 mm slat for external venetian blinds + Cable guidance	C 50 A1

Construction limit values

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area	Maximum order width of the group unit	Group unit, maximum order area	Maximum order area of unit coupling	Maximum quantity of unit couplings per side
External venetian blinds								
E 50 A1	600 mm	5000 mm	4000 mm	20 m^2	12000 mm	39 m^2	20 m^2	2
C 50 A1	450 mm	5000 mm	4000 mm	20 m^2	12000 mm	30 m^2	20 m^2	2

For external venetian blinds, the information on "Minimum order width" and "Maximum order width" always refers to the slat length.

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

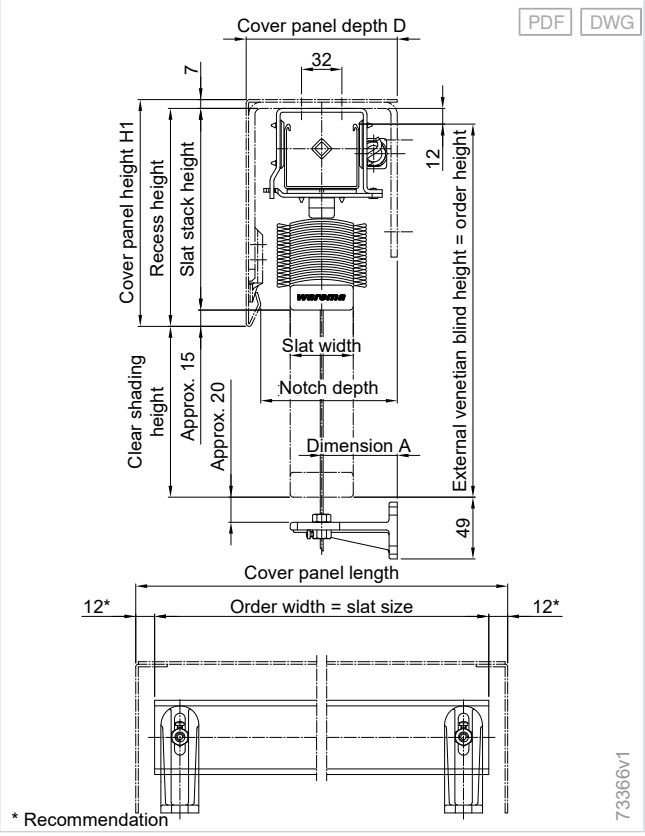
Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances as per the "Guideline for assessing the product features of external venetian blinds" apply.

Dimension determination

Configuration view: The order dimensions are determined from interior view, from left to right.

Reference dimension	Value
Slat stack height	See table "Slat stack heights"
Recess height	Slat stack height + 15 mm
Cover panel height H1	Slat stack height + 20 mm
Slat width	50 mm
Min. recess width	110 mm
Min. cover panel depth D	120 mm

Measuring instructions for external venetian blind with cable guidance



Slat stack heights

Slat stack height, external venetian blind height

	External venetian blind height [mm]											
Configuration variants	**1000**	**1200**	**1400**	**1600**	**1800**	**2000**	**2200**	**2400**	**2600**	**2800**	**3000**	**3200**
External venetian blinds												
C 50 A1	110	115	120	125	130	135	140	145	150	155	160	165
E 50 A1	132	137	142	147	152	157	162	167	172	177	182	187

	External venetian blind height [mm]			
Configuration variants	**3400**	**3600**	**3800**	**4000**
External venetian blinds				
C 50 A1	170	175	180	185
E 50 A1	192	197	202	207

Slat stack height, clear shading height

	Clear shading height [mm]											
Configuration variants	**1000**	**1200**	**1400**	**1600**	**1800**	**2000**	**2200**	**2400**	**2600**	**2800**	**3000**	**3200**
External venetian blinds												
C 50 A1	115	120	125	130	135	140	145	150	155	160	165	170
E 50 A1	135	141	146	151	156	161	166	171	176	182	187	192

	Clear shading height [mm]		
Configuration variants	**3400**	**3600**	**3800**
External venetian blinds			
C 50 A1	175	180	185
E 50 A1	197	202	207

Slat stack heights are approximate values and for technical reasons, they might be higher or lower.

Quantity determination

Number of tapes

Order height	Slat size	Number	End distance
0 - 4000 mm	450 - 600 mm	2	85 mm
0 - 4000 mm	601 - 900 mm	2	115 mm
0 - 4000 mm	901 - 1100 mm	2	150 mm
0 - 4000 mm	1101 - 1900 mm	3	150 mm
0 - 4000 mm	1901 - 2700 mm	4	150 mm
0 - 4000 mm	2701 - 3500 mm	5	150 mm
0 - 4000 mm	3501 - 4300 mm	6	150 mm
0 - 4000 mm	4301 - 5100 mm	7	150 mm
0 - 4000 mm	5101 - 5900 mm	8	150 mm
0 - 4000 mm	5901 - 6000 mm	9	150 mm

Minimum end distance: For external venetian blinds with crank drives and lateral gears, maintain a minimum end distance in the top rail:

– For units without work setting: 115 mm

Tilting tape distances: If the tilting tape distances are visually disruptive, for example, they can be adjusted.

Attention: For external venetian blinds, a maximum distance of 800 mm between the tilting tape must be maintained.

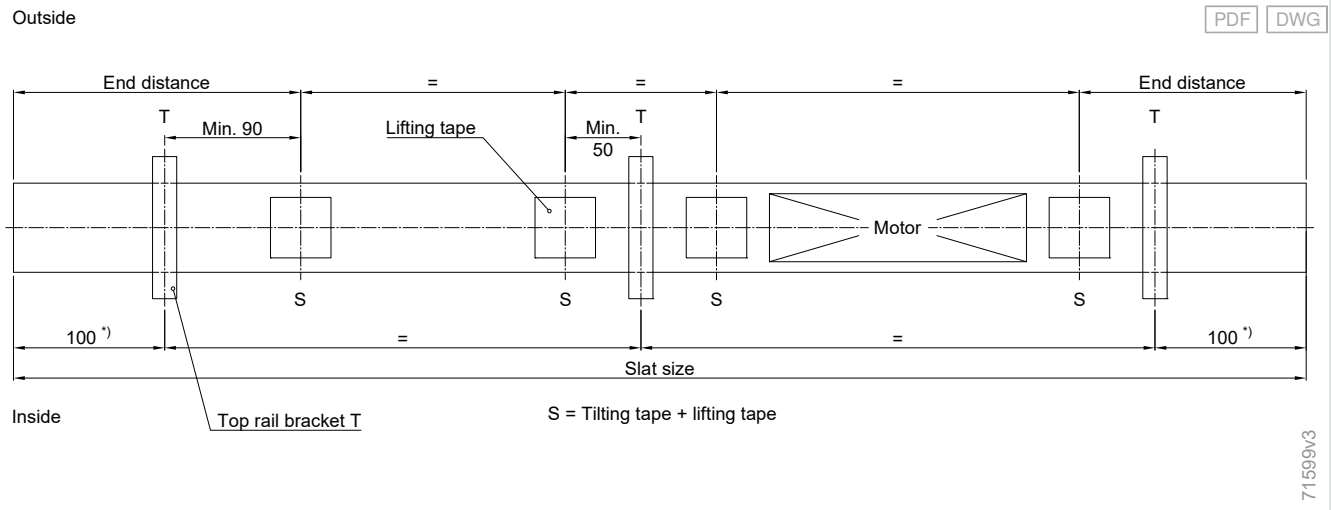
see "Top rail bracket", Page 477

Number of tension cables

Slat size	Number
0 - 3000 mm	2
3001 - 4000 mm	3
4001 - 5000 mm	4

Details

Positioning of bearing and bracket

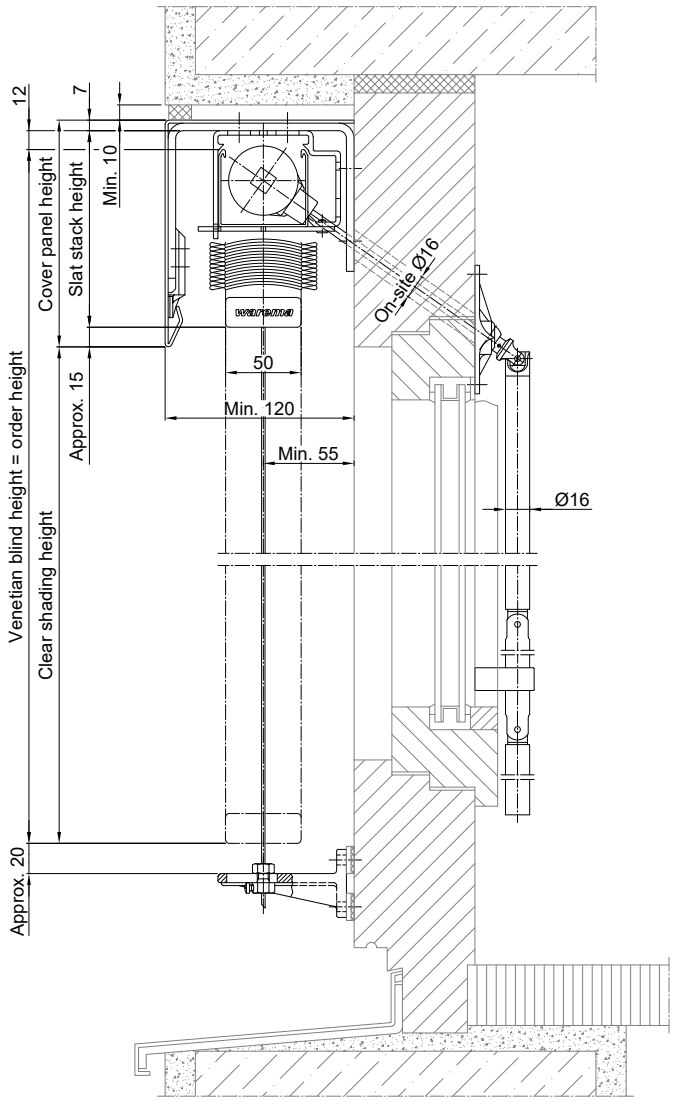


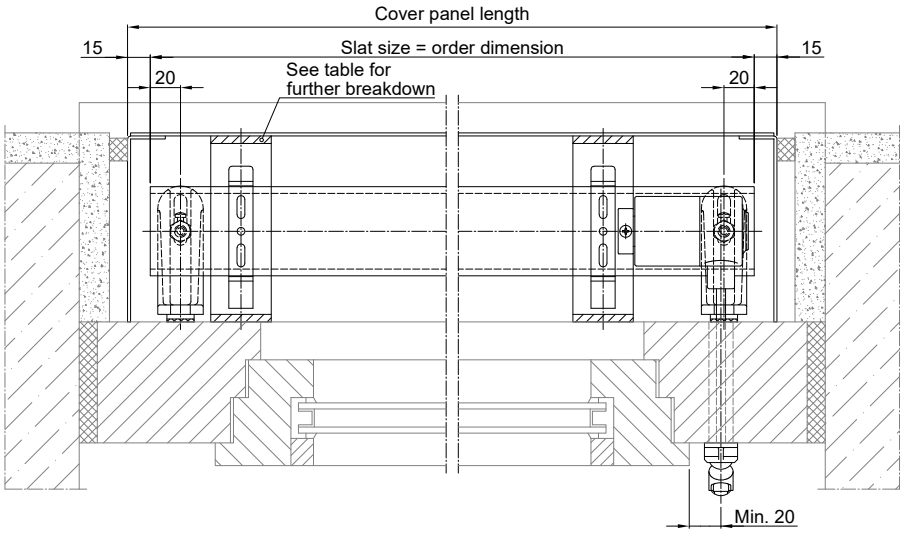
* Valid from slat size 1100 mm, for narrower external venetian blind slats see table "Number of tapes"

Mounting examples

External venetian blind; cable guidance; angular cover panel

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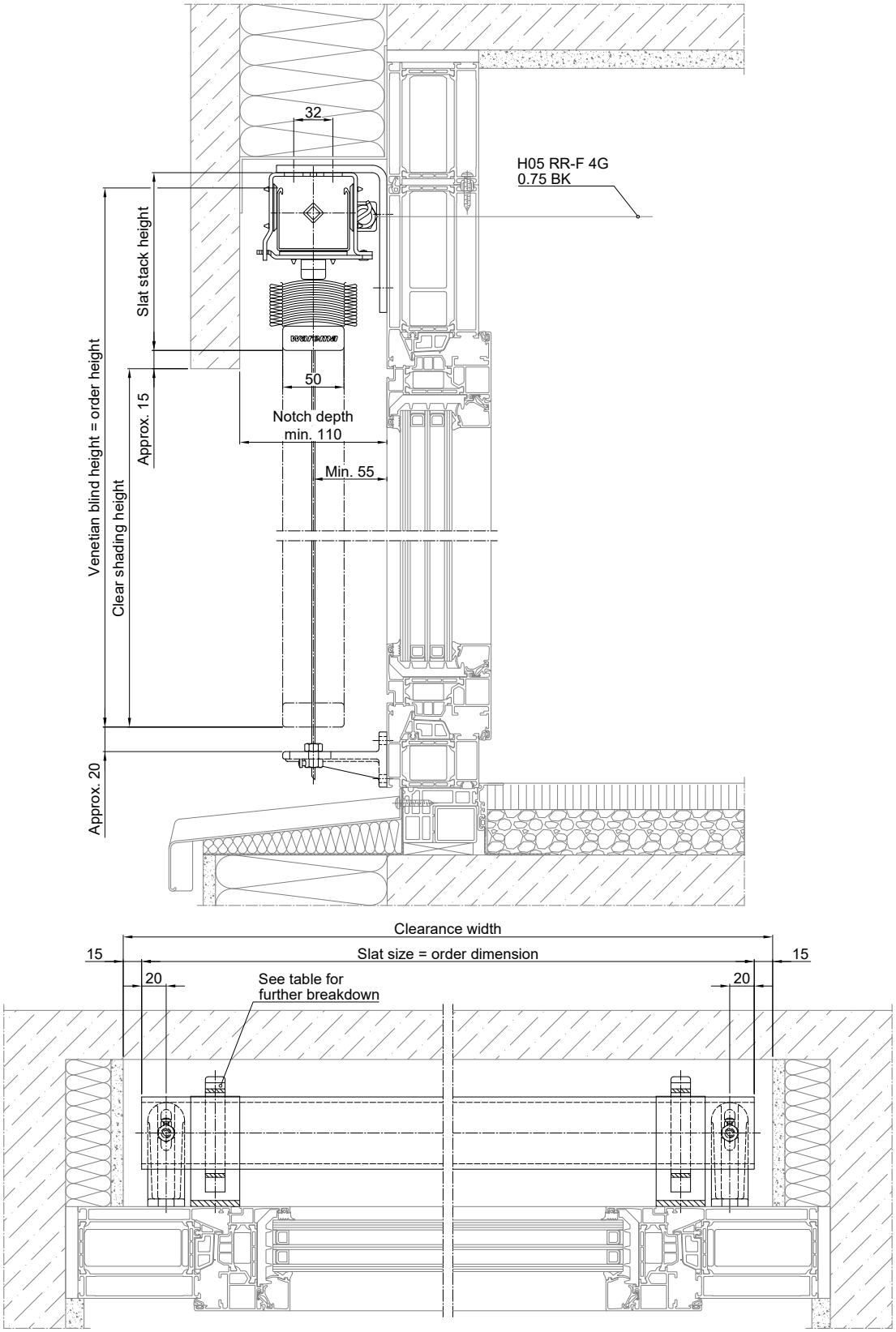




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Supplementary accessories

VisioNeo Sun railing system for external venetian blinds

Practically combined

Practical combination of external flexibly adjustable slats and a permanently integrated fixture for mounting a window pane as fall protection.

Fall protected

Stylish safety for opened floor-to-ceiling windows: Permanently integrated into lateral brackets on site, the window pane performs the function of a railing and is certified according to the applicable standard.

Discreet

View out and lightness: The optically light construction with concealed screw connections and extremely slender glass edge protection blends harmoniously into the architecture – for an unimpeded view out.



Can be used for:

- Basic external venetian blinds
- External venetian blind window systems FSR
- Front-mounted external venetian blinds R6
- Top-mounted external venetian blinds for new buildings NA-RA
- Basic external shaft venetian blinds
- VisioNeo Single railing system: The VisioNeo railing system can also be configured as the "VisioNeo Single" variant without being combined with a sun shading system.

You can find detailed information on planning in the separate technical data for "VisioNeo railing systems".

Construction limit values

Maximum order width	2500 mm

Product characteristics

- Also available for middle rails
- Also available without sun shading as VisioNeo Single

Components

VisioNeo Sun railing system for external venetian blinds



1	Insect screen guidance or cover panel for guide rail	4	Glass edge protection, top
2	External venetian blind guide rail with integrated clamping profile	5	Glass edge protection bottom
3	Glass (carried out on-site)		

Product characteristics

The VisioNeo Sun railing system from WAREMA offers the possibility of integrating an additional glass fall protection into the facade with selected sun shading systems.

The brackets for an on-site window pane can be ordered directly with the sun shading system without additional planning effort.

The glass is embedded through vertical, linear glass fixing as a construction method in accordance with DIN 18008-4 Category A (product variant without load-bearing handrail, with glass edge protection).

The benefits for you at a glance:

- Planning security through an "Allgemeines bauaufsichtliches Prüfzeugnis" [German test certificate for building products or construction designs]
- System statistics
- Slender construction for high design standards
- Perfect edge protection on the upper/lower side of the glass edge with subtle aluminium profile
- In order to ensure a uniform appearance: The guide rails with integrated glass bracket are powder-coated to match the surface of the support product in line with the WAREMA Colour World
- Ease of assembly thanks to standard fixing materials
- Fixing directly on the window frame
- Covered screw connection of the guide profiles
- Insect screen can be integrated and retrofitted

Notes

Notes concerning the order

WAREMA supplies the systems with a "Allgemeines bauaufsichtliches Prüfzeugnis" [German test certificate for building products or construction designs]. The product VisioNeo Sun (combination with sun shading product) is a construction type in accordance with DIN 18008-4.

The glass is not included in the scope of delivery as standard (but optionally available on request).

WAREMA specifies the required glass type and the required order dimensions for the glass together with the order confirmation.

Notes on product configuration

During planning, it is essential that the technical data for the VisioNeo railing system be observed.

Filling material exclusively glass (laminated safety glass)

Notes on installation

- Final assembly of the glass is conducted by WAREMA's customer. Once assembled, this customer is obliged to provide the property developer with a certificate of compliance in accordance with the abP [German test certificate for building products or construction designs], confirming with their signature that the assembly has been completed correctly in accordance with the specifications of the abP.
- Glass edge protection must be applied on-site at the top and at the bottom of the glass edge.

Dimension determination

Construction limit values

Construction limit values for glass dimensions

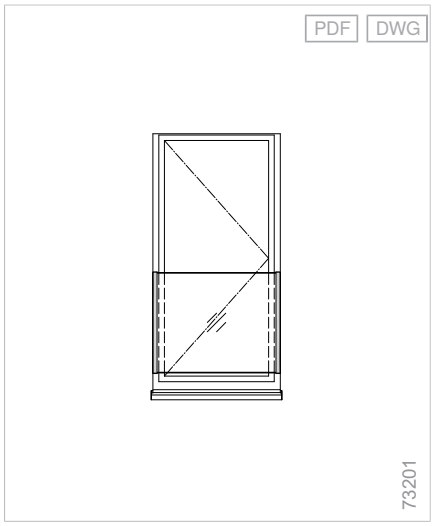
	Dimensions in mm	Note on construction limit values
Minimum glass width	350	The minimum width depends on the respective sun shading product, except in the case of VisioNeo Single.
Maximum glass width*	2500	In railing systems with centre rails, max. 3 glass panel widths can be placed next to each other.
Minimum glass height	300	
Maximum glass height	1200	
Balustrade height in accordance with LBO [German building regulations for the respective Federal State]	900-1100	Value from top edge of finished floor level

* The maximum glass width refers to the order width = back edge of the guide rail

The construction limit values must be observed separately depending on the respective product type.

Mounting examples

VisioNeo Single railing system, model type A with 1 possible glass element



VisioNeo Single railing system, model type B with 2 possible glass elements

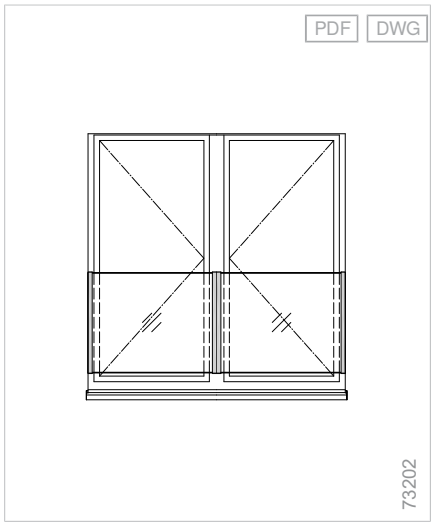


Figure: double middle rail

VisioNeo Single railing system, model type C with 3 possible glass elements

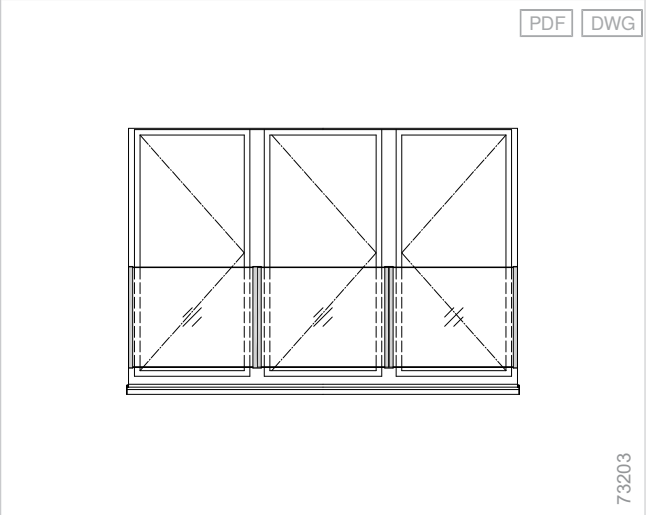


Figure: 2x double middle rail

VisioNeo Sun railing system with middle rails, model type B with 2 possible glass elements

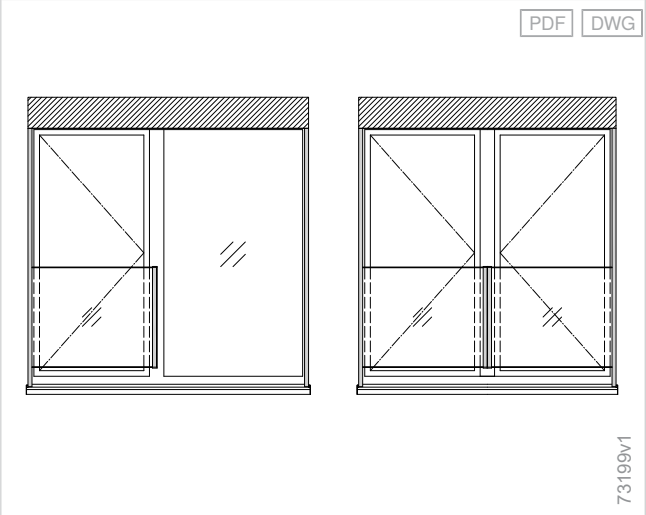


Figure left: single middle rail; Figure right: double middle rail

VisioNeo Sun railing system with middle rails, model type C with 3 possible glass elements

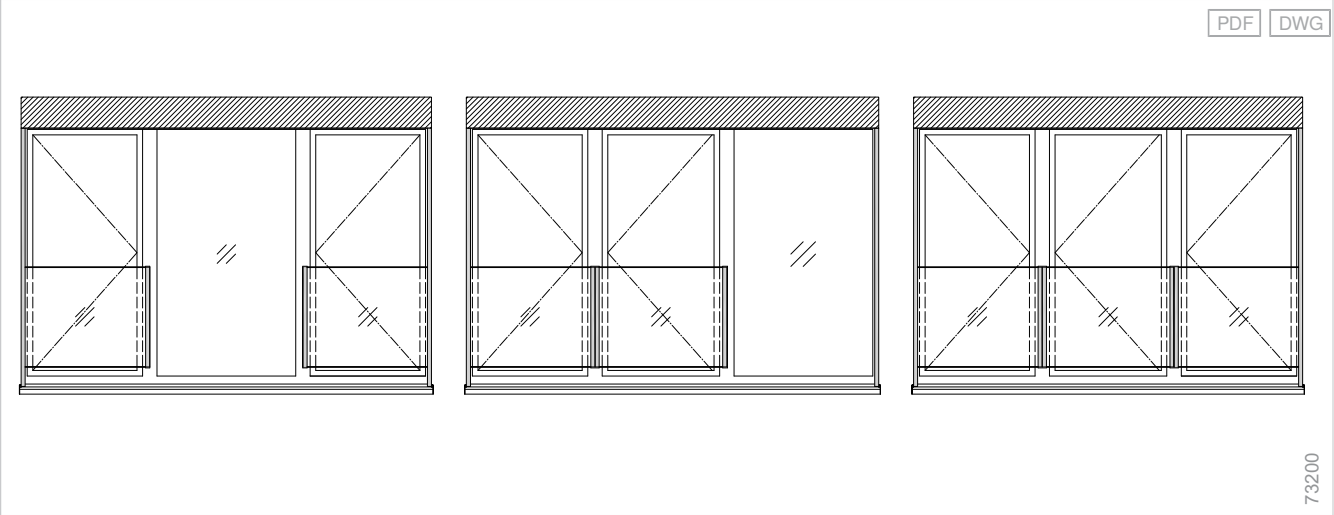


Figure left: 2x single middle rail; Central figure: 1x single middle rail, 1x double middle rail; Figure right: 2x double middle rail



Supplementary accessories

SenSigna, external venetian blind with acoustic signal

Protective

SenSigna detects atypical movements and hits fleeing intruders with an alarm signal of approx. 90 dB before any damage is done to the facade.

Tamper-proof

The secured clip or screw connections and the operation via coding prevent tampering.

Unobtrusive

The early warning system is discreetly integrated into the end rail of the external venetian blind.

Can be used for:

- External venetian blind window systems FSR with rail guidance
- Front-mounted external venetian blinds R6/R10
- Top-mounted external venetian blinds for new buildings NA-RA with rail guidance
- Top-mounted external venetian blinds AU-RA
- Basic external venetian blinds with rail guidance
- External shaft venetian blinds
- Self-supporting systems with rail guidance

SenSigna, integrated variant



Product characteristics

- Early warning system unobtrusively attached to the end rail
- Sensor system tuned to WAREMA external venetian blinds
- Self-sufficient with integrated power supply

Product characteristics

Function

SenSigna records all the movements of an external venetian blind and evaluates them. Unusual movements, during an attempted break-in for example, are reliably detected by SenSigna. In case of an alarm, an integrated loudspeaker emits an acoustic signal of approx. 90 dB.

If the external venetian blind encounters an obstacle during downward movement, a signal will be emitted at a reduced volume to indicate the problem.

Advantages

- Deters intruders before the facade becomes damaged.
- Detects obstacles during lowering.
- For new acquisitions or retrofitting: unobtrusive integration into the end rail
- Easy retrofitting thanks to the integrated power supply.
- Sabotage protection through secured clip or screw connections.
- Simple operation with two buttons, code protects against unwanted access.
- Sensor system is tuned to the movement behaviour of WAREMA external venetian blinds

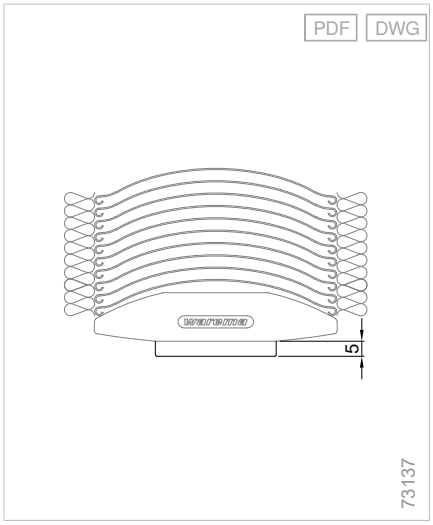
Details

- Housing dimensions: 165 x 40 mm
- Housing protrusion: with integrated variant approx. 5 mm, with retrofitted variant approx. 19 mm

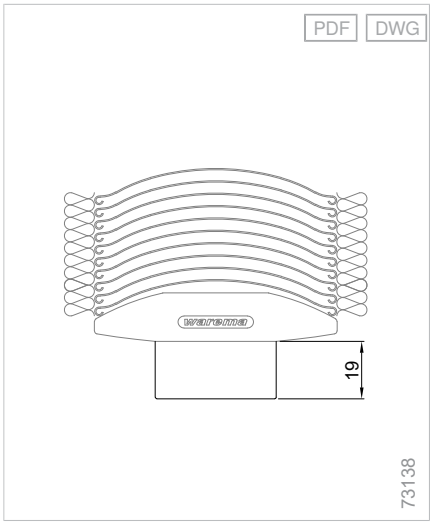
Dimension determination

Details

SenSigna, integrated variant - housing overhang 5 mm



SenSigna, retrofitted variant - housing overhang 19 mm





Supplementary accessories
Integrated insect screen

Optimally protected

Insect screens - available to install at the start or for retrofitting: you can choose from roller blinds, fixed frames, pleated blinds, sliding doors, swivel or swinging doors and light well covers – practically applicable and perfectly integrated.

Widely applicable

The external insect screen is available for a wide range of requirements: for example, the insect screen can be installed in a variety of installation situations, even on oversized patio doors, on round windows, on skylights or in cases of limited space.

Multifunctional

Available in different models: depending on individual requirements, the gauze can also be used to protect allergy sufferers from pollen, city dwellers from fine dust, and fabric from damage caused by pets – according to your specific needs.

Airy

Excellent view out and air permeability: products with WAREMA VisionAir gauze are woven from especially fine black thread and, compared to standard gauze, create a more transparent look and increase brightness in the room.



Product characteristics

- Sun shading systems and integrated insect screens from a single source
- Ideally ventilate living areas without annoying insects
- Aluminium parts match the colour of the sun shading system

Integrated insect screen roller blind

Can be used for:

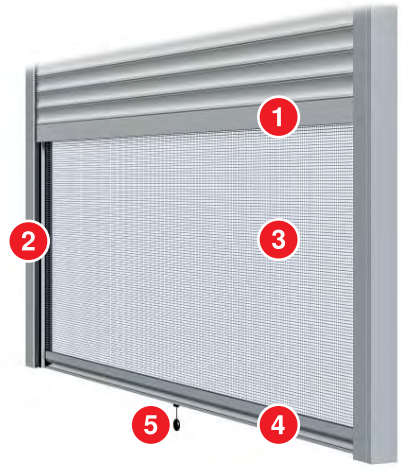
– Front-mounted external venetian blind R10 (included as standard for models up to 5.0 m in area or 2000 mm in width and 2500 mm in height)

Other options available for:

– External venetian blind window system FSR
– Top-mounted external venetian blind for new buildings NA-RA
– Shaft external venetian blind system S1

Components

Integrated insect screen roller blind (based on example of roller shutter)



1	Sun shading system (figure with roller shutter)	4	Insect screen handle rail
2	Guide rail	5	Tassel
3	Insect screen gauze		

Product characteristics

Standard scope of delivery:

– Shaft incl. WAREMA VisionAir gauze, black
– Drive via spring-loaded shaft
– Aluminium handle rail, powder-coated, with integrated brush seal for window and 85 mm tassel
– Interlocking in the lower area using an end closure with catch mechanism
– Smooth raising due to soft-raise function
– Guide rails for aluminium insect screen roller blinds

Optional:

– Brush seal with downward sealing
– Cord tassel 600 mm

Notes

Type-dependent limitations:

– FSR:
  – If the cover panel is ordered without rear edging, this means an insect screen roller blind cannot be used.
  – Rear edging of at least 37 mm must be provided to allow an insect screen roller blind to be integrated.
  – For the FSR version with cable guidance, the insect screen must be individually planned due to the variance of the tension cable bracket and window frame model.
– NA-RA: Insect screen roller blind only available for 140 mm shaft depths.

Construction limit values

Construction limit values for a model with an integrated insect screen roller blind are available with the respective support product.

Dimension determination

The dimension drawings for a model with an integrated insect screen roller blind are available with the respective support product.

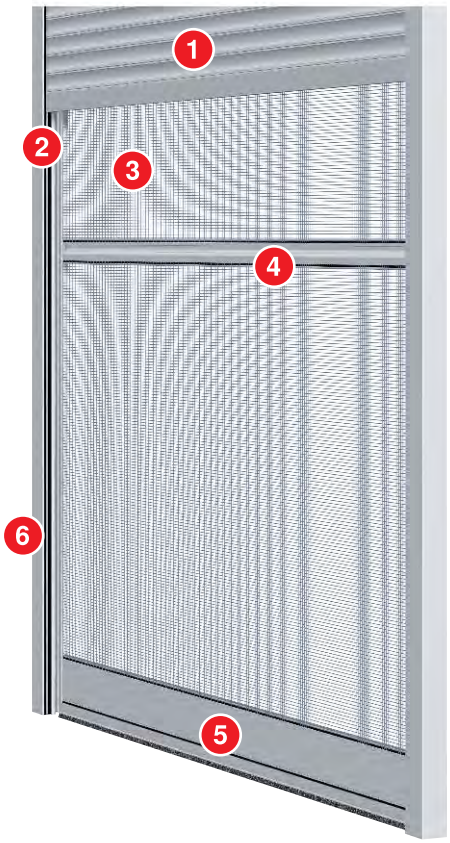
Integrated insect screen swivel door

Can be used for:

- External venetian blind window system FSR
- Front-mounted external venetian blinds R10
- Top-mounted external venetian blind for new buildings NA-RA
- Shaft external venetian blind system S1

Components

Integrated insect screen swivel doors (based on example of roller shutter)



1	Sun shading system (figure with roller shutter)	4	Integrated handle rail
2	Guide rail	5	Kick profile and lower sealing
3	Insect screen gauze	6	Mounting frame (for external venetian blind window systems and front-mounted external venetian blinds)

Product characteristics

Standard scope of delivery:

- Aluminium swivel door that opens outwards with retracted brush seal and magnetic strip
- Models with 1 or 2 wings available
- Either with or without mounting frame, depending on support product - see notes
- Incl. hinges, fixing screws and automatic door closing aid
- Frame profile 12.5 x 30 mm and 12.5 x 28 mm, powder-coated in the support product colour (box colour)
- Brush seal sealing to window frame (specify dimension X!)
- From a side hung window height of 1500 mm, incl. extruded aluminium central support sash bar
- From a side hung window height of 1800 mm, incl. extruded aluminium central cross rail with integrated handle rail and kick profile
- WAREMA VisionAir gauze, black

Optional:

- Brush seal with sealing to window sill
- Other positions are possible for the handle rail and sash bar, additional sash bars possible
- Stainless steel gauze or pollen protection gauze, wear-resistant gauze, WAREMA VisionAir fine dust gauze

Notes

Type-dependent limitations and notes:

- External venetian blind window system (incl. surrounding mounting frame):
  - In conjunction with insect screen swivel frame, the external venetian blind must move completely into the cover panel.
  - If the cover panel is ordered without rear edging, this means an insect screen swivel frame cannot be used.
  - Rear edging of at least 15 mm must be provided to allow an insect screen swivel frame to be integrated.
  - For the FSR version with cable guidance, the insect screen must be individually planned due to the variance of the tension cable bracket and window frame model.
- Front-mounted external venetian blind R10 (incl. surrounding mounting frame):
  - For subsequent orders please state the box size.
  - Alternatively, the insect screen swivel frame can be ordered at a later date using the WA number and item number.
- NA-RA (without mounting frame)

Construction limit values

Construction limit values for the model with an integrated insect screen swivel door are available with the respective support product.

Dimension determination

The dimension drawings for a model with an integrated insect screen swivel door are available with the respective support product.



Supplementary accessories

WAREMA SecuKit for external venetian blinds

Unobstructed emergency route even without power

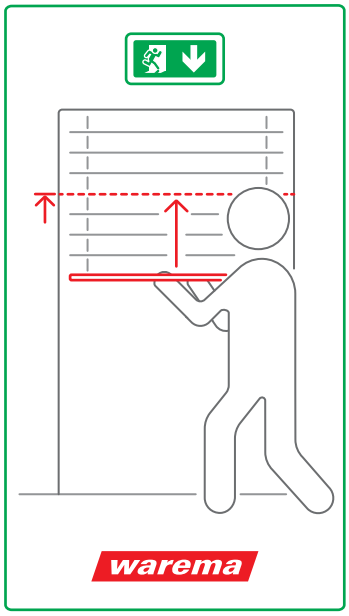
Ideal for a second emergency route in residential buildings: in emergencies, the sun shading system can be manually opened within seconds.

Easy to handle without any extra installation work

Prevents incorrect operation: the WAREMA SecuKit is seamlessly integrated into the guide rail. The external venetian blind is pushed up and reliably snaps into place laterally.

Immediately ready to use again

No reset required: the motor is ready for use again immediately after manual operation.



Can be used for:

- Basic external venetian blinds
- External venetian blind window systems
- Front-mounted external venetian blinds
- Top-mounted external venetian blinds for new buildings
- Top-mounted external venetian blinds
- External shaft venetian blinds

For each of the slat geometries: 80 S, 80 AF, 80 Z (only when using the 2K plastic clip profile)

Product characteristics

- Additional manual opening for motor-operated external venetian blinds
- Ideal for the second emergency route
- Alternative to the motor with connection for additional crank operation
- The WAREMA SecuKit is only available in conjunction with a fixed, i.e. non-swivelling end rail.

Product characteristics

Intended use

The WAREMA SecuKit for external venetian blinds is a mechanical optional extra that can be used for the second emergency route (see legal notices). In an emergency, users of motor-operated external venetian blinds are permitted to open the escape route from both the inside and outside the building in a matter of seconds, even in the event of a power failure.

The optional extra is only intended for use in the event of an emergency and is not suitable for continuous operation.

Functional principle

Once the end rail has been raised, the spring mechanism premounted at the factory is released. The spring force pushes the guide pins of the end rail outwards into the lateral guide rails. If the end rail passes over the locking wedges/windows incorporated into the guide rails as it is pushed up, the guide pins lock laterally. The end rail is held in this position.

The height of the locking mechanism must be specified in the order.

Reset after emergency operation

After an emergency operation, the external venetian blind must be moved to the upper and then to the lower end position by the motor drive. A visual check must be carried out (see notes).

Notes

Planning:

- For operation from the room, the window and the end rail must be accessible when the external venetian blind is lowered and it must be possible to open the window inwards.
- Available only with guide rails

Maintenance:

After each emergency operation, WAREMA recommends performing a visual check with the reset (approaching the upper and lower end positions). This includes checking for damage to the lateral guide pins, plastic eyelets in the slats and lifting tapes.

Further information can be found in the operating and maintenance instructions.

Notes concerning the order
Maximum order width: 1700 mm

Larger widths are available on request.

Legal information

WARNING

As there are no legal standards concerning the shading of emergency routes with sun shading products, the use of a WAREMA SecuKit for external venetian blinds must, taking the fire protection concept into account, be clarified with the responsible body (e.g. Section 66 of the MBO [German building regulations for the standardization of regional state building regulations]) and must be approved by this body. Product details can be found in the current technical documentation.

The following regulations apply to Germany:

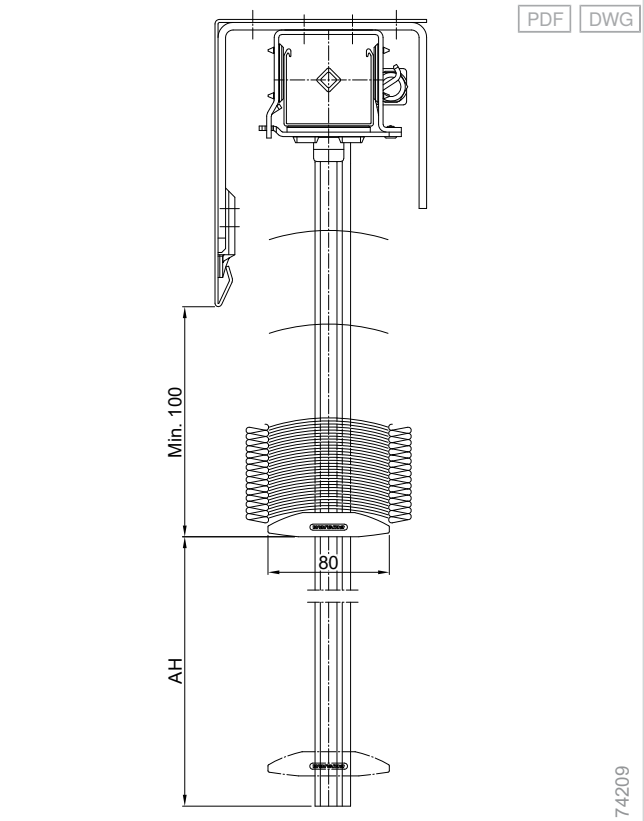
For solely privately used buildings, the kit can be used on a secondary emergency route, provided that the person responsible for fire safety under the applicable LBO [German building regulations for the respective Federal State] (Section 66 of the MBO [German building regulations for the standardization of regional state building regulations]) has inspected and approved the individual field of application.

The following applies to the rest of the EU and Switzerland:

Compliance with legal provisions and country-specific regulations on site is the responsibility of the orderer. There may be regional regulations and conditions that prohibit the use of WAREMA SecuKit for external venetian blinds. However, these cannot be investigated by WAREMA.

Dimension determination

Order data, stop height of the end rail



Reference dimension: Stop height = AH (min. 1000 mm, max. 2300 mm)

Dimension determination: Bottom edge of guide rail to stop position of end rail



Supplementary accessories

Corner joint for external venetian blinds

Modern

For the highest design requirements: the shading solution for modern architecture with no obtrusive guidances on corners when the external venetian blind is raised.



Minimalist

For an all-round unrestricted view and the maximum incidence of light: the unobtrusive corner joints for guide pins do not require guide rails or tension cables at the corner.

In sync

Synchronous slat movement: both external venetian blinds tilt towards the corner simultaneously and move up and down at the same time.

Can be used for:

- E 80 A6 S
- E 80 AF A6
- E 80 A6 Z
- E 90/93 A6

Construction limit values

Maximum order width	4000 mm
Maximum order height	4000 mm
Maximum order area	12 m^2

Product characteristics

- Can be used in different ways with almost all slat geometries

Notes

Notes on product configuration
To be considered during planning:

- Due to wind turbulence at building corners, as well as increased wind pressure for taller buildings, **use is permitted only up to 10 m above ground**.
- The wind speed limits **apply only when the facade/ windows are closed**. When the windows or sash frames are open, the external venetian blind must be moved to its upper position.

Determining the permissible wind speed limits:

- For beaded slats and all dim-out slats, the wind speed limits for slat 80 S must be applied. The Beaufort number in the table must then be reduced by one more Beaufort number.
- For flat slats, the separate table for flat slats must be used and the value then likewise reduced by one Beaufort number.

Group units: Group units are not possible

Cable guidance:

- Cable-guided external venetian blinds are not possible
- Additional tension cables for external venetian blinds with rail guidance are possible

Notes on installation
Permissible bracket projection:

- Min. projection = 65 mm
- External venetian blinds with beaded slats and flat slats: max. 200 mm
- External venetian blinds with dim-out slats: max. 300 mm

Notes on operation
Movement behaviour: Tilt and move both external venetian blinds on the corner position at the same time.

see "External venetian blind wind speed limits", Page 527

Construction limit values

The construction limit values for the respective basic type always apply.

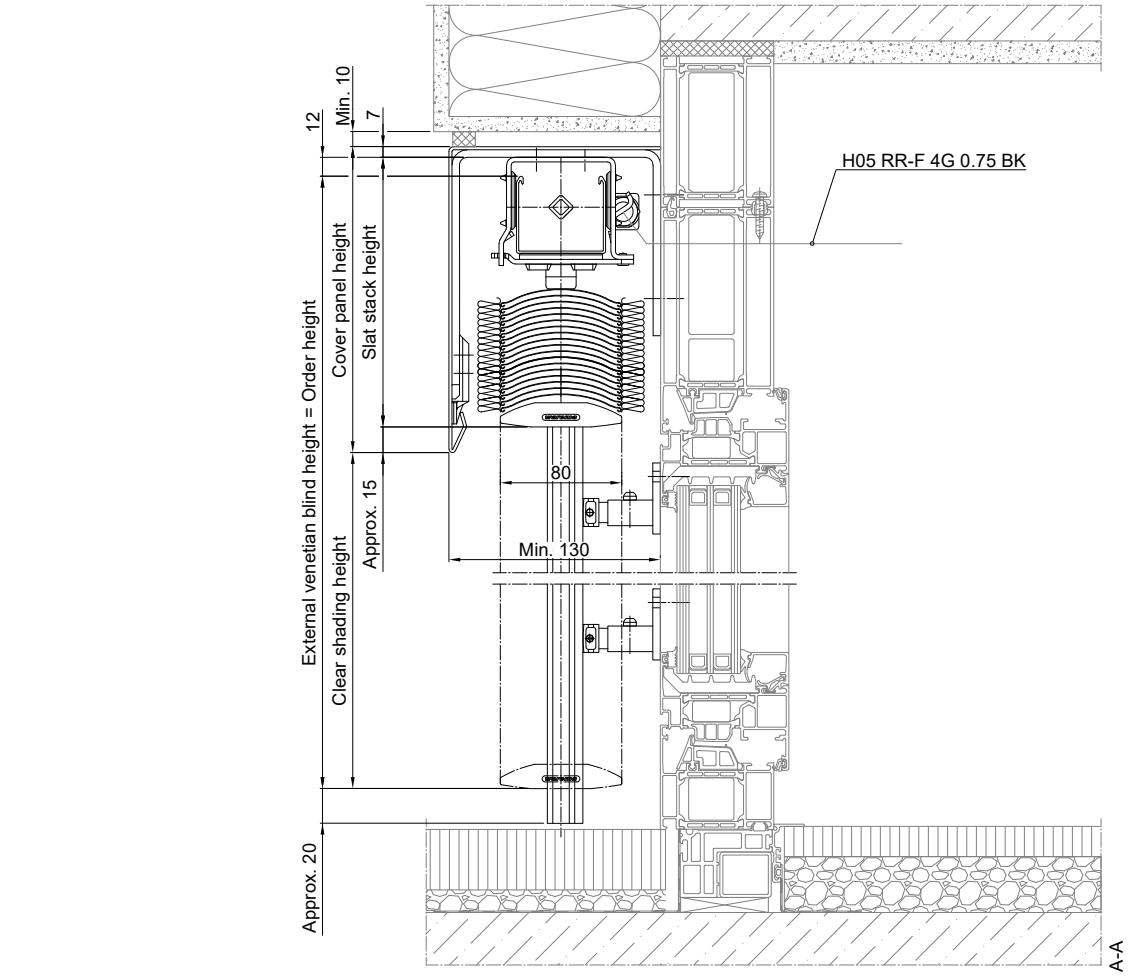
Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area
Slat				
Beaded slats	600 mm	4000 mm	4000 mm	12 m^2
Flat slats	600 mm	2400 mm	4000 mm	9,6 m^2
Dim-out slats	600 mm	3000 mm	4000 mm	12 m^2

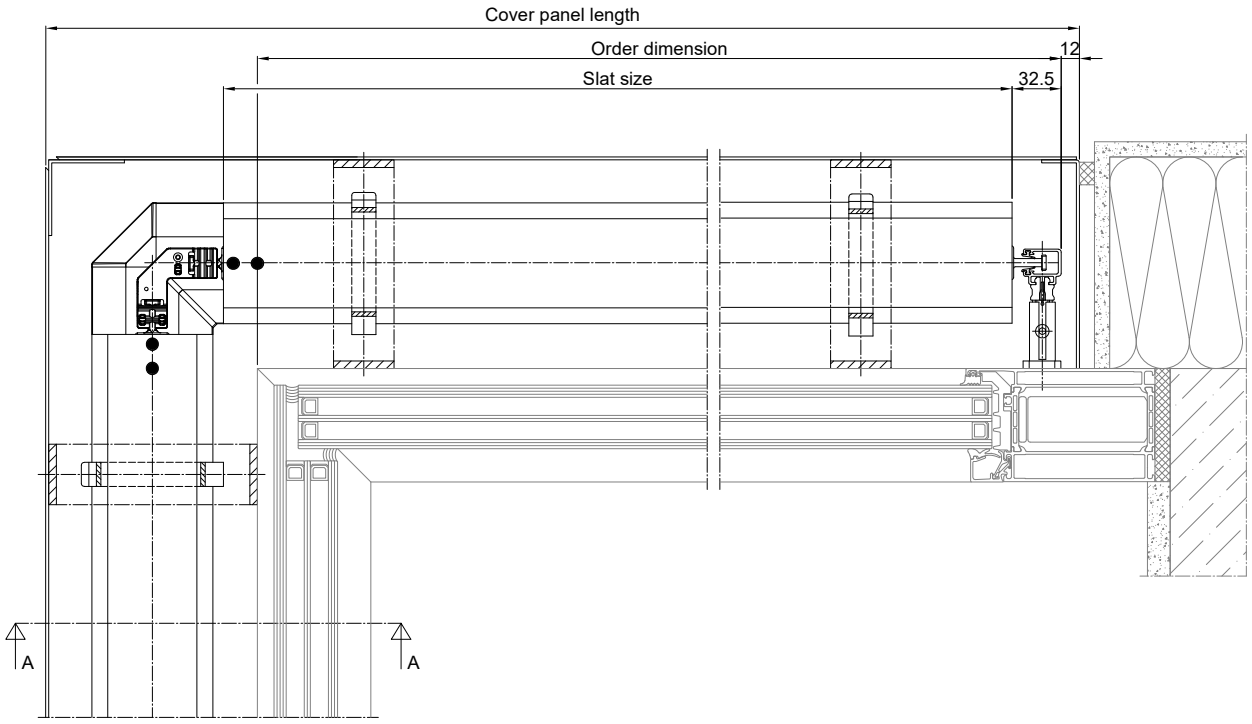
- The "maximum order widths" given in the table are the maximum order width per side (slat length).
- From a "maximum order width" of 3000 mm, we recommend additional cable guidance in the middle of the external venetian blind.

Dimension determination

Basic external venetian blind with corner joint for guide pins, rail guidance, beaded slats, angular cover panel

PDF DWG





The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

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Supplementary accessories

External venetian blinds in wind-stable design

Wind-stable

For locations exposed to wind or tall buildings: depending on the design and order dimension, an additional cable guidance, a weight on the end rail and a patented special tensioning system can increase the wind speed limits by up to 8 m/s.

Versatile use

In front or in the reveal: the wind-stable design can be installed on conservatories, transom and mullion facades and ventilated facades.



Can be used for:

- Basic external venetian blinds E 80 A6 S and E 93 A6
- External venetian blind window system FSR in product variants E 80 A6 S and E 93 A6
- Self-supporting external venetian blinds in product variants E 80 A6 S and E 93 A6

Construction limit values

Maximum order width	3000 mm
Maximum order height	3600 mm

Product characteristics

- Increased wind speed limits
- Versatile applications

Product characteristics

The system differs from the standard setup by 3 main features:

- Double guidance: Meaning, the external venetian blind fabric is guided by a cable in addition to the lateral guide rails on the left and right. The cable is fixed at the top in the top rail, and at the bottom by tension cable brackets.
- End rail with weight: The end rail is equipped with a weight to increase fabric stability
- Tilting tape with retensioning functioning: A patented special clamping system ensures the slats are fixed when exposed to wind load

Notes

For further information, see the chapter "Basic external venetian blinds" for the relevant product variant.

Construction limit values

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area	Maximum order width of the group unit	Group unit, maximum order area	Maximum order area of unit coupling	Maximum quantity of unit couplings per side
Basic external venetian blinds								
E 80 A6 S	600 mm	3000 mm	3600 mm	7 m^2	9000 mm	20 m^2	7 m^2	1
E 93 A6	600 mm	3000 mm	3600 mm	8 m^2	9000 mm	20 m^2	8 m^2	1

For external venetian blinds in wind-stable model, the information on "Minimum order width" and "Maximum order width" always refers to the back edge of the guide rails.

Height-width ratio: If the height to width ratio of 4:1 is exceeded, functional limitations may occur. See also the chapter on "Standards", "Width-to-height ratio" section.

Asymmetrical running: Asymmetrical running of slats cannot be prevented for small widths. The maximum tolerances as per the "Guideline for assessing the product features of external venetian blinds" apply.

Dimension determination

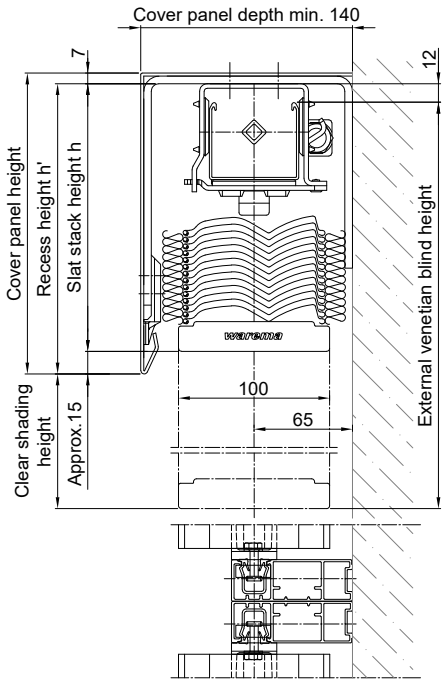
Reference dimension	Value
Slat stack height	See the respective product variant
Recess height	Slat stack height + 15 mm; min. 205 mm*
Cover panel height	Slat stack height + 20 mm; min. 210 mm*
Slat width	80 / 93
Min. recess width	120 / 130
Min. cover panel depth	130 / 140

* We recommend a minimum cover panel height to ensure overlapping between the lower edge of the cover panel and the top slat.

Background: the length of the external venetian blind is compensated via the distance between the top slat and the top rail.

Measuring instructions for E 93 A6 in wind-stable model

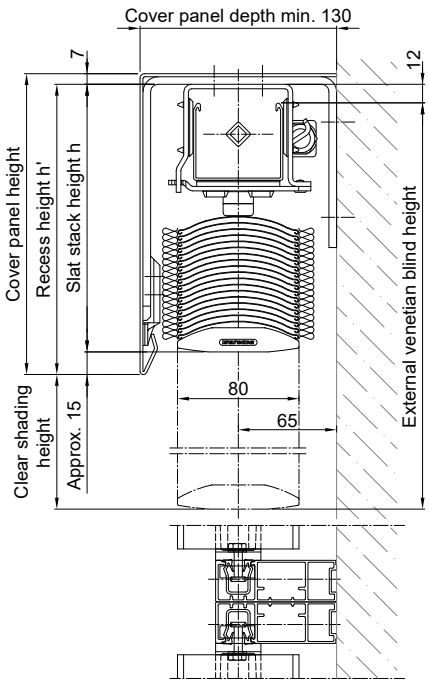
PDF DWG



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Measuring instructions for E 80 A6 S in wind-stable model

PDF DWG



70968v2

Quantity determination

Number of tapes

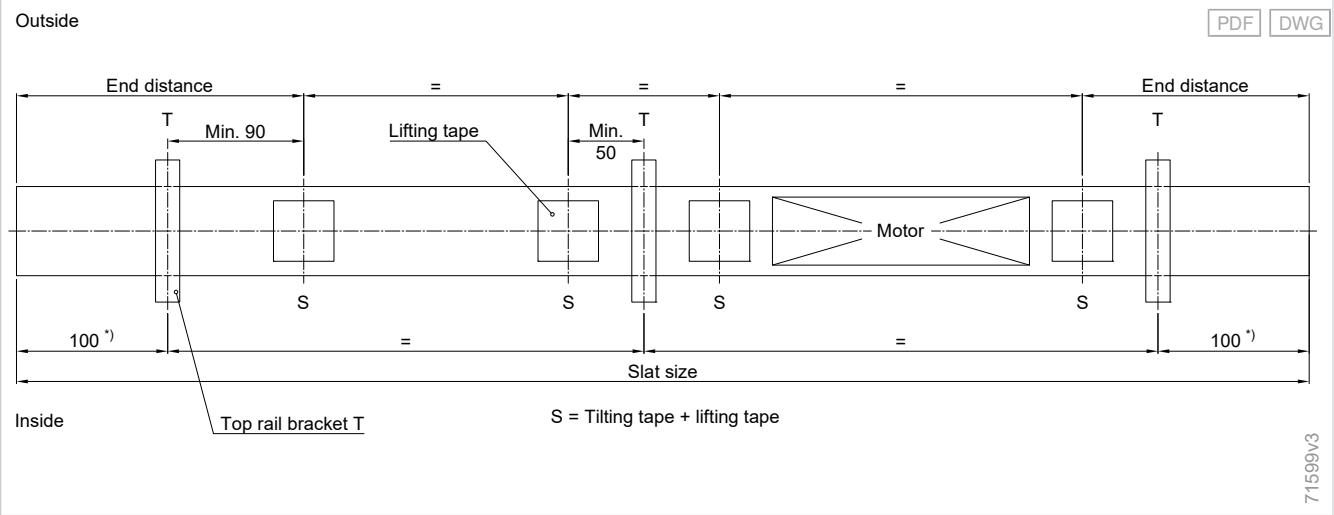
Order height	Slat size	Number	End distance
0 - 3600 mm	601 - 900 mm	2	115 mm
0 - 3600 mm	901 - 1100 mm	2	150 mm
0 - 3600 mm	1101 - 1300 mm	2	250 mm
0 - 3600 mm	1301 - 2000 mm	3	250 mm
0 - 3600 mm	2001 - 2700 mm	4	250 mm
0 - 3600 mm	2701 - 3000 mm	5	250 mm

Cord distances: If the cord distances are visually disruptive, for example, they can be adjusted.

Attention: Allow a maximum distance of 900 mm between cords.

Details

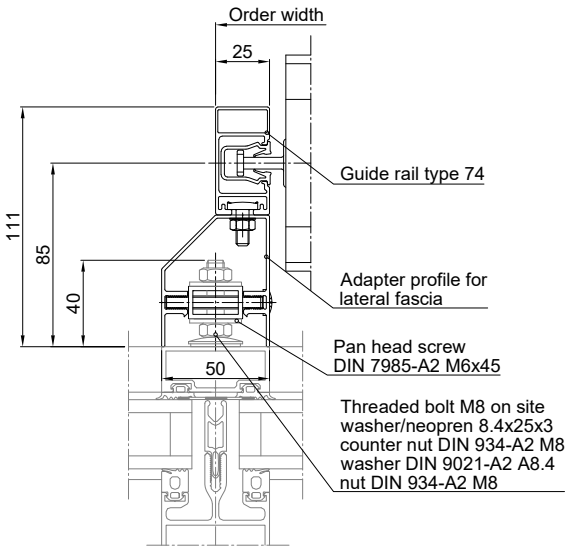
Positioning of bearing and bracket



* Valid from slat size 1100 mm, for narrower external venetian blind slats see table "Number of tapes"

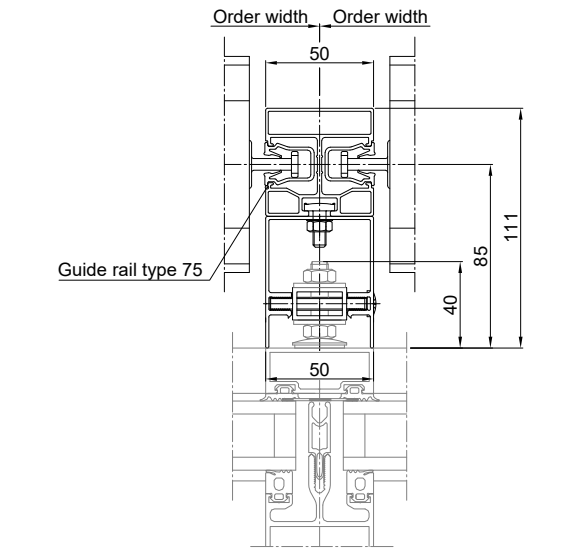
Lateral guidance model details

PDF DWG



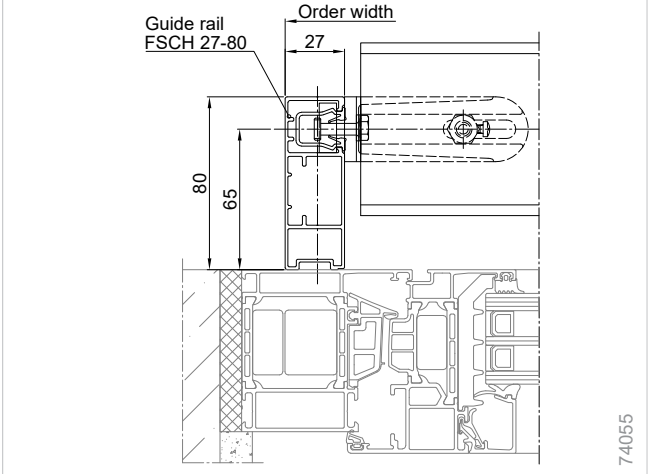
Model details lateral guidance

PDF DWG



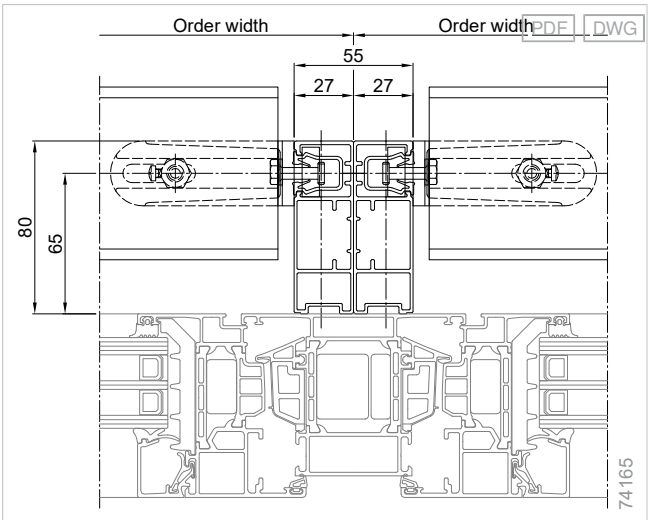
Model details lateral guidance, fixing to window/wall

PDF DWG

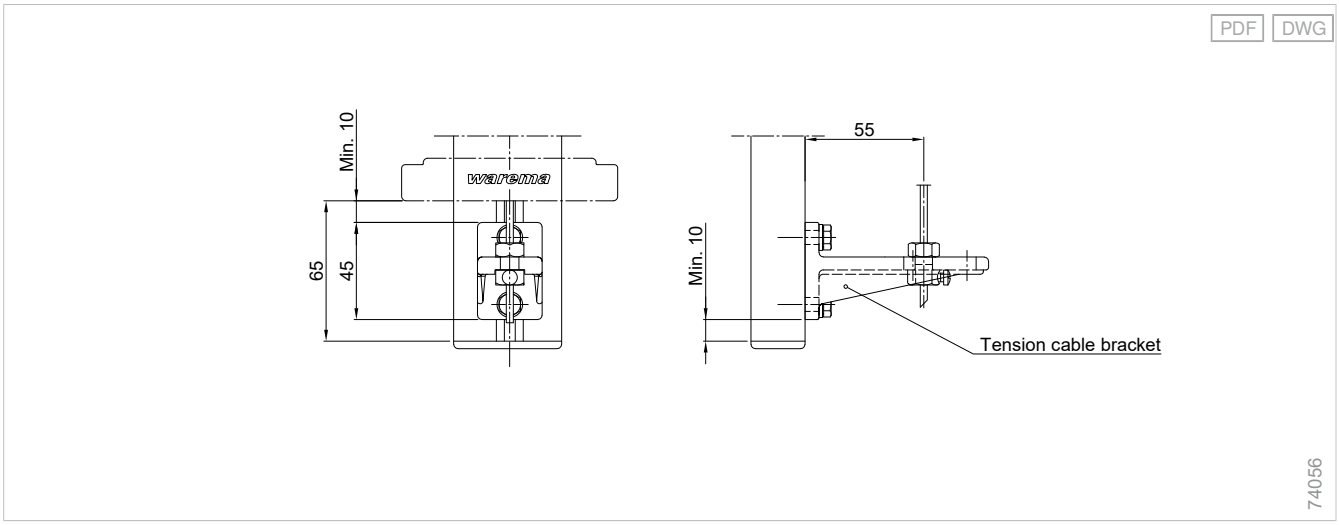


Model details lateral guidance, fixing to window/wall

PDF DWG



Detail of fixing the tension cable brackets to the guide rail



Additional product information

Detailed information on permissible wind speed limits

Flawless functioning of the wind-stable external venetian blinds (slat tilting, shading, etc.) is ensured up to the wind speed limits stated in the following table.

Permissible wind speed limits depending on the product variant, order dimensions and design

Product variant	External venetian blind width	Reveal + additional tension cables	Without additional tension cables	Without reveal
E 80 A6 S	up to 1300 mm	22 m/s	22 m/s	18 m/s
	Up to 1500 mm	22 m/s	19 m/s	18 m/s
	Up to 2000 mm	20 m/s	18 m/s	17 m/s
	Up to 3000 mm	18 m/s	17 m/s	17 m/s
E 93 A6	Up to 1500 mm	25 m/s	25 m/s	20.5 m/s
	Up to 2000 mm	25 m/s	20.5 m/s	20.5 m/s
	Up to 3000 mm	20.5 m/s	17.5 m/s	17.5 m/s

Please note: The wind speeds indicated are limit values at which the external venetian blind must be retracted.

Wind speed limit scope:

- Facade distance of slats ≤ 100 mm
- External venetian blind height ≤ 3600 mm

For the standard version, we recommend setting the wind sensors to max. 20 m/s.

Additional wind-stable cable guidance

Number of additional cable guidances

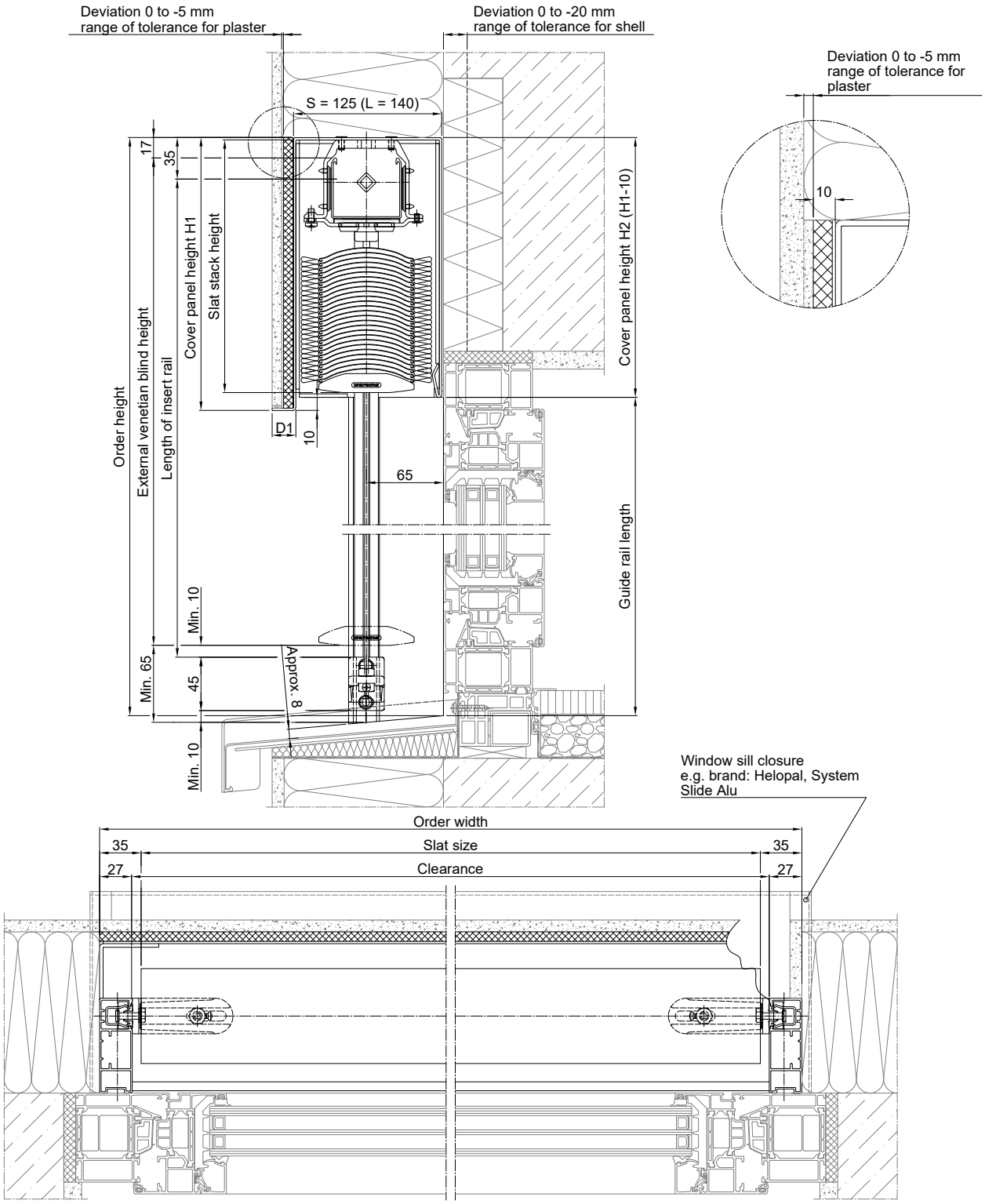
Product variant	External venetian blind width	Number of addition cable guidances
E 80 A6 S	Up to 1300 mm	0
	Up to 3000 mm	1
E 93 A6	Up to 1500 mm	0
	Up to 2000 mm	1
	Up to 3000 mm	2

The two external cable guidances are always installed and not included in the table.

Mounting examples

Wind-stable version, external venetian blind window system, E80 A6 S

PDF DWG

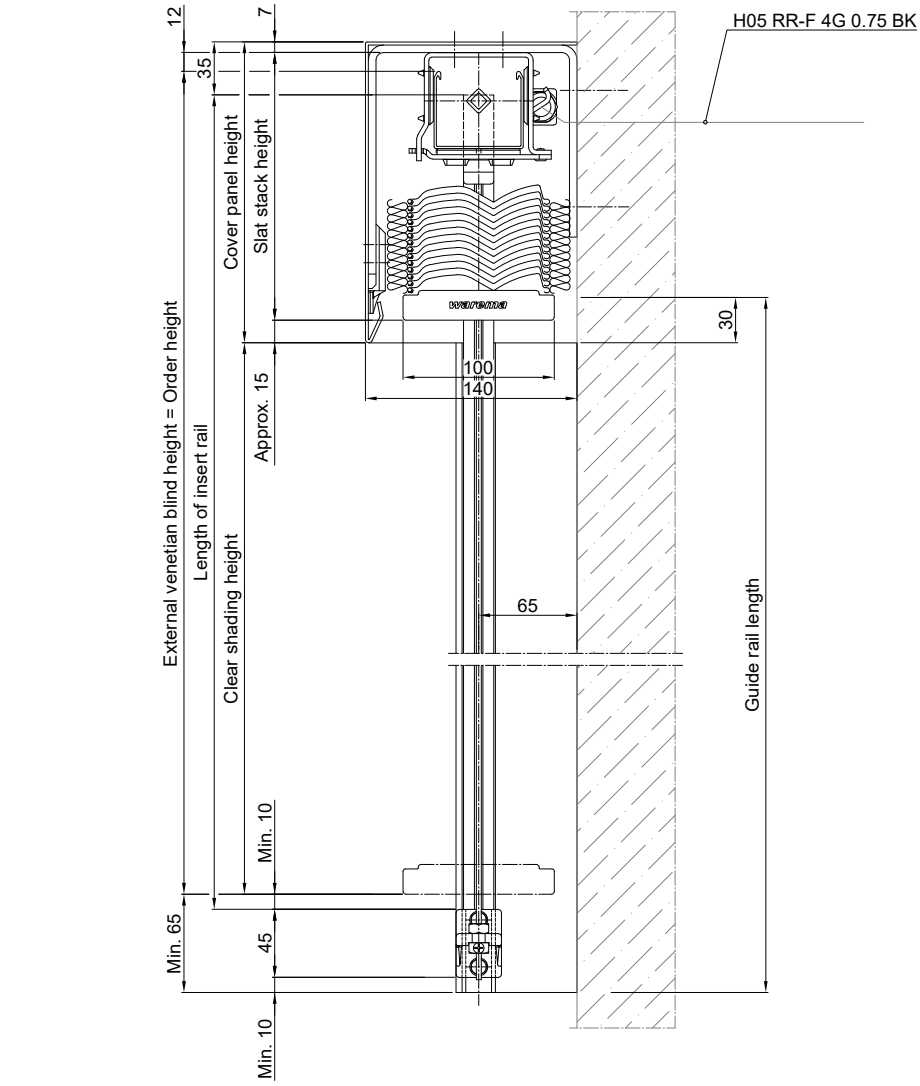


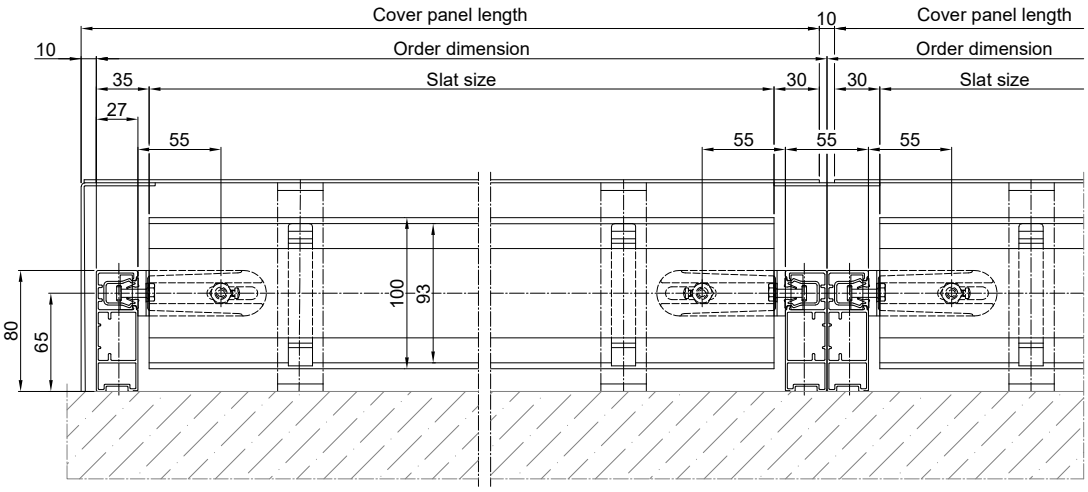
The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

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Wind-stable model for basic external venetian blind with rail guidance, E 93 A6, angular cover panel

PDF DWG



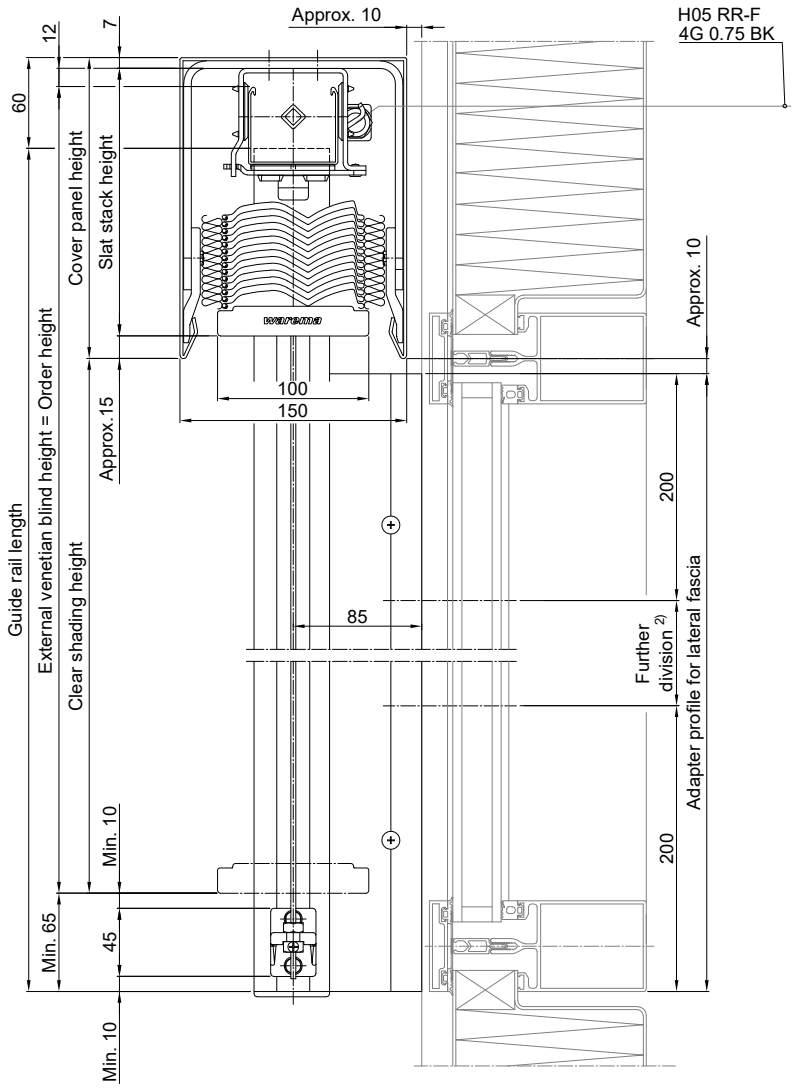


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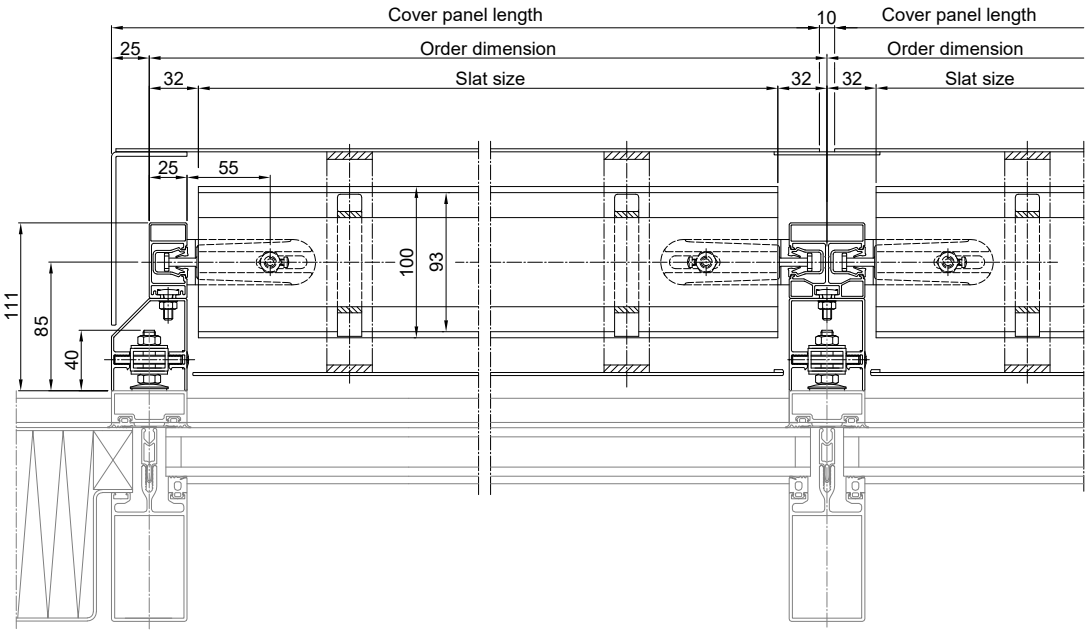
70266v6

Wind-stable model with self-supporting external venetian blinds, E 93 A6, cover panel installation on the guide rails

PDF DWG



2) Max. distance 1000 mm (facade fixing)



70268v5

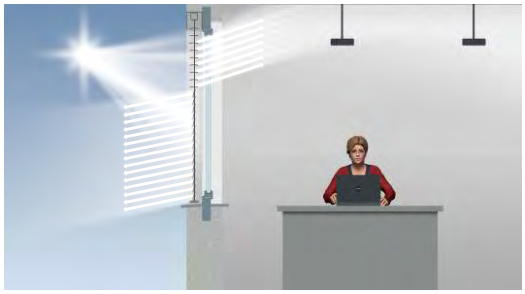
The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.



Supplementary accessories
Daylight transport element TLT

Work without glare

More light, without glare: the open upper slats allow daylight into the room while preventing glare from the sun through the closed lower slats, offering visual privacy from the outside.



Ergonomic

Increase your wellbeing: the low use of artificial light creates an ergonomic lighting design – the legal standards for computer workstations are also complied with.

Energy-saving

Sustainable: by making greater use of daylight, artificial light is reduced meaning you save on energy costs.

Can be used for:

- Beaded slats
- Flat slats
- Dim-out slats
- External venetian blinds

Product characteristics

- Ergonomic lighting design for increased well-being
- Compliance with legal standards
- Reduction in energy costs for artificial lighting

Product characteristics

To be considered during planning: The external venetian blind is divided into two sections for the daylight transport element TLT. The upper section can be tilted to let daylight into the room, while the lower section remains closed as a "glare protection section". The two sections can not be moved independently of one another. While the lower section allows a view out, the slats of the upper section are tilted further and even tipped "inwards" in the case of many slat types. This can lead to direct radiation and therefore to glare and increased incidence of energy. Even if only the slats in the upper section are tilted, glare is possible, especially for workstations situated far away from windows.

We recommend testing the use of external venetian blinds without TLT, but with slat tracking. An external venetian blind controlled with slat tracking behaves uniformly and the slats can be brought into horizontal position along the entire height. The higher the position of the sun, the further the slats can be tilted without letting direct sun rays into the room. This allows visual contact with the outside for the majority of the day. Glare from direct sun rays is also prevented and diffuse light is reflected into the room.

Dimension determination

Standard model:

- Up to 1499 mm clearance height: “glare protection section” max. ½ clear height
- From 1500 mm clearance height: “glare protection section” max. ⅔ clear height
- Other heights for the daylight transport section are available on request.

We recommend a large daylight transport section for plenty of daylight. For computer workstations the daylight section begins approx. 30 cm above the head of a seated person.

For front-mounted external venetian blinds:

- Maximum order height for models with daylight transport element: 3000 mm
- The clearance height corresponds to the order height.

Clearance height = order height - box height

Box heights = 169 mm or 189 mm

Notes

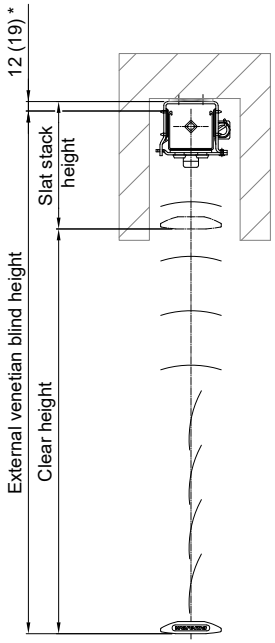
For external venetian blind type C/E 73/80 Z, the equipment variants AS and TLT can not be combined.

Construction limit values

The construction limit values for the relevant basic type apply.
Deviating from this, a maximum external venetian blind height of 4,000 mm is permissible (3,000 mm for type C/E 50 A1).

Determining the glare protection section height

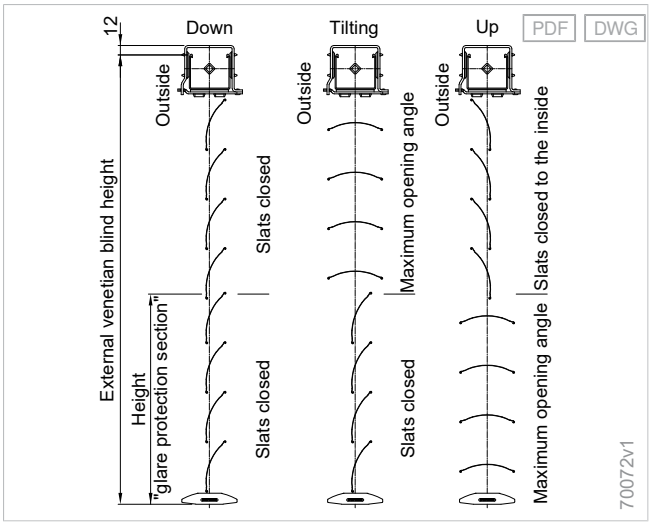
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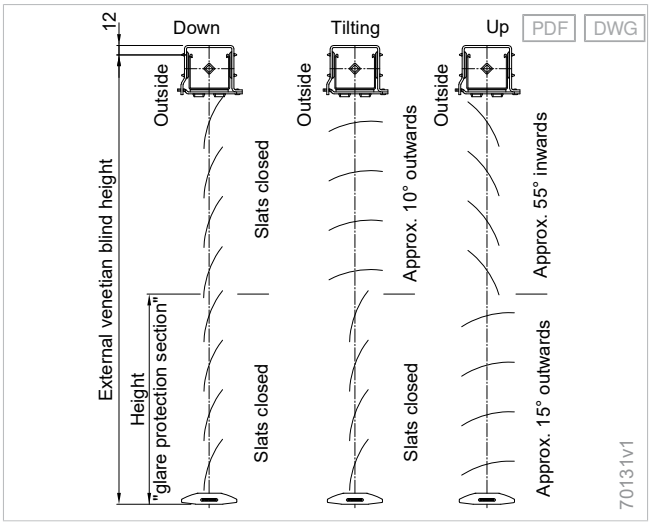
*19 mm for work setting (installation with higher top rail bracket)

Details

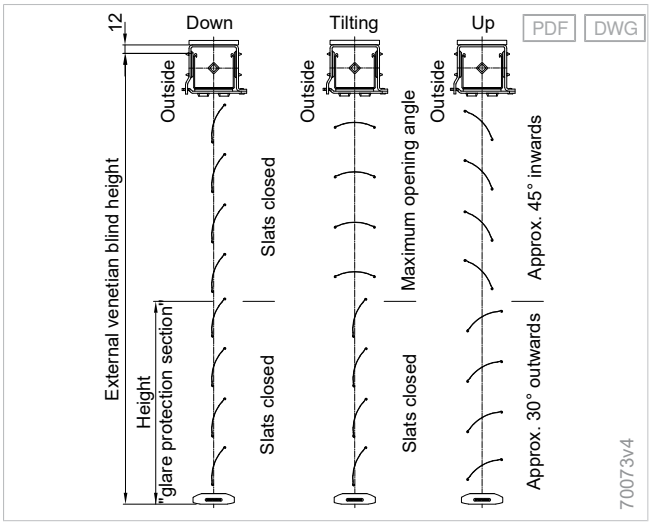
Beaded slat movement behaviour; slat width 80 mm



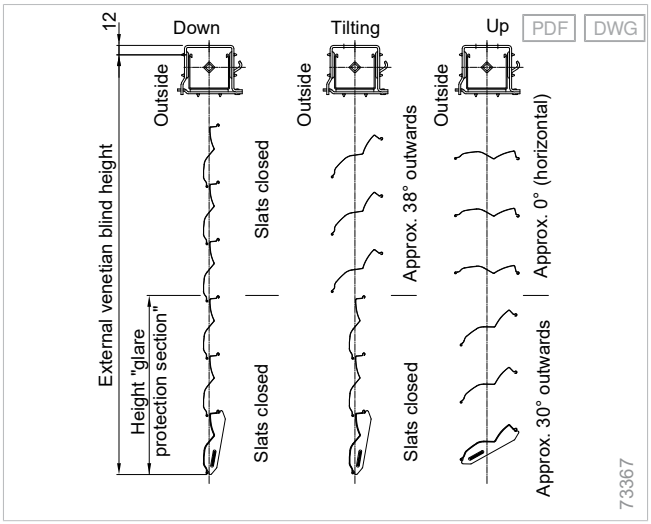
Flat slat movement behaviour; slat width 80 mm



Movement behaviour, slat width 60 mm



Dim-out slats movement behaviour





Supplementary accessories
Snap-action switch work setting

Uninterrupted

The external venetian blind slats move while in the open position and therefore don't darken the room while they move.



Can be used for:
- Beaded slats
- Flat slats
- Dim-out slats

Dimension determination

Details

Standard work setting

In the standard work setting

- The slats are lowered while inclined 38° and are raised with the slats in the maximum open position.
- The slats can be tilted to any intermediate position from 38° to horizontal.
- The external venetian blind is closed in the lower limit position.

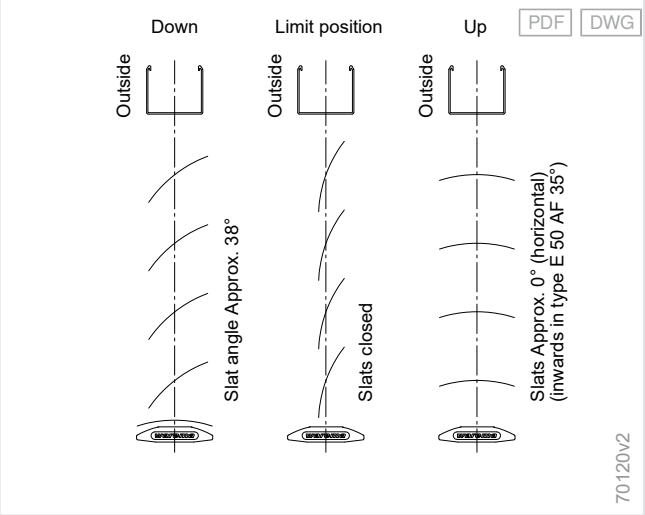
Work setting with motor with 2 lower limit switches

In addition to the standard work setting, the lower limit switches have the following functions:

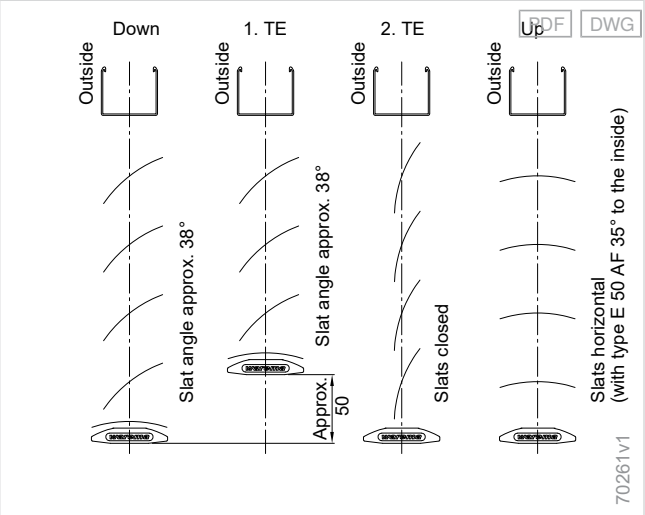
- 1st lower limit switch: prevents the external venetian blinds from closing in the lower limit position
- 2nd lower limit switch: allows path to closed position

Model only possible with suitable motor control unit, e.g. MSE, and 5-wire connecting line for the motor.

Movement behaviour of the snap-action switch work setting



Work setting movement behaviour of snap-action switch with motor with 2 lower limit switches





Supplementary accessories
slowturn

As you need it

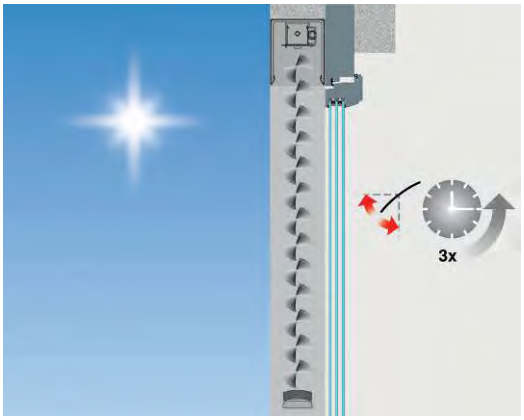
Individual adaptation to your own needs: the slats can be positioned very precisely thanks to a 3 times slower turning time.

Energy-efficient

Sustainable: together with an overall sun shading control system, slowturn increases the energy efficiency of buildings.

Cost-optimised

Good value: a low surcharge for considerable added value in daily use.



Can be used for:
- Beaded slats
- Flat slats
- Dim-out slats

Product characteristics

- Approx. 1/3 tilting speed
- No effect on the speed of the movement
- Model with standard motors

Notes

- General model with standard 230 V AC motors
- Maximum 3 external venetian blinds can be coupled mechanically
- Optimal energy efficiency via a sun shading control system with adjustable slat tilting times (e.g. WAREMA climatronic® 3.0).
- For control systems with preset time mode function, consult WAREMA before execution
- Commissioning the WAREMA Mobile System (WMS) using WMS Studio Software
- Operation via WAREMA EWFS radio system not possible

Tilting/movement behaviour

- Beaded slats: closed down, closed to the inside up
- Flat slats: closed down, 0° up
- Dim-out slats: closed down, 0° up



Supplementary accessories

Integrated lintel insulation for external venetian blinds

Ideal

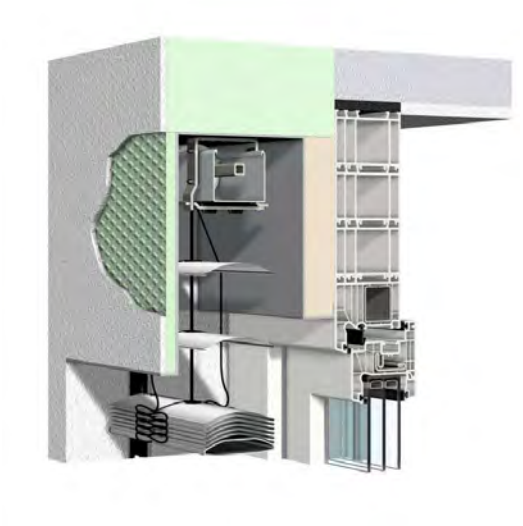
Lintel insulation is the ideal solution for integrating a sun shading system into the insulation layer of the facade.

Dry

Lintel insulation prevents thermal bridges in the lintel area and a build-up of condensation and mould.

Easy to install

The lintel insulation is installed at the factory and is available in different thicknesses. Depending on requirements, it can be mounted behind or above the box.



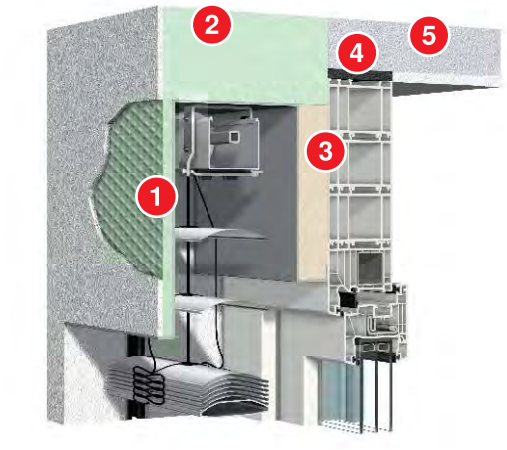
Can be used for:

- External venetian blind window systems
- Front-mounted external venetian blinds
- Aluminium cover panels

Product characteristics

- Optimum insulation of cover panels and boxes
- Thermal bridges in lintel area are prevented
- Insulation behind and on the cover panel/box possible

Components

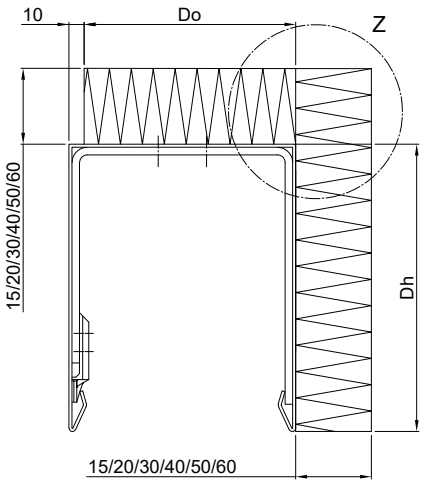


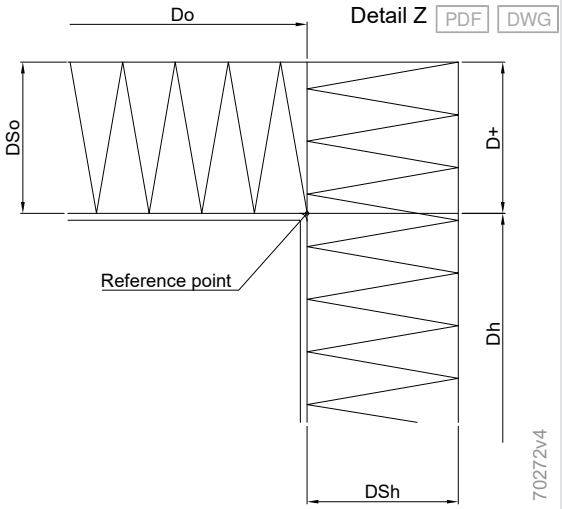
1	Box/cover panel	4	Foam sealing strip
2	On-site heat insulation (EIFS)	5	Wall construction
3	Rear lintel insulation		

Dimension determination

- The reference point is generally located on the back edge of the cover panel/box.
- Dh (rear insulation) must always be indicated.
- On cover panels and boxes with an insulated top side, the rear insulation is applied as follows: D+ (insulation plus) = DSo (top insulation thickness).
- If the insulation of the cover panels and boxes is only applied on one side, then the insulation always ends at the reference point, unless D+ (insulation plus) is specified.
- If Dh (rear insulation) is to end below the reference point, D- (insulation minus) must be indicated.
- If Do (top insulation) is not applied over the complete cover panel/box depth, (offset on the front of the box), the dimension of Do (insulation top) must be specified.
- On cover panels and boxes with plaster base plates, the Do (top insulation) always ends flush with the leading edge of the plaster base plate on the front of the cover panel/box.
- We recommend planning the cable exit laterally.
- Specify and/or observe on-site tolerances.
- Other variants are possible on request.

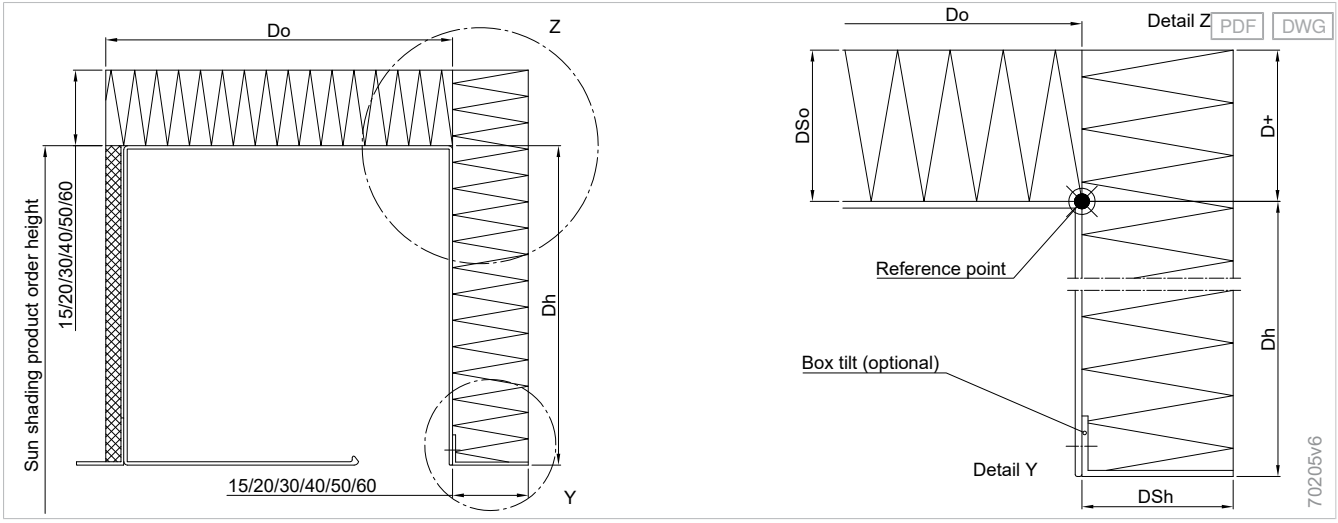
Integrated lintel insulation, dimension determination based on example of cover panel BL06



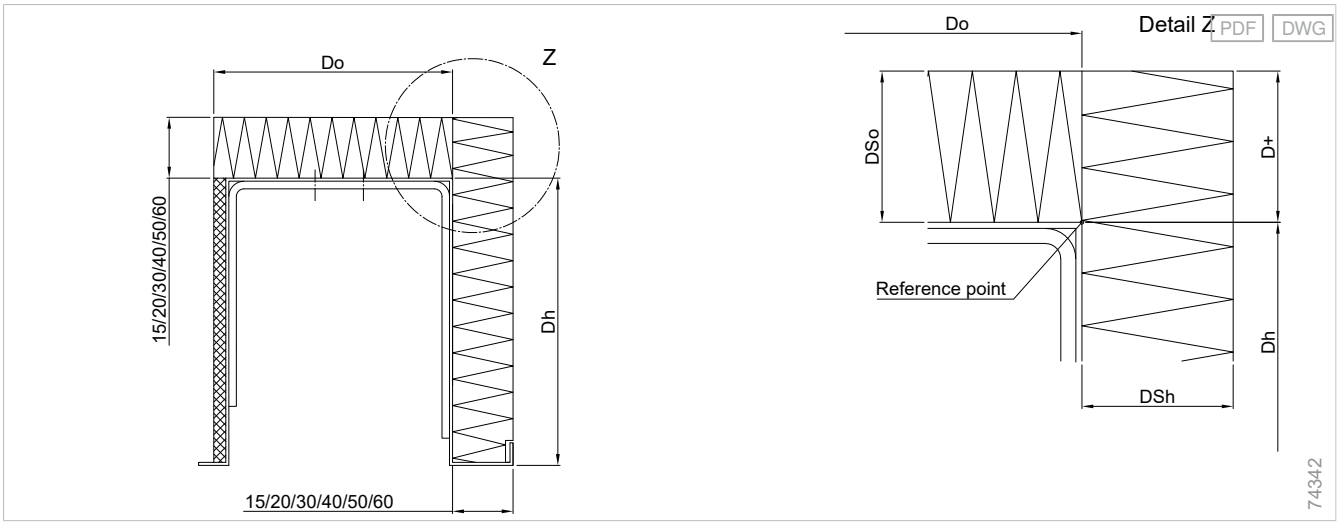


Do = top insulation
Dh = rear insulation
D+ = insulation plus
DSh = rear insulation thickness
DSo = top insulation thickness

Integrated lintel insulation using the example of front-mounted boxes, plaster box shape



External venetian blind window systems FSR, U-shaped cover panel plaster, lintel insulation



Additional product information

PUR insulation

Insulating material: polyurethane rigid foam (PUR) with aluminium lamination on both sides:

- Thermal conductivity rated value: λ_B = 0.023 W/ (m K)
- Thermal conductivity nominal value: λ_D = 0.022 W/ (m K)

Available insulation thicknesses

Insulation thickness in mm	Thermal resistance R
15	0.65
20	0.87
30	1.30
40	1.74
50	2.17
60	2.61

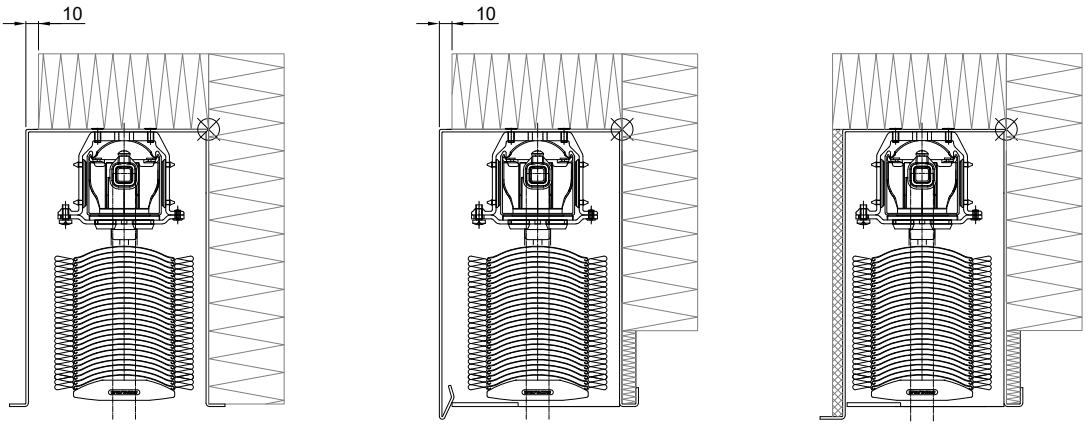
Intermediate sizes are not possible.

The PUR insulation plates are preassembled at the factory and fitted on the boxes/cover panels.

Available models (examples)

Available models for cover panels

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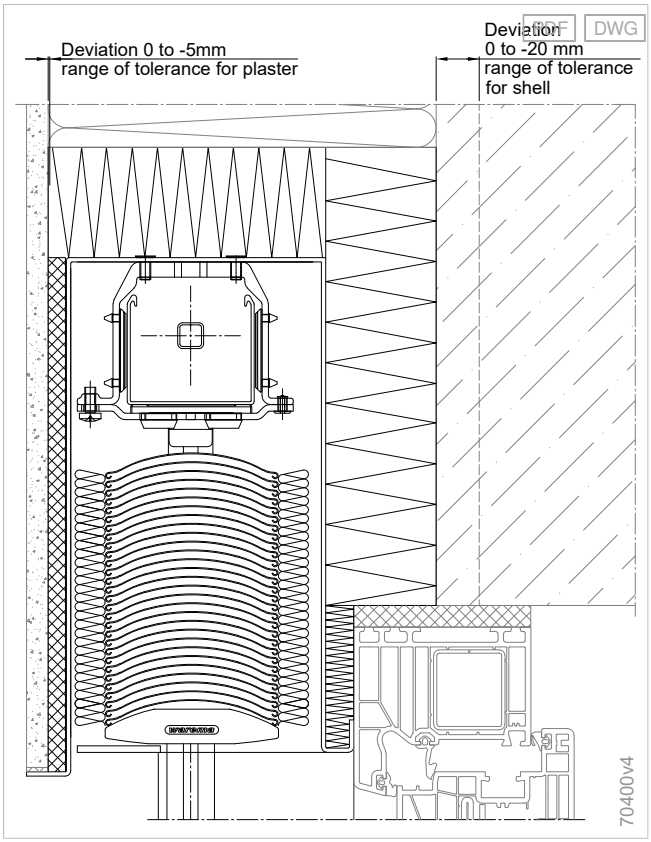
Accessories for proper connection of the awning to the facade

Designation		Art. no.	Unit
Foam sealing strip	20 × 5-12, self-adhesive, black	811023	5.6 m roll
	20 × 4-9, self-adhesive, black	811039	8 m roll
	20 × 2-6, self-adhesive, black	2015045	12 m roll
Connection bracket	To face the rear insulation		
	Incl. the finishing of the insulation		

For a connection to the structure which is free from back flow, insulation material adhesive foam (e.g. Soudal Soudabond Easy) can also be used.

Mounting examples

Mounting example FSR with lintel insulation





Supplementary accessories

Battery-operated emergency power supply set/battery-operated emergency retraction set

Autonomous

In the event of a power failure, the battery-operated control raises the external venetian blind to keep the primary and secondary emergency routes clear.

Fast

The external venetian blind is raised in an emergency at a speed of approx. 1 metre/second.

Reliable

The control performs daily checks that all connected components are functioning.



Can be used for:

- Beaded slats
- Flat slats
- Dim-out slats 73, 90, 93
- Zetra dim-out slat 80 Z

Product characteristics

- In the event of a power failure, the emergency retraction can either be triggered manually using an emergency push button or automatically via sensors.

Product characteristics

External venetian blinds with motor drive can be equipped with a DC voltage auxiliary motor integrated directly into the top rail. For this model the 230 V drive motor must be fitted on the side of the auxiliary motor and the tilting tape end distance must be 250 mm. The auxiliary motor is used to move the external venetian blind into the upper limit position in case of alarm or failure.

Application examples for external venetian blinds with auxiliary motor
1. Power failure

In the event of a power failure lasting more than 5 minutes, the battery-operated control automatically moves the connected external venetian blind to the upper limit position.

- Automatic raising protects the external venetian blind from weather-related damage.
- Release using the reset push button (integrated into the emergency push button)

To facilitate ordering, we have bundled the required items into an "emergency power supply set".

Emergency power supply set containing:

- External venetian blind with auxiliary motor
- Battery-operated control
- Emergency power supply adapter pack
- Connecting line for auxiliary motor
- Sensor line for incremental encoder

2. Emergency exit

Our WAREMA external venetian blinds with battery-operated emergency retraction set are specially designed for glazed exit doors or emergency exit windows in emergency route areas and all safety-relevant components are designed to be redundant.

The functional reliability is tested by TÜV Süd. A TÜV model certificate has been awarded.

The emergency retraction set is designed so that the battery-supported control detects possible failures and moves the blind to the upper limit position in an emergency, ensuring that the emergency route is not blocked.

To facilitate ordering, we have bundled the required items into an "emergency retraction set".
The battery-operated emergency retraction set consists of:

- External venetian blind with auxiliary motor
- Battery-operated control
- Emergency push button
- Connecting line for auxiliary motor
- Sensor line for incremental encoder

Notes

Notice on product configuration:

Only available as individual units, coupling not possible

Notice on installation:

In order to connect the auxiliary motor to the battery-operated control, a shielded, UV-resistant 2x4 mm^2 cable and the Phoenix SAC-4P-PUR sensor cable are required.

Notice on operation:

- **Emergency push button:** In the event of an emergency, the system is triggered via the supplied emergency push button (housing colour RAL 7035 light grey) which is labelled "Emergency exit". It is also possible to use an additional on-site emergency push button.

Additional product information

Accessories for external venetian blinds with battery-operated emergency power supply set/ battery-operated emergency retraction set

- Battery-operated control incl. battery pack (on-site emergency power supply is not required!) (art. no. 1002920)
- Emergency power supply adapter pack
- Emergency trigger button (art. no. 603080)

WAREMA recommends using the following cable for emergency retraction drive:

HELU Megaflex 500-C 2x4 mm^2 – or a different shielded cable with the same specifications.

This can be ordered from WAREMA. Diameter approx. 10.5 mm

- 10 m (art. no. 2004832)
- Sold by the metre (art. no. 614143)

Sensor cable for incremental encoder incl. M12FS plug connector, diameter approx. 7 mm (without plug connector) Phoenix SAC-4P-PUR

- 10 m (art. no. 634283)

Outside temperature sensor for direct connection to the battery-operated control and installed on the top rail of the external venetian blind, incl. cable, diameter approx. 7 mm, directly moulded on the sensor.

- 10 m (art. no. 623128)

Construction limit values

External venetian blind type	Slat length	Max. external venetian blind height
Flat slat / beaded slat	1000 mm - 2600 mm	5000 mm
	2601 mm - 2750 mm	4800 mm
	2751 mm - 3000 mm	4500 mm
	3001 mm - 3250 mm	4200 mm
	3251 mm - 3500 mm	4000 mm
Dim-out slat	1000 mm - 2750 mm	4300 mm
	2751 mm - 3000 mm	4000 mm
	3001 mm - 3250 mm	3800 mm
	3251 mm - 3500 mm	3500 mm

- Minimum height = 1500 mm
- Maximum emergency retraction height = 3000 mm (only in conjunction with battery-operated emergency retraction set)

The construction limit values of standard types must **not** be exceeded, e.g. flat slats maximum height = 4000 mm

Operation of battery-operated emergency retraction set

- The control checks the function of all connected components (e.g. motors) and checks the connected cables for damage or loss of contact at least once per day.
- If a power failure lasts longer than 5 minutes, the battery-operated emergency retraction set automatically moves the connected external venetian blind to the upper motor limit position. Alternatively, activation of the battery-operated emergency retraction set can be performed via the activation button (labelled "Emergency exit") or a higher-level central fire alarm.
- The control checks whether the upper limit position has been reached using an incremental encoder integrated into the drive motor.
- The external venetian blind can be used again without the need for mechanical work. Restoring the 230 V mains voltage and pressing the reset button is sufficient.
- In case of a false trip or a malfunction, the external venetian blind must be put back into operation by a trained person by pressing the reset button in the supplied emergency push button.

Important information on planning

There must be no obstacles or protruding components (e.g. door handles) in the path of the external venetian blind, especially on the door leaf, that could prevent the blind from opening when the emergency doors are opened at the same time. If this cannot be prevented, other technical measures must be taken to prevent the lock of the door leaf from opening before the emergency route has been cleared by the external venetian blind with battery-operated emergency retraction set.

When installing the product in public buildings it is mandatory to connect the emergency retraction set to a central fire alarm.

External venetian blinds with battery-operated emergency retraction set must be connected to a higher-level control with an ice alarm or must be deactivated when temperatures drop below +3°C according to the operating instructions. It is optionally possible to connect an outside temperature sensor to the battery-operated control so this can be used to shut it down independent of other external venetian blinds when the temperature falls below the minimum value.

The maximum opening times for the battery-operated emergency retraction set have been determined based on DIN 18650-1 “Automatic door systems – 5.8.2 Additional requirements for doors in emergency routes and emergency exits”, because only this standard defines opening times for entire doors and not just for fittings/door locks as in DIN EN 1125 and DIN EN 179, for example.

The use of external venetian blinds with a battery-operated emergency retraction set has to be approved by the appropriate authority.

The battery-operated emergency retraction set is available in the following countries:

- Belgium
- Germany
- England
- France
- Italy
- Luxembourg
- Netherlands
- Norway
- Austria
- Poland
- Switzerland

Permissible opening times

Emergency retraction height	Slat size	Permissible opening times
Up to 2000 mm	Up to 2000 mm	3.00 s
Up to 2100 mm	Up to 2100 mm	3.15 s
Up to 2200 mm	Up to 2200 mm	3.30 s
Up to 2300 mm	Up to 2300 mm	3.45 s
Up to 2400 mm	Up to 2400 mm	3.60 s
Up to 2500 mm	Up to 2500 mm	3.75 s
Up to 2600 mm	Up to 2600 mm	3.90 s
Up to 2700 mm	Up to 2700 mm	4.05 s
Up to 2800 mm	Up to 2800 mm	4.20 s
Up to 2900 mm	Up to 2900 mm	4.35 s
Up to 3000 mm	Up to 3000 mm	4.50 s
Up to 3000 mm	Up to 3100 mm	4.65 s
Up to 3000 mm	Up to 3200 mm	4.80 s
Up to 3000 mm	Up to 3300 mm	4.95 s
Up to 3000 mm	Up to 3400 mm	5.10 s
Up to 3000 mm	Up to 3500 mm	5.25 s

The permissible opening time depends on the emergency retraction height or the order dimensions (higher value selected).

Example 1B

Emergency retraction height = 2700 mm/order dimension = 3100 mm, therefore the permissible opening time for the height to be cleared of 2700 mm is 4.65 sec

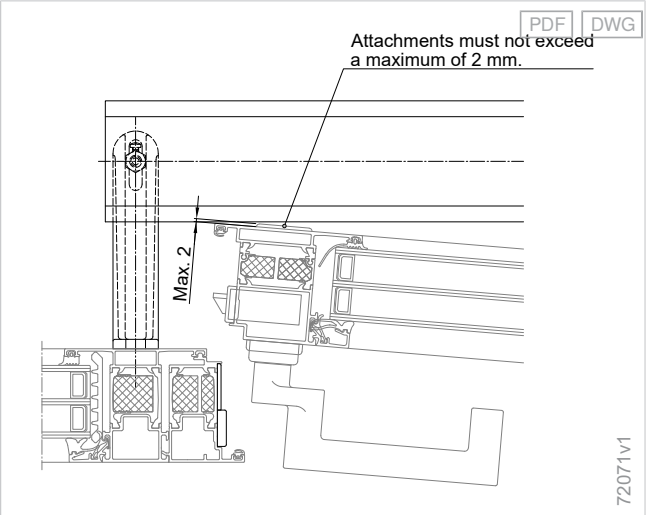
Example 2B

Emergency retraction height = 3000 mm/order dimension = 2600 mm, therefore the permissible opening time for the height to be cleared of 3000 mm is 4.5 sec

The emergency retraction time is based on the minimum opening time of automatic door systems according to DIN 18650-1 Automatic door systems - Part 1: Product requirements and test procedures.

Minimum distances to existing components

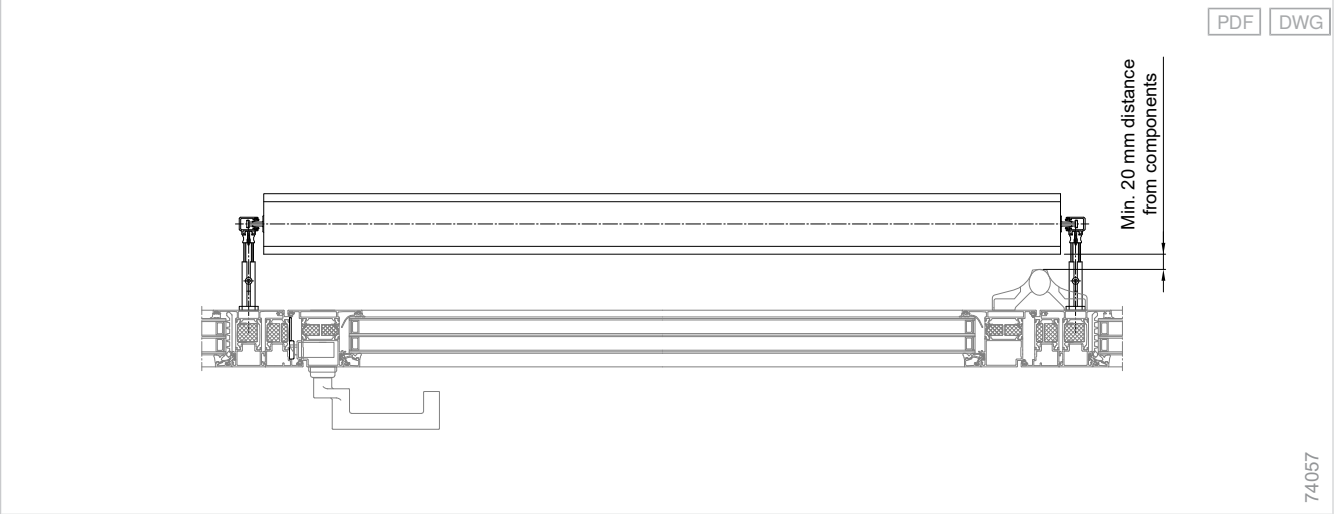
Existing components like hinges, weather protection strips or similar mounted on the outside of the door leaf can block the external venetian blind. Therefore, minimum distances are necessary here.



Minimum distances to existing components, cable guidance



Minimum distances to existing components, rail guidance



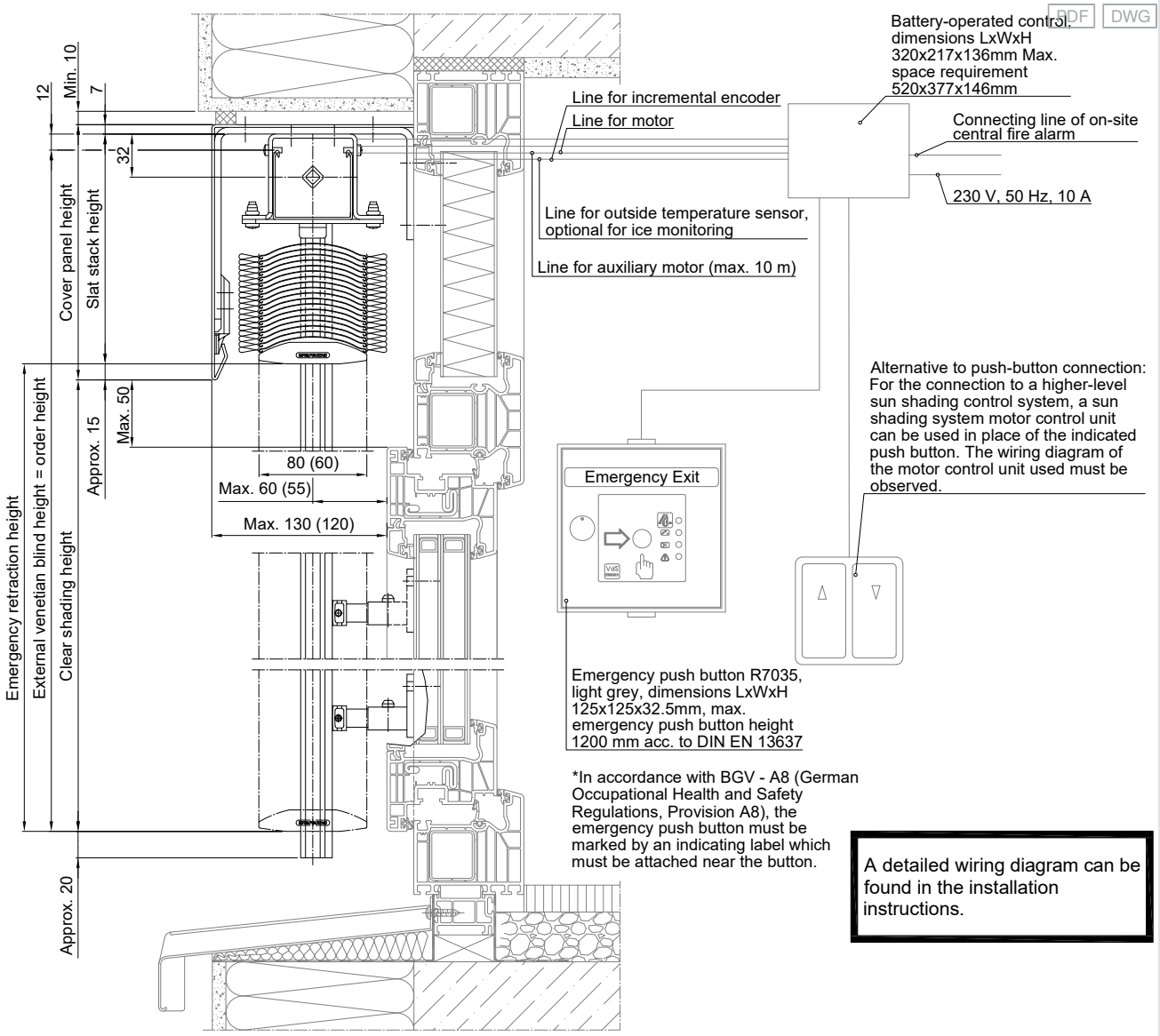
Maintenance

External venetian blinds with battery-operated emergency retraction set have to be serviced and tested at regular intervals, but at least once per year. All service and inspection work may only be carried out by a qualified specialist company (roller shutters and blind specialist) authorised by WAREMA.

If this maintenance is not performed, the statutory warranty obligations become void and there is a danger to life and limb.

Mounting examples

External venetian blind with battery-operated emergency retraction set/battery-operated emergency power supply set



The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

70019v7



Supplementary accessories

Battery module UP for external venetian blinds

Unobstructed emergency route with emergency power

Ideal for a second emergency route in residential buildings: in emergencies, the sun shading system can be opened using the battery module UP.

Raised at the press of a button

Same user behaviour during normal operation and emergency situations: switch-operated system. The battery charges with each movement, building up power for emergency operation.

Immediately ready to use again

No reset required: the motor is ready for use again immediately after manual operation.

Can be used for:

- Beaded slats
- Flat slats
- Dim-out slats



Product characteristics

- Ideal for use in buildings with two emergency routes
- Opening speed in case of emergency approx. 33 seconds (for blind height 2200 mm)

Product characteristics

Intended use

The Battery module UP is a storage battery solution that ensures that the sun shading product can be raised, even during a power failure.

The Battery module UP includes:

- 12 volt DC motor
- Motor line (different version depending on the support product)
- Storage battery
- Motor control unit

The components and cable connections are intended for installing a double installation box.

Function

The support product is generally powered by a 12-volt drive and is supplied with power by the storage battery.

The storage battery is charged once the mains voltage is connected. The 230 volt mains voltage is only used to supply the battery with power during operation. Once the storage battery is charged, the system is ready for operation. During operation, power is generally supplied to the sun shading drive by the storage battery. The charge status of the battery is constantly monitored and the battery is recharged when necessary.

The storage battery must be replaced after 1000 cycles or after 2 years at the latest. Corresponding signal tones are active in delivery condition and can be deactivated by flipping the encoding switch. Only floating contacts may be used to control the motor. The connection of a 230 volt output leads to the destruction of the module.

Features at a glance:

- Jog mode or continuous mode can be chosen
- Lock mode approx. 180 seconds, stop with opposite button
- Change battery alarm after 1000 cycles or 2 years
- Acknowledgeable battery undervoltage alarm
- Number of cycles when mains voltage fails depending on the element size and run time of the sun shading product
- Charging specification for Li-ion battery
- Individual operating input/central operating input/ smoke alarm interface
- Can be installed in: UP electronics box or double hollow wall box
- Rated voltage 230 V, 50 Hz, standby power < 300 mW

In accordance with our installation and operating instructions, we require annual maintenance.

Notes

Notes for use with external venetian blinds:

- Motor line: maximum length: 4500 mm; incl. plug connector
- Time required to move external venetian blinds with the battery module UP per 2500 mm of height approx. 45 secs.

Legal information

WARNING

As there are no legal standards concerning the shading of escape and emergency routes with sun shading products, the use of a WAREMA Battery module UP must, taking the fire protection concept into account, be clarified with the responsible body (e.g. Section 66 of the MBO [German building regulations for the standardisation of regional state building regulations]) and must be approved by this body. Product details can be found in the current technical documentation. You can find these on the website using the search term "Battery module UP".

The following regulations apply to Germany:

For buildings used solely in a private capacity, the kit can be used on a secondary emergency route, provided that the person responsible for fire safety under the applicable Landesbauordnung [German building regulations for the respective Federal State] (Section 66 of the Musterbauordnung [German building regulations for the standardisation of regional state building regulations] (MBO)) has inspected and approved the individual application.

The following applies to the rest of the EU and Switzerland:

Compliance with legal provisions and country-specific regulations on site is the responsibility of the orderer. There may be regional regulations and conditions that prohibit the use of electrically operated sun shading systems with the battery module UP. However, these cannot be investigated by WAREMA in every case.

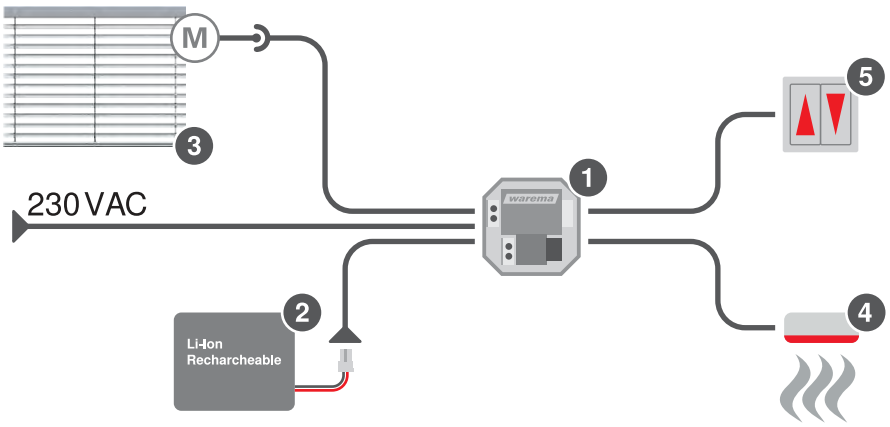
Construction limit values

The construction limit values for basic external venetian blinds with solar drive are to be applied for using the Battery module UP.

Dimension determination

Details

Battery module UP functional principle



1	Battery module UP	4	Smoke detector
2	Storage battery	5	Push button
3	External venetian blind/roller shutter 12V DC		



Supplementary accessories

Motor with additional collapsible crank ZHK for external venetian blinds

Independent

No motor-dependency: in the event of a power failure, the sun shading system can be retracted manually via the collapsible crank.

Comfortable

In normal operation, the sun shading system is raised or lowered via a push button.

Reliable

Always protected: using a weather station or a WMS Wind sensor, the sun shading system is retracted by the motor when stormy weather looms.



Can be used for:

- Beaded slats
- Flat slats
- Dim-out slats

Product characteristics

- Motor with additional collapsible crank
- Operating option in the case of motor failure

Product characteristics

- Alternative manual operating option in the event of motor or power failure
- The crank is only intended for use in the event of a motor failure and is not suitable for continuous operation

Legal information

As there are no legal standards concerning the shading of emergency routes with sun shading products, the use of a motor with connection for additional crank operation must, taking the fire protection concept into account, be clarified with the responsible body (e.g. Section 66 of the MBO [German building regulations for the standardisation of regional state building regulations]) and must be approved by this body. Furthermore, it is compulsory that a yearly maintenance and functional check is carried out. Product details can be found in the current technical documentation.

Construction limit values

Please note that coupling of external venetian blinds is not possible with models "Motor with additional collapsible crank ZHK".

Configuration variants	Minimum order width	Maximum order width	Maximum order height	Maximum order area
Basic external venetian blinds				
E 60 A2 S / E 80 A2 S	900 mm	5000 mm	4000 mm	13 m^2
E 60 A6 S / E 80 A6 S	900 mm	5000 mm	5000 mm	12 m^2
E 50 AF A2 / E 60 AF A2 / E 80 AF A2	900 mm	5000 mm	4000 mm	12 m^2
E 60 AF A6 / E 80 AF A6	900 mm	5000 mm	4000 mm	12 m^2
E 80 A6 Z / E 73 A6 / E 90 A6 / E 93 A6	900 mm	4500 mm	4300 mm	11 m^2

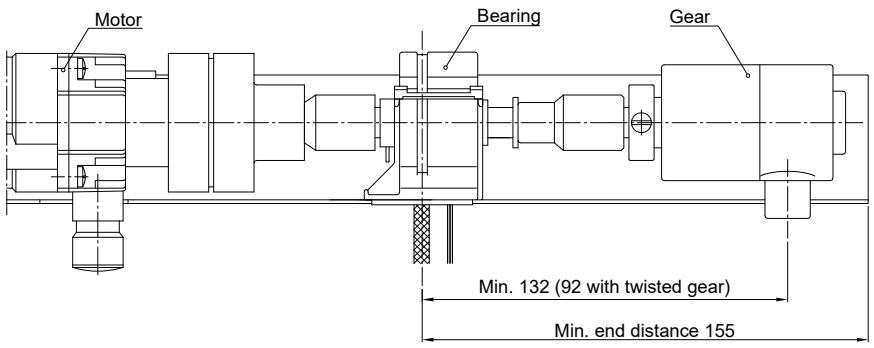
The information on "Minimum order width" and "Maximum order width" refers to the slat length.

Dimension determination

Details

Motor with connection for additional crank operation "right"

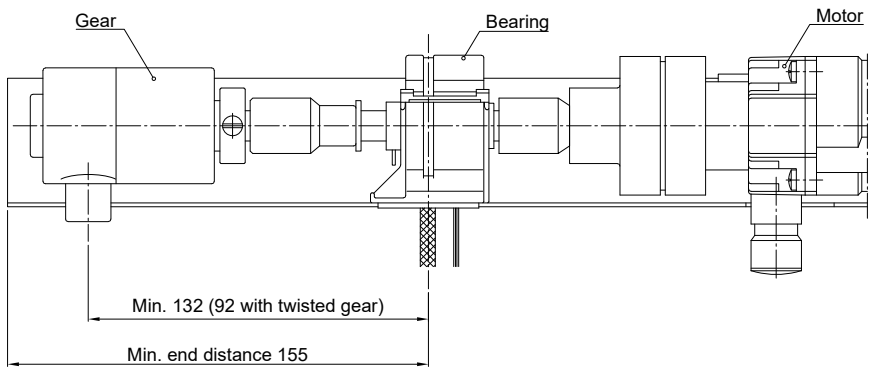
PDF DWG



73368

Motor with connection for additional crank operation "left"

PDF DWG



73369



Supplementary accessories

Emergency power supply kit

Comfortable

The emergency power supply kit is a comfort control that ensures that sun shading products are raised in the event of a power supply interruption.

Safe

In an emergency, the automatic, safe and superordinated raising of up to three connected sun shading products with 230 V drive is guaranteed.

Straightforward

Just five minutes after troubleshooting or activating the manual reset, the sun shading system can be operated normally as before.



Can be used for:

– All sun shading products with 230 V AC drives

Product characteristics

The emergency power supply kit for 230 V AC sun shading drives consists of a UPS (uninterrupted power supply) and the motor control unit (MCU) emergency power supply kit. This ensures automatic, safe and higher-level raising of the connected sun shading products

- In the case of a mains failure.
- Through an on-site central control unit contact in an emergency.
- Via an optional, connectable push button.

Function

When the MSE emergency power supply kit is operating normally (STATUS LED lights up green), the upstream switching element (actuator, MSE or venetian blind switch) is directly connected to the sun shading drive. When the MSE emergency power supply kit is activated (STATUS LED lights up red), the sun shading drive is decoupled from the upstream switching element and the MSE emergency power supply kit moves the sun shading product to its upper limit position. The sun shading product then only remains in the upper limit position until the cause of the fault is no longer present. When the cause of the fault is eliminated (problem eliminated), the sun shading product can, depending on the priority of the cause, be operated again via the upstream switching element after 5 minutes have passed or after a manual reset.

The following causes ("alarm signals") can prompt a raising movement:

- Loss of the 230 V AC supply,
- Empty, faulty or old storage batteries,
- UPS overload,
- Internal UPS fault,
- Building control system (BCS), e.g. fire alarm system,
- Up button.

The supply to the motor control unit emergency power supply kit is always provided by the UPS (uninterrupted power supply), which is connected to the 230 V AC mains network. The supply to the upstream switching element is also provided by the 230 V AC mains network, so that the UPS is able to detect a loss of power to the switching element.

A plug-in card on the UPS signals a possible power failure or UPS fault to the MSE emergency power supply kit. The UPS also protects the MSE emergency power supply kit against undervoltage and overvoltage.

A STATUS LED on the MSE emergency power supply kit indicates the status of the unit (fault: red / normal operation: green).

The MCU emergency power supply kit provides inputs with varying priorities:

Low priority = low Prio input

In this case, the sun shading products are raised during an alarm signal (e.g. power failure longer than 25 seconds). When the alarm signal is cancelled, the sun shading products are available for operation again after 5 minutes or a manual reset (reset via an additionally connected reset button, e.g. key-operated switch).

High priority = high Prio input

In this case, the sun shading products are raised when an alarm signal is issued (e.g. BCS). The sun shading products must be manually reset here (reset via an additionally connected reset button, e.g. key-operated switch) in order to be released for operation again.

Legal information

Intended use

The emergency power supply kit is a comfort control that ensures the raising of sun shading products in the event of a power supply interruption.

The following regulations apply to Germany:

For buildings used solely in a private capacity, the kit can be used on a secondary emergency route, provided that the person responsible for fire safety under the applicable Landesbauordnung [German building regulations for the respective Federal State] (Section 66 of the Musterbauordnung [German building regulations for the standardisation of regional state building regulations] (MBO)) has inspected and approved the individual application.

WARNING

As there are no legal standards concerning the shading of emergency routes with sun shading products, the use of a WAREMA emergency power supply kit must, taking the fire protection concept into account, be clarified with the responsible body (e.g. Section 66 of the MBO [German building regulations for the standardisation of regional state building regulations]) and must be approved by this body. Product details can be found in the current technical documentation. You can find these on the website using the search term "Emergency power supply kit".

The following applies to the rest of the EU and Switzerland:

Compliance with legal provisions and country-specific regulations on site is the responsibility of the orderer.

There may be regional regulations and conditions that prohibit the use of electrically operated sun shading systems with the emergency power supply kit. However, these cannot be investigated by WAREMA in every case.

Note:

Duration of movement for sun shading products with the emergency power supply kit per 2500 mm height:

- External venetian blinds with standard motor, approx. 70 s
- Roller shutters with standard motor, e.g. approx. 45 s (depends on shutter profile)
- Window awnings with standard motor, approx. 100 s (depending on shaft and unit type)



Supplementary accessories

Solar drive for external venetian blinds

Environmentally friendly

Regenerative and clean: The solar energy generated is stored in a storage battery.

Autonomous

Independent of the mains: its own energy supply ensures independence from the power grid. This saves on energy costs.

Easy to install

Retrofit with ease: Retrofitting does not require any electrical connection work, wall openings or complex line routing.



Can be used for:

- Basic external venetian blinds
- Asymmetrical external venetian blinds
- Front-mounted external venetian blinds

Construction limit values

Maximum order width	4000 mm
Maximum order height	3450 mm

Product characteristics

- Use of solar energy via solar panel, incl. solar-powered control system and storage battery
- Practical solution for retrofitting sun shading systems

Drive variants

- Motor

see "Solar motor", Page 496

Set

- 12 volt drive
- Solar-powered control system incl. storage battery for EWFS SolarKit
- Solar panel for EWFS SolarKit
- EWFS Hand-held transmitter, 1-channel, silver

Product characteristics

Solar-powered control system

- The sun shading system with solar drive can also be operated under average light conditions (cloudy sky) at least 2x per day. Shortages possible during very long periods of bad weather.

Charging the rechargeable batteries

- The charging capacity depends on direct solar radiation and its duration.
- The higher the incidence of solar radiation, the higher the charging capacity.

Internal protective function

- Is triggered when the battery is low
- Sun shading product will only move down when there is sufficient energy to move up again after the downward movement.
- The control system also provides overload protection for the storage battery.

Increase of charging capacity using second solar panel (optional)

- For frequent operation or unfavourable positioning of the solar-powered sun shading system, we recommend installing a second solar panel. This doubles the charging capacity.
- A second solar panel also ensures the battery reaches full capacity faster.
- The maximum order area is not increased by a second solar panel.
- Subsequent external installation is possible.
- For models with external solar panels, note that the extended line is not resistant to UV rays. We recommend laying the cable inside a cable channel.

Emergency power supply

- Possible via separate power supply unit
- The sun shading system continues to be operated using the EWFS hand-held transmitter.
- The power supply unit is not suitable for charging the battery
- The power supply unit must be ordered separately

Notes

Notes on product configuration

No anodisation available: Only powder-coated finishes are available.

Notes on care

In order to guarantee operational safety the solar panel must be free of dirt.

Construction limit values

- **Important basic information on the construction limit values in relation to solar drives:**
  - The construction limit values stated below refer to the absolute limits!
  - However, significantly lower construction limit values may apply depending on the width-to-height ratio.
  - The detailed construction limit values for each type, taking the width-to-height ratio into account, can be found in the separate tables below.
  - The maximum dimensions must be strictly adhered to.
- **All given construction limit values apply to Southern Germany**
  - Different construction limit values apply in Northern and Central Germany.
  - The construction limit values or special features to be taken into account are stated separately for each type.
  - In the calculation used as a basis, all areas north of the Koblenz-Fulda-Chemnitz line (or north of the 50.3° parallel) are regarded as Central/Northern Germany.
- **Minimum order width:**
  - The minimum order width is 1100 mm for the use of two solar panels (applicable when installing solar panels on cover panel or box).
  - The minimum width must be observed, as the solar panel must be offset on the box/cover panel by 25 mm on both sides across its width.

Configuration variants	Minimum order width	Maximum order width	Maximum order height
Basic external venetian blinds + Supplementary accessories			
Basic external venetian blinds + Solar drive for external venetian blinds	760 mm	4000 mm	3450 mm
Asymmetrical external venetian blinds + Supplementary accessories			
Asymmetrical external venetian blinds E 80 AF SR + Solar drive for external venetian blinds	760 mm	2600 mm	2600 mm
Asymmetrical external venetian blinds E 80 AF SRG horizontal combination + Solar drive for external venetian blinds	760 mm	4000 mm	2600 mm
Front-mounted external venetian blinds + Supplementary accessories			
Front-mounted external venetian blinds + Solar drive for external venetian blinds	760 mm	4000 mm	2600 mm

Construction limit values: basic external venetian blinds with solar drive

Maximum height depending on the slat and order width in mm

Slat	Order width up to 2000 mm	Up to 2500 mm	Up to 3000 mm	Up to 3500 mm	Up to 4000 mm
E 80 A2/A6 S, E 60 A2/A6 S	3350	2800	2400	2100	1900
E 80 AF A6/A2, E60 AF A6/A2	3450	2850	2450	2150	1900
E 73 A6	3050	2600	2250	2000	1750
E 90 A6, E 93 A6, E 80 A6 Z	3000	2500	2150	1900	1650

- In Northern and Central Germany, a second solar panel is required for external venetian blinds which are > 2.5 m^2 in size.
- A second solar panel is generally required for north-facing panels in Northern and Central Germany.

Construction limit values: asymmetrical external venetian blinds with solar drive

Maximum height depending on the width in mm

Types	Width up to 710 mm	Width up to 1000 mm	Width up to 1300 mm	Width up to 1500 mm	Width up to 1800 mm	Width up to 2000 mm	Width up to 2600 mm	Width up to 3000 mm	Width up to 3500 mm	Width up to 4000 mm
E 80 AF SR	2600 (2400)	2600 (2200)	2600 (2000)	2600 (1950)	2600 (1800)	2400 (1750)	1900 (1600)	-	-	-
E 80 AF SRG	2600 (2400)	2600 (2200)	2600 (2000)	2600 (1950)	2600 (1800)	2400 (1750)	1900 (1600)	1700 (1550)	1450 (*)	1300 (*)

- **The previously specified values apply to Southern Germany:** If the maximum height is exceeded, a solar drive is not possible.
- **Values in brackets are meant for Northern and Central Germany.**
  - If the values in brackets are exceeded, a model with solar drive are only possible with a second solar panel.
  - * In Northern and Central Germany, for greater widths, the maximum height is only possible with a second solar panel.

Construction limit values: front-mounted external venetian blinds with solar drive

Maximum height depending on the slat and order width in mm

Slat	Order width up to 760 mm	up to 1000 mm	up to 1300 mm	up to 1500 mm	up to 1800 mm	up to 2000 mm	up to 2500 mm	up to 3000 mm	up to 3500 mm	up to 4000 mm
80 S	2600 (2250)	2600 (2100)	2600 (1950)	2600 (1800)	2250 (1750)	2050 (1650)	1750 (1550)	1450 (*)	1250 (*)	1100 (*)
80 AF	2600 (2400)	2600 (2200)	2600 (2000)	2600 (1950)	2600 (1800)	2400 (1800)	1950 (1600)	1650 (1550)	1400 (*)	1250 (*)
Size 73, 80 Z	2600 (2200)	2600 (2000)	2600 (1850)	2400 (1800)	2100 (1700)	1900 (1600)	1600 (1500)	1350 (*)	1150 (*)	1050 (*)

- **The previously specified values apply to Southern Germany:** If the maximum height is exceeded, a solar drive is not possible.
- **Values in brackets are meant for Northern and Central Germany:**
  - If the values in brackets are exceeded, a model with solar drive are only possible with a second solar panel.
  - * In Northern and Central Germany, for greater widths, the maximum height is only possible with a second solar panel.
- **Slat stack height for front-mounted external venetian blinds with solar drive:** For R6 und R10 with solar drive, the maximum order heights of the R10 must always be taken into account. Exceeding the maximum values results in an overhang of the slat stack and end rail.

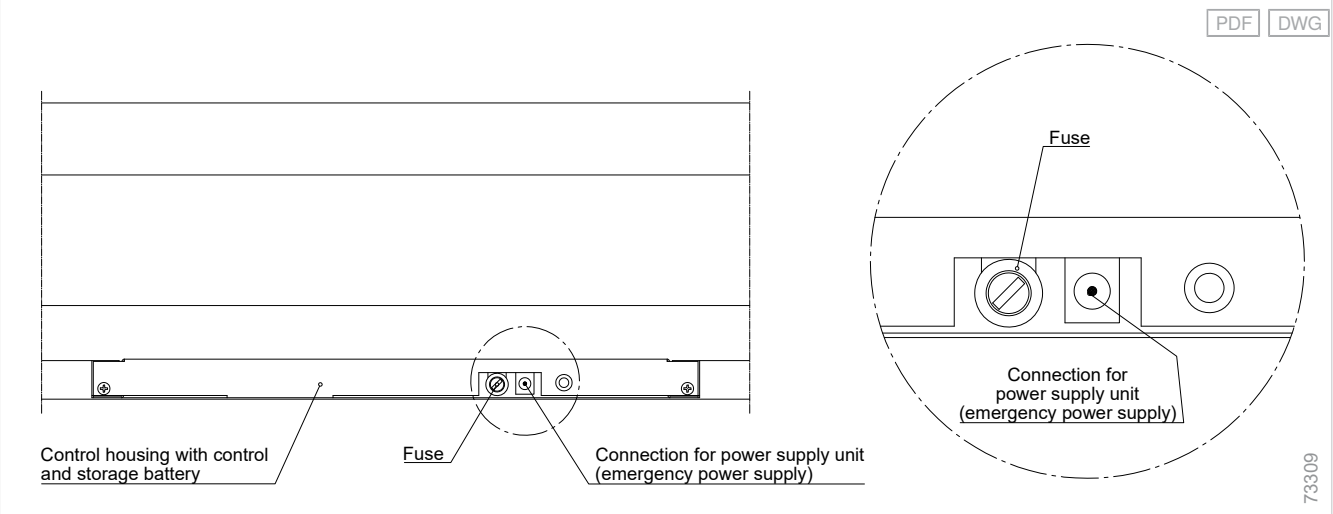
see "End rail stack protrusion", Page 135

Dimension determination

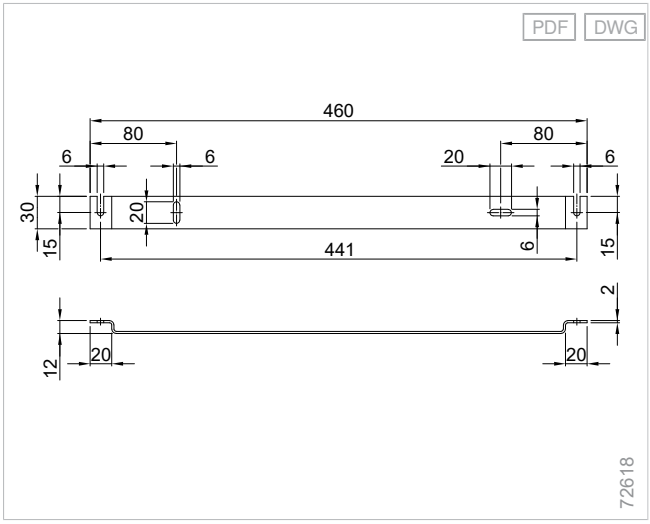
The dimensional determination is carried out analog to the conventional procedure.

Details

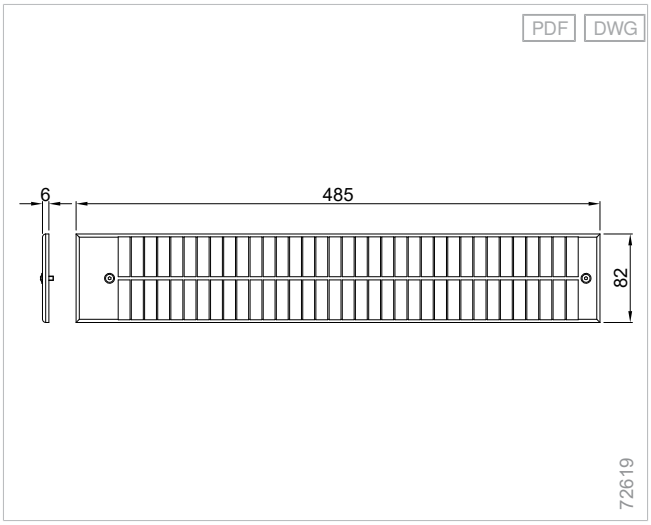
EWFS SolarKit for front-mounted roller shutters/front-mounted external venetian blinds: bottom side of box



Mounting bracket for external solar panel installation



EWFS SolarKit, solar panel



- Peak power: 5.0 W_{peak}
- No-load voltage: 0-20.0 V
- Rated voltage: 17 V

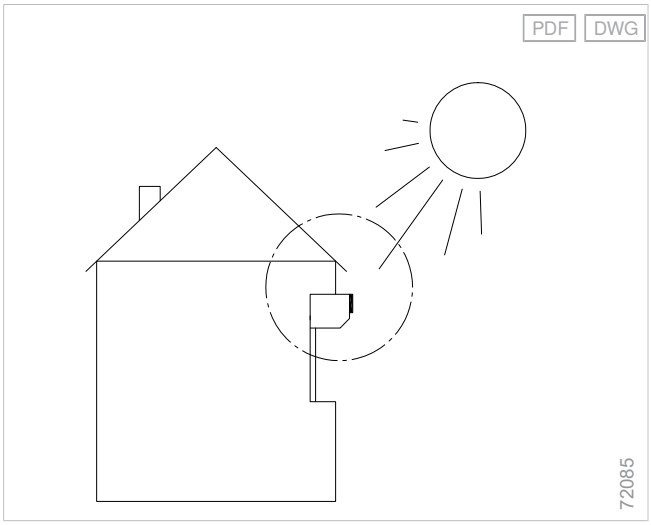
Additional product information

Solar panel alignment

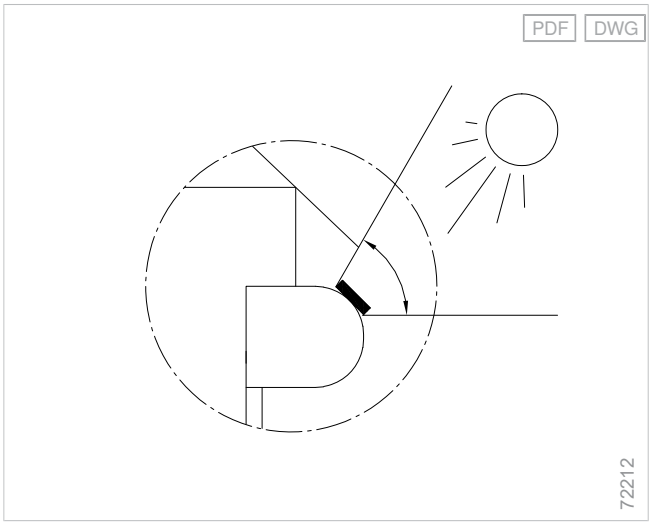
When planning installations, please make sure that no obstacles as described below are present at the installation location of the roller shutter:

- **Ideal state:** Positioning: south, west, south-west, south-east and east
- **Solar panel alignment:** Ensure that the sky is directly visible from the viewpoint of the solar panel.
- **Alignment to north, north-west and north-east:** Ensure that the solar panel has an unhindered view of the sky in all directions.
- **Incidence area:** The possible incidence area must be at least 60°.
- **Non-suitable installation locations:** For non-suitable installation locations, we recommend that the solar panel is installed externally in a suitable location.

Ideal state positioning



Incidence area min. 60°

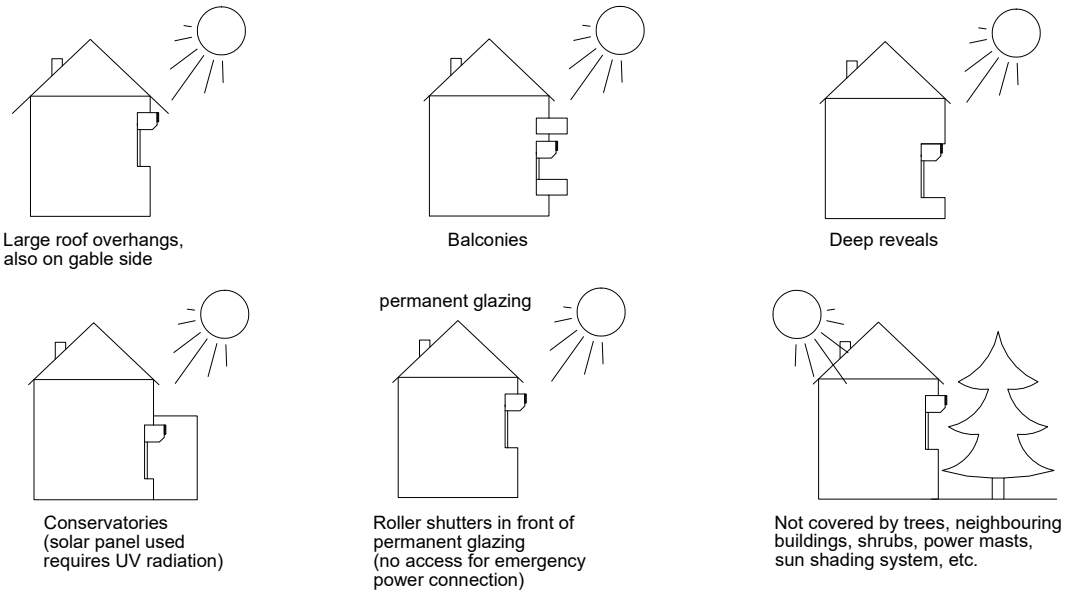


Ideal state: Positioning to the south, west, south-west, south-east or east

- **Only available in central Europe.** Additional countries on request.
- **Limitations:**
  - However, north of the Birmingham-Kiel-Danzig line, the expected incidence of solar energy is too low to ensure flawless operation.
  - South of the Bordeaux-Milan-Budapest line, a much shorter storage battery service life is expected, so drives are not guaranteed to work here either.

Solar drive, non-suitable installation locations

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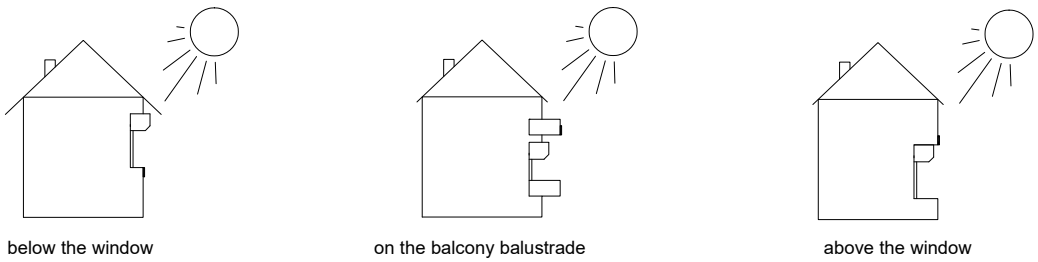


72086

Exemplary illustration using the example of front-mounted roller shutters with SolarKit

Possible solutions for attaching an external solar panel

PDF DWG



72087

Extension cable for solar panel with plug-in connection on both sides

Art. no.	Length
634149	700 mm
634189	3000 mm
634190	5000 mm
634191	10000 mm

For external installation of the solar panel, the line must be protected from UV radiation by installing the cable in a conduit or by similar protective measures.

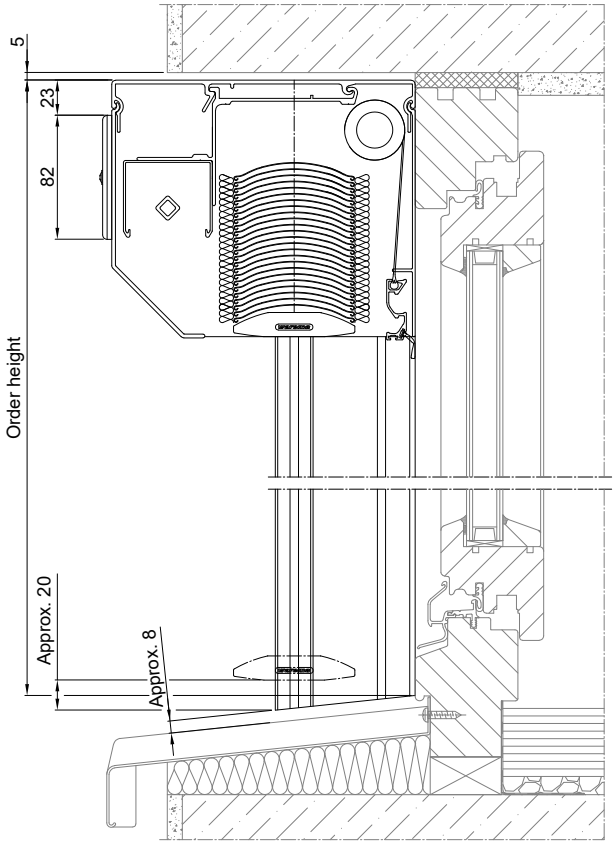
Notes on the control

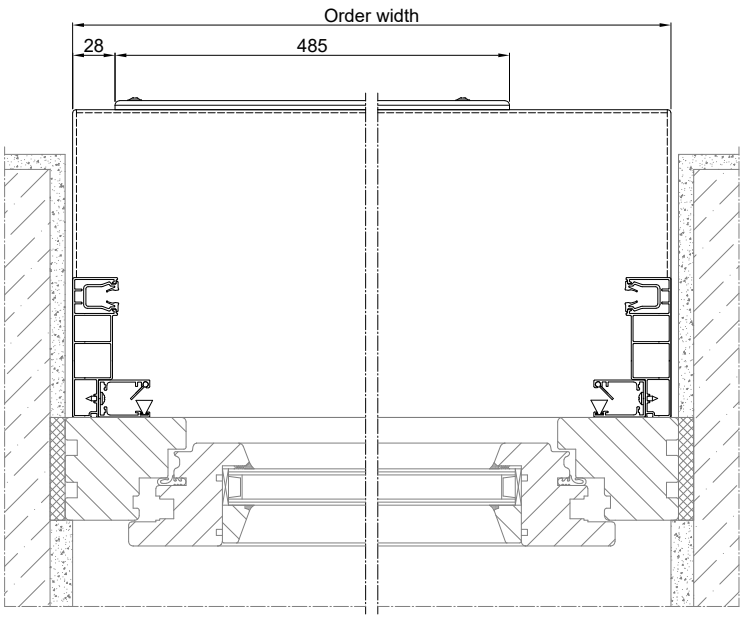
- The control is installed in the cover panel beading using grub screws.
- Dimensions of control: 365 x 128 x 24 mm (w x h x d)
- Motor line to solar-powered control system: 150 mm
- Please specify the desired position of the control in the cover panel when ordering.
- The control installation can also be surface-mounted in a splash-proof position.
- Minimum cover panel depth 150 mm (160 mm with E90/E93) for installing the control within the cover panel.
- Combination with a weather station is not possible.

Mounting examples

R10 rectangular with solar drive

PDF DWG



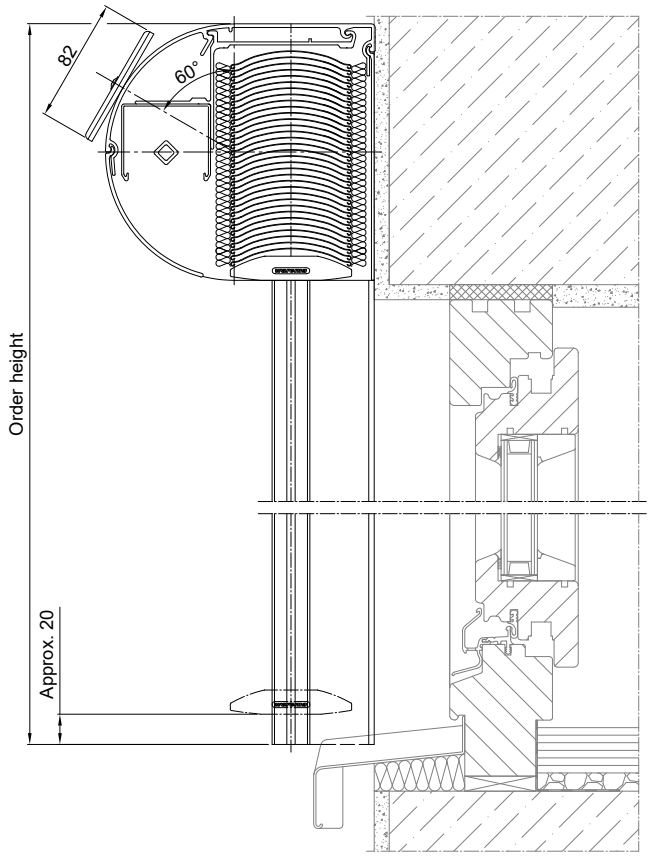


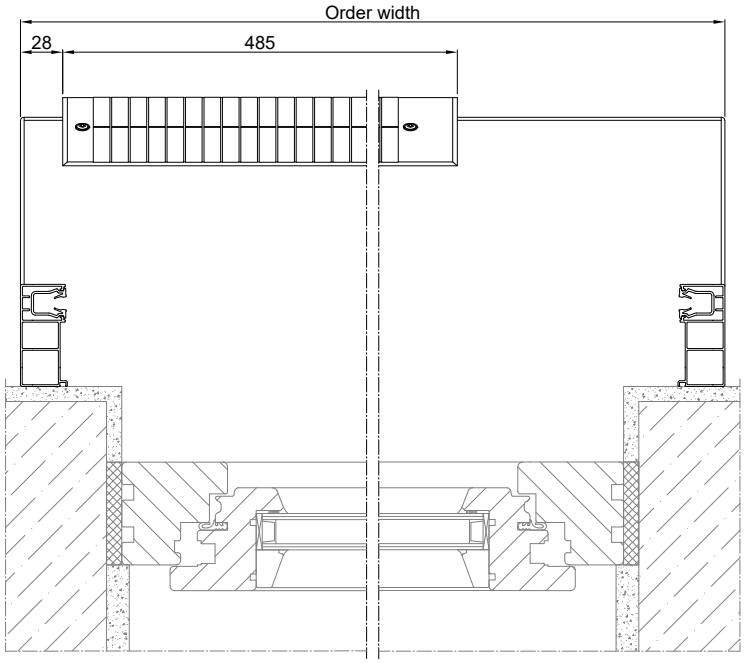
The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

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R10 round with solar drive

PDF DWG





The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

70138v3



Supplementary accessories
Slat perforation

Transparent

The perforated slats allow less daylight into the room, even when the external venetian blind is lowered and the slats are closed.

Open

Thanks to the perforation of the slats, your view to the outside remains even when the external venetian blind is closed.

Variable

The slat perforation can be implemented across the entire area or even just in certain sections of the external venetian blind.

Can be used for:

- Beaded slats: size 60, size 80
- Flat slats: size 60, size 80, size 100
- Dim-out slats: 80 Z, size 73, size 90, size 93



Product characteristics

- Incidence of daylight also when slats are closed
- Line of sight to the outside remains
- Also possible for only part of the slats

Product characteristics

Standard perforation: hole diameter 0.7 mm or 1.1 mm. Additional perforation on request.

Notes

Notes concerning the order

Delivery time: Delivery time for external venetian blinds with perforated slats is up to 12–14 weeks, standard perforation and colour combinations are usually in stock.

Dimension determination

Details

Size 80 flat slat, partly perforated, perforation type 070-272 30°/60°

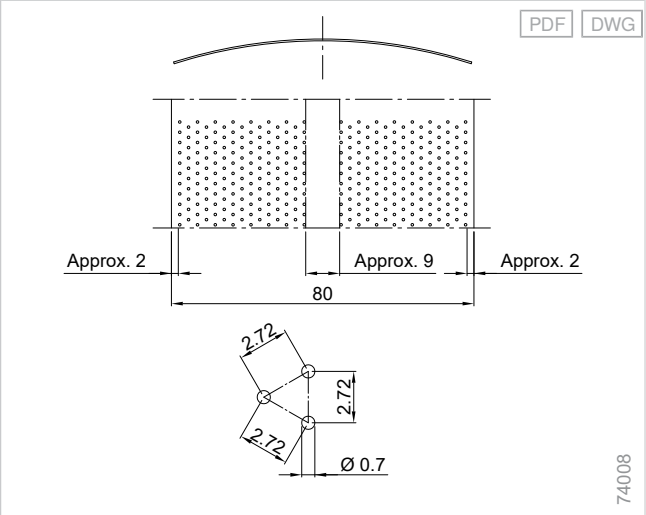


Figure exemplary, also valid for all other partly perforated slats.

- Hole diameter: 0.7 mm
- Hole spacing: 2.72 mm
- Open area: 6 %

Size 80 flat slat, completely perforated, perforation type 070-272 30°/60°

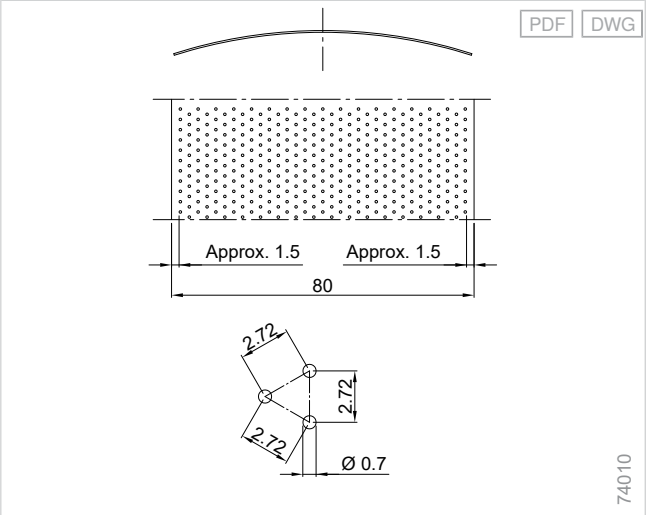


Figure exemplary, also valid for all other slats with complete perforation.

- Hole diameter: 0.7 mm
- Hole spacing: 2.72 mm
- Open area: 6 %

Size 80 flat slat, partly perforated, perforation type 110-350 30°/60°

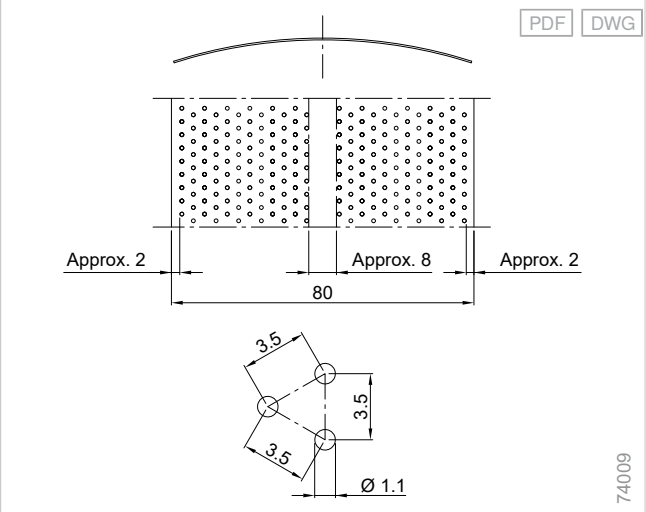


Figure exemplary, also valid for all other partly perforated slats.

- Hole diameter: 1.1 mm
- Hole spacing: 3.5 mm
- Open area: 6 %

Size 80 flat slat, completely perforated, perforation type 110-350 30°/60°

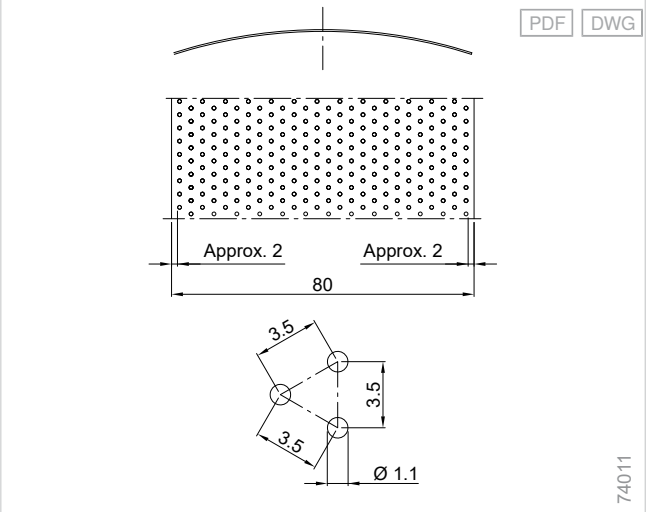


Figure exemplary, also valid for all other slats with complete perforation.

- Hole diameter: 1.1 mm
- Hole spacing: 3.5 mm
- Open area: 6 %

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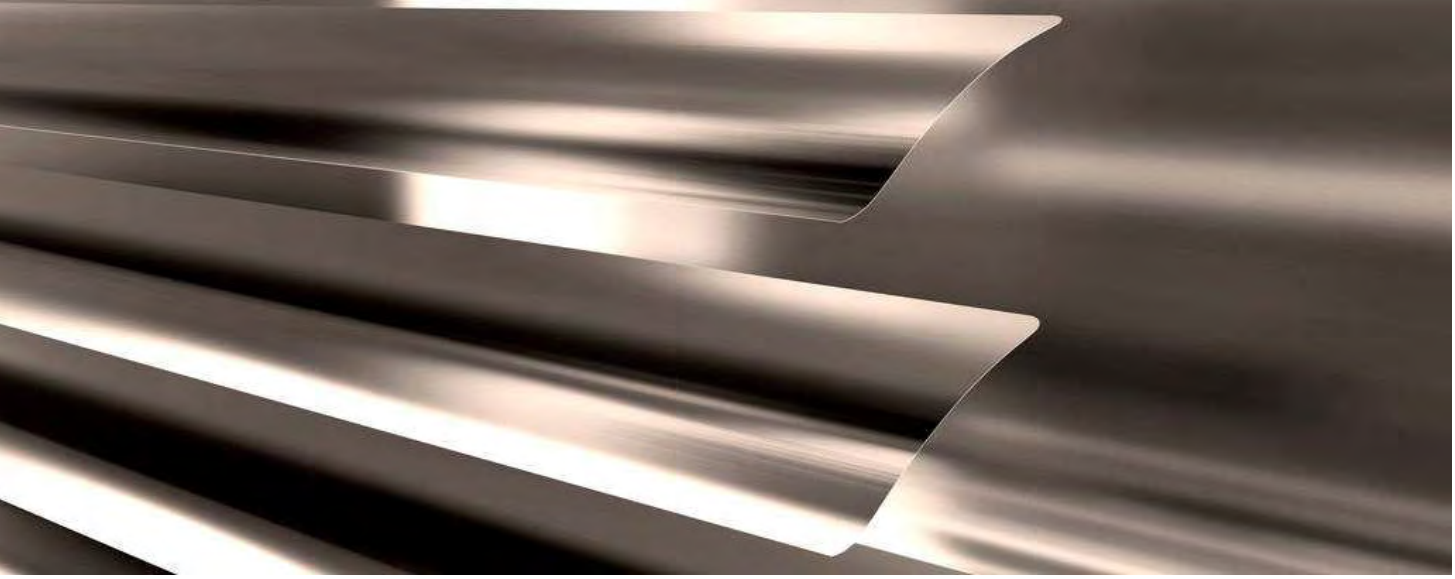
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Components

External venetian blind slats

Versatile

Depending on requirements and taste, external venetian blind slats are available in different slat widths and slat geometries. In addition to the classic beaded slats, flat slats with reduced slat stack height and dim-out slats for optimum darkening of rooms are also available in various profiles. All slats are available in widths from 50 mm to 100 mm, depending on the model.

Slender and effective

External venetian blind slats with their slender and modern design serve as an effective sun protection. Thanks to their flexible, tilting slats, daylight can be regulated in rooms to suit individual requirements.

Attractive

The WAREMA external venetian blind collection is available for colour selection. Here you will find a variety of attractive colours as well as glossy and matt slat surfaces to meet your requirements.

Slat geometries 80 AF, 80 S, 80 Z



Beaded slats

- Most popular slats on the market
- Classic timeless design
- Stack-optimised on both sides, beaded, curved
- Especially stable
- All cutouts in the slats fitted with eyelets
- Alternatively pinned
- Also optionally with size 80 slat surrounding beaded cutouts

Available slats: 60, 80

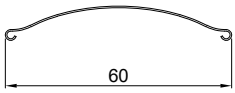
Installation type	Convex
Material	Aluminium
Surface	Enamelled

Beaded slats



Beaded slat 60 S

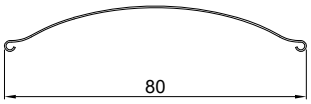
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73019v1

Beaded slat 80 S

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74037

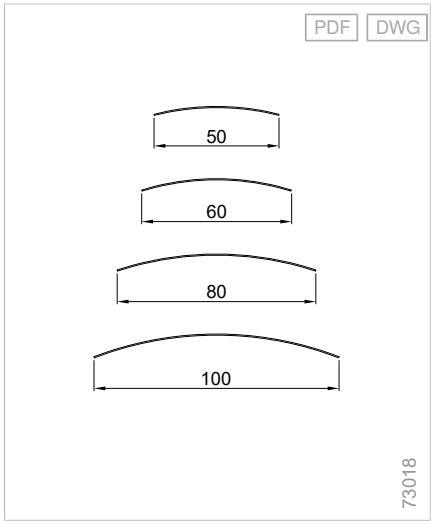
Flat slats

- Flat slats, curved
- Slender and highly-flexible
- Perfect view out
- Small slat stack height
- All cutouts in the slats without eyelets, optionally with eyelets

Available slats: 50, 60, 80, 100

Installation type	Convex
Material	Aluminium
Surface	Enamelled

Flat slats



Flat slats



Windra flat slats

- Flat slats, curved
- Slender appearance
- Perfect view out
- Compact slat stack height with high wind stability
- All cutouts in the slats fitted with eyelets

Available slat width: 80 mm

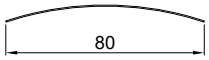
Installation type	Convex
Material	Aluminium
Surface	Enamelled

Windra flat slat



Windra flat slat

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Zetra dim-out slat 80 Z

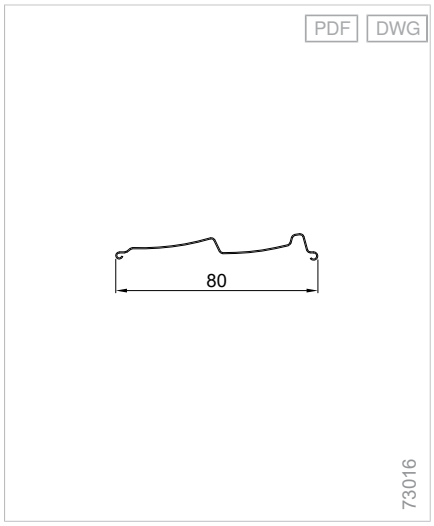
- Very stable due to special profiling with edged slat middle parts
- Beaded on both sides
- Front rolled beads with sealing strip made from flexible plastic
- Perfect closing of the slats
- Perfect dim-out
- Cutouts in the slats without eyelets

Slats available: 80

Limitation of Zetra slats: For designs with Zetra slat 80 Z, the wind-stable design is not possible.

Installation type	Convex
Material	Aluminium
Surface	Enamelled

Zetra slat 80 Z



Zetra slat



Dim-out slats 73/90/93

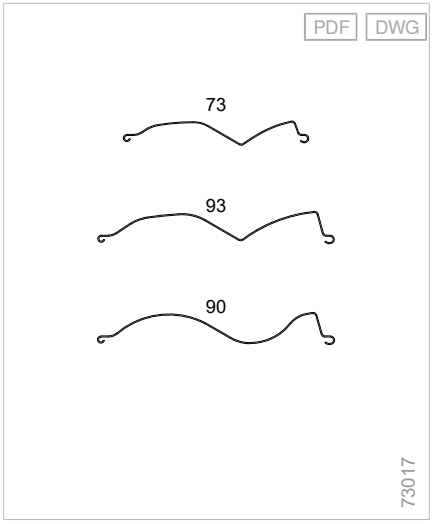
- Very stable due to special profiling in round shape
- Beaded on both sides
- Front rolled beads with sealing strip made from flexible plastic
- Perfect closing of the slats
- Reliable dim-out
- All cutouts in the slats have surrounding beading
- Slat suspension via laterally attached loop cords

Slats available: 73, 90, 93

Installation type	Convex
Material	Aluminium
Surface	Enamelled

Dim-out slats size 73, 90, 93

PDF DWG



Dim-out slats



50 mm slat for external venetian blinds

- Flat slats, curved
- Slat width 50 mm
- All cutouts in the slats without eyelets

Installation type	Convex
Material	Aluminium
Surface	Enamelled

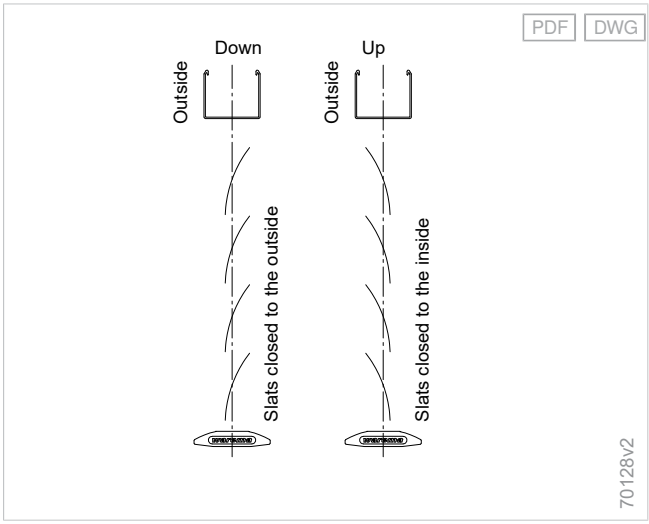


Bearing for slat tilting

Bearing for slat tilting: Tilting closed/closed

For use with: Basic external venetian blinds with beaded slats or product variants E/C 60/80 A6/ A2 S

- Comprising wedge segment from Teflon-containing plastic
- Maintenance-free, enclosed
- Segment tilting to prevent automatic adjustment of slats
- External venetian blind moves down with the slats closed to the outside and moves up with the slats closed to the inside

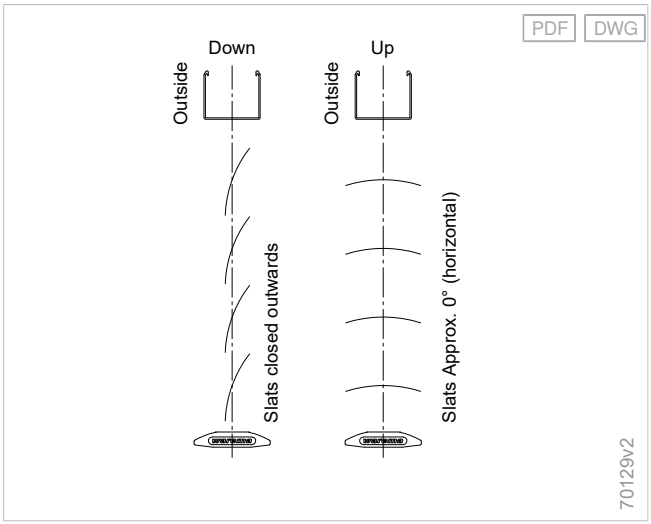


The slats can be closed from any intermediate position, or can be tilted from closed to the outside to closed to the inside.

Bearing for slat tilting: Tilting closed/horizontal

- Comprising wedge segment from Teflon-containing plastic
- Maintenance-free, enclosed
- Segment tilting to prevent automatic adjustment of slats
- External venetian blind moves down with the slats closed to the outside and moves up with the slats horizontal

Slat tilting closed - horizontal

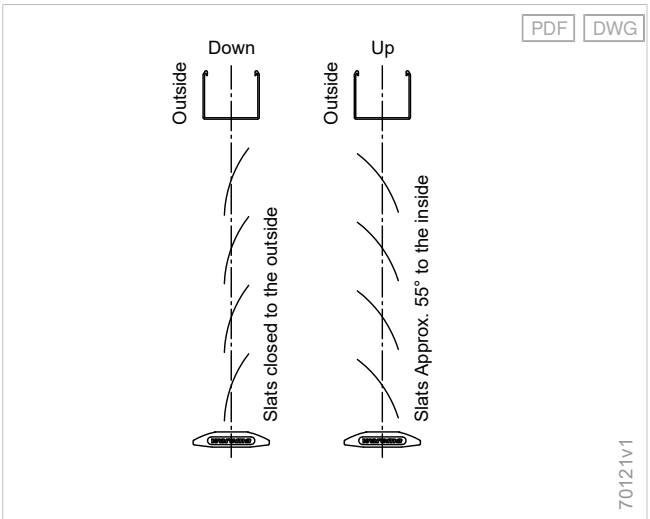


The slats can be closed in any intermediate position or can be tilted from closed to the outside to horizontal.

Bearing for slat tilting: Tilting closed/55° inwards

For use with: Complete system with flat slats, i.e. product variants E/C 60/80 AF A6/AF

- Comprising wedge segment from Teflon-containing plastic
- Maintenance-free, enclosed
- Segment tilting to prevent automatic adjustment of slats
- External venetian blind lowers with the slats closed to the outside and moves up with slats tilted to the inside at 55°



The slats can be closed in any intermediate position or tilted from closed to the outside to 55° to the inside.



Guide variants

Guide rails for external venetian blinds

Functional

Lateral guidance with guide rails and guide pins on the slats.

Versatile

A wide variety of profiles can be integrated into any type of facade: on plaster, on facades, concealed in the facade structure or self-supporting

Individual

All colours in the WAREMA Colour World, and other colours on enquiry.



Product characteristics

- High wind stability
- High durability
- Low noise emissions

Guide rails with bead (basic external venetian blinds, NA-RA)

Guide rails with retracted beads for noise reduction

Recommendation

- Length of guide rail = external venetian blind height - 30 mm (external venetian blind height - 50 mm with dim-out slats)
- Guide rail to bottom edge of top rail

FSCH with bead 25-18 (type 1)

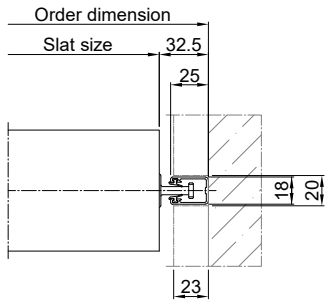
- For frontal installation on existing on-site substructure or in on-site grooves

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	25 mm
Depth	18 mm
Recess dimensions, width	23 mm
Recess dimensions, depth	20 mm

- For deviations in the external venetian blind axis +/- 2.5°
- In case of deviations in the external venetian blind axis, a rigid PVC bead must be used

Guide rail with bead 25x18 (type 1)

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FSCH with bead 25-18 (type 2)

- For installation with guide rail bracket

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	25 mm
Depth	18 mm

- For deviations in the external venetian blind axis +/- 2.5°
- In case of deviations in the external venetian blind axis, a rigid PVC bead must be used

Guide rail brackets:

- Bracket H1

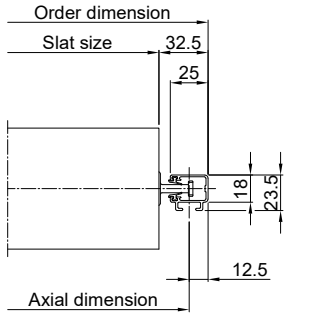
Guide rail bracket, optional:

- Bracket H2

see "Guide rail bracket", Page 375

FS 25x18 (type 2)

PDF DWG



71470v2

Double guide rail with bead 50-18 (type 3)

– For installation with guide rail bracket

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	50 mm
Depth	18 mm

– For deviations in the external venetian blind axis +/- 2.5°
– In case of deviations in the external venetian blind axis, a rigid PVC bead must be used

Guide rail brackets:

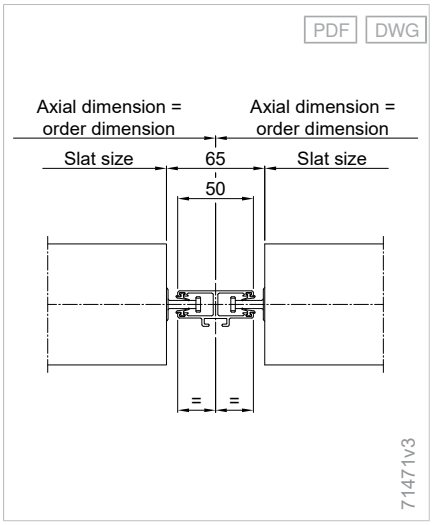
– Bracket H1

Guide rail bracket, optional:

– Bracket H2

see "Guide rail bracket", Page 375

FS 50x18 (type 3)



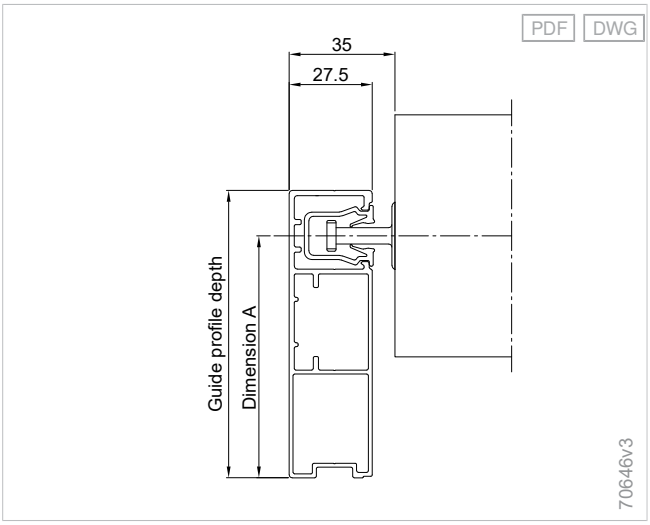
Guide rails with 2K plastic clip profile (FSR, NA-RA, AU-RA, external shaft-, self-supporting-, basic external venetian blinds)

Continuous aluminium guide profile for creating a reveal situation. With 2K plastic clip profile for nipple guidance and noise attenuation, including water-discharging end closures. Frontal guide rails can be completely embedded in plaster.

Recommendation

- Length of 2K plastic clip profile= external venetian blind height - 30 mm (external venetian blind height - 50 mm for dim-out slats)
- 2K plastic clip profile to bottom edge of top rail
- Guide profile to bottom edge of shaft/cover panel

Guide rail with 2K plastic clip profile



Use in:

- Basic external venetian blind
- External venetian blind window system
- Top-mounted external venetian blind for new buildings

FSCH 27-70 (type 36)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	70 mm
Dimensions, notes	Dimension A = 55 mm

FSCH 27-75 (type 38)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	75 mm
Dimensions, notes	Dimension A = 60 mm

FSCH 27-80 (type 37)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	80 mm
Dimensions, notes	Dimension A = 65 mm

FSCH 27-87.5 (type 32)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	87.5 mm
Dimensions, notes	Dimension A = 72.5 mm

FSCH 27-95 (type 31)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	95 mm
Dimensions, notes	Dimension A = 80 mm

FSCH 27-109 (type 60)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	109.5 mm
Dimensions, notes	Dimension A = 94.5 mm

FSCH 27-117 (type 61)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	117 mm
Dimensions, notes	Dimension A = 102 mm

Deep FSCH 27-130 for clinker brick models (type 69)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	130 mm
Dimensions, notes	Dimension A = 55 mm

Deep FSCH 27-150 for clinker brick models (type 29)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	150 mm
Dimensions, notes	Dimension A = 80 mm

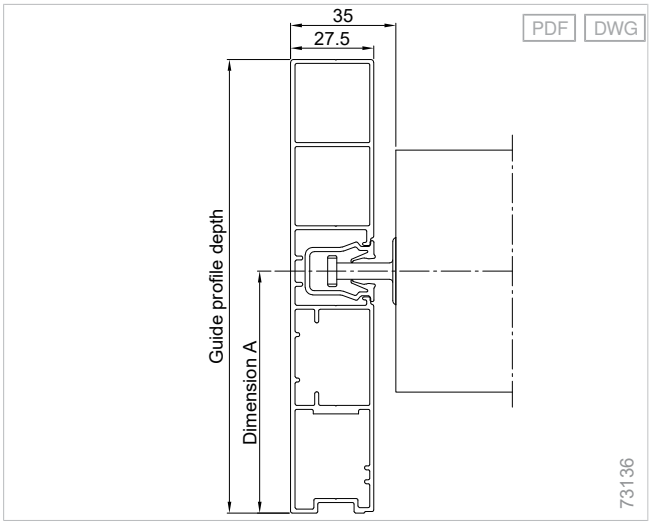
FSCH 27-122 (type 30)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	122.5 mm
Dimensions, notes	Dimension A = 107.5 mm

FSCH 27-137.5 (type 39)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	137.5 mm
Dimensions, notes	Dimension A = 122.5 mm

Deep guide rail for clinker brick models

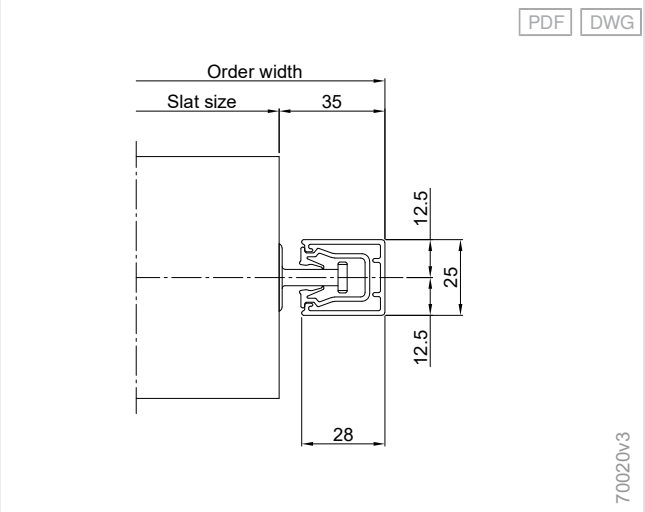


Use in: top-mounted external venetian blind for new buildings NA-RA

FSCH 25-28 (type 23)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	25 mm

FSCH 25-28 (type 23)



Double FSCH 55K-40 (type 64)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	55 mm
Depth	40 mm

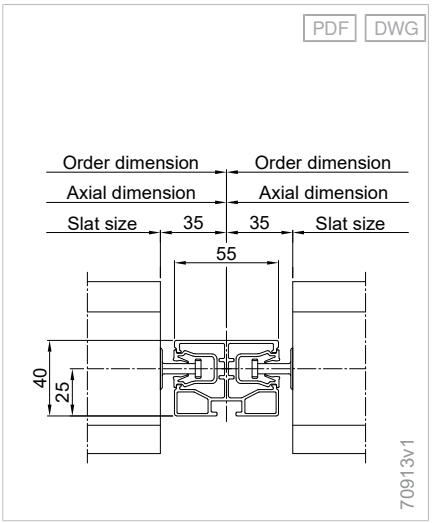
Guide rail brackets:

- Bracket H7

Guide rail bracket, optional:

- Bracket H8
- Bracket H101
- Bracket H115
- Bracket H5

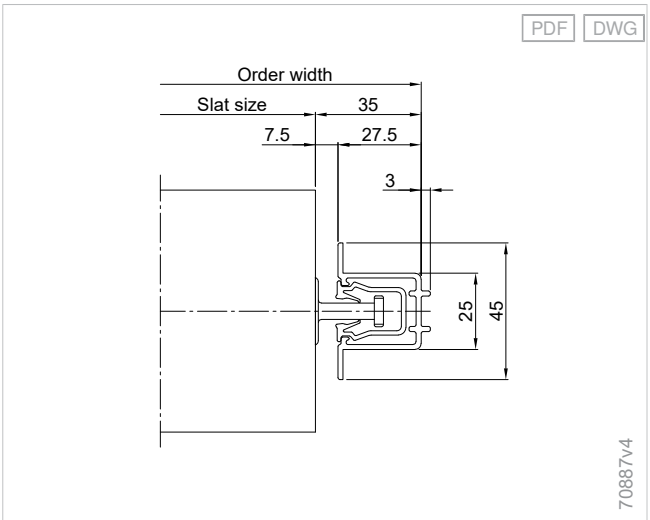
Double FSCH 55K-40, self-supporting for insect screen sliding door



FSCH 27-45 (type 70)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	45 mm
Recess dimensions, width	27 mm
Recess dimensions, depth	30 mm

Built-in guide rail 27x45 type 70



FSCH 25-50 (type 74)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	25 mm
Depth	50 mm

Guide rail brackets:

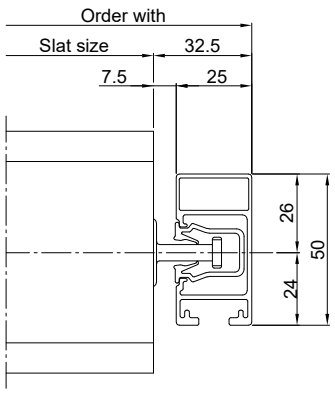
- Bracket H7

Guide rail bracket, optional:

- Bracket H8
- Bracket H101
- Bracket H115
- Bracket H5

FSCH 25-50 (type 74)

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FSCH 50-50 (type 75)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	50 mm
Depth	50 mm

Guide rail brackets:

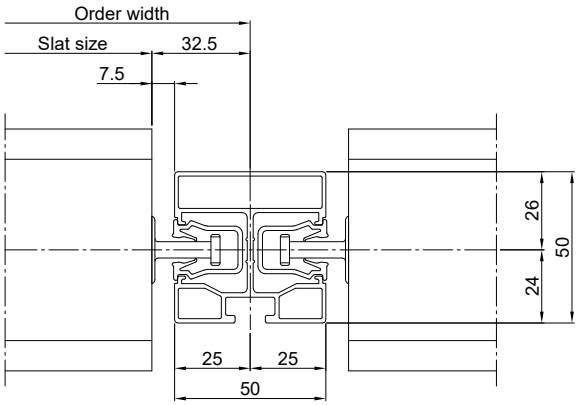
- Bracket H7

Guide rail bracket, optional:

- Bracket H8
- Bracket H101
- Bracket H115
- Bracket H5

FSCH 50-50 (type 75)

PDF DWG



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Additional product information

Guide rails

Allocation of guide rails (K = guide profile for combinations)

Guide rail designation	Guide rail type	For use with
FSCH 27-45	Type 70	Basic external venetian blind
FSCH 25-28	Type 23	Basic external venetian blind
FSCH 27-70 / FSCH 27-70 K	Type 36 / Type 36 K	NA-RA, external shaft venetian blind, basic external venetian blind
FSCH 27-75 / FSCH 27-75 K	Type 38 / Type 38 K	FSR, basic external venetian blind
FSCH 27-80 / FSCH 27-80 K	Type 37 / Type 37 K	FSR, AU-RA, external shaft venetian blind, basic external venetian blind
FSCH 27-87 / FSCH 27-87 K	Type 32 / Type 32 K	FSR, NA-RA, basic external venetian blind
FSCH 27-95 / FSCH 27-95 K	Type 31 / Type 31 K	FSR, external shaft venetian blind, NA-RA, basic external venetian blind
FSCH 27-109 / FSCH 27-109 K	Type 60 / Type 60 K	FSR, basic external venetian blind
FSCH 27-117 / FSCH 27-117 K	Type 61 / Type 61 K	FSR, basic external venetian blind
FSCH 27-122 / FSCH 27-122 K	Type 30 / Type 30 K	FSR, external shaft venetian blind, basic external venetian blind
FSCH 27-137/ FSCH 27-137 K	Type 39/ Type 39-K	Basic external venetian blind
FSCH 27-130 for clinker brick models	Type 69	NA-RA
FSCH 27-150 for clinker brick models	Type 29	NA-RA
Double FSCH 55K-40	Type 64	FSR, NA-RA, external shaft venetian blind, basic external venetian blind
FSCH 25-50	Type 74	External shaft venetian blind, self-supporting external venetian blinds, basic external venetian blind
FSCH 50-50	Type 75	External shaft venetian blind, self-supporting external venetian blinds, basic external venetian blind

Guide rails with 2K plastic clip profile, clamping pin installation (NA-RA, AU-RA, basic external venetian blind)

Continuous aluminium guide profile for creating a reveal situation. With 2K plastic clip profile for nipple guidance and noise attenuation, including water-discharging end closures. Frontal guide rails can be completely embedded in plaster.

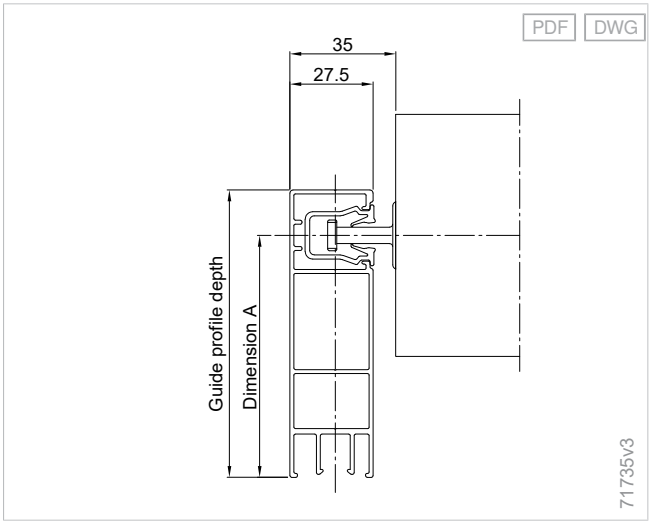
Recommendation

- Length of 2K plastic clip profile = external venetian blind height - 30 mm (external venetian blind height - 50 mm for dim-out slats)
- 2K plastic clip profile to bottom edge of top rail
- Guide profile to bottom edge of shaft/cover panel

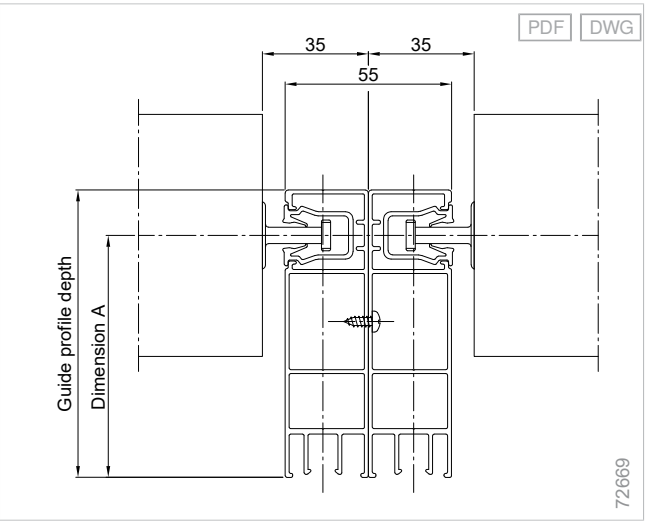
To be considered during planning:

- The support profiles with clamping pin installation may be used only in systems where the loads of the external venetian blind and box/cover panel are dissipated via the facade (NA-RA, AU-RA, basic external venetian blinds).
- The clamping pin screws included in the accessories must be used during installation (art. no. 2010106).
- In the case of middle rails, the guide rails are already screwed together by WAREMA (guide profile combination).
- When using the support profiles as individual profiles, the maximum guide rail length is limited to 4000 mm.

Guide rail with 2K plastic clip profile - clamping pin installation



Guide rail with 2K plastic clip profile, clamping pin installation - for combinations



Use in:

- Top-mounted external venetian blind for new buildings NA-RA
- Top-mounted external venetian blind AU-RA

FSCH 27-70 (type 65), clamping pin installation

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	70 mm
Dimensions, notes	Dimension A = 55 mm

FSCH 27-87 (type 67), clamping pin installation

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	87 mm
Dimensions, notes	Dimension A = 72 mm

FSCH 27-80 (type 66), clamping pin installation

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	80 mm
Dimensions, notes	Dimension A = 65 mm

FSCH 27-95 (type 68), clamping pin installation

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	95 mm
Dimensions, notes	Dimension A = 80 mm

Additional product information

Allocation of guide rails (K = guide profile for combinations)

Guide rail designation	Guide rail type	For use with
FSCH 27-70 / FSCH 27-70 K	Type 65 / Type 65 K	NA-RA, basic external venetian blind
FSCH 27-80 / FSCH 27-80 K	Type 66 / Type 66 K	AU-RA, basic external venetian blind
FSCH 27-87 / FSCH 27-87 K	Type 67 / Type 67 K	NA-RA, basic external venetian blind
FSCH 27-95 / FSCH 27-95 K	Type 68 / Type 68 K	NA-RA, basic external venetian blind

Fixing points of clamping pins

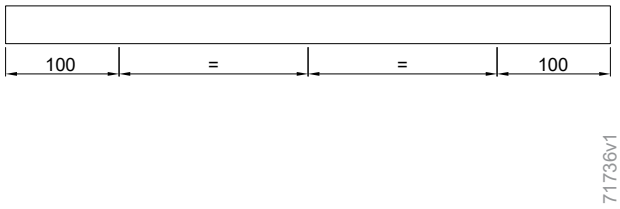
Number of clamping pins

Guide rail length	Number
Up to - 1000 mm	3
1001 mm - 1333 mm	4
1334 mm - 1667 mm	5
1668 mm - 2000 mm	6
2001 mm - 2333 mm	7
2334 mm - 2667 mm	8
2668 mm - 3000 mm	9
3001 mm - 3333 mm	10
3334 mm - 3667 mm	11
3668 mm - 4000 mm	12

When installing, ensure to install both the first and last clamping pin at a 100 mm offset and distribute the remaining quantity evenly across the guide rail length.

Position of clamping pins

PDF DWG



Guide rail with 2K plastic clip profile (front-mounted external venetian blinds)

Continuous aluminium guide profile for creating a reveal situation. With 2K plastic clip profile for nipple guidance and noise attenuation, including water-discharging end closures. Frontal guide rails can be completely embedded in plaster.

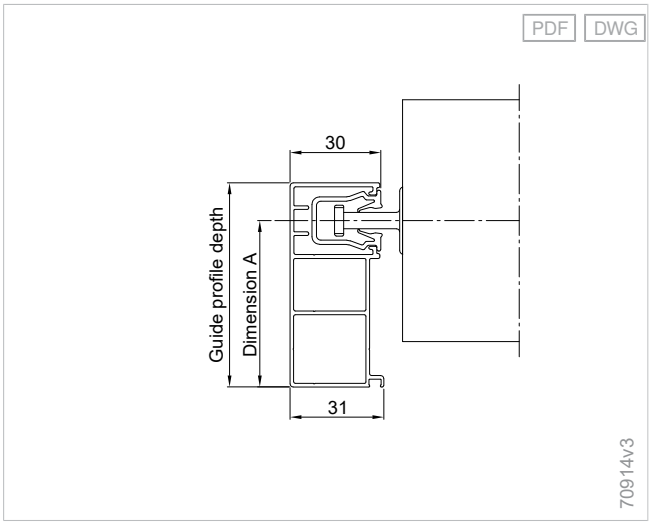
Recommendation

- Length of 2K plastic clip profile= external venetian blind height - 30 mm (external venetian blind height - 50 mm for dim-out slats)
- 2K plastic clip profile to bottom edge of top rail
- Guide profile to bottom edge of shaft/cover panel

FSCH 30-68 (type 50)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	30 mm
Depth	68 mm
Dimensions, notes	Dimension A = 55

Standard guide rail, front-mounted external venetian blind



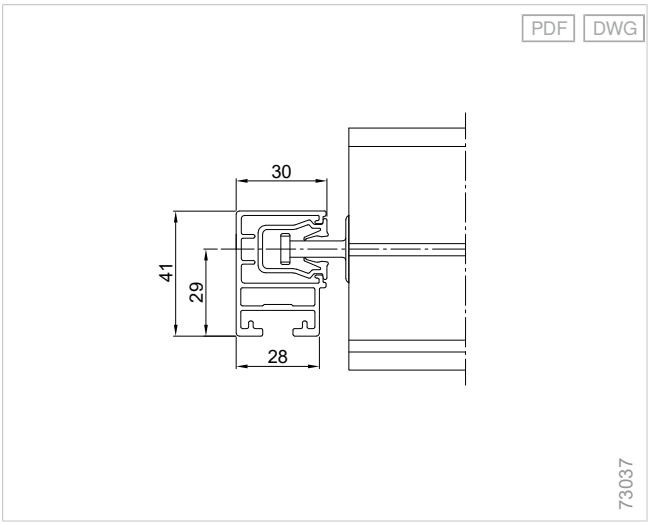
FSCH 30-92 (type 51)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	30 mm
Depth	92 mm
Dimensions, notes	Dimension A = 80

Front-mounted guide rails, bracket installation (for box shape Rectangular, Round, Square)

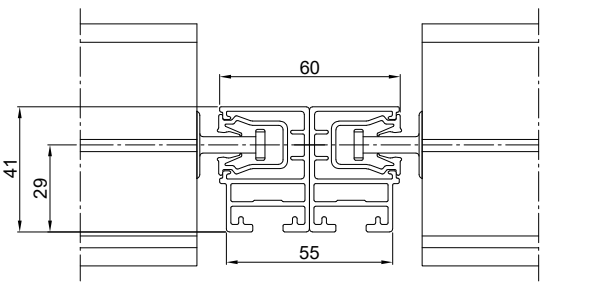
Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	30 mm
Depth	68 mm
Dimensions, notes	Dimension A = 55

Guide rail for bracket mounting, front-mounted external venetian blind



Guide rail for bracket mounting, front-mounted external venetian blind (double guide rail)

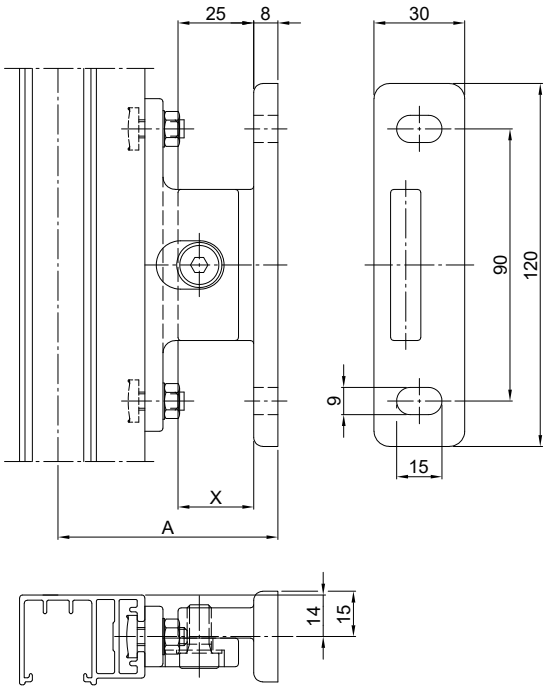
PDF DWG



73038

Bracket for front-mounted external venetian blinds R6 for guide rails version with bracket mounting

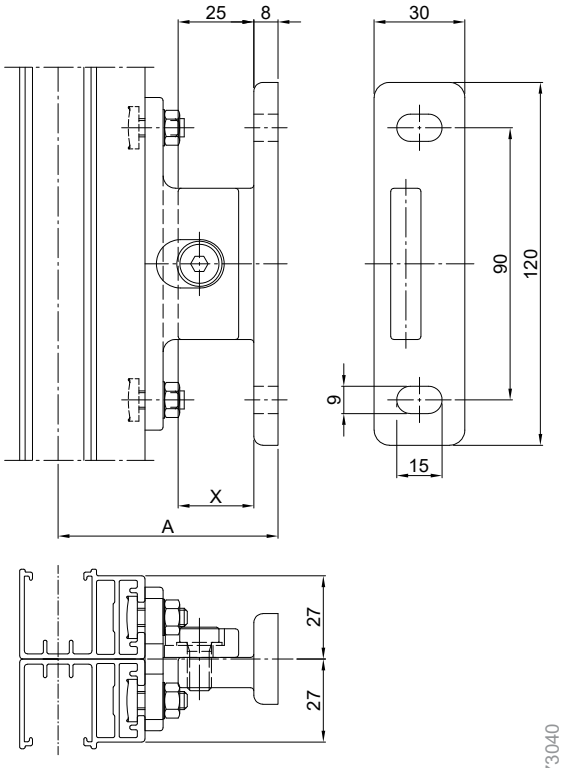
PDF DWG



73039

Bracket for front-mounted external venetian blinds R6 for guide rails version with bracket mounting (double guide rail)

PDF DWG



73040

Additional product information

Front-mounted external venetian blinds, guide rails with bracket installation

Dimension A	Dimension X
68 - 75 mm	25 mm
76 - 85 mm	35 mm
86 - 95 mm	45 mm
96 - 105 mm	55 mm
106 - 115 mm	65 mm
116 - 125 mm	75 mm
126 - 135 mm	85 mm
136 - 150 mm	100 mm

Number of required guide rail brackets; order height for front-mounted external venetian blind:

- Up to 2500 mm: 2 pieces
- > 2500 mm: 3 pieces

Guide rails

Allocation of guide rails (K = guide profile for combinations)

Guide rail designation	Guide rail type	For use with
FSCH 30-68 / FSCH 30-68 K	Type 50 / Type 50 K	Front-mounted external venetian blind R6
FSCH 30-92 / FSCH 30-92 K	Type 51 / Type 51 K	Front-mounted external venetian blind R10 (R6 optional)
Guide rails for bracket installation		Front-mounted external venetian blind R6

Guide rails for on-site grooves

FSCH with bead 25-18 (type 1)

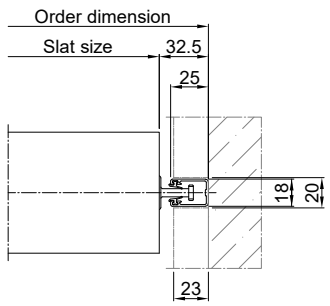
– For frontal installation on existing on-site substructure or in on-site grooves

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	25 mm
Depth	18 mm
Recess dimensions, width	23 mm
Recess dimensions, depth	20 mm

– For deviations in the external venetian blind axis +/- 2.5°
– In case of deviations in the external venetian blind axis, a rigid PVC bead must be used

Guide rail with bead 25x18 (type 1)

PDF DWG



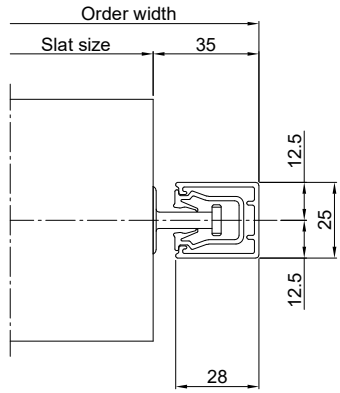
73370

FSCH 25-28 (type 23)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	25 mm

FSCH 25-28 (type 23)

PDF DWG



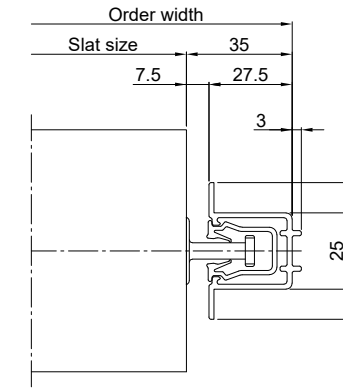
70020v3

FSCH 27-45 (type 70)

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised
Width	27,5 mm
Depth	45 mm
Recess dimensions, width	27 mm
Recess dimensions, depth	30 mm

Built-in guide rail 27x45 type 70

PDF DWG



70887v4

On-site pilaster strip profiles

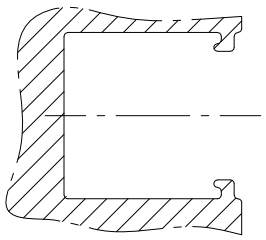
Material	Aluminium, extruded
Surface	Powder-coated

Notes concerning the order:

When using on-site pilaster strip profiles, request the required production drawings for using 2K plastic clip profiles from the customer centre.

2K plastic clip profile, contour FSCH

PDF DWG



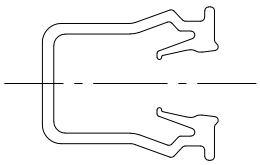
74399

2K plastic clip profiles

Material	Plastic
Surface	Plastic
Dimensions, notes	Drawings available on request

2K plastic clip profile, standard

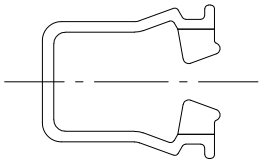
PDF DWG



74400

2K plastic clip profile, Windra flat slat

PDF DWG



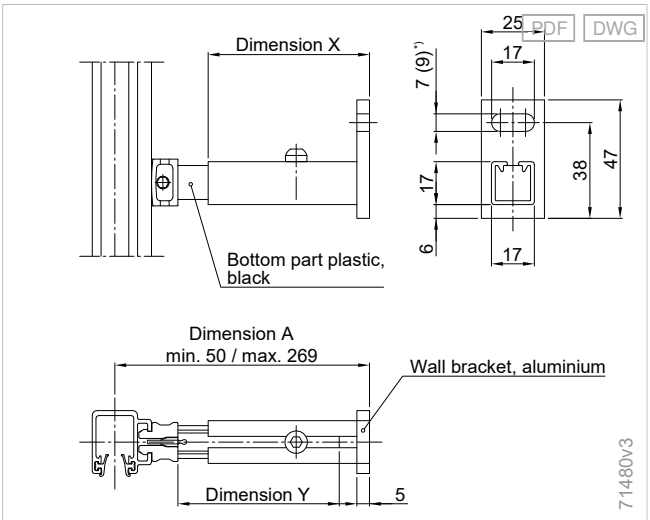
74401

Guide rail bracket

- Simple and secure fixing of the guide rails to the mounting substructure
- Installation tolerances compensated

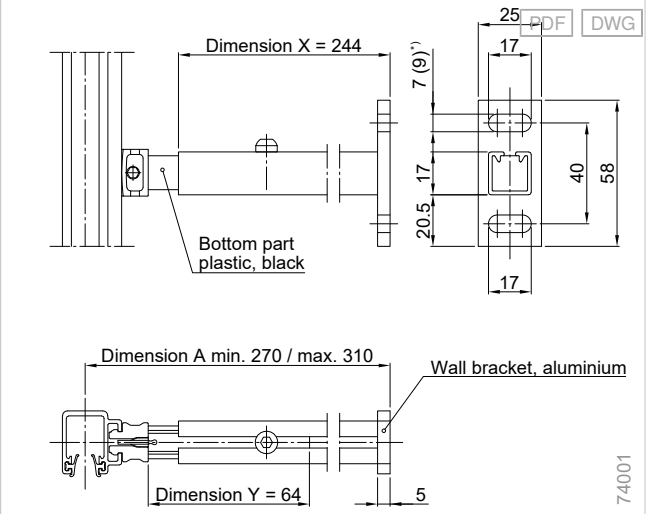
Bracket H1

Guide rail bracket type H1



* The type H1 guide rail bracket with a 9 mm oblong hole is available for fixing to threaded bolt M8 (please specify when ordering).

Guide rail bracket type H1, dimension A from 270 mm



* The type H1 guide rail bracket with a 9 mm oblong hole is available for fixing to threaded bolt M8 (please specify when ordering).

Additional product information

Number of required guide rail brackets

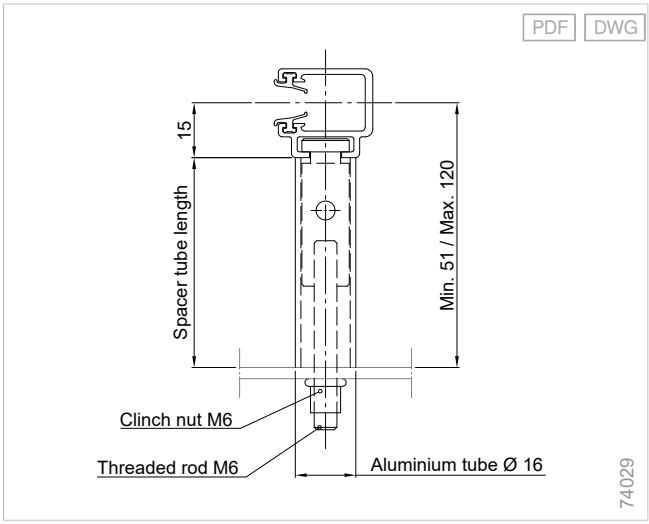
Guide rail length	Number of guide rail brackets
up to 1400 mm	2
1401 mm - 2500 mm	3
2501 mm - 3500 mm	4
3501 mm - 4500 mm	5
4501 mm - 5000 mm	6

Shifting range

Dimension A	Shifting range	Dimension X	Dimension Y
50 - 59	49 - 61	24	24
60 - 69	59 - 74	34	34
70 - 89	69 - 94	44	44
90 - 129	89 - 134	64	64
130 - 169	129 - 174	104	64
170 - 209	169 - 214	144	64
210 - 239	209 - 254	184	64
240 - 269	239 - 270	214	64
270 - 310	269 - 310	244	64

Bracket H2

Guide rail bracket type H2



Fixing of the guide rails with guide rail bracket H2 is only permissible on sturdy metal surfaces.

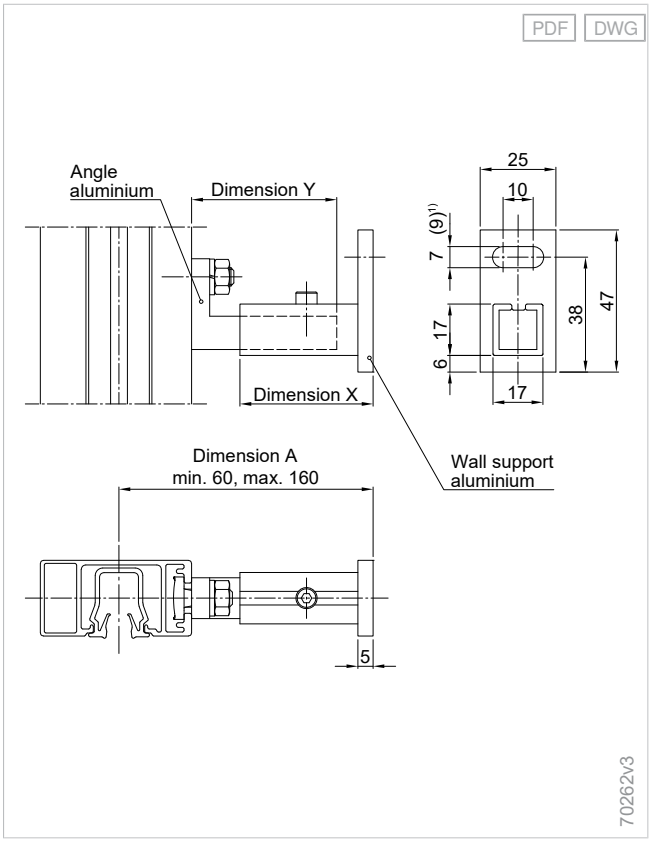
Additional product information

Number of required guide rail brackets

Guide rail length	Number of guide rail brackets
up to 1400 mm	2
1401 mm - 2500 mm	3
2501 mm - 3500 mm	4
3501 mm - 4500 mm	5
4501 mm - 5000 mm	6

Bracket H5

Guide rail bracket type H5



Additional product information

Number of required guide rail brackets

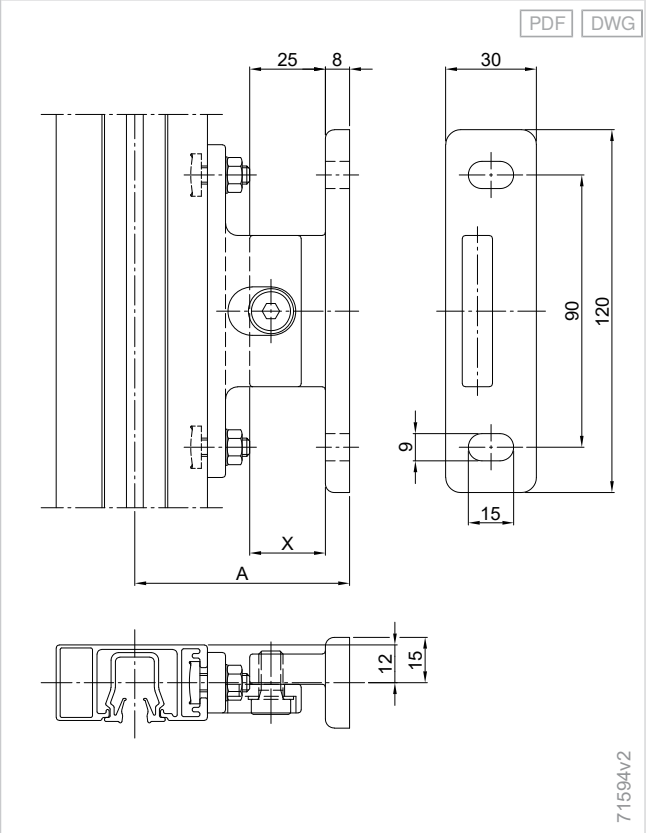
Guide rail length	Number of guide rail brackets
up to 1400 mm	2
1401 mm - 2500 mm	3
2501 mm - 3500 mm	4
3501 mm - 4500 mm	5
4501 mm - 5000 mm	6

Shifting range

Dimension A	Dimension X	Dimension Y
60 - 65	24	33
65 - 75	34	33
75 - 95	44	48
95 - 135	64	68
135 - 160	104	68

Bracket H7

Guide rail bracket H7



The guide rail lies within the bracket: middle of guide rail = middle of guide rail bracket

Additional product information

Number of required guide rail brackets

Guide rail length	Number of guide rail brackets
Up to 3000 mm	2
3001 mm - 5000 mm	3

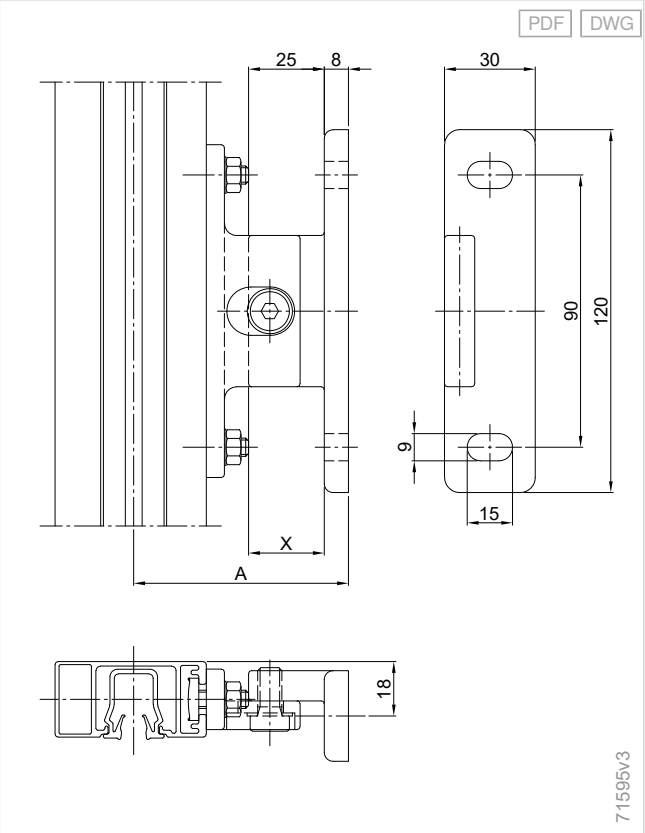
Shifting range

Dimension A	Shifting range
64-74	64-74
75-89	75-91
90-99	85-101
100-109	95-111
110-119	105-121
120-129	115-131
130-139	125-141
140-149	135-151
150-159	145-161
160-169	155-171
170-179	165-181
180-189	175-191
190-199	185-201
200-209	195-211
210-219	205-221
220-229	215-231
230-239	225-241
240-249	235-251
250-259	245-261
260-269	255-271
270-279	265-281
280-289	275-291
290-299	285-301
300-309	295-311
310-319	305-321
320-329	315-331
330-339	325-341
340-349	335-351

Dimension A "64-74" only available for powder-coated guide rail brackets!

Bracket H8

Guide rail bracket H8



The axis of the guide rail is offset 5 mm outwards (the guide rail protrudes over the bracket).

Additional product information

Number of required guide rail brackets

Guide rail length	Number of guide rail brackets
Up to 3000 mm	2
3001 mm - 5000 mm	3

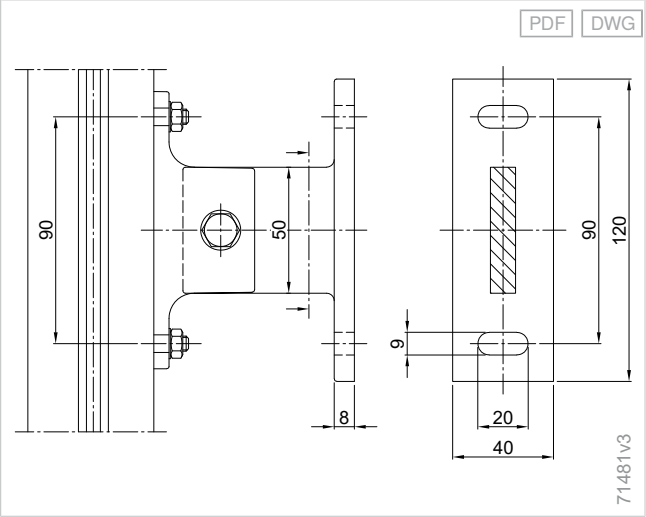
Shifting range

Dimension A	Shifting range
64-74	64-74
75-89	75-91
90-99	85-101
100-109	95-111
110-119	105-121
120-129	115-131
130-139	125-141
140-149	135-151
150-159	145-161
160-169	155-171
170-179	165-181
180-189	175-191
190-199	185-201
200-209	195-211
210-219	205-221
220-229	215-231
230-239	225-241
240-249	235-251
250-259	245-261
260-269	255-271
270-279	265-281
280-289	275-291
290-299	285-301
300-309	295-311
310-319	305-321
320-329	315-331
330-339	325-341
340-349	335-351

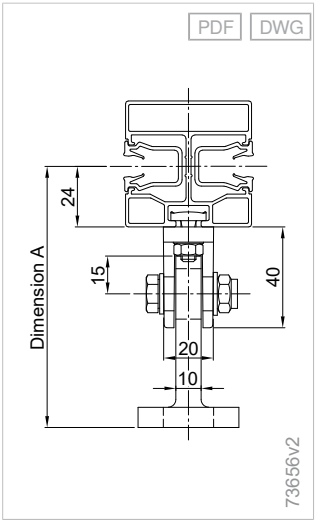
Dimension A "64-74" only available for powder-coated guide rail brackets!

Bracket H101

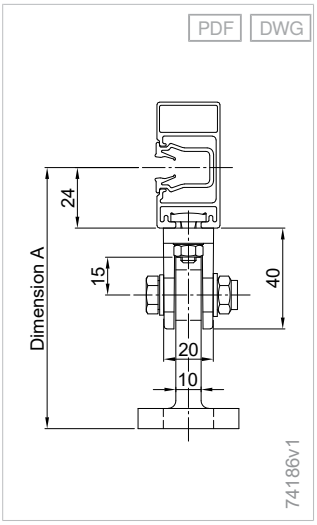
Guide rail bracket H101



Guide rail bracket H101 using the example of FSCH 50x50 (type 75)



Guide rail bracket H101 using the example of FSCH 25x50 (type 74)



Additional product information

Number of required guide rail brackets

Guide rail length	Number of guide rail brackets
Up to 3000 mm	2
3001 mm - 5000 mm	3

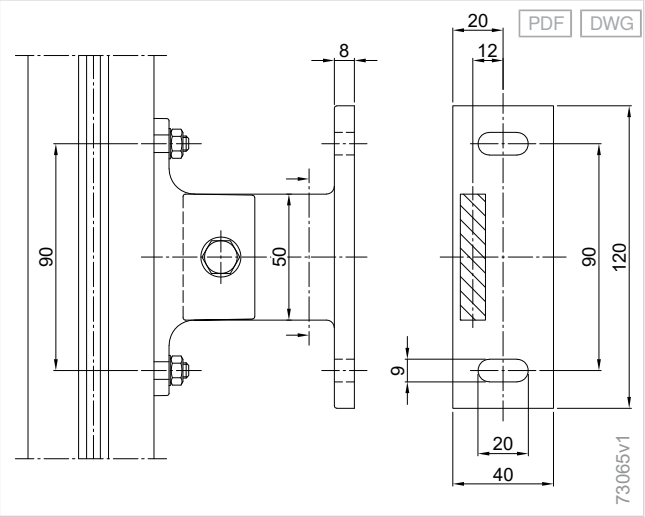
Shifting range

Dimension A	Shifting range
64-74	64-74
75-89	75-91
90-99	85-101
100-109	95-111
110-119	105-121
120-129	115-131
130-139	125-141
140-149	135-151
150-159	145-161
160-169	155-171
170-179	165-181
180-189	175-191
190-199	185-201
200-209	195-211
210-219	205-221
220-229	215-231
230-239	225-241
240-249	235-251
250-259	245-261
260-269	255-271
270-279	265-281
280-289	275-291
290-299	285-301
300-309	295-311
310-319	305-321
320-329	315-331
330-339	325-341
340-349	335-351

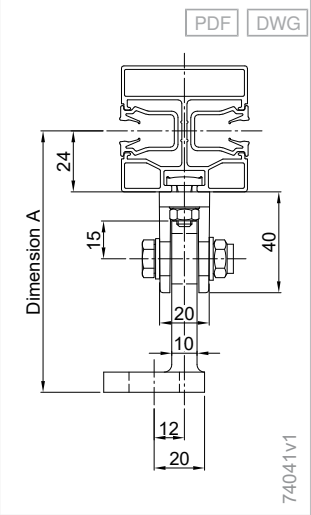
Dimension A "64-74" only available for powder-coated guide rail brackets!

Bracket H115

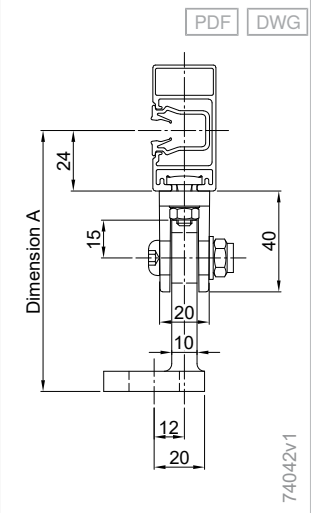
Guide rail bracket H115



Guide rail bracket H115 using the example of FSCH 50x50 (type 75)



Guide rail bracket H115 using the example of FSCH 25x50 (type 74)



Additional product information

Number of required guide rail brackets

Guide rail length	Number of guide rail brackets
Up to 3000 mm	2
3001 mm - 5000 mm	3

Shifting range

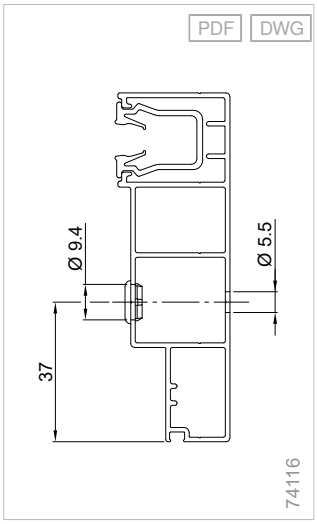
Dimension A	Shifting range
64-74	64-74
75-89	75-91
90-99	85-101
100-109	95-111
110-119	105-121
120-129	115-131
130-139	125-141
140-149	135-151
150-159	145-161
160-169	155-171
170-179	165-181
180-189	175-191
190-199	185-201
200-209	195-211
210-219	205-221
220-229	215-231
230-239	225-241
240-249	235-251
250-259	245-261
260-269	255-271
270-279	265-281
280-289	275-291
290-299	285-301
300-309	295-311
310-319	305-321
320-329	315-331
330-339	325-341
340-349	335-351

Dimension A "64-74" only available for powder-coated guide rail brackets!

Additional product information

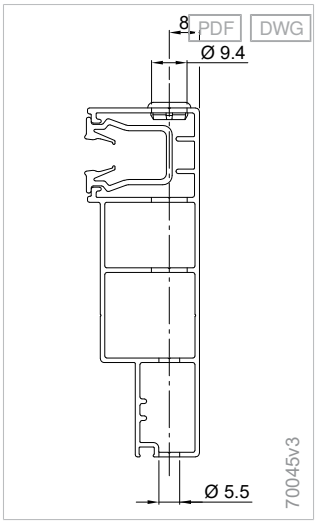
Detailed information on fixing holes

Type of installation: drilled hole 1 (lateral in the reveal)



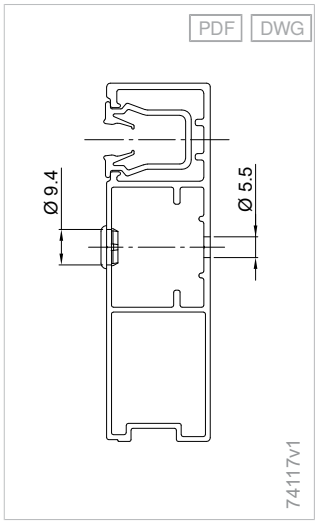
For example Guide rail 30-92 (Front-mounted external venetian blind R10)

Type of installation: Drilled hole 2 (from front on window/ facade)



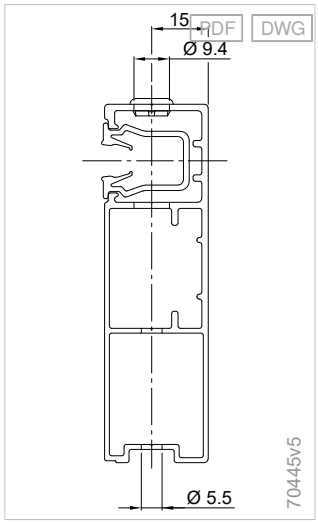
For example Guide rail 30-92 (Front-mounted external venetian blind R10)

Type of installation: drilled hole 1 (lateral in the reveal)



For example guide rail with 2K plastic clip profile (for external venetian blind window system, top-mounted external venetian blinds, basic external venetian blinds).

Type of installation: Drilled hole 2 (from front on window/ facade)



For example guide rail with 2K plastic clip profile (for external venetian blind window system, top-mounted external venetian blinds, basic external venetian blinds).

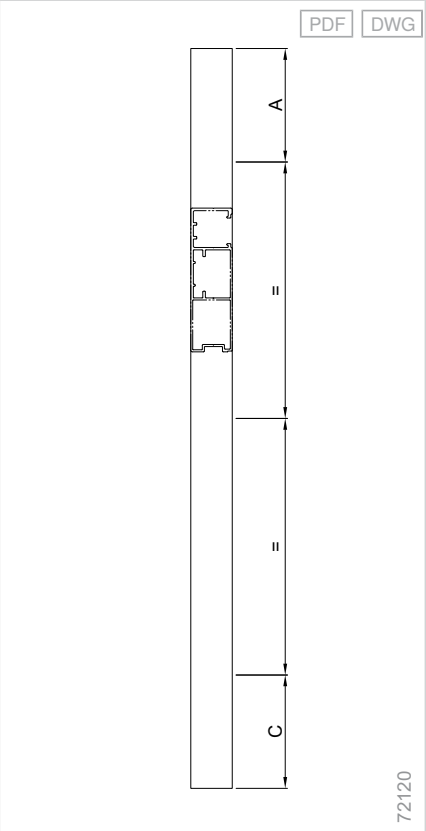
Number of fixing holes

Number	Guide profile length (basic external venetian blind, external shaft venetian blind)	Guide profile length for front-mounted external venetian blind drilled hole 1	Guide profile length for front-mounted external venetian blind drilled hole 2	Guide profile length FSR/NA-RA/AU-RA
2	Up to 1550 mm	Up to 1381 mm	Up to 1360 mm	Up to 1450 mm
3	1551 mm - 2700 mm	1382 mm - 2531 mm	1361 mm - 2510 mm	1451 mm - 2600 mm
4	2701 mm - 3850 mm	2532 mm - 3681 mm	2511 mm - 3660 mm	2601 mm - 3750 mm
5	3851 mm - 5000 mm	3682 mm - 4831 mm	3661 mm - 4810 mm	3751 mm - 4900 mm

Position of fixing holes

Number	Basic external venetian blind/external shaft venetian blind	Drilled hole for front-mounted external venetian blind 1	Drilled hole for front-mounted external venetian blind 2	FSR/NA-RA/AU-RA
Distance A (top)	250	81	60	150
Distance C (bottom)	150	150	150	150

The remaining holes are drilled into the guide profile.



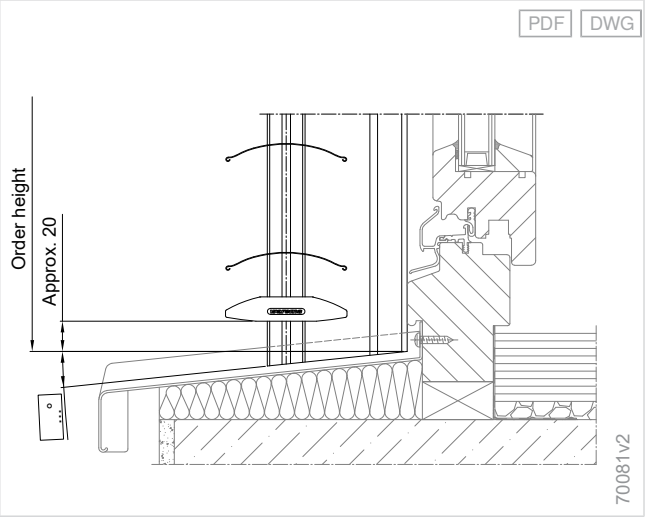
Number of fixing points for reveal installation

Guide rail length	Number of fixing points
600 mm - 1400 mm	2
1401 mm - 2200 mm	3
2201 mm - 3000 mm	4
3001 mm - 3800 mm	5
3801 mm - 4600 mm	6
4601 mm - 5400 mm	7
5401 mm - 6000 mm	8

Guide rails sloped at the bottom

- Please specify the degree of inclination of the angled cut when ordering
- Optional end closure available for covering the guide profile
- The reference point for defining the fixing points is always the front dimension (i.e. the long dimension) of the guide rail.

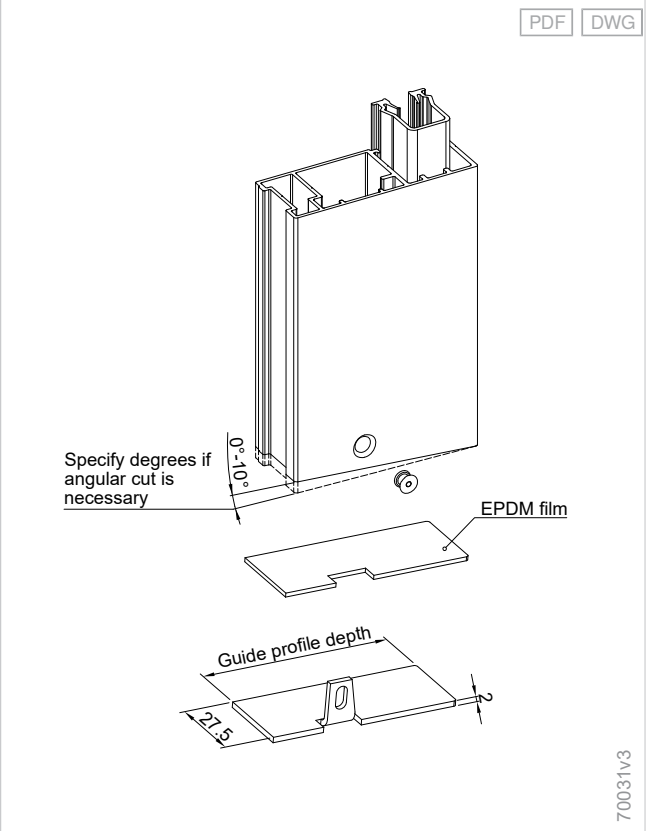
Guide profile sloped down



Note when ordering: Please state order height and inclination angle of window sill!

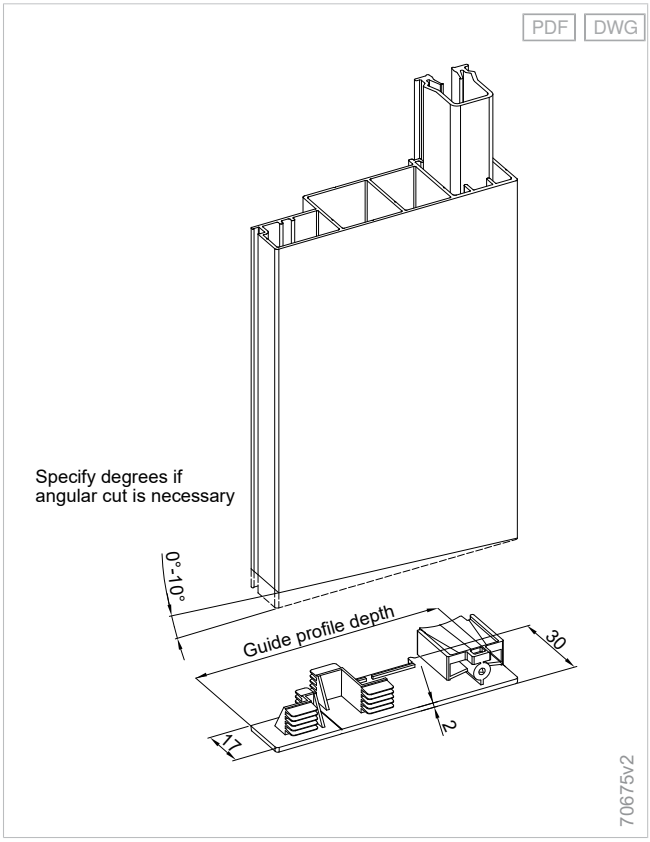
End caps for guide profiles

Aluminium end cap for guide profile FSR, NA-RA and basic external venetian blinds



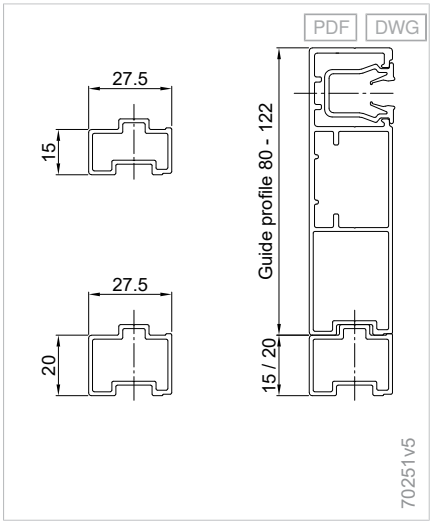
The optionally available end closure (black colour) is premounted at the factory. Also available for guide profiles up to max. 10° diagonal cut.

Plastic end cap for guide profile for front-mounted external venetian blinds



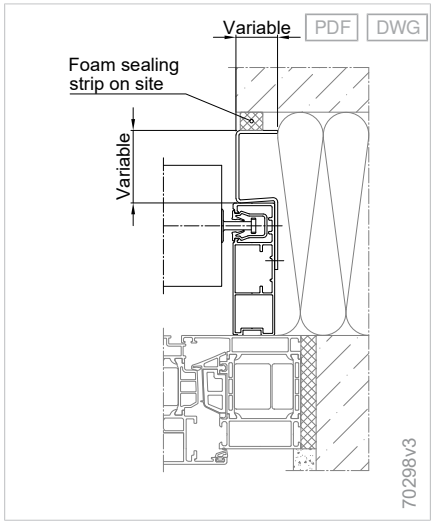
The optionally available end closure (black colour) is premounted at the factory. Also available for guide profiles up to max. 10° diagonal cut.

Lining for guide profiles



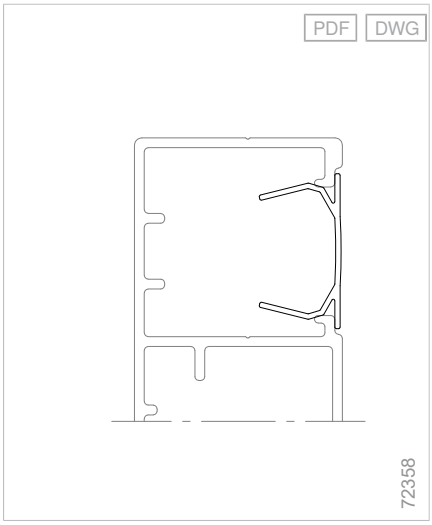
Lining preinstalled at the factory, max. 2 linings possible on the guide profile.

Clinker brick gap cover



Clinker brick gap cover variably adjustable in depth, can be used for guide profiles. When ordering without specifying depth of model up to leading edge of cover panel or plaster base plate.

Cover profile for pilaster strips and guide profiles

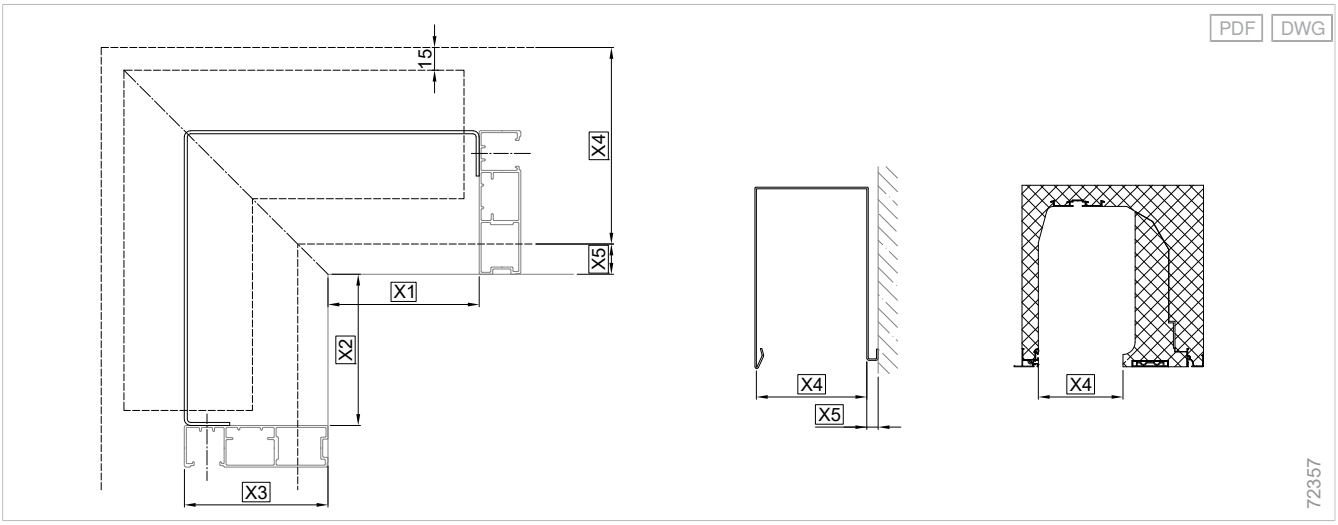


- The cover profile is installed instead of the 2K plastic clip profile, e.g. for on-site pilaster strip profiles without a sun shading system.
- The cover profile can be powder coated in accordance with the WAREMA Colour World. Due to the tolerances, anodisation is not possible.
- For heights over 4000 mm, it is possible to use a second profile.
- The cover profile holds by clamping and can be replaced by a 2K plastic clip profile if necessary.

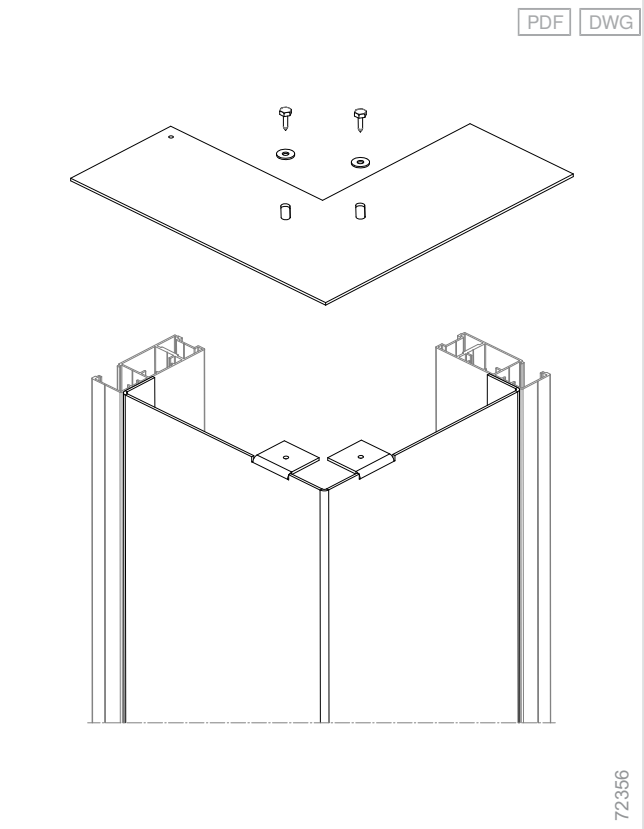
Cover panel for guide profiles on 90° outer angles

Order data	Description
X1	Distance from guide profile back edge to building corner
X2	Distance from guide profile back edge to building corner
X3	Guide profile depth
X4	Shaft depth / cover panel inside dimension
X5	Cover panel rear lip (if present)

Required order data



Shaft cover



For the front-mounted external venetian blind, a shaft cover sheet fitting to the box shape is used instead of the shaft cover panel.

The cover panel for 90° outer angles is not premounted. The tapping screws and washers required for installation are supplied.

Guide rail with fascia for dim-out slats

Field of application

For external venetian blinds with dim-out slats in order to achieve the best possible dim-out values.

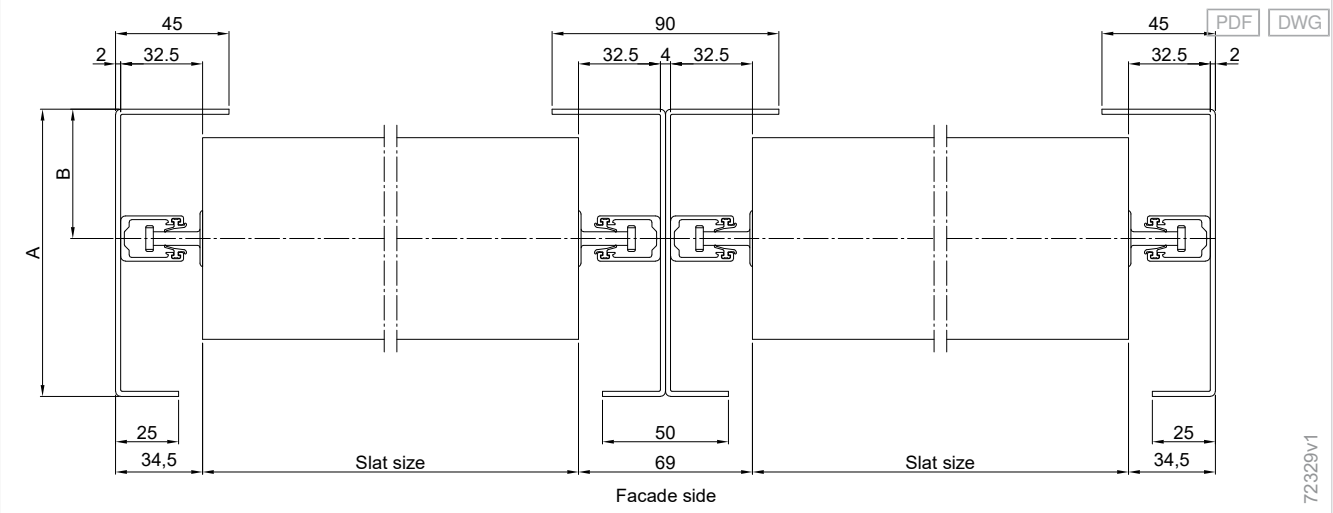
Dimensions for the fascia are not fixed and may be adjusted to the structural conditions on site.

For larger dimensions, the sheet thickness should be chosen from the table.

Specification of sheet thickness depends on projection

Dimension A	Sheet thickness
Up to 180 mm	2.0 mm
181 mm - 300 mm	3.0 mm

Measuring instructions for guide rail with fascia

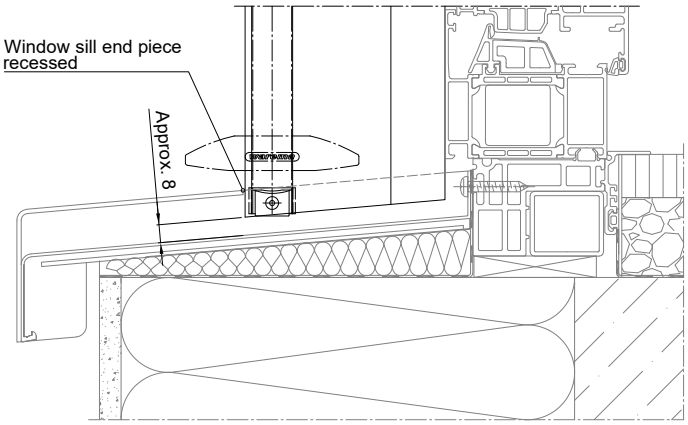


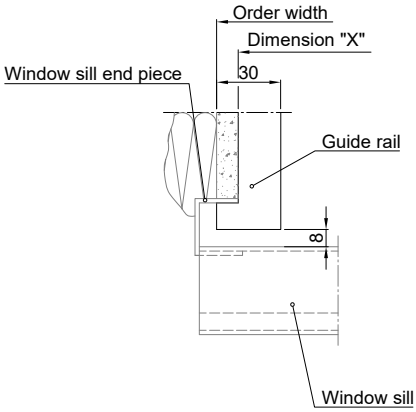
Detailed information on window sill connections

Window sill connection – standard situation

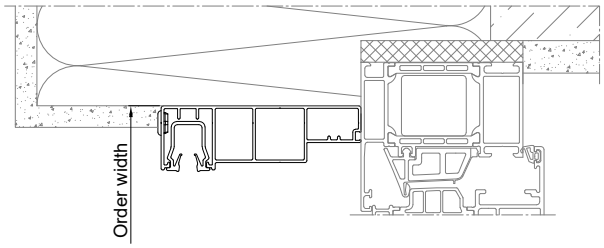
Aluminium window sill connection

PDF DWG





Dimension "X" = window sill inner dimension = inner edge of reveal with plaster

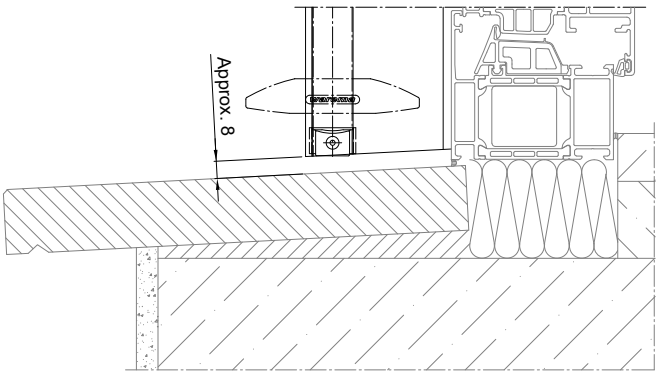


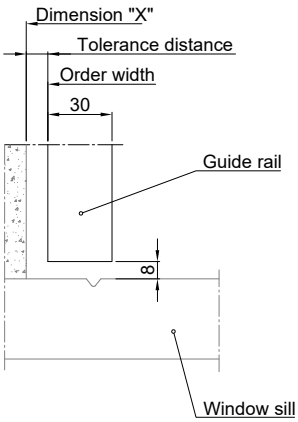
70035v3

Window sill connection – standard situation

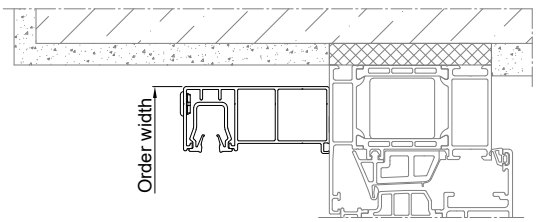
Stone window sill connection

PDF DWG





Dimension "X" = inner edge of reveal with plaster

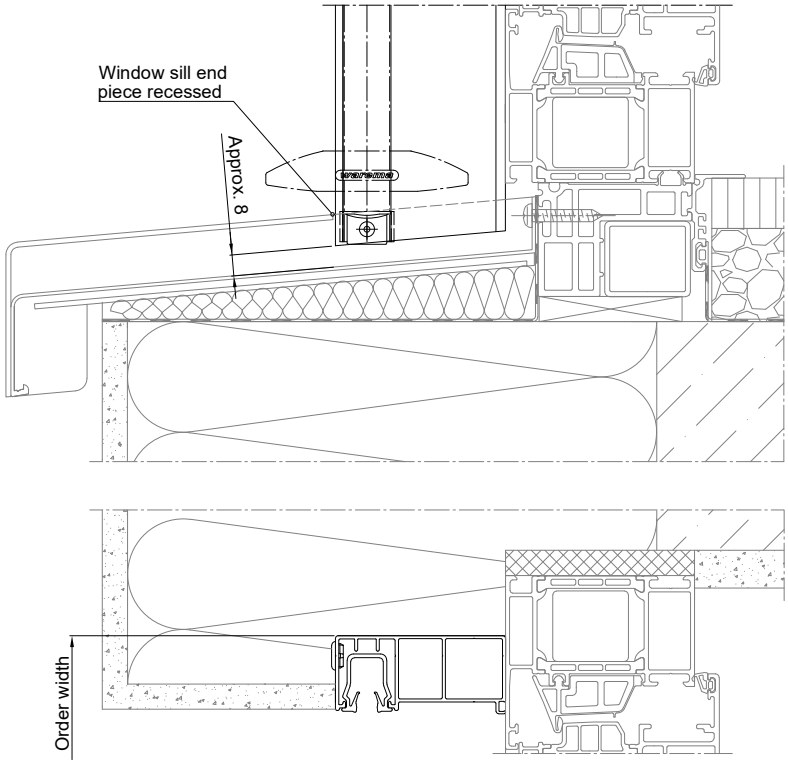


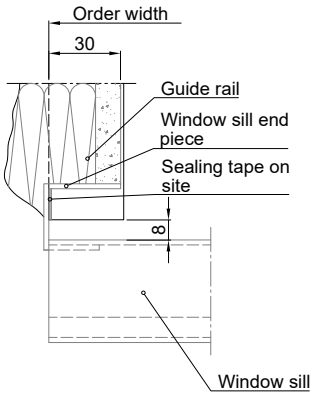
74315

Window sill connection – special situation

Aluminium window sill connection

PDF DWG



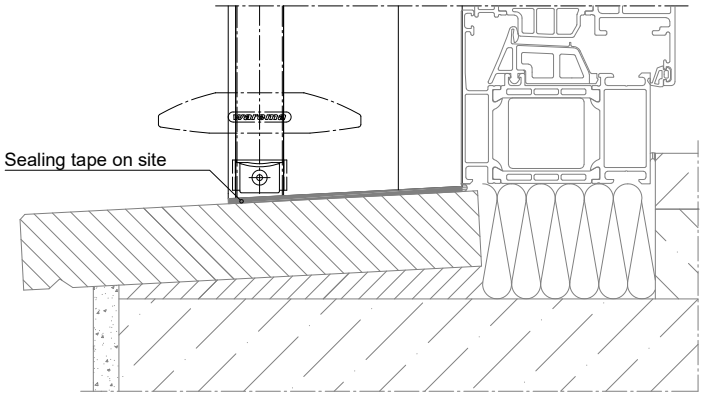


70037v2

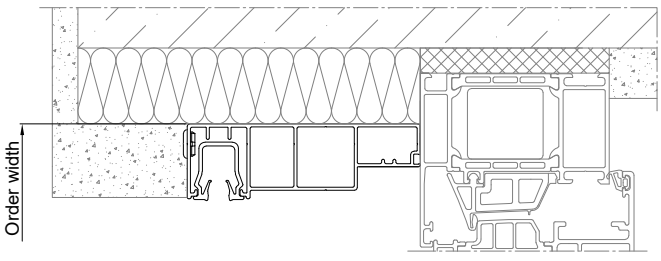
Window sill connection - special situation: embedded in plaster at the front

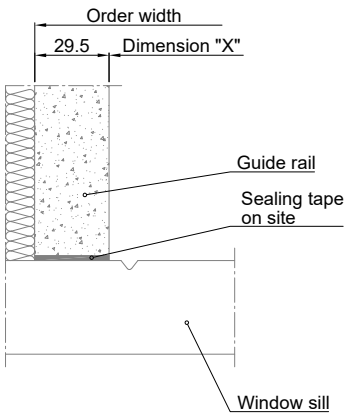
PDF DWG

Stone window sill connection



Dimension "X" = ready plastered reveal





70036v3

If the support profiles are cut at an angle, the external venetian blind height will still refer to the order height on the window frame. This produces a gap (depending on the slope) between the window sill and the bottom edge of the end rail. If the guide profile has to be longer than the window frame in order to protrude into the window sill closure, the order height must be increased accordingly. Any valid guidelines and regulations must be complied with.

Recommendation: End profiles from the brands Bug or Helopal aluminium system technology



Guide variants
Cable guidance

Functional

Safe lateral guidance with a tension cable using steel wire cord. Low noise emissions.

Slender appearance

Space-saving guide variants and a slender view with discreet lateral guidance.

Universal

A version with cable guidance can be easily integrated into virtually every facade.

Tension cable bracket type S01



Product characteristics

- Guidance of slat and end rail
- Fixing with tension cable brackets
- Installation on plaster or facades

Tension cable

Tension cable type A1

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

Lateral guidance with tension cable

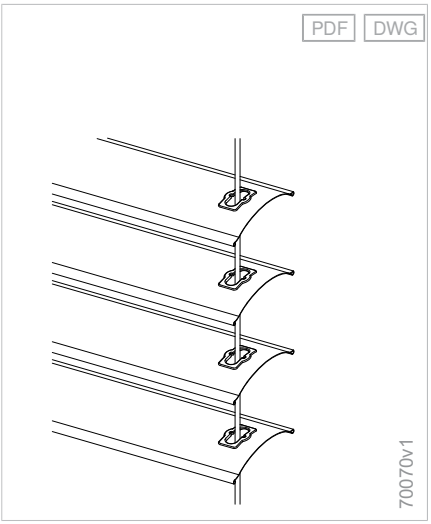


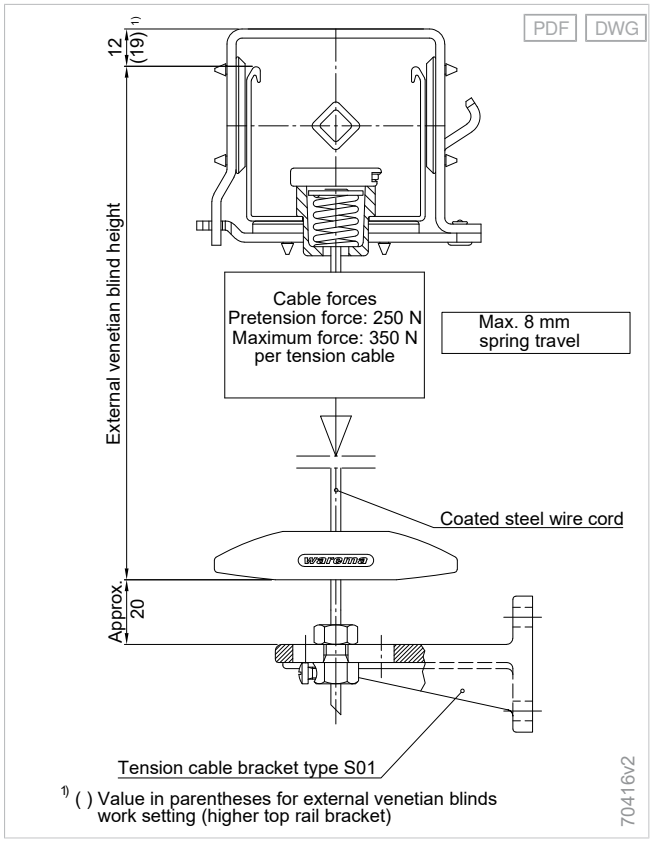
Figure in version with eyelets

Tension cable, type A2

Material	Galvanised steel
Optional material	Stainless steel
Material colour	Black
Material colour, optional	Transparent
Coating	Polyamide

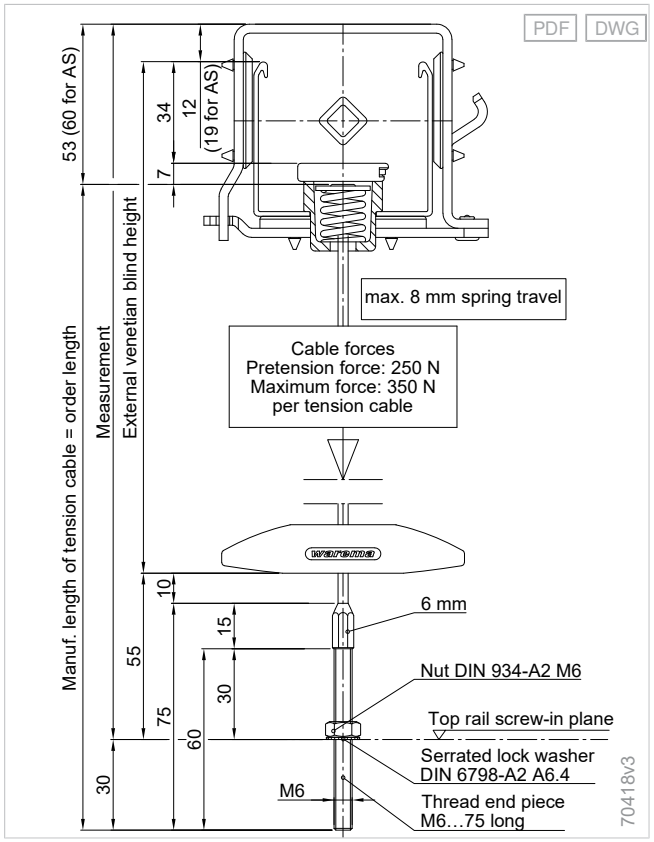
Cable tensioning

Tension cable with standard cable bracing

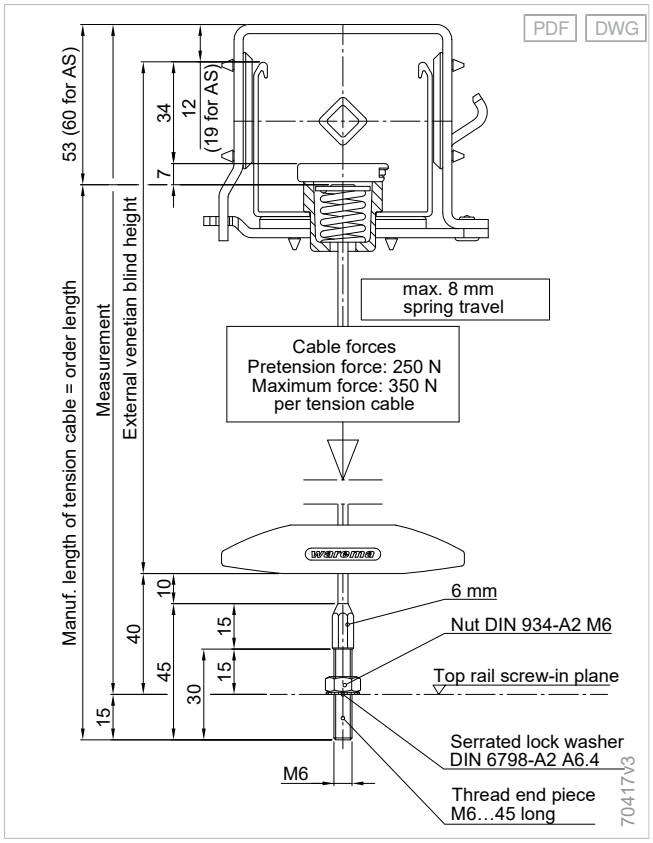


Model with spring tension device not possible near the drive!

Tension cable with thread end piece, 75 mm long



Tension cable with thread end piece, 45 mm long



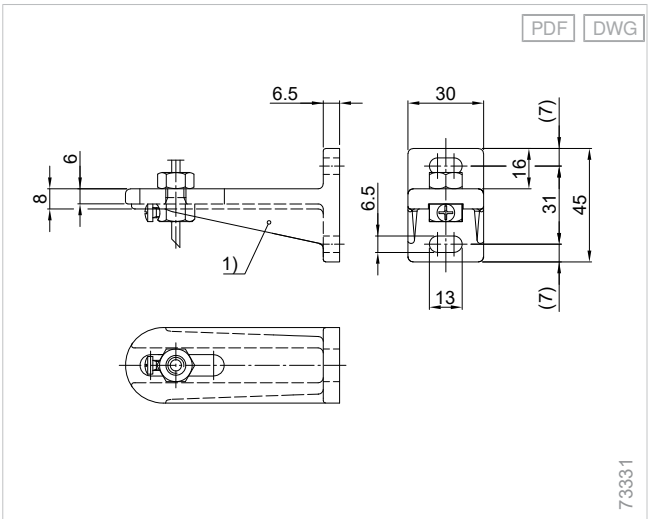
Standard tension cable bracket

Tension cable fixing in the most common installation situations

Tension cable bracket type S01

Material	Diecast aluminium
Surface	Powder-coated

Tension cable bracket type S01



Tension cable bracket allocation depending on the facade distance to the centre of the cable:

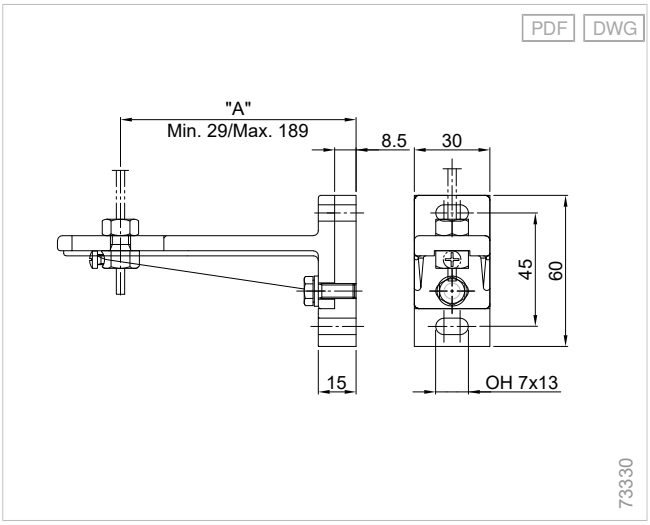
- 20-37 mm, art. no. 101027 1)
- 34-54 mm, art. no. 101028 1)
- 50-75 mm, art. no. 101029
- 72-100 mm, art. no. 101030
- 97-135 mm, art. no. 101031
- 132-180 mm, art. no. 101032

1) Webs are omitted with facade distances to the centre of the cable < 54 mm.

Tension cable bracket with base plate type SA10

Material	Aluminium
Surface	Powder-coated

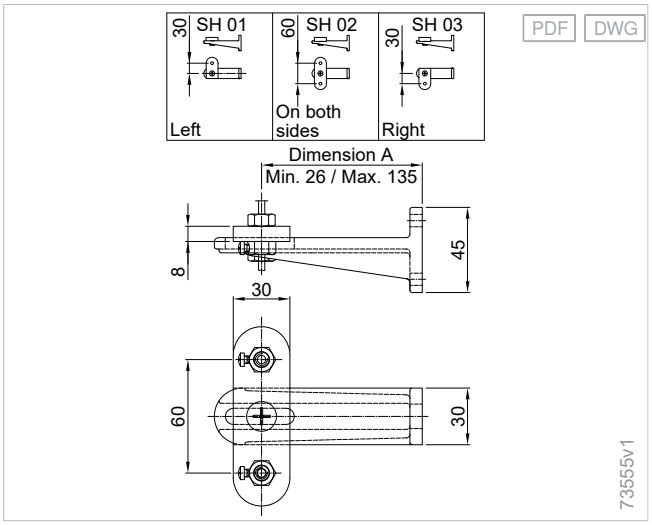
Tension cable bracket with base plate type SA10



Tension cable bracket with cross plate

Material	Aluminium
Surface	Powder-coated

Tension cable bracket with cross plate

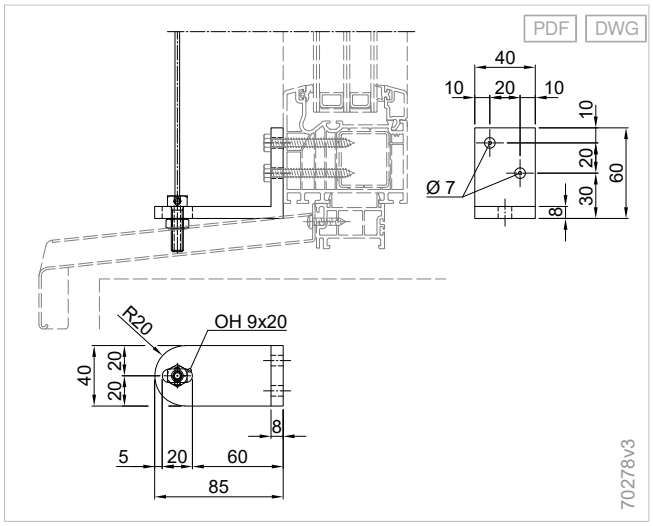


Tension cable bracket for window sill situation

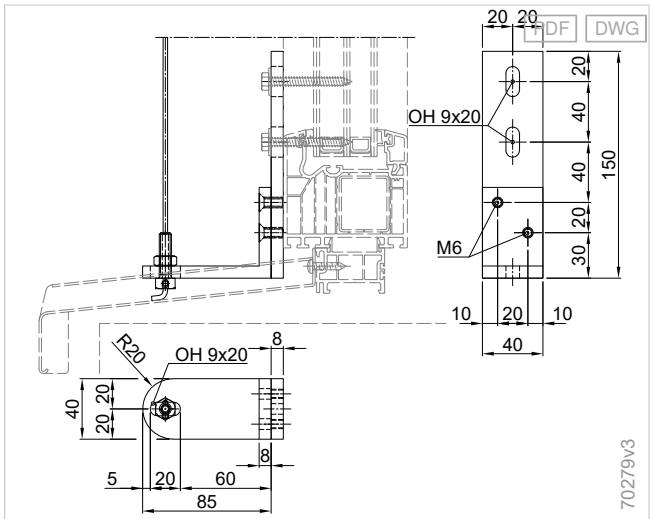
Material	Aluminium
Surface	Powder-coated

Use exclusively with external venetian blinds

Tension cable bracket type SN 00



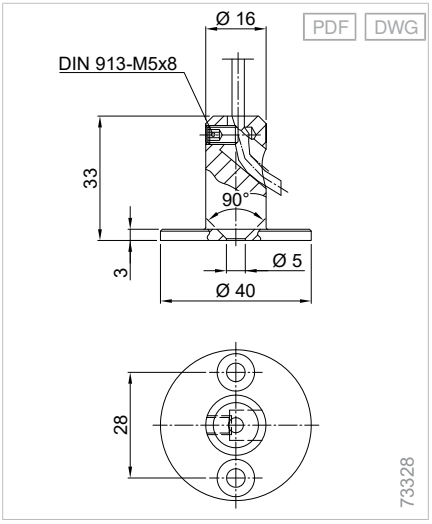
Tension cable bracket type SN 10



Tension cable bracket for floor and window sill installation

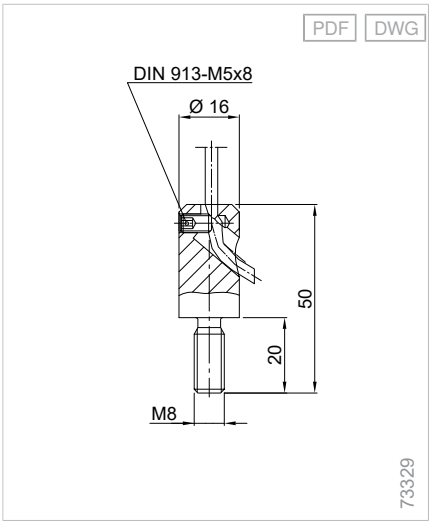
Material	Aluminium
Surface	Powder-coated

Tension cable bracket for ground installation S03



Art. no. 514466

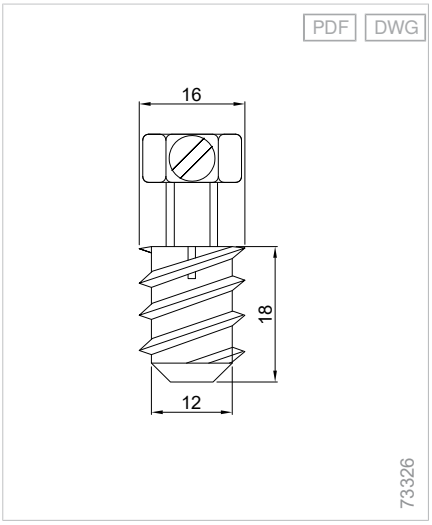
Tension cable bracket for window sill installation S04



Art. no. 514469

Threaded insert, type S06, with tension cable attachment for wood

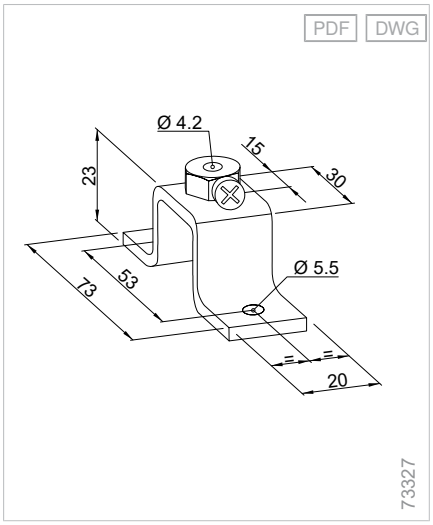
Threaded insert with tension cable attachment for wood



Tension bracket type S02 for floor and window sill installation

Material	Aluminium
Surface	Powder-coated

Tension bracket S02



- Tension bracket, art. no. 209023
- Tension screw, art. no. 514006
- Nut M8, art. no. 714007

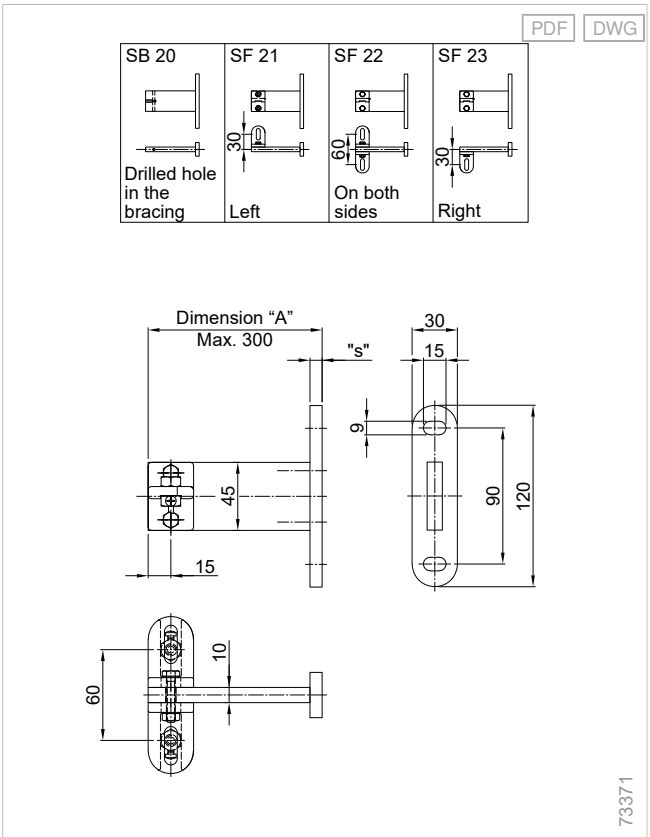
Special tension cable bracket

Tension cable fixing in special installation situations

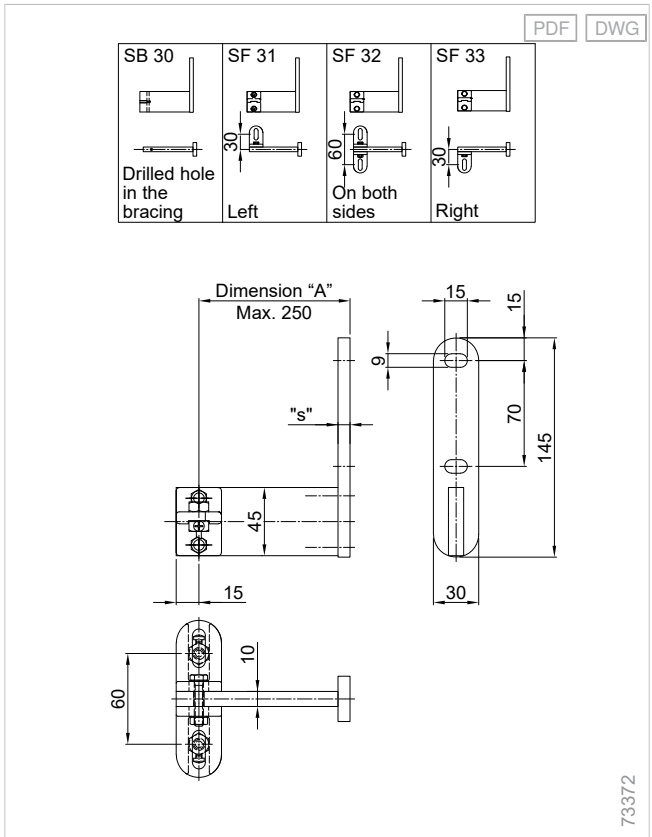
Special tension cable bracket with tension bracket

Material	Aluminium
Surface	Powder-coated

Special tension cable bracket with tension bracket, type SB20, SF21, SF22, SF23



Special tension cable bracket with tension bracket, type SB30, SF31, SF32, SF33



SB20, SF21, SF23:

Facade distance dimension "A" up to 300 mm - Base plate thickness "s" 8 mm

SF22:

Facade distance dimension "A" up to 250 mm - Base plate thickness "s" 8 mm

Facade distance dimension "A" up to 300 mm - Base plate thickness "s" 10 mm

SB30, SF31, SF33:

Facade distance dimension "A"

- up to 70 mm - Base plate thickness "s" 8 mm
- up to 90 mm - Base plate thickness "s" 10 mm
- up to 120 mm - Base plate thickness "s" 12 mm
- up to 160 mm - Base plate thickness "s" 15 mm
- up to 250 mm - Base plate thickness "s" 20 mm

SF32:

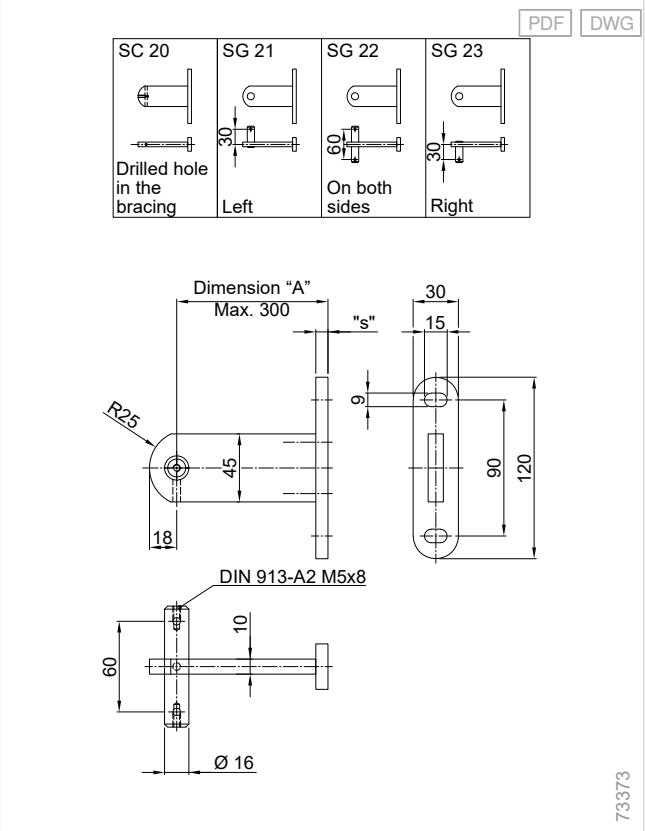
Facade distance dimension "A"

- up to 60 mm - Base plate thickness "s" 10 mm
- up to 80 mm - Base plate thickness "s" 12 mm
- up to 110 mm - Base plate thickness "s" 15 mm
- up to 190 mm - Base plate thickness "s" 20 mm

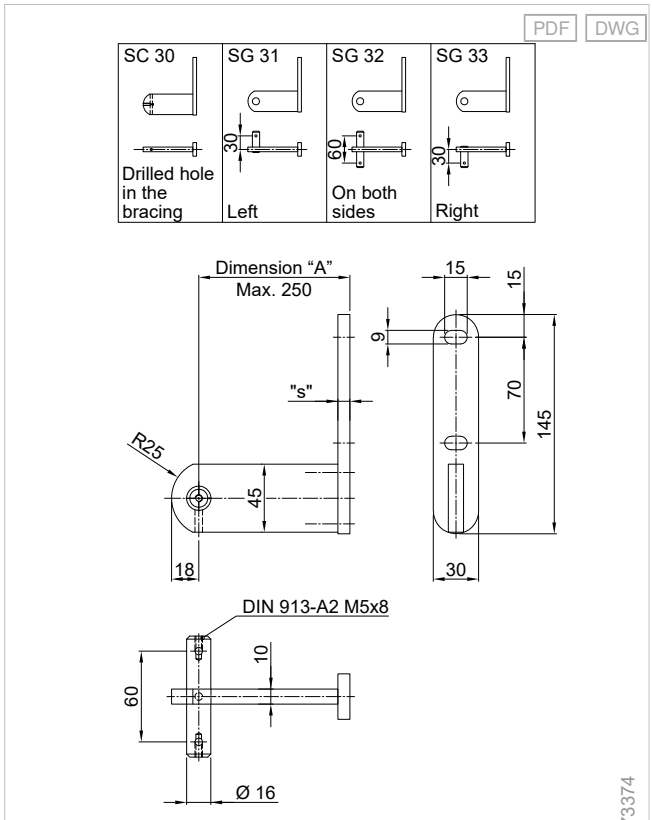
Special tension cable bracket with cross bolt

Material	Aluminium
Surface	Powder-coated

Special tension cable bracket with cross bolt type SC20, SG21, SG22, SG23



Special tension cable bracket with cross bolt type SC30, SG31, SG32, SG33



SC20, SG21, SG23:

Facade distance dimension "A" up to 300 mm - Base plate thickness "s" 8 mm

SG22:

Facade distance dimension "A" up to 250 mm - Base plate thickness "s" 8 mm

Facade distance dimension "A" up to 300 mm - Base plate thickness "s" 10 mm

SC30, SG31, SG33:

Facade distance dimension "A"

- up to 70 mm - Base plate thickness "s" 8 mm
- up to 90 mm - Base plate thickness "s" 10 mm
- up to 120 mm - Base plate thickness "s" 12 mm
- up to 160 mm - Base plate thickness "s" 15 mm
- up to 250 mm - Base plate thickness "s" 20 mm

SG32:

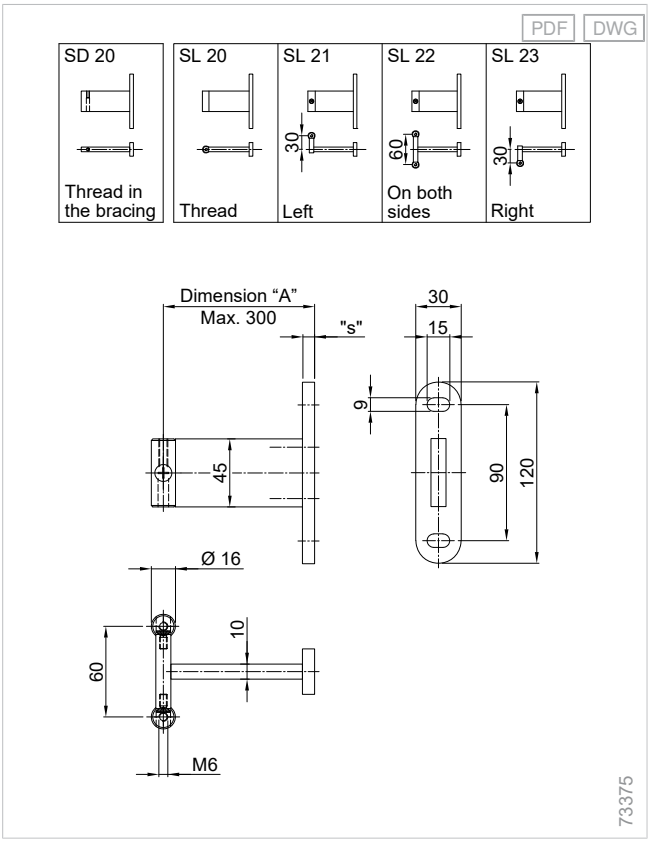
Facade distance dimension "A"

- up to 60 mm - Base plate thickness "s" 10 mm
- up to 80 mm - Base plate thickness "s" 12 mm
- up to 110 mm - Base plate thickness "s" 15 mm
- up to 190 mm - Base plate thickness "s" 20 mm

Special tension cable bracket for thread end pieces

Material	Aluminium
Surface	Powder-coated

Special tension cable bracket for thread end pieces type SD20, SL20, SL21, SL22, SL23



SD20, SL20, SL21, SL23:

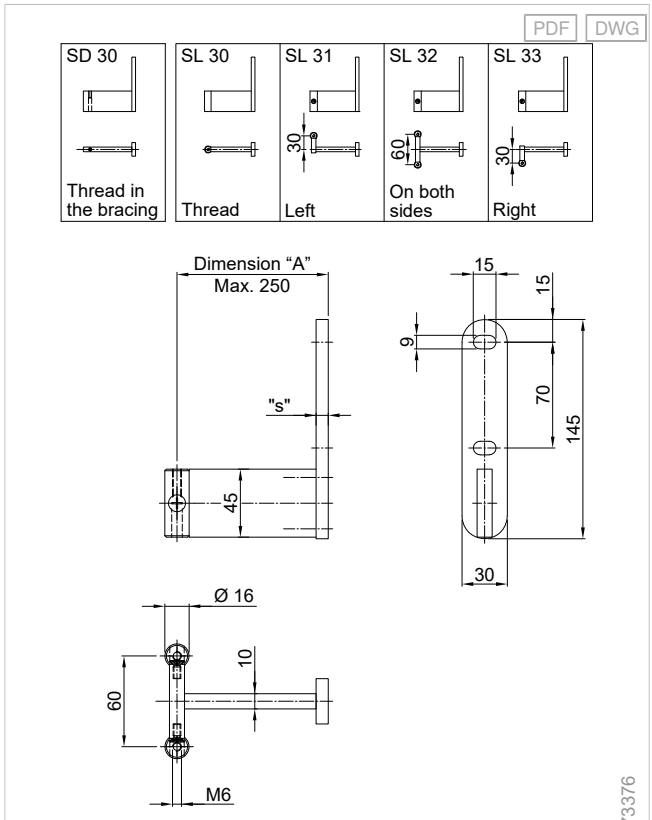
Facade distance dimension "A" up to 300 mm - Base plate thickness "s" 8 mm

SL22:

Facade distance dimension "A" up to 250 mm - Base plate thickness "s" 8 mm

Facade distance dimension "A" up to 300 mm - Base plate thickness "s" 10 mm

Special tension cable bracket for thread end pieces type SD30, SL30, SL31, SL32, SL33



SD30, SL30, SL31, SL33:

Facade distance dimension "A"

- up to 70 mm - Base plate thickness "s" 8 mm
- up to 90 mm - Base plate thickness "s" 10 mm
- up to 120 mm - Base plate thickness "s" 12 mm
- up to 160 mm - Base plate thickness "s" 15 mm
- up to 250 mm - Base plate thickness "s" 20 mm

SL32:

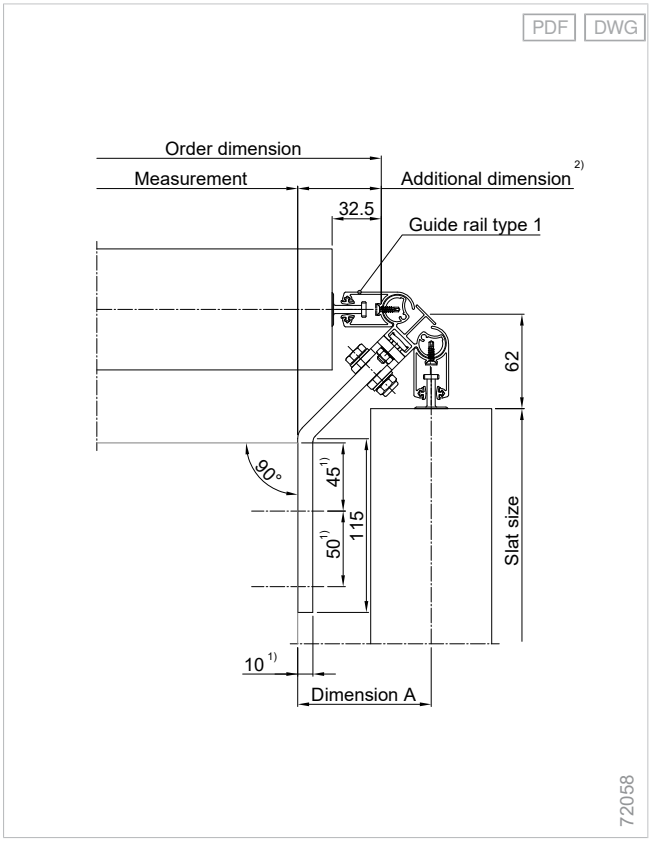
Facade distance dimension "A"

- up to 60 mm - Base plate thickness "s" 10 mm
- up to 80 mm - Base plate thickness "s" 12 mm
- up to 110 mm - Base plate thickness "s" 15 mm
- up to 190 mm - Base plate thickness "s" 20 mm

Guide for corner positions

External venetian blinds with angle-adjustable corner guide rail for corner positions and polygonal facades

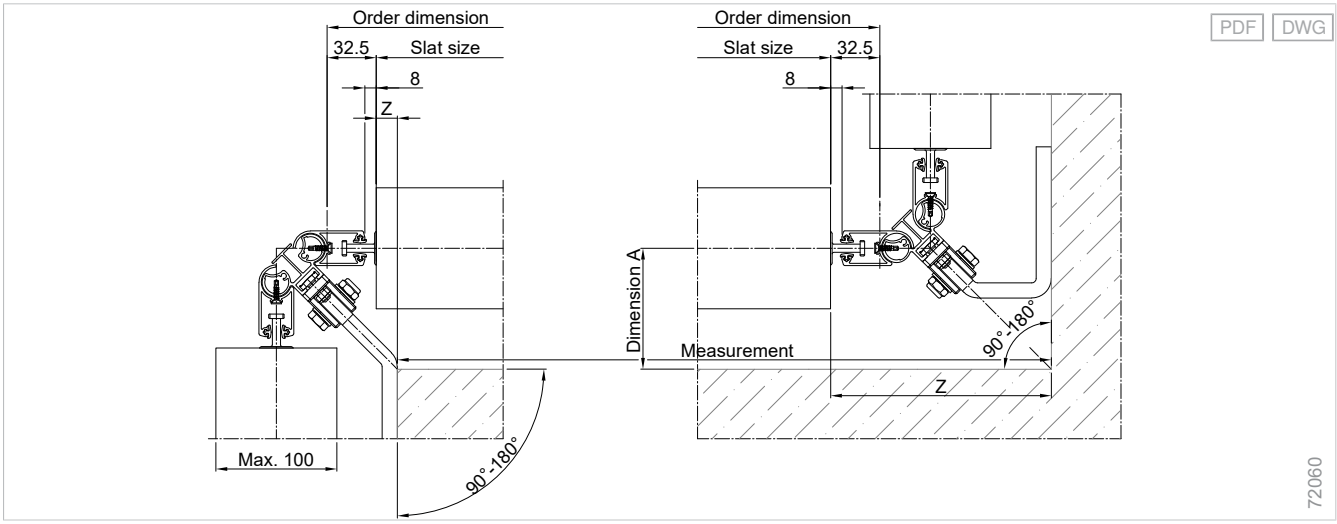
Dimension determination



1) Dimensions specified for fixing to the window frame, deviations possible

2) Depending on the angle, enclose dimensioned sketch with order

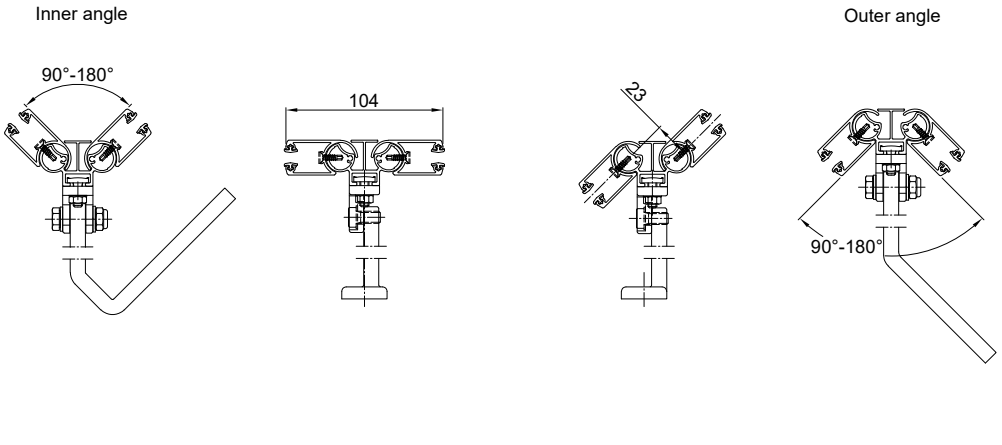
Measuring instructions for inner/outer angle



Details

Possible applications

PDF DWG



Additional product information

Number of required guide rail brackets

Guide rail length	Number of guide rail brackets
Up to 3000 mm	2
3001 mm - 5000 mm	3

External venetian blinds with special guide rail bracket for 90° outer angle

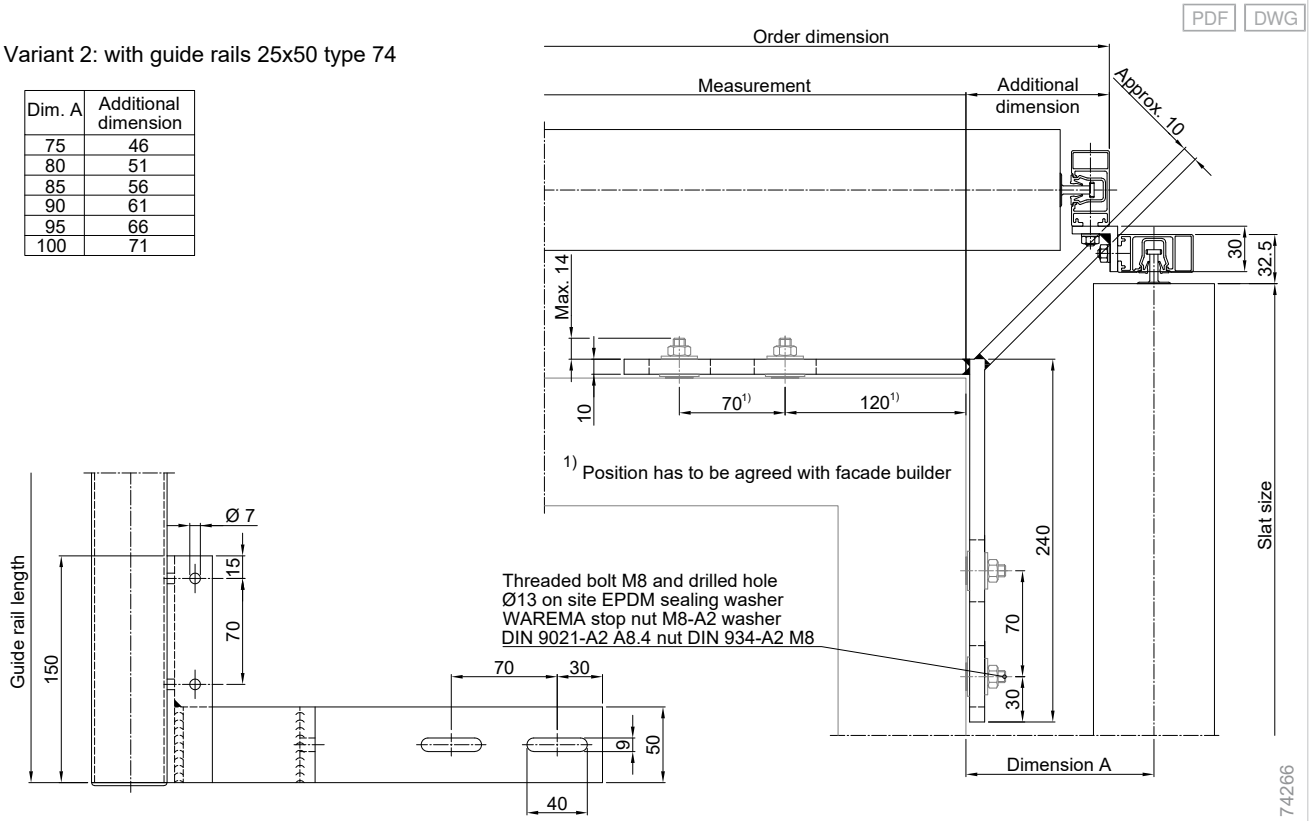
Dimension determination

Special guide rail bracket, outer angle

PDF DWG

Variant 2: with guide rails 25x50 type 74

Dim. A	Additional dimension
75	46
80	51
85	56
90	61
95	66
100	71



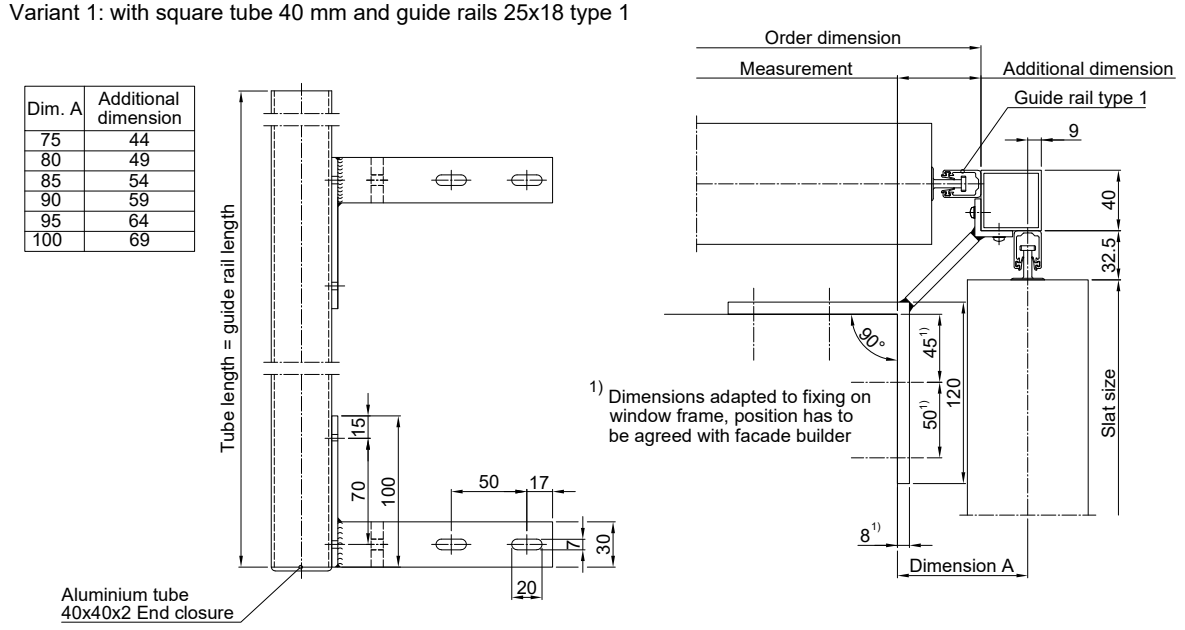
74266

Special guide rail bracket, outer angle

PDF DWG

Variant 1: with square tube 40 mm and guide rails 25x18 type 1

Dim. A	Additional dimension
75	44
80	49
85	54
90	59
95	64
100	69



70208v5

External venetian blinds with combined rail/cable guidance

Notes

Closing: Where external venetian blinds have combined rail/cable guidance, irregular closing of the stats across the order dimension is unavoidable.

Limitation:

- Flat slats possible only in version with eyelets
- Width for dim-out slats: max. 2400 mm, since central tension cables are not possible

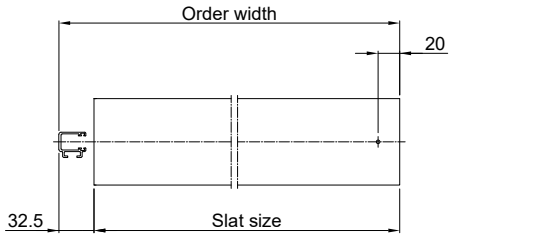
Please note when ordering:

- 1 additional central cable guidance for beaded slats and flat slats from slat size 2401 mm
- 2 additional central cable guidances for beaded slats and flat slats from slat size 4001 mm
- Please indicate the arrangement of additional cable guidances, starting from inside left

Dimension determination

Combined rail/cable guidance dimension determination, right-side cable guidance

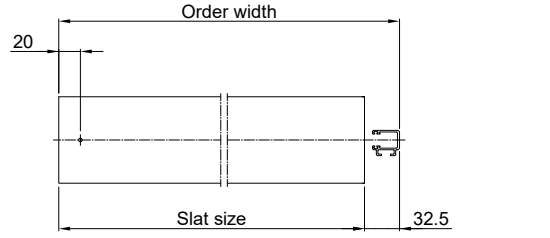
PDF DWG



73377

Combined rail/cable guidance dimension determination, left-side cable guidance

PDF DWG



73378

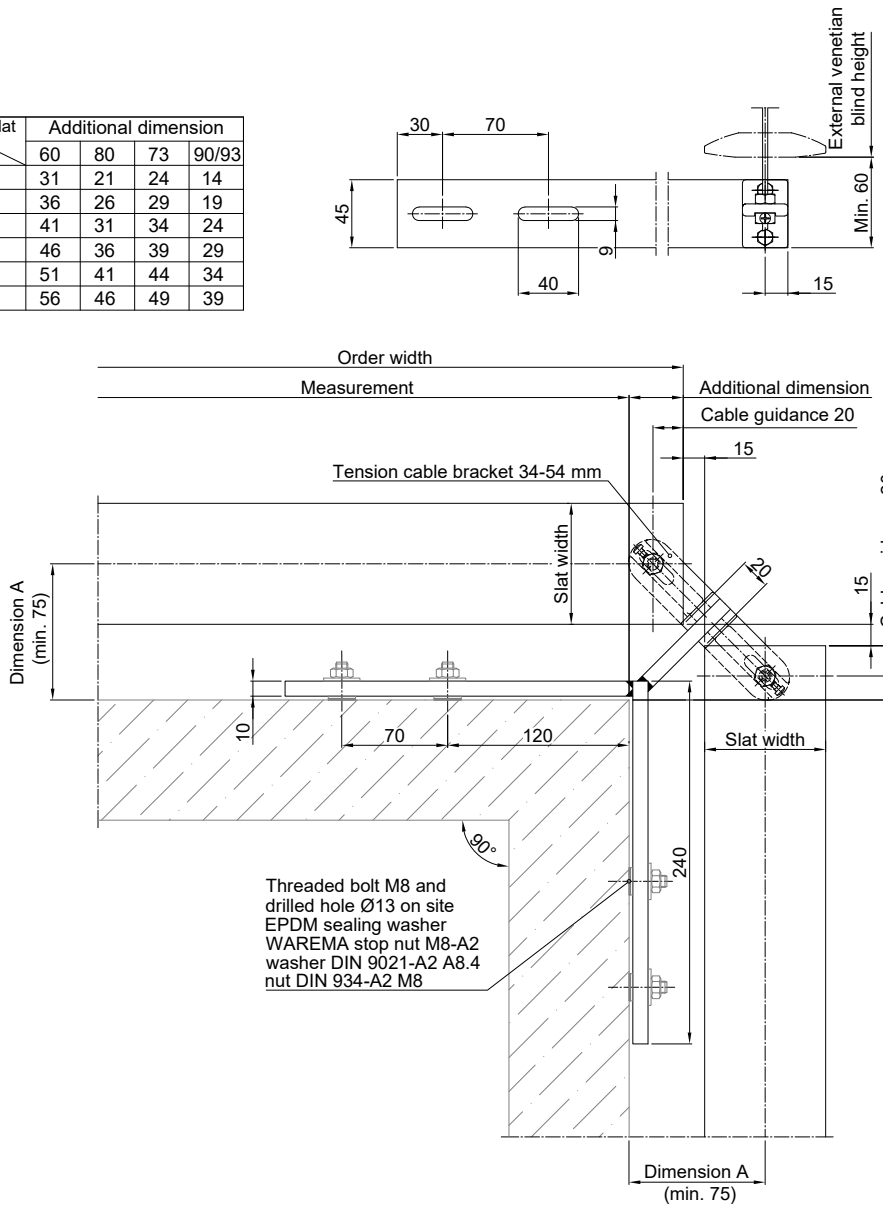
External venetian blinds with special tension cable bracket for 90° outer angle

Dimension determination

Tension cable corner bracket model 1 (slats up to diagonal)

PDF DWG

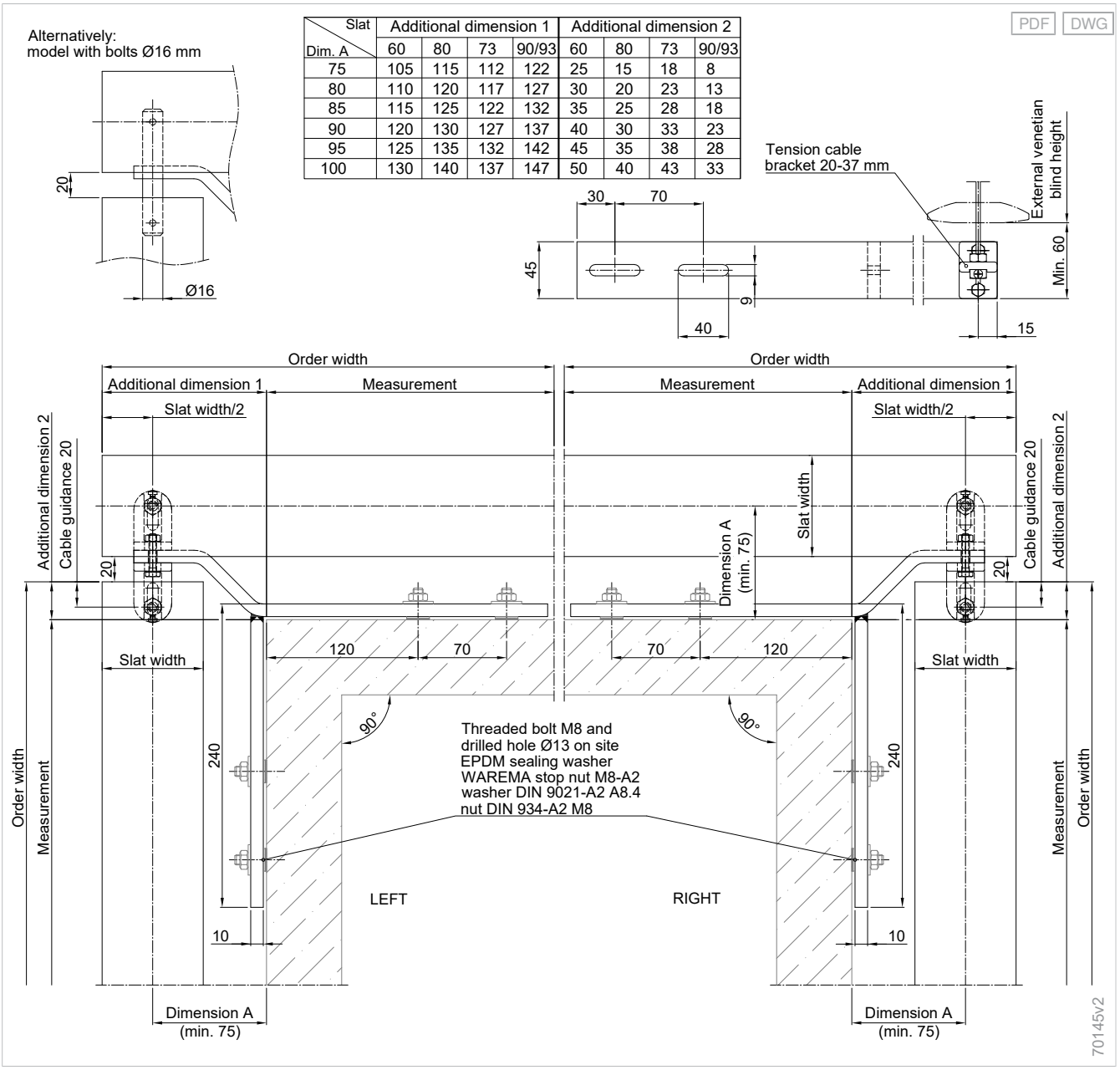
Slat / Dim. A	Additional dimension			
	60	80	73	90/93
75	31	21	24	14
80	36	26	29	19
85	41	31	34	24
90	46	36	39	29
95	51	41	44	34
100	56	46	49	39



Tension cable corner bracket model 2 (slats butt-jointed)

PDF DWG

Slat / Dim. A	Additional dimension 1				Additional dimension 2			
	60	80	73	90/93	60	80	73	90/93
75	105	115	112	122	25	15	18	8
80	110	120	117	127	30	20	23	13
85	115	125	122	132	35	25	28	18
90	120	130	127	137	40	30	33	23
95	125	135	132	142	45	35	38	28
100	130	140	137	147	50	40	43	33





Guide variants

End rails for external venetian blinds

Versatile

End rails are available in different designs, depending on the slat shape, slat width and supporting product.

Attractive

End rails are powder-coated in accordance with WAREMA Colour World and closed off laterally with plastic end caps.



Product characteristics

- Stable, extruded profiles
- Different variants available

End rail, fixed, ellipsoidal

Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised

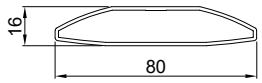
- The end rail is adapted to the shape of the slats.
- Different end rail widths are available depending on the slat width.
- End rail for rail guidance with sliding guide pins with slotted end caps to prevent the external venetian blind from unhinging.
- End caps: plastic, black (optionally grey)

Use of product variants:

- C/E 60/80 A6 S or C/E 60/80 A2 S
- C/E 60/80 AF A6 or C/E 60/80 AF A2
- C/E 80 WF A6 or C/E 80 WF A2

End rail, fixed (ellipsoidal), 80 mm

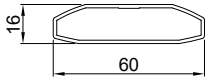
PDF DWG



73020v1

End rail, fixed (ellipsoidal), 60 mm

PDF DWG



73624

End rail, fixed (Zetra slat 80 Z)

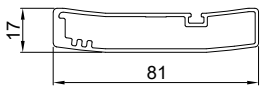
Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised

- End rail including groove for seating a bead for the best-possible dim-out.
- End caps from plastic, black, optionally grey

Use of product variants: C/E 80 A6 Z

End rail Zetra slat 80 Z

PDF DWG



73023v1

End rail, fixed (rectangular)

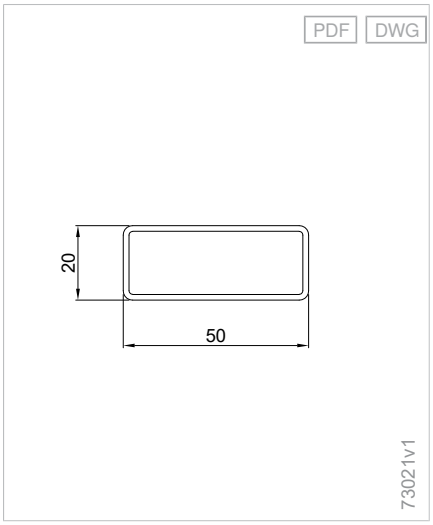
Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised

Different end rail widths are available depending on the slat width.

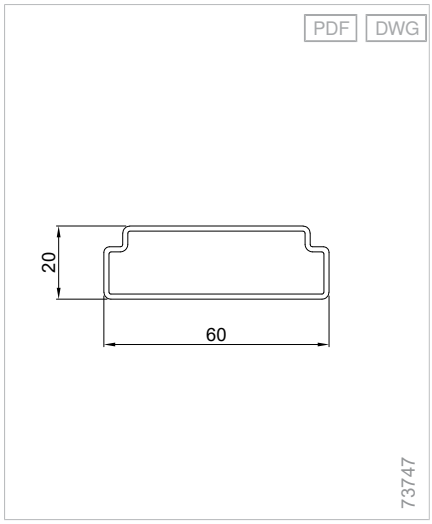
Use of product variants:

- C/E 73, 90, 93
- C/E 100 AF
- C/E 50 A1

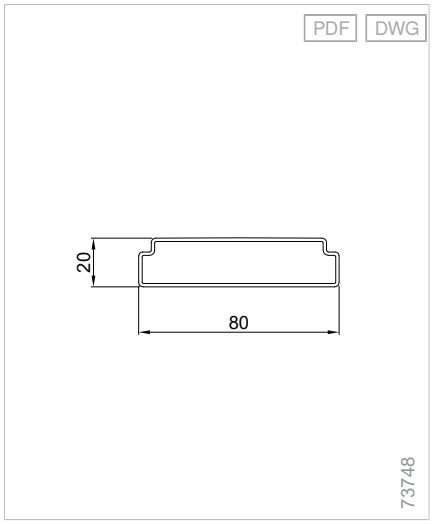
End rail, fixed (rectangular), width 50 mm



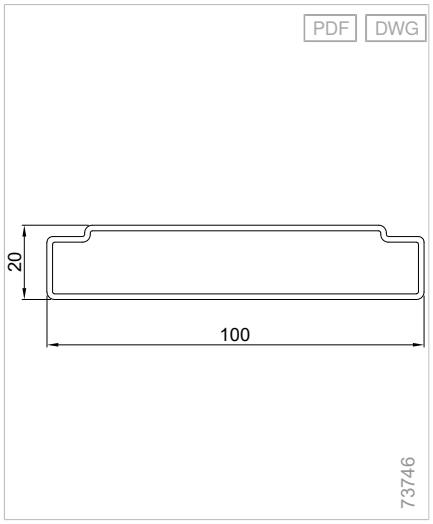
End rail, fixed (rectangular), width 60 mm



End rail, fixed (rectangular), width 80 mm



End rail, fixed (rectangular), width 100 mm



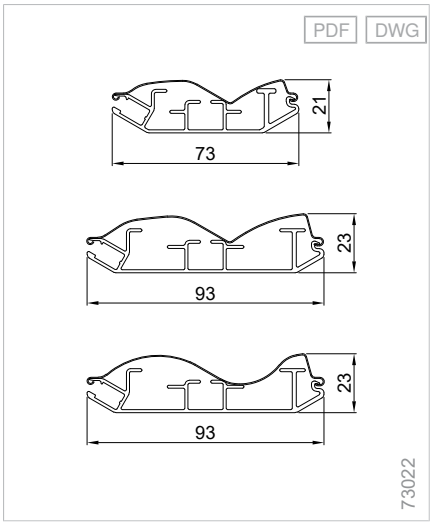
End rail, swivelling with clip-on slat

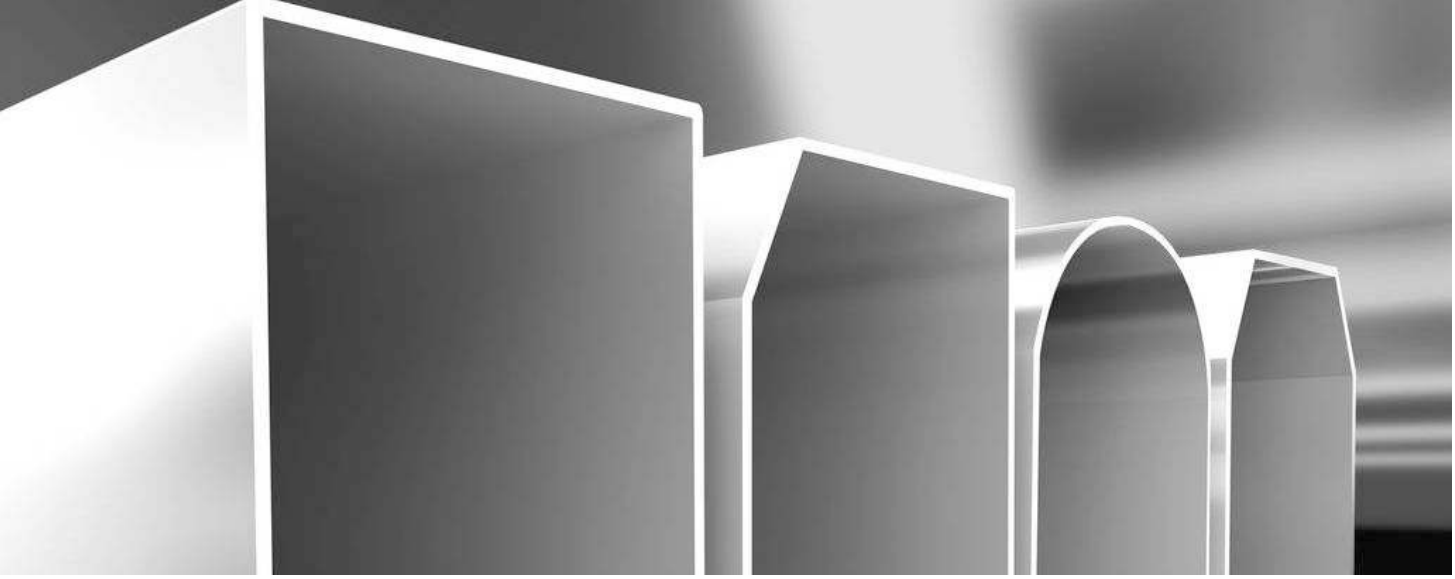
Material	Aluminium, extruded
Surface	Powder-coated
Optional surface	Anodised

- With stabilising webs, integrated fall protection VisioNeo and clip-on slat as matching closure
- End caps from plastic, black (optionally grey)
- End rail for rail guidance with sliding guide pins with slotted end caps to prevent the external venetian blind from unhinging.
- For the cable/rail guidance combination, the end rail is shortened in the area of the cable guidance and ends in front of the cable guidance below the slat.

Use with product variants: C/E 73, 90, 93

Bottom rail, swivelling





Cover panels

Cover panels

Protective cover

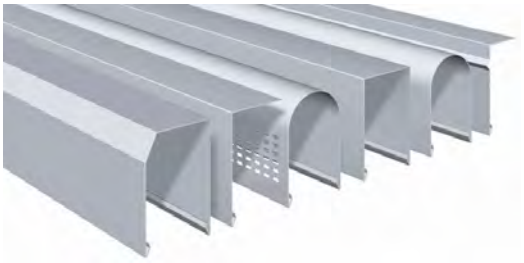
Perfect protection for your external venetian blind

Individualisation

Selection of colours for individual facade design

Flexible

Perfect adjustment to every installation situation



Product characteristics

- Broad selection of colours
- Broad selection of variants
- Special solutions possible

Information on calculating the cover panel development

The calculation of the cover panel development is done as an example for:

Cover panel type 06 and basic external venetian blind E 80 A6 S with a height of 2400 mm.

Slat stack height = 221 mm

Slat stack height 221 mm + 20 mm = cover panel height **H1** = 241 mm

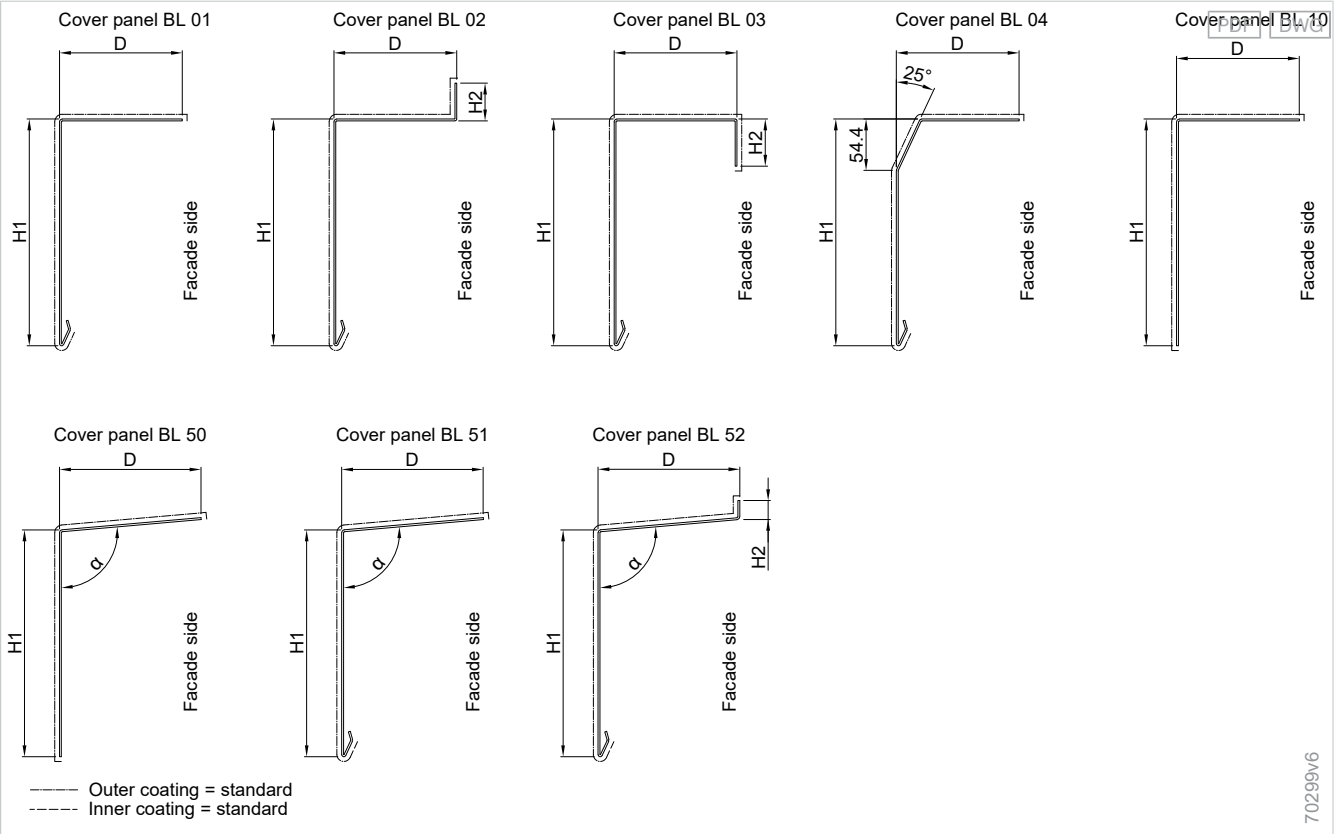
Cover panel height **H1** (241 mm) + depth **D** (140 mm) + cover panel height **H2** (241 mm) + **rolled beads** (2x30= 60 mm) = **development 682 mm**

Slat stack heights can be found in the external venetian blind technical data in the basic external venetian blind area or on our homepage.

Visible cover panels

Angular cover panels

Screens: Angular cover panels



Angular cover panel BL01

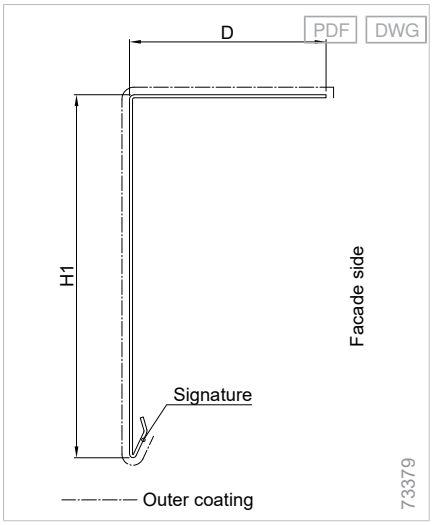
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 55: for direct installation (bracket fastener M5)
- BG 51: for direct installation (bracket fastener D6.5)
- BG 69: L shape for angle console (bracket fastener M5)
- BG 70: L shape for ceiling installation (bracket fastener M5)
- BG 52/53/54: with bracket lug

see "Bracket", Page 439

Angular cover panel type BL 10



H1 = slat stack height + 20 mm

Angular cover panel BL02

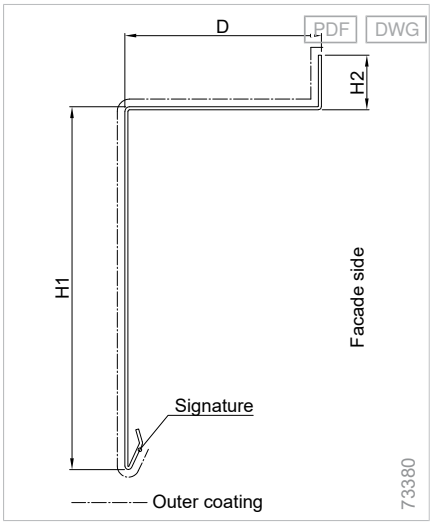
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 55: for direct installation (bracket fastener M5)
- BG 51: for direct installation (bracket fastener D6.5)
- BG 69: L shape for angle console (bracket fastener M5)
- BG 70: L shape for ceiling installation (bracket fastener M5)
- BG 52/53/54: with bracket lug

see "Bracket", Page 439

Angular cover panel type BL 02



H1 = slat stack height + 20 mm

Angular cover panel BL03

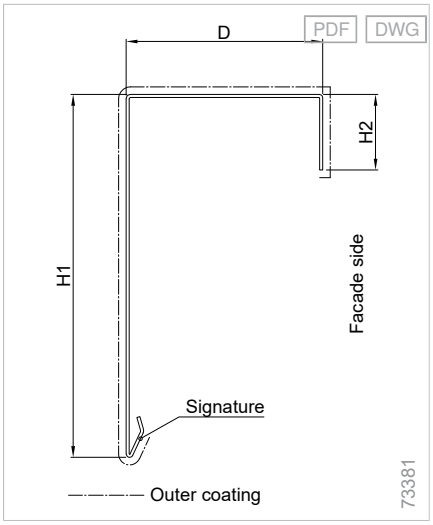
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 55: for direct installation (bracket fastener M5)
- BG 51: for direct installation (bracket fastener D6.5)
- BG 69: L shape for angle console (bracket fastener M5)
- BG 70: L shape for ceiling installation (bracket fastener M5)
- BG 52/53/54: with bracket lug

see "Bracket", Page 439

Angular cover panel type BL 03



H1 = slat stack height + 20 mm

Angular cover panel BL04

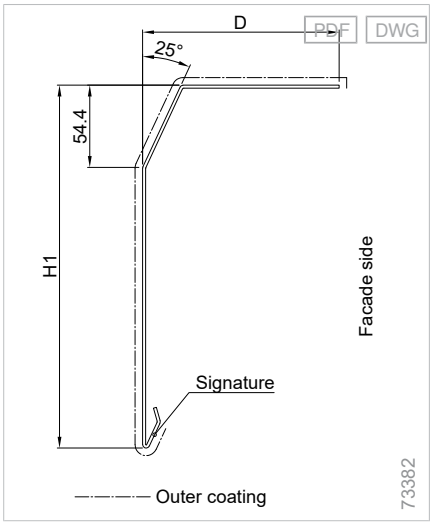
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 33: for direct installation (bracket fastener M5)
- BG 34/35/36: with bracket lug

see "Bracket", Page 439

Angular cover panel, sloped type BL 04



H1 = slat stack height + 20 mm

Angular cover panel BL10

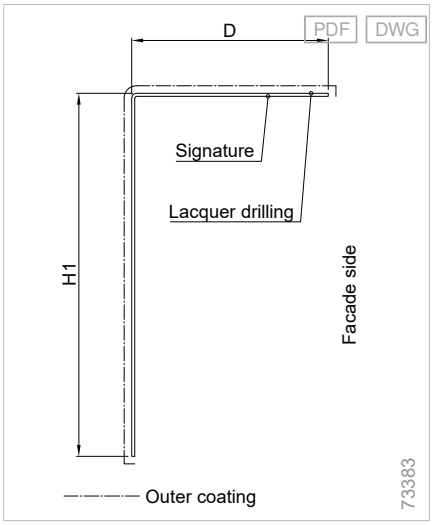
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 56: for direct installation (bracket fastener M5)
- BG 68: L shape for angle console (bracket fastener M5)

see "Bracket", Page 439

Angular cover panel type BL 10



H1 = slat stack height + 20 mm

Angular cover panel BL50 (with slope)

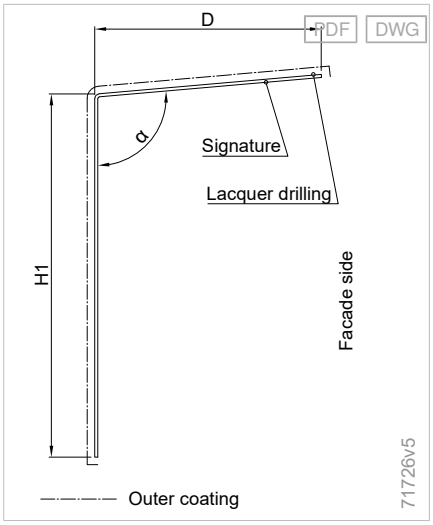
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- Mounting bracket with divider

see "Bracket", Page 439

BL50 (angular cover panel with slope)



H1 = slat stack height +20 mm

Angular cover panel BL51 (with slope)

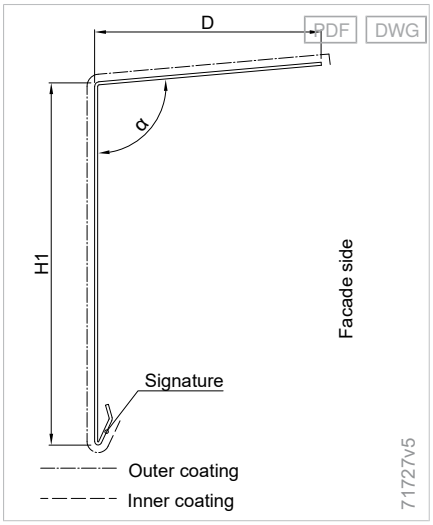
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

– Mounting bracket with divider

see "Bracket", Page 439

BL51 (angular cover panel with slope)



H1 = slat stack height + 20 mm

Angular cover panel BL52 (with slope)

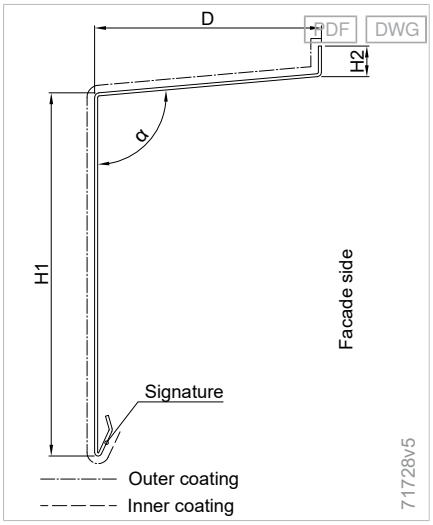
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

– Mounting bracket with divider

see "Bracket", Page 439

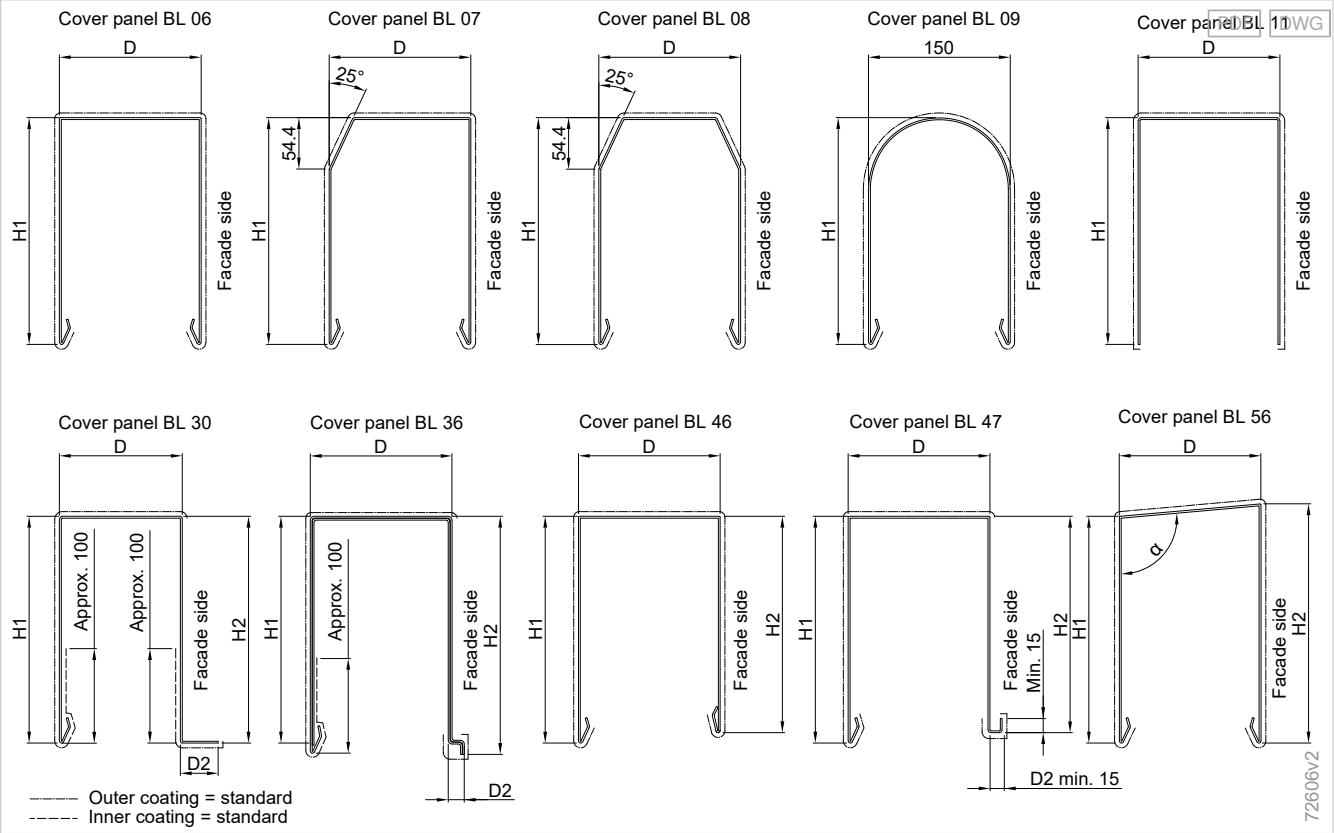
BL52 (angular cover panel with slope)



H1 = slat stack height + 20 mm

U-shaped cover panels

Screens: U-shaped cover panels



U-shaped cover panel BL06

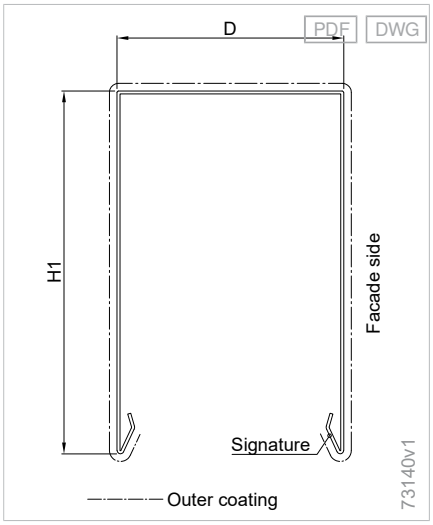
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 102: for direct installation (bracket fastener M5)
- BG 106: for cover panel console (bracket fastener M5)
- BG 115: with 2 clamp plates (bracket fastener D6.5)
- BG 117: for angle console (bracket fastener M5)
- BG 03/04/05: with bracket lug

see "Bracket", Page 439

U-shaped cover panel type BL 06



H1 = slat stack height + 20 mm

U-shaped cover panel BL07

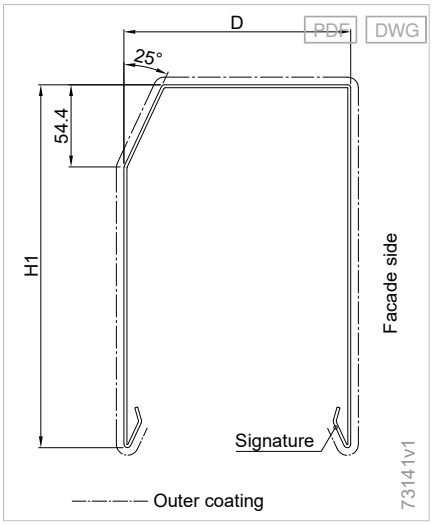
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 132: for direct installation (bracket fastener M5)
- BG 133: with 2 clamp plates (bracket fastener D6.5)

see "Bracket", Page 439

Cover panel type BL 07 sloped on one side



H1 = slat stack height + 20 mm

U-shaped cover panel BL08

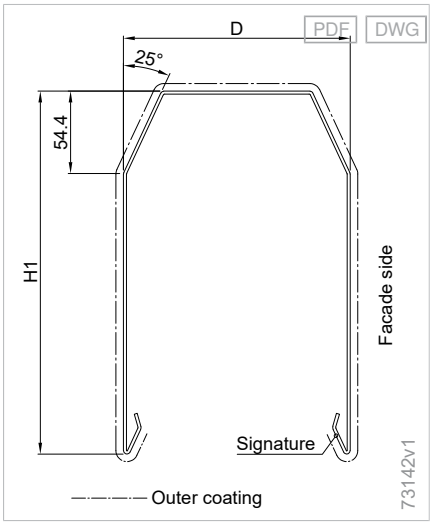
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 122: for direct installation (bracket fastener M5)
- BG 123: with 2 clamp plates (bracket fastener D6.5)
- BG 23/24/25: with bracket lug

see "Bracket", Page 439

Cover panel type BL 08 sloped on both sides



H1 = slat stack height + 20 mm

U-shaped cover panel BL09

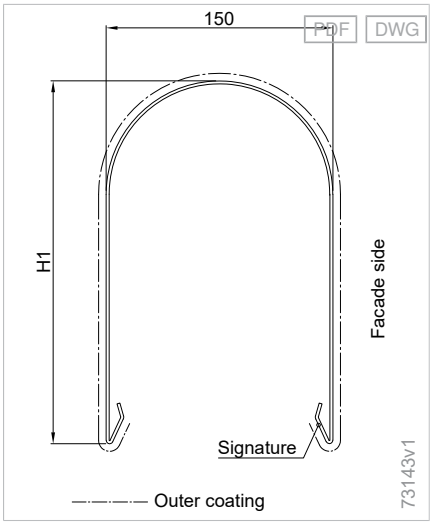
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 111: for direct installation (bracket fastener M5)
- BG 12/13/14: with bracket lug

see "Bracket", Page 439

Round-shaped cover panel type BL 09



H1 = slat stack height + 40 mm

U-shaped cover panel BL11

Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

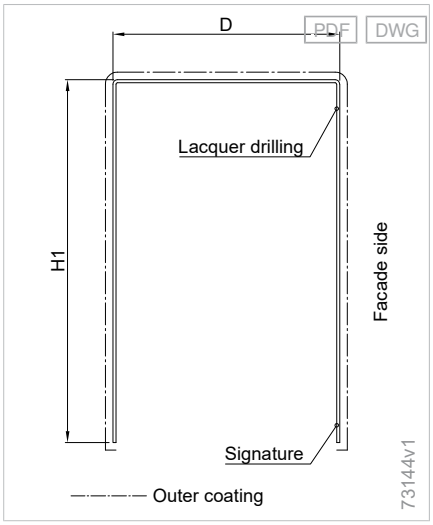
In order to guarantee a flush connection, we recommend additionally fixing the rear cover panel leg to the facade on-site.

Panel bracket:

- BG 58: for direct installation (bracket fastener M5)
- BG 59: for cover panel consoles (bracket fastener M5)
- BG 60: for angle console (bracket fastener M5)

see "Bracket", Page 439

Cover panel type BL 11



H1 = slat stack height + 20 mm

U-shaped cover panel BL30

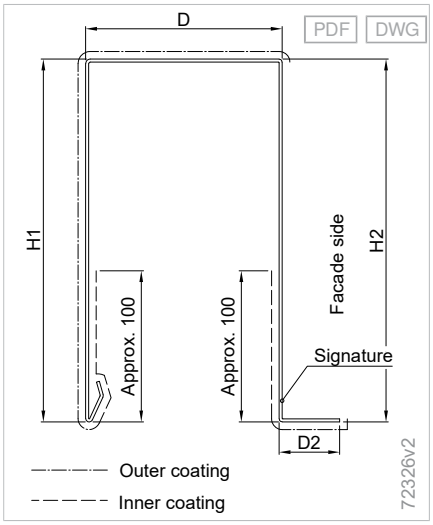
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 102: for direct installation (bracket fastener M5)
- BG 106: for cover panel console (bracket fastener M5)
- BG 115: with 2 clamp plates (bracket fastener D6.5)
- BG 117: for angle console (bracket fastener M5)
- BG 03/04/05: with bracket lug

see "Bracket", Page 439

BL30 U-shaped cover panel



H1 = slat stack height + 20 mm

BL36

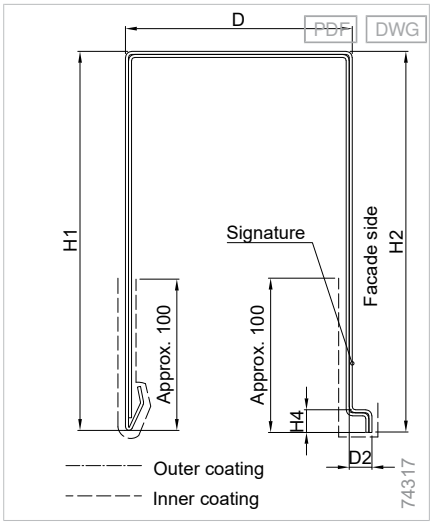
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 102: for direct installation (bracket fastener M5)
- BG 106: for cover panel console (bracket fastener M5)
- BG 115: with 2 clamp plates (bracket fastener D6.5)
- BG 117: for angle console (bracket fastener M5)
- BG 03/04/05: with bracket lug

see "Bracket", Page 439

BL36, U-shaped cover panel plaster



H1 = slat stack height + 20 mm

U-shaped cover panel BL46

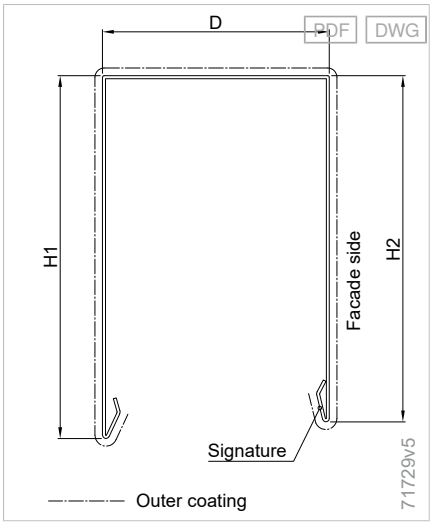
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 102: for direct installation (bracket fastener M5)
- BG 106: for cover panel console (bracket fastener M5)
- BG 115: with 2 clamp plates (bracket fastener D6.5)
- BG 117: for angle console (bracket fastener M5)
- BG 03/04/05: with bracket lug

see "Bracket", Page 439

BL46 U-shaped cover panel



H1 = slat stack height + 20 mm

U-shaped cover panel BL47

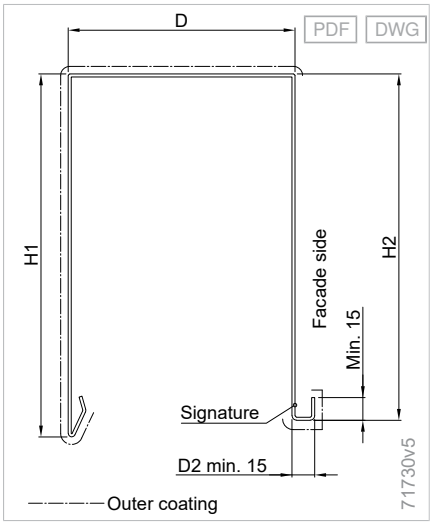
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 102: for direct installation (bracket fastener M5)
- BG 106: for cover panel console (bracket fastener M5)
- BG 115: with 2 clamp plates (bracket fastener D6.5)
- BG 117: for angle console (bracket fastener M5)
- BG 03/04/05: with bracket lug

see "Bracket", Page 439

BL47 U-shaped cover panel



H1 = slat stack height + 20 mm

U-shaped cover panel BL56 (with slope)

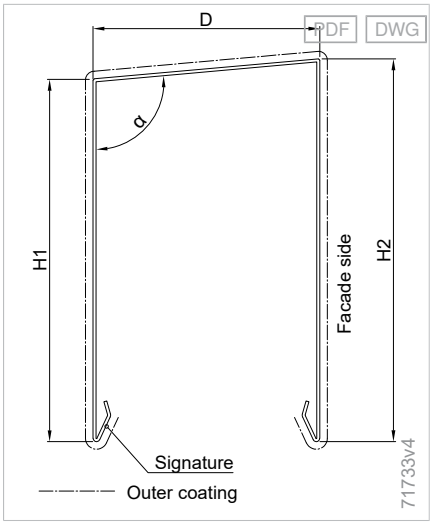
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- Mounting bracket with divider

see "Bracket", Page 439

BL56 (U-shaped cover panel with slope)



H1 = slat stack height + 20 mm

Gallery panel

Gallery panel BL05

The gallery panel:

- Designed for mounting in on-site reveal.
- Height and depth can be adjusted to suit the lintel. Segmented mounting brackets compensate for on-site tolerances.

Orders for wall installation: specify "Standard" or "Short" mounting brackets.

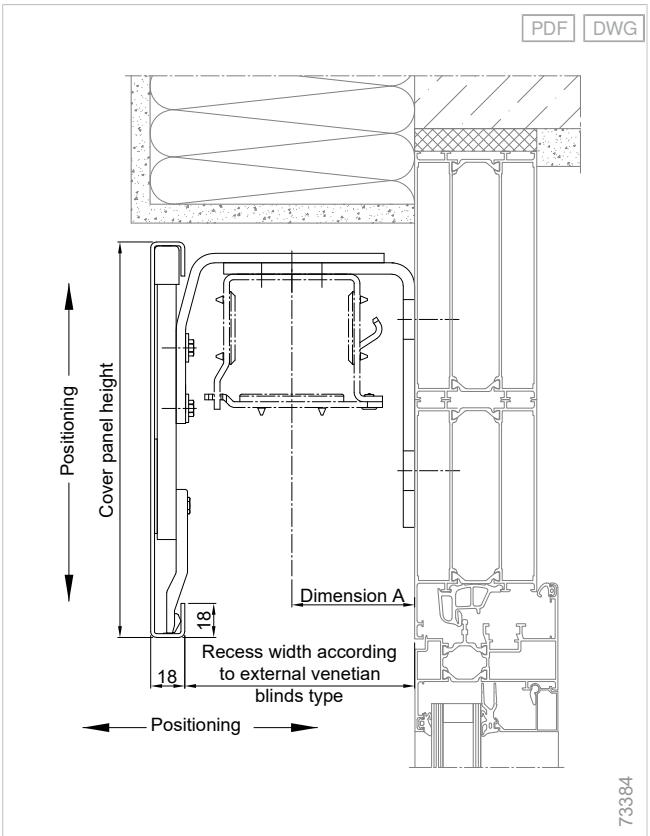
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

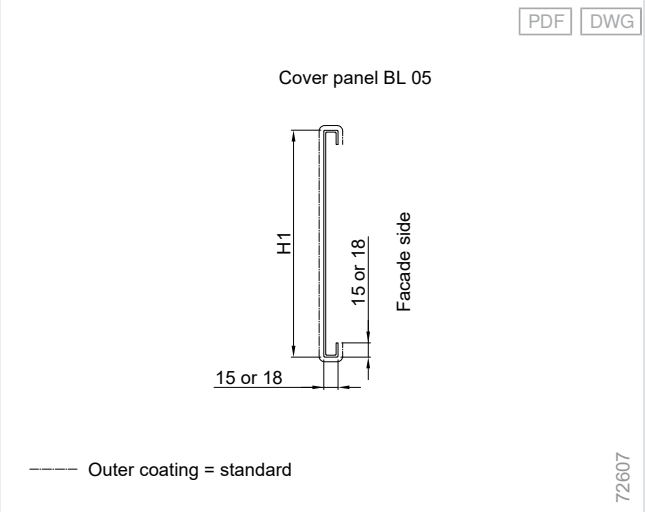
- BG 419: Mounting bracket for gallery panels, wall installation
- BG 420: Mounting bracket for gallery panels, ceiling installation

see "Bracket", Page 439

Mounting example: Gallery panel BL 05: mounting bracket for wall installation



Screens: Gallery panel



Cover panels embedded in plaster

Cover panels embedded in plaster as standard without plaster base plates. Plaster base plates must be specified separately when ordering.

Notes on product configuration

When using cover panels embedded in plaster, we recommend placing a cover panel bracket (40x6 mm) every 600 mm for stiffening.

Any deformation f should also be compared to the permissible deformation of the plaster (see section on brackets).

Angular cover panel as cover panel embedded in plaster

BL12 angular cover panel (built-in)

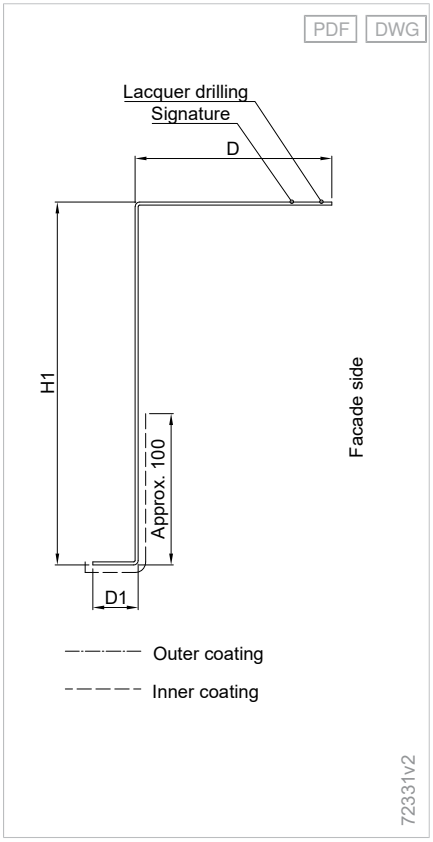
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 56: for direct installation (bracket fastener M5)
- BG 68: L shape for angle console (bracket fastener M5)

see "Bracket", Page 439

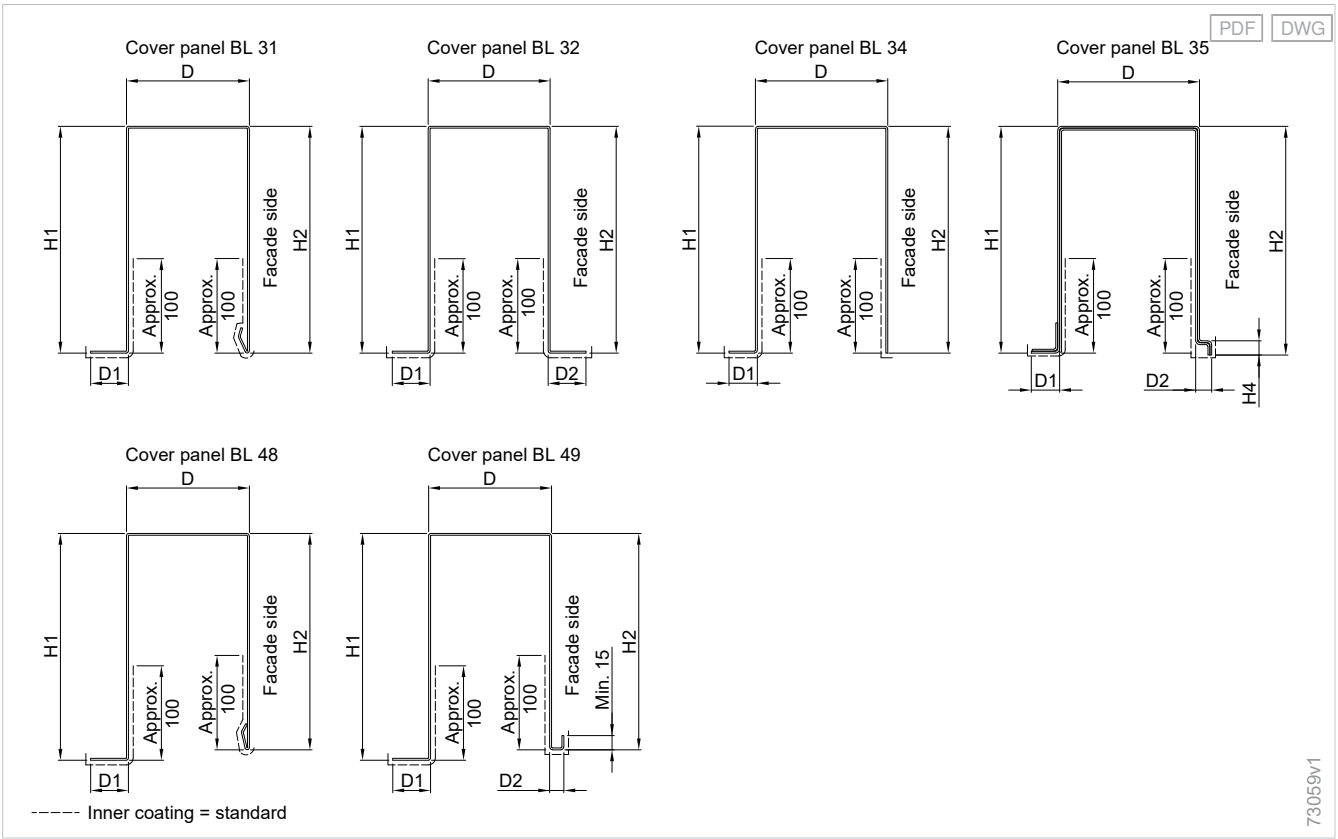
BL12 angular cover panel as a cover panel embedded in plaster



H1 = slat stack height + 20 mm

U-shaped cover panel as a cover panel embedded in plaster

Overview of U-shaped cover panels as cover panels embedded in plaster



BL31 U-shaped cover panel (built-in)

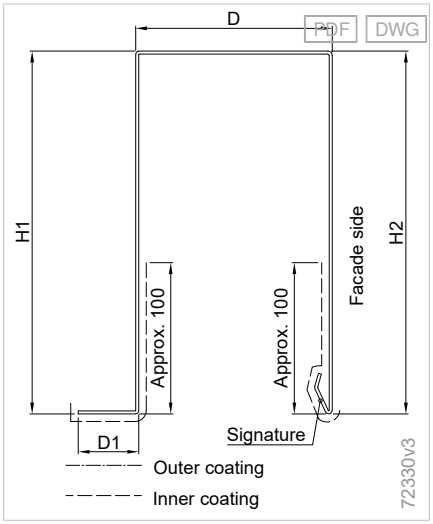
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 58: for direct installation (bracket fastener M5)
- BG 59: for cover panel consoles (bracket fastener M5)
- BG 60: for angle console (bracket fastener M5)

see "Bracket", Page 439

BL31 U-shaped cover panel as a cover panel embedded in plaster



H1 = slat stack height + 20 mm

BL32 U-shaped cover panel (built-in)

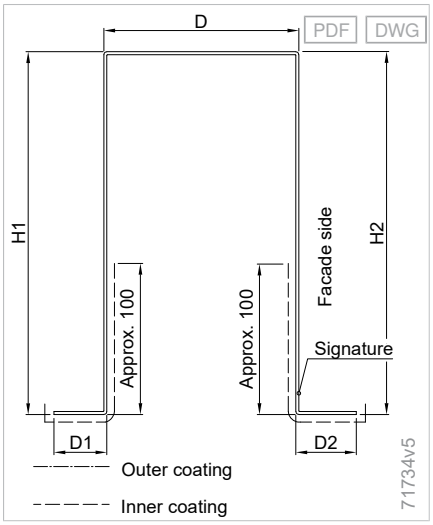
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 58: for direct installation (bracket fastener M5)
- BG 59: for cover panel consoles (bracket fastener M5)
- BG 60: for angle console (bracket fastener M5)

see "Bracket", Page 439

BL32 U-shaped cover panel



H1 = slat stack height + 20 mm

BL35

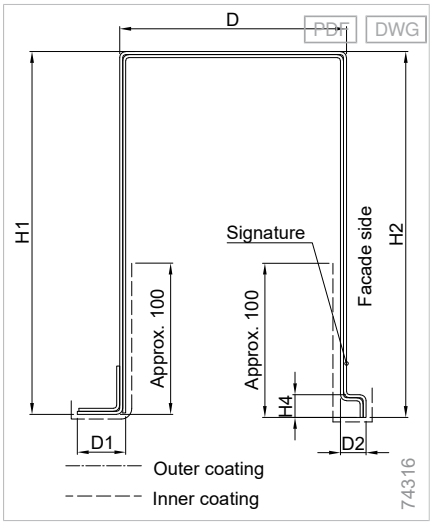
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 58: for direct installation (bracket fastener M5)
- BG 59: for cover panel consoles (bracket fastener M5)
- BG 60: for angle console (bracket fastener M5)

see "Bracket", Page 439

BL35, U-shaped cover panel plaster



H1 = slat stack height + 20 mm

BL48 U-shaped cover panel (built-in)

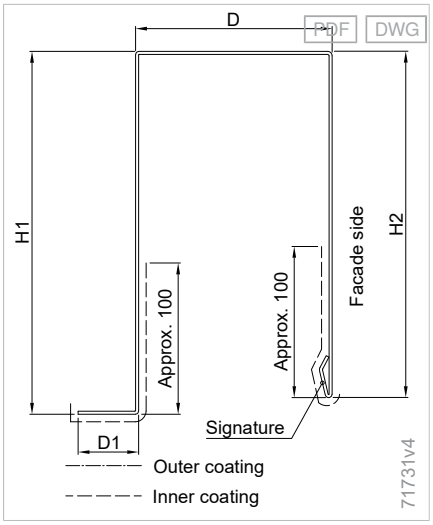
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 58: for direct installation (bracket fastener M5)
- BG 59: for cover panel consoles (bracket fastener M5)
- BG 60: for angle console (bracket fastener M5)

see "Bracket", Page 439

BL48 (U-shaped cover panel as a cover panel embedded in plaster)



H1 = slat stack height + 20 mm

BL49 U-shaped cover panel (built-in)

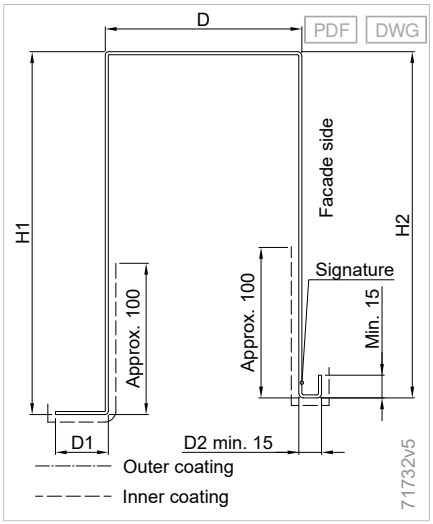
Material	Aluminium, folded
Surface	Powder-coated
Optional surface	Plain, Anodised

Panel bracket:

- BG 58: for direct installation (bracket fastener M5)
- BG 59: for cover panel consoles (bracket fastener M5)
- BG 60: for angle console (bracket fastener M5)

see "Bracket", Page 439

BL49 (U-shaped cover panel as a cover panel embedded in plaster)



H1 = slat stack height + 20 mm

Side closures for standard cover panels

Side closure for standard cover panels



Side closure for U-shaped cover panel



Side closure for U-shaped cover panel, sloped on both sides



Side closure for round-shaped cover panel



Additional product information

Standard values for side covers with folded edge

- Folded edge possible inside and outside
- Folded edge from 10 mm to 50 mm available (in 5 mm increments), other lengths available on request
- Not technically possible for round-shaped cover panels

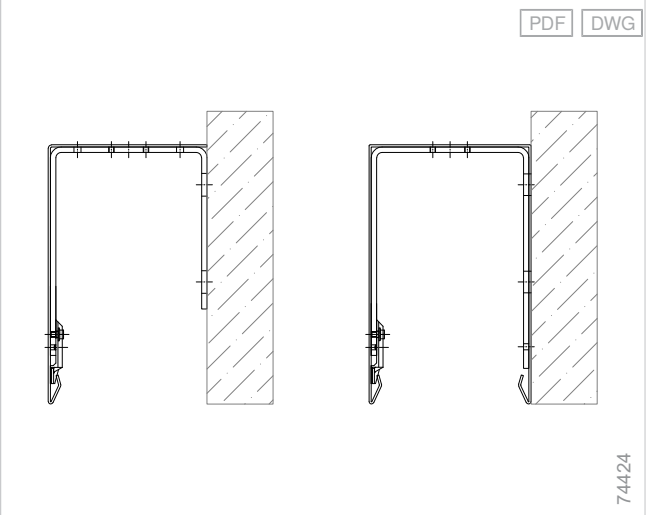
Direct installation via cover panel bracket

Allocation of cover panel type to panel bracket

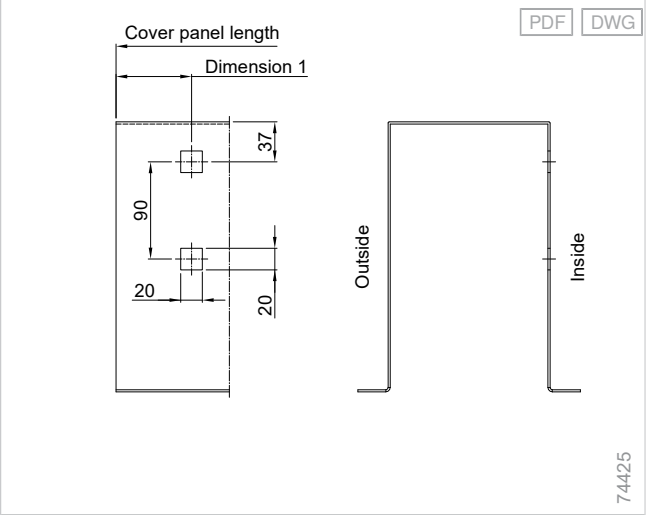
Cover panel	Panel bracket
BL 01	BG 55
BL 06/ BL 46	BG 102
BL 12	BG 56
BL 31/ BL 48	BG 58

- Number of cover panel brackets = min. number of brackets
- Possible tolerance compensation in the width = +/- 5 mm
- With angular cover panels, the cover panel is held in place with a tapping screw, blind rivet, screw with cap nut or a tapping screw and blind rivet (please state corresponding variation when placing order)
- Fixing material for mounting substructure as per Fastener Assistant

Cover panel mounting with cover panel bracket



Cover panel cutout template, direct installation, cover panel console



One cutout is required for each cover panel bracket/ console

Position on the cover panel by specifying dimension 1 for each cutout

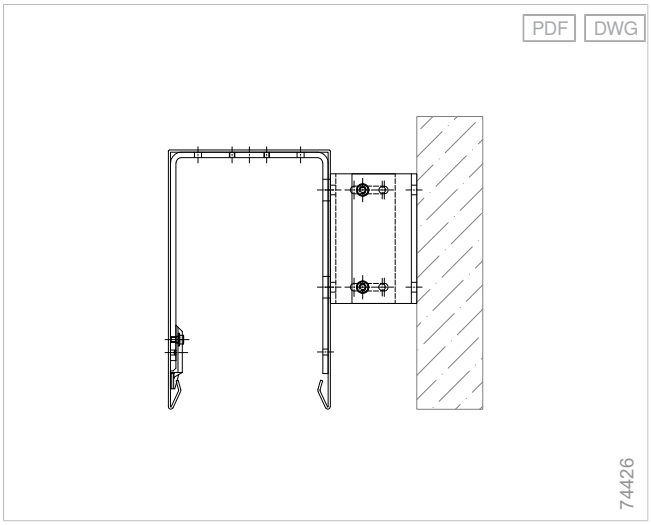
Direct installation via cover panel consoles

Allocation of cover panel type to panel bracket

Cover panel	Panel bracket
BL 06	BG 106

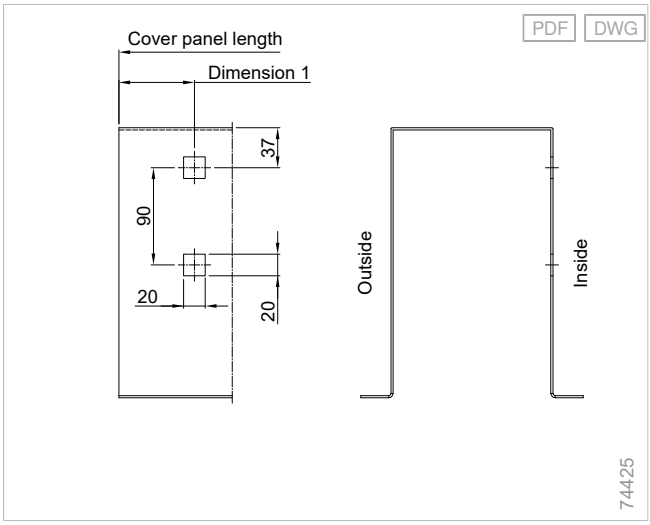
- Number of cover panel consoles = min. 2
- Number of cover panel brackets = min. number of brackets
- Possible tolerance compensation in the width = +/- 5 mm (plus compensation option for the cover panel console)
- The additional cover panel bracket is attached via the screw with cap nut (please state corresponding information when placing order)
- Screw together the panel bracket and the console according to the console version
- Fixing material for attaching the console to the mounting substructure as per Fastener Assistant

Cover panel mounting with cover panel console ZK



Version with cover panel console BK and ZK available

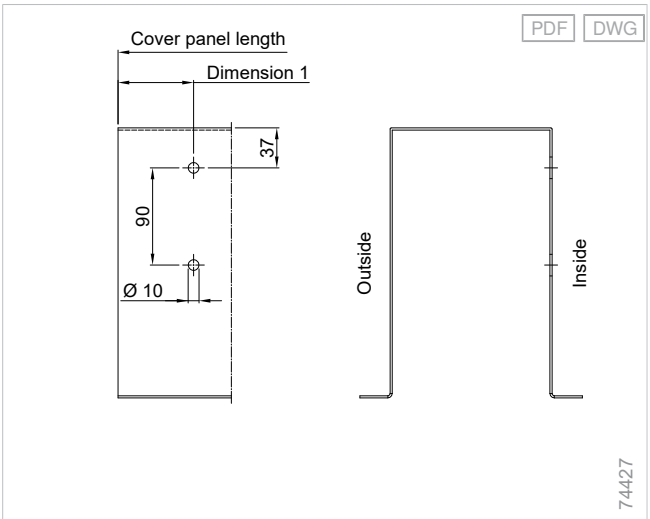
Cover panel cutout template, direct installation, cover panel console



One cutout is required for each cover panel bracket/ console

Position on the cover panel by specifying dimension 1 for each cutout

Cover panel cutout template, additional cover panel bracket



One cutout is required for each cover panel bracket

Position on the cover panel by specifying dimension 1 for each cutout

Installation with angle console BG 426

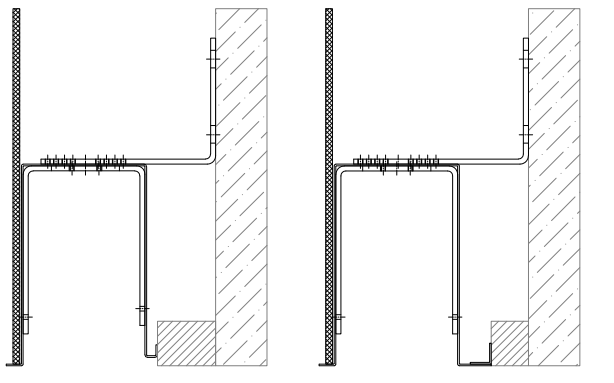
Allocation of cover panel type to panel bracket

Cover panel	Panel bracket
BL 01	BG 69
BL 06/ BL 30/ BL 46/ BL 47	BG 117
BL 12	BG 68
BL 31/ BL 32/ BL 48/ BL 49	BG 60

- Number of angle consoles = min. 2
- Number of cover panel brackets = min. number of brackets
- Possible tolerance compensation in the width = +/- 7 mm
- Possible tolerance compensation in depth = +/- 20 mm (from cover panel depth of 150 mm; for smaller cover panel depths the possible tolerance compensation is reduced or the angle console protrudes forwards over the cover panel)
- With angular cover panels, the cover panel is held in place with a tapping screw, blind rivet, screw with cap nut or a tapping screw and blind rivet (please state corresponding variation when placing order)
- Fixing material for attaching the angle console to the mounting substructure as per Fastener Assistant

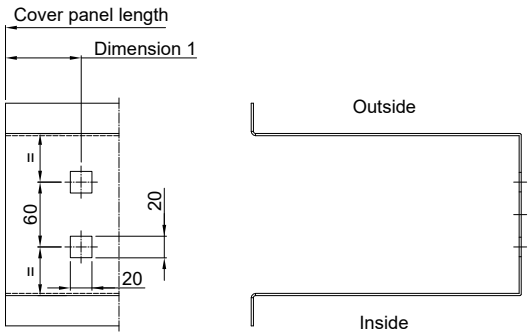
Cover panel mounting with angle console

PDF DWG



Cover panel cutout template, angle console

PDF DWG



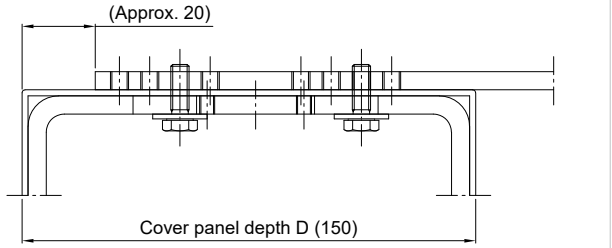
One cutout is required for each angle console

Position on the cover panel by specifying dimension 1 for each cutout

Additional cover panel brackets without a connection to a console do not require any separate machining, but can be connected directly to the cover panel using tapping screws.

Connecting the cover panel to the angle console

PDF DWG



- 2x ISO 4017 A2 M6x18 (DIN 933) hex screw
- 2x ISO 7093 A2 6.4 (DIN 9021) washer

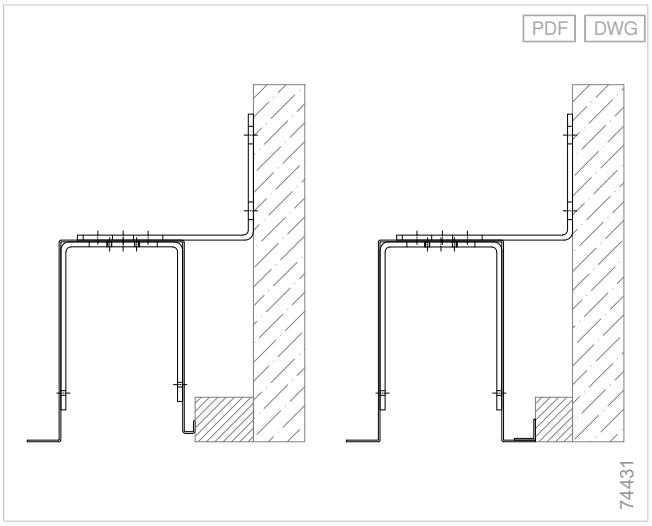
Installation with angle console BG 427

Allocation of cover panel type to panel bracket

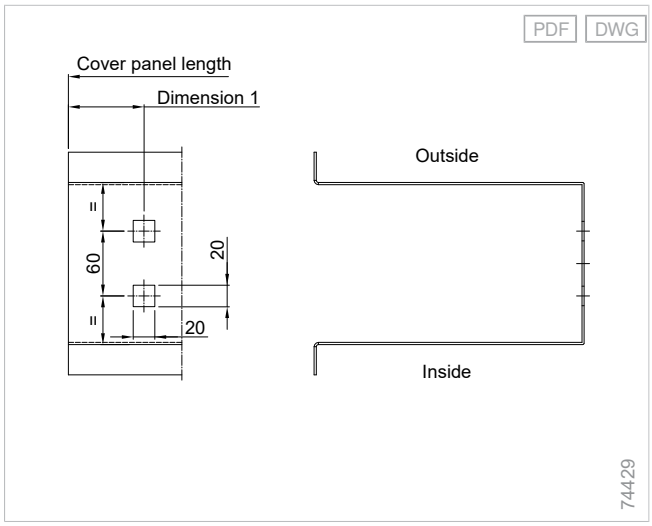
Cover panel	Panel bracket
BL 01	BG 69
BL 06/ BL 30/ BL 46/ BL 47	BG 117
BL 12	BG 68
BL 31/ BL 32/ BL 48/ BL 49	BG 60

- Number of angle consoles = min. 2
- Number of cover panel brackets = min. number of brackets
- Possible tolerance compensation in the width = +/- 7 mm
- Possible tolerance compensation in depth = +/- 20 mm (from cover panel depth of 150 mm; for smaller cover panel depths the possible tolerance compensation is reduced or the angle console protrudes forwards over the cover panel)
- With angular cover panels, the cover panel is held in place with a tapping screw, blind rivet, screw with cap nut or a tapping screw and blind rivet (please state when placing order)
- Fixing material for attaching the angle console to the mounting substructure as per Fastener Assistant

Cover panel mounting with angle console



Cover panel cutout template, angle console

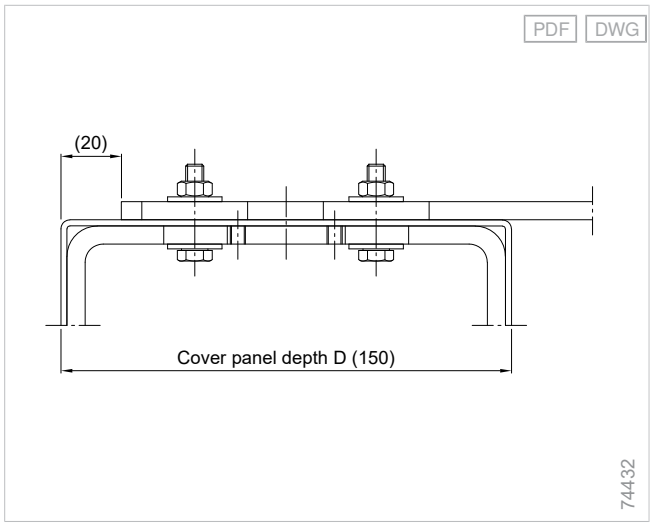


One cutout is required for each angle console

Position on the cover panel by specifying dimension 1 for each cutout

Additional cover panel brackets without a connection to a console do not require any separate machining, but can be connected directly to the cover panel using tapping screws.

Connecting the cover panel to the angle console



- 2x ISO 4017 A2 M6x25 (DIN 933) hex screw
- 4x ISO 7093 A2 6.4 (DIN 9021) washer
- 2x DIN 985 A2 M6 self-locking hex nut

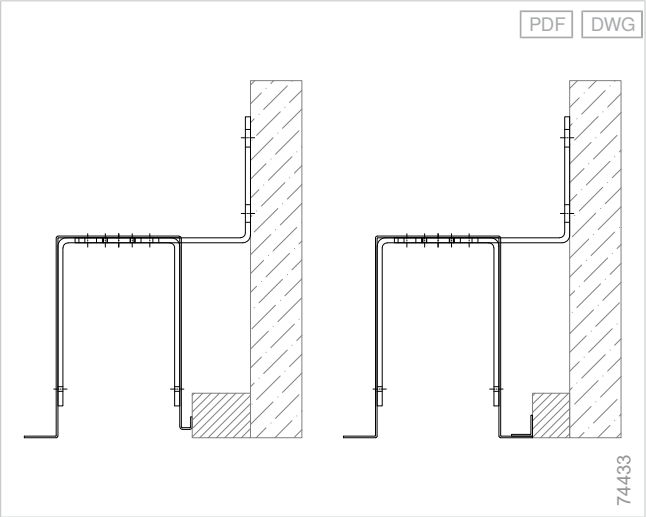
Installation with angle console BG 423, BG 83 or BG 71

Allocation of cover panel type to panel bracket

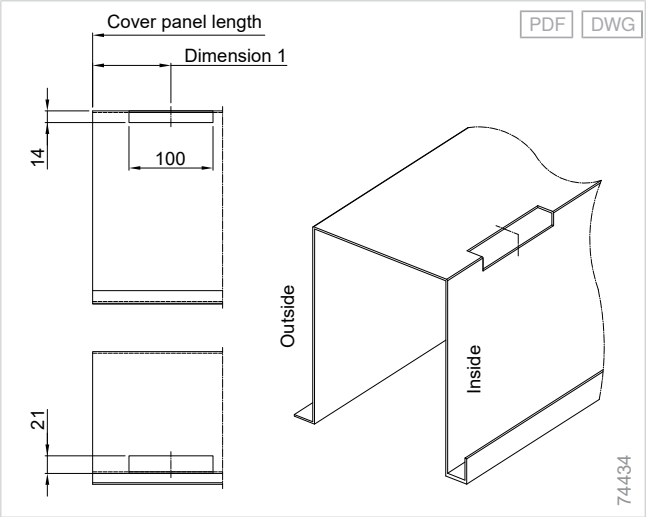
Cover panel	Panel bracket
BL 06/ BL 30/ BL 46/ BL 47	BG 117
BL 31/ BL 32/ BL 48/ BL 49	BG 60

- Number of angle consoles = min. 2
- The brackets are not attached to the angle console but to separate cover panel brackets.
- Number of cover panel brackets = min. number of brackets
- Possible tolerance compensation in the width = +/- 10 mm (depending on the width of the angle console)
- Possible tolerance compensation in depth = +/- 20 mm (with a smaller axis distance, the shifting range of 20 mm is only available if the axis distance is also at least 20 mm greater than the minimum axis distance)
- The cover panel bracket is held in place with a tapping screw or a tapping screw and blind rivet (please state when placing order)
- The cover panel is connected to the angle console using a tapping screw (please state when placing order)
- Fixing material for attaching the angle console to the mounting substructure as per Fastener Assistant

Cover panel mounting with angle console



Cover panel cutout template, angle console



One cutout is required for each angle console

Position on the cover panel by specifying dimension 1 for each cutout

Cover panel brackets do not require any separate machining, but can be connected directly to the cover panel using tapping screws.

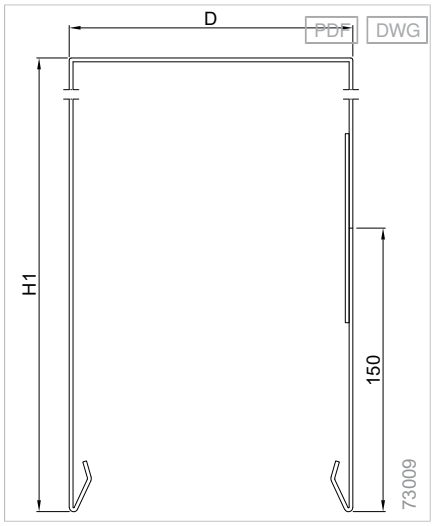
Guide values for one-piece protective cover panels

Guide values for one-piece protective cover panels

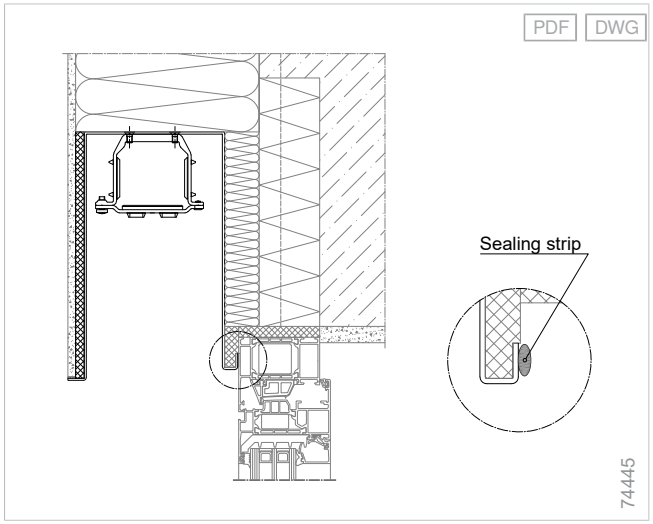
Cover panel type	D min [mm]	H1 max [mm]	Plate thickness [mm]
BL 05	-	450	2.0
BL 06	130/140	410/450	2.0
BL 07 / BL 08	150	450	2.0
BL 09	150	390	2.0

For deviations from the guide values, the U-shaped cover panels must be manufactured on request.

One-piece protective cover panel



External venetian blind window systems FSR, cover panel plaster, sealing strip



Optional sealing strip applied at the factory

Custom-made products

Cover panels with other edgings are available on request, minimum depth per bending 12 mm.

It is possible to glue 8 mm thick plaster base plates onto the cover panels.

Standardised cable exit

Standard cable exit: at the rear, side or top

Cable exit seal: a plug-in grommet is supplied for sealing

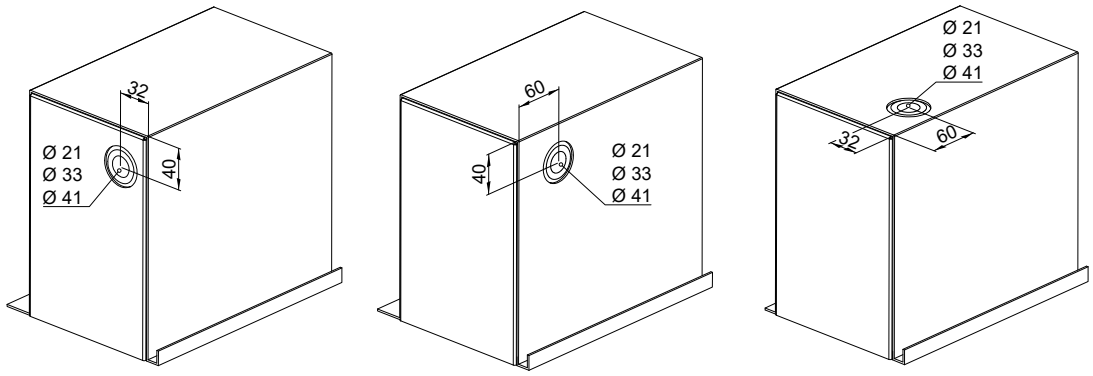
When placing an order: the position and size of the cable exit must be stated.

Recommendation: 21 mm = cable whip, 33 mm = STAK 3, 41 mm = STAK 4

A cable exit can be specified for the cover panel on the left and right as standard. Central cable exits are also possible on request as well as different positioning.

External venetian blind window systems FSR, U-shaped cover panel plaster, cable exit

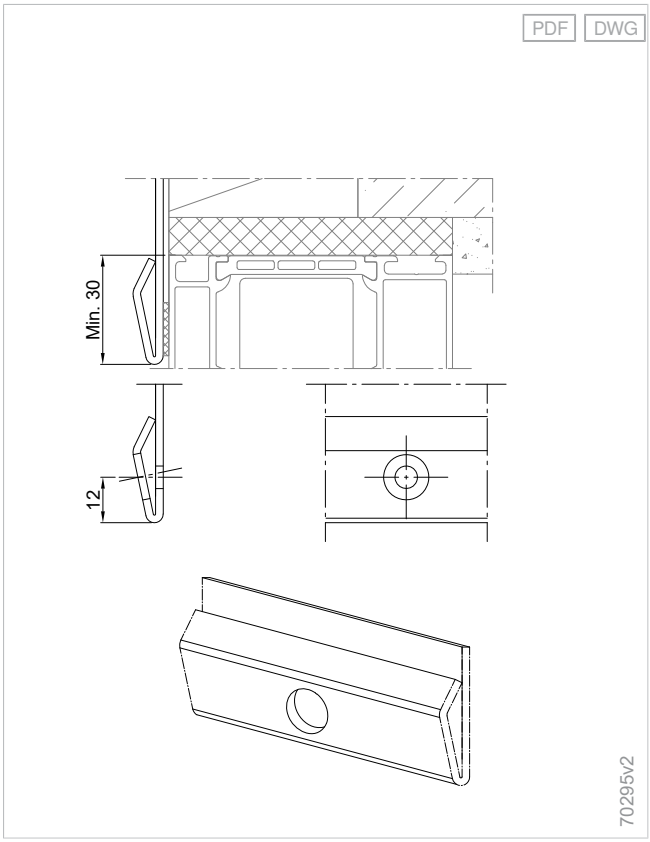
PDF DWG



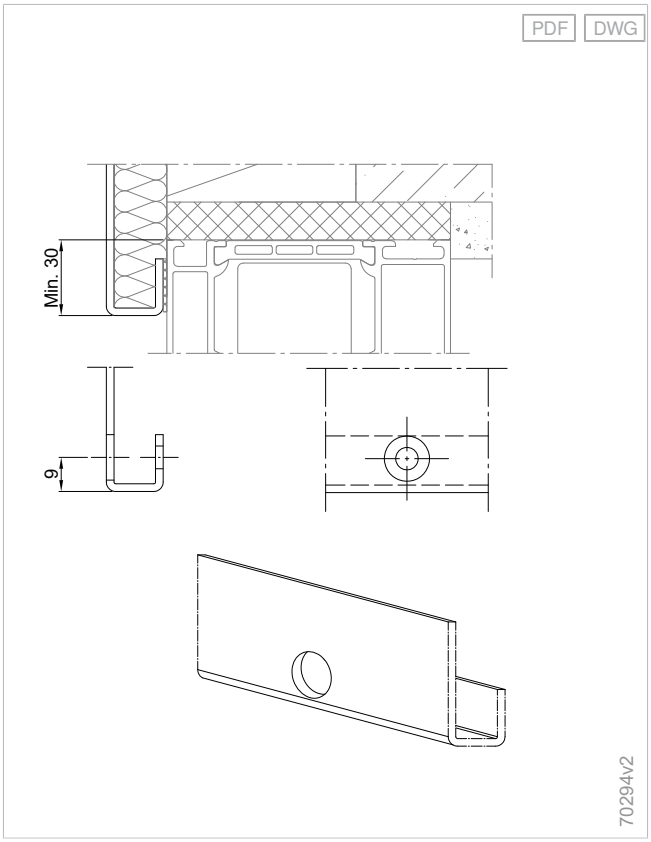
Additional fixing on the rear side of the cover panel

- Additional fixing hole in order to guarantee that the rear side of the cover panel is in flat contact.
- Minimum overlap on window frame of 30 mm required
- One drilled hole 50 mm on the left and one on the right outside
- For cover panels with L rear bending, the number of drilled holes depends on the width (maximum distance between the drilled holes must not exceed 500 mm).
- For all other cover panels, an additional drilled hole is made in the centre up to a cover panel width of 2000 mm and two additional drilled holes (positioned between the outer drilled holes) up to a cover panel width of 4000 mm.

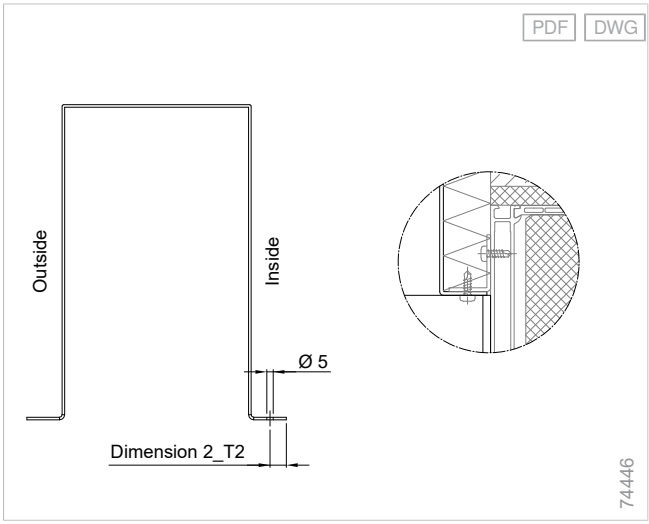
Model for cover panels without cover panel back fold



Model for cover panels with cover panel back fold



Cover panel with L-shaped rear bending



Dimension 2_T2 (standard positioning without deviating order data)

- T2 to 19 mm: centrally drilled hole at T2
- T2 > 19 mm: drilled hole at 12 mm from end of the bead

The number of modifications depends on the cover panel cutting dimension:

- One cutout 50 mm from the left and one from the right outside
- Maximum distance between the cutouts = 500 mm

Standardised pre-punched cover panels with bracket

Standard solutions for installation with and without facade distance enable quick and easy installation and prevent collisions between brackets and bearings.

Available for: cover panel BL 01, BL 06, BL 32

Notes concerning the order:

When ordering: Indicate the number of mounting brackets and fixing brackets as well as the axial dimensions between the mounting substructure and cover panel axis.

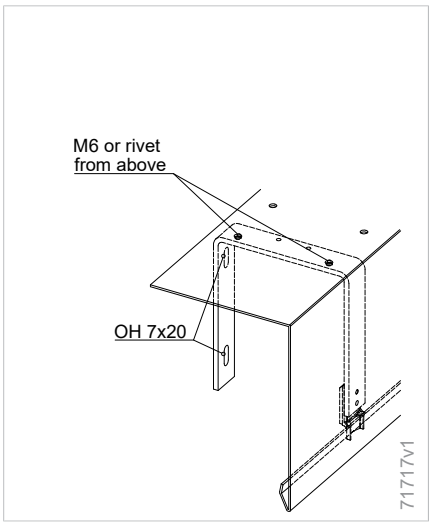
For premounting: Determine the bearing distances for the relevant external venetian blind type and select cutouts for fixing accordingly.

Special versions: Different fixing templates are possible at a surcharge.

Notes on installation:

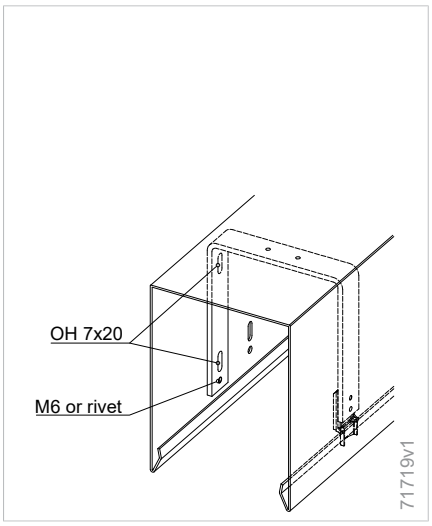
The fixing holes of the standardised pre-punched cover panels must be protected from water infiltrating them on site.

BL 01 without distance to the facade



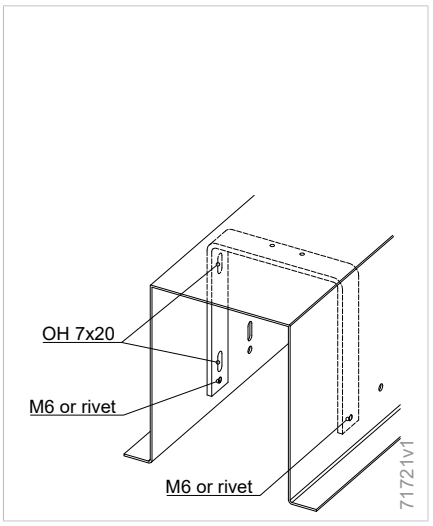
Installation with BG 422

BL 06 without spacing to the facade



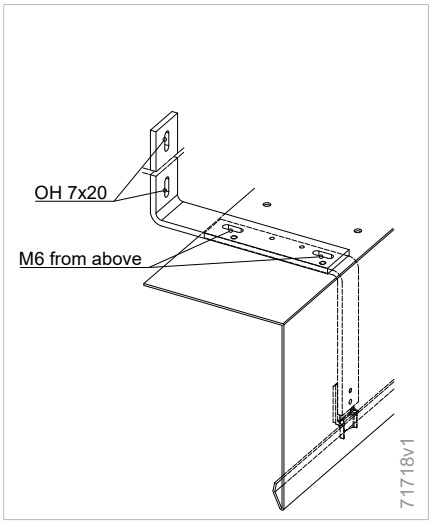
Installation with BG 422

BL 32 without spacing to the facade



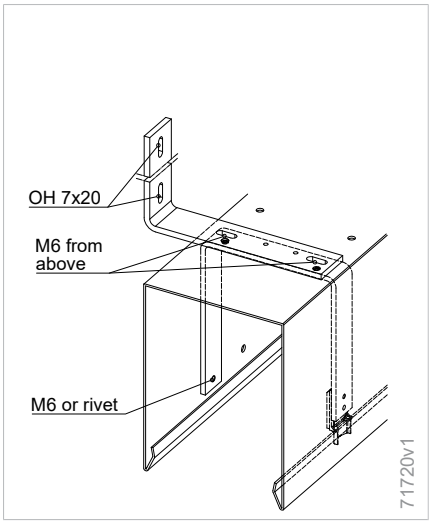
Installation with BG 421

BL 01 with distance to the facade



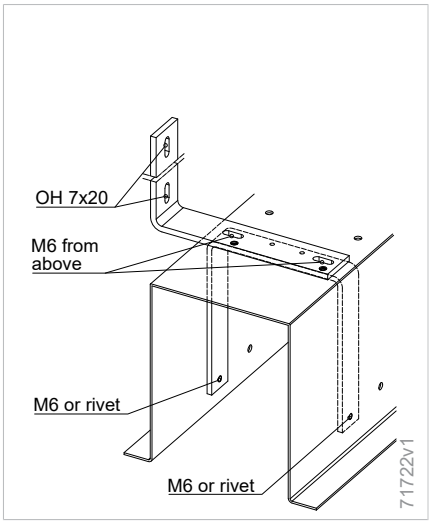
Installation with BG 423 and BG 424

BL 06 with distance to the facade



Installation with BG 422 and BG 423

BL 32 with distance to the facade



Installation with BG 421 and BG 423

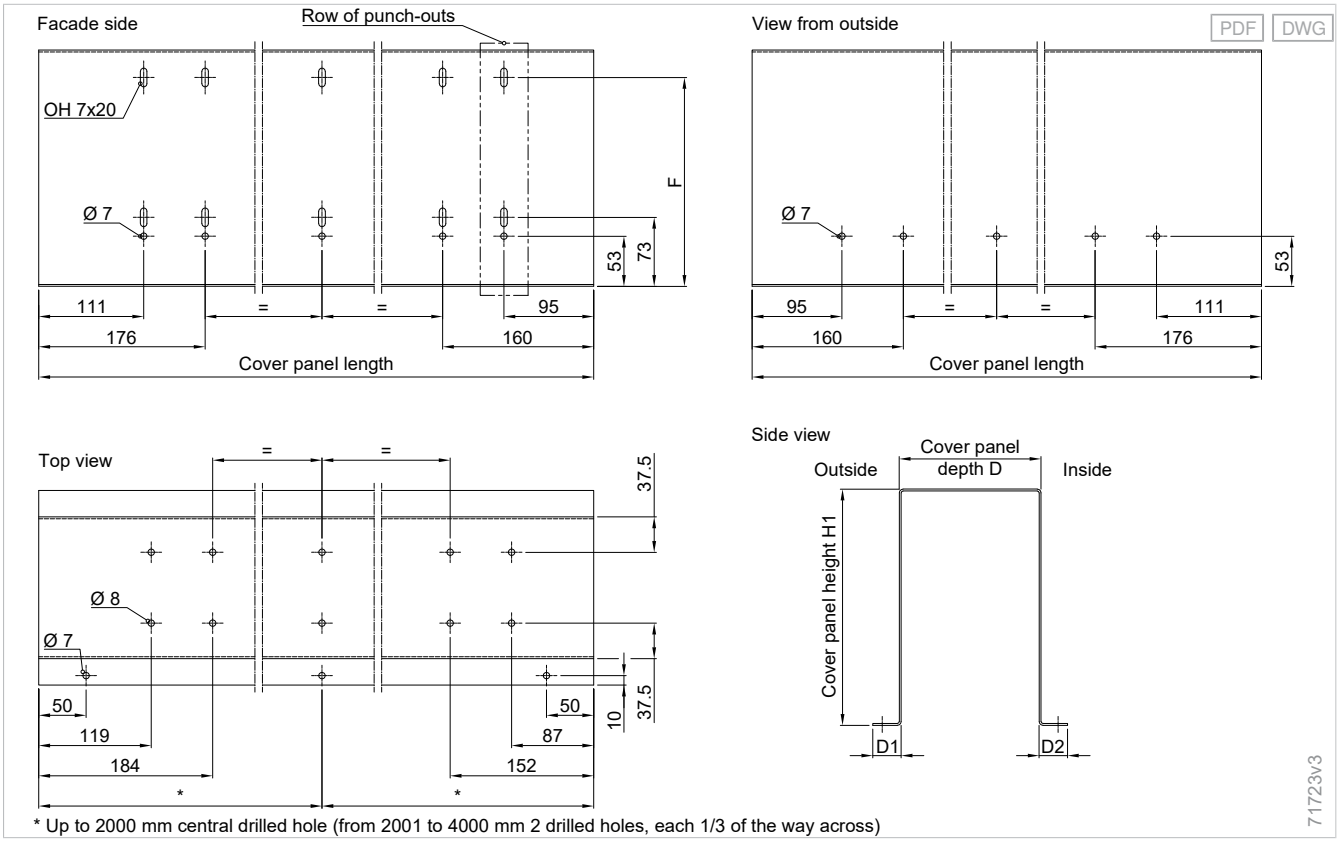
Number of rows of cutouts per cover panel

Cover panel length	Quantity, left	Quantity, central	Quantity, right	Total quantity
Up to 950 mm	2	1	2	5
951 mm - 1850 mm	2	4	2	8
1851 mm - 2750 mm	2	7	2	11
2751 mm - 3650 mm	2	10	2	14
3651 mm - 4000 mm	2	12	2	16

Each of the two outer rows of cutouts have defined positions (see dimensional drawing)

The rows of cutouts are at equal distances between the outer cutouts on the cover panel. Maximum distance between the cutouts = 300 mm.

Overview of dimensions of the rows of cutouts

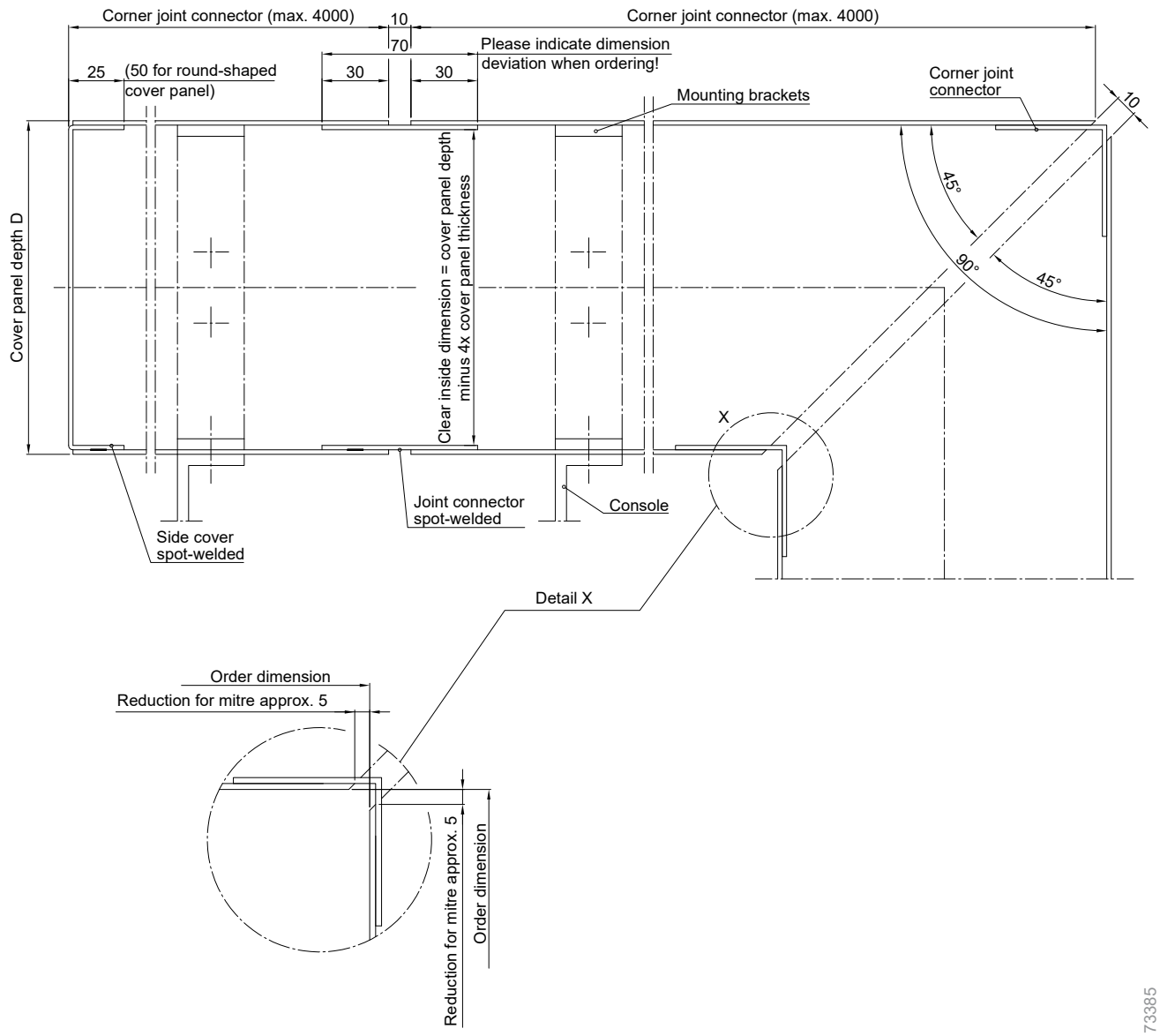


* Up to 2000 mm central drilled hole (from 2001 to 4000 mm 2 drilled holes, each 1/3 of the way across)

Corner position, 90° corner

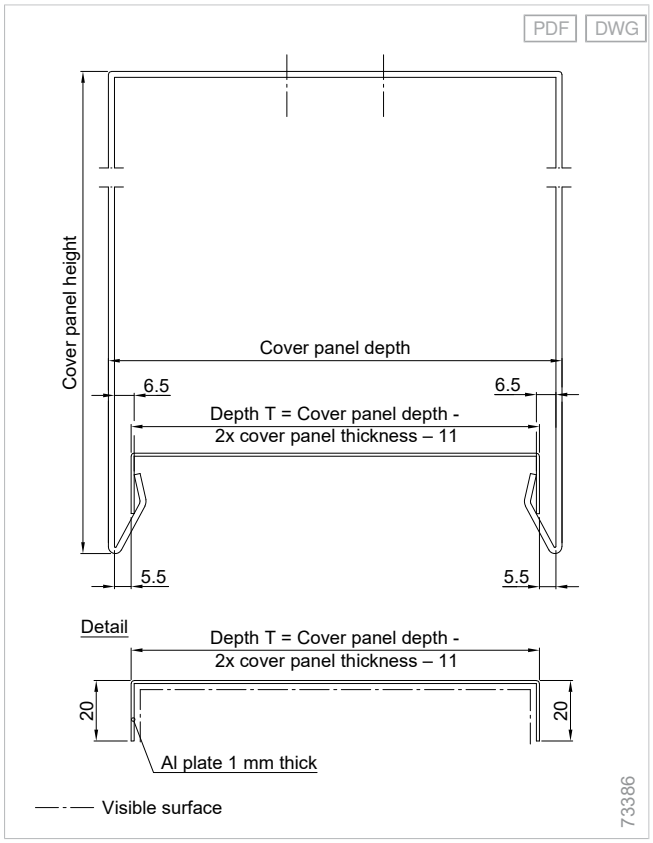
Side closure, joint connector and 90° corners

PDF DWG

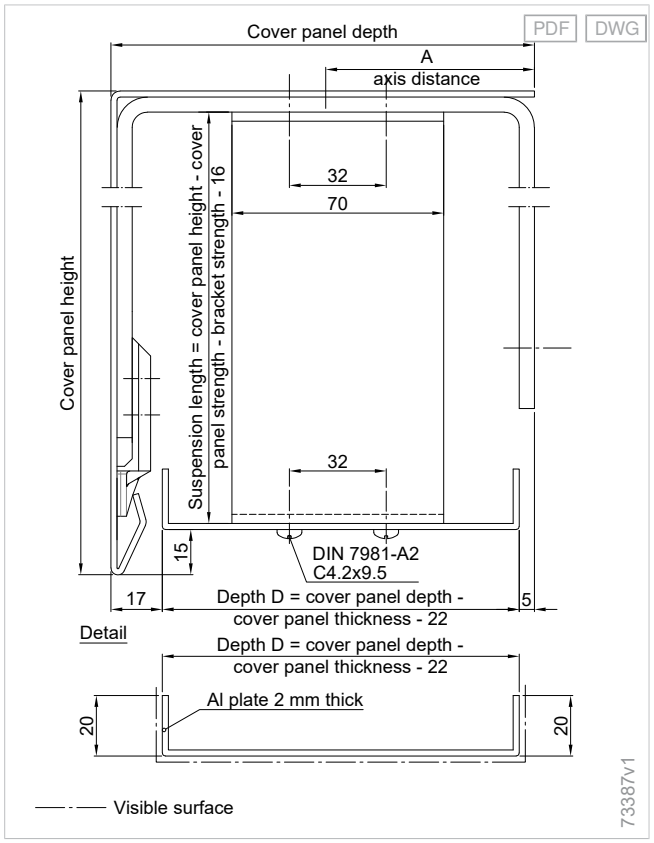


Dummy cover panels

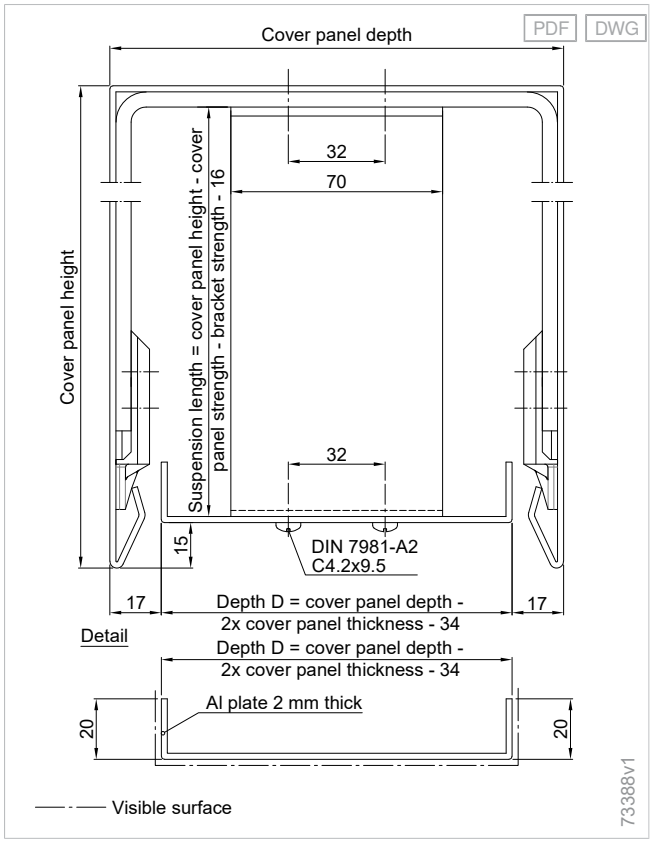
Installation principle for model 1 (BL06/BL07/BL08/BL09)



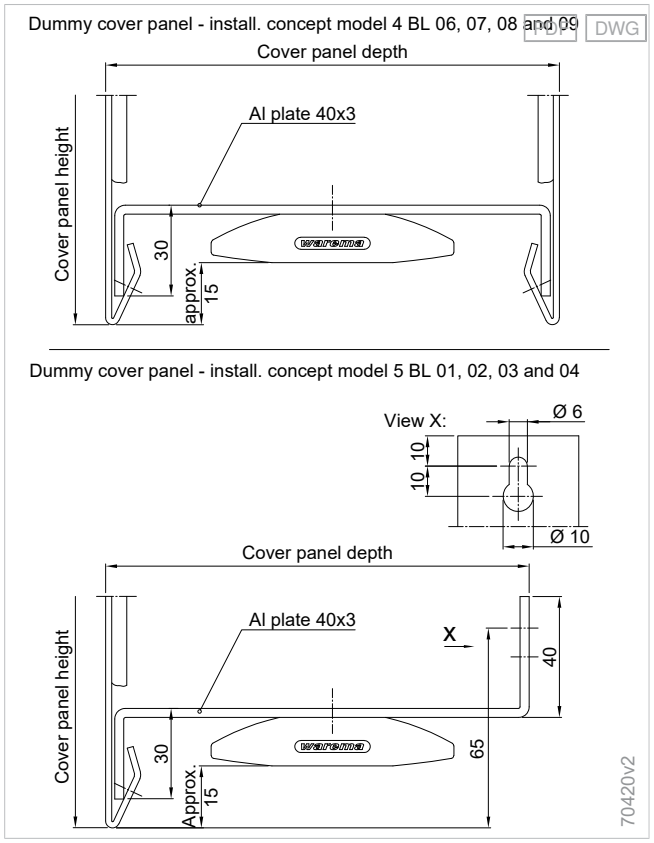
Installation principle for model 3 (BL01/BL02/BL03/BL04)



Installation principle for model 2 (BL06/BL07/BL08/BL09)



Installation principle for model 4 and 5

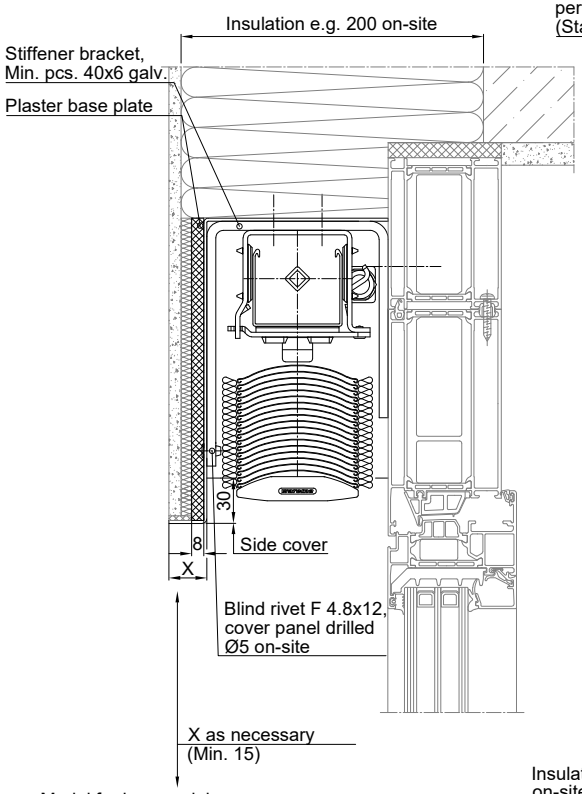


Mounting examples

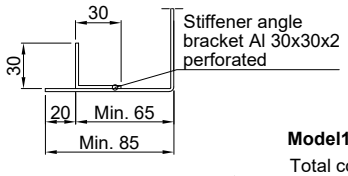
Cover panels embedded in plaster

PDF DWG

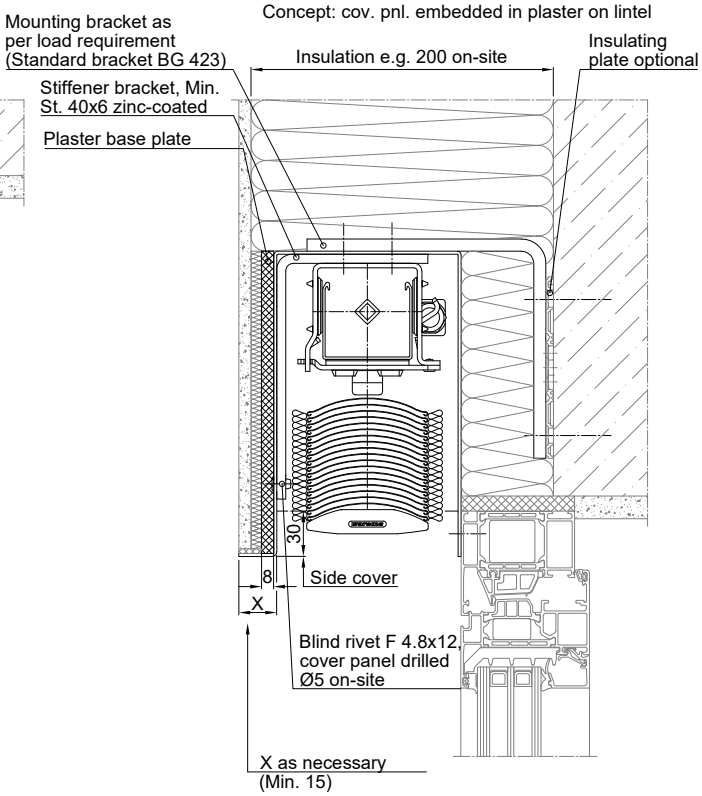
Concept: cov. pnl. embedded in plaster on win. frame extension



Model for larger edging

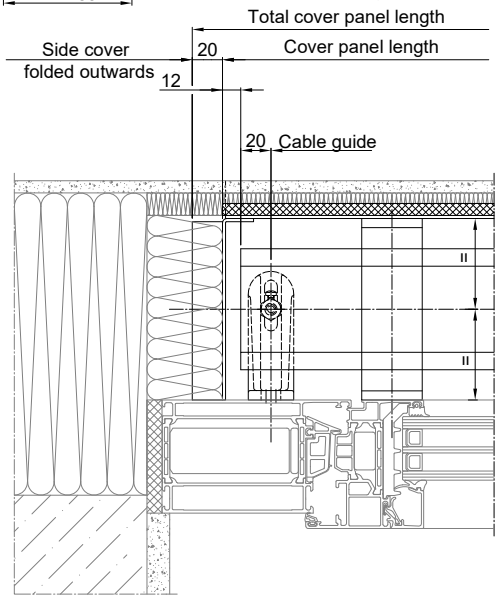


Concept: cov. pnl. embedded in plaster on lintel

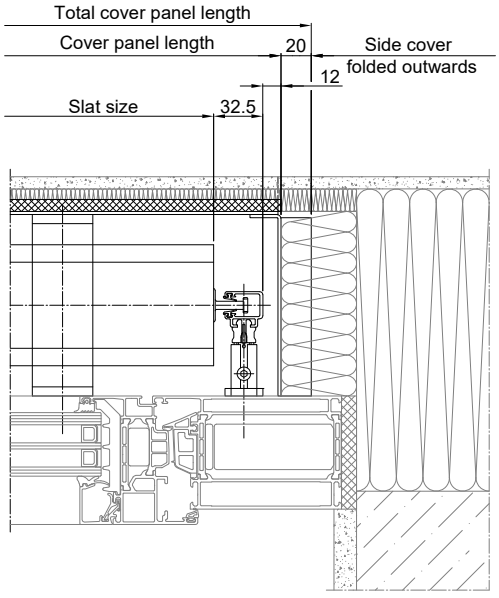


Insulation, plaster base plate, insulating tape and plaster lathing are on-site services. These details are general planning suggestions which schematically illustrate the design of an EIFS. The illustration does not release you from the obligation to individually examine the particular building project for applicability and completeness. Adjoining building features are only schematically illustrated. All specifications and assumptions must be matched with or adapted to local conditions. Plaster or reinforcement joining of the plaster base plate to the on-site insulation/masonry must be carried out in accordance with DIN specifications. When fixing the plaster base plate to the cover panel, the screws used must not protrude inwards by more than 3 mm.

Model1: cable guidance



Model 2: rail guidance

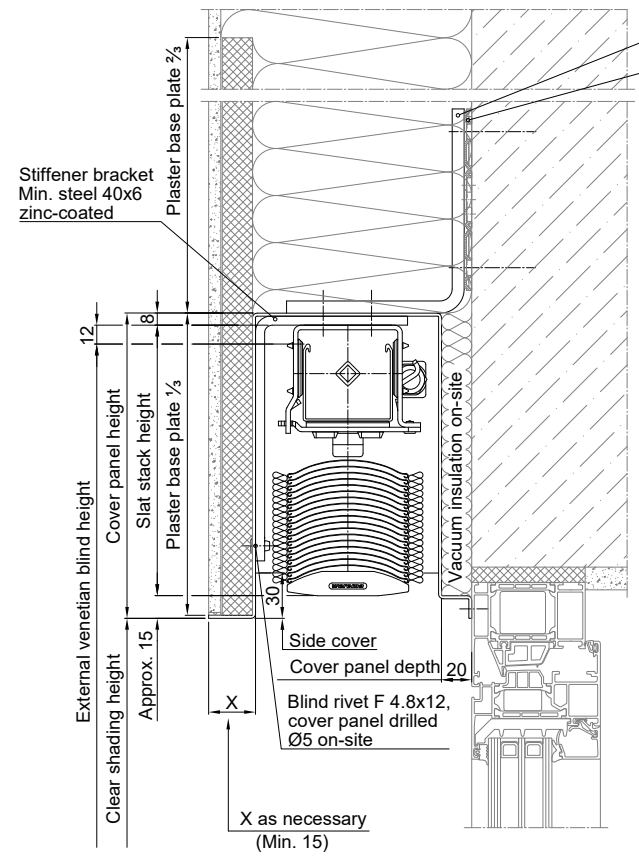


The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

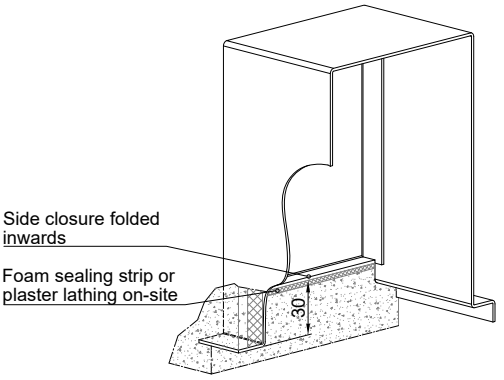
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PDF DWG

Principle: Cover panel embedded in plaster with on-site vacuum insulation

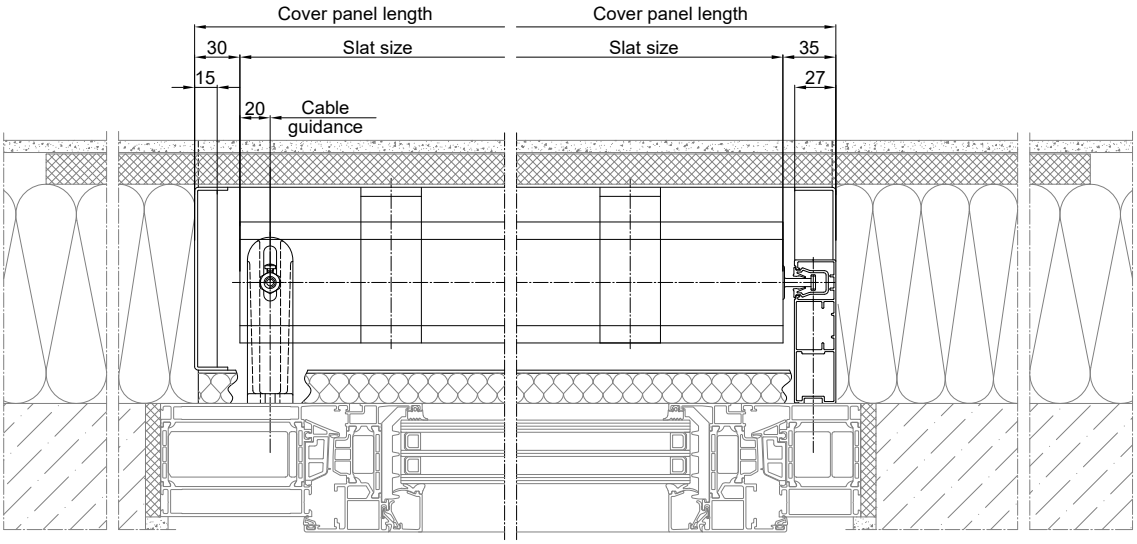


Detail: cover panel connection to reveal model 1: cable guidance



Insulation, plaster base plate, insulating tape and plaster lathing are on-site services. These details are general planning suggestions which schematically illustrate the design of an EIFS. The illustration does not exempt any person from the obligation to carry out an individual examination of the particular building project for applicability and completeness. Adjacent constructions are only schematic representations. All specifications and assumptions are to be adjusted and/or tailored to the local circumstances. Plaster or reinforcement joining of the plaster base plate to the on-site insulation/masonry must be carried out in accordance with DIN specifications. When fixing the plaster base plate to the cover panel, any screws used must not protrude inwards by more than 3 mm.

Variant 1: cable guidance **Variant 2: rail guidance**



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The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

Bracket

Notes on dimensions

The brackets shown are designed for standard situations. When taking dimensions, the number of brackets, acting forces and selection of the required bracket material must be taken into account.

Number of brackets

The number of brackets within the cover panel must correspond to the number of supports. With built-in cover panels, a stiffener bracket needs to be placed every 600 mm (material min. 40x6). Any deformation f should also be compared to the permissible deformation of the plaster.

Number of brackets

Width (slat size)	up to 1500 mm	up to 2500 mm	up to 3500	up to 4500 mm	up to 5500 mm	up to 6000 mm
Number of brackets	2	3	4	5	6	7

With brackets used outside the cover panel as angle consoles, two brackets suffice up to a cover panel width of 4000 mm. However, the distance between the angle consoles must not exceed 3000mm. An angle console must always be fitted near a tension cable.

With brackets inside the cover panel, the number of brackets must be at least as high as the number of tension cables used.

Acting forces

When taking dimensions for the angle console, the net weight and tensile force produced by the tension cable must be taken into account:

- The net weight (external venetian blind incl. cover panel and bracket) can be roughly estimated to 6 kg/m^2 of curtain area (7 kg/m^2 for Windra flat slats or external venetian blinds in wind-stable version). The value determined in this way is then divided by the number of brackets used.
- As soon as a tension cable is present, an additional 350 N must be applied (600 N for Windra flat slats with cable guidance or for external venetian blinds with cable guidance and height > 4000 mm).

Selecting the required bracket material

The required bracket material depends on a number of factors (e.g. acting forces, axis distance or version with oblong hole for attachment to the structure). Consult the table to determine the required bracket material.

Maximum permissible force for each bracket depending on axis distance A

Axis distance A	Material 30x5	Material 40x5	Material 40x6	Material 50x8
50	256	378	544	1274
55	232	344	494	1159
60	213	315	453	1062
65	197	291	418	980
70	183	270	388	910
75	170	252	362	850
80	160	236	340	797
85	150	222	320	750
90	142	210	302	708

Axis distance A	Material 30x5	Material 40x5	Material 40x6	Material 50x8
95	135	199	286	671
100	128	189	272	637
105	122	180	259	607
110	116	172	247	579
115	111	164	236	554
120	107	158	227	531
125	102	151	217	510
130	98	145	209	490
135	95	140	201	472
140	91	135	194	455
145	88	130	187	439
150	85	126	181	425
155	82	122	175	411
160	80	118	170	398
165	77	115	165	386
170	75	111	160	375

More information on dimensions and deformation can be found on myWAREMA in the workbook Mounting Brackets/Stiffener Brackets.

Note on oblong holes for facade connection

Oblong holes can be ordered in the following dimensions:

- LL7.5x21 (standard)
- LL9x26
- LL11x25 (not available for material cross-section 30x5)

If no details are given for f and f1 in the order, the following standard values will be supplied:

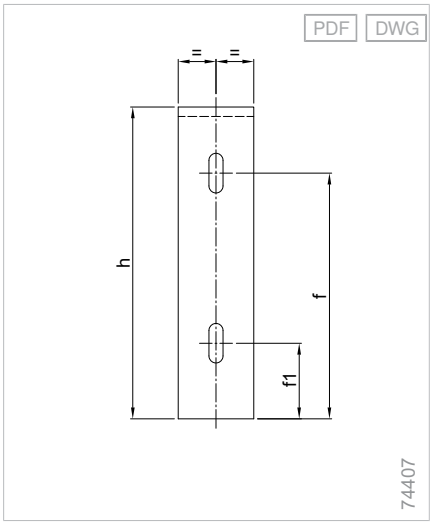
- f = height h - 35 mm
- f1 = height h - 125 mm

Exceptions are described directly with the corresponding bracket.

Minimum dimensions:

- h = min. 150 mm

Positioning oblong holes



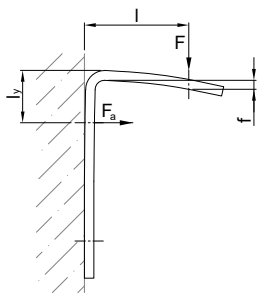
Bracket deformation

In order to keep bracket deformation as minimal as possible, the dimension ly should be kept as small as possible. The following applies: ly < l

We recommend consulting the WAREMA Fastener Assistant for determining the extraction force (Fa) on the fixing point and selecting a suitable fixing material.

Bracket deformation

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Mounting bracket for on-site shaft

Notes concerning the order

The available model as well as the number of mounting brackets has to be checked statically by means of a calculation programme.

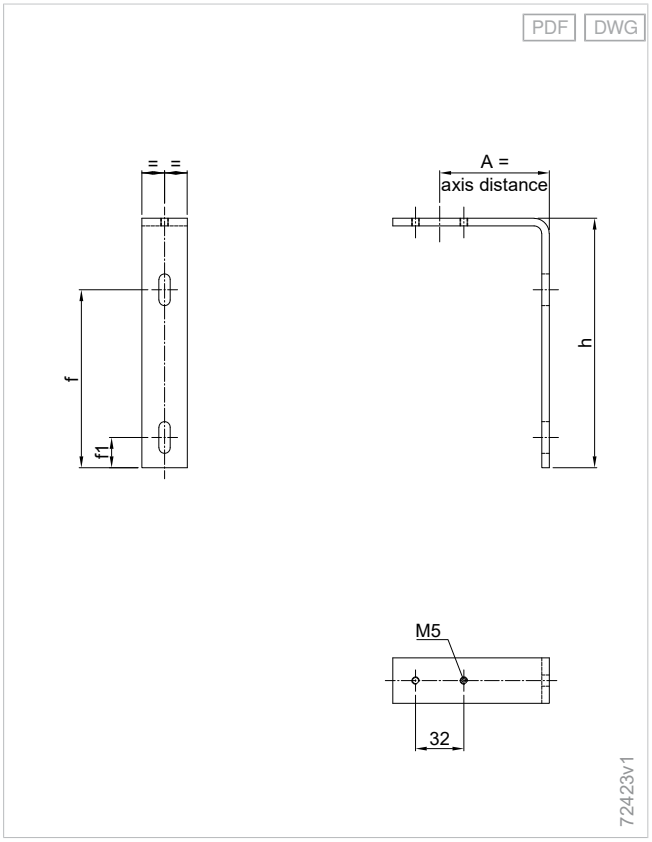
BG 61: without bracket lug

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5

Mounting bracket BG 61



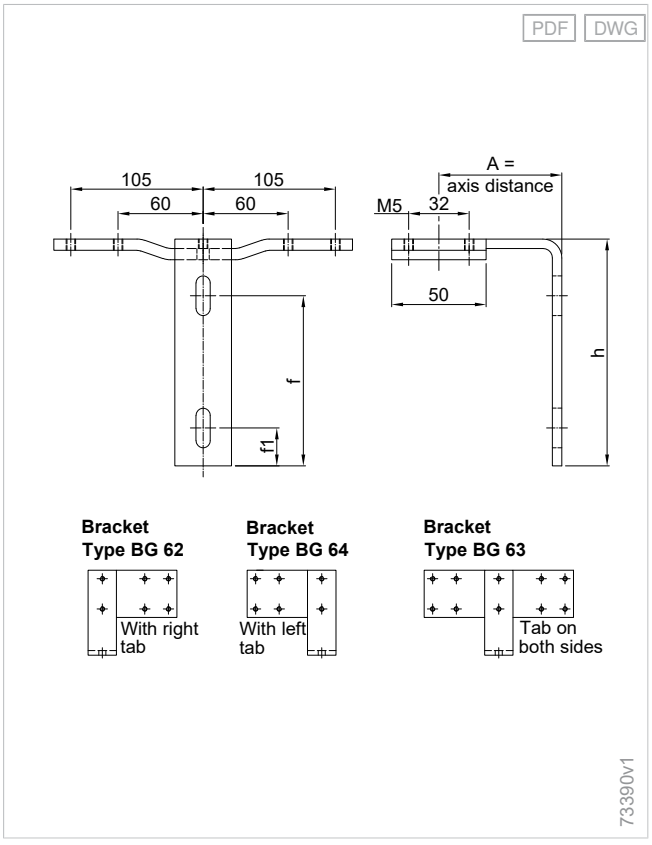
BG 62/63/64: with bracket lug

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5

Mounting bracket BG 62/63/64



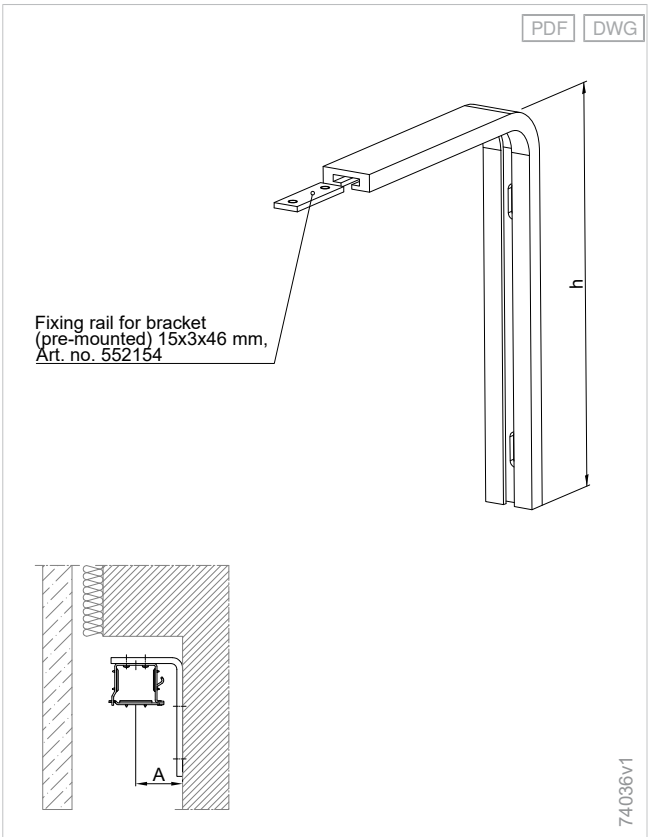
BG 81: adjustable (from 30x10)

Material	Aluminium
Optional surface	Powder-coated

Material cross-section: 30x10

Bracket fastener: M5

Mounting bracket BG 81



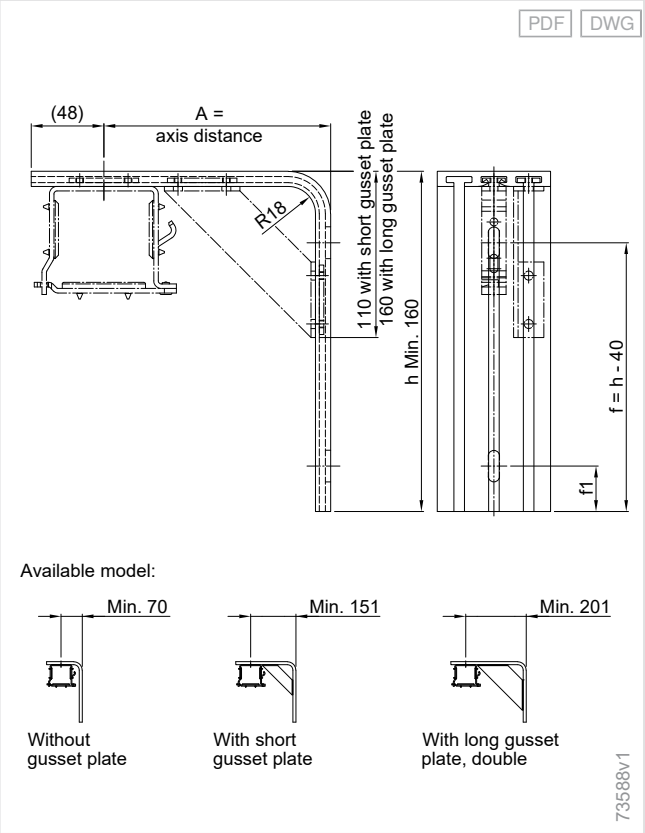
BG 82: adjustable (from 75x10)

Material	Aluminium
Optional surface	Powder-coated

Material cross-section: 75x10

Bracket fastener: M5

Mounting bracket BG 82



Cover panel bracket for U-shaped cover panel (e.g. BL 06, BL 30, BL 46, BL 47)

Notes concerning the order

- The available product variant as well as the number of mounting brackets need to be checked statically by means of a calculation programme.
- When ordering cover panel brackets, please always specify the cover panel height H1

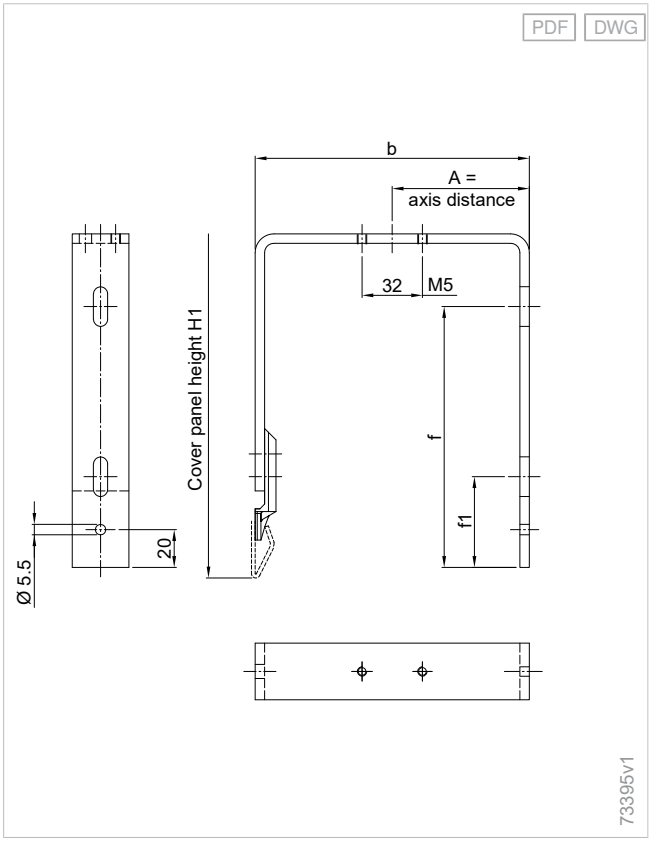
BG 102: for direct installation (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5 (standard), D6.5 (optional)

Mounting bracket BG 102



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

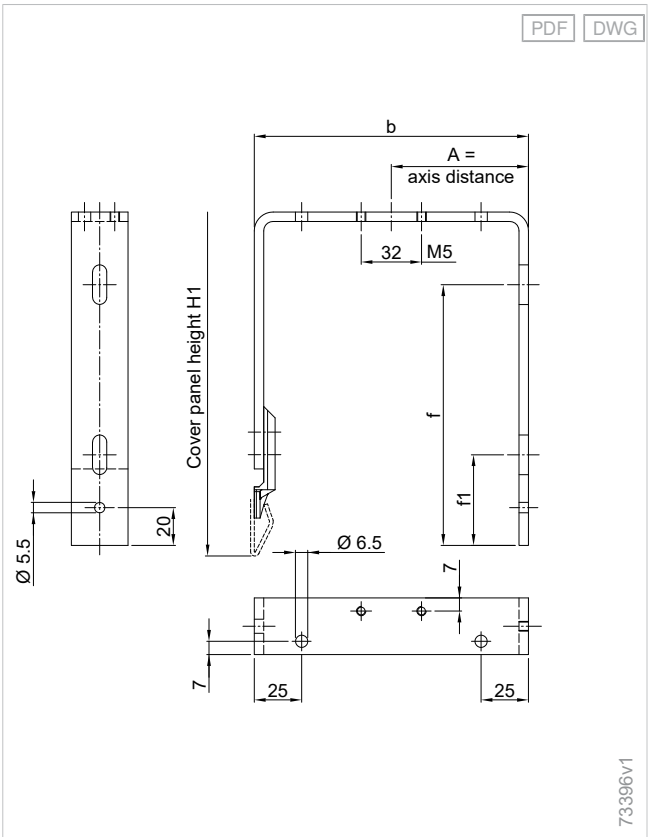
BG 106: for cover panel console (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5 (standard), D6.5 (optional)

Mounting bracket BG 106



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

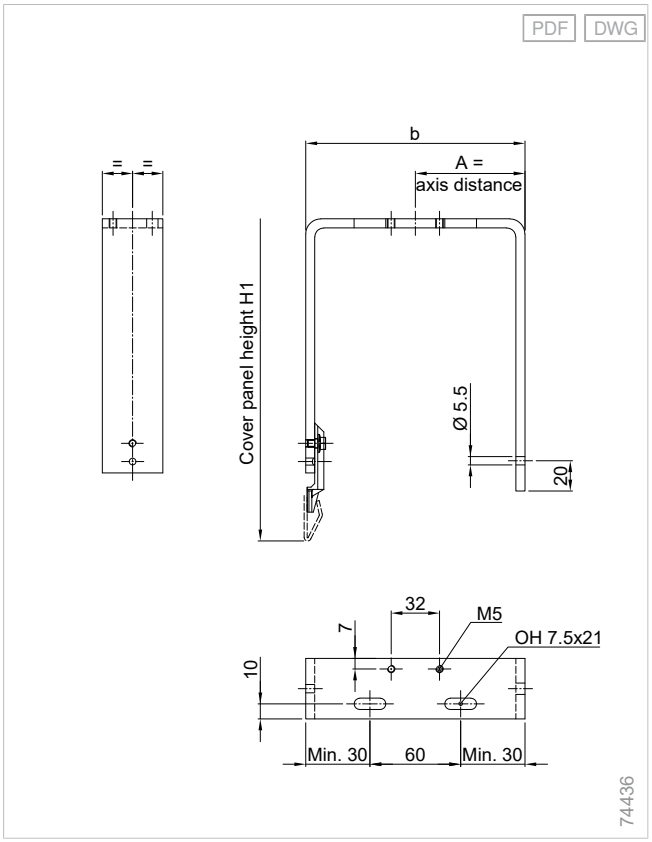
BG 117: for angle console (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 40x5, 40x6

Bracket fastener: M5 (standard), D6.5 (optional)

Mounting bracket BG 117



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

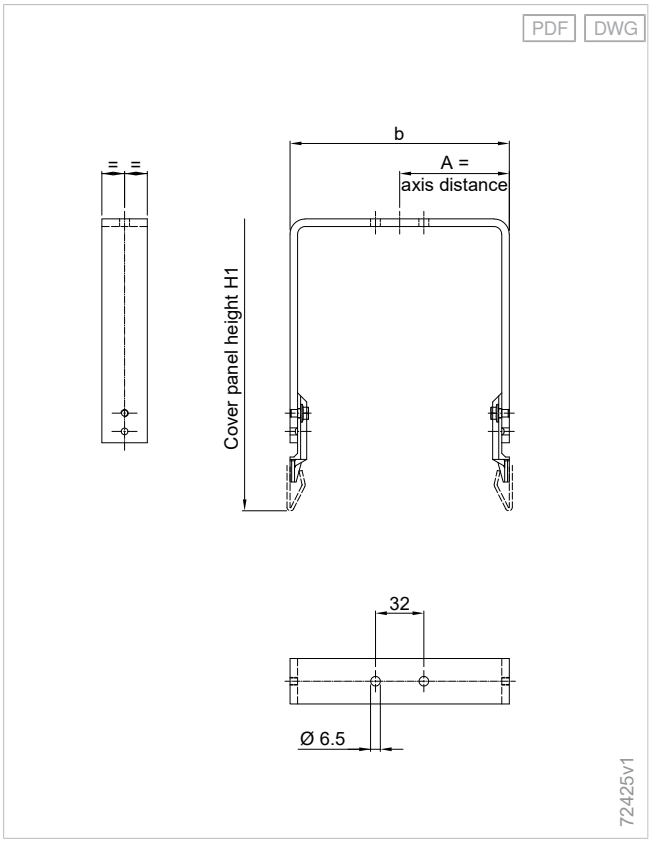
BG 115: with 2 clamp plates (bracket fastener D6.5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: D6.5

Stiffener bracket BG 115



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

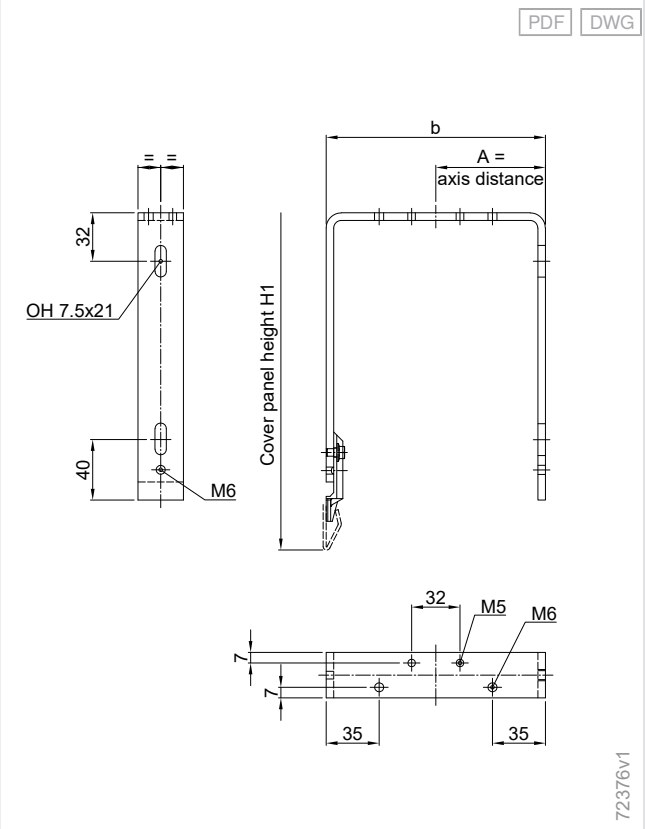
BG 422: for standardised pre-punched cover panels

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5

Dimension determination BG 422



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

BG 03/04/05: with bracket lug

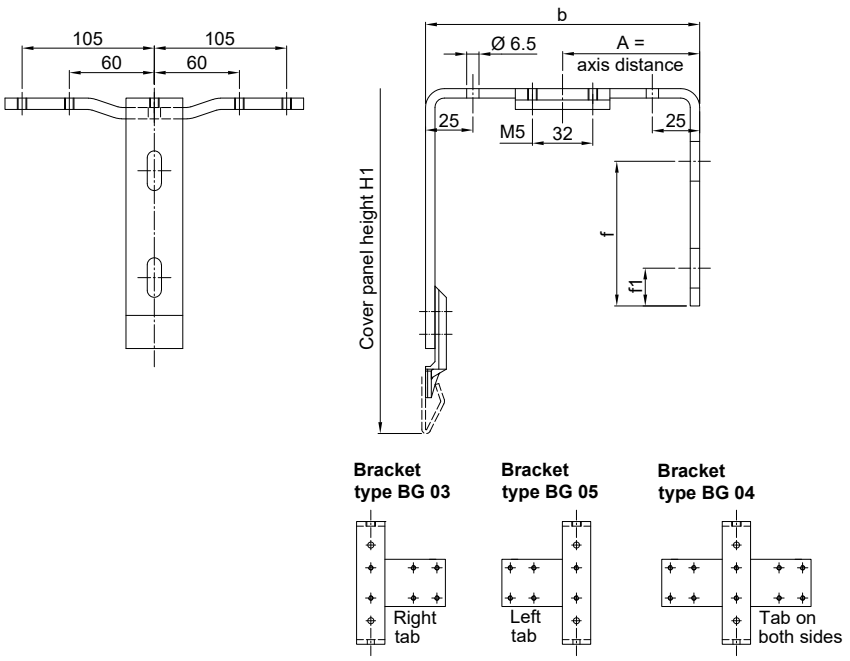
Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5

Mounting bracket BG 03/04/05

PDF DWG



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

Cover panel bracket for U-shaped cover panel embedded in plaster (e.g. BL 31, BL 32, BL 48, BL 49) or U-shaped cover panel BL 11

Notes concerning the order

- The available product variant as well as the number of mounting brackets need to be checked statically by means of a calculation programme.
- When ordering cover panel brackets, please always specify the cover panel height H1.
- When using cover panels embedded in plaster, we recommend inserting a cover panel bracket (40x6 mm) every 600 mm.

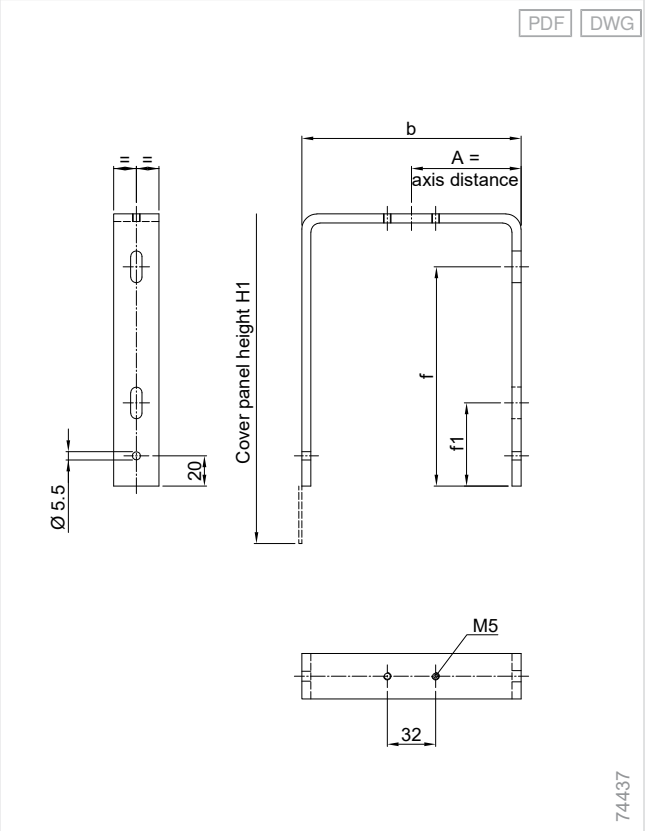
BG 58: for direct installation (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 40x6

Bracket fastener: M5 (standard), D6.5 (optional)

Mounting bracket BG 58



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

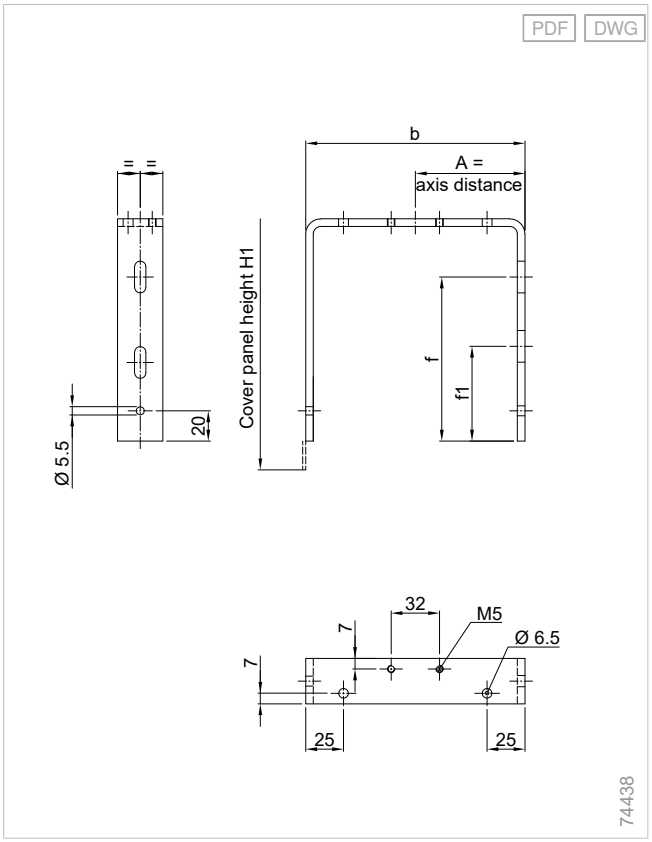
BG 59: for cover panel consoles (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 40x6

Bracket fastener: M5 (standard), D6.5 (optional)

Mounting bracket BG 59



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

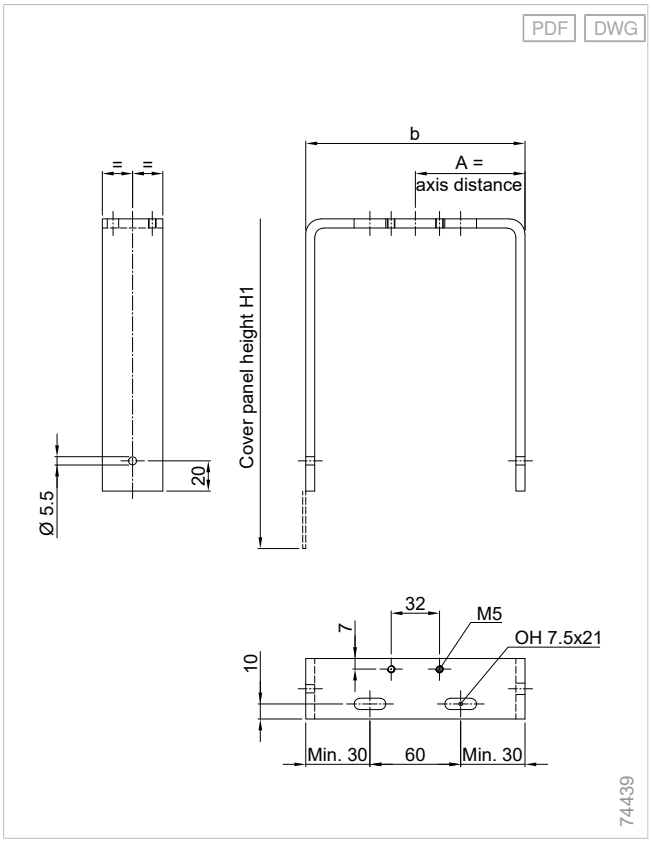
BG 60: for angle console (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 40x6

Bracket fastener: M5 (standard), D6.5 (optional)

Mounting bracket BG 60



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

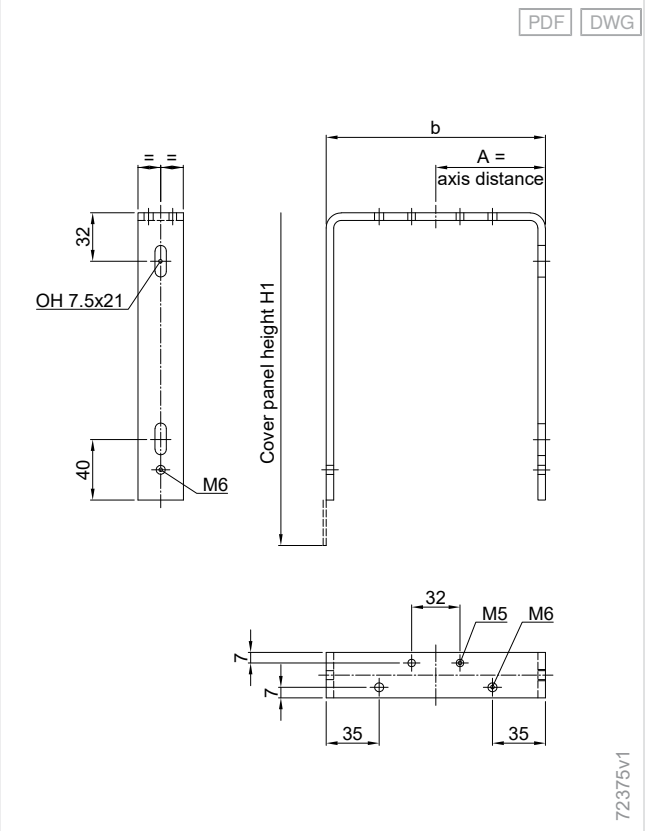
BG 421: for standardised pre-punched cover panels

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5

Dimension determination BG 421



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

Cover panel bracket for angular cover panel (e.g. BL 01, BL 02, BL 03)

- The available product variant as well as the number of cover panel brackets need to be checked statically by means of a calculation programme.
- When ordering brackets, please always specify the cover panel height H1!
- If no details are given for the bracket height H1 in the order, the cover panel brackets will be supplied with the following heights:
  - Cover panel height up to 250 mm: h1 = 150 mm
  - Cover panel height up to 300 mm: h1 = 200 mm

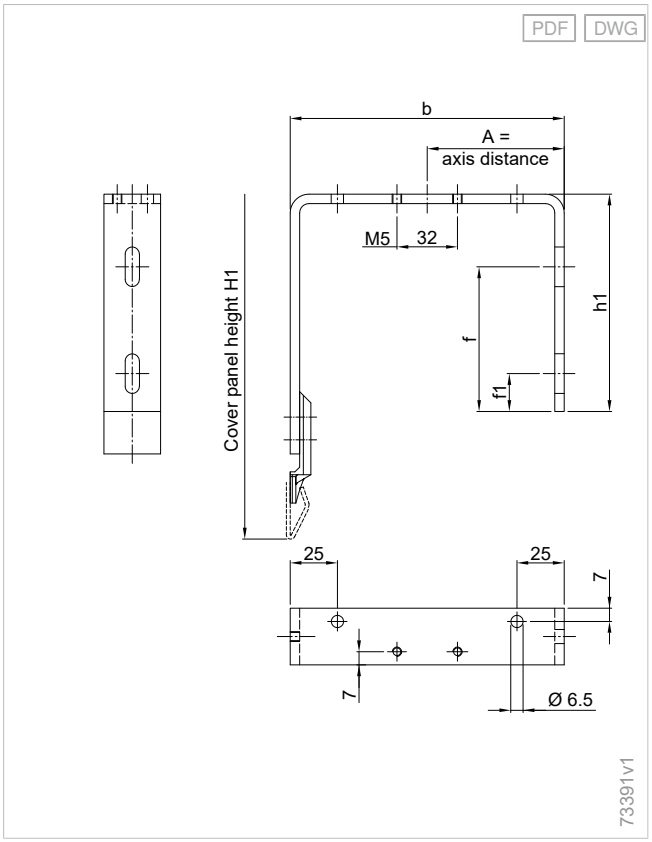
BG 55: for direct installation (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5 (standard), D6.5 (optional)

Mounting bracket BG 55



Dimension b = cover panel depth - cover panel thickness

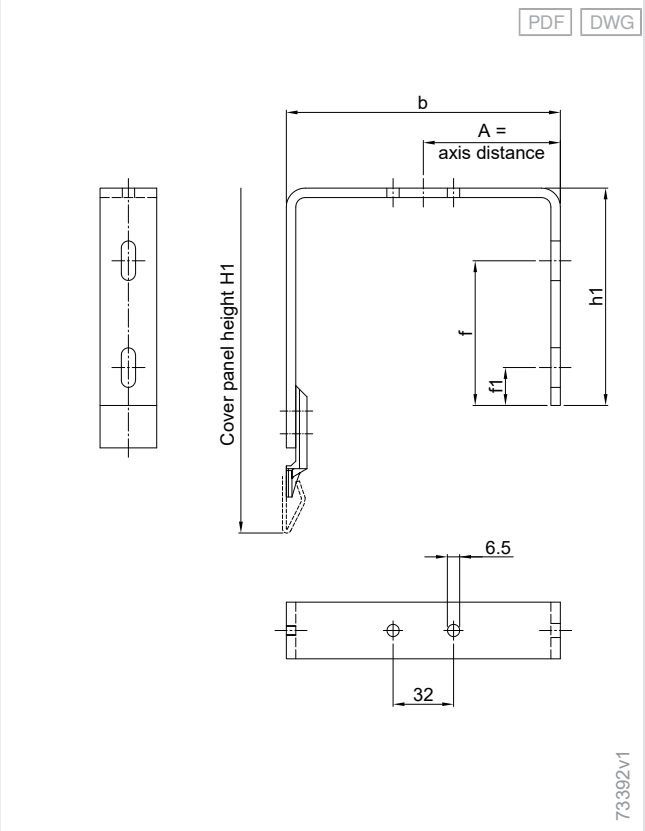
BG 51: for direct installation (bracket fastener D6.5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: D6.5

Mounting bracket BG 51



Dimension b = cover panel depth - cover panel thickness

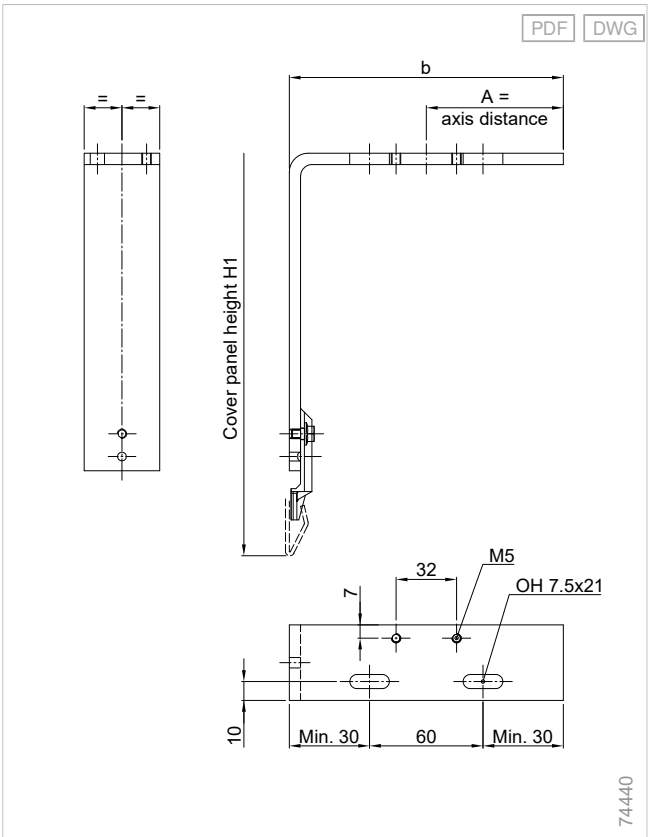
BG 69: L shape for angle console (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 40x5, 40x6

Bracket fastener: M5 (standard), D6.5 (optional)

Mounting bracket BG 69



Dimension b = cover panel depth - cover panel thickness

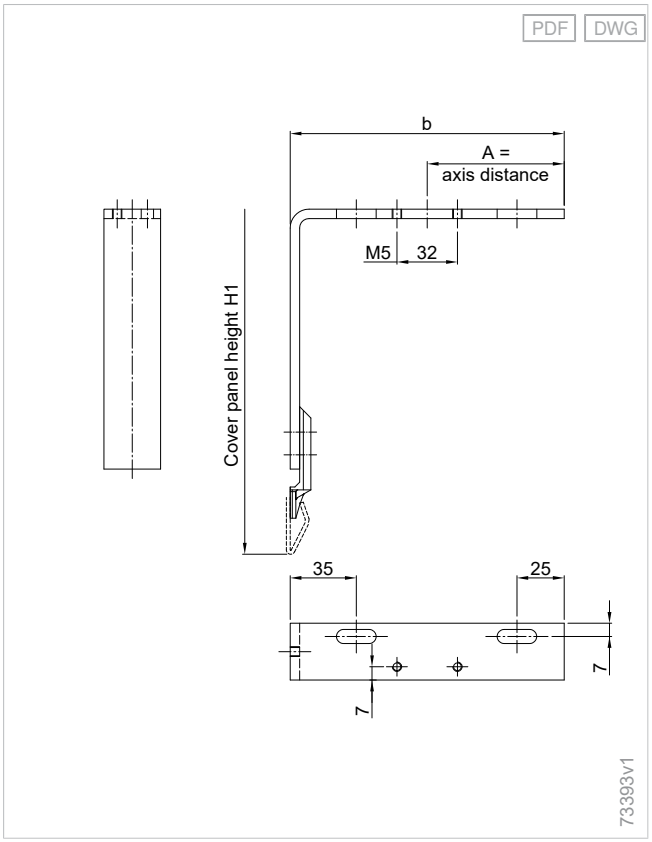
BG 70: L shape for ceiling installation (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5

Mounting bracket BG 70



Dimension b = cover panel depth - cover panel thickness

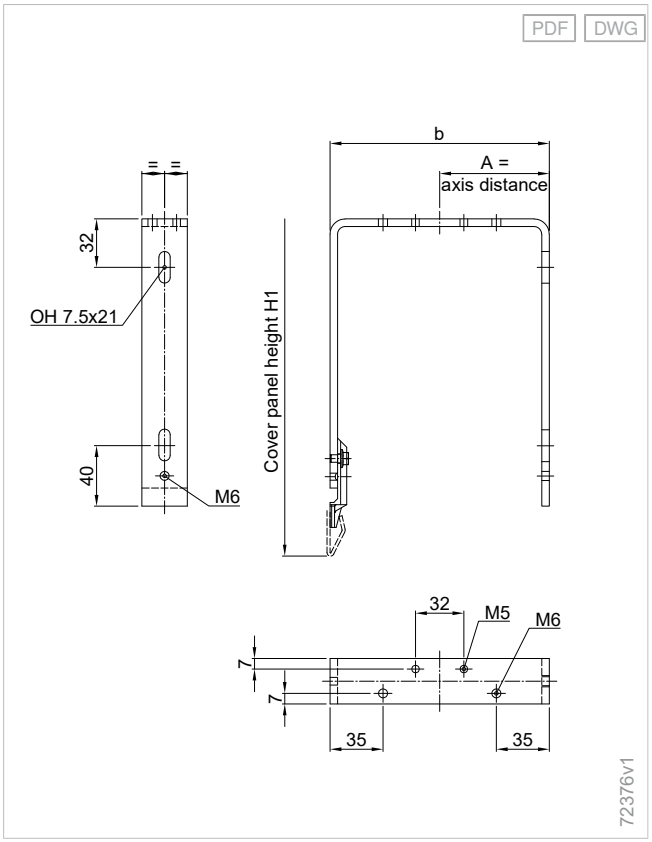
BG 422: for standardised pre-punched cover panels

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5

Dimension determination BG 422



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

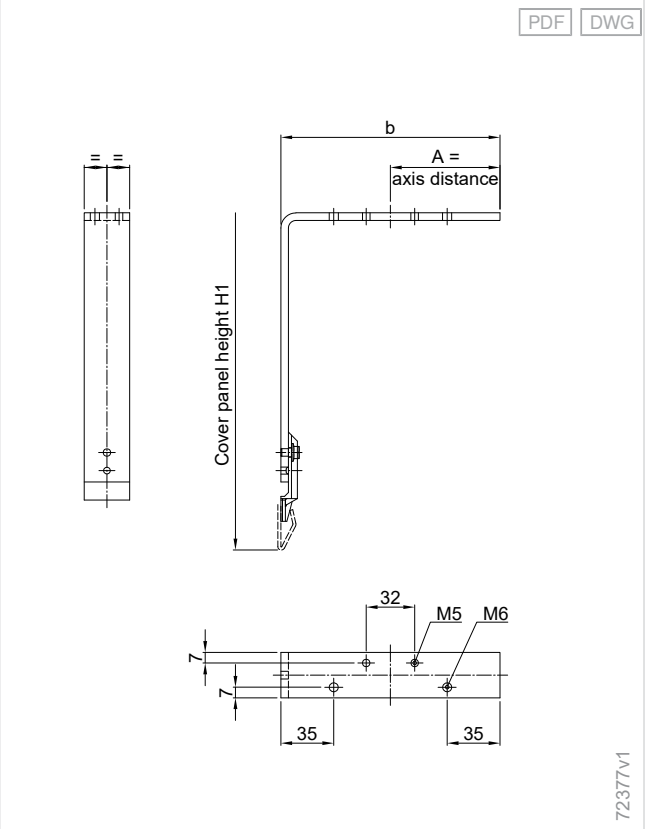
BG 424: L shape for standardised pre-punched cover panels

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5

Dimension determination BG 424



Dimension b = cover panel depth - cover panel thickness

BG 52/53/54: with bracket lug

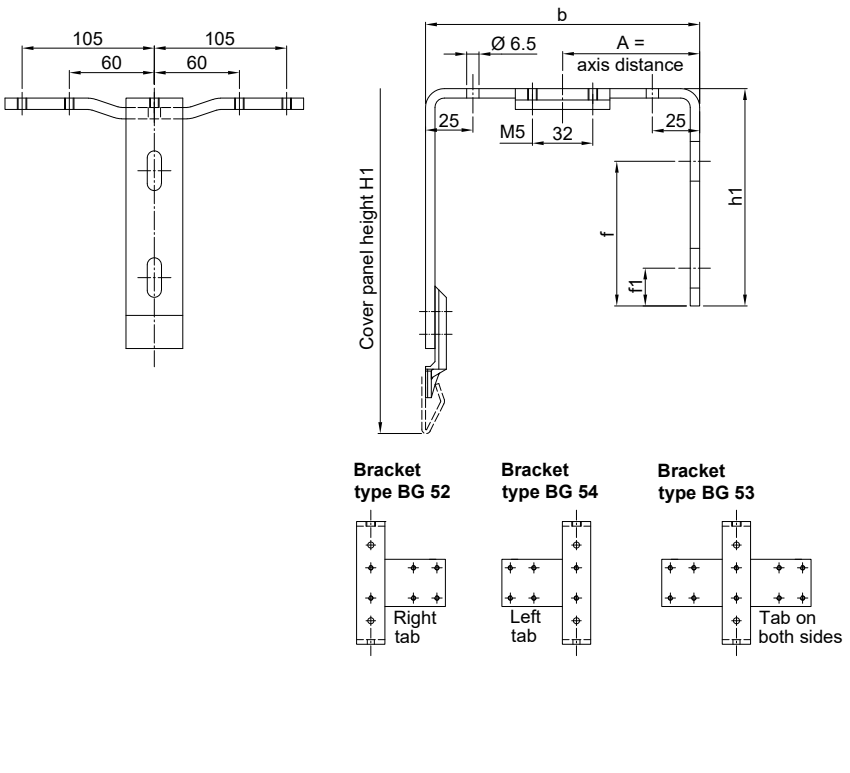
Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5

Mounting bracket BG 52/53/54

PDF DWG



Dimension b = cover panel depth - cover panel thickness

Cover panel bracket for angular cover panel embedded in plaster BL 12 or angular cover panel BL 10

- The available product variant as well as the number of cover panel brackets need to be checked statically by means of a calculation programme.
- When ordering brackets, please always specify the cover panel height H1!
- When using cover panels embedded in plaster, we recommend inserting a cover panel bracket (40x6 mm) every 600 mm.
- If no details are given for the bracket height H1 in the order, the cover panel brackets will be supplied with the following heights:
  - Cover panel height up to 250 mm: h1 = 150 mm
  - Cover panel height up to 300 mm: h1 = 200 mm

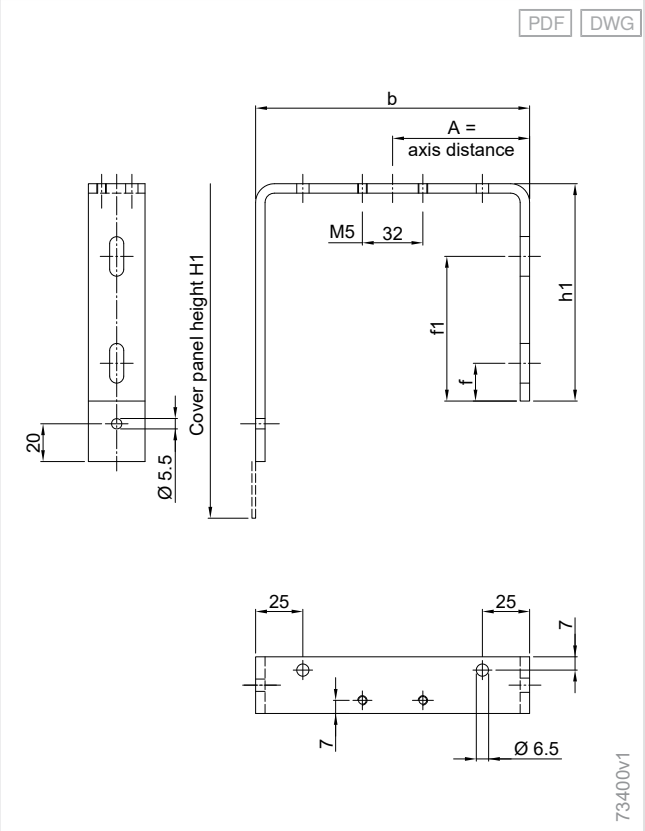
BG 56: for direct installation (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 40x6

Bracket fastener: M5 (standard), D6.5 (optional)

Mounting bracket BG 56



Dimension b = cover panel depth - cover panel thickness

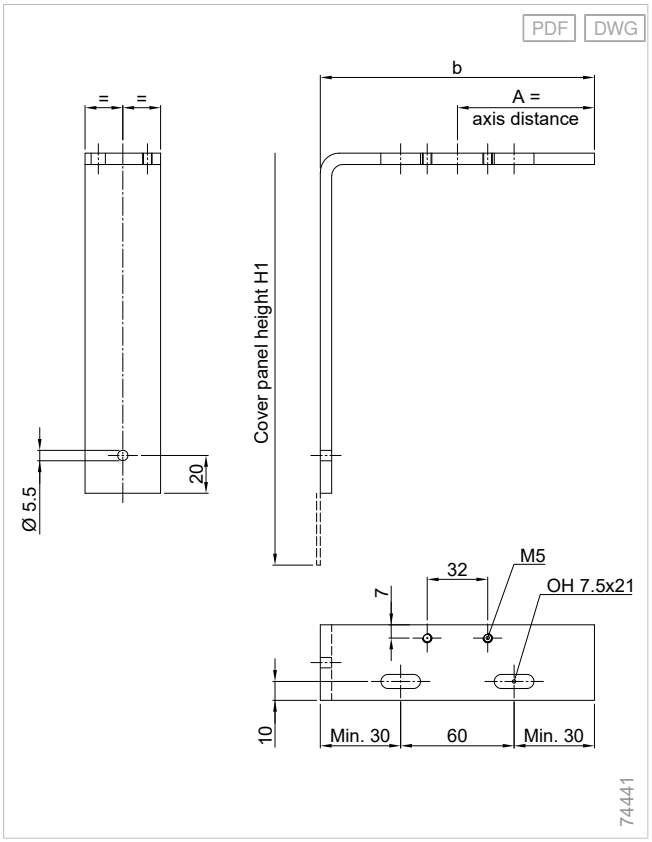
BG 68: L shape for angle console (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 40x6

Bracket fastener: M5 (standard), D6.5 (optional)

Mounting bracket BG 68



Dimension b = cover panel depth - cover panel thickness

Cover panel bracket for U-shaped cover panel BL 07 sloped on one side

- The available product variant as well as the number of cover panel brackets need to be checked statically by means of a calculation programme.
- When ordering brackets, please always specify the cover panel height H1!

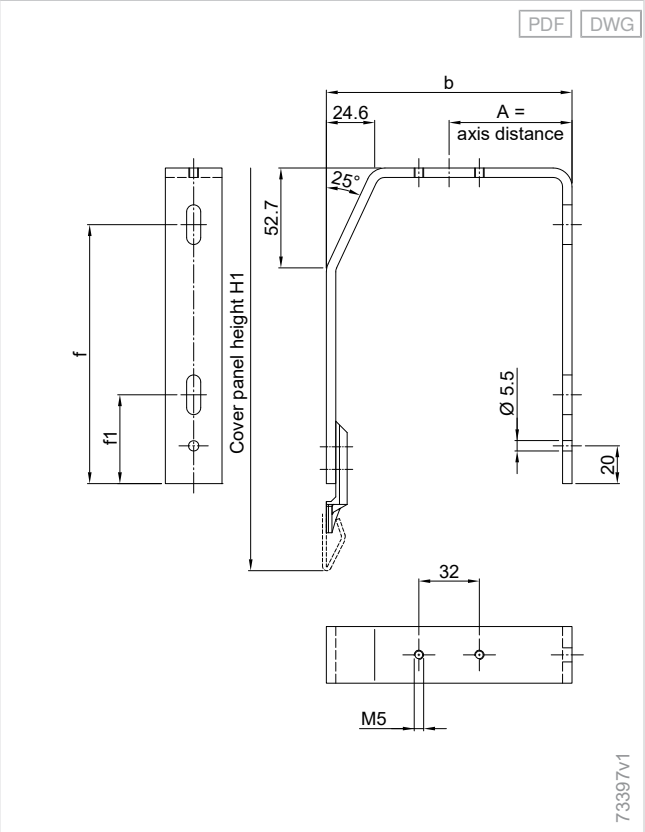
BG 132: for direct installation (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5 (standard), D6.5 (optional)

Mounting bracket BG 132



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

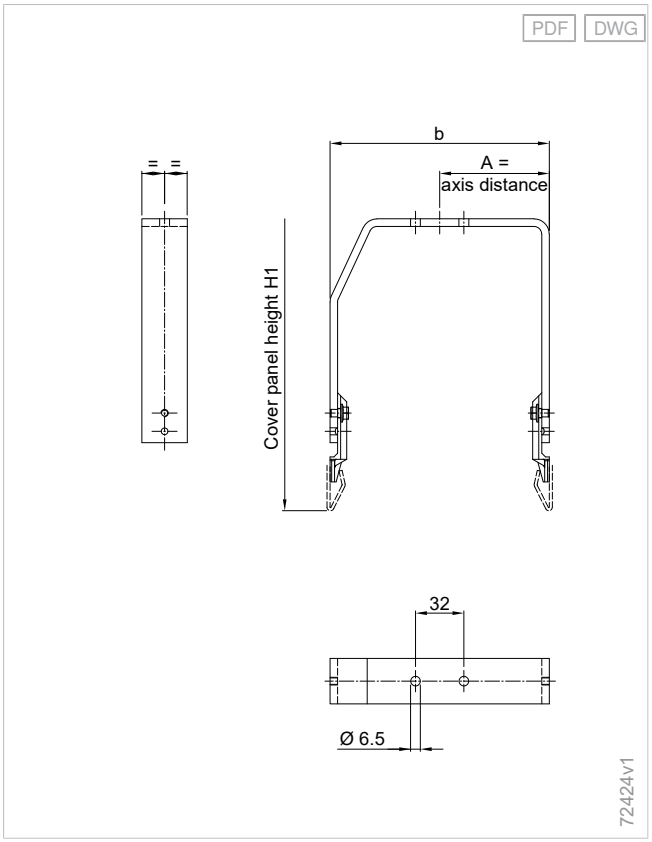
BG 133: with 2 clamp plates (bracket fastener D6.5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: D6.5

Stiffener bracket BG 133



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

Cover panel bracket for U-shaped cover panel BL 08 sloped on both sides

- The available product variant as well as the number of cover panel brackets need to be checked statically by means of a calculation programme.
- When ordering brackets, please always specify the cover panel height H1!

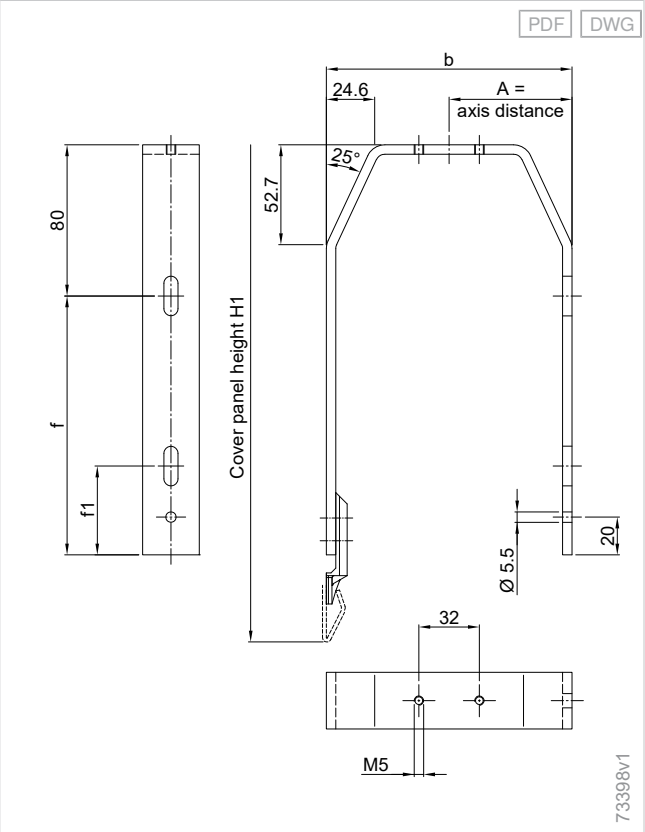
BG 122: for direct installation (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5 (standard), D6.5 (optional)

Mounting bracket BG 22



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

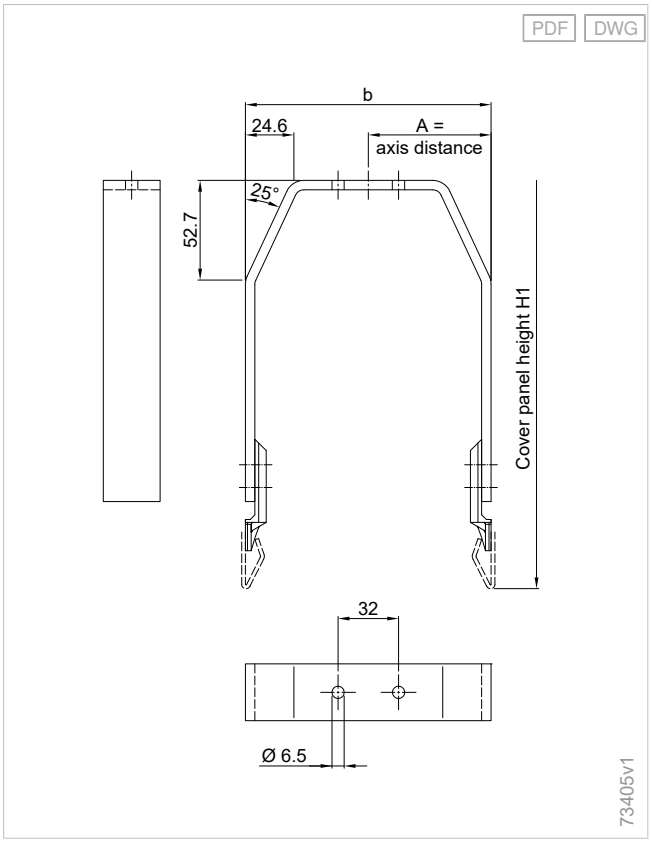
BG 123: with 2 clamp plates (bracket fastener D6.5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: D6.5

Stiffener bracket BG 123



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

BG 23/24/25: with bracket lug

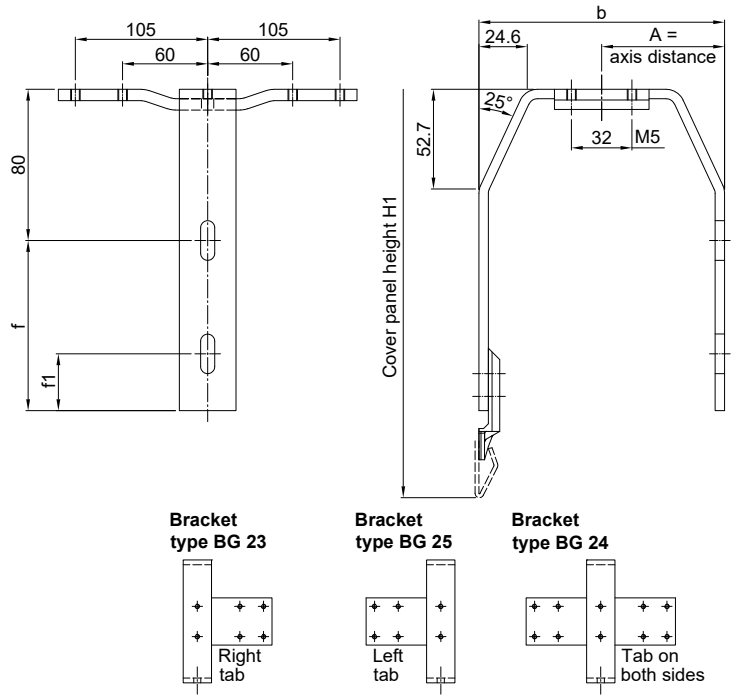
Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5

Mounting bracket BG 23/24/25

PDF DWG



Dimension b = cover panel depth - 2x cover panel thickness - 1 mm

Cover panel bracket for round-shaped cover panel BL 09

- The available product variant as well as the number of cover panel brackets need to be checked statically by means of a calculation programme.
- When ordering brackets, please always specify the cover panel height H1!

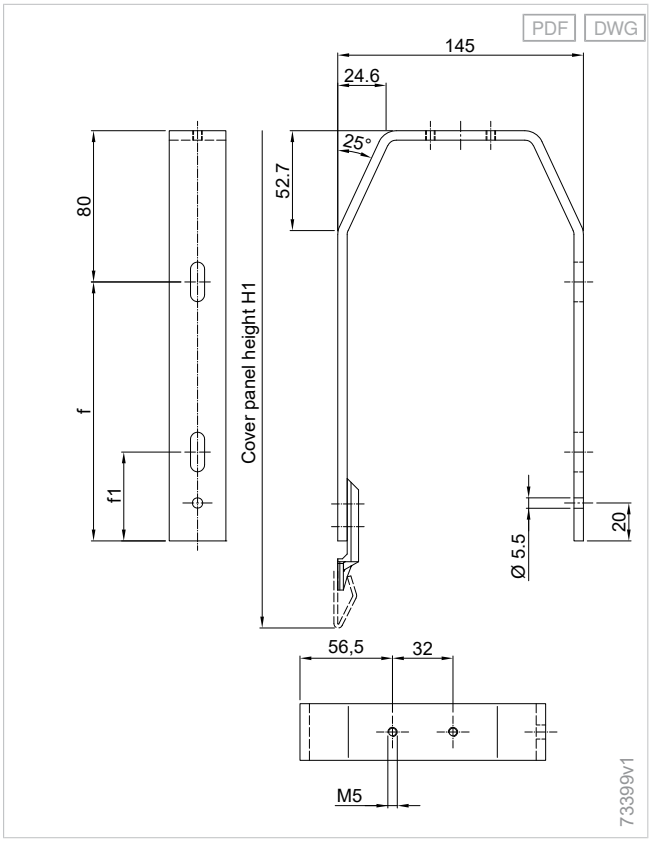
BG 111: for direct installation (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5

Mounting bracket BG 11



BG 12/13/14: with bracket lug

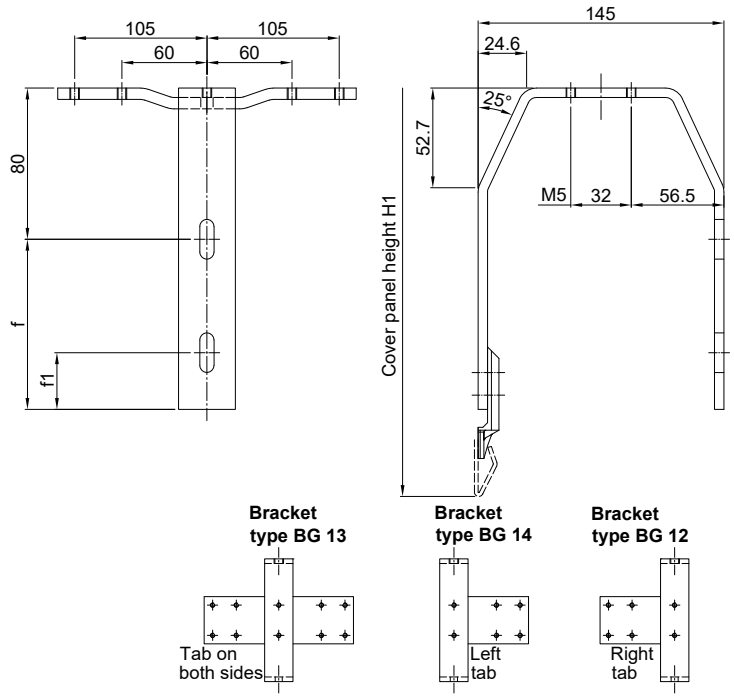
Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5

Mounting bracket BG 12/13/14

PDF DWG



Cover panel bracket for sloped angular cover panel BL 04

- The available product variant as well as the number of cover panel brackets need to be checked statically by means of a calculation programme.
- When ordering cover panel brackets, please always specify the cover panel height H1.
- If no details are given for the bracket height h1 in the order, the cover panel brackets will be supplied with the following heights:
  - Cover panel height up to 250 mm: h1 = 150 mm
  - Cover panel height up to 300 mm: h1 = 200 mm

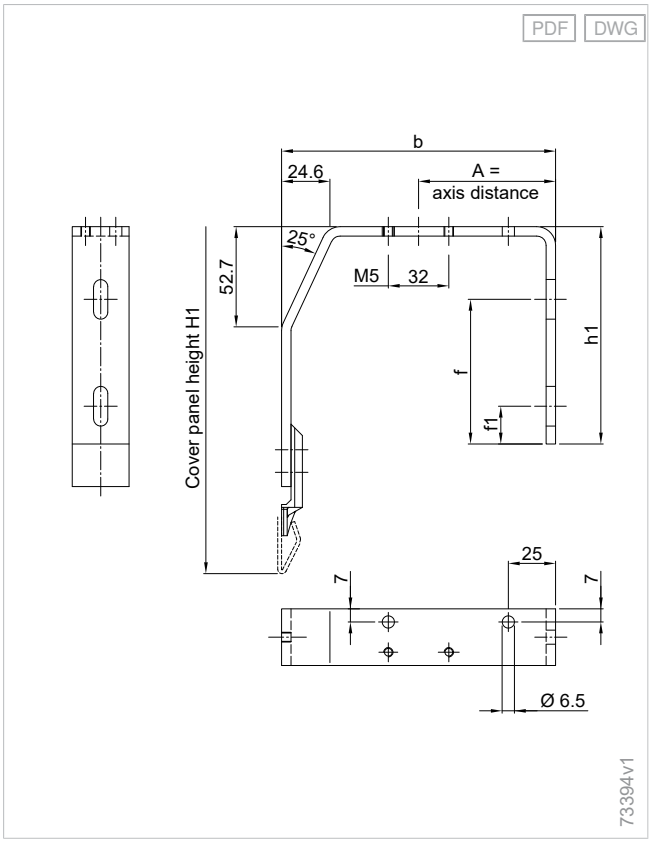
BG 33: for direct installation (bracket fastener M5)

Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5 (standard), D6.5 (optional)

Mounting bracket BG 33



Dimension b = cover panel depth - cover panel thickness

BG 34/35/36: with bracket lug

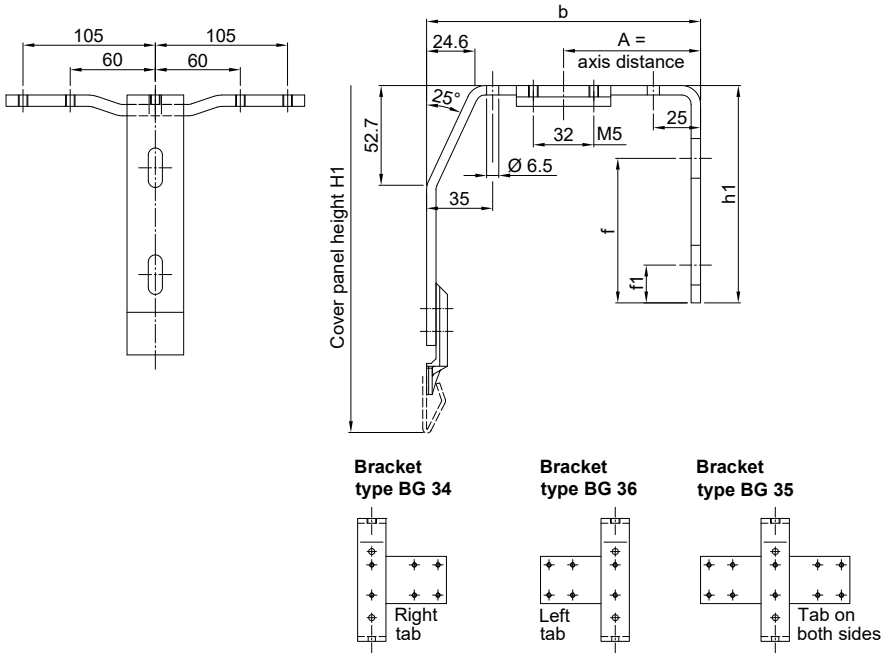
Material	Galvanised steel
Optional surface	Powder-coated

Material cross-section: 30x5, 40x5, 40x6

Bracket fastener: M5

Mounting bracket BG 34/35/36

PDF DWG



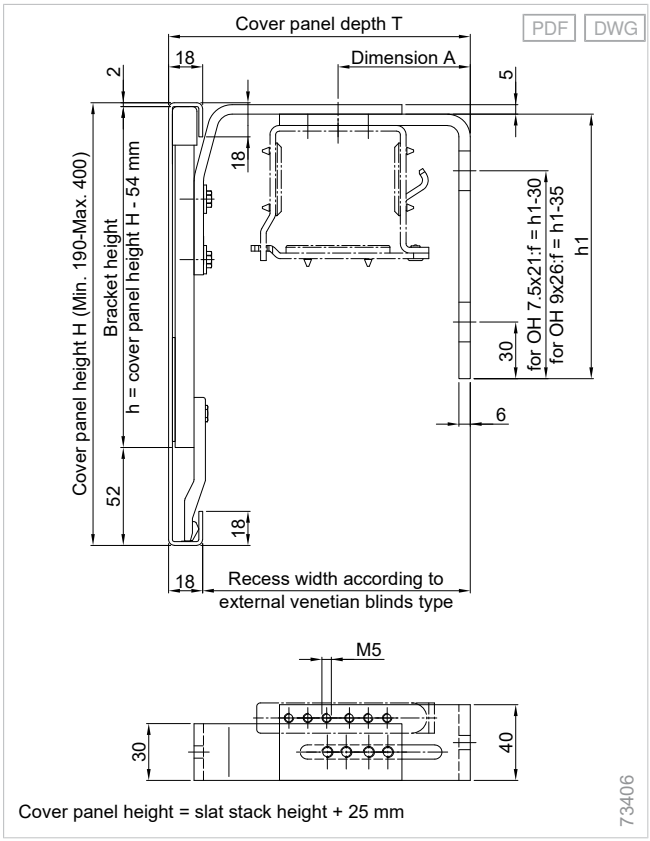
Dimension b = cover panel depth - cover panel thickness

Mounting brackets for gallery panels BL 05

BG 419: Mounting bracket for gallery panels, wall installation

Material	Galvanised steel
Optional material	Aluminium
Optional surface	Powder-coated

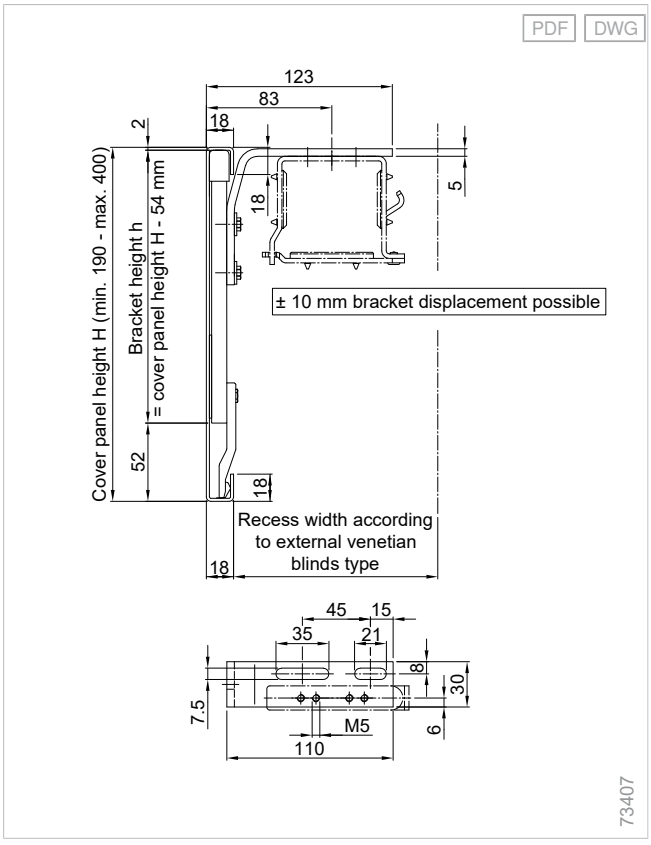
Mounting bracket BG 419



BG 420: Mounting bracket for gallery panels, ceiling installation

Material	Galvanised steel
Optional material	Aluminium
Optional surface	Powder-coated

Mounting bracket BG 420



Cover panel consoles

Cover panel consoles BK

Advantages

- High load bearing capacity and variability
- Suitable for cable-guided and rail-guided external venetian blinds
- Installation tolerances compensate for large oblong holes in the cover panel mounting. The recess is designed for the cage nut.
- Base plate for size 8 or size 12 fixing bracket (LL 9x20 or LL 14x20)

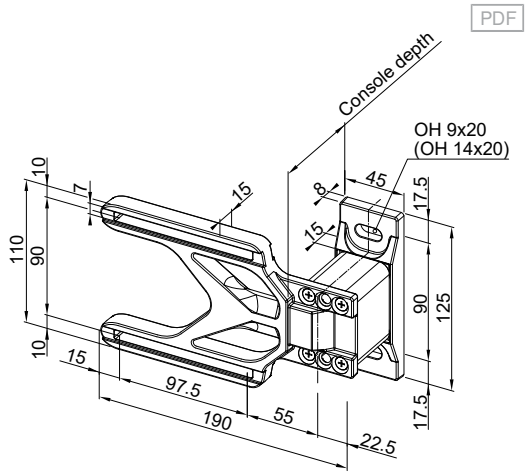
Available console depths:

- 30 mm
- 35 mm
- 40 - 330 mm (can be ordered to the nearest millimetre)

Installation: Check on-site substructure and fixing materials used for the ensuing forces. The suitable fixing material can be found via our Fastener Assistant at http://befestigungsberater.warema.de.

Cover panel console for edge situation BK R09E xxx

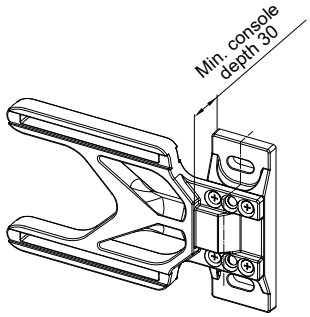
PDF DWG



73603

Cover panel console for edge situation BK R09E 030

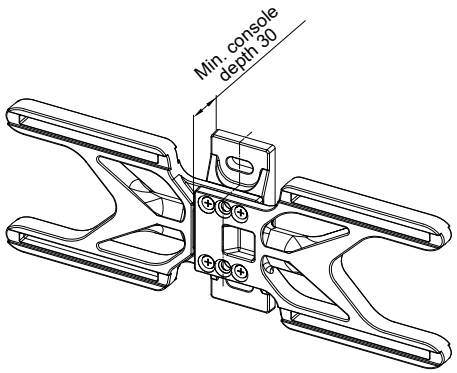
PDF DWG



73605

Cover panel console for centre situation BK M09E 030

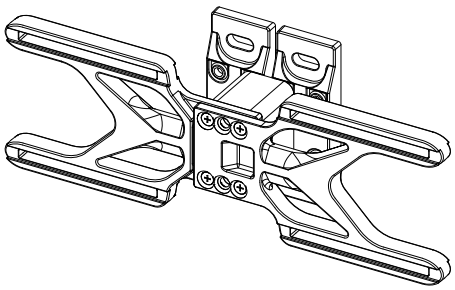
PDF DWG



73604

Cover panel console with double base plate BK M09D xxx

PDF DWG



73606

Additional product information

Type key BK console

Example: **BK M 09 E 075**

BK = cover panel console

M = middle console; alternative: R = side console

09 = OH 9x20 in base plate; alternative: 14 = OH 14x20 in base plate

E = single base plate; alternative: D = double base plate

075 = console depth in mm

Construction limit values for BK console

Lateral guidance	Unit type	Max. console distance	External venetian blind height	Max. console depth
Rail guidance	Individual unit	Up to 3000 mm	Up to 5000 mm	330
	Group unit	Up to 3000 mm	Up to 2000 mm	230
			Up to 3250 mm	210
			Up to 4000 mm	190
			Up to 5000 mm	100
Cable guidance	Individual unit	Up to 3000 mm	Up to 5000 mm	300
	Group unit	Up to 2000 mm	Up to 2000 mm	230
			Up to 3250 mm	200
		Up to 3000 mm	Up to 2000 mm	180

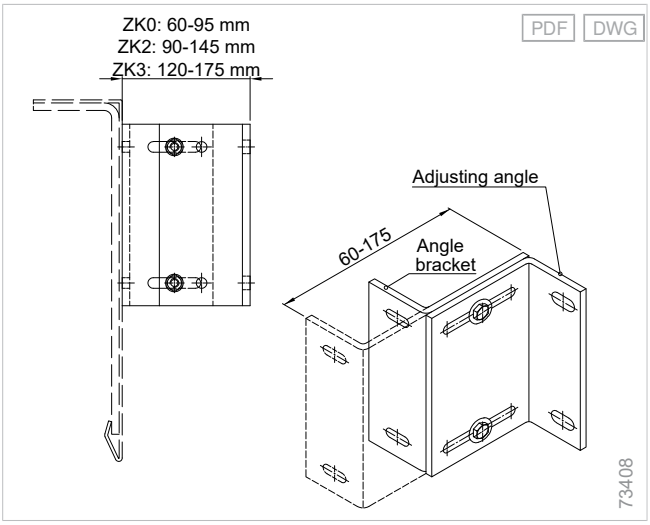
Scope:

- One external venetian blind per console distance
- Cover panel depth 150 mm

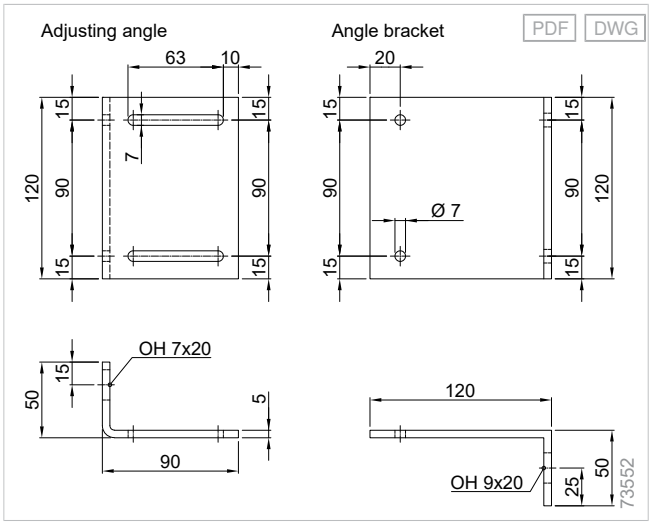
For deviating values, speak to the Applied Engineering team.

Cover panel consoles ZK

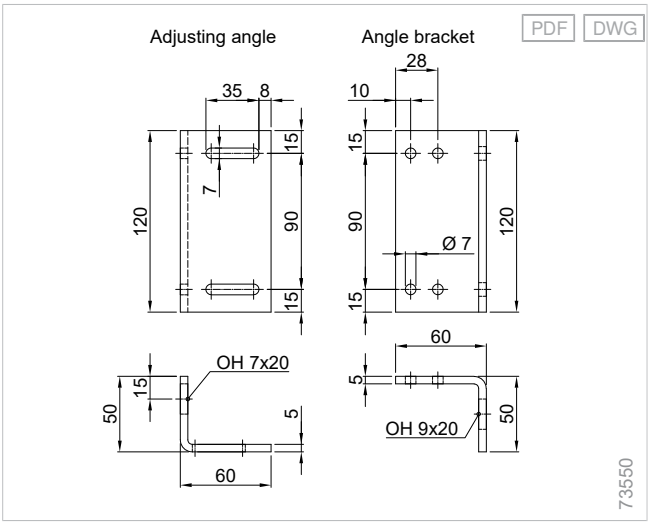
Models Z-console



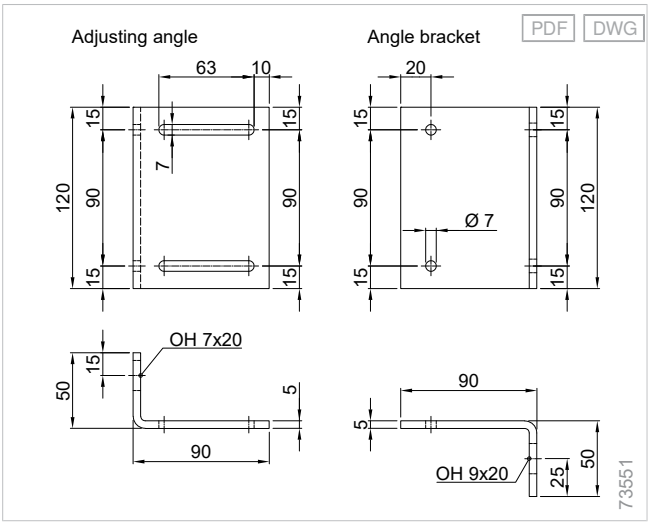
Z-console: ZK3



Z-console: ZK0



Z-console: ZK2



Additional product information

Construction limit values for Z console ZK0

Lateral guidance	External venetian blind width	External venetian blind height	Number of consoles
Rail guidance	Up to 2400 mm (no tension cable)	Up to 4000 mm	2
		Up to 5000 mm	3
	Up to 4000 mm (1 tension cable)	Up to 4000 mm	3
		Up to 5000 mm	4
	Up to 5000 mm (2 tension cables)	Up to 4000 mm	4
		Up to 5000 mm	5
Cable guidance	Up to 2000 mm (2 tension cables)	Up to 3000 mm	2
		Up to 4000 mm	3
	Up to 3000 mm (2 tension cables)	Up to 4000 mm	3
	Up to 4000 mm (3 tension cables)	Up to 4000 mm	4
	Up to 5000 mm (4 tension cables)	Up to 3000 mm	5
		Up to 4000 mm	6

Construction limit values for Z console ZK2

Lateral guidance	External venetian blind width	External venetian blind height	Number of consoles
Rail guidance	Up to 2400 mm (no tension cable)	Up to 4000 mm	2
		Up to 5000 mm	3
	Up to 4000 mm (1 tension cable)	Up to 4000 mm	4
		Up to 5000 mm	5
	Up to 5000 mm (2 tension cables)	Up to 3000 mm	5
		Up to 5000 mm	6
Cable guidance	Up to 2000 mm (2 tension cables)	Up to 4000 mm	3
	Up to 3000 mm (2 tension cables)	Up to 4000 mm	4
	Up to 4000 mm (3 tension cables)	Up to 4000 mm	5
	Up to 5000 mm (4 tension cables)	Up to 3000 mm	6

Construction limit values for Z console ZK3

Lateral guidance	External venetian blind width	External venetian blind height	Number of consoles
Rail guidance	Up to 2400 mm (no tension cable)	Up to 4000 mm	3
		Up to 5000 mm	4
	Up to 4000 mm (1 tension cable)	Up to 3000 mm	4
		Up to 5000 mm	5
	Up to 5000 mm (2 tension cables)	up to 5000 mm	6

Angle consoles

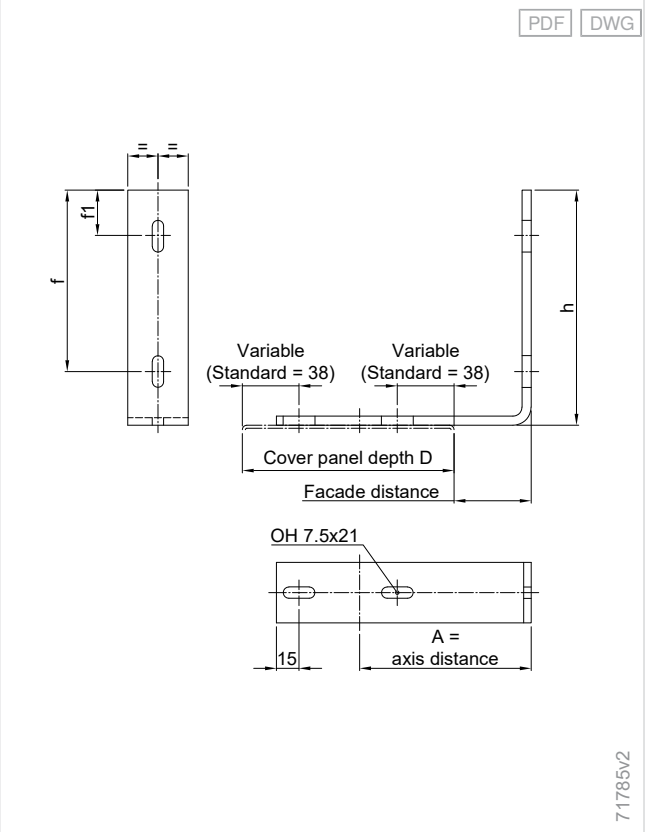
BG 423: for standardised pre-punched cover panels or push-on installations

Material	Galvanised steel
Optional surface	Powder-coated
Material, notes	Material cross-section: 40x6, 50x8, 80x8

Notes concerning the order:

The available product variant as well as the number of angle consoles need to be checked statically by means of a calculation programme.

Dimension determination BG 423



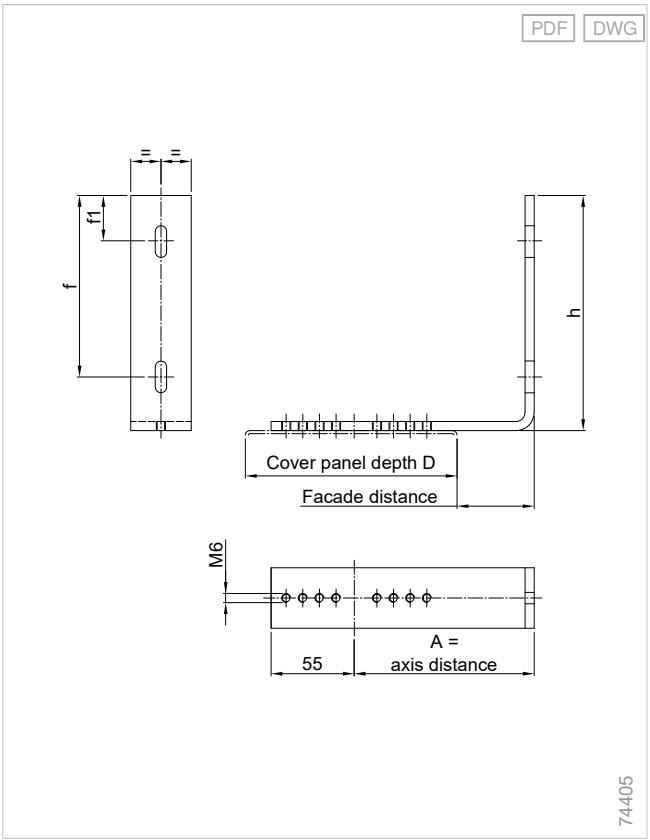
BG 426: for concealed installation

Material	Galvanised steel
Optional surface	Powder-coated
Material, notes	Material cross-section: 40x6, 50x8, 80x8

Notes concerning the order:

The available product variant as well as the number of angle consoles need to be checked statically by means of a calculation programme.

BG 426



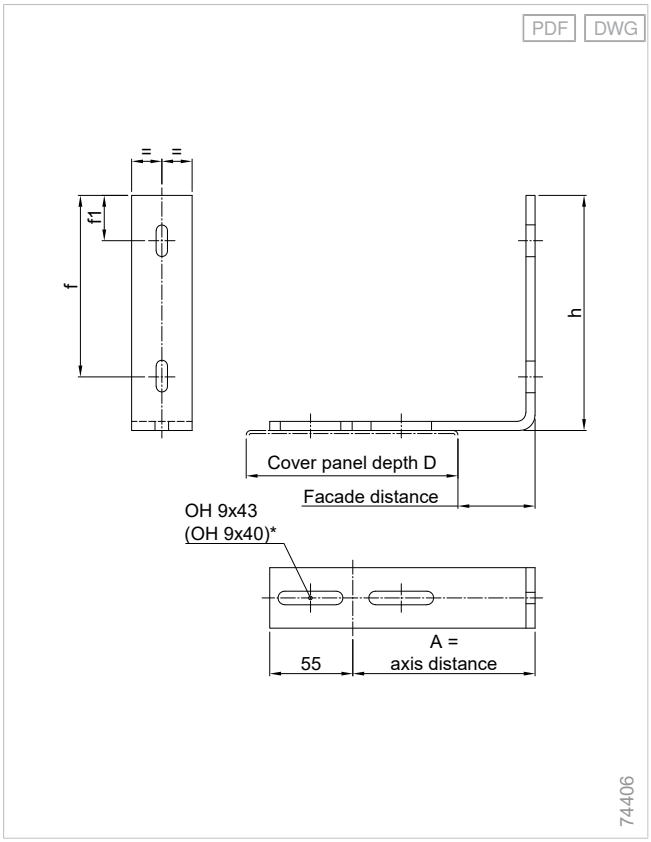
BG 427: for accessible installation

Material	Galvanised steel
Optional surface	Powder-coated
Material, notes	Material cross-section: 40x6, 50x8, 80x8

Notes concerning the order:

The available product variant as well as the number of angle consoles need to be checked statically by means of a calculation programme.

BG 427



* for material cross-section 50x8 and 80x8

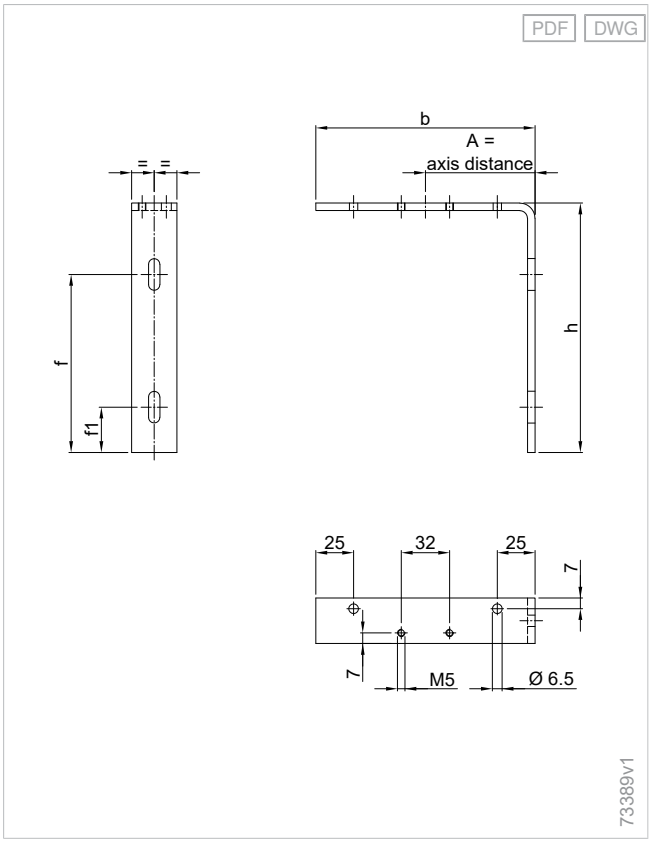
BG 71: for push-on installation

Material	Galvanised steel
Optional surface	Powder-coated
Material, notes	Material cross-section: 30x5, 40x5, 40x6

Notes concerning the order:

The available product variant as well as the number of angle consoles need to be checked statically by means of a calculation programme.

Mounting bracket BG 71



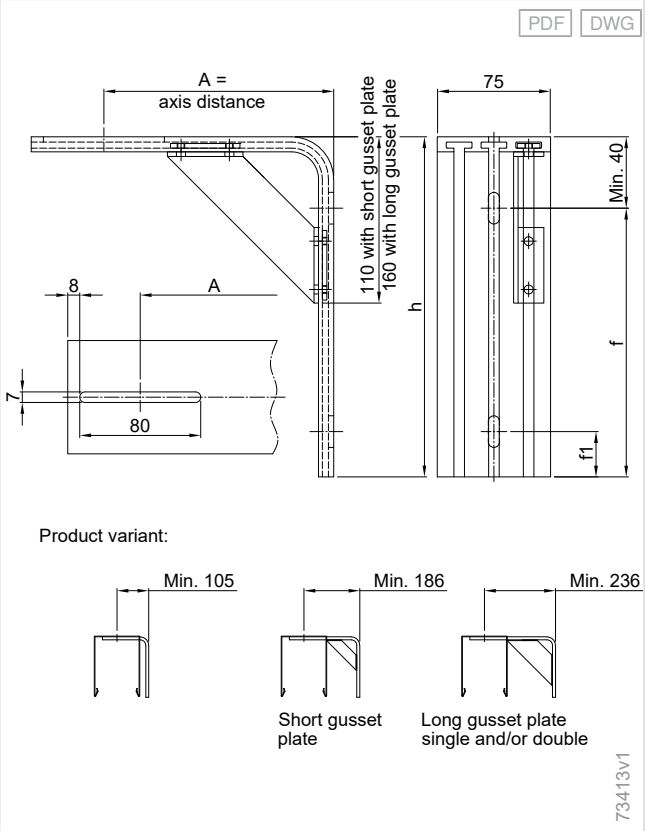
BG 83: for push-on installation

Material	Aluminium
Optional surface	Powder-coated
Material, notes	Material cross-section: 75x10

Notes concerning the order:

The available product variant as well as the number of angle consoles need to be checked statically by means of a calculation programme.

BG 83: Mounting bracket, adjustable (dimension determination)



Note on oblong holes for facade connection

Oblong holes can be ordered in the following dimensions:

- LL7.5x21 (standard)
- LL9x26
- LL11x25 (not available for material cross-section 30x5)

If no details are given for f and f1 in the order, the following standard values will be supplied:

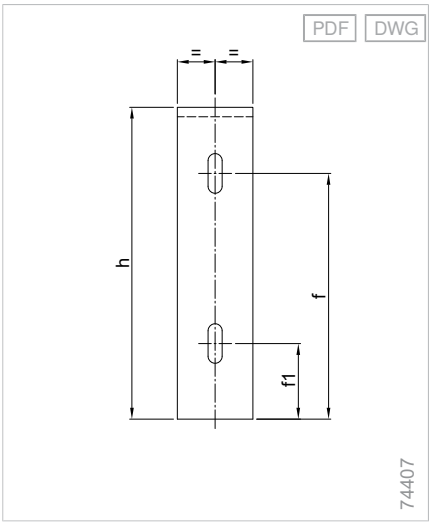
- f = height h - 35 mm
- f1 = height h - 125 mm

Exceptions are described directly with the corresponding bracket.

Minimum dimensions:

- h = min. 150 mm

Positioning oblong holes



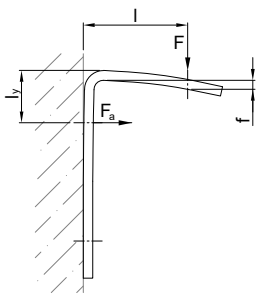
Bracket deformation

In order to keep bracket deformation as minimal as possible, the dimension ly should be kept as small as possible. The following applies: ly < l

We recommend consulting the WAREMA Fastener Assistant for determining the extraction force (Fa) on the fixing point and selecting a suitable fixing material.

Bracket deformation

PDF DWG



74408

Top rail bracket

Notes on product configuration
Number of top rail brackets per slat width:

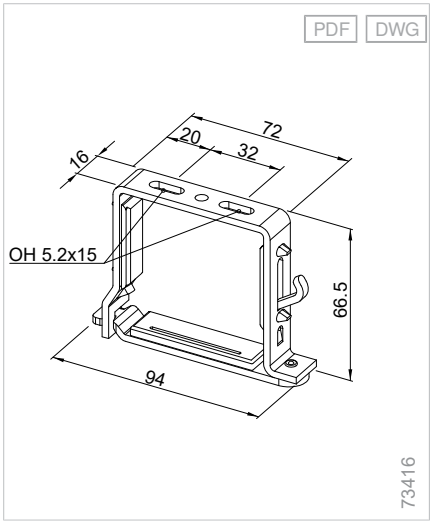
- Up to 1500 mm - 2 brackets
- Up to 2500 mm - 3 brackets
- Up to 3500 mm - 4 brackets
- Up to 4500 mm - 5 brackets
- Up to 5500 mm - 6 brackets
- Up to 6000 mm - 7 brackets

Noise optimised top rail bracket for motor operation

Material	Aluminium
Surface	Plain

Including bead for noise optimisation, black

Noise optimised top rail bracket



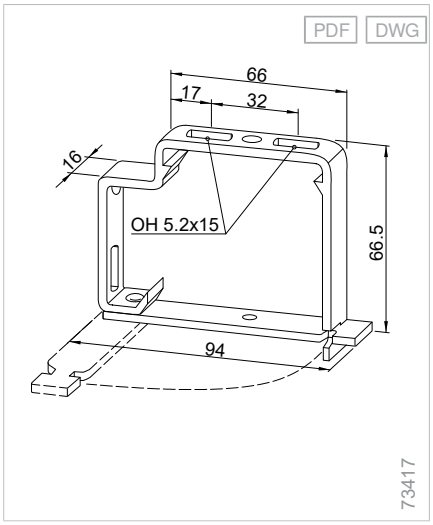
Art. no. 2001461

Bracket

Material	Aluminium
Surface	Plain

For external venetian blind with crank operation.

Bracket

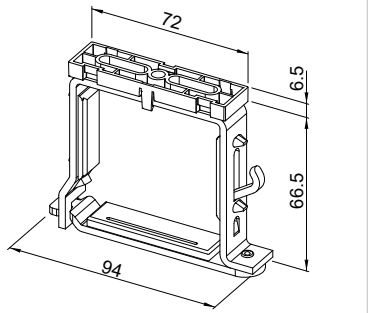


Art. no. 551018

Lining for bracket

Model with noise-optimised bracket with lining

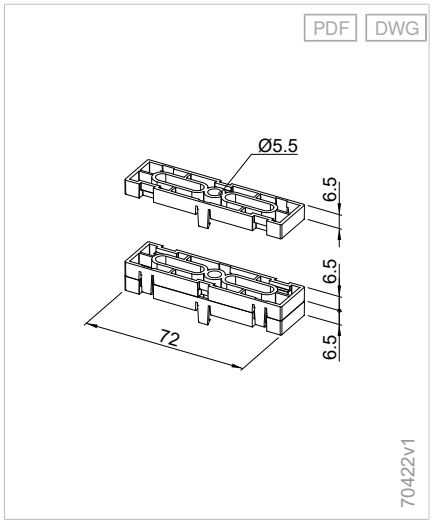
PDF DWG



Can be used, for example, with external venetian blinds with work setting (lining can be omitted for installation on bracket)

Lining

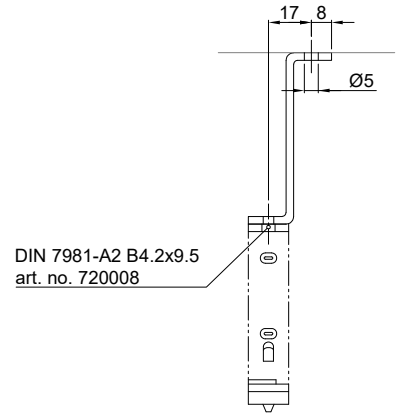
PDF DWG



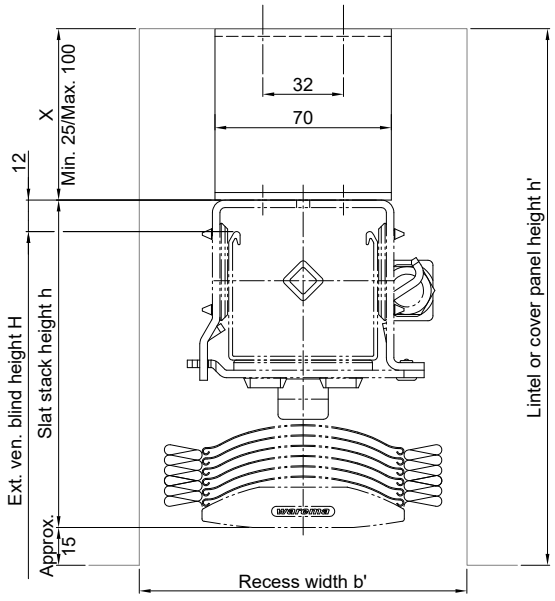
Art. no.: 2012281

Bracket suspension

PDF DWG



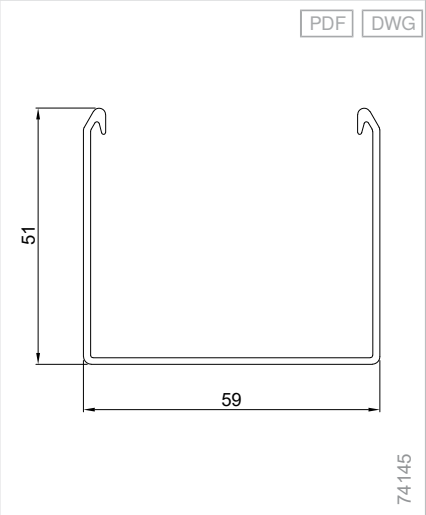
Min. 25/ Max. 100 mm, material: aluminium, specify dimension X when ordering!



Top rail

Material	Aluminium, extruded
Surface	Plain
Optional surface	Powder-coated, Anodised
Profile	C profile
Width	59 mm
Height	51 mm

Top rail



Tilt rod

Material	Galvanised steel
Surface	Plain
Profile	Square tube
Width	12 mm
Height	12 mm

Lifting tape 6 mm

Material	Polyester
Material colour	Black
Material colour, optional	Grey

Tapes

Tilting tapes

– Each slat is attached to the top web of the tilting tape and threaded between the double webs.

Material	Polyester, with aramid reinforcement
Material colour	Black
Material colour, optional	Grey

Loop cords

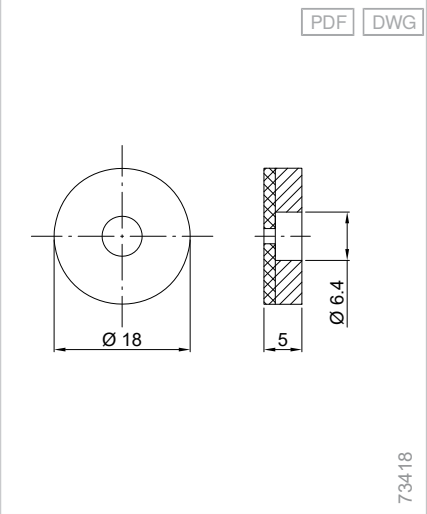
Material	Polyester, with aramid reinforcement
Material colour	Black
Material colour, optional	Grey

The loops are fixed to the slats by clips made of stainless steel resistant to corrosion.

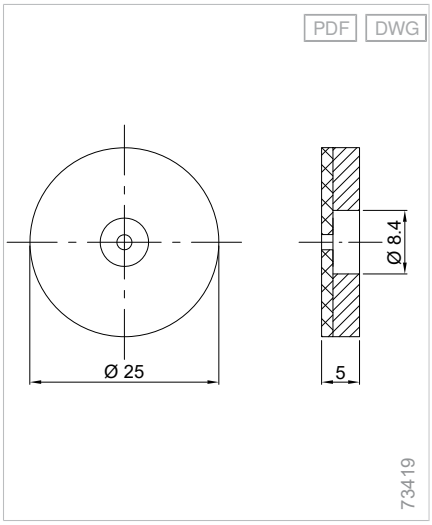
Fixing accessories

Sealing spacing disc for fixing to wood

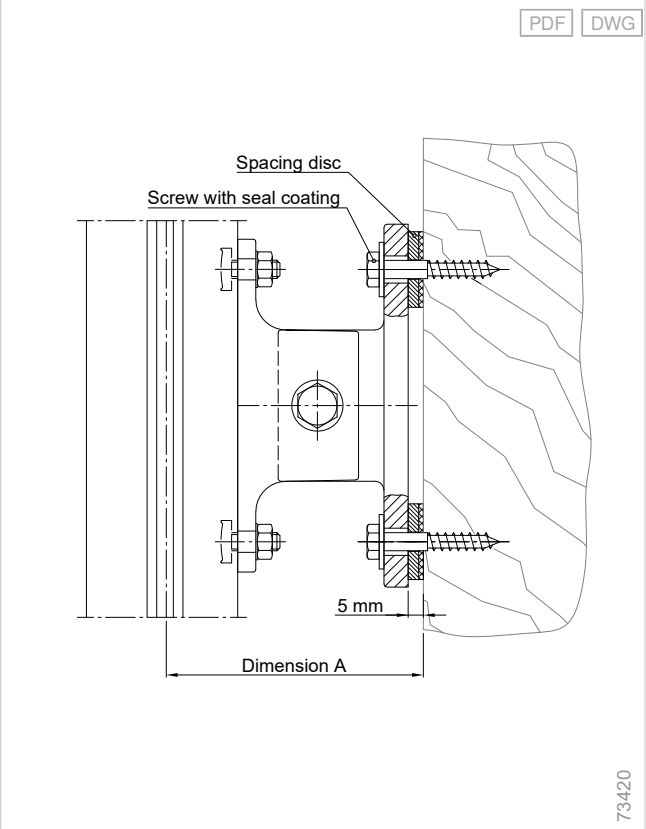
Sealing spacing disc for screws 4 mm to 6 mm



Sealing spacing disc for screws 5.5 mm to 8 mm



Sealing spacing disc, fixation with guide rail bracket H101



To dimension A: for orders intended for wooden substructures the difference of the shim (5 mm) does not have to be taken into account. This will be taken into account when the order is processed by Warema.

Calculate the individual suitable and permissible fixing materials

fischer Thermax

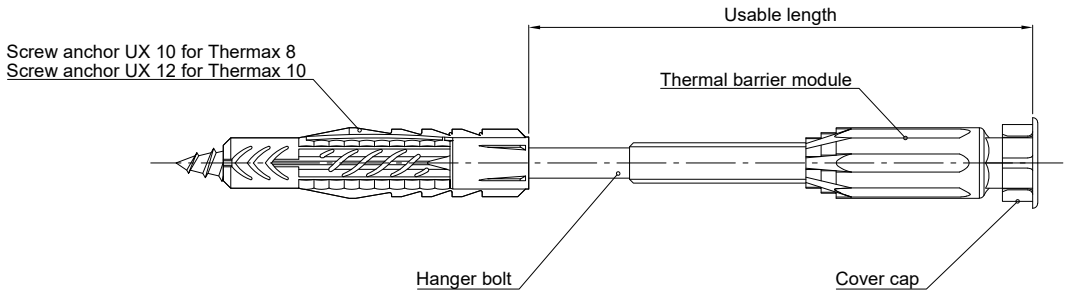
The thermal barrier module for secure anchoring in exterior insulation and finish systems.

Not suitable for cable-guided external venetian blinds.

Calculate the individual suitable and permissible fixing materials

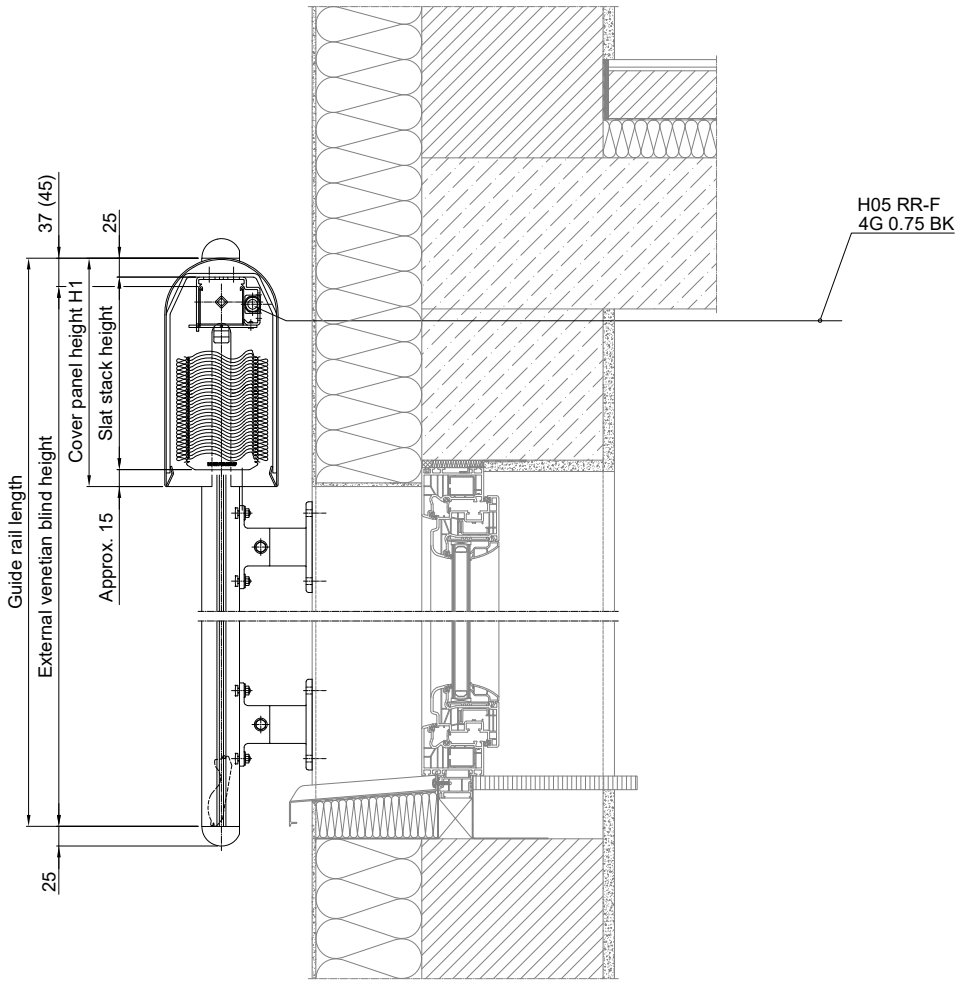
fischer Thermax

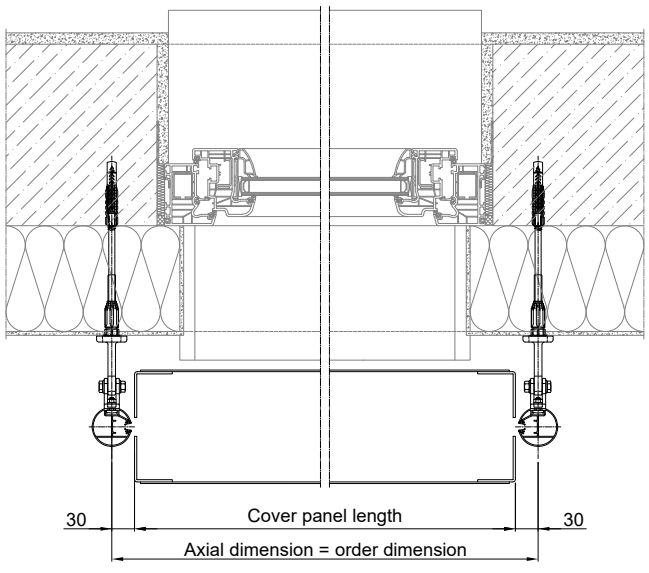
PDF DWG



Self-supporting venetian blinds, E 90 A6, with round-shaped cover panel, fixing using Fischer Thermax

PDF DWG



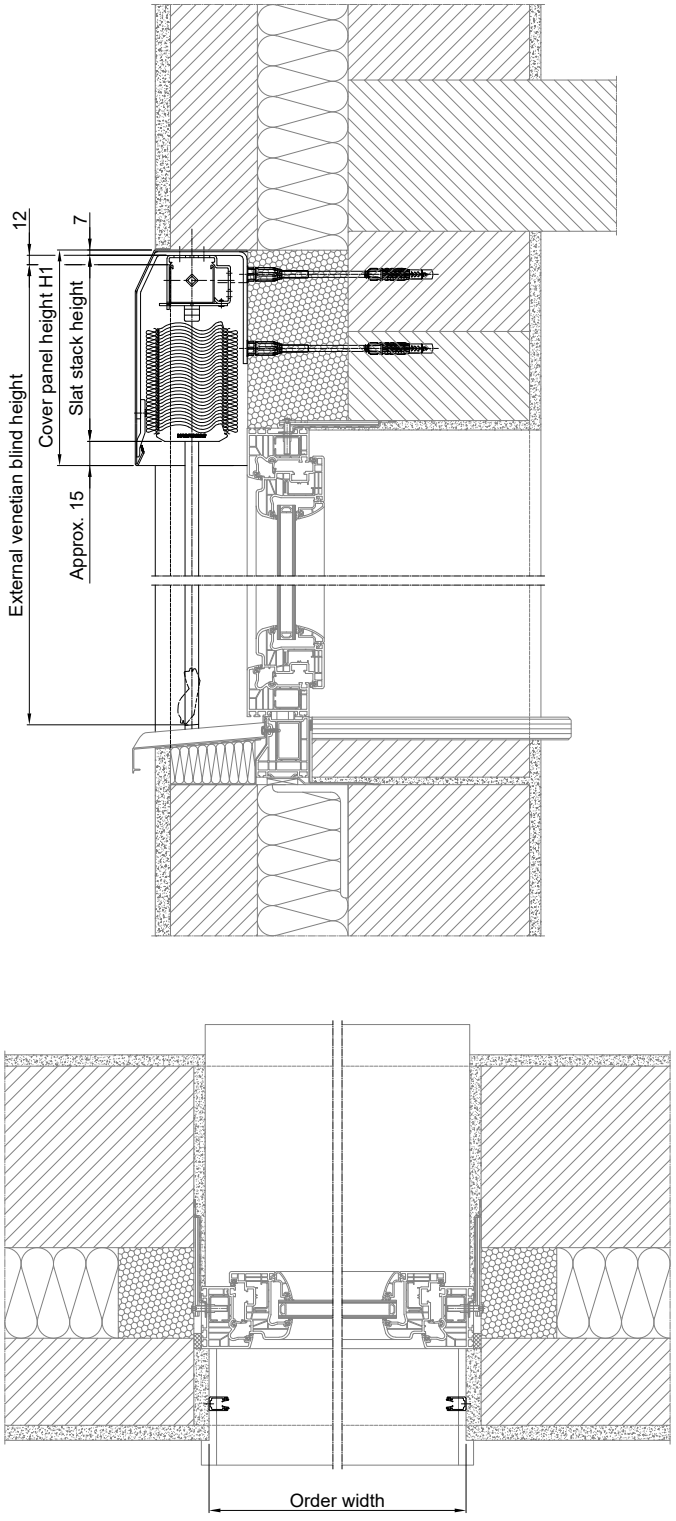


The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

74012

Basic external venetian blind with rail guidance E 90 A6, with sloped angular cover panel, fixing using Fischer Thermax

PDF DWG



The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

74013

Additional product information

Art. no.	Designation	Usable length
791041	Thermax 8/60 M6	45 - 60 mm
791042	Thermax 8/80 M6	60 - 80 mm
791043	Thermax 8/100 M6	80 - 100 mm
791044	Thermax 8/120 M6	100 - 120 mm
791045	Thermax 8/140 M6	120 - 140 mm
791046	Thermax 8/160 M6	140 - 160 mm
791047	Thermax 8/180 M6	160 - 180 mm
791048	Thermax 10/100 M6	80 - 100 mm
791049	Thermax 10/120 M6	100 - 120 mm
791050	Thermax 10/140 M6	120 - 140 mm
791051	Thermax 10/160 M6	140 - 160 mm
791052	Thermax 10/180 M6	160 - 180 mm
791053	Thermax 10/100 M8	80 - 100 mm
791054	Thermax 10/120 M8	100 - 120 mm
791055	Thermax 10/140 M8	120 - 140 mm
791056	Thermax 10/160 M8	140 - 160 mm

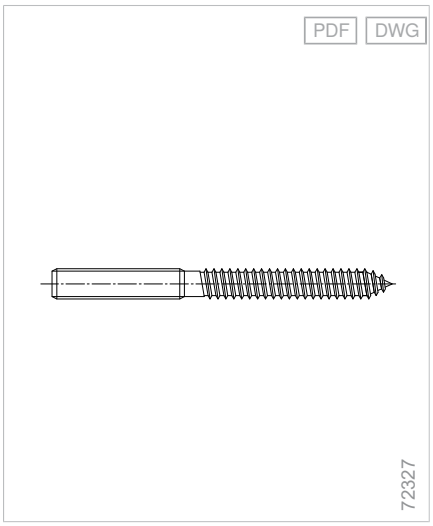
Screws with seal coating

Calculate the individual suitable and permissible fixing materials

Additional product information

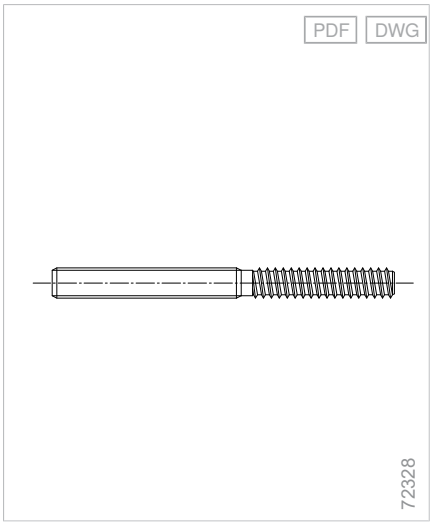
Hanger bolts with seal coating

Art. no.	Model
746187	M6 × 70
746188	M6 x 80
746189	M6 x 130
746239	M8 x 90
746244	M8 x 110
746245	M8 x 130
746236	M8 x 150
746242	M8 x 160
7462345	M8 x 180
746248	M8 x 200



WARWIC bolts with seal coating

Art. no.	Model
557214	M8 x 90
557215	M8 x 100
557216	M8 x 110
557217	M8 x 120
557218	M8 x 130
557219	M8 x 140
557220	M8 x 160
557221	M8 x 180

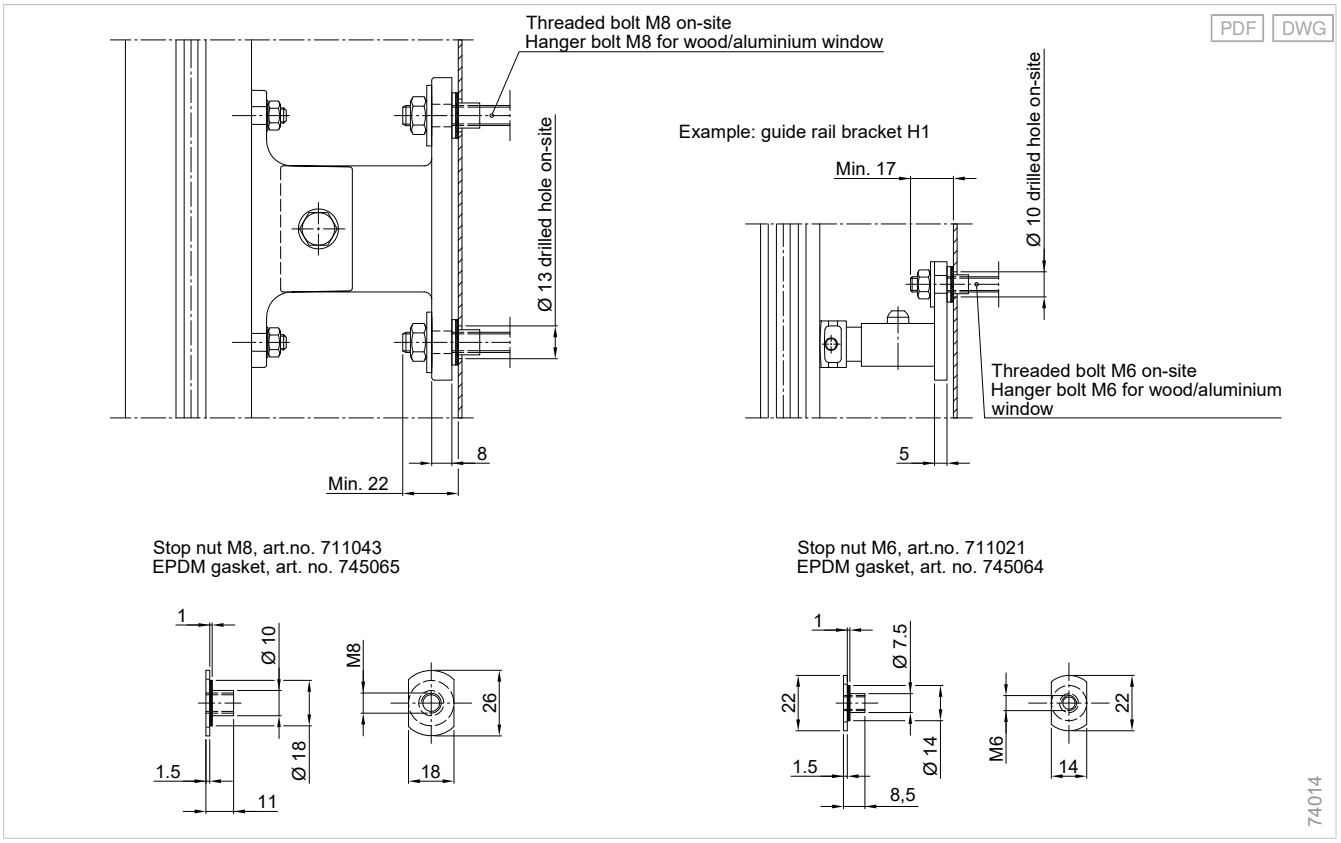


WAREMA stop nut

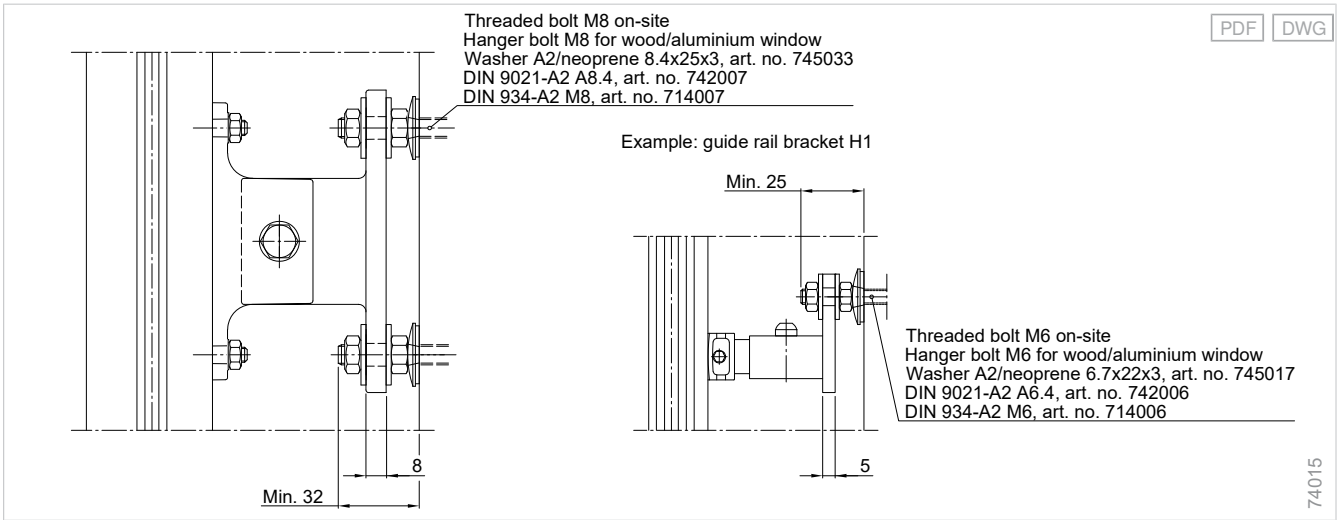
The WAREMA stop nut enables mounting on facade cover strips with the smallest possible spacing of the brackets and without exerting pressure on the cover strip. In comparison to conventional nuts for locking on the facade bolts, this reduces the distance between console and cover strip by up to 10 mm.

Calculate the individual suitable and permissible fixing materials

Fixing to transom and mullion facade or wood/aluminium window with WAREMA stop nut and EPDM sealing washer, taking guide rail bracket H101 as an example



Fixing to transom and mullion facade or wood/aluminium window with counter nut and washer A2/neoprene, taking guide rail bracket H101 as an example

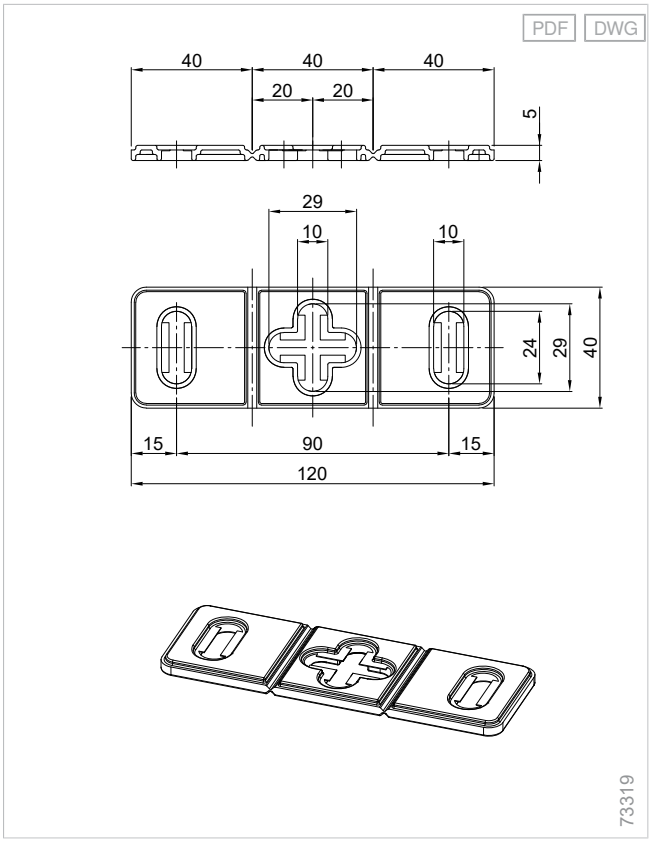


WAREMA insulating plate

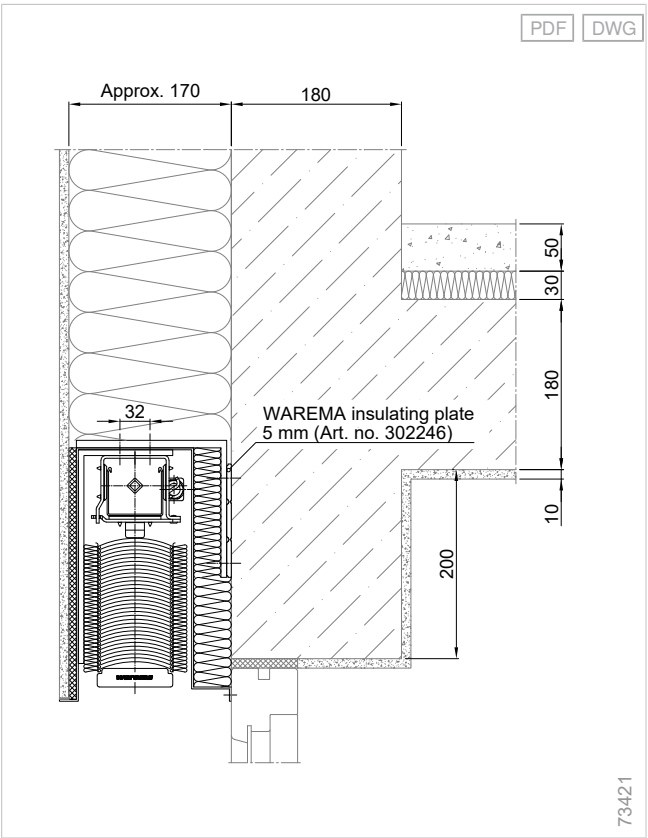
Reducing thermal bridges
The WAREMA insulating plate provides a thermal barrier for mounting brackets, fixing brackets and guide rail brackets when installed in the insulation. This reduces heat loss resulting from mounting components and effectively lowers energy loss. 2 or 3 plates can also be used between bracket and mounting substructure for an even better thermal barrier.

Calculate the individual suitable and permissible fixing materials

WAREMA insulating plate



WAREMA insulating plate, mounting example



If necessary, shorten length to 80 mm or 40 mm on the predetermined breaking points!

Contents

Drive variants

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Mechanical coupling for external venetian blinds 520
Additional product information 520



Drive variants

Motors for external venetian blinds

Innovative drives from leading suppliers

All drive solutions meet the highest quality standards: They are matched to the various WAREMA sun shading products.



Setting high standards for quality and functional performance

WAREMA oversees the development of new drives – from the conceptual design through to market launch.

Convenient installation and commissioning

Simple and guided commissioning with the WAREMA Smart programming cable.

Standard motors

Basic motor for external venetian blinds

Description:

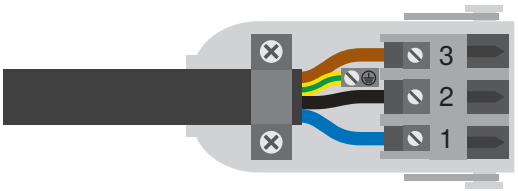
- Adjustable motor limit positions bottom/top
- Safety switch-off (upper contact switch)



Frequency	50 Hz
Degree of protection	IP 54
Motor construction type	Block motor
Motor operating type	Wired
Rated voltage	230 V AC
Type of limit switch-off	Mechanical
Minimum run time	4 min
Torque	6 - 20 Nm
Speed	26 U/min
Nominal current	0,5 - 1 A
Rated power consumption	115 - 230 W
Motor line	500 mm
Plug-in connector	STAS 3
Overheat protection	Yes
Idle losses in standby	No
Operating temperature	-10 - 60 °C
Operating temperature, temporary	-20 - 80 °C
Motor lines	– H05RR-F 4 G 0.75 mm² bk, type WAREMA
Test/programming cable	– Standard test cable up/down

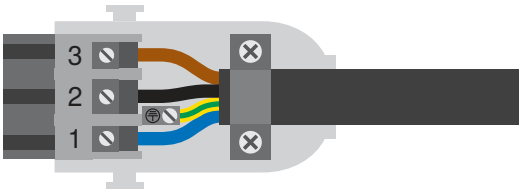
Wiring diagram STAS 3/STAK 3

(STAS 3) plug connector – motor connection



3 brown
2 black
1 blue
⏚ green/yellow

(STAK 3) coupling – connection on-site (230 V AC)



3 DOWN command (brown)
2 UP command (black)
1 Neutral conductor (blue)
⏚ PE conductor (green/yellow)

see "Technologies and functions", Page 500

Motor with 2 lower limit positions

Description:

- Motor limit position setting not possible
- Safety switch-off (upper contact switch)

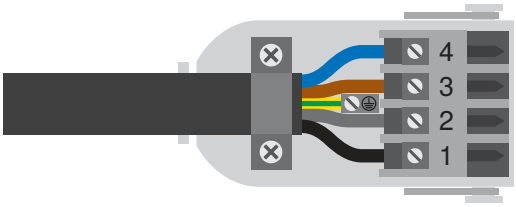
Frequency	50 Hz
Degree of protection	IP 54
Motor construction type	Block motor
Motor operating type	Wired
Rated voltage	230 V AC
Type of limit switch-off	Mechanical
Minimum run time	4 min
Torque	6 - 19 Nm
Speed	26 U/min
Nominal current	0,45 - 0,97 A
Rated power consumption	100 - 218 W
Motor line	500 mm
Plug-in connector	STAS 4
Overheat protection	Yes
Idle losses in standby	No
Operating temperature	-10 - 60 °C
Operating temperature, temporary	-20 - 80 °C
Motor lines	– H05RR-F 5 G 0.75 mm^2 bk, type WAREMA
Test/programming cable	– WAREMA art. no. 634089



No room dim-out when lowering (only in connection with the WAREMA work setting bearing)

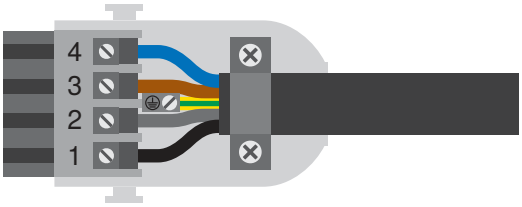
Wiring diagram STAS/STAK 4

(STAS 4) plug connector – motor connection – 2 MW



4 blue
3 brown
2 grey
1 black
⏚ green/yellow

(STAK 4) coupling – on-site connection – 2 MW



4 Neutral conductor (blue)
3 Up (brown)
2 Down 2 (grey)
1 Down 1 (black)
⏚ PE conductor (green/yellow)

Motor with freezing protection

Description:

- Adjustable motor limit positions bottom/top
- Safety switch-off (torque overload protection)

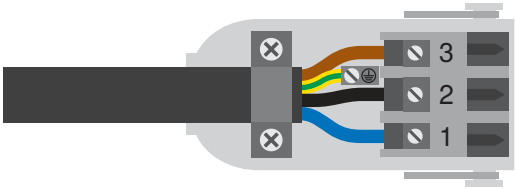
Frequency	50 Hz
Degree of protection	IP 44
Motor construction type	Block motor
Motor operating type	Wired
Rated voltage	230 V AC
Type of limit switch-off	Electronic
Minimum run time	6 min
Torque	6 Nm
Speed	26 U/min
Nominal current	0,4 A
Rated power consumption	90 W
Motor line	500 mm
Plug-in connector	STAS 3
Overheat protection	Yes
Idle losses in standby	No
Operating temperature	-10 - 60 °C
Operating temperature, temporary	-20 - 80 °C
Motor lines	– H05RR-F 4 G 0.75 mm^2 bk, type WAREMA
Test/programming cable	– WAREMA art. no. 616226

Anti-freeze comfort switch-off

Switches off in case of blockage (the lowered external venetian blind is not damaged while iced over or if it jams) The motor with freezing protection is recommended for asymmetrical external venetian blinds, but can also be used for any other types of external venetian blinds up to a curtain surface of 8 m^2.

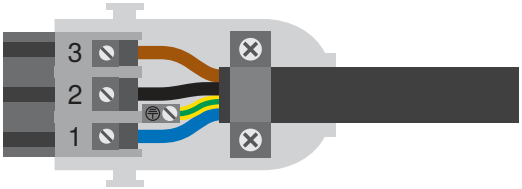
Wiring diagram STAS 3/STAK 3

(STAS 3) plug connector – motor connection



3 brown
2 black
1 blue
⏚ green/yellow

(STAK 3) coupling – connection on-site (230 V AC)



3 DOWN command (brown)
2 UP command (black)
1 Neutral conductor (blue)
⏚ PE conductor (green/yellow)

see "Technologies and functions", Page 500

Motor with additional collapsible crank ZHK

Description:

- Adjustable motor limit positions bottom/top
- Safety switch-off (upper contact switch)

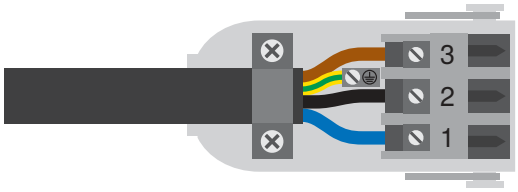


Frequency	50 Hz
Degree of protection	IP 54
Motor construction type	Block motor
Motor operating type	Wired
Rated voltage	230 V AC
Type of limit switch-off	Mechanical
Minimum run time	4 min
Torque	9 Nm
Speed	26 U/min
Nominal current	0,57 A
Rated power consumption	131 W
Motor line	500 mm
Plug-in connector	STAS 3
Overheat protection	Yes
Idle losses in standby	No
Operating temperature	-10 - 60 °C
Operating temperature, temporary	-20 - 80 °C
Motor lines	– H05RR-F 4 G 0.75 mm^2 bk, type WAREMA
Test/programming cable	– Standard test cable up/down

- Alternative manual operating option in case of motor or power failure
- The crank is only intended for use in the event of a motor failure and is not suitable for continuous operation

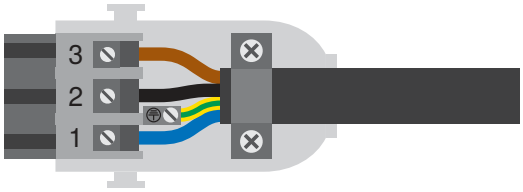
Wiring diagram STAS 3/STAK 3

(STAS 3) plug connector – motor connection



3 brown
2 black
1 blue
⏚ green/yellow

(STAK 3) coupling – connection on-site (230 V AC)



3 DOWN command (brown)
2 UP command (black)
1 Neutral conductor (blue)
⏚ PE conductor (green/yellow)

see "Motor with additional collapsible crank ZHK for external venetian blinds", Page 330

see "Technologies and functions", Page 500

SMI motor

Description:

- Adjustable motor limit positions bottom/top
- Safety switch-off (upper contact switch)
- Speed-controlled simultaneous movement
- Accurate positioning
- Position feedback
- Slow tilt
- Soft start/stop

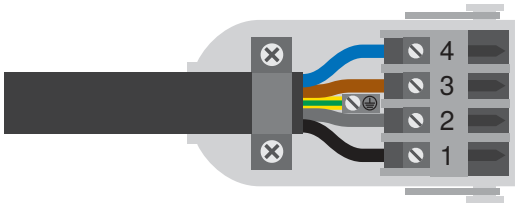


Frequency	50 Hz
Motor construction type	Block motor
Motor operating type	Wired
Rated voltage	230 V AC
Type of limit switch-off	Electronic
Minimum run time	6 min
Torque	10 Nm
Speed	26 U/min
Nominal current	0,91 A
Rated power consumption	103 W
Motor line	500 mm
Plug-in connector	STAS 4
Overheat protection	Yes
Idle losses in standby	Yes
Operating temperature	-10 - 60 °C
Operating temperature, temporary	-20 - 80 °C
Motor lines	– H05RR-F 5 G 0.75 mm^2 bk, type WAREMA
Test/programming cable	– WAREMA art. no. 616227

Installation always in the centre of external venetian blinds, for coupled external venetian blinds, always install close to the centre of the entire unit (even load transfer to motor)! The maximum torque load per coupling piece is 5 Nm.

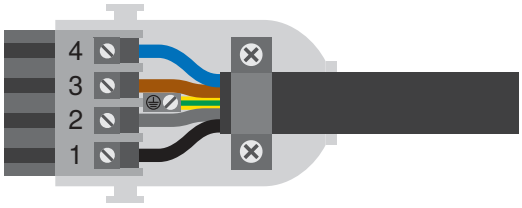
Wiring diagram STAS 4/STAK 4

(STAS 4) plug connector – SMI motor connection



4 blue
3 brown
2 grey
1 black
⏚ green/yellow

(STAK 4) coupling – SMI on-site connection



4 Neutral conductor (blue)
3 Up (brown)
2 Down 2 (grey)
1 Down 1 (black)
⏚ PE conductor (green/yellow)

see "Technologies and functions", Page 500

Solar motor

Description:

- Adjustable motor limit positions bottom/top
- Safety switch-off (upper contact switch)



Degree of protection	IP 44
Motor construction type	Block motor
Motor operating type	Wired
Rated voltage	12 V DC
Type of limit switch-off	Mechanical
Minimum run time	6 min
Torque	4 Nm
Speed	33 U/min
Nominal current	4 A
Rated power consumption	48 W
Motor line	500 mm
Plug-in connector	Molex 5557
Overheat protection	Yes
Idle losses in standby	No
Operating temperature	-10 - 60 °C
Operating temperature, temporary	-20 - 80 °C
Test/programming cable	– WAREMA art. no. 2017112

Switch-off procedure similar to basic motor

see "Solar drive for external venetian blinds", Page 336

see "Technologies and functions", Page 500

Super-fast terrace motor (STM)

Description:

- Adjustable motor limit positions bottom/top
- Safety switch-off (upper contact switch)

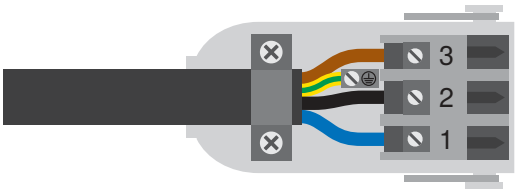


Frequency	50 Hz
Degree of protection	IP 54
Motor construction type	Block motor
Motor operating type	Wired
Rated voltage	230 V AC
Type of limit switch-off	Mechanical
Minimum run time	4 min
Torque	6 Nm
Speed	74 U/min
Nominal current	0,85 A
Rated power consumption	190 W
Motor line	500 mm
Plug-in connector	STAS 3
Overheat protection	Yes
Idle losses in standby	No
Operating temperature	-10 - 60 °C
Operating temperature, temporary	-20 - 80 °C
Motor lines	– H05RR-F 4 G 0.75 mm^2 bk, type WAREMA
Test/programming cable	– Standard test cable up/down

Designed for quicker clearance of patio and balcony doors. Basic functions such as basic motor, but with approx. 3-fold movement speed. The speed of the slat tilting remains unchanged with regard to the slat tilting for basic motors. Can also be used in office buildings to reduce travel times of the sun shading system.

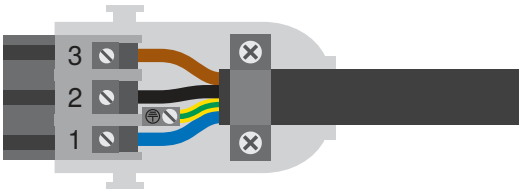
Wiring diagram STAS 3/STAK 3

(STAS 3) plug connector – motor connection



3 brown
2 black
1 blue
⏚ green/yellow

(STAK 3) coupling – connection on-site (230 V AC)



3 DOWN command (brown)
2 UP command (black)
1 Neutral conductor (blue)
⏚ PE conductor (green/yellow)

see "Technologies and functions", Page 500

Special motors

Basic motor 100 V

Description:

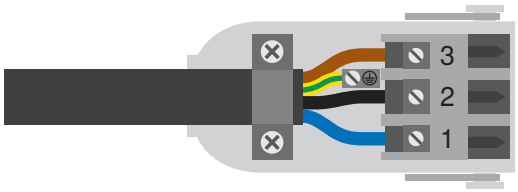
- Adjustable motor limit positions bottom/top
- Safety switch-off (upper contact switch)



Frequency	50-60 Hz
Degree of protection	IP 44
Motor construction type	Block motor
Motor operating type	Wired
Rated voltage	100 V AC
Type of limit switch-off	Mechanical
Minimum run time	4 min
Torque	9 Nm
Speed	31 U/min
Nominal current	1,71 A
Rated power consumption	162 W
Motor line	500 mm
Plug-in connector	STAS 3
Overheat protection	Yes
Idle losses in standby	No
Operating temperature	-10 - 60 °C
Operating temperature, temporary	-20 - 80 °C
Motor lines	– H05RR-F 4 G 0.75 mm^2 bk, type WAREMA
Test/programming cable	– Standard test cable up/down

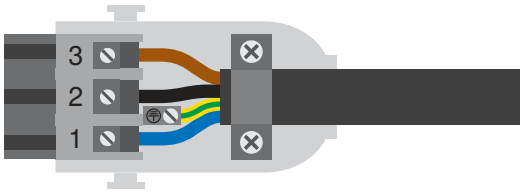
Wiring diagram STAS 3/STAK 3

(STAS 3) plug connector – motor connection



3 brown
2 black
1 blue
⏚ green/yellow

(STAK 3) coupling – connection on-site (230 V AC)



3 DOWN command (brown)
2 UP command (black)
1 Neutral conductor (blue)
⏚ PE conductor (green/yellow)

see "Technologies and functions", Page 500

Basic motor 120 V

Description:

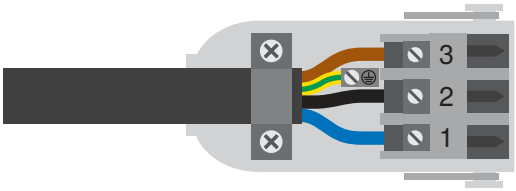
- Adjustable motor limit positions bottom/top
- Safety switch-off (upper contact switch)



Frequency	60 Hz
Degree of protection	IP 44
Motor construction type	Block motor
Motor operating type	Wired
Rated voltage	120 V AC
Type of limit switch-off	Mechanical
Minimum run time	4 min
Torque	8 - 16 Nm
Speed	31 U/min
Nominal current	1,21 - 1,8 A
Rated power consumption	132 - 216 W
Motor line	500 mm
Plug-in connector	STAS 3
Overheat protection	Yes
Idle losses in standby	No
Operating temperature	-10 - 60 °C
Operating temperature, temporary	-20 - 80 °C
Motor lines	– H05RR-F 4 G 0.75 mm² bk, type WAREMA
Test/programming cable	– Standard test cable up/down

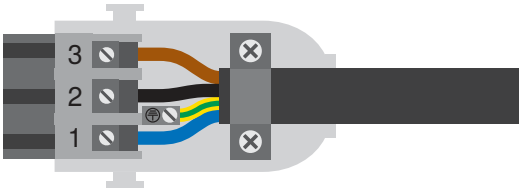
Wiring diagram STAS 3/STAK 3

(STAS 3) plug connector – motor connection



3 brown
2 black
1 blue
⏚ green/yellow

(STAK 3) coupling – connection on-site (230 V AC)



3 DOWN command (brown)
2 UP command (black)
1 Neutral conductor (blue)
⏚ PE conductor (green/yellow)

see "Technologies and functions", Page 500

Details

Technologies and functions

Technologies at a glance

Drives with mechanical limit switch-off

- Proven track record
- Reliable and precise
- Intuitively adjustable

Drives with electronic limit switch-off

- Software/function matches the sun shading product specifically
- Comfortable adjustment of the motor limit positions with programming cable

Functions in detail:

- **Adjustable motor limit positions bottom/top:** Facilitate an accurate switch-off of the external venetian blinds both in the upper and in the lower limit position.
- **Safety switch-off:** A protection device depending on the motor type (contact switch or torque monitoring) additionally protects the external venetian blind from damage when raising.
- **Speed-controlled simultaneous movement:** Facilitates an almost synchronous raising and lowering for external venetian blinds with the same height, regardless of the width, by means of continuous, load-independent motor speed.
- **Accurate positioning:** The desired blind height can be conveniently set on a suitable operating panel by entering a percentage value from 0% (completely retracted external venetian blind) to 100% (extended external venetian blind). The slat angle is determined by entering an angle value (in degrees).
- **Position feedback:** The position feedback of the motor allows for very precise approaching of the set positions. By means of impulse counting of the covered motor revolutions, the height position and the slat angle can be determined very precisely and reproducibly.
- **Slow tilt:** During manual operation, very precise slat tilting is possible due to the reduced slat tilting speed. During automatic operation, more precise tilting steps (approx. 5° instead of 15°) can be controlled.
- **Soft start/stop:** The motor does not start with full speed, but continuously accelerates until the corresponding movement speed has been reached. The movement to the limit positions is carried out with continuously decreasing speed until standstill.

Note on connecting lines

WAREMA mainly uses halogen-free lines which are resistant to UV rays, approved for permanent use outside and correspond to the requirements of the standard. (Detailed information is available on request).

For convenient on-site connection, WAREMA delivers the matching plug-in connector for on-site wiring, which, if necessary, easily facilitates an all-pole disconnection from the power supply system.

As an additional service, preassembled cable whips, line extensions and rolled products can be ordered from WAREMA in standard dimensions. Special lengths possible on request.

Connecting the plug-in connection - Attention!

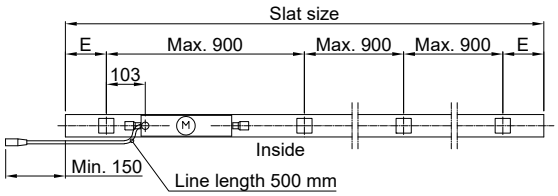
Follow the wiring diagram closely to avoid damaging the motor. WAREMA will not accept liability for damage due to improper installation.

You can find the complete range of cable whips and line extensions in the control systems technical data in the Optional extras chapter.

Middle motor line length

Line length – middle motor on the left

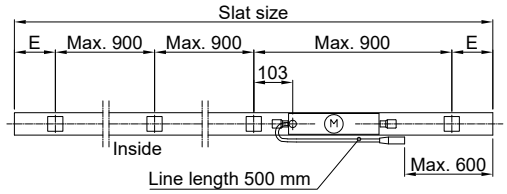
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70426v2

Line length – middle motor on the right

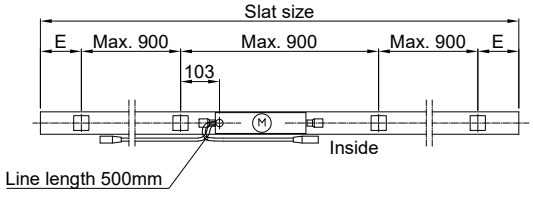
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70427v3

Line length – central middle motor

PDF DWG

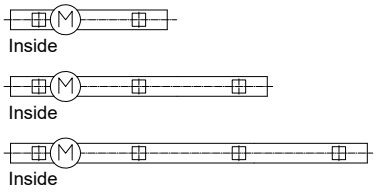


70428v3

Middle motor positioning

Individual unit – middle motor on the left

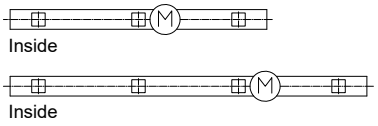
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73422v1

Individual unit – middle motor on the right

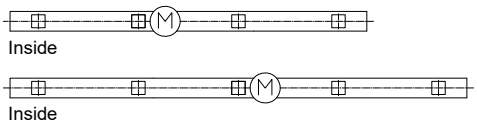
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73423v1

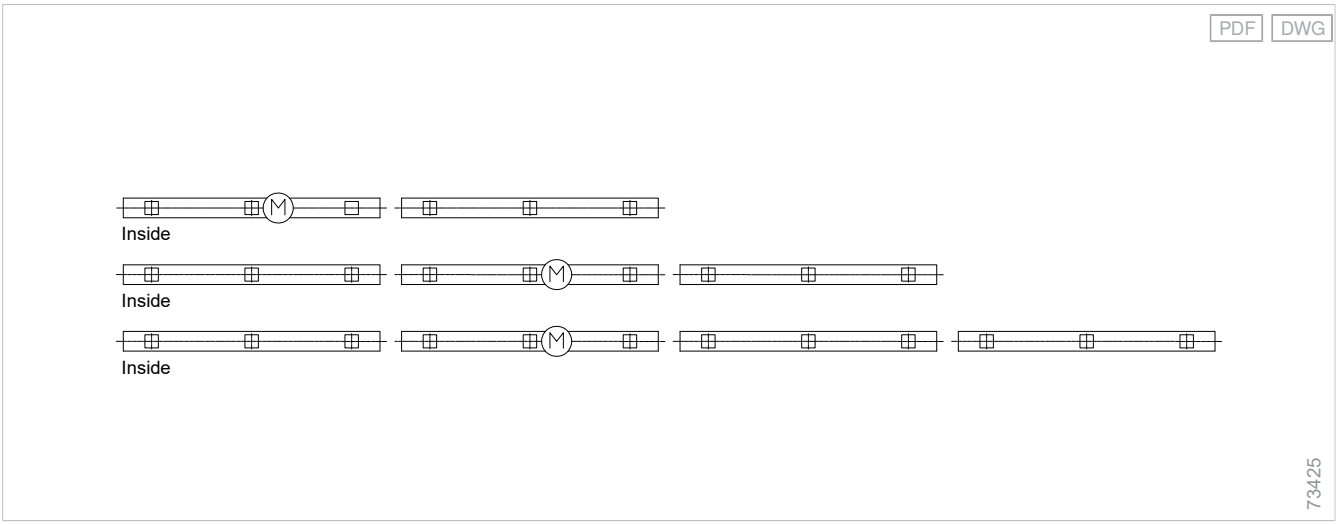
Individual unit – middle motor, central

PDF DWG



73424

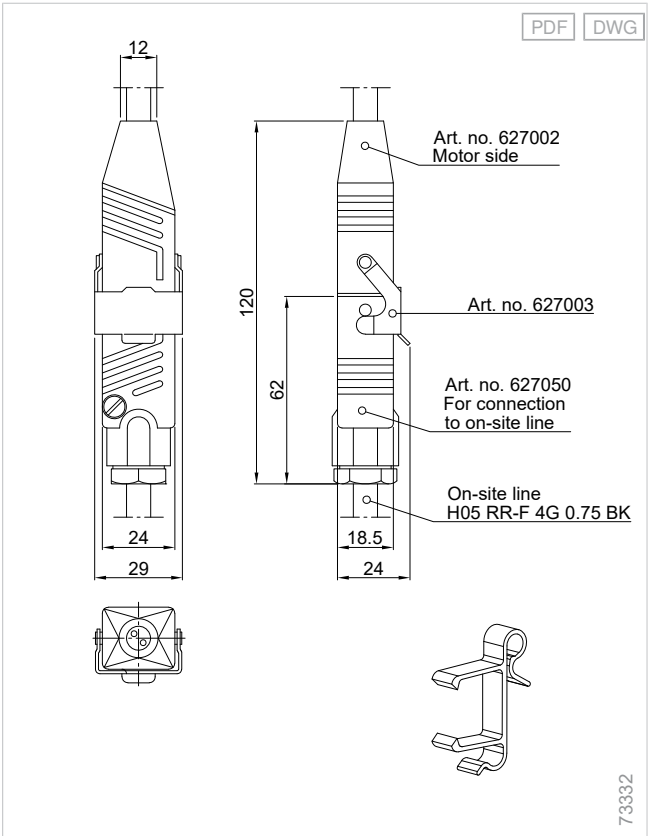
Coupled external venetian blinds – recommended position for middle motors



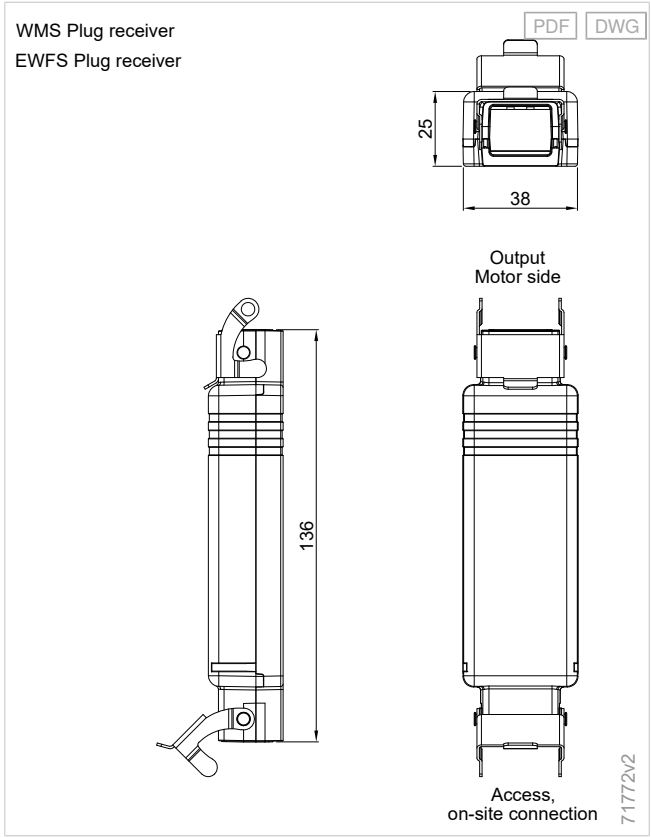
- Even number of blinds: Middle motor in the left blind when viewed from the centre
- Odd number of blinds: Middle motor in the middle blind, a maximum of 2 sun blinds can be coupled at the side
- Central motor in the drive curtain: see individual unit

Plug-in connector/plug receiver

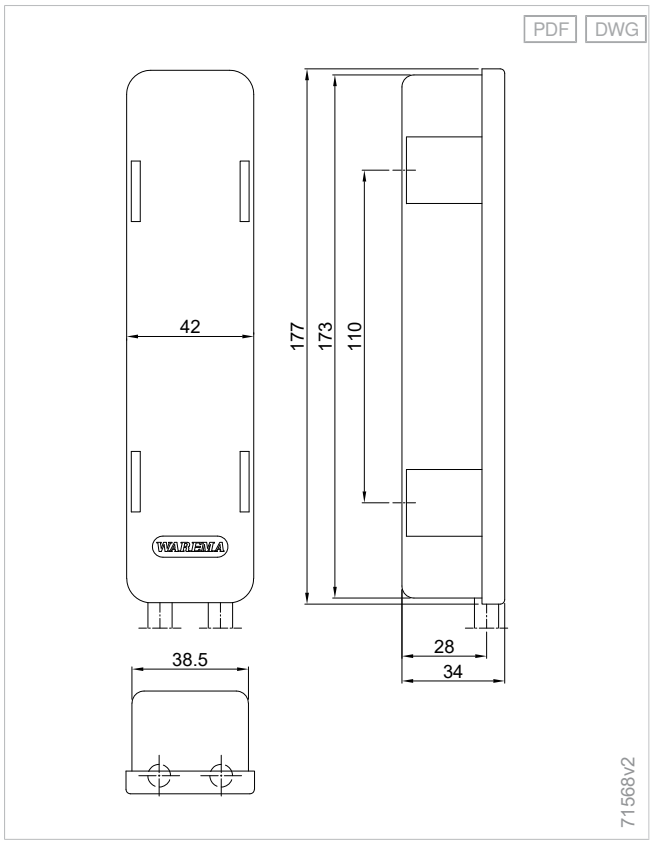
Plug-in connector and plug-in connector holder with integrated cable hook



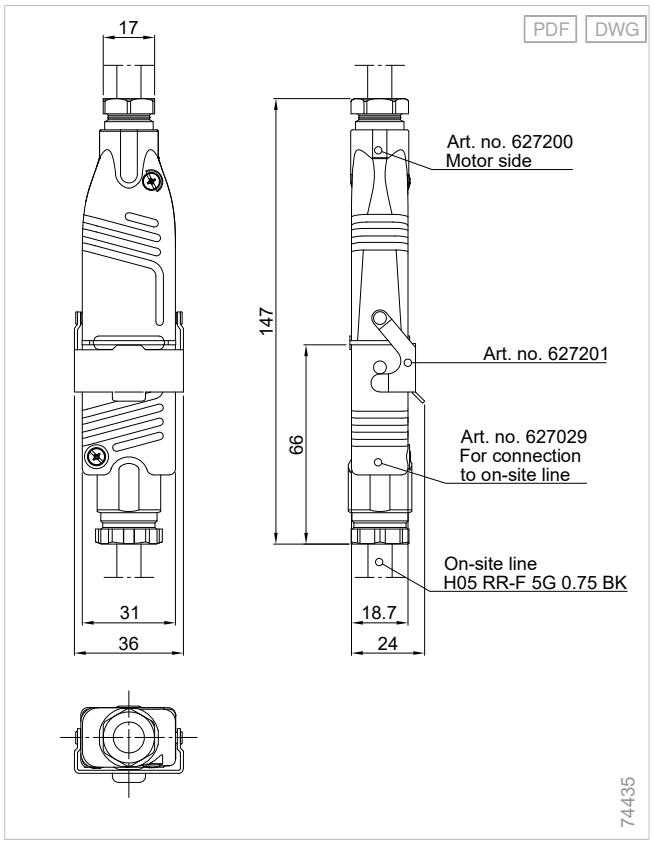
EWFS Plug receiver



Housing for plug-in connector



STAK/STAS 4 plug-in connector



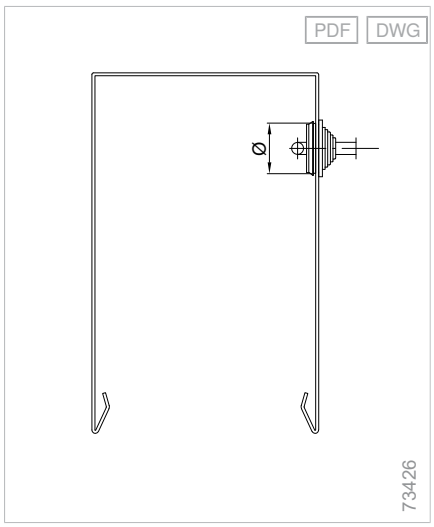
Material: polypropylene, art. no. 580135 black, art. no. 580063 white, art. no. 580136 grey

Cable conduit

Plug-in grommets

Art. no.	Size	Drilled hole for installation	Drilled hole suitable for	For wall thicknesses	Sealing area	Other
607061	STM 20	Ø 20.5 mm	-	1.5 - 4.0 mm	Ø 5 mm - 16 mm	Closed
607069	STM 32	Ø 33.0 mm	STAS/STAK 3	1.5 - 4.0 mm	Ø 13 mm - 26.6 mm	Closed
607070	STM 40	Ø 41.0 mm	STAS/STAK 4	1.5 - 4.0 mm	Ø 13 mm - 34.0 mm	Closed

Plug-in grommets

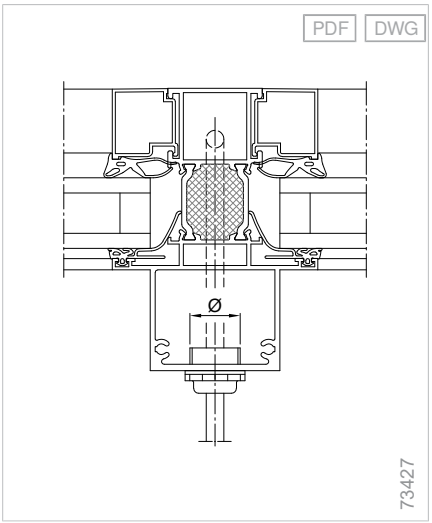


Self-sealing grommet (with thread for counter nut)

Art. no.	Size	Core hole	Throughhole	Thread length	Sealing area	Other
607071	M 16	Ø 15.5 mm	Ø 16.5 mm	8 mm	Ø 6 mm - 8 mm	Open
607072	M 20	Ø 19.0 mm	Ø 20.5 mm	10 mm	Ø 9 mm - 12 mm	Open
607073	M 25	Ø 24.0 mm	Ø 25.5 mm	12 mm	Ø 11 mm - 17 mm	Open

Diameter of core hole valid for impact mounting up to a material thickness of max. 3 mm.

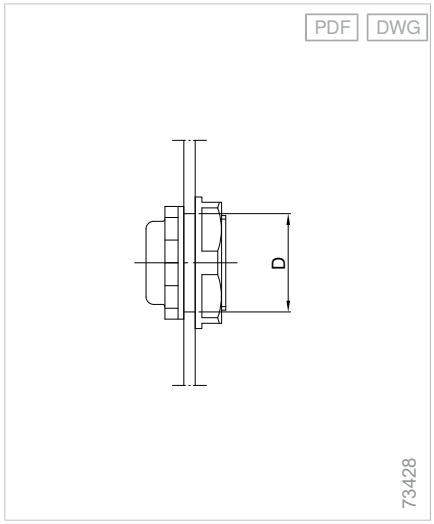
Self-sealing grommet (with thread for counter nut)



Self-sealing grommet with counter nut

Art. no.	Size
607074	M 16
607066	M 20
607075	M 25

Self-sealing grommet with counter nut

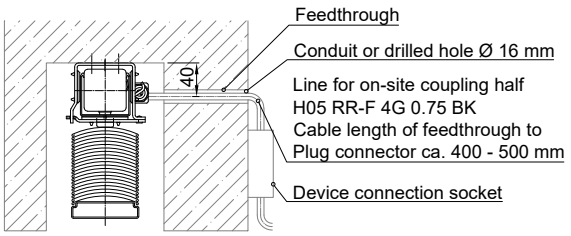


On-site cable conduit

When ordering with motor position left or right, we recommend letting the on-site cable end protrude by about 1000 mm.

On-site cable conduit

PDF DWG



73429

Information for common connecting lines

Designation	Application	Cable diameter
H 05 RR-F4G 0.75	Cable whip	Approx. 7.0 mm
LIHCH 2x2x0.14 mm^2 bk.	Incremental encoder line	Approx. 5.6 mm
NYM-J 3x1.5 mm^2	Connecting line 230 V AC	Approx. 9.5 mm
NYM-J 4x1.5 mm^2	Switch line	Approx. 10.0 mm



Drive variants
Crank

Quiet running

Material-friendly operation: The power is transmitted uniformly via the crank gear.

Independent of power supplies

Simple planning: No need to lay lines to the sun shading system.

A tried and tested system

Simple and self-explanatory: Medium-sized units are opened or closed with the crank.



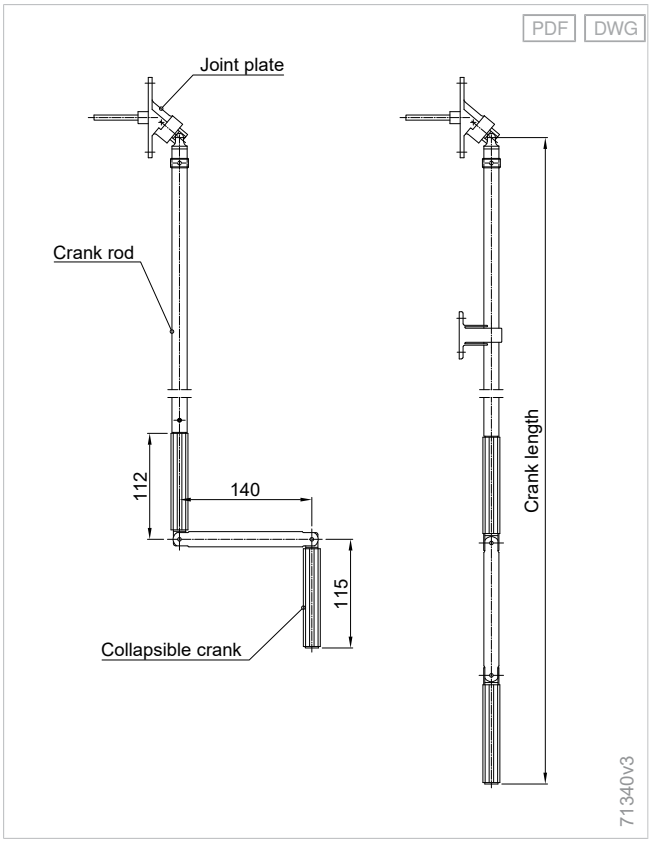
- **Aluminium crank rods:**
  - Standard scope of delivery: aluminium crank including crank rod, collapsible crank, joint plate with square and plastic crank holder in grey, white or brown
  - The crank rod is supplied loose and connected with the crank rod cone using a plastic clip (with integrated metal splint) on site. The crank can be uninstalled via the clip connection if necessary.
- **Steel crank rods:** A steel crank rod is mandatory for the following configuration variants and is automatically included in the scope of delivery:
  - Crank lengths from 2500 mm (please note surcharge for steel crank rod)
  - Crank holder with magnet (please note surcharge)
- **Crank lengths:**
  - Standard crank length: 1200 mm
  - The following crank lengths are also available alternatively and without surcharge: 1000/1100/1300/1400/1500/1600 mm
  - Different crank lengths: Crank lengths other than those listed above are available at a surcharge.
- **Crank colours**
  - **Crank colours for aluminium crank rods:**
    - Crank rod C0-anodised as standard, including collapsible crank and crank holder in grey
    - The colours listed under "Material colour, optional" apply to powder-coated surfaces in the following specification:
      - Optionally crank rod in RAL 9016 traffic white, satin finish surface, including collapsible crank and crank holder in white
      - Optionally crank rod in WC 34 dark bronze (anodisation replica), matt surface, including collapsible crank and crank holder in brown
      - Other colours in accordance with the WAREMA Colour World are available on request and are subject to a surcharge.
- **Crank colours for steel crank rods:**
  - Crank rod in grey, including collapsible crank and crank holder in grey
  - Optionally crank rod powder-coated in RAL 9016 traffic white, satin finish surface, including collapsible crank and crank holder in white
- Depending on the support product, joint plates with or without thermal barrier are used.
- Different crank gears are used depending on the support product and order dimension.

Material	Aluminium
Surface	Anodised natural colour
Optional surface	Powder-coated
Material colour	Natural colour
Material colour, optional	White, Brown

Notes on installation:

Fixing the crank holder for the "crank holder with magnet" version: Please note that the crank holder must be attached in the area of the crank rod. The collapsible crank is not magnetic!

Determination of crank length

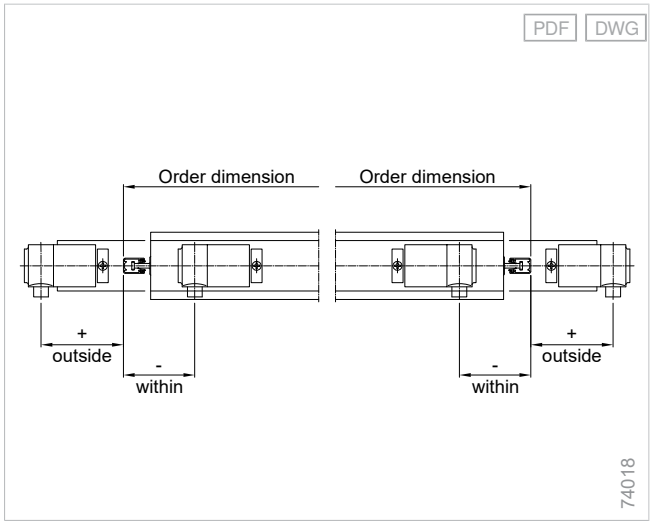


Crank length = extended length from the fulcrum of the pivot bearing to the lower end of the crank

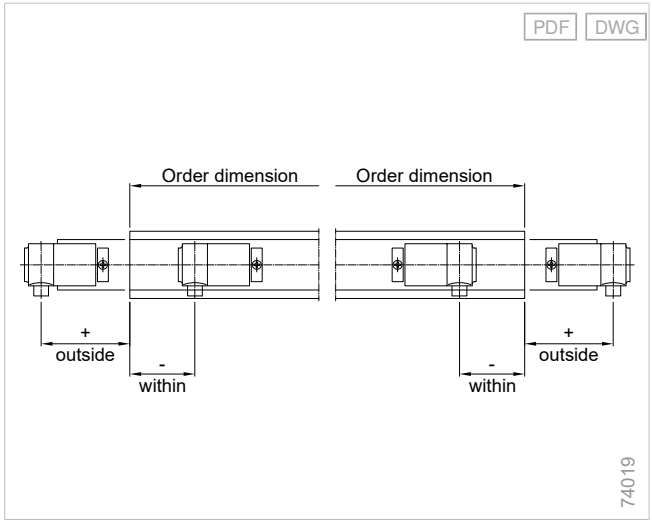
Additional product information

Order data

External venetian blinds, positioning with crank outlet



External venetian blinds with cable guidance, positioning with crank outlet



Swivelling range of the gear outlet

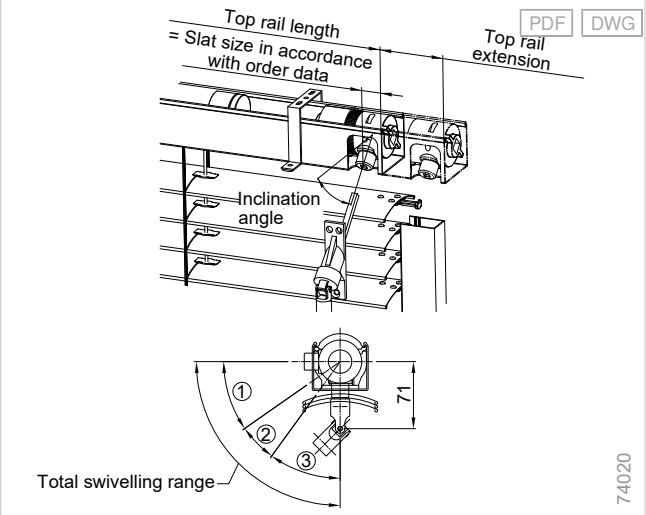
Maximum swivelling range depending on slat width

Slat width	Within the slat area	Within the guide rail area 1)	Outside the slat and guide rail area
50 mm	52°	-	90°
60 mm	50°	37°	90°
73 mm	50°	37°	90°
80 mm	45°	37°	90°
93 mm	42°	37°	90°
100 mm	38°	37°	90°

1) Depends on guide rail depth (values valid for depths of 50 mm), different values on request, e.g.:

- FS type 1 = 55°
- FS type 2 or 3 = 47°

Swivelling range of the crank output

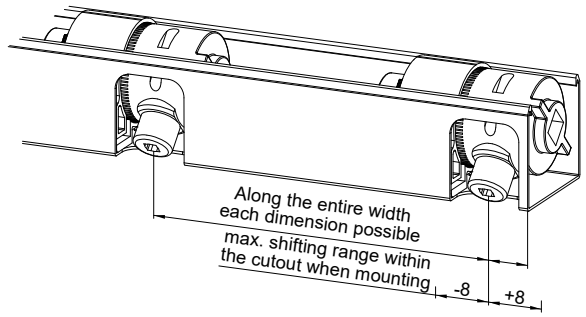


- 1, Swivelling range 0 to 35°
- 2, Swivelling range 35 to 54°
- 3, Swivelling range 54 to 90°
- From a swivelling range 60°: additional universal joint at the gear, art. no. 525157

Shifting range of gears

Gear outlet inside the top rail

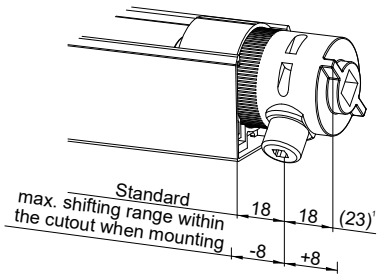
PDF DWG



74023

Gear outside the top rail (2:1 and 3:1)

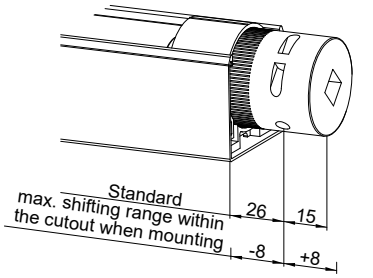
PDF DWG



74024

Gear outside the top rail (1.8:1)

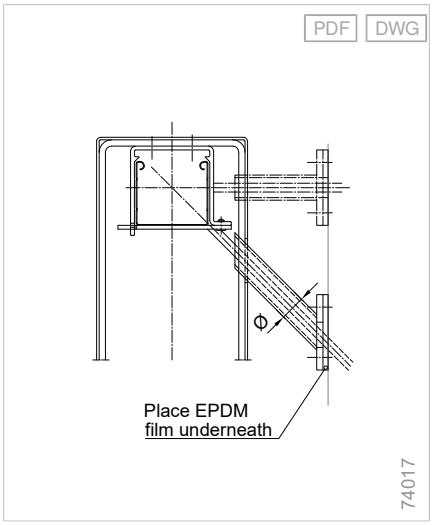
PDF DWG



74025

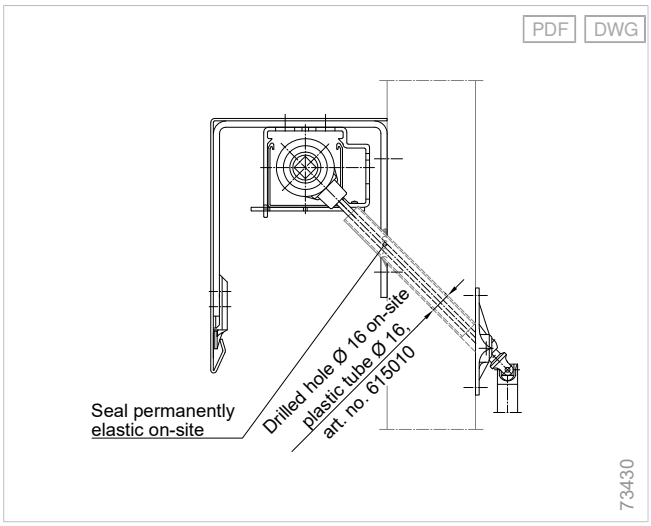
Protection options for the driving rod (surcharge)

Aluminium tube with flange



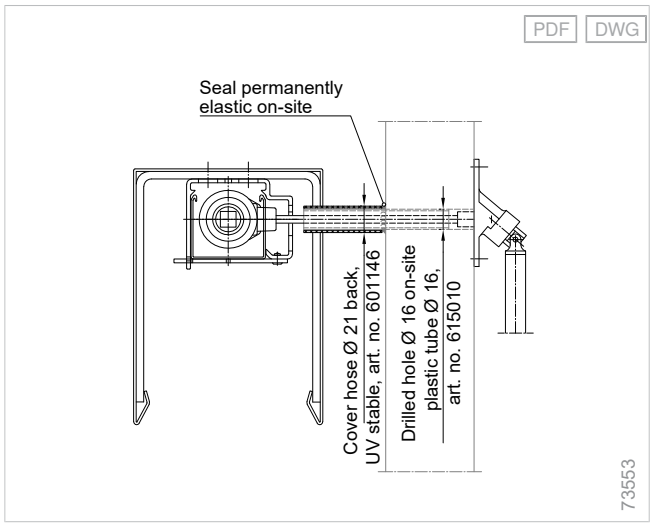
Dimension on aluminium tube min. Ø 16x1.5 mm

Plastic tube, installation directly at the window



Gear diagonal The diameter of the tube depends on the possible drilling precision in the facade; however, it must not exceed 20 mm. The parts are manufactured depending on order. This is the safest and most durable solution.

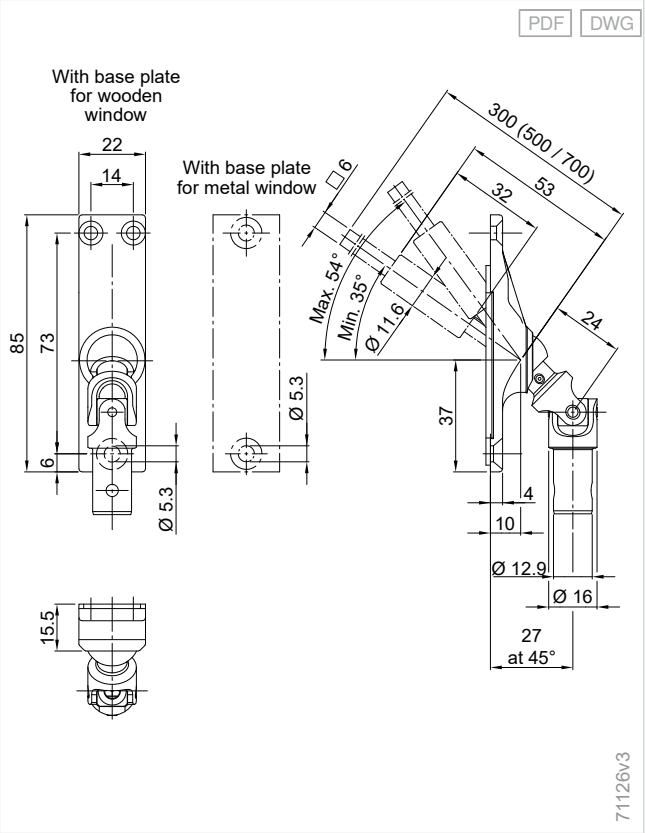
Plastic tube, mounting in front of the facade



Horizontal gear. The diameter of the tube depends on the possible drilling precision in the facade; however, it must not exceed 20 mm. The parts are manufactured depending on order. This is the safest and most durable solution.

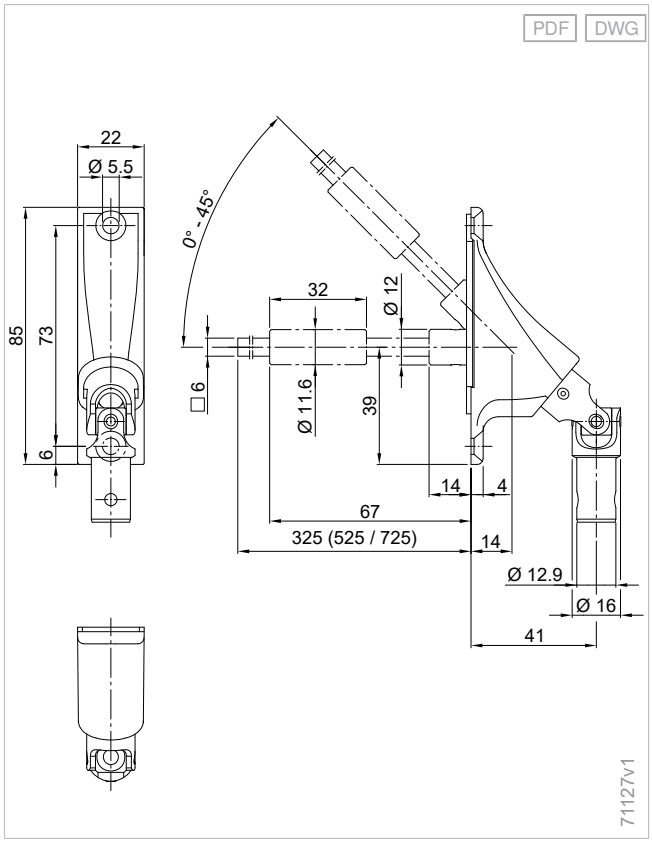
Pivot bearing

Pivot bearing 35° – 54°



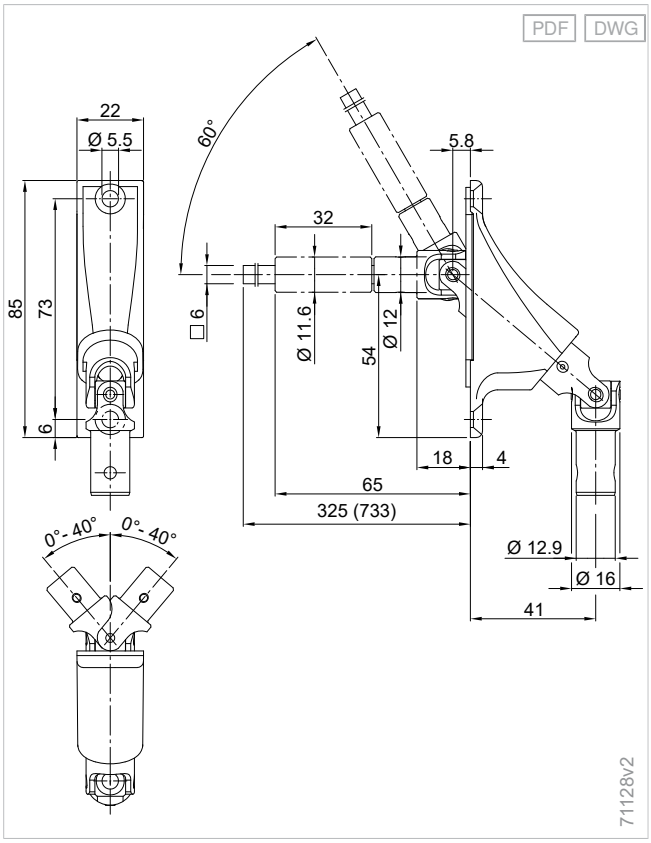
- Material: steel, nickel-plated
- Available square lengths:
  - Model with base plate for wooden window:
    Art. no. 525133, square length 300 mm
    Art. no. 525134, square length 500 mm
    Art. no. 525135, square length 700 mm
  - Model with base plate for metal window:
    Art. no. 525131, square length 300 mm
    Art. no. 525132, square length 700 mm

Pivot bearing 0° – 45°



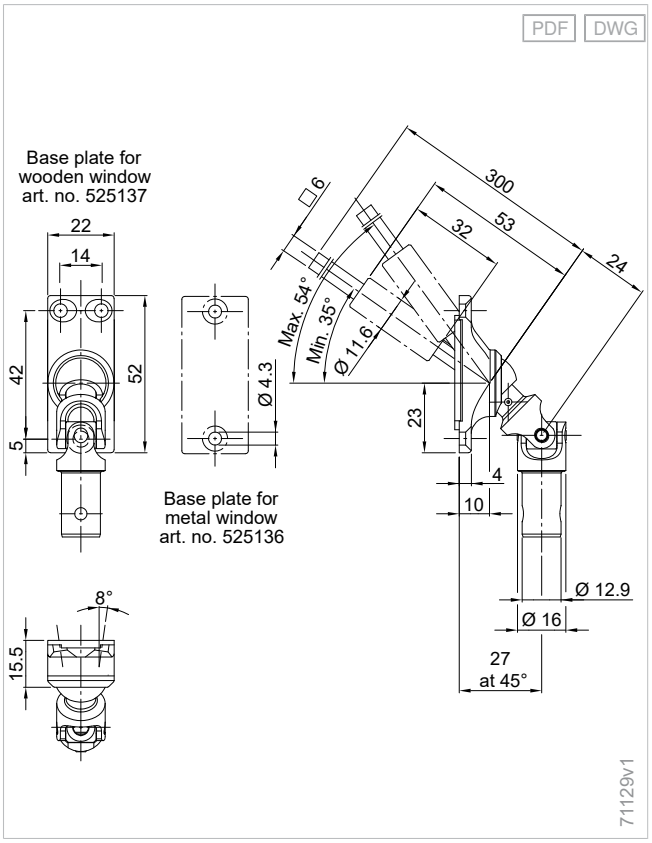
- **Special version: Longer delivery time and surcharge**
- Material: steel, nickel-plated
- Available square lengths:
  - Art no. 525140, square length 300 mm
  - Art no. 525141, square length 500 mm
  - Art no. 525142, square length 700 mm

Pivot bearing 0° - 60°



- **Special version: Longer delivery time and surcharge**
- Material: steel, nickel-plated
- Available square lengths:
  - Art. no. 525143, square length 300 mm
  - Art. no. 525144, square length 700 mm

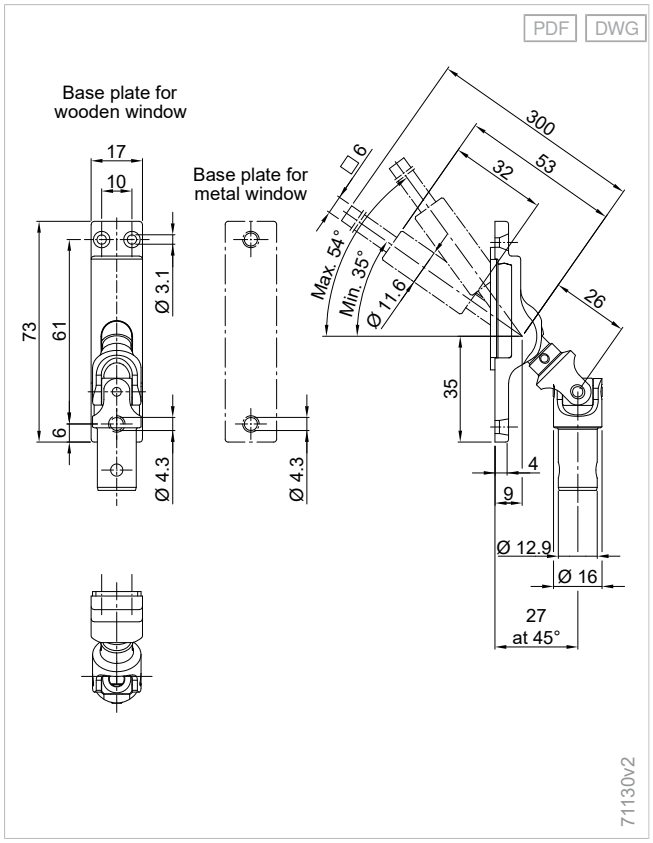
Pivot bearing 35° – 54°



Special version: Longer delivery time and surcharge

Material: steel, nickel-plated

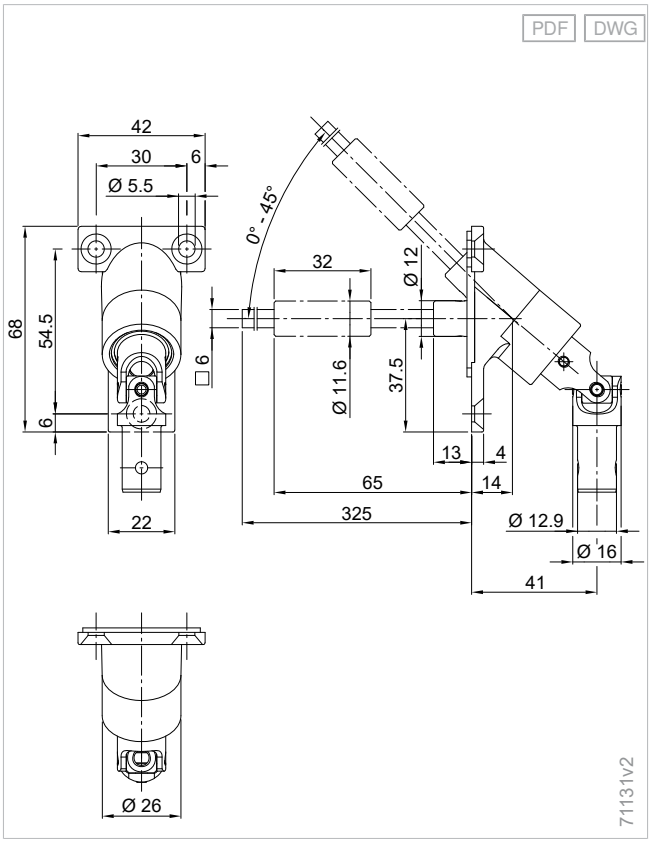
35° - 54° pivot bearing (special version)



Special version: Longer delivery time and surcharge

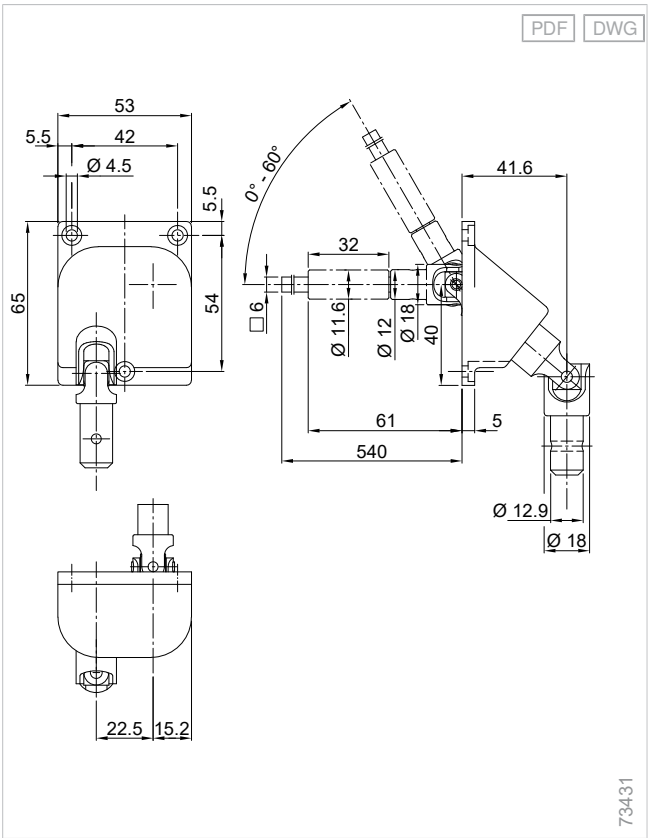
- Material: steel, nickel-plated
- Model with base plate for wooden windows, art. no. 525139, square length 300 mm
- Model with base plate for metal windows, art. no. 525138, square length 300 mm

Pivot bearing 0° – 45°



- **Special version: Longer delivery time and surcharge**
- Material: steel, nickel-plated
- Available square length: art. no. 525145, square length 300 mm

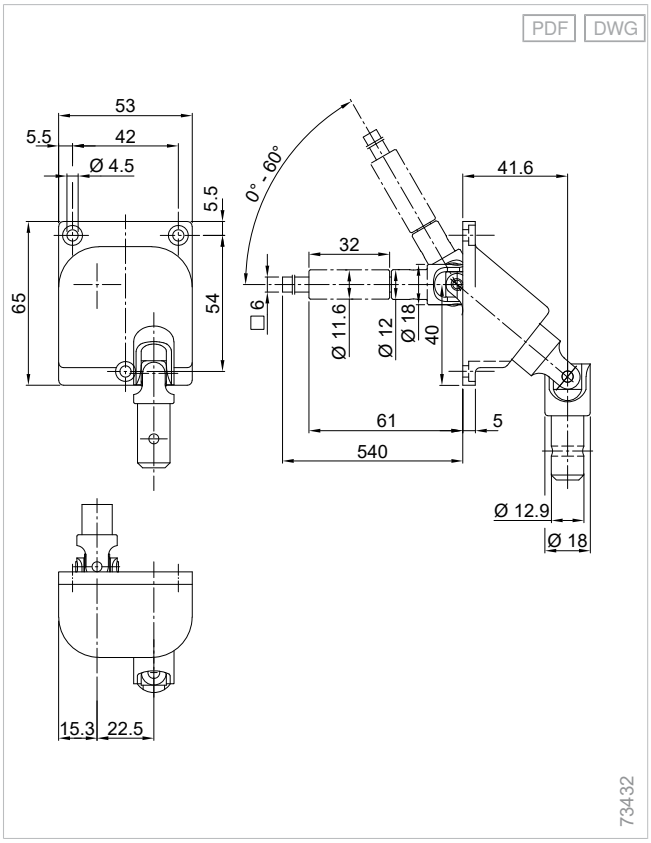
Pivot bearing 0° – 60°, left, 22.5 mm axis offset



Special version: Longer delivery time and surcharge!

- Material: plastic, white; steel, nickel-plated
- Maximum area 5.5 m²

Pivot bearing 0° – 60°, right, 22.5 mm axis offset

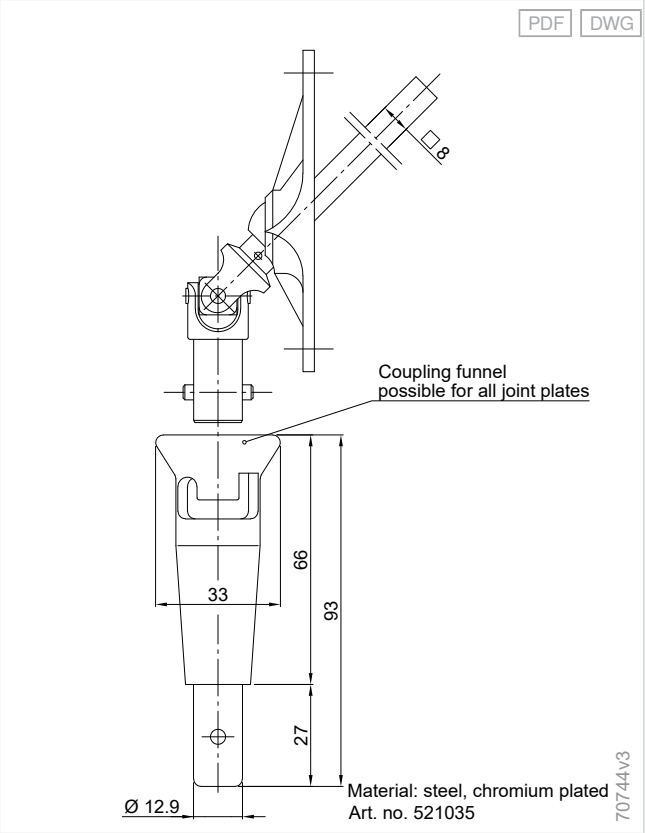


Special version: Longer delivery time and surcharge!

- Material: plastic, white; steel, nickel-plated
- Maximum area 5.5 m²

Accessories

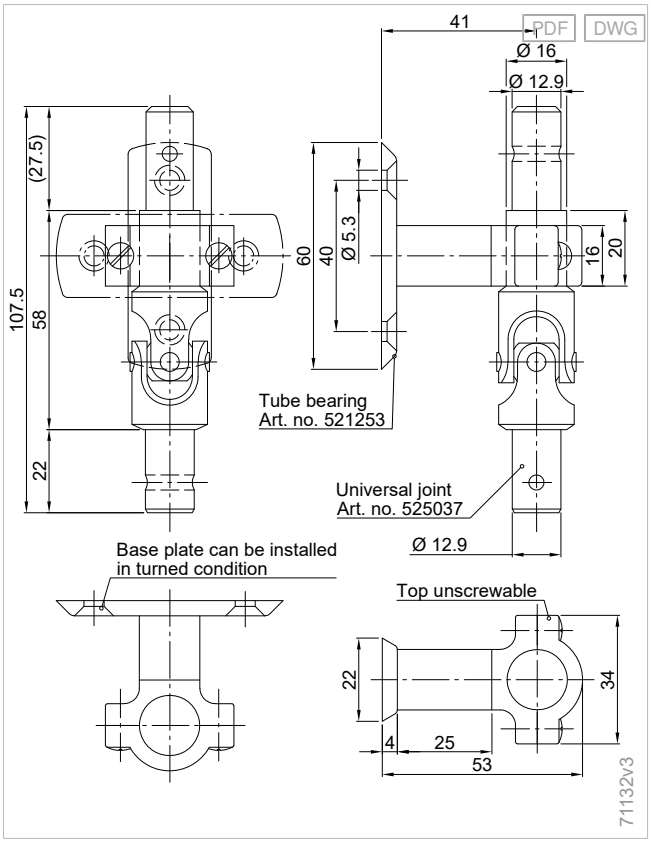
Coupling funnel



Special version: Longer delivery time and surcharge

Material: steel, nickel-plated

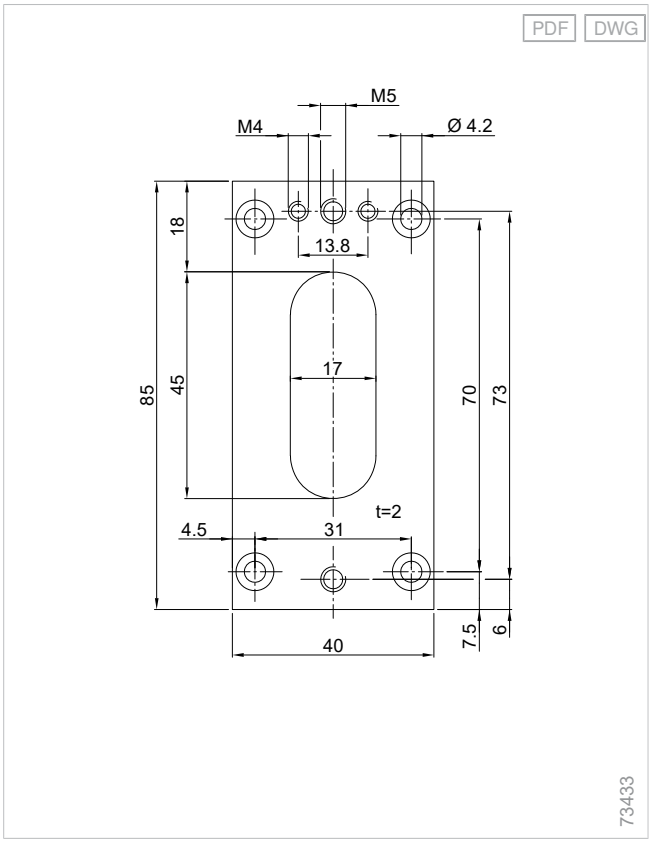
Tube bearing with universal joint



Special version: Longer delivery time and surcharge

Material: steel, nickel-plated

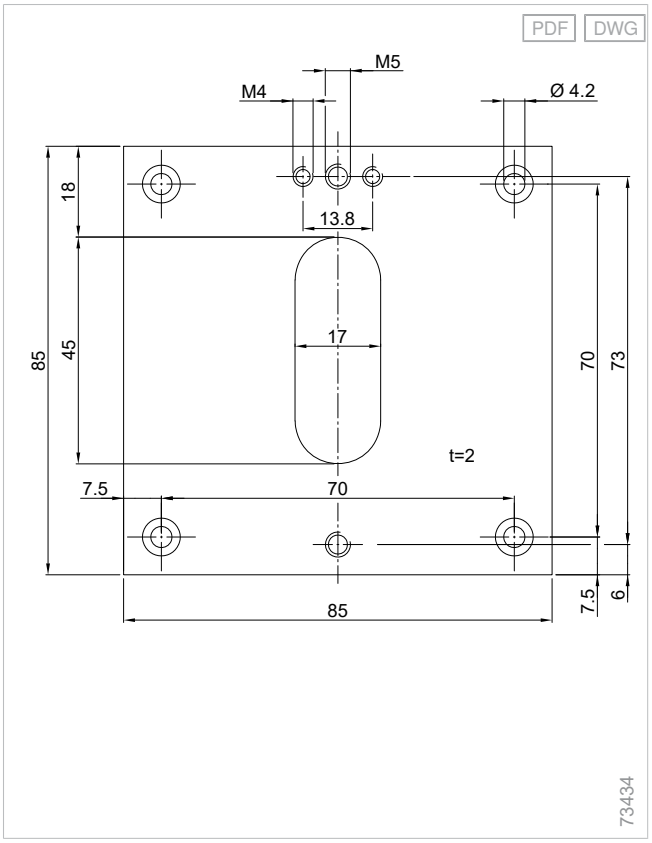
Shim plates for pivot bearing 85x40 mm, without sealing



Art. no. 521002

Material: steel, nickel-plated

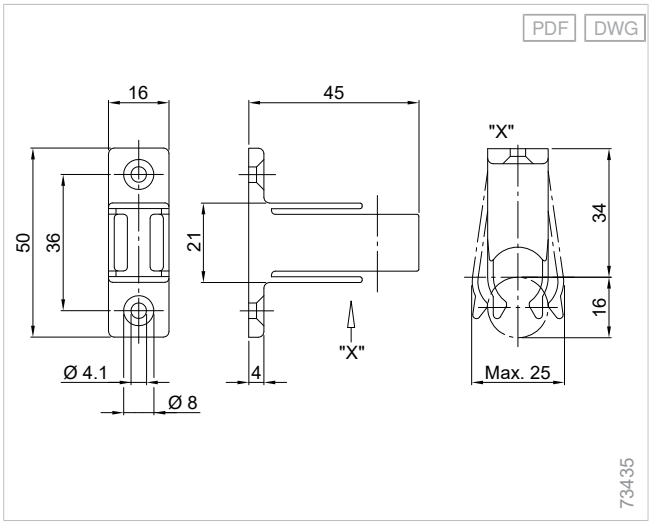
Shim plates for pivot bearing 85x85 mm, without sealing



Art. no. 521001

Material: steel, nickel-plated

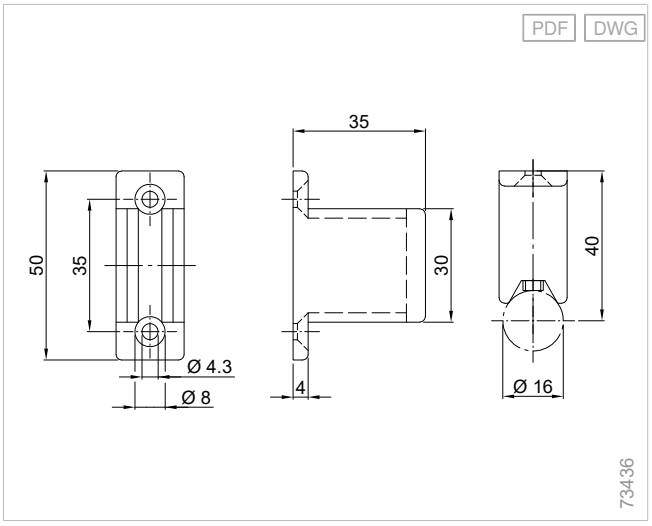
Standard crank holder



Material: plastic

Available colours: grey (art. no. 521055), brown (art. no. 521069), white (art. no. 521053)

Crank holder with magnet



Material: plastic; **Colour:** grey

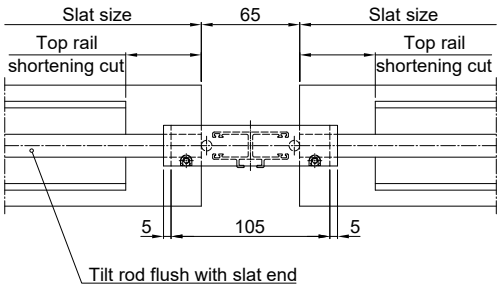
Mechanical coupling for external venetian blinds

Additional product information

Coupling situations without axial deviation

Rail guidance

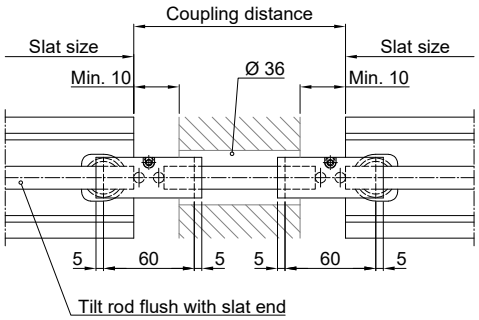
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70405v1

Cable guidance using existing components

PDF DWG

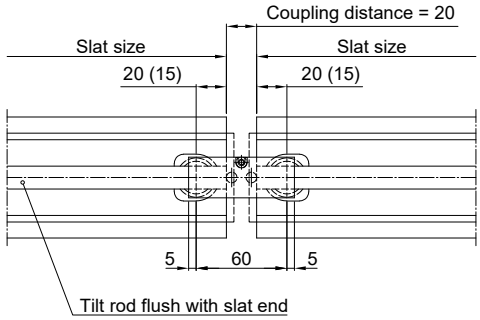


70408v1

Standard: 50 mm top edge shortening on the coupling side. Please indicate deviating dimensions when ordering!

Cable guidance

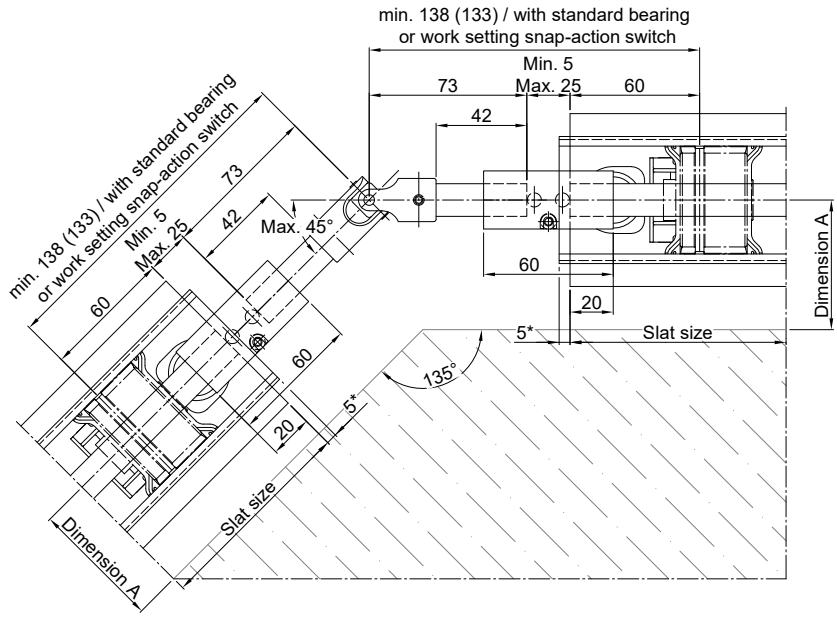
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70407v1

Coupling situations with axial deviation

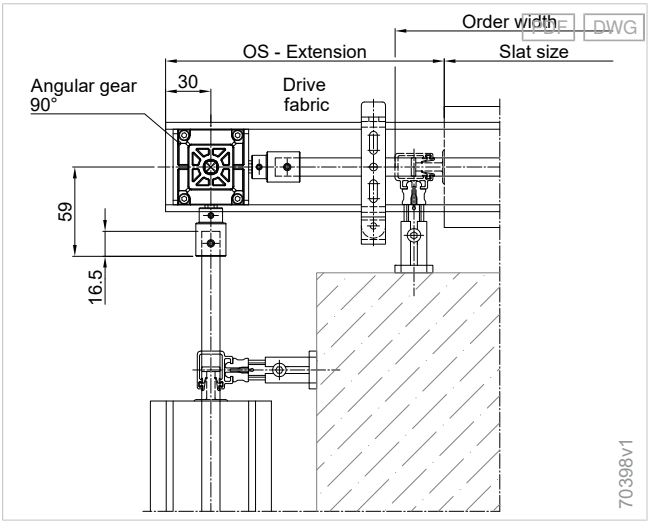
Mechanical coupling, coupling situation with universal joint



* (Top rail extension for 15 mm line distance)

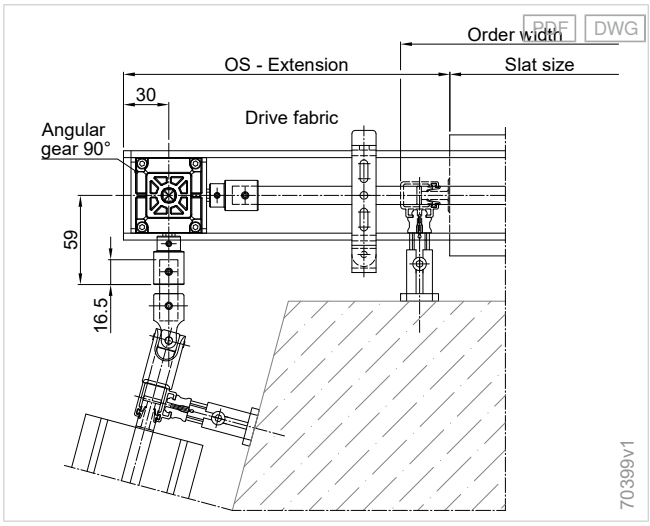
Axial deviation up to max. 45°

Coupling situation 90° angle with bevel gear



The play in the gear may cause the slat position of the blinds to vary

Special version with mechanical coupling deviating from 45° or 90°



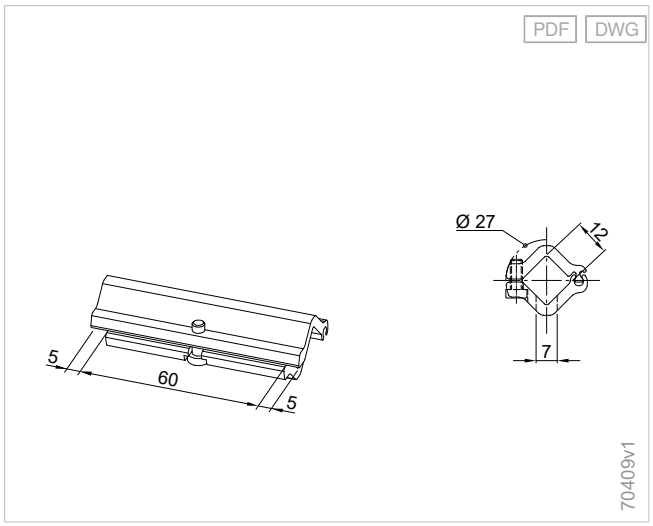
The play in the gear may cause the slat position of the blinds to vary

Detailed information on tilt rod couplings

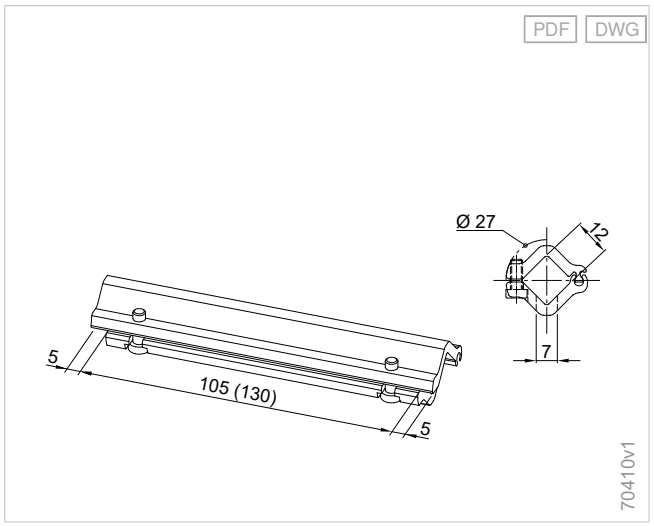
Notes:

- The drilled holes help with installation positioning.
- Feedthroughs through supports, pillar profiles, poles, etc.: generally Ø 36 mm.

Hinged tilt rod coupling, 60 mm



Hinged tilt rod coupling, 105 mm



Detailed information on universal joints

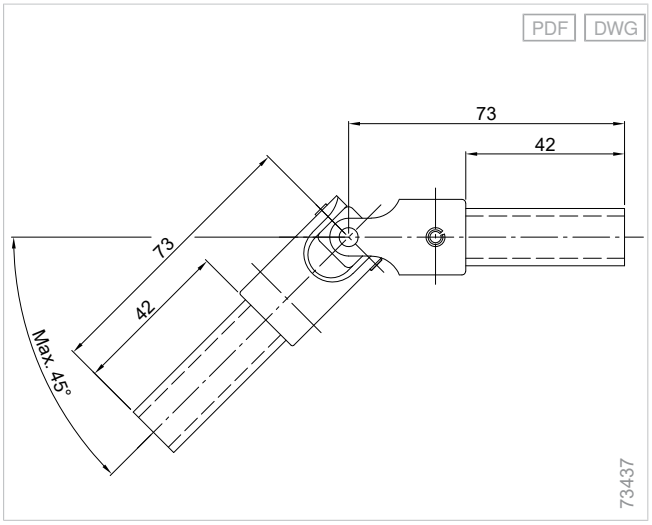
Universal joint to tilt rod connection

Coupling for tilt rod	Art. no.
60 mm	532052
80 mm	532021
150 mm	532022

When using universal joints, please note:

- Additional bearings are required at the end of the top rail.
- The top rail and the bracket must be screwed together (DIN 7981-A2 C3.5x9.5; art. no. 720005).

Universal joint, premounted



Art. no. 532051

Contents

Standards

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Intended use (external venetian blinds)

The external venetian blind is an external sun shading system and is used for sun shading or glare control.

To ensure intended use of the product it must be raised in time before any of the following conditions occur:

- wind exceeding the admissible maximum wind speed limits
- snowfall
- storm fronts and bad weather fronts (gusts)

Due to the nature of the system, incidence of daylight cannot be completely avoided when closed. If a complete dim-out of the interior is required, an additional full dim-out is required.

Intended use also includes observing these instructions and adhering to the care and maintenance conditions.

On-site requirements

The user must ensure that the products and services used are tested and suitable for the intended purpose. This includes, among other things, the condition and load-bearing capacity of the mounting substructure and any wind loads acting on the facade. Special features specific to the building project must be checked on-site and passed on to WAREMA as part of the order. That the products are used as intended is the responsibility of the user.

Weather protection (external venetian blinds)

Rough climatic conditions place significant demands on external sun shading systems. WAREMA external venetian blinds are tested in a wind tunnel and have proven their qualities in practice – even under the most extreme weather conditions.

Operation in icy conditions

Operating the product at temperatures around or below freezing point can lead to malfunctions and/or damage to property in the case of unfavourable installation and building situations. Following exposure to condensation water, rain or snow, the product can freeze up at low temperatures. If the control does not have an ice alarm, automatic mode must be switched off during winter. Before operation, the product must be cleared of snow and ice in order to make it serviceable. Operating the product while iced over is forbidden.

Wind resistance in the retracted or raised state

All WAREMA products intended for outdoor use are designed for a wind load of 1.1 kN/m^2. The directive entitled "Wind loads for construction of closures and awnings when retracted" (published by the Industrieverband Technische Textilien - Rollladen - Sonnenschutz e.V. - ITRS and the Bundesverband Rollladen + Sonnenschutz e. V.) defines the positions at which these products can be installed without requiring special precautions!

Additional loads on the sun shading product in the form of hanging objects or guy ropes could damage the product or cause it to detach from the wall and are therefore not permissible.

Wind resistance of extended unit (external venetian blinds)

With external venetian blinds, the Cp value can vary greatly due to their dynamic movements. For this reason, defining a wind speed is unsuitable for assessing the Cp value due to the static pressure that an external venetian blind is able to withstand. This essential definition is made in Appendix A DIN EN 13659.

The substructure, distance to the facade, height and corner position also influence the maximum possible wind speed, but these factors are not taken into account in the standard (DIN EN 1932:2013-09 Closures and awnings – Resistance to wind load – Test methods and performance criteria), even though these factors have a significant impact on the product's wind resistance.

DIN EN 1932 (8.2.3 Arrangement and dimensions of the sample) describes the test on a specified test size (2000 mm x 2500 mm) and below a specified static pressure. Therefore, the transferability of the tested wind resistance class (DIN EN 13659 Table 1 – Wind resistance classes) to deviating products is barely possible in accordance with the standard DIN EN 13659.

In order to take these significant influences into account, recommendations for the correct use with maximum wind speeds in m/s are given for the products (external venetian blinds). Please note that the maximum wind speeds here only apply for closed windows and not for corner positions. In addition, the positioning and number of wind sensors used must be seen dependent on the geometry and position of the building. For more information, please refer to the guideline for the use of wind sensors from IVRSA.

The external venetian blinds will only meet the requirements of the stated wind speed limits when mounted if

- the recommended number of brackets, holders and guides are mounted.
- the instructions from the screw anchor manufacturers are followed during installation.

If the unit is installed on wood, it will not be possible to provide a wind speed limit due to the building material's inherent variability.

Beaufort table

The following Beaufort table contains the average wind speeds allocated to Beaufort degrees and describes the effect of the wind.

Beaufort level	Designation	Average wind speed m/s	Average wind speed km/h	Levels for determining the wind speed limits m/s	Back pressure q (average value) in N/m2	Examples of the effects of inland wind
0	Calm	0–0.2	<1	0	0	Smoke rises vertically
1	Slight draught	0.3–1.4	1–5	0	0.6	Wind direction indicated by the draught of the smoke
2	Light breeze	1.5–3.4	6–12	1	6	Wind can be felt in the face, leaves rustle, vanes begin to move
3	Light breeze, light wind	3.5–5.4	13–19	3	16	Wind moves thin twigs and stretches pennants
4	Moderate breeze, moderate wind	5.5–7.4	20–27	5	30	Wind causes twigs and small branches to move, raises dust and loose paper
5	Fresh breeze, fresh wind	7.5–10.4	28–37	7	60	Small trees in leaf begin to sway, white crests begin to form on lakes
6	Strong wind	10.5–13.4	38–48	10	110	Strong branches sway, umbrellas are difficult to control, telegraph cables howl in the wind
7	High wind	13.5–17.4	49–62	13	160	Effort needed to walk against the wind, whole trees in motion
8	Gale	17.5–20.4	63–73	17	230	Twigs break off trees, walking is quite difficult
9	Strong gale	20.5–24.4	74–87	20	330	Branches break off trees, minor damage to buildings (roof tiles or smoke hoods are lifted off)
10	Heavy storm	24.5–28.4	88–102	24	460	Wind breaks trees, extensive damage to buildings
11	Violent storm	28.5–32.4	103–117	28	600	Wind uproots trees, wide-spread storm damage
12	Hurricane	From 32.5	From 118	32	770	Serious devastation

External venetian blind wind speed limits

Beaded slats

Wind speed limits according to the Technical Directive Sheet 6.2, pages 1 and 2, of the German association "Rollladen + Sonnenschutz e. V.".

Permissible wind speeds in m/s with rail guidance

Width / Height	1000	1500	2000	2500	3000	3500	4000	4500	5000
1000	17	17	17	17	17	17	17	17	17
1500	17	17	17	17	17	13	13	13	13
2000	17	17	17	17	17	13	13	13	13
2500	17	17	17	17	17	13	13	13	13
3000	17	17	17	17	17	13	13	13	13
3500	17	17	17	13	13	13	13	13	10
4000	17	17	17	13	13	13	13	10	10
4500	17	17	17	13	13	13	10	10	10
5000	13	13	13	13	13	10	10	10	10

Wind speed limits dim-out slats 73, 90, 93: For rail-guided dim-out slats 73, 90, 93, the next biggest table value may be used (up to a max. of 17 m/s).

Permissible wind speeds in m/s with cable guidance

Width / Height	1000	1500	2000	2500	3000	3500	4000	4500	5000
1000	17	17	17	13	13	13	13	13	13
1500	17	17	17	13	13	13	13	13	10
2000	17	17	17	13	13	13	13	13	10
2500	17	17	13	13	10	10	10	10	10
3000	13	13	13	10	10	10	8	8	8
3500	13	13	10	10	10	8	8	8	8
4000	13	10	10	10	8	8	8	8	8
4500	10	10	10	8	8	8	5	5	5
5000	10	10	8	8	8	5	5	5	5

Flat slats

Permissible wind speeds in m/s with rail guidance

Width / Height	1000	1500	2000	2500	3000	3500	4000	4500	5000
1000	17	17	13	13	13	10	10	10	10
1500	17	17	13	13	13	10	10	10	10
2000	17	17	13	13	13	10	10	10	10
2500	17	17	13	13	13	10	10	10	10
3000	17	17	13	13	13	10	10	10	8
3500	17	17	13	13	13	10	10	10	8
4000	17	13	13	13	10	10	10	8	8
4500	13	13	13	10	10	10	8	8	8
5000	10	10	10	10	10	8	8	8	8

Permissible wind speeds in m/s with cable guidance

Width / Height	1000	1500	2000	2500	3000	3500	4000	4500	5000
1000	17	17	13	13	13	10	10	10	10
1500	17	17	13	13	13	10	10	10	10
2000	17	17	13	13	13	10	10	10	10
2500	17	13	13	13	10	10	10	10	10
3000	13	13	13	10	10	10	8	8	8
3500	13	13	10	10	10	8	8	8	8
4000	13	10	10	10	8	8	8	8	8
4500	10	10	10	8	8	8	5	5	5
5000	10	10	8	8	8	5	5	5	5

Zetra slats

Permissible wind speeds in m/s

Width / Height	1000	1500	2000	2500	3000	3500	4000	4500
1000	22	22	20	17	17	17	17	17
1500	22	22	20	17	17	17	17	17
2000	22	22	20	17	17	17	17	17
2500	22	22	20	17	17	17	17	17
3000	22	22	20	17	17	17	17	17
3500	22	22	20	17	17	17	17	17
4000	22	22	20	17	17	17	17	13
4500	22	22	20	17	17	17	13	13

- The values are valid only in combination with reveal installations, fascia profiles or closed guide rails!
- With all other installation situations, the wind values from the table for beaded, rail-guided slats apply

Change in wind speed limits

The previously stated table values should be changed in the following cases:

1. Facade distance:

- Facade distance > 200 mm to 300 mm: use next smallest table value
- Facade distance > 300 mm up to 500 mm: reduce table value by 2 levels

2. Reveal installation: Up to a maximum width of 3000 mm, use the next largest table value (max. 17 m/s).

3. Material thickness: < 0.4 mm - use the next smallest table value

To protect the external venetian blinds and to ensure optimum shading, we recommend the use of a WAREMA sun shading control system with wind/photo sensor.

Windra flat slats with rail guidance

Permissible wind speeds in m/s with rail guidance

Width Height	1500	2000	2500	3000
1000	25	25	22	22
1500	25	25	22	22
2000	25	25	22	22
2500	25	25	22	22
3000	25	25	22	22
3500	25	25	22	22
4000	25	25	22	22

The wind speeds indicated are limit values at which the external venetian blind must be retracted.

(Table value classifications: 25 m/s - 22 m/s - 20 m/s - 17 m/s - 15 m/s - 13 m/s - 10 m/s - 8 m/s - 6 m/s)

Please note:

- The table values are only valid for a facade distance of up to ≤100 mm.
- For facade distances > 100 mm, the notes concerning the change in wind speed limits with increased facade distances or reveal installations must be observed.

The previously stated table values should be changed in the following cases:

1. Facade distance: Facade distance > 100 mm up to 200 mm: reduce table value by 1 level.

2. Reveal installation: Distance to the glazing > 100 mm to 200 mm: reduce table value by 1 level.

Facade distances > 200 mm: Wind speed limits on request

Windra flat slats with cable guidance

Permissible wind speeds in m/s with cable guidance

Width in mm Height in mm	1500	2000	2500	3000
1000	22 (20)	22 (20)	17*	17*
1500	22 (20)	22 (20)	17*	17*
2000	22 (20)	22 (20)	17*	17*
2500	22 (20)	17*	17*	15*
3000	17*	17*	15*	15*
3500	17*	15*	15*	15*
4000	17*	15*	15*	13*

The wind speeds indicated are limit values at which the external venetian blind must be retracted.

(Table value classifications: 25 m/s - 22 m/s - 20 m/s - 17 m/s - 15 m/s - 13 m/s - 10 m/s - 8 m/s - 6 m/s)

Please note:

- The table values are only valid for a facade distance ≥ 85 und ≤ 100 mm.
- Tension cables only permissible with spring tension device and thread end piece. The seat for the thread end piece must be rated for a force per tension cable of 600 N (e.g. special tension cable bracket SF or SL or threads provided on-site). Required thread reach min. 30 mm.
- On-site bracket fixing must be rated for a force per tension cable of 600 N.
- For facade distances > 100 mm, the notes concerning the change in wind speed limits with an increased facade distance must be observed.

The previously stated table values should be changed in the following cases:

Facade distance > 100 mm to 200 mm:

- Table value in brackets must be used.
- Table values marked with * can be improved by one wind speed limit through one of the following additional measures:
  - Use of a control (holding in intermediate position not possible, slat tilting only in fully lowered state)
  - Integration of an additional tension cable

Facade distances > 200 mm: Wind speed limits on request

Installation on conservatory or patio roofs

Limitations to the permissible wind speeds:

- Due to the exposure to wind, external venetian blinds are only partially suitable for installation on **opened** conservatory or patio roofs!
- When installing on conservatories where windows are opened and draughts occur, the permissible wind speeds for each of the slats used must be reduced by 3 Beaufort classes.
- For a version with beaded slats, an additional guy rope is required from a width of 2400 mm. With flat slats, the additional guy rope from a width of 2400 mm is specified as standard in any case. No additional guy rope is required with dim-out slats.

General information

DIN ISO 9001

The certification according to ISO 9001 is an award that emphasises the high quality level of WAREMA sun shading technology. The requirement covers the entire manufacturing process from design and development to production and through to installation and service.

CE mark

Motorised external and internal sun shading systems are governed by Machinery Directive 2006/42/EC. An EC Declaration of Conformity is available for these products. External sun shading systems, as well as insect screen roller blinds, regardless of the type of drive, are subject to the Construction Products Regulation (EU)/2011. Declarations of performance are available for these products for the mandated property: wind resistance when extended.



All products governed by the Machinery Directive and/or the Construction Products Regulation are provided with a CE-mark.

Manually operated internal sun shading systems are not governed by either of these two directives or regulations and must not, therefore, be provided with a CE-mark. External or internal sun shading systems conform to the relevant standard, which sets out the details therein:

DIN EN 13659, DIN EN 13561 or DIN EN 13120.

Exceptions - the following products are not provided with a CE-mark: sun sails, patio side screens, insect screen products such as fixed frames, swivel doors, etc. - these products are either not mentioned in the harmonised standards or no testing procedure is defined.

Service life of external venetian blinds

All WAREMA products are designed to be especially durable. All WAREMA products fulfil durability classes 1, 2 or 3 as standard, tested according to DIN EN 14201.

WAREMA external venetian blinds, without exception, meet the highest service life class (3). In accordance with DIN EN 13659, this corresponds to 10,000 movements and a total of 20,000 slat tiltings. The assumed two movement cycles per day correspond to an expected service life of at least 15 years.

Fixing of products

When ordering, ensure that the selected mounting accessories are suitable for the respective mounting substructure and that the processing instructions given by the fixing materials manufacturer are followed.

230 V lines

All 230 V lines fulfil Euro class Fca. Special lines are to be requested if necessary.

Corrosion

WAREMA products achieve the corrosion classes described in the relevant standard. However, under extreme conditions (e.g. close to the coast), some corrosion of exposed stainless steel, chrome-plated or zinc-coated components may occur.

Sound insulation in building construction

Currently, no recognised testing method for power-operated closures/awnings exists to determine the emissions in accordance with "DIN 4109-1:2018 Sound insulation in building construction". Because of this, it is not possible to provide the planner with concrete values for the respective sun shading system that they can use to determine the occurring immission in the room requiring insulation in advance with a transfer function.
ITRS e. V. shall provide a leaflet for sun shading systems in combination with sound insulation in building construction as support up until a recognised testing procedure exists.

The leaflet for sun shading systems in combination with sound insulation in building construction can be found on the IVRSA homepage in the "Technical documents" section.

Noise emission level

For standard installation, the noise emission level is < 70 dB (A). This value may vary depending on the installation concerned.

Height-to-width ratio of external venetian blinds

The maximum and minimum dimensions specified in the construction limit values are height-dependent. We therefore recommend that the height does not exceed a size ratio of 4:1.

This means: For a width of 800 mm, the external venetian blind can be produced only up to a height of 3200 mm without limiting the functionality (e.g. closing of the slats, inefficient movement behaviour).

Units with a height-to-width ratio of greater than 5:1 are available only with a warranty disclaimer.

For small order dimensions, maximum tolerances in accordance with the ITRS Industrieverband Technische Textilien – Rollladen – Sonnenschutz e.V. guideline for assessing the product properties of external venetian blinds should be consulted.

Products in emergency route areas

Sun shading systems without special options must not be installed in emergency route areas, since they can – in case of a power failure, for example – no longer be raised and thus block emergency routes. Local regulations on emergency routes must be observed.

Note on drawing contents

The greyed-out sections of the illustration represent interfaces to general trades which, on the whole, must be planned and performed independently and on-site. WAREMA does not provide services for the greyed-out interfaces and assumes no liability for them.

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