Venetian blind window system

Technical data

Valid from 01/02/2013

Quality of Life - WAREMA.

WAREMA

Venetian blind window system
Technical data catalogue

General information

Technical catalogue, valid from 01/02/2013.
The publication of this document supersedes all previous corresponding documents.

For our general terms and conditions please visit our website www.warema.com under the heading "Imprint" or click on http://www.warema.com/gtc to view and download the file.

We reserve the right to make alterations in the interest of technical progress. Particular care was taken in producing the text and graphics in this document. No liability is assumed for any errors or consequences of such errors occurring in this documentation.

Our products are individual made-to-measure items and therefore cannot be exchanged or returned.

Safety instructions
Please see detailed information in the technical catalogue or in the mounting and operating instructions.

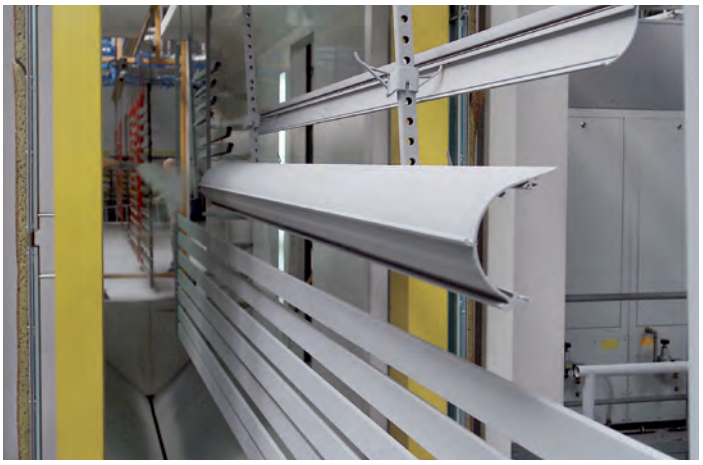
Imprint
WAREMA Renkhoff SE
Hans-Wilhelm-Renkhoff-Strasse 2
97828 Marktheidenfeld
Germany

WAREMA and the WAREMA logo are registered trademarks owned by WAREMA Renkhoff SE. Other distinctive signs listed here are marks or registered trademarks held by their respective owners.

© WAREMA Renkhoff SE

Service, quality
and reliability.

As market leader for sun shading systems WAREMA consciously prioritises innovations which are tailored to market requirements. In addition to the constant expansion of our product range this also includes the extraordinary quality of our products and our services, allowing us to offer an integrated product portfolio with comprehensive consulting services. Our claim is to deliver as soon as possible – with individual manufacturing. You can see that WAREMA is a partner you can fully rely on.



Our production equipment is developed and built mainly by our subsidiary WAREMA Kunststofftechnik und Maschinenbau GmbH. It is this independence that enables us to quickly react to changes on the market and adapt our products directly to the new requirements.

But WAREMA is not just unique with the products we offer: In addition to individual custom solutions we also stand for first rate quality management and a sustainable environmental approach. We check all materials for quality as well as recyclability.

We have a well established national and international network. More than 100 international advisers can offer support for worldwide projects in more than 48 countries. Numerous planning tools are available online. So you can be sure to always receive an answer to your questions.

vivamatic®

Daylight management for external venetian blinds

vivamatic®
Daylight management for external venetian blinds

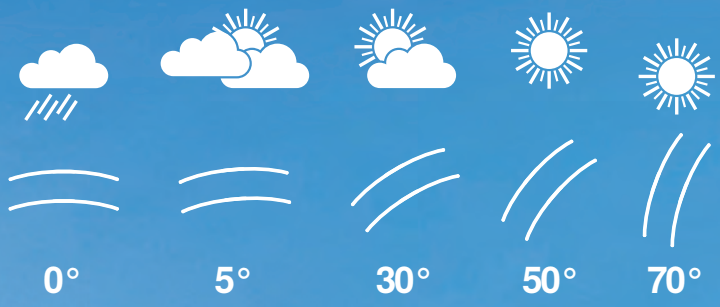
- **Maximum daylight utilisation** without darkening the room already during lowering (user remains undisturbed)
- **Best possible room illumination** plus heat protection
- **Reduced use of artificial light** and no artificial light required for the short period of lowering the external venetian blinds
- Continuous, **automatic readjustment** of the slat angle provides permanent feel-good atmosphere – for the whole day
- **Comfortable control** using WAREMA climatronic® 2.0
- **Reduces energy consumption** for air conditioning of the building and increases energy efficiency. Sustainably.

Available from February 2013
www.vivamatic.com

vivamatic® cannot be seen. But you can see the result: The intelligent daylight management always ensures best possible light utilisation. The external venetian blind slats are always set to the appropriate angle. This improves energy efficiency while maintaining maximum comfort so you can enjoy tomorrow's quality of life today.

Maximum comfort and energy efficiency with vivamatic®

A day with vivamatic® Late morning the external venetian blind slats are wide open. The room is flooded with daylight. It is comfortably bright. Sunshine creates excitement about what the day will bring. In the afternoon, half-shade protects the eyes. The sun is high in the sky but glare remains outside. The air conditioning is idle. Artificial lighting? Remains switched off. In the evening the slats are still at the correct angle. Not one single manual adjustment. That is vivamatic® – the intelligent daylight management for external venetian blinds with maximum comfort and energy efficiency.



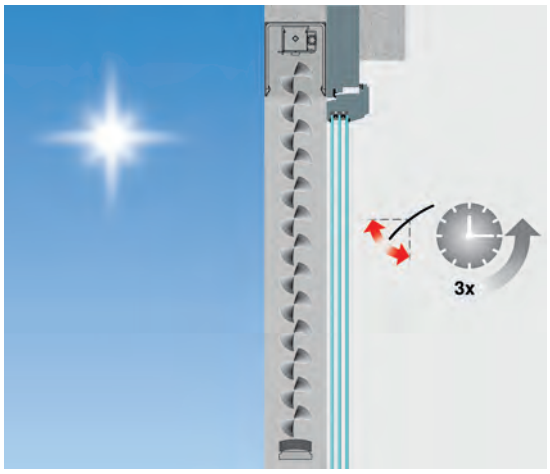
Always at the perfect slat angle

New products 2013

External venetian blinds

Venetian blind window system – now also available as shaft versions

The perfect solution for installation in existing shafts.
There are no fixing points in the shaft, making mounting simple and efficient.
The new shaft external venetian blinds are particularly suitable for use in timber frame buildings and in renovation and refurbishment projects.



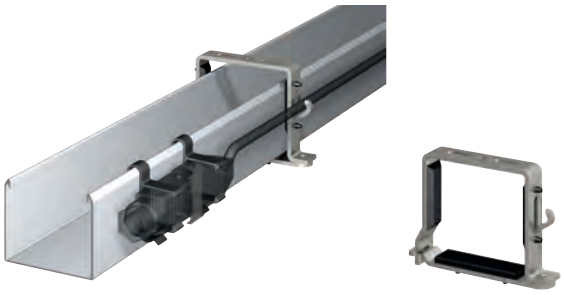
More exact slat positioning = improved energy efficiency

External venetian blinds with the additional function slowturn feature a reduced slat tilting speed.
The available time is tripled compared to standard external venetian blinds, achieving a more precise positioning of the slats. Using a higher-level sun shading control system allows slowturn to sustainably improve the energy efficiency of the building.

He who stops being better stops being good – this best sums up WAREMA's quality standard. It is not just about providing our customers with high-grade materials and first-rate workmanship; we want more.

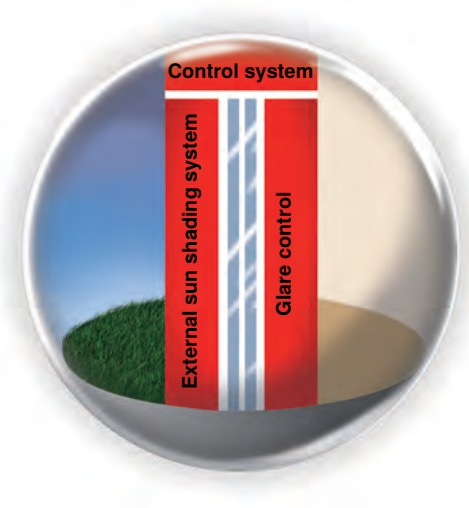
In addition to our strict quality management we make sure our products and services are consistently adapted to our customers' changing needs. The result is a unique range of modern solutions for a large variety of applications. Numerous awards (e.g. Innovation Prize R+T), seals of quality and patented products show us that we are on the right track.

The following product development will be delivered as a standard from the 2nd quarter 2013.



Whisper quiet external venetian blinds – as a standard.
The new standard noise-optimised top rail support significantly reduces the sound transmitted by the structure of external venetian blinds. The movements of the external venetian blinds are therefore barely audible inside the building.
Your advantage: Revision does not affect planning or mounting.

Room climate intelligently controlled – the WAREMA system concept.



The OPTI SYSTEM

External sun shading system
External WAREMA sun shading systems reduce incidence of light and optimise the use of solar energy. The principle is simple: Depending on time of day or year more or less sunlight is allowed in and the system uses more or less of the possible solar energy gain.

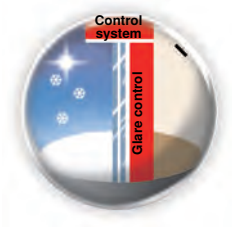
Internal sun shading system
The internal WAREMA product provides additional glare control all year round and reduces cold loss through the glazing, providing comfort and high convenience. Visual privacy or view out can be individually adjusted. High-grade materials and a varied colour palette give individual style to any room.

Intelligent control
WAREMA control systems create the best possible room climate and ensure solar energy gain according to demand.
This is ensured by optimised incidence of light, adjusted to the current weather situation. And all this around the clock.

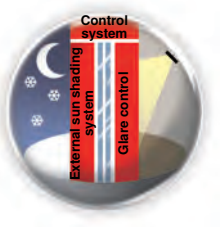
Best possible sun shading systems and distinct energy savings are an interesting aspect for any home owner today. The WAREMA OPTI SYSTEM offers the ideal room climate – comfortable cool in summer and cosy warm in winter. Fully automatic with maximum comfort. With existing heat protection glazing the combination of external adjustable sun shading, internal glare control and an intelligent control saves up to 40 percent of energy costs.
Further information can be found at www.warema.com/optisystem

Summer daytime
On a hot summer day the sun has to be mostly shut out in order for the building to remain comfortably cool. The external sun shading reduces incidence of light and allows glare-free working.

Summer night time
At the end of a hot summer day the building will have heated up. At night the control raises all existing sun shading components. This supports the building cooling down.



Winter daytime
On a cold winter day only the internal glare control is used.
Due to the low sun the requirement on this are particularly high. Dark, absorbent colours ensure that a large quantity of solar energy can be used.



Winter night time
During the cold winter night the building has to be protected from heat loss.
This requires all sun shading products to be lowered. The resulting air pockets between the individual components improve heat insulation.

External venetian blinds

perfect sun shading with modern design

External venetian blinds with beaded slats
combine high utility with robust technology. Thanks to the slat angle adjustable by almost 180°, the external venetian blinds are suitable for nearly all types of application.

Wind-stable external venetian blind
This external venetian blind can actively shade you from the sun up to a wind force of a beginning 10. This model is required above all for high buildings and locations exposed to the wind. It is usually possible to retrofit or modify your external venetian blinds to make them wind-stable.

Self-supporting external venetian blinds
The heavy rails are often used as an optical feature for the facade design. As the cover panels are mounted in a self-supporting fashion on or between the guide rails, only very few fixing points are required at the facade or the window. This version is also perfectly suitable for the use on facades of heat insulation composite systems.

External venetian blinds with flat slats
stand out for their filigree design and their low slat stack heights. With retracted external venetian blind, the cable guidance that is only 3.3 mm thick is almost invisible.

External venetian blind
External venetian blinds with 50 mm slat width and cable guidance can be used in buildings with smaller window dimensions (e.g. when refurbishing older buildings). Benefits include the low slat stack height and the many different methods of operation.

The term "sun shading" stands for the efficient control of the room climate. Since they absorb 60-80% of the solar radiation already in front of the window pane, external venetian blinds are ideally suited for this job. They keep the room nice and cool. In winter, they let light and warmth penetrate the windows to save heating energy. And they are an ideal tool for adjusting the room brightness and can even darken a room sufficiently for presentations. Besides, they compliment the architectural concept of your building in the optimum manner.
This is because they are WAREMA solutions, uncompromising in terms of design and quality.

Dim-out venetian blinds
are especially suitable for the obscuration of rooms due to the slat design with special profile. The slat geometry of the slats ensures excellent closing, and the UV-resistant sealing strip on the lower edge of the slat seals even the smallest light gap. However, all of the other usual functions of our external venetian blinds are retained with this version of external venetian blind.

Front-mounted external venetian blinds
Front-mounted external venetian blinds combine high utility, state-of-the-art technology and modern design with the optical appearance of front-mounted roller shutters. Specifically in residential rooms, they act as light regulator to provide reliable sun shading and sufficient privacy.

Metal system venetian blinds
Omitting the cut-outs in the slats for metal system venetian blinds means there are no more distracting spots of light in the interior and the external venetian blind is ideal for blacking out rooms. The raising mechanism of the external venetian blind contains small metal chains in the guide rails, the slats are connected by steel wire cord made of corrosion-resistant steel. Metal system venetian blinds include an integrated push-up guard, offering increased burglary protection.

Asymmetrical external venetian blinds
Asymmetrical external venetian blinds can be used on almost all sloping windows that are a standard feature in modern architecture. WAREMA's asymmetrical external venetian blinds visually blend with other external venetian blinds to create a uniform visual appearance.

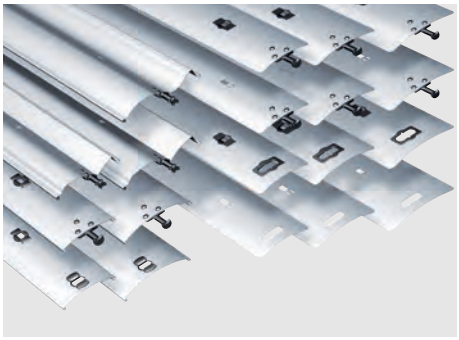
Perfection

Technology in detail

Operation/Drive
At the press of a button, the middle motor lifts, lowers and adjusts the slats. The application of central motors allows coupling of additional curtains on both sides. The standard motors used by WAREMA can be adjusted in the upper and in the lower limit position. In retrofittings, where no power supply is possible, the crank drive will be used. WAREMA generally supplies units with crank drive with a patented thermal separation. The new WAREMA pivot bearings with thermal separation reduce the energy loss occurring due to air exchange and heat conduction. The sealing of the pivot bearing plate prevents an air exchange even with rough mounting substructures. The thermal separation of the driving rod increases the surface temperature of the pivot bearing and reduces heat conduction in the pivot bearing rod to a considerable degree. Measurements at an independent institute certify an energy loss reduced by 50% compared with standard pivot bearings. The sealing as well as the increased surface temperature also prevent the formation of condensation.

Cable guidance
For sun shading systems that are to be integrated into the facade as unobtrusively as possible, the delicate cable guidance with a thickness of only 3.3 mm is the ideal solution. To complement this cable guiding we offer a large variety of lower tension cable brackets for optimum adjustment even in complicated installation situations. And an attractive appearance is guaranteed as well. To prevent any slackening of the corrosion-proof, polyamide-sheathed steel wire cord due to weather we use a spring tension device which is mounted invisibly into the top rail of the external venetian blind.

Guide rail
Thanks to the large selection of different guide rails, WAREMA offers the right external venetian blind for any type of facade. The guide rails are either available anodised according to EURAS standard colours or powder-coated in WAREMA standard colours. Special colours of the RAL or NCS colour range are available on request.



Slats are available in these versions:
Made of aluminium alloy (approx. 0.45 mm thick), with a standard width of 60 or 80 mm, as beaded slat or flat slat with and edge coating. With special profiles with sealing strips for optimum dim-out, 73 and 93 mm wide.

Top material quality, excellent workmanship and a full range of variations: This is what characterises WAREMA external venetian blinds. 26 slat colours can be combined with facade shade or used as design features. Cover panels protect the slat stack but also function as a design feature on the facade. WAREMA sun shading control systems provide energy-efficient control.

Cover panels

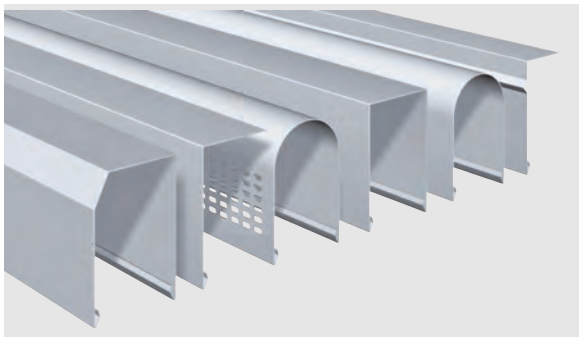
WAREMA cover panels for external venetian blinds are designed to protect the retracted slat stack against the wind and weather.

Our cover panels are also popular as creative elements in facade design, because we offer them in all RAL colours and an extensive selection of shapes and styles.

Colours

WAREMA external venetian blinds are available in up to 26 slat colours. Slats and guide rail colours can be combined individually. As a special feature, the entire system is available in white.

We can provide all aluminium parts, except for the slats, in almost all colours of the RAL colour chart. Thus, the blind in its various combinations can be either set off in colour or adapted to the facade in a matching tone. For 50/60/100 mm slat widths, only a limited selection of slat colours is available!



Number	Slat colour	Name
RAL 1015		Light ivory
RAL 1019		Grey beige
RAL 1036		Pearl gold
RAL 3004		Purple red
RAL 5011		Steel blue
RAL 6009		Fir green
RAL 7016		Anthracite grey
RAL 7035		Light grey
RAL 7038		Agate grey
RAL 8014		Sepia brown
RAL 9006		White aluminium
RAL 9007		Grey aluminium
RAL 9010		Pure white
RAL 9016		Traffic white
DB 502		Blue iron mica effect
DB 603		Green iron mica effect
DB 702		Grey iron mica effect
DB 703		Anthracite iron mica effect
W 3005		Wine red pearl mica effect
W 4800		Light beige
W 4919		Earth brown iron mica effect
W 4922		Cappuccino
W 7329		Dark bronze
W 8000		Selective slat
W 8100		Millfinish II
W 8780		Light bronze

Control system

WAREMA sun shading control systems offer the perfect solution for any field of application. The simple model with EWFS plug receiver, remote control and radio weather station is particularly suitable for retrofit projects with minimum cabling requirements.
WAREMA Wisotronic is the optimal solution for one-family homes and smaller objects with many comfort functions. WAREMA climatronic® also offers connection possibilities for light, heating or ventilation.
Moreover,integrated slat tracking helps to ensure best possible room lighting while at the same time ensuring heat and glare control.

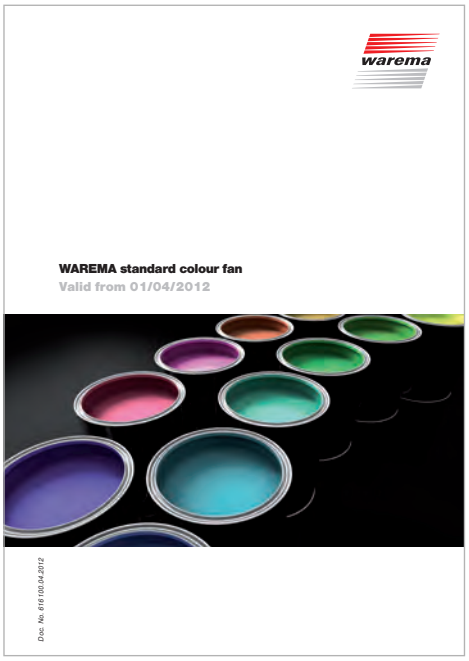
Colours

Feel and live

Standard colours for powder-coated aluminium parts
All colours of the RAL CLASSIC colour chart, the colours DB 701, DB 702, DB 703 as well as 8 WAREMA textured colours with metallic look, according to WAREMA colour specification, are available for cover panels, guide rails, tension cable brackets and bottom rails.

In addition to the elegant look of the textured colours they also provide another advantage. Thanks to the fine surface structure water containing dirt particles rolls off very easily.

Of course the aluminium parts can also be coated in customised colours, deviating from the WAREMA colour specification.

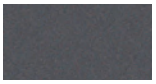


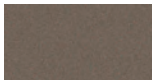
WAREMA textured colours

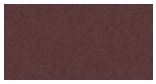

MS white aluminium
W 4914

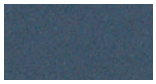

MS grey aluminium
W 4915

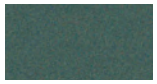

MS anthracite
W 4916


MS black grey
W 4917


MS sepia brown
W 4918


MS earth brown
W 4919


MS steel blue
W 4920


MS dark green
W 4921

External venetian blinds

Overview of standard slat colours – external venetian blinds

Colours			Price category	External venetian blind slats				
				80/80 AF	73/90/93	60 /60 AF	100 AF	50 AF/ 150 AF
RAL 1015	Light ivory		1	●	●			
RAL 1019	Grey beige		2	●	●			
RAL 1036	Pearl gold		2	●	●			
RAL 3004	Purple red		1	●	●			
RAL 5011	Steel blue		1	●	●			
RAL 6009	Fir green		1	●	●			
RAL 7016	Anthracite grey		1	●	●	●		
RAL 7035	Light grey		1	●	●	●		
RAL 7038	Agate grey		1	●	●	●		
RAL 8014	Sepia brown		1	●	●			
RAL 9006	White aluminium		1	●	●	●	●	●
RAL 9007	Grey aluminium		1	●	●	●	●	●
RAL 9010	Pure white		1	●	●			
RAL 9016	Traffic white		1	●	●	●	●	
DB 502	Blue iron mica effect		2	●	●			
DB 603	Green iron mica effect		2	●	●			
DB 702	Grey iron mica effect		2	●	●			
DB 703	Anthracite iron mica effect		1	●	●	●		
W 3005	Wine red pearl mica effect		2	●	●			
W 4800	Light beige		2	●	●			
W 4919	Earth brown iron mica effect		2	●	●			
W 4922	Cappuccino		2	●	●			
W 7329	Dark bronze		1	●	●			
W 8000	Selective slat[1)]		3	●	●			
W 8100	Millfinish II[1)]		3	●	●			
W 8780	Light bronze		1	●	●			

[1)] *Slat back side RAL 9006.*

Colour variations are a result of the printing process.

Special slat colours on request.

Owing to the different manufacturing processes, colour differences between slats and powder-coated aluminium parts are unavoidable.

WAREMA sun shading planner

The WAREMA sun shading planner will help you to plan your sun shading system and appropriate control system quickly and reliably. Short descriptions and application examples help you with choosing your system. Use the sun shading planner to generate your own drawings, with your own dimensions and the correct measurements. You will find the right texts for quotation in the generated solution in the sun shading planner or at **www.warema.com** under the **heading Services/Texts for Quotation.**

The information can be output in all common file formats or it can be transferred directly to your design software. This system is interactive and platform-independent; installation on your computer is not necessary. You can find the current version online under **www.sonnenschutzplaner.de**

To use the sun shading planner offline it can be downloaded and updated over the internet.

Order forms

You can find all order forms on the Order Forms CD (which can be ordered by sending doc. no. 939904 to werbemittel@warema.de) or as free downloads at **www.warema.com in the Customer Network under Online Order (WOS) – Order Forms**. Or use our WAREMA Online Services for easy and convenient online ordering.

CE marking

EC Declaration of Conformity are available for all external sun shading products as well as for internal units with motor operation (230 Volts). The products conform to DIN EN 13659:2009-01 (external venetian blinds/roller shutters), DIN EN 13561:2009-01 (awnings) or DIN EN 13120:2009-04 (internal sun shading systems). These standards govern the requirements for external and internal sun shading systems and form the basis for the CE marking.
All electrical drives used are certified in line with current applicable standards and carry the respective markings.

warema CE
WAREMA Renkhoff SE
97828 Marktheidenfeld
Deutschland
DIN EN 13561

All WAREMA products are designed for especially high durability. All WAREMA products meet durability classes 2 or 3 of the standard, which are set by European standards.

Without exception all WAREMA external venetian blinds fulfil the highest durability class (3) according to DIN EN 13659, tested according to DIN EN 14201, with 10000 movements and a total of 20000 slat turns.
Assuming two movement cycles per day this is equivalent to an expected working life of approximately 15 years.

Quality has a name

Every original WAREMA external venetian blind is clearly but elegantly and discreetly marked with a logo embossing on one of the lower slats, making original WAREMA quality immediately and unmistakably visible.

Contents

Weather protection

Rough climate conditions place significant demands on external sun shading systems. WAREMA external venetian blinds have been tested in a wind tunnel and proven their qualities in practice – even under the most extreme weather conditions.

DIN EN 13659

All WAREMA external sun shading systems carry the CE mark and comply with DIN EN 13659 (External venetian blinds/Roller shutters) and or DIN EN 13561 (Awnings). These standards have been in effect since 1 April 2006 and 1 March 2006 respectively and regulate the requirements of external sun shading systems.
All electrical drives are certified in line with current applicable standards, carry the CE mark and are tested according to VDE.

Our external venetian blinds perform the function of a sun and anti-glare protection system.
Due to the nature of the system, entry of daylight cannot be completed avoided when closed. If complete dim-out of the room is required, additional blackout measures must be taken.

This documentation is intended to explain our products and services and to provide advice on the best possible application in your specific case. This does not release you from the obligation to read this documentation thoroughly to convince yourself of the suitability of our products and services for your intended application. This primarily includes the examination of the general characteristics and specifically the adequate load bearing capacity of the mounting substructures, as well as the disclosure of all respective information in the order placed with us. If our product cannot be used as agreed by reason of incorrect or incomplete information, we or our vicarious agents shall accept contractual or non-contractual liability only in the event of intent or gross negligence.

Note
When ordering please ensure that the selected fixing accessories are suitable for the respective mounting substructure and that the processing instructions given by the fixing materials manufacturer are complied with.

Operation in icy conditions

Do not operate the external venetian blinds while iced over. The unit must first be freed from snow and ice before it can be operated. Liability cannot be accepted for damage to the sun shading system resulting from operation while iced over.
Recommendation: Use electronic control systems with an ice monitoring system. When using a control unit without ice monitoring, switch off automatic operation in winter and ensure that the unit is not iced over before manual operation.

Important information!
External venetian blinds without options must not be installed in the area of escape routes, since external venetian blinds can – e.g. in case of a power failure – not be retracted any more and would thus block escape routes. Local regulations on escape routes have to be complied with.

Your external venetian blind/external blind is a sun shading system. To ensure proper utilisation, it must be retracted in time before any of the following conditions occur:
- Wind stronger than the recommended wind speed limit according to Table 3 on page 22
- Snowfall
- Thunderstorms and cold fronts (gusts)

Wind

WAREMA external venetian blinds/external blinds meet the requirements of DIN EN 13659 and resist dynamic loads of up to 17.4 m/s (equivalent to wind force 7 on the Beaufort scale), depending on lateral guidance, installation situation on site, type, dimensions and distance from the facade. See Table 3 on page 22.

The external venetian blinds/external blinds will only fulfil the requirements of the stated wind speed limits in the mounted state if
- the recommended number of brackets, supports and guides have been mounted
- the dowel manufacturers' instructions have been observed for mounting

For mounting on wood, no wind speed limit can be specified due to the variance of this construction material.

DIN 1055

All WAREMA external venetian blinds designed for external use are designed for wind loads of 1.1 kN/m^2.
The guideline 'Wind loads for the construction of closures and awnings in the retracted position –item 5.1.1"[1)] defines in which situations these products may be mounted without special precautions.

[1)] *issued by the Bundesverband Rollladen + Sonnenschutz e.V. and Bundesverband Konfektion Technischer Textilien e.V. – BKTex*

Wind forces

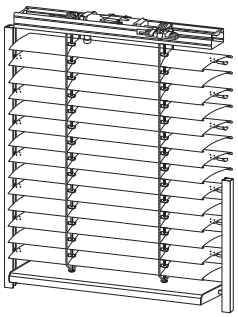
The following Beaufort table contains the wind speeds allocated to Beaufort degrees and describes the effect of the wind.

Beaufort level	Designation	Medium wind speed at 10 m above ground in a free area		Back pressure (average value) q (N/m²)	Examples of the effects of inland wind
		(m/s)	(km/h)		
0	Calm	0-0.2	<1	0	Smoke rises vertically
1	Light air	0.3-1.4	1-5	0.6	Smoke drift indicates wind direction
2	Light breeze	1.5-3.4	6-12	6	Wind felt on exposed skin, leaves rustle, vanes begin to move
3	Gentle breeze Light wind	3.5-5.4	13-19	16	Leaves and small twigs constantly moving, light flags extended
4	Moderate breeze Moderate wind	5.5-7.4	20-27	30	Dust and loose paper raised, small branches begin to move
5	Fresh breeze Stiff wind	7.5-10.4	28-37	60	Small trees in leaf begin to sway, white horses begin to form on lakes
6	Strong breeze	10.5-13.4	38-48	110	Large branches in motion, whistling heard in overhead wires; umbrella use becomes difficult
7	High wind	13.5-17.4	49-62	160	Noticeable resistance when walking against the wind, entire trees move
8	Gale	17.5-20.4	63-73	230	Some twigs broken from trees, progress on foot is seriously impeded
9	Strong gale	20.5-24.4	74-87	330	Some branches break off trees, minor damage to buildings (roof tiles or smoke covers lifted off)
10	Storm	24.5-28.4	88-102	460	Wind breaks trees, extensive damage to buildings
11	Violent storm	28.5-32.4	103-117	600	Wind uproots trees, wide-spread storm damage
12	Hurricane-force	from 32.5	from 118	770	Serious devastation

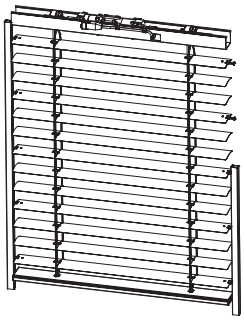
Tab. 1: Wind forces in Beaufort

Product overview

External venetian blinds, beaded slats with rail guidance



External venetian blinds, flat slats with rail guidance



Technical data motor

For measurements and weights, see the respective construction limit values.

Parameter	Value
Rated torque	6 to 20 Nm
Revolutions	26 rpm
Rated voltage	230 V AC
Current consumption	0.42 to 0.85 A
Power consumption	90 to 190 W
Motor protection rating	IP 54
Short term **o**peration (S2)	approx. 4 minutes

Tab. 2: Electric drive

Height-to-width ratio of external venetian blinds

The maximum and minimum dimensions provided in the construction limit values depend on the height. For widths <1 m it has therefore to be ensured that the height does not exceed the size ratio of 1 to 4.

That means: For a width of 800 mm the external venetian blind can only be built up to a height of 3200 mm without limiting functionality.

Manufacturing tolerances

Perfection is in the detail. That is why we attach great importance even to small things: Every product is manufactured exactly to customer specifications. Please note that this custom manufacturing process can lead to small production-related deviations.

Manufacturing tolerances T in mm	Order width W in mm	T	Order height H in mm	T
Venetian blind window systems	B ≤ 2000 2000 < B ≤ 4000 B > 4000	+0/-3 +0/-4 +0/-5	H ≤ 1500 1500 < H ≤ 2500 H > 2500	+0/-10

Wind speed limits according to the Technical Directive Sheet 6.2, pages 1 and 2, of the German association "Rollladen + Sonnenschutz e. V.".

Width (mm)	Beaded slats with rail guidance		Flat slats with rail guidance	
	(bft)	(m/s)	(bft)	(m/s)
1500	7	(13.5 - 17.4)	7	(13.5 - 17.4)
2000	7	(13.5 - 17.4)	6	(10.5 - 13.4)
2500	7	(13.5 - 17.4)	6	(10.5 - 13.4)
3000	7	(13.5 - 17.4)	6	(10.5 - 13.4)
4000	6	(10.5 - 13.4)	5	(7.5 - 10.4)

Tab. 3: Application recommendations for external venetian blinds. Slat width: 60 to 100 mm, standard design (wind speed limits of wind-stable external venetian blinds, see construction limit values of wind-stable external venetian blinds)

For external venetian blinds and external blinds, the recommended wind speed limits depend on the particular product type. If the wind speed limits are reached, the unit must be retracted. The values apply to a facade distance of the slats of ≤100 mm, for a material thickness of the slats of ≥0.4 mm and a system height of <2400 mm.
Depending on the type, one or more additional cable guides may be required for larger widths.
The table values should be reduced in the following cases:

1. In case of a facade distance of >100 mm up to 300 mm, the value given in the table must be reduced by one Beaufort; in case of a facade distance of >300 up to 500 mm, by two Beaufort; beyond these values, the table is not applicable.
2. If the material thickness of the slat material is less than 0.4 mm, the value given in the table must be reduced by one Beaufort.
3. In case of heights of 2400 mm to 4000 mm and cable guidance the value given in the table must be reduced by one Beaufort; in case of heights of more than 4000 mm, the value must be reduced by two Beaufort.

It is recommended to set wind monitors to the lowest setting, e.g. for Beaufort 7 to 13.5 m/s.

Product identification

The products have a CE label.

CE conformity

Name: WAREMA Renkhoff GmbH
Year of declaration of conformity: 2006
Head office: Hans-Wilhelm-Renkhoff-Strasse 2
97828 Marktheidenfeld
Germany
Standard: DIN EN 13659
Product: External venetian blinds
Intended use: for outdoor installation
Wind class: 0[1)]
Noise emission level: <70 dB (A)[2)]

[1)] *Wind class 0 stated, since the standard test benches are not applicable. For use of wind speed data and Beaufort scale, see table 3: "Application recommendations for external venetian blinds", as proposed in the Technical Directive.*
[2)] *For standard mounting, the noise emission level is <70 dB (A). This value may vary depending on installation.*

Complement to CE standard
External venetian blinds without options (e.g. emergency retraction) must not be mounted in the area of escape routes, since external venetian blinds - e.g. in case of a power failure - cannot be retracted and thus block escape routes. The local prescriptions concerning escape routes are to be complied with.

DIN EN 13120 and DIN EN 60335-2-97
All WAREMA external/internal venetian blinds for indoors correspond to DIN EN 13120. This standard valid from August 2004 specifies the requirements which must be met by external/internal venetian blinds.
The motor-driven external venetian blinds/venetian blinds have a CE label and comply with DIN EN 60335-2-97. This standard valid since May 2001 specifies the safety-related requirements that must be met by electrical devices for domestic use and similar purposes.

Contents

Venetian blind window systems

Today the facade is much more than just the external cover of a building. Modern buildings need a climatically active facade that is able to react to the different weather conditions, contributing to the energy efficiency of the building as well as to the thermal and visual comfort of the user.
A climatically active reaction of the facade requires an interaction of the systems glass, sun shading, glare control, heating, ventilation, air conditioning and energy recovery. Optimising this interaction will result in a "fusion" of the systems in the facade. It would be possible that, for example, only one drive in the facade moves the systems sun shading, glare control, window, smoke and heat venting system, ventilation, etc.
One step into this direction is the venetian blind window system developed by WAREMA which is designed for direct mounting on the window, within the facade.

Venetian blind window system are suitable for both the restoration of buildings and for new buildings.
These systems can be integrated into the facade in a concealed form or set coloured accents at the facade as visible system. There is a huge selection of colours for slats, cover panels, guide rails and bottom rails. All external venetian blind types that can be used allow regulation of daylight with simultaneous visual privacy and additional perfect heat protection Adjusted to the subsequent requirements, flat slats, beaded slats or dim-out slats can be used.
The venetian blind window system that can be integrated into the facade in a concealed form are especially designed for heat insulation network systems (WDVS); thus, compliance with EnEV 2009 is no problem. The external venetian blinds used feature proven, robust technology, ensuring long-term use of the units.
The FSR shaft models S1 or S2 allow integration into on-site shafts without additional fixing in shafts where the mounting substructure is not suitable for dowel fixing.

Planning the integration of the system into the facade is straightforward
and the implementation can be carried out with the smallest possible installation effort. Optional equipment or retrofitting of the system with insect screens is also easy.

With WAREMA sun shading controls the functions of the venetian blind window system can be perfectly controlled and adjusted to the circumstances. Thus, the energy requirement of your building is sustainably reduced.

Venetian blind window systems

Type overview

FSR 1

Venetian blind window system FSR 1
for facade colour design or for refurbishment/retrofitting

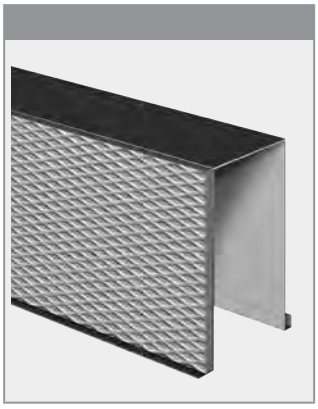
Cover panel:	visible
Curtain:	beaded slat 80 mm
	Flat slat 80 mm
	Dim-out slat 73/90/93 mm
Insect screen:	swivel or fixed frame, for integration

FSR 2

Venetian blind window system FSR 2
for facade colour design or for refurbishment/retrofitting

Cover panel:	visible, bevelled top
Curtain:	beaded slat 80 mm
	Flat slat 80 mm
	Dim-out slat 73/90/93 mm
Insect screen:	swivel or fixed frame, for integration

FSR 3



Venetian blind window system FSR 3
for flush mounting

Cover panel:	with plaster base plate
Curtain:	beaded slat 80 mm
	Flat slat 80 mm
	Dim-out slat 73/90/93 mm
Insect screen:	swivel or fixed frame, for integration

FSR 4

Venetian blind window system FSR 4
for flush mounting

Cover panel:	with plaster base plate
Curtain:	beaded slat 80 mm
	Flat slat 80 mm
	Dim-out slat 73/90/93 mm
Insect screen:	roller blinds, swivel and fixed frames, for integration

Venetian blind window systems

Type overview

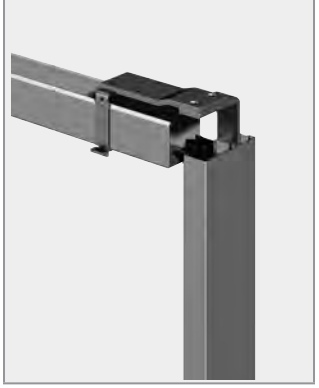
FSR S1

Venetian blind window system FSR S1

As a refurbishment or retrofitting option for mounting in on-site shafts

Cover panel:	closed on both sides for stiffening, allowing larger curtain widths
Curtain:	beaded slats 60/80 mm, flat slats 60/80 mm, dim-out slats 73/90/93 mm
Insect screen:	roller blind, swivel or fixed frame, for integration

FSR S2



Venetian blind window system FSR S2

As a refurbishment or retrofitting option for mounting in on-site shafts

Top rail:	The top rail is connected to the guide rails with a bracket. It is fixed by inserting the top rail into the external venetian blind support on the bracket.
Curtain:	beaded slats 60/80 mm, flat slats 60/80 mm, dim-out slats 73/90/93 mm

Overview cover panel depths and insulation

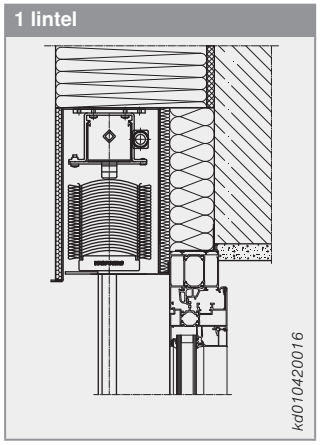
	Cover panel depth	Insulation 200 mm		Insulation 180 mm		Insulation 160 mm	
		Slat widths	Place of installation	Slat widths	Place of installation	Slat widths	Place of installation
FSR 1	145 mm	73 - 93 mm	1, 3, 4	73 - 93 mm	1, 3, 4	73 - 93 mm	1, 2, 3, 4
FSR 2	145 mm	73 - 93 mm	1, 3, 4	73 - 93 mm	1, 3, 4	73 - 93 mm	1, 2, 3, 4
FSR 3	130 mm	73 - 80 mm	1, 3	73 - 80 mm	1, 3	73 - 80 mm	1, 3
	145 mm	73 - 93 mm	1, 3	73 - 93 mm	1, 3	73 - 93 mm	2, 3
FSR 4	130 mm	73 - 80 mm	1	73 - 80 mm	1	73 - 80 mm	1
	145 mm	73 - 93 mm	1	73 - 93 mm	1	73 - 93 mm	2

	Cover panel depth	Insulation 140 mm		Insulation 120 mm		Insulation 100 mm	
		Slat widths	Place of installation	Slat widths	Place of installation	Slat widths	Place of installation
FSR 1	145 mm	73 - 93 mm	2, 3, 4	73 - 93 mm	3, 4	73 - 93 mm	3, 4
FSR 2	145 mm	73 - 93 mm	1, 2, 3, 4	73 - 93 mm	3, 4	73 - 93 mm	3, 4
FSR 3	130 mm	73 - 80 mm	2, 3	73 - 80 mm	2, 3	73 - 80 mm	2, 3
	145 mm	73 - 93 mm	2, 3	73 - 93 mm	2, 3	73 - 93 mm	2, 3
FSR 4	130 mm	73 - 80 mm	2	73 - 80 mm	2	73 - 80 mm	2
	145 mm	73 - 93 mm	2	73 - 93 mm	2	73 - 93 mm	2

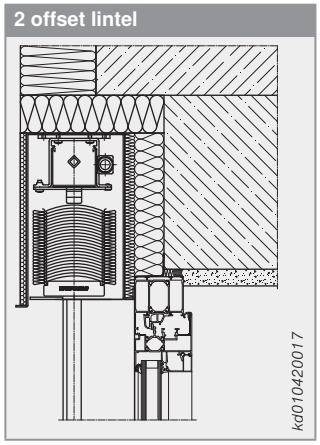
Legend place of installation
1 = lintel (window in insulation level)
2 = offset lintel
3 = window frame enlargement
4 = in front of facade

Principle sketches place of installation

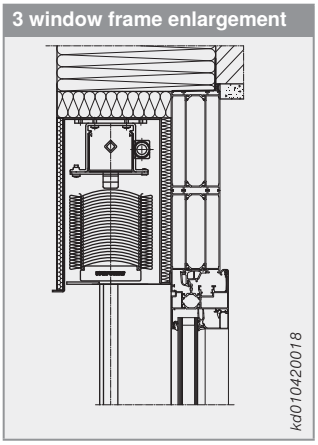
1 lintel



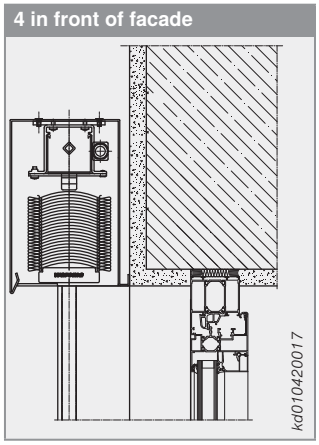
2 offset lintel



3 window frame enlargement



4 in front of facade



The details shown in this document are general planning proposals showing the design of a composite thermal insulation system in schematic form. The illustration does not relieve the client from his obligation to carry out an individual examination of applicability and completeness for the building project in question. Adjacent constructions are only schematic representations. All specifications and assumptions are to be adjusted to the local circumstances and coordinated. Plaster-base and/or reinforcement connection of the plaster base plate to on-site insulation/masonry is to be designed according to DIN.

Venetian blind window systems

Selection of external venetian blinds

E 80 A 6 VM

VM = vivamatic®
ST = slowturn
TLT= daylight transport element

6 = Rail guidance
F A6 =flat slats with rail guidance

A = external installation (or type of lateral guidance)

60 = 60 mm slat width[1)]
73 = 73 mm slat width
80 = 80 mm slat width
90 = 93 mm slat width
93 = 93 mm slat width

E = motor drive[1)]
C = crank drive

[1)] *only for FSR S1 and FSR S2*

Venetian blind window systems

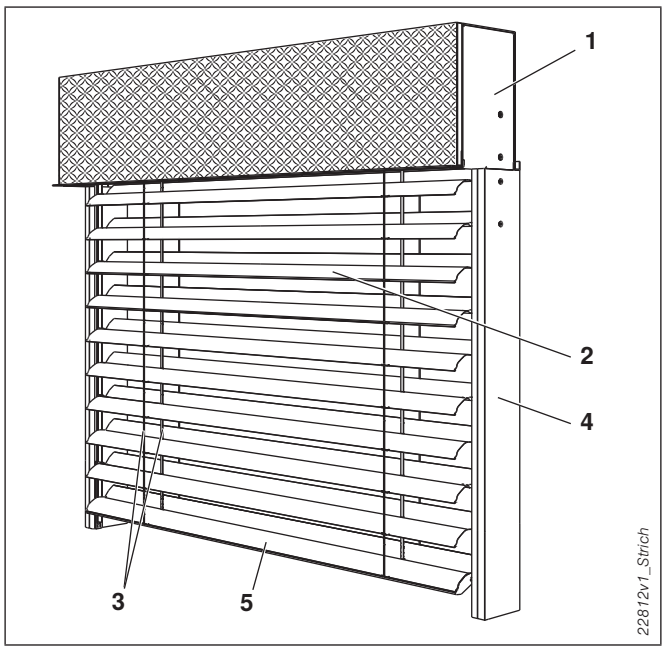


Fig. 1: Venetian blind window systems FSR 3

1 Cover panel
2 Slats
2.1 Beaded slats
2.2 Flat slats
2.3 Dim-out slats
3 Tilting tape and lifting tape
3.1 Tilting tapes
3.2 Lifting tapes
3.3 Loop cord
4 Lateral guidance
5 Bottom rail

Application

For mounting in the reveal, for integration in composite thermal insulation system, in ventilated facades or in front of the facade.

Installation note:
For venetian blind window systems the external venetian blinds are preinstalled in the boxes at the factory.
For coupled units the curtains are supplied loose.

Operation

Motor
The slats are raised and lowered as well as tilted by actuating a switch.

Voltage:	230 V AC, other voltages optional
Frequency:	50 Hz, other frequencies optional
Protection rating:	IP 54
Plug-in connector:	Hirschmann coupling

The drive switches off upon reaching the upper or lower limit position using built-in, adjustable limit switches.

Cover panels (1)

closed on both sides

Material:	aluminium sheet, folded
Material thickness:	2 mm
Dimensions:	
(H):	230, 260, 300 mm (standard)
(D):	130, 145 mm (only for FSR 3 and FSR 4)
Plaster base plate:	polystyrene, material thickness 8 mm

The side closures are connected to the guide rails.
Models FSR 1 and FSR 2 are two visible cover panels, models FSR 3 and FSR 4 are designed for complete integration in an on-site composite thermal insulation system for flush mounting with plaster base plate.

Top rail

Material:	aluminium, extruded
Material thickness:	1.5 mm
Dimensions (w x h):	59 x 51 mm
Profile:	U profile
Surface:	plain, optionally powder-coated or anodised
Fixing:	with aluminium brackets with sound decoupling, plain

Tilt rod

Material:	steel, zinc-coated
Material thickness:	1 mm
Dimensions (w x h):	12 x 12 mm
Profile:	square tube
Surface:	plain

Bearing

maintenance-free, enclosed

Enclosure:	plastic, with Teflon
Tilting reel:	Plastic
Tape reel:	Plastic

Segment tilting to prevent self-acting adjustment of slats.

Slats (2)

Slats beaded on both sides (2.1)
curved

Material:	aluminium, special alloy
Material thickness:	approx. 0.44 mm
Dimensions (B):	80 mm
Profile:	convex
Surface:	corrosion-resistant enamel finish using a special process
Colour:	according to WAREMA colour chart for external venetian blinds

All cutouts in the slats have black eyelets to guide the lifting tapes (reduction of wear) and fix the webs of the tilting tape.
The curtain is lowered with the slats closed to the outside and is raised with the slats closed to the inside.

Venetian blind window systems

Flat slats (2.2)
curved, no eyelets

Material:	aluminium, special alloy
Material thickness:	approx. 0.45 mm
Dimensions (B):	80 mm
Profile:	convex
Surface:	corrosion-resistant enamel finish using a special process
Colour:	according to WAREMA colour chart for external venetian blinds

The top slat is reinforced and equipped with black eyelets (to reduce wear). Optionally all slats are available with protective eyelets.
The blind moves down with the slats closed to the outside and moves up with slats tilted approx. 55° to the inside.

Dim-out slats (2.3)
edges beaded on both sides, special profile

Material:	aluminium, special alloy
Material thickness:	approx. 0.45 mm
Dimensions (B):	73/93 mm
Profile:	special profile, front beading with sealing strip made from flexible plastic
Surface:	corrosion-resistant enamel finish using a special process
Colour:	according to WAREMA colour chart for external venetian blinds

All edges of the perforations in the slats are continuously beaded in order to reduce wear of the lifting tape to a minimum. A higher level of dim-out is achieved by using dark slat colours.
The curtain descends with closed slats and moves up with horizontal slats.

Tilting tape/lifting tape (3)

Tilting tapes (3.1)
special heavy-duty version with double webs

Material:	polyester, with Kevlar core
Colour:	black, optionally grey or white

Each slat is fixed at the top web of the tilting tape and threaded through the double webs.

Lifting tapes (3.2)

Material:	polyester, with special coating
Colours:	black, optionally grey or white (only for type E 80 A6 or E 80 AF A6)

Loop cord (3.3)
Slat suspension through laterally fixed loop cord

Material:	polyester, with worked-in aramide fibres, weather-proof, UV stable
Colour:	black, optionally grey

The loops are permanently fixed to the slats by clips made of corrosion-proof stainless steel.

Lateral guidance (4)

Guide profile
with plastic guide profile for nipple guiding and noise reduction, incl. water-repelling end caps.

Material:	aluminium, extruded
Dimensions (w x d):	27.5 x 95 mm, 27.5 x 122.5 mm (FSR 4)
Surface:	powder-coated, anodising optional
Fixing:	directly on the window frame
Guiding nipple:	polyamide, glass fibre reinforced, impact-resistant connection with the slats, slats are alternatively nippled (beaded slats, dim-out slats) every 3rd slat slat nippled on both sides (flat slat).

Bottom rail (5)

with end caps (moving with the unit for types 73/90/93)

Material:	aluminium, extruded
Dimensions (w x h):	73/80/93x20 mm
Surface:	powder-coated, anodising optional
End caps:	plastic, black, optionally grey

With sliding guiding nipples with slotted end caps to prevent the blind from unhinging. For dim-out slats with bottom rail with stabilising webs, integrated fall protection and clip-on slat with matching design as lower closure.

Colours

Powder coating of aluminium parts (except slats) with chrome-free pre-treatment according to current RAL CLASSIC colour chart (except camouflage and luminous colours) or in DB 701, 702, 703 as well as 8 textured colours according to WAREMA colour specification.
Other colour specifications, special colours or anodising are available subject to surcharge.

Insect screen (optional)

Insect screen cassette roller blinds
Insect screen cassette roller blind for vertical mounting between sun shading curtain and window.

Operation:	with handle rail, fixing of handle rail by engaging into the labyrinth closure

Curtain

Material:	Fibre glass fabric gauze, plastic coating
Colour:	grey, optionally black

Profiles

Material:	aluminium, extruded
Surface:	powder-coated
Dimensions (w x h):	guide rails 24x34 mm Handle rail 17x40 mm
Brush strip:	brush sealing strip in handle rail and guide rail

Venetian blind window systems

Insect screen swivel frame
Models with 1 or 2 wings with continuous mounting frame. The swivel frame opens outwards. Includes integrated closing aid and continuous brush strip.

Operation:	up to frame height of 1800 mm with handle, from frame height 1801 mm with horizontal bar with integrated handle rail.

Curtain

Material:	Fibre glass fabric gauze, plastic coating
Colours:	grey, optionally black

Profiles

Material:	aluminium, extruded
Surface:	powder-coated
Dimensions (w x h):	frame profile 12.5 30 mm and 12.5 mm x 28 mm horizontal bar with integrated handle rail 10 x 52 mm

Plastic parts

Colours:	white, grey, brown or black

Venetian blind window systems

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

Construction limit values

Cover panel height (mm)	Types	Individual units						Combination[1]		
		Width (mm)[2]		Height (mm)			Surface (m^2)	Width (mm)	Surface (m^2)[3]	Number of curtains
					Order height without stack protrusion (mm)	approx. protrusion per 100 mm add. height (mm)[4]				
		min.	max.	max.	max.	max.	max.			
230	E 80 A6	680	4000	4000	1650	6	16	4000	16	3
	E 80 AF A6[5]	680	4000	4000	3000	3	16	4000	16	3
	E 80 AF A6 (with eyelets)[5]	680	4000	4000	3100	3	16	4000	16	3
	E 73 A6	680	4000	4000	1900	5	15	4000	16	3
	E 90/93 A6	680	4000	4000	2500	4	15	4000	16	3
260	E 80 A6	680	4000	4000	2150	6	16	4000	16	3
	E 80 AF A6[5]	680	4000	4000	4000		16	4000	16	3
	E 80 AF A6 (with eyelets)[5]	680	4000	4000	4000		16	4000	16	3
	E 73 A6	680	4000	4000	2450	5	15	4000	16	3
	E 90/93 A6	680	4000	4000	3250	4	15	4000	16	3
300	E 80 A6	680	4000	4000	2800	6	16	4000	16	3
	E 80 AF A6[5]	680	4000	4000	4000		16	4000	16	3
	E 80 AF A6 (with eyelets)[5]	680	4000	4000	4000		16	4000	16	3
	E 73 A6	680	4000	4000	3200	5	15	4000	16	3
	E 90/93 A6	680	4000	4000	4000		15	4000	16	3

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

Tab. 4: Construction limit values

1) *With mechanically coupled units, curtains are not delivered preinstalled.*
2) *Asymmetrical running of slats cannot be prevented for small widths.*
3) *The stated maximum areas are height-dependent (see page 22 Information on height-to-width ratio). Any other dimensions are subject to individual clarification with the Application Technology department.*
4) *In combination with insect screen swivel frame, the curtain must completely move into the cover panel.*
5) *In case of type 80 AF A6, a tension cable must be used in the centre of the curtain as of an element width of 2400 mm for wind protection reasons. In units with additional tension cable guidance, an additional cover panel fixation is imperatively necessary.*

For external venetian blinds with equipment variant vivamatic® or slowturn the construction limit values and the cover panel height of the corresponding basic type should be assumed. Max. 3 curtains are possible here as a coupled unit with one drive.

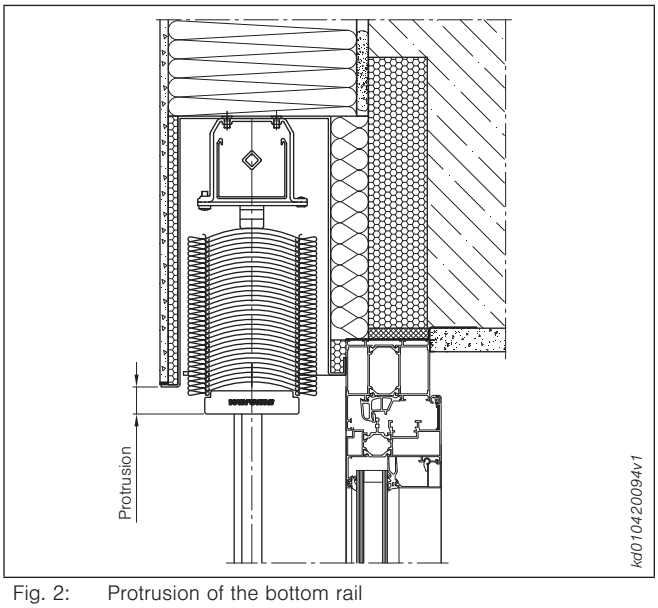


Fig. 2: Protrusion of the bottom rail

Tolerances
Slat stack height: ±10 mm
Stack parallelism with retracted curtain: ±10 mm

Additional cover panel fixation

In units with additional tension cable guidance, an additional cover panel fixation is imperatively necessary. For details on the additional cover panel fixation see page 87.

Guide rail FSR 1–3

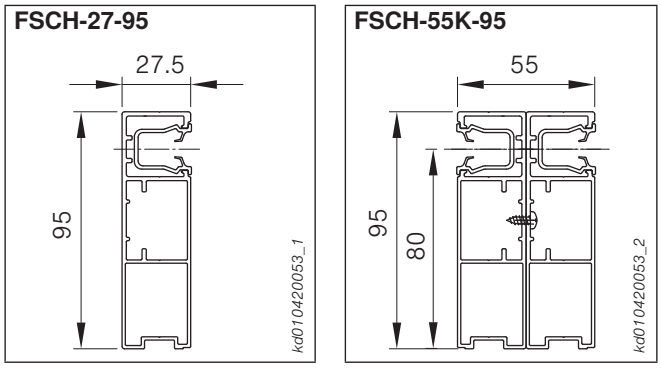


Fig. 3: Guide rail FSR 1–3

Guide rail FSR 4

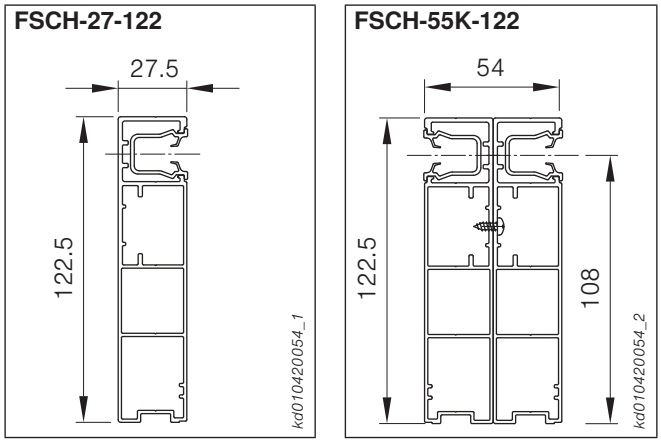


Fig. 4: Guide rail FSR 4

Fixing holes in guide rail FSR 1–3 (4)

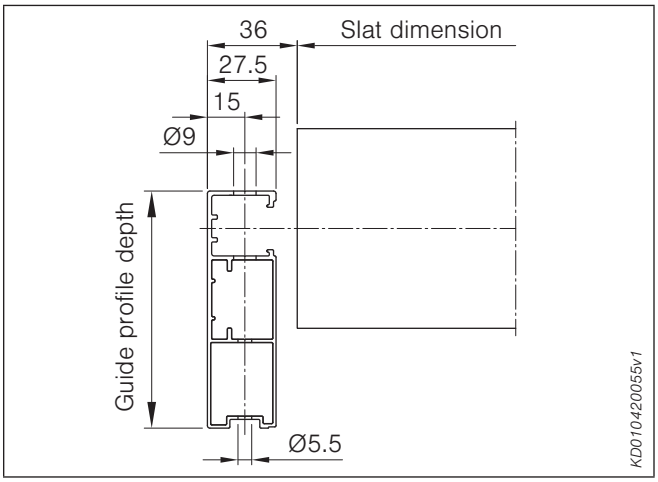


Fig. 5: Fixing holes

Number of fixing holes

Guide rail length (mm)	Quantity
up to 1350	2
1351 to 2400	3
2401 to 3450	4
3451 to 4000	5

Position of drilled holes

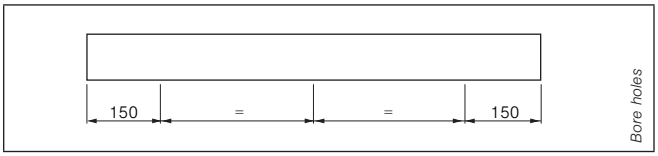


Fig. 6: Position of drilled holes

Fixing material for screw connection of guide rails to substructure

Substructure	Drilled hole 2 (installation in the window frame)					
	Art. no.	DIN	Drilling diameter (mm)	Depth of borehole (mm)	Head diameter (mm)	
Aluminium/PVC with steel core	720263	Screw C4.8x80 head DIN 912	4	45	8.5	Hexagon socket size 4[1)]
Wood	720265	DIN 7995 C4.5x80	3.5	40	8.3	Cross-head[1)]
Concrete B15	720266	DIN 7995 C4.5x100	6	70		Cross-head[1)]
	702096	Dowel SX 6x50			8.3	
PVC/aluminium	720295	Fillister head drilling screw N 4.8 x 80 DIN 7504[2)]			8.5	Torx T 25[1)]

[1)] *Bits/screw drivers of min. 120 mm length are required for these screws, these are not included in the delivery.*
[2)] *Fillister head drilling screw only optional – please state when ordering!*

Allocation of cover panel depths/external venetian blind types/guide profiles

Curtain	FSR 1+2		FSR 3		FSR 4		FSR 4 with insect screen roller blind	
	Cover panel depth (standard)	Guide profile 27.5x95	Cover panel depth (standard)	Guide profile 27.5x95	Cover panel depth (standard)	Guide profile 27.5x122.5	Cover panel depth (standard)	Guide profile 27.5x122.5
73mm	145	●	130/145	●	130/145	●	130/145	●
size 80	145	●	130/145	●	130/145	●	130/145	●
size 90/ 93	145	●	145	●	145	●	145	●

● Standard allocation
– not possible

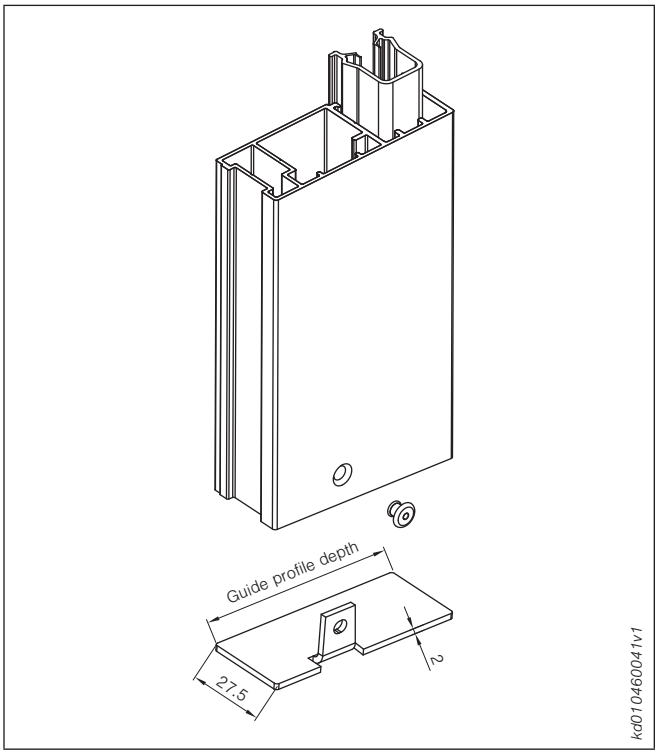


Fig. 7: End cap for aluminium guide profile

Note: The optionally available end cap for the aluminium guide profile is preinstalled at the factory and is powder-coated together with the guide profile. Also available for guide profiles with diagonal cut.

Continuous guide profiles with integrated plaster lathing

Continuous aluminium guide rail profile with plastic insert for creating a reveal situation and integrated plaster base. Guide rail can be set in plaster at the front and around the plaster base.

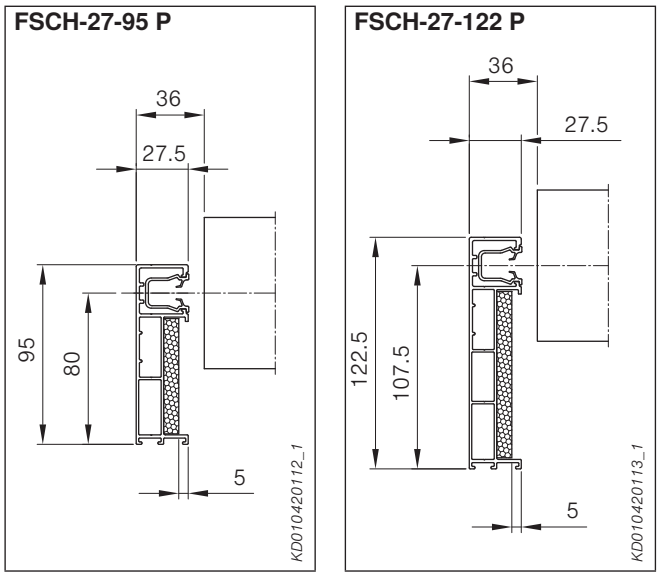


Fig. 8: Continuous guide profiles with integrated plaster lathing

Note: The end cap for the aluminium guide profile is not available for the continuous guide profile with integrated plaster base.

Fixing holes in guide rail FSR 1–3 (4)

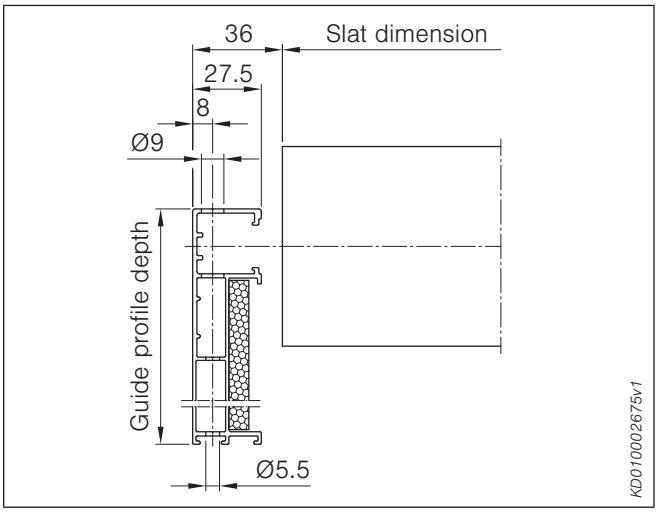


Fig. 9: Fixing holes

Number of fixing holes

Guide rail length (mm)	Quantity
up to 1350	2
1351 to 2400	3
2401 to 3450	4
3451 to 4000	5

Position of drilled holes

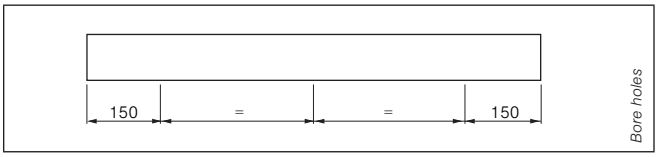


Fig. 10: Position of drilled holes

Fixing material for screw connection of guide rails to substructure

Substructure	Drilled hole 2 (installation in the window frame)					
	Art. no.	DIN	Drilling diameter (mm)	Depth of borehole (mm)	Head diameter (mm)	
Aluminium/PVC with steel core	720263	Screw C4.8x80 head DIN 912	4	45	8.5	Hexagon socket size 4[1)]
Wood	720265	DIN 7995 C4.5x80	3.5	40	8.3	Cross-head[1)]
Concrete B15	720266	DIN 7995 C4.5x100	6	70		Cross-head[1)]
	702096	Dowel SX 6x50			8.3	
PVC/aluminium	720295	Fillister head drilling screw N 4.8 x 80 DIN 7504[2)]			8.5	Torx T 25[1)]

[1)] *Bits/screw drivers of min. 120 mm length are required for these screws, these are not included in the delivery.*
[2)] *Fillister head drilling screw only optional – please state when ordering!*

Contents

Venetian blind window system FSR 1

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

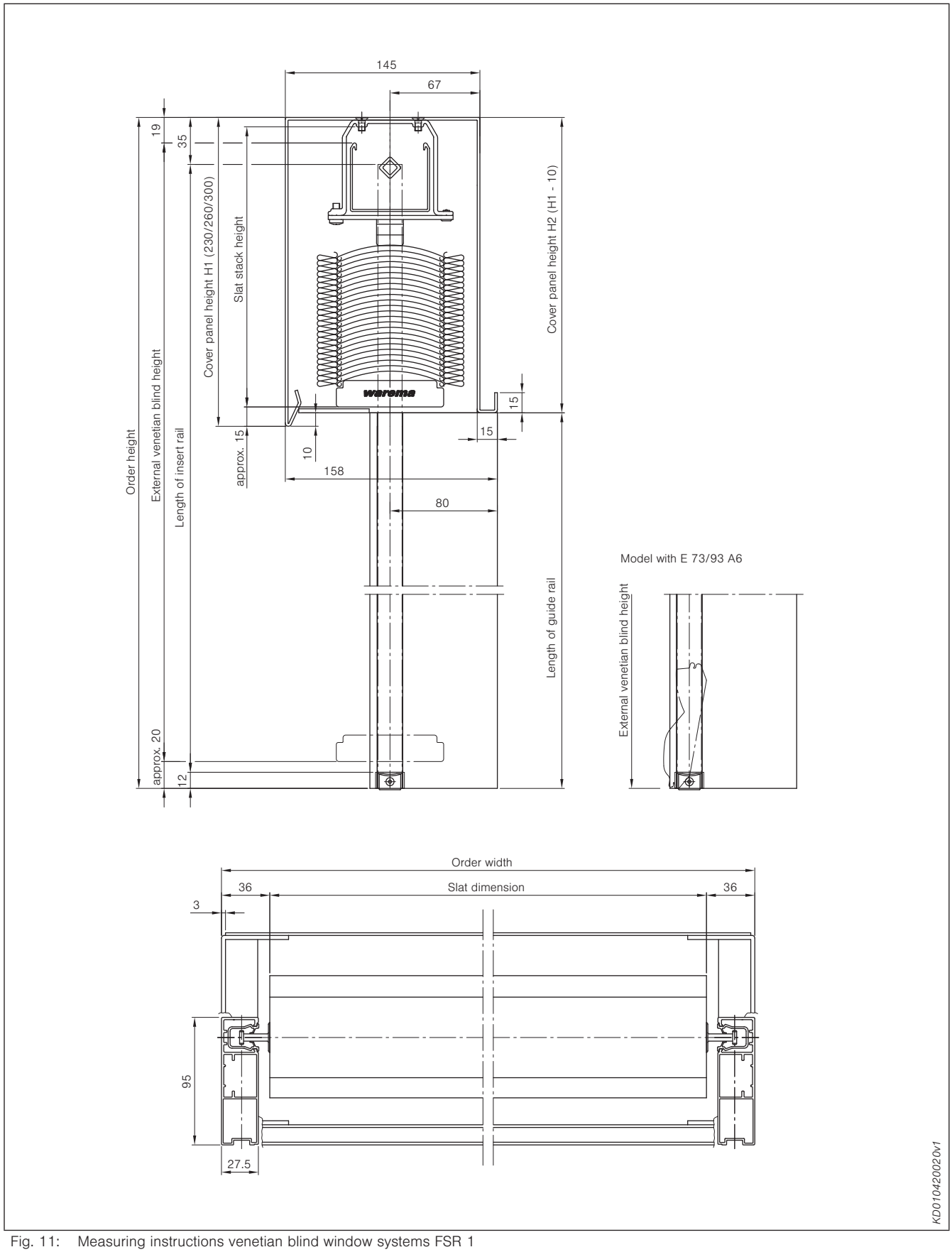


Fig. 11: Measuring instructions venetian blind window systems FSR 1

Venetian blind window system FSR 1

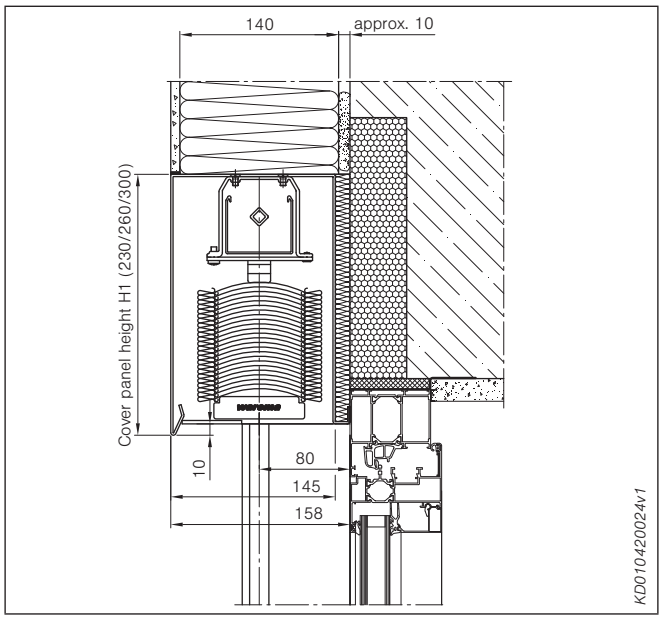


Fig. 12: FSR 1 in the composite thermal insulation system 140 mm, E 80 A6, cover panel 145 mm

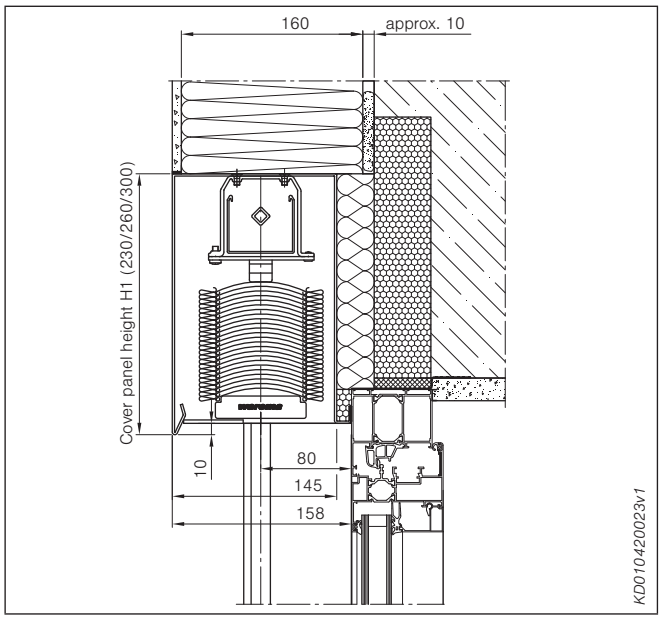


Fig. 13: FSR 1 in the composite thermal insulation system 160 mm, E 80 A6, cover panel 145 mm

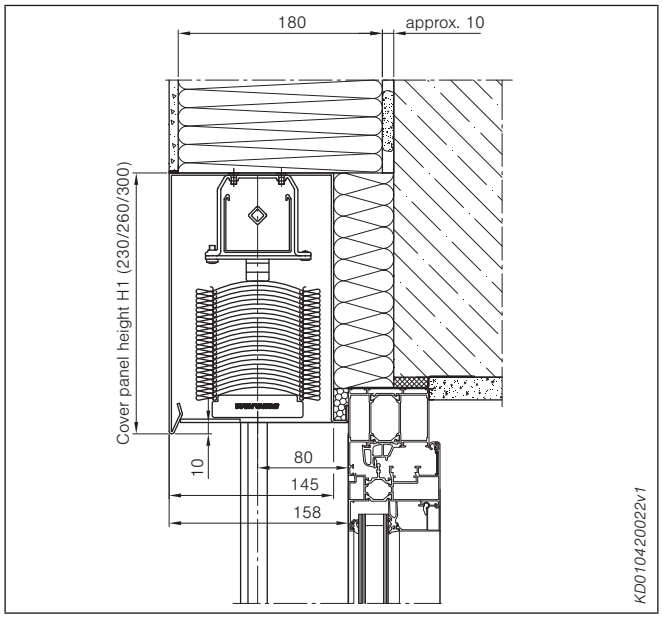


Fig. 14: FSR 1 in the composite thermal insulation system 180 mm, E 80 A6, cover panel 145 mm

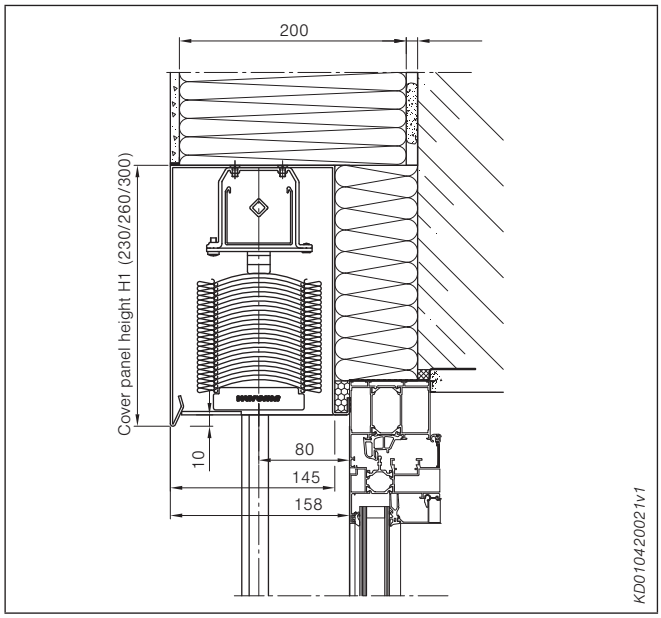


Fig. 15: FSR 1 in the composite thermal insulation system 200 mm, E 80 A6, cover panel 145 mm

The details shown in this document are general planning proposals showing the design of a composite thermal insulation system in schematic form. The illustration does not relieve the client from his obligation to carry out an individual examination of applicability and completeness for the building project in question. Adjacent constructions are only schematic representations. All specifications and assumptions are to be adjusted to the local circumstances and coordinated. Plaster-base and/or reinforcement connection of the plaster base plate to on site insulation/masonry is to be designed according to DIN.

Venetian blinds window system FSR 1 (E80 A6)
Mounting in the reveal

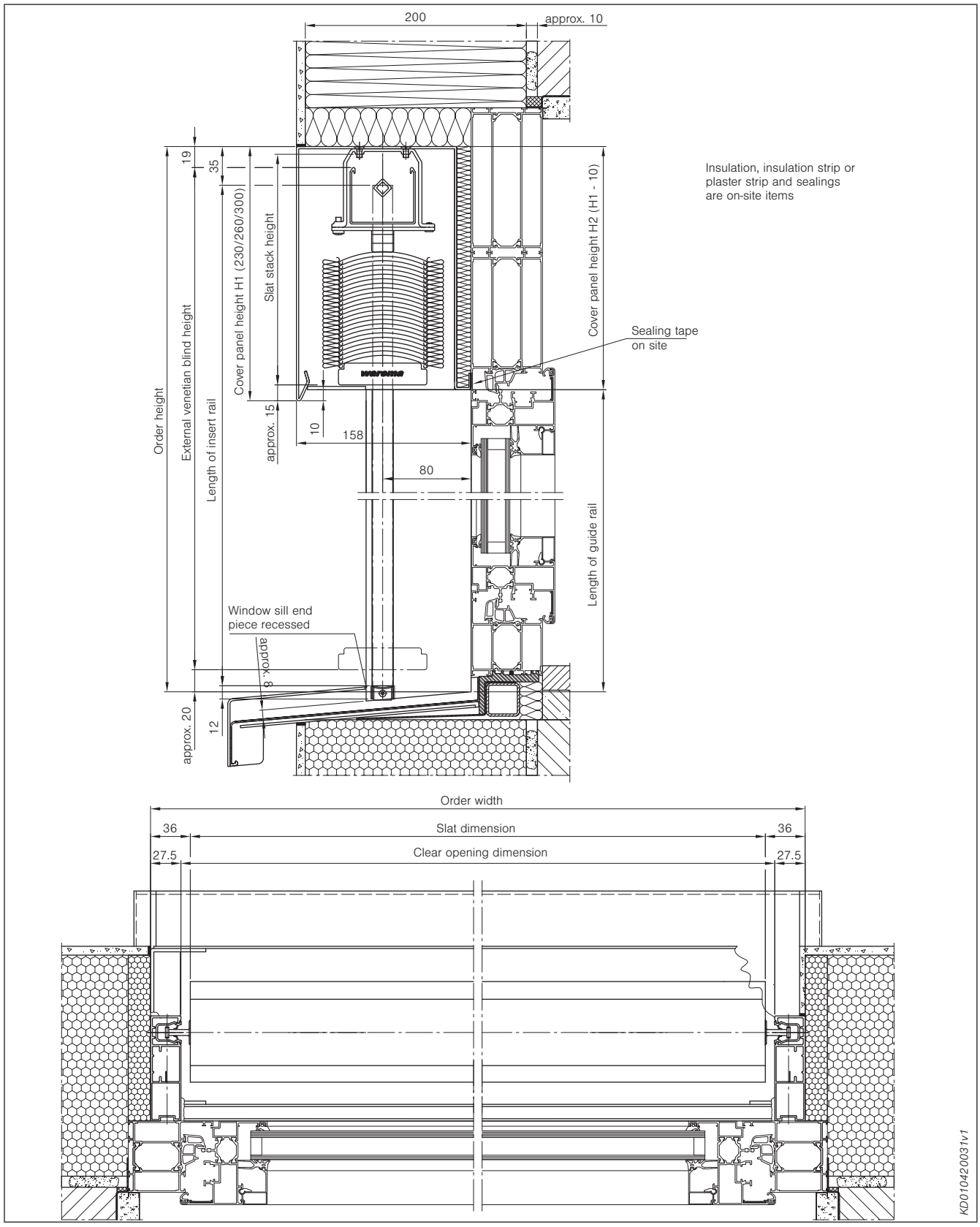


Fig. 16: Venetian blind window systems FSR 1 (E80 A6), mounting in the reveal

Also in the event of the plaster-base profiles being cut diagonally, the external venetian blind height relates to the order height on the window frame.

This produces a gap (depending on the slope) between window sill and bottom edge of bottom rail.

Contents

Venetian blind window system FSR 2

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

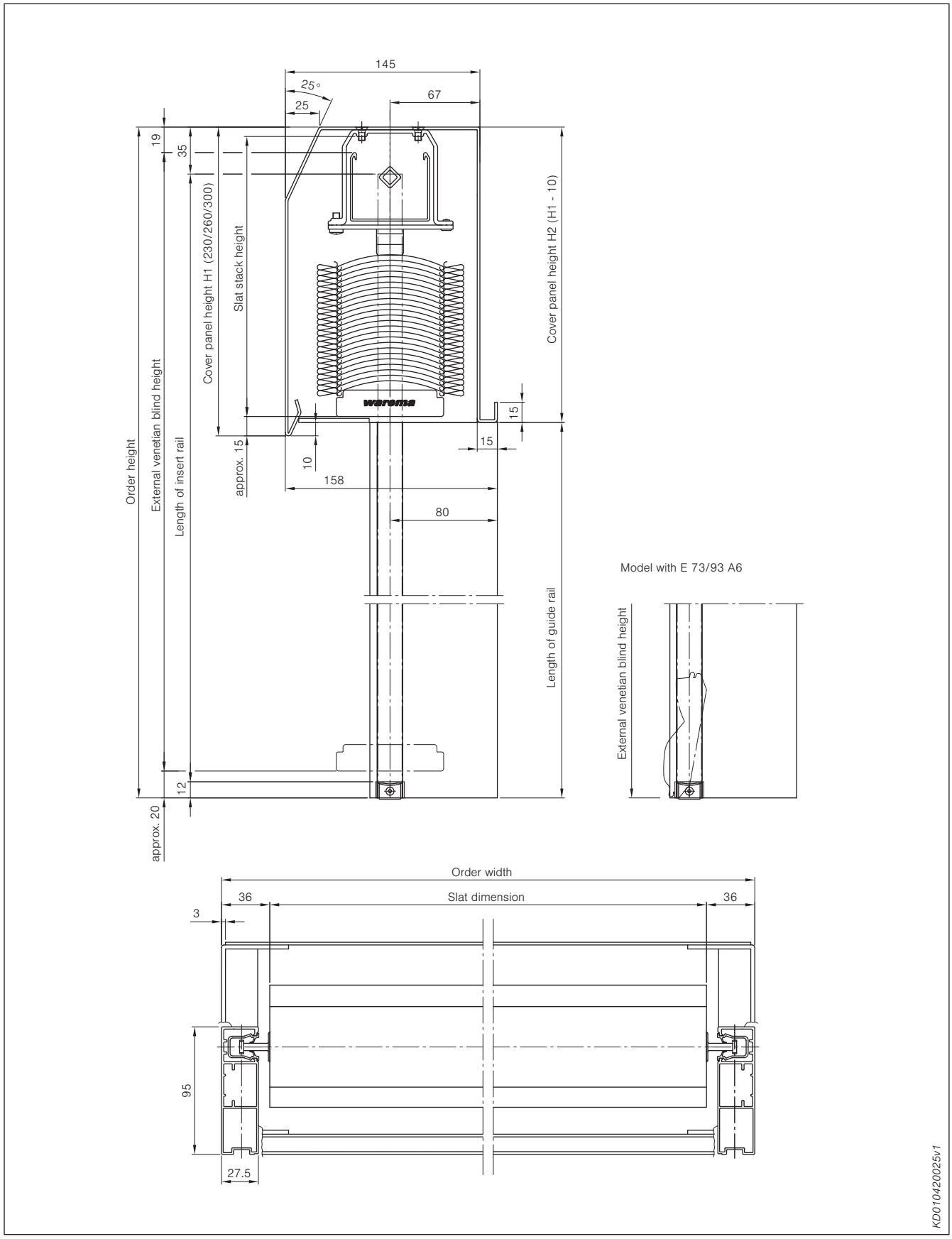


Fig. 17: Measuring instructions venetian blind window system FSR 2

Venetian blind window system FSR 2

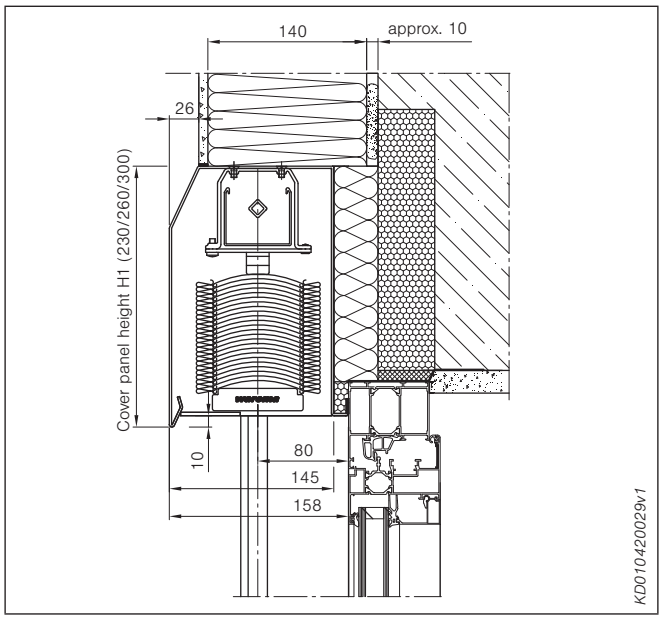


Fig. 18: FSR 2 in composite thermal insulation system 140 mm, E 80 A6, cover panel 145 mm

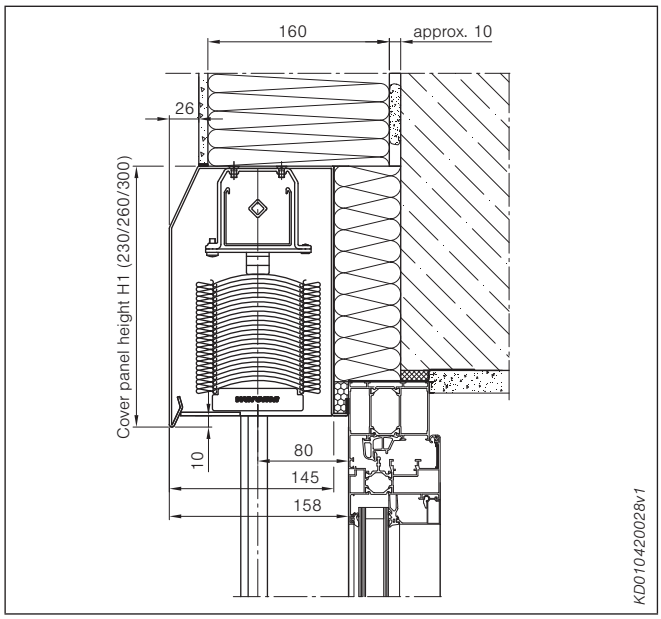


Fig. 19: FSR 2 in composite thermal insulation system 160 mm, E 80 A6, cover panel 145 mm

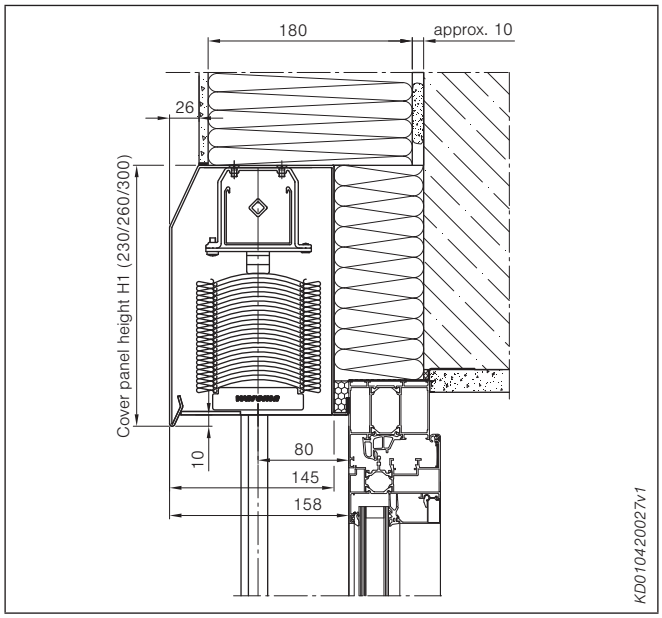


Fig. 20: FSR 2 in composite thermal insulation system 180 mm, E 80 A6, cover panel 145 mm

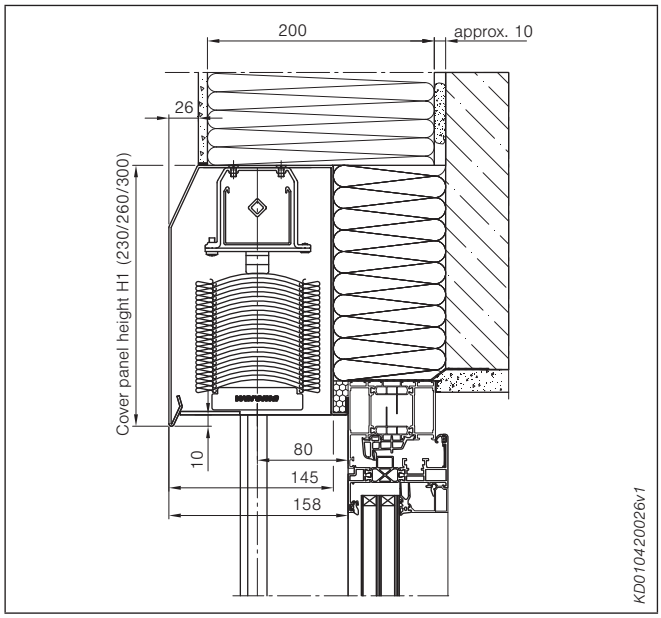


Fig. 21: FSR 2 in composite thermal insulation system 200 mm, E 80 A6, cover panel 145 mm

The details shown in this document are general planning proposals showing the design of a composite thermal insulation system in schematic form. The illustration does not relieve the client from his obligation to carry out an individual examination of applicability and completeness for the building project in question. Adjacent constructions are only schematic representations. All specifications and assumptions are to be adjusted to the local circumstances and coordinated. Plaster-base and/or reinforcement connection of the plaster base plate to on site insulation/masonry is to be designed according to DIN.

Venetian blind window system FSR 2 with composite thermal insulation system 140 mm, E 90 A6, cover panel depth 145 mm

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

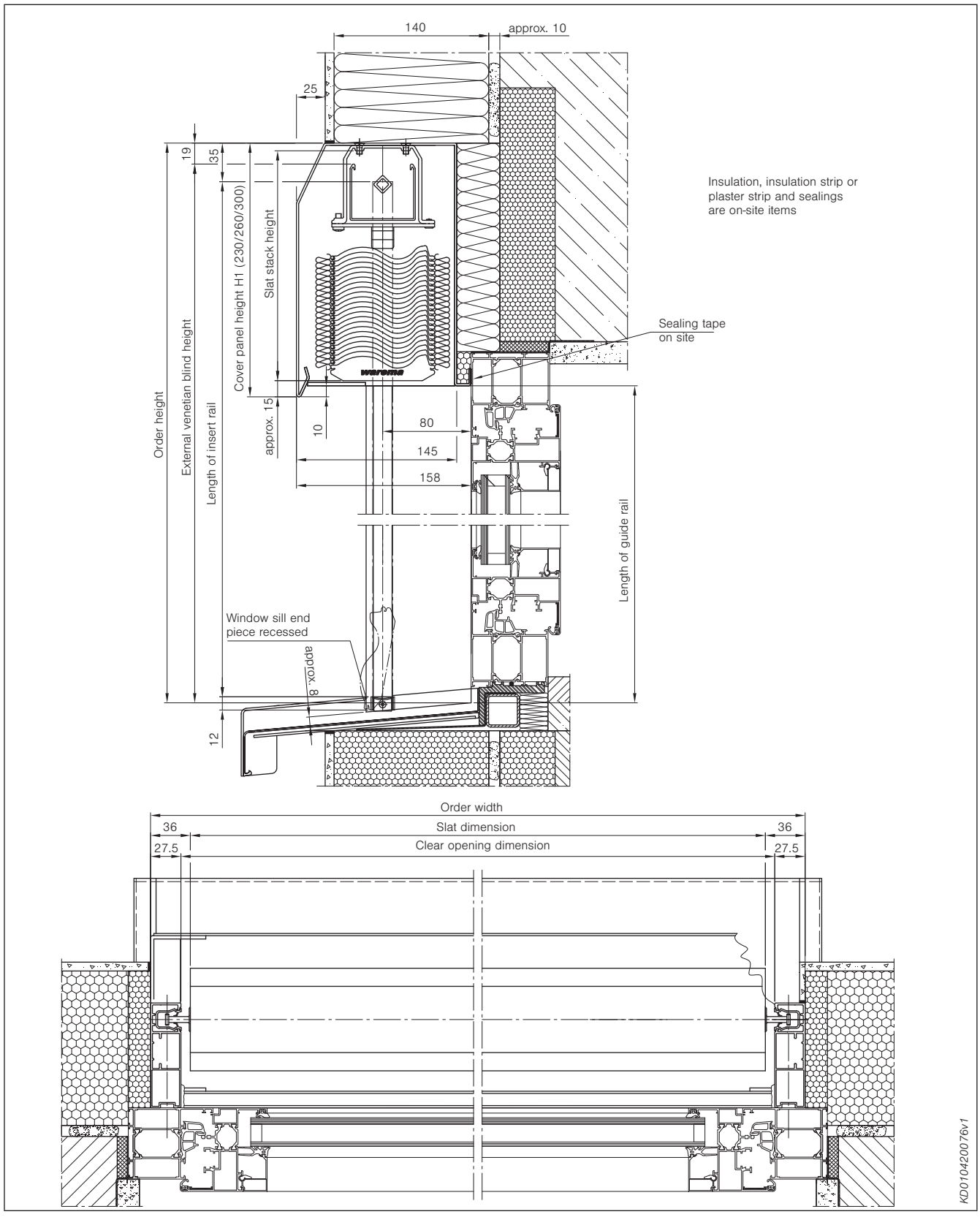


Fig. 22: Measuring instructions venetian blind window system FSR 2 with composite thermal insulation system 140 mm, E 90 A6, cover panel depth 145 mm

Also in the event of the plaster-base profiles being cut diagonally, the external venetian blind height relates to the order height on the window frame.

This produces a gap (depending on the slope) between window sill and bottom edge of bottom rail.

Contents

Venetian blind window system FSR 3
Cover panel depth 130 mm

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

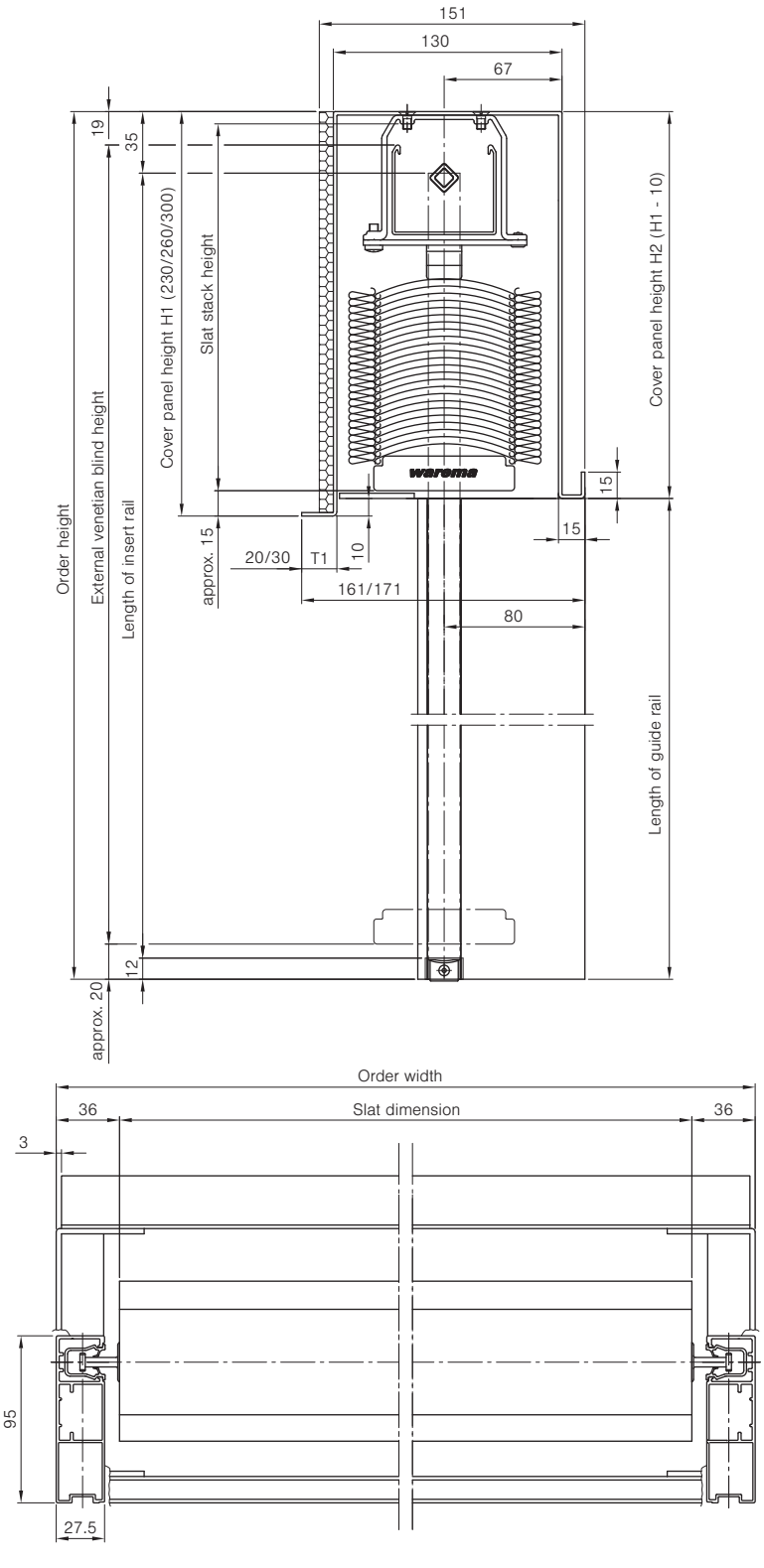


Fig. 23: Measuring instructions for venetian blind window system FSR 3, cover panel depth 130 mm

Venetian blind window system FSR 3
Cover panel depth 130 mm

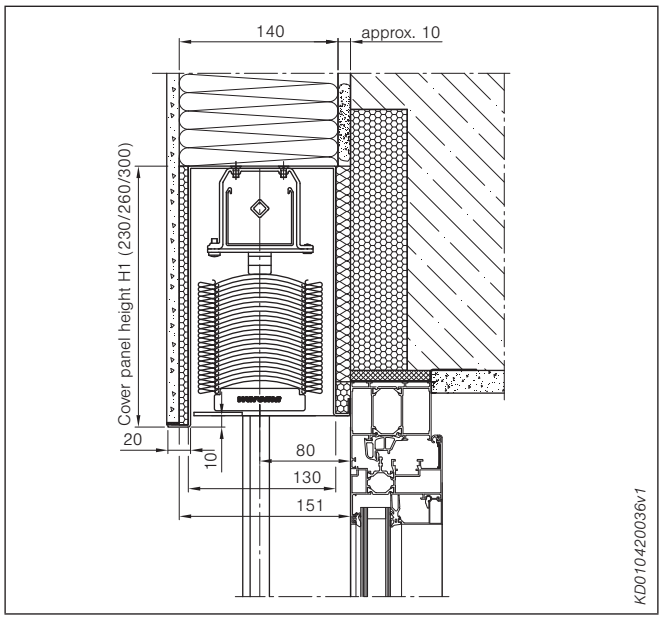


Fig. 24: FSR 3 in composite thermal insulation system 140 mm, E 80 A6, cover panel 130 mm

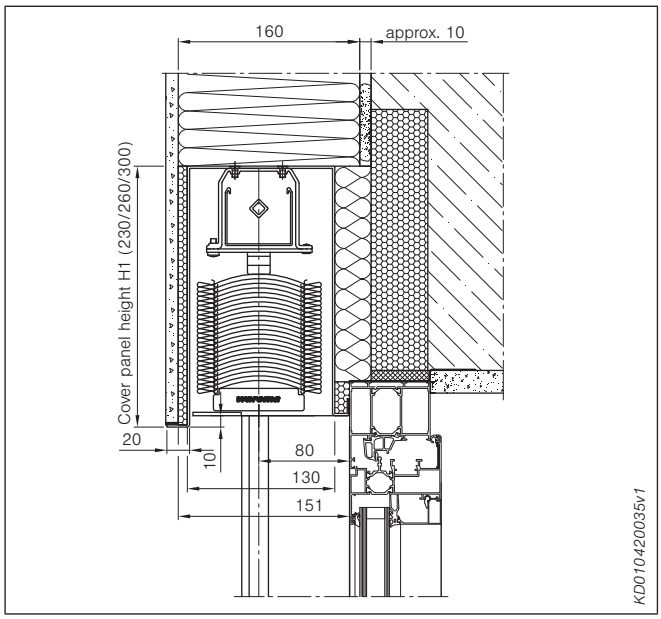


Fig. 25: FSR 3 in composite thermal insulation system 160 mm, E 80 A6, cover panel 130 mm

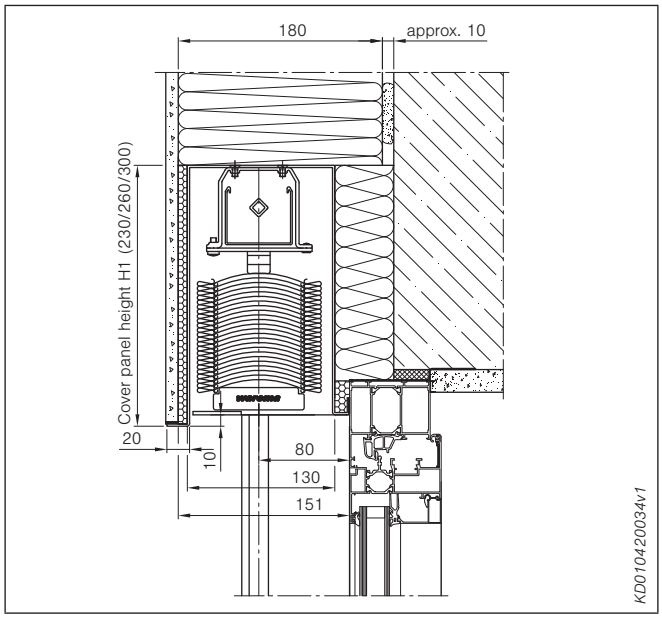


Fig. 26: FSR 3 in composite thermal insulation system 180 mm, E 80 A6, cover panel 130 mm

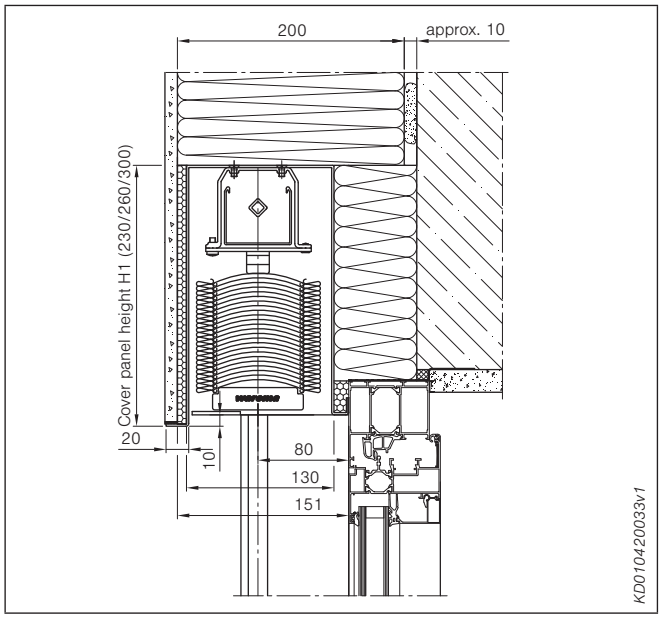


Fig. 27: FSR 3 in composite thermal insulation system 200 mm, E 80 A6, cover panel 130 mm

The details shown in this document are general planning proposals showing the design of a composite thermal insulation system in schematic form. The illustration does not relieve the client from his obligation to carry out an individual examination of applicability and completeness for the building project in question. Adjacent constructions are only schematic representations. All specifications and assumptions are to be adjusted to the local circumstances and coordinated. Plaster-base and/or reinforcement connection of the plaster base plate to on site insulation/masonry is to be designed according to DIN.

Venetian blind window system FSR 3 with composite thermal insulation system 140 mm E 73 A6, cover panel depth 130 mm

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

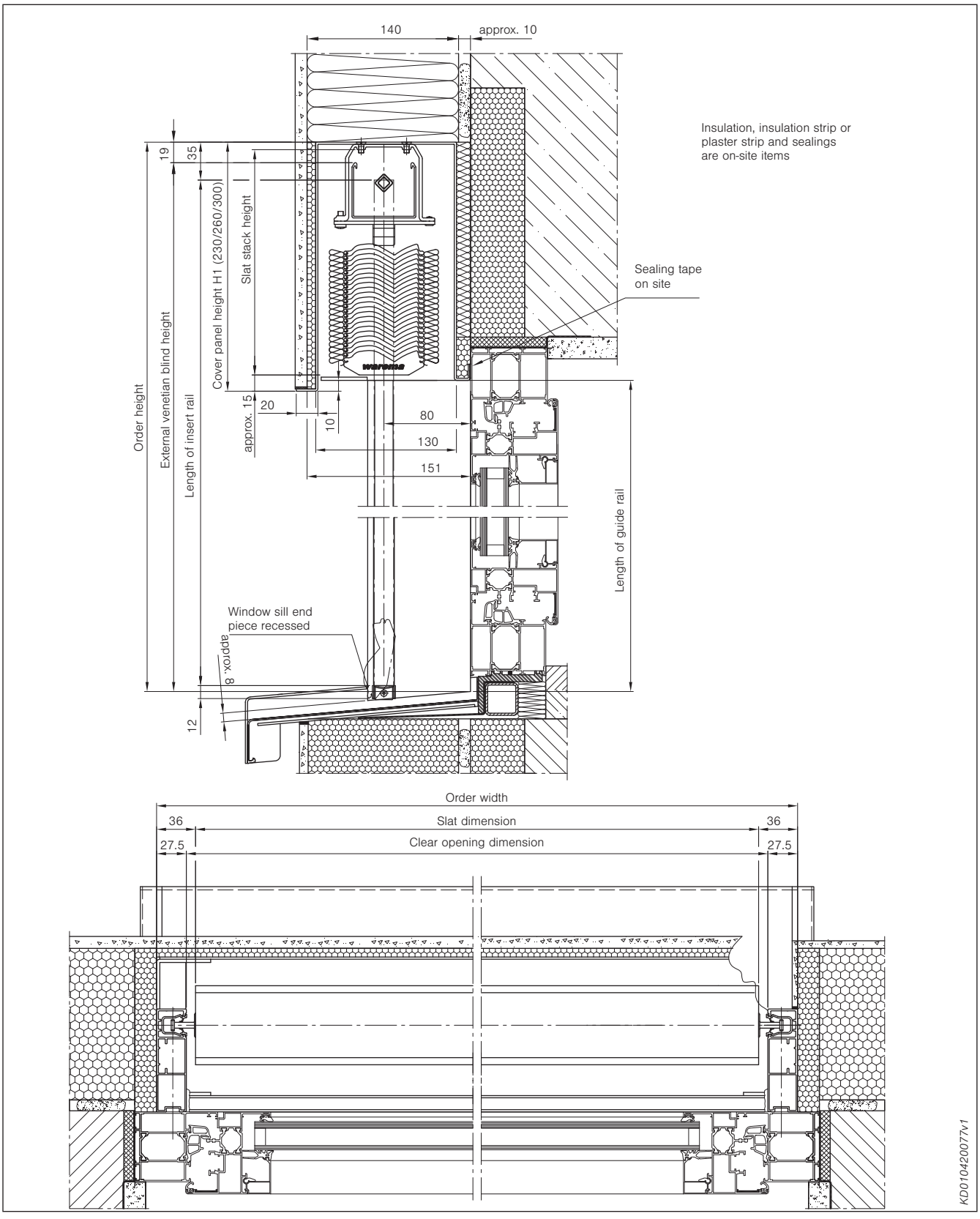


Fig. 28: Measuring instructions venetian blind window system FSR 3 with composite thermal insulation system 140mm, E 73 A6, cover panel depth 130 mm

Also in the event of the plaster-base profiles being cut diagonally, the external venetian blind height relates to the order height on the window frame.

This produces a gap (depending on the slope) between window sill and bottom edge of bottom rail.

Venetian blind window system FSR 3
Cover panel depth 145 mm

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

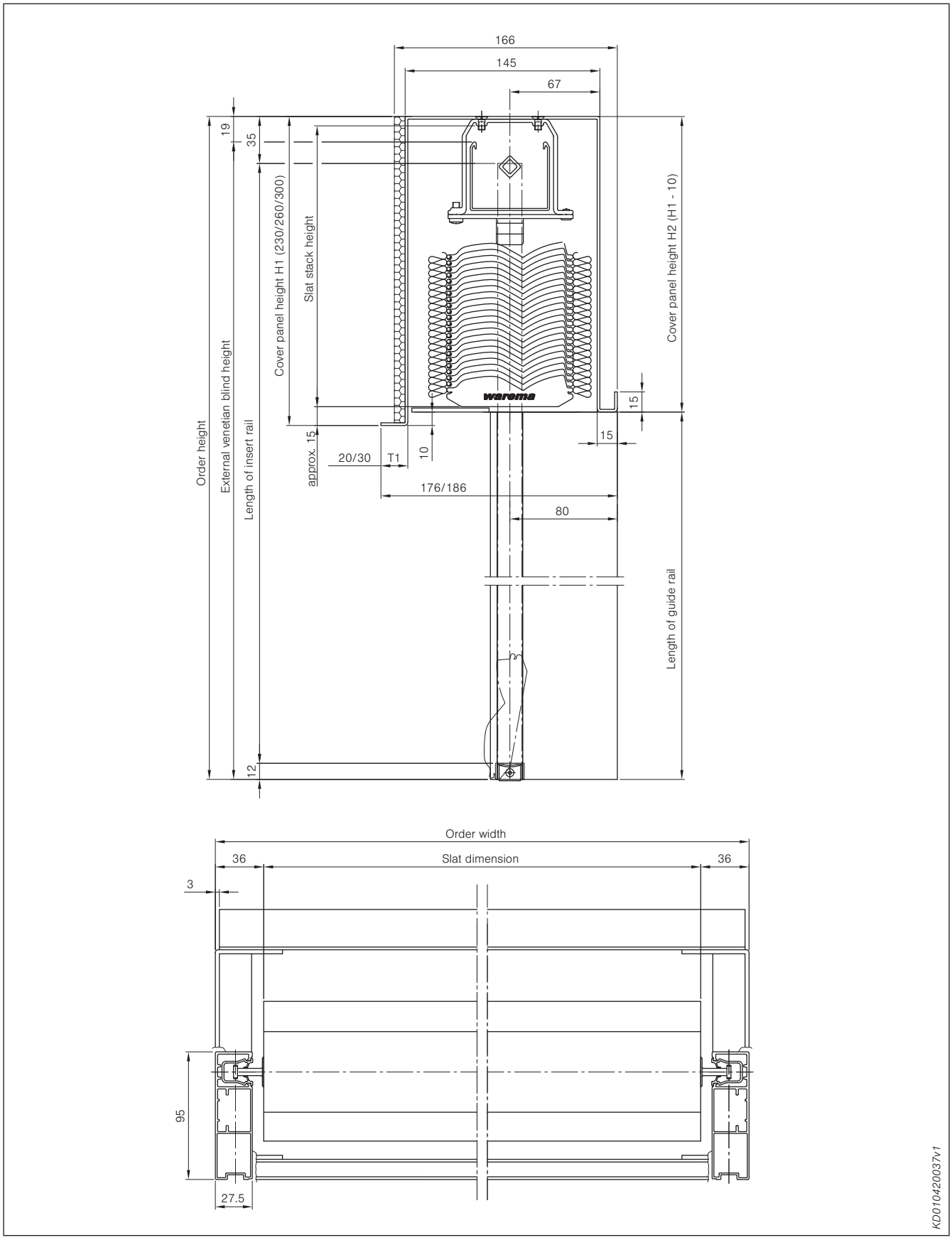


Fig. 29: Measuring instructions for venetian blind window system FSR 3, cover panel depth 145 mm

Venetian blind window system FSR 3
Cover panel depth 145 mm

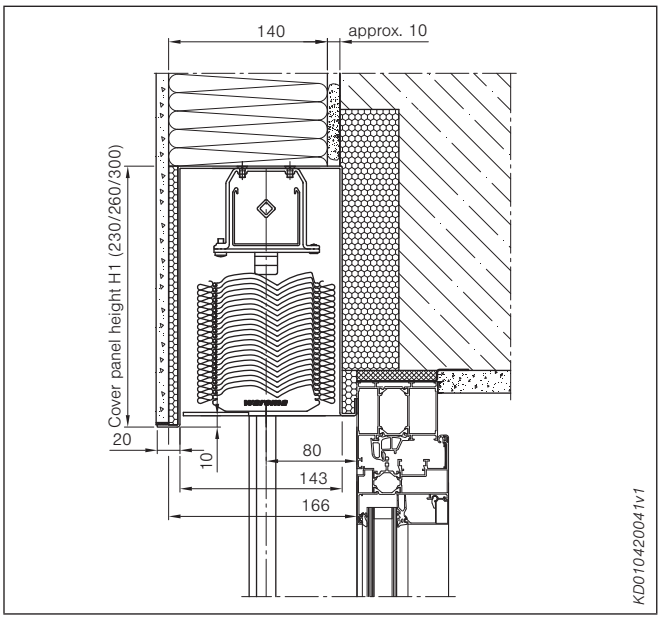


Fig. 30: FSR 3 in composite thermal insulation system 140 mm, E 93 A6, cover panel 145 mm

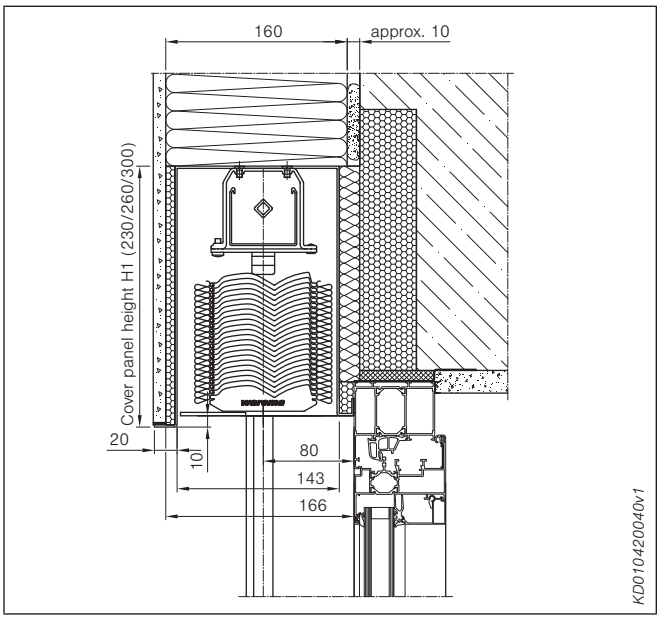


Fig. 31: FSR 3 in composite thermal insulation system 160 mm, E 93 A6, cover panel 145 mm

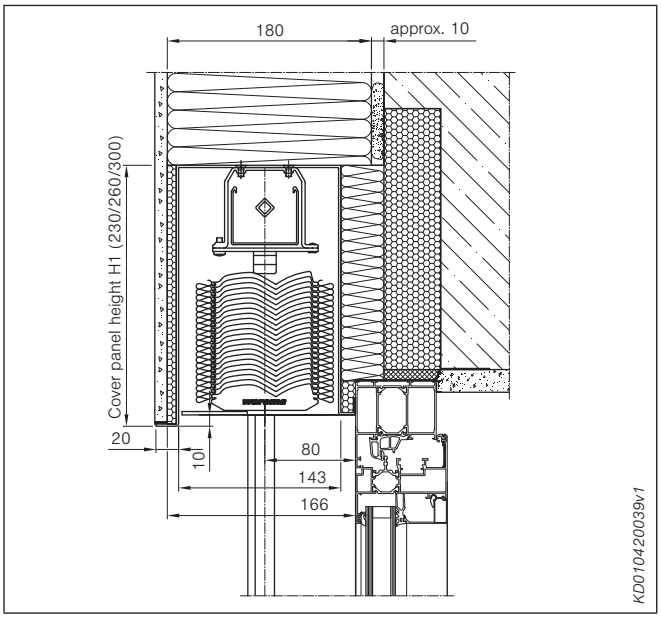


Fig. 32: FSR 3 in composite thermal insulation system 180 mm, E 93 A6, cover panel 145 mm

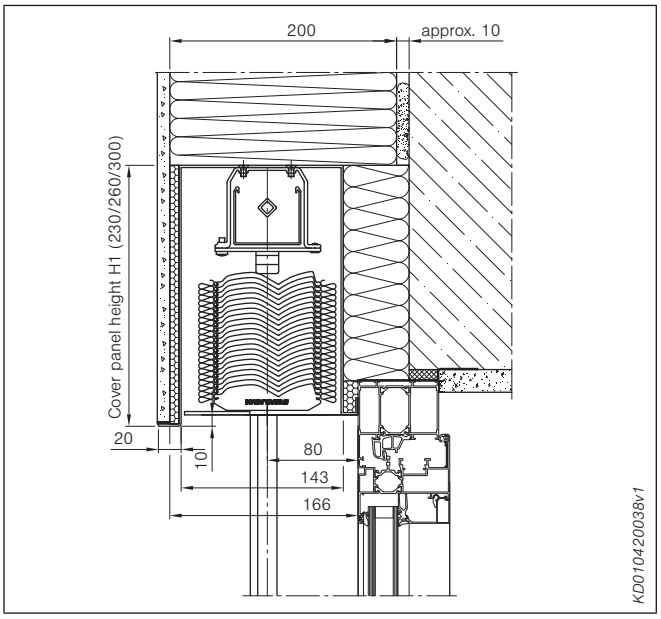


Fig. 33: FSR 3 in composite thermal insulation system 200 mm, E 93 A6, cover panel 145 mm

The details shown in this document are general planning proposals showing the design of a composite thermal insulation system in schematic form. The illustration does not relieve the client from his obligation to carry out an individual examination of applicability and completeness for the building project in question. Adjacent constructions are only schematic representations. All specifications and assumptions are to be adjusted to the local circumstances and coordinated. Plaster-base and/or reinforcement connection of the plaster base plate to on site insulation/masonry is to be designed according to DIN.

Venetian blind window system FSR 3 with composite thermal insulation system 160 mm E 80 A6, cover panel depth 145 mm

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

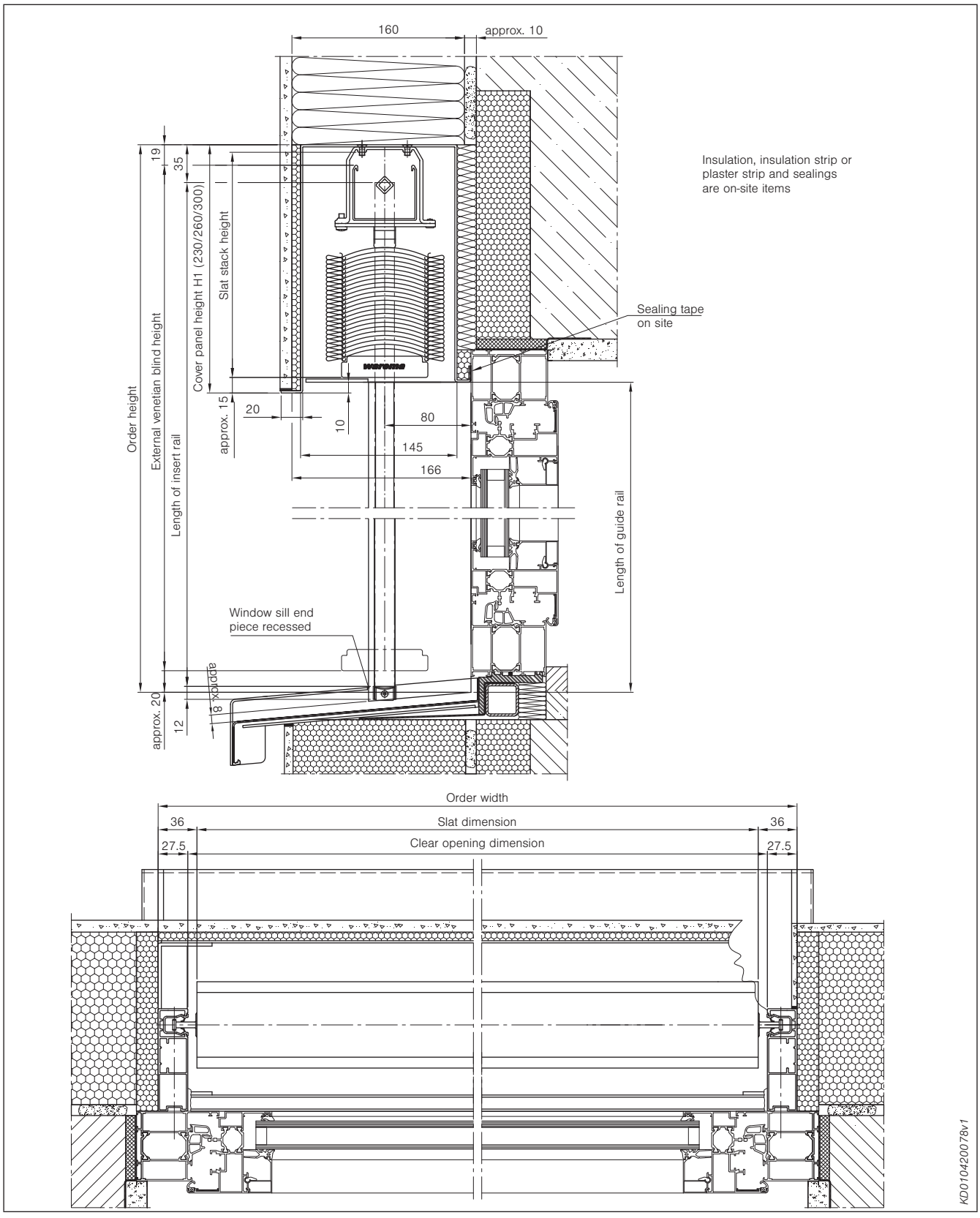


Fig. 34: Measuring instructions venetian blind window system FSR 3 with composite thermal insulation system 160 mm, E 80 A6, cover panel depth 145 mm

Also in the event of the plaster-base profiles being cut diagonally, the external venetian blind height relates to the order height on the window frame.

This produces a gap (depending on the slope) between window sill and bottom edge of bottom rail.

Venetian blind window system FSR 3 with composite thermal insulation system 180 mm E 80 A6, cover panel depth 145 mm

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

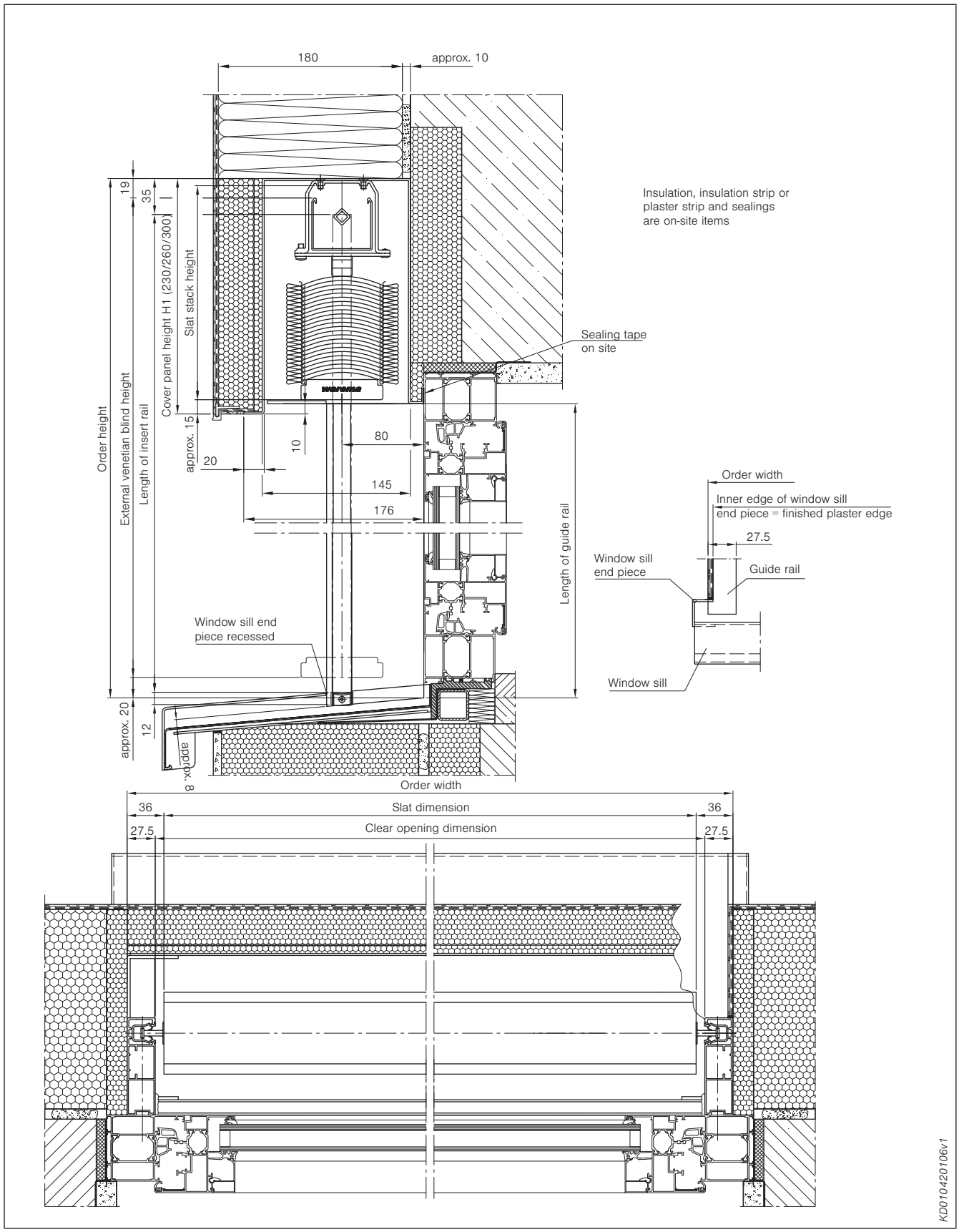


Fig. 35: Measuring instructions venetian blind window system FSR 3 with composite thermal insulation system 180 mm, E 80 A6, cover panel depth 145 mm

Contents

Venetian blind window system FSR 4
Cover panel depth 130 mm

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

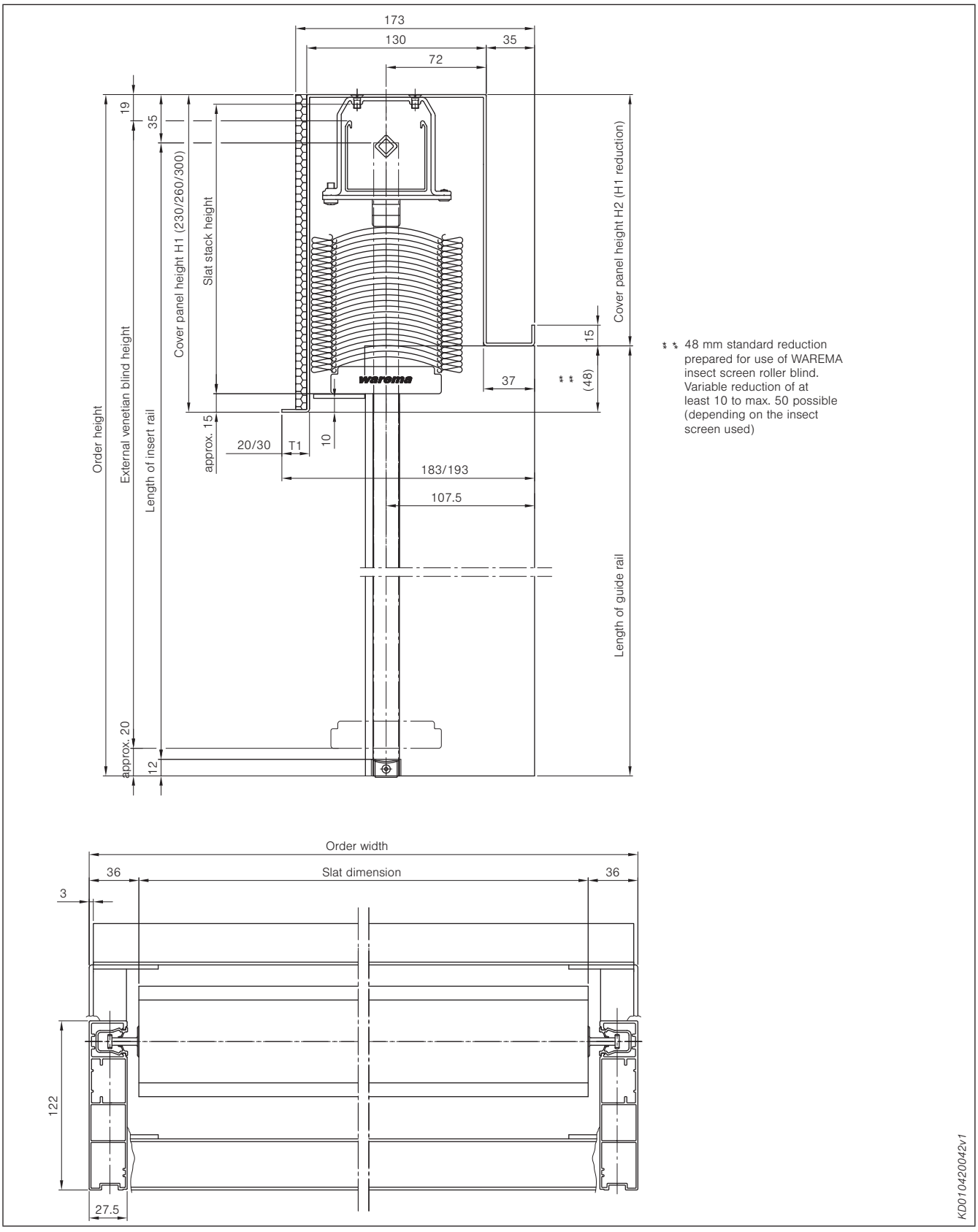


Fig. 36: Measuring instructions for venetian blind window system FSR 4, cover panel depth 130 mm. 48 mm standard reduction prepared for use of WAREMA insect screen roller blind. Variable reduction of at least 10 to max. 50 possible (depending on the insect screen used)

Venetian blind window system FSR 4
Cover panel depth 130 mm

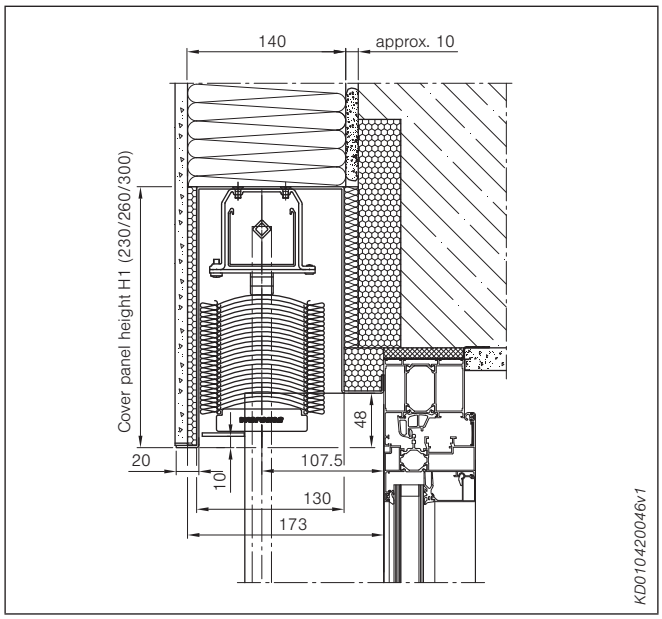


Fig. 37: FSR 4 in composite thermal insulation system 140 mm, E 80 A6, cover panel 130 mm

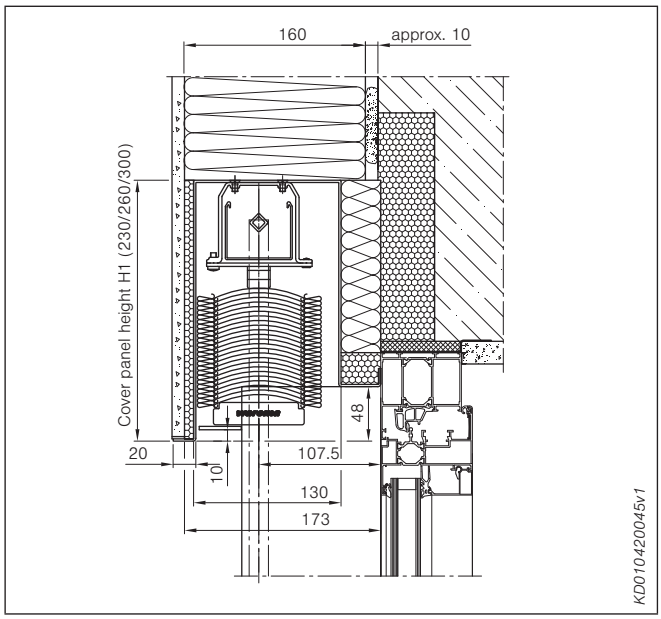


Fig. 38: FSR 4 in composite thermal insulation system 160 mm, E 80 A6, cover panel 130 mm

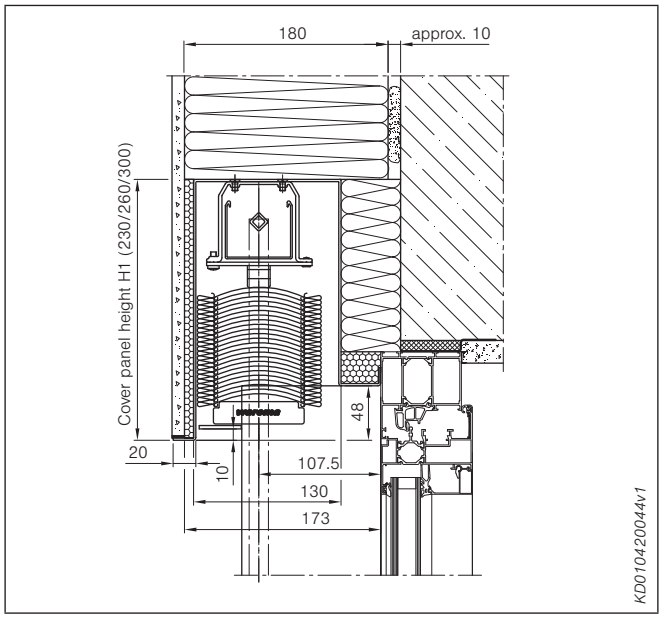


Fig. 39: FSR 4 in composite thermal insulation system 180 mm, E 80 A6, cover panel 130 mm

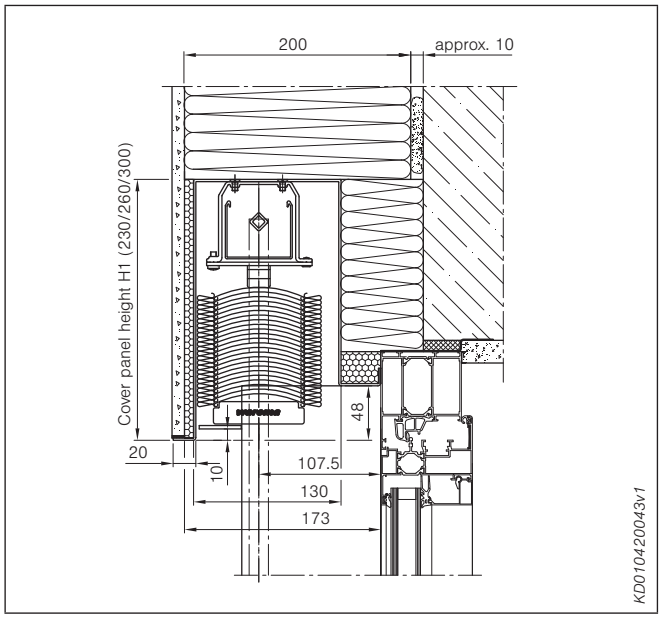


Fig. 40: FSR 4 in composite thermal insulation system 200 mm, E 80 A6, cover panel 130 mm

The details shown in this document are general planning proposals showing the design of a composite thermal insulation system in schematic form. The illustration does not relieve the client from his obligation to carry out an individual examination of applicability and completeness for the building project in question. Adjacent constructions are only schematic representations. All specifications and assumptions are to be adjusted to the local circumstances and coordinated. Plaster-base and/or reinforcement connection of the plaster base plate to on site insulation/masonry is to be designed according to DIN.

Venetian blind window system FSR 4 with composite thermal insulation system 160 mm E 80 AFA6, cover panel depth 130 mm

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

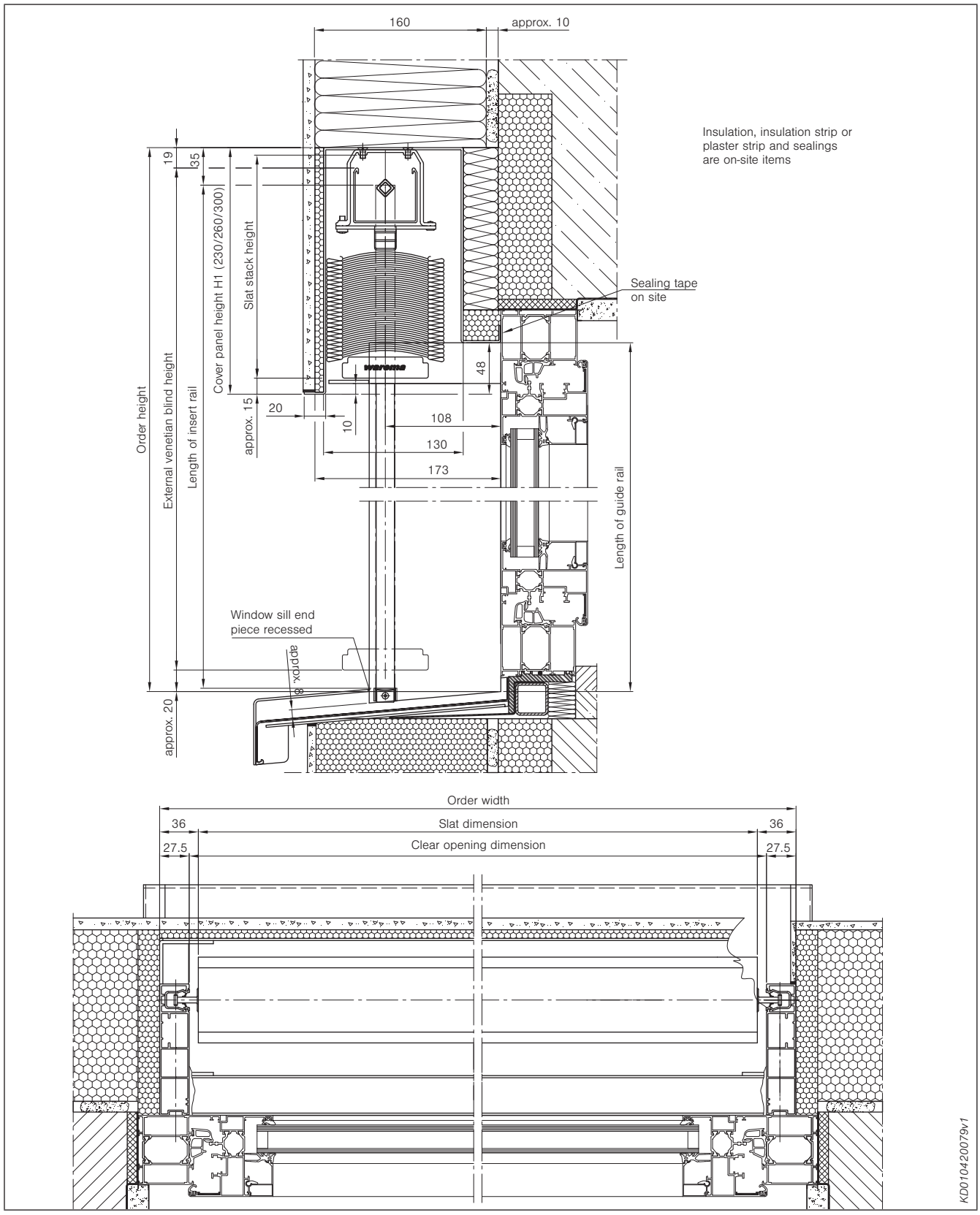


Fig. 41: Measuring instructions venetian blind window system FSR 4 with composite thermal insulation system 160 mm, E 80 AFA6, cover panel depth 130 mm

Also in the event of the plaster-base profiles being cut diagonally, the external venetian blind height relates to the order height on the window frame.

This produces a gap (depending on the slope) between window sill and bottom edge of bottom rail.

Venetian blind window system FSR 4
Cover panel depth 145 mm

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

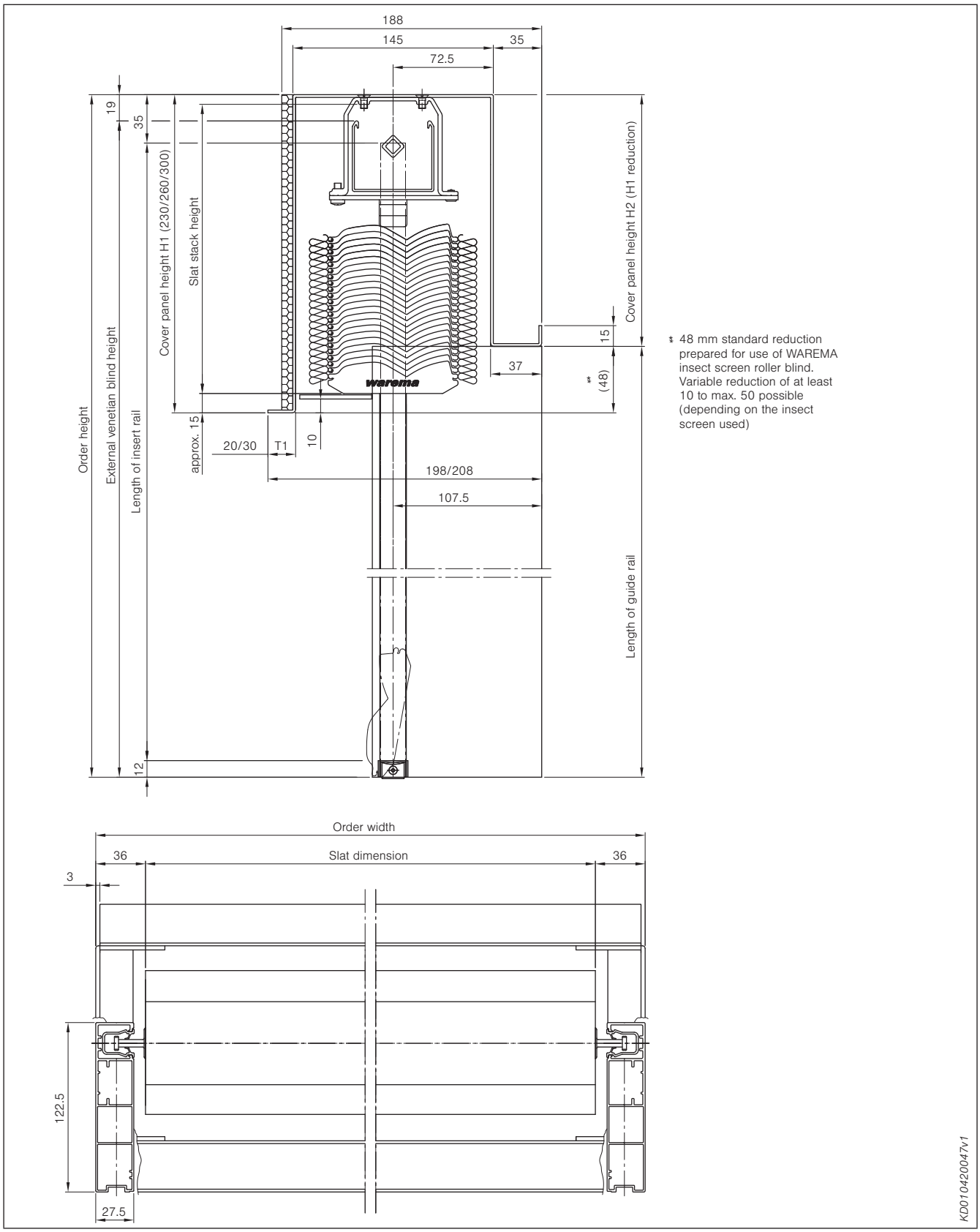


Fig. 42: Measuring instructions for venetian blind window system FSR 4, cover panel depth 145 mm. 48 mm standard reduction prepared for use of WAREMA insect screen roller blind. Variable reduction of at least 10 to max. 50 possible (depending on the insect screen used)

Venetian blind window system FSR 4
Cover panel depth 145 mm

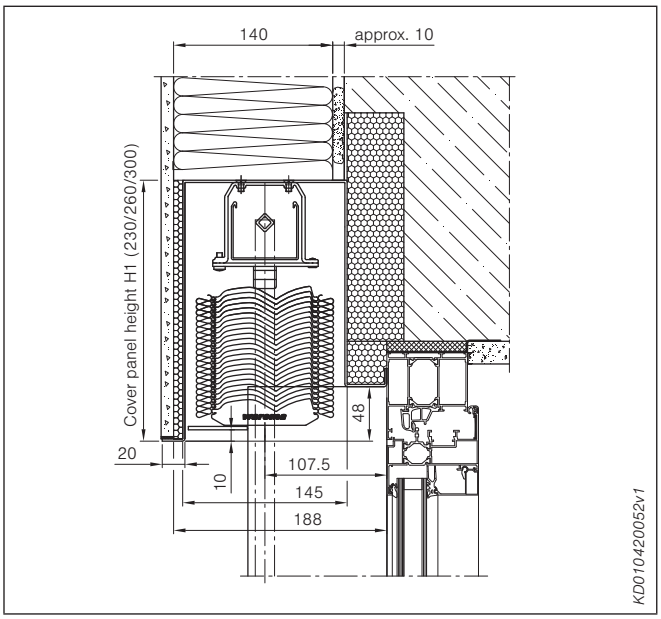


Fig. 43: FSR 4 in composite thermal insulation system 140 mm, E 93 A6, cover panel 145 mm

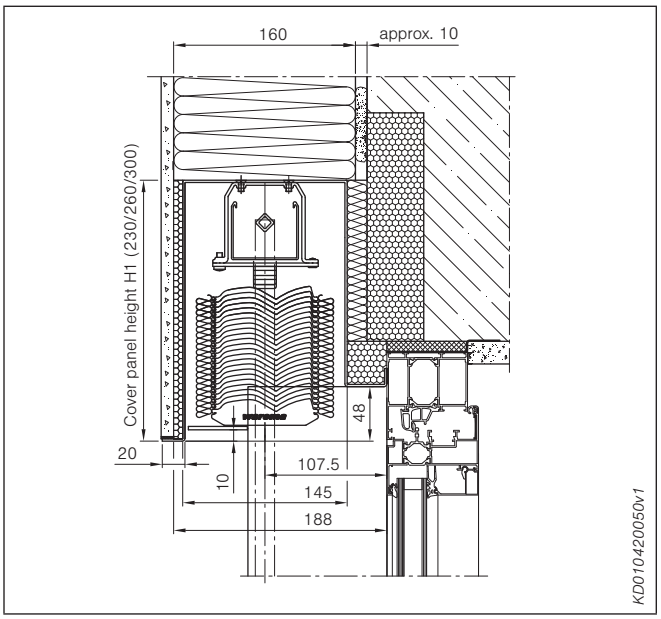


Fig. 44: FSR 4 in composite thermal insulation system 160 mm, E 93 A6, cover panel 145 mm

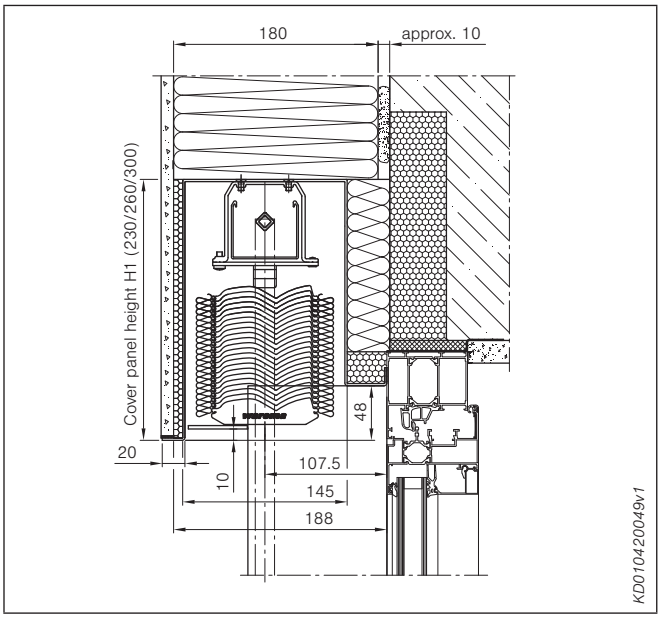


Fig. 45: FSR 4 in composite thermal insulation system 180 mm, E 93 A6, cover panel 145 mm

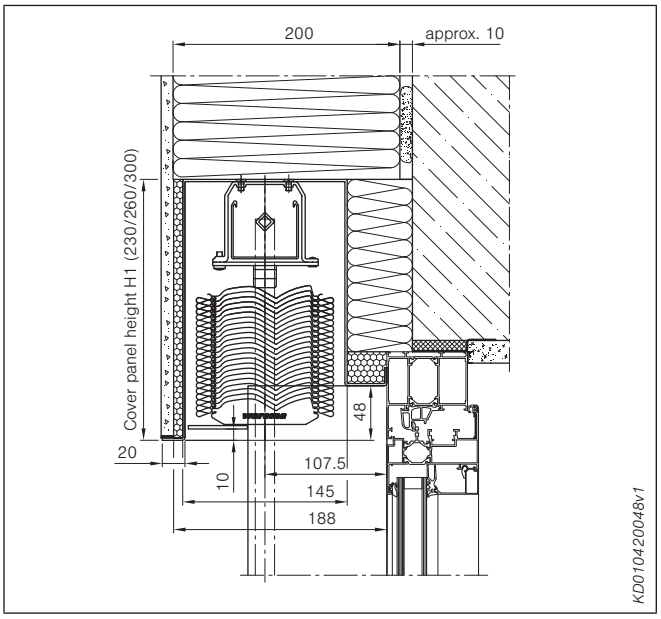


Fig. 46: FSR 4 in composite thermal insulation system 200 mm, E 93 A6, cover panel 145 mm

The details shown in this document are general planning proposals showing the design of a composite thermal insulation system in schematic form. The illustration does not relieve the client from his obligation to carry out an individual examination of applicability and completeness for the building project in question. Adjacent constructions are only schematic representations. All specifications and assumptions are to be adjusted to the local circumstances and coordinated. Plaster-base and/or reinforcement connection of the plaster base plate to on site insulation/masonry is to be designed according to DIN.

Venetian blind window system FSR 4 with composite thermal insulation system 200 mm E 93 A6, cover panel depth 145 mm

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

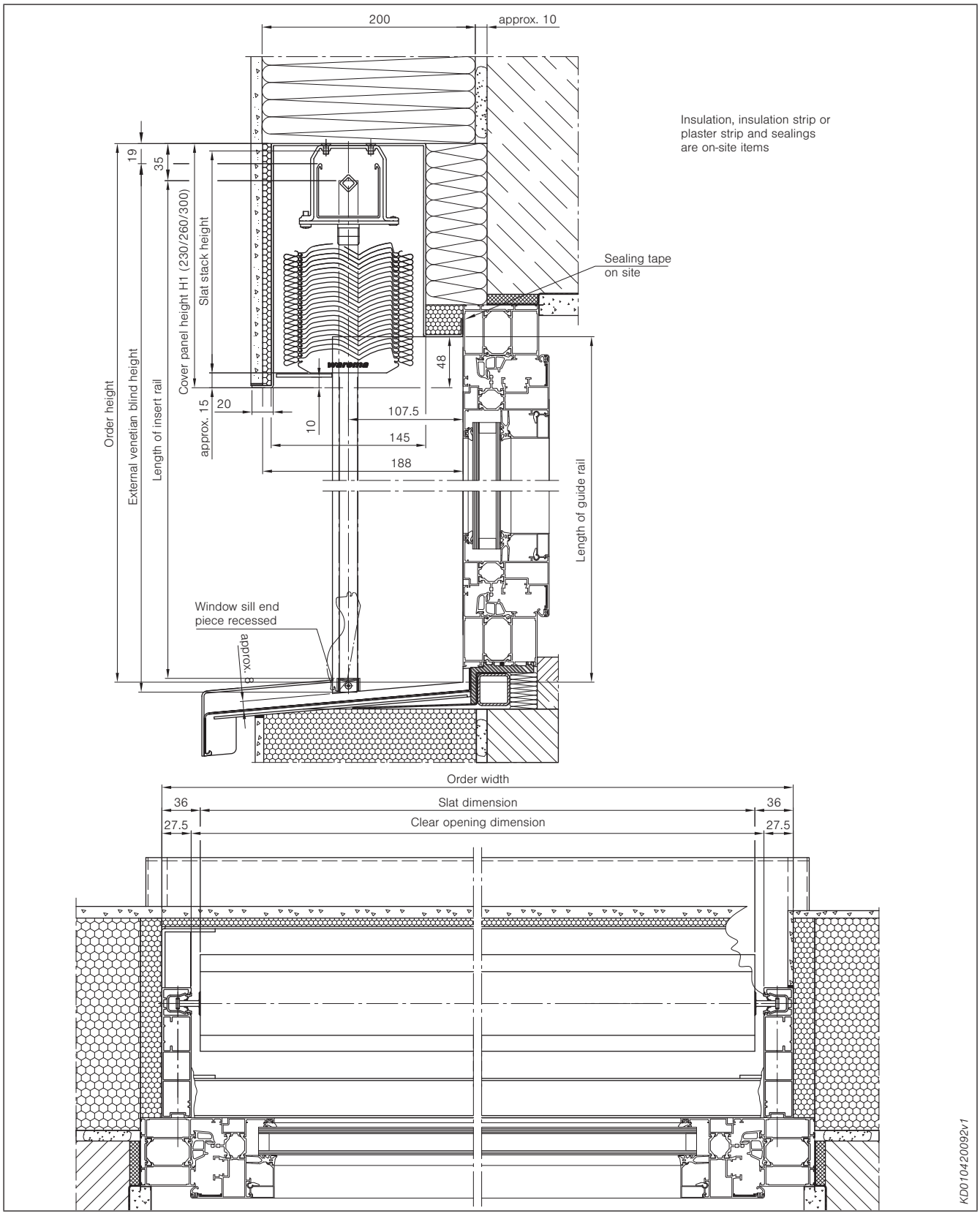


Fig. 47: Measuring instructions venetian blind window system FSR 4 with composite thermal insulation system 200 mm, E 93 A6, cover panel depth 145 mm

Also in the event of the plaster-base profiles being cut diagonally, the external venetian blind height relates to the order height on the window frame.

This produces a gap (depending on the slope) between window sill and bottom edge of bottom rail.

Venetian blind window system FSR 4 with composite thermal insulation system 180 mm E 80 A6, cover panel depth 145 mm

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

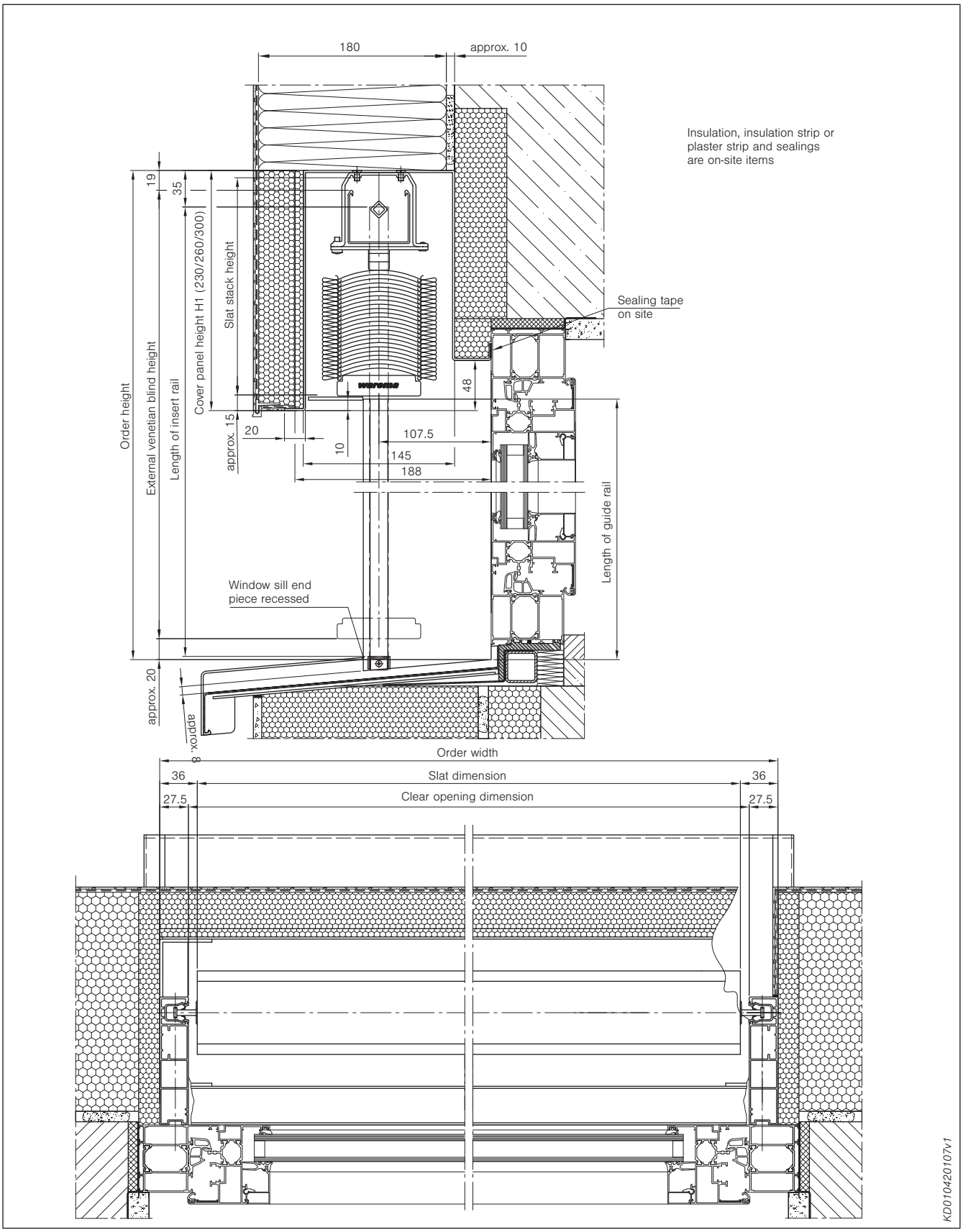


Fig. 48: Measuring instructions venetian blind window system FSR 4 with composite thermal insulation system 180 mm, E 80 A6, cover panel depth 145 mm

Contents

Venetian blind window system FSR S1 and S2

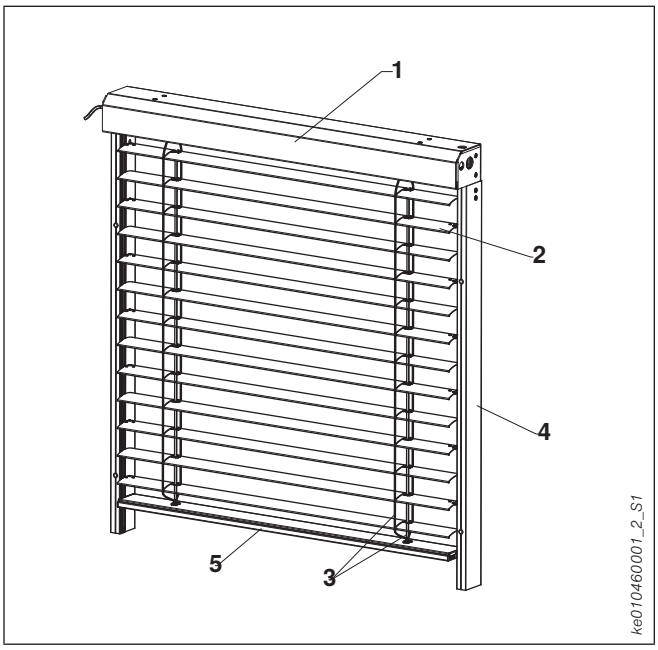


Fig. 49: Venetian blind window system shaft variant S1 cover panel fixing

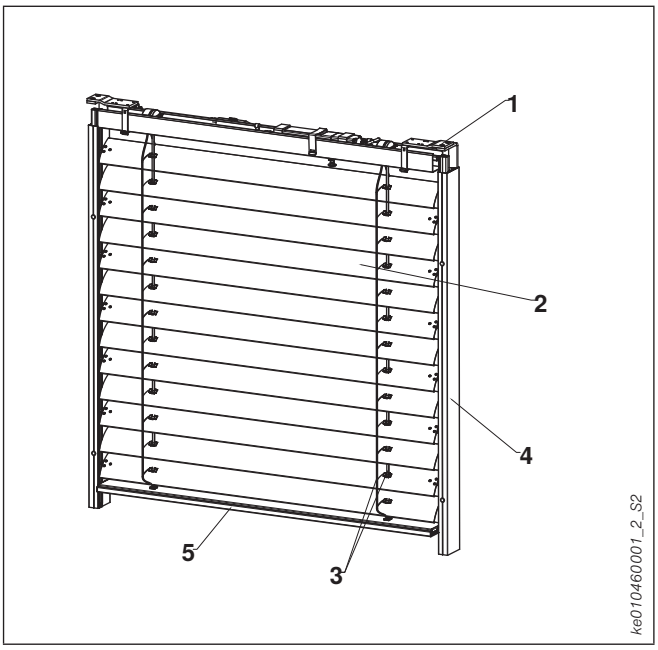


Fig. 50: Venetian blind window system shaft variant S2 top rail fixing

1 Cover panel
2 Slats
2.1 Beaded slats
2.2 Flat slats
2.3 Dim-out slats
3 Tilting tape and lifting tape
3.1 Tilting tapes
3.2 Lifting tapes
3.3 Loop cord
4 Lateral guidance
5 Bottom rail

1 Top rail fixing
2 Slats
2.1 Beaded slats
2.2 Flat slats
2.3 Dim-out slats
3 Tilting tape and lifting tape
3.1 Tilting tapes
3.2 Lifting tapes
3.3 Loop cord
4 Lateral guidance
5 Bottom rail

Application

For mounting in existing shafts, for integration in composite thermal insulation systems and ventilated facades.

Installation note

For the FSR variant S1 the external venetian blind stack is already preinstalled in the cover panel on delivery.
For the FSR variant S2 the external venetian blind stack is attached to the supports after fixing the guide rail to the window.

Operation

Motor

The slats are raised and lowered as well as tilted by actuating a switch.

Voltage:	230 V AC, other voltages optional
Frequency:	50 Hz, other frequencies optional
Protection rating:	IP 54
Plug-in connector:	Hirschmann coupling

The drive switches off upon reaching the upper or lower limit position using built-in, adjustable limit switches.

Crank

The slats are raised and lowered as well as tilted with the crank.
Crank rod with collapsible crank; sealed joint plate and square with patented thermal separation.

Material:	Aluminium
Surface:	C0 anodised
Crank holder:	plastic, grey, white or brown, crank holder with magnet optional

Cover panel (1) – Only for FSR S1

closed on both sides for stiffening, allowing larger curtain widths.

Material:	aluminium sheet, folded
Material thickness:	2 mm
Dimensions:	
(H):	95 mm (standard)
(D):	115 mm (standard)

The side closures of the cover panel variant S1 are connected to the guide rails to allow self-supporting mounting.

Venetian blind window system FSR S1 and S2

Top rail fixing (1.2) – Only for FSR S2

The subassembly consists of steel square with bracket lug and external venetian blind support and is welded to the guide profile. The external venetian blinds with stack are fixed by attaching the top rail to the external venetian blind support.

Top rail – standard for S1 and S2

Material: aluminium, extruded
Material thickness: 1.5 mm
Dimensions (w x h): 59 x 51 mm
Profile: U profile
Surface: plain, optionally powder-coated or anodised
Fixing: with aluminium brackets, plain

Tilt rod

Material: steel, zinc-coated
Material thickness: 1 mm
Dimensions (w x h): 12 x 12 mm
Profile: square tube
Surface: plain

Bearing

maintenance-free, enclosed
Enclosure: plastic, with Teflon
Tilting reel: Plastic
Tape reel: plastic, segment tilting to prevent self-acting adjustment of slats.

Slats (2)

Slats beaded on both sides (2.1)

curved
Material: aluminium, special alloy
Material thickness: approx. 0.44 mm
Dimensions (B): 60/80 mm
Profile: convex
Surface: enamel finish, resistant to corrosion using a special process
Colour: according to WAREMA colour chart for external venetian blinds

All cutouts in the slats have black eyelets to guide the lifting tapes (reduction of wear) and fix the webs of the tilting tape. The curtain is lowered with the slats closed to the outside and is raised with the slats closed to the inside.

Flat slats (2.2)

curved, no eyelets
Material: aluminium, special alloy
Material thickness: approx. 0.45 mm
Dimensions (B): 60/80 mm
Profile: convex
Surface: corrosion-resistant enamel finish using a special process
Colour: according to WAREMA colour chart for external venetian blinds

The top slat is reinforced and equipped with black eyelets (to reduce wear). Optionally all slats are available with protective eyelets.

The blind moves down with the slats closed to the outside and moves up with slats tilted approx. 55° to the inside.

Dim-out slats (2.3)

edges beaded on both sides, special profile
Material: aluminium, special alloy
Material thickness: approx. 0.45 mm
Dimensions (B): 73/90/93 mm
Profile: special profile, front beading with sealing strip made from flexible plastic
Surface: corrosion-resistant enamel finish using a special process
Colour: according to WAREMA colour chart for external venetian blinds

All edges of the perforations in the slats are continuously beaded in order to reduce wear of the lifting tape to a minimum. A higher level of dim-out is achieved by using dark slat colours. The curtain descends with closed slats and moves up with horizontal slats.

Tilting tape/lifting tape (3)

Tilting tapes (3.1)

special heavy-duty version with double webs
Material: polyester, with Kevlar core
Colour: black, optionally grey or white

Each slat is fixed at the top web of the tilting tape and threaded through the double webs.

Lifting tapes (3.2)

Material: polyester, with special coating
Colours: black, optionally grey or white (only for type E 80 A6 or E 80 AF A6)

Loop cord (3.3)

Slat suspension through laterally fixed loop cord
Material: polyester, with worked-in aramide fibres, weather-proof, UV stable
Colour: black, optionally grey

The loops are permanently fixed to the slats by clips made of corrosion-proof stainless steel.

Lateral guidance (4)

Guide profile with plastic guide profile for nipple guiding and noise reduction, incl. water-repelling end caps.
Material: aluminium, extruded
Dimensions (w x d): 27.5 x 70 mm, 27.5 x 80 mm, 27.5 x 95 mm for S1 with insect screen
Surface: powder-coated, anodising optional
Fixing: directly on the window frame
Guiding nipple: polyamide, glass fibre reinforced, impact-resistant connection with the slats.

Slats alternatively nippled (beaded slats and dim-out slats), every 3rd slat nippled on both sides (flat slat).

Venetian blind window system FSR S1 and S2

Bottom rail (5)

with end caps (moving with the unit for types 73/90/93)

Material:	aluminium, extruded
Dimensions (w x h):	73/60/80/93 x 20 mm
Surface:	powder-coated, anodising optional
End caps:	plastic, black, optionally grey

With sliding guiding nipples with slotted end caps to prevent the blind from unhinging. For dim-out slats with bottom rail with stabilising webs, integrated fall protection and clip-on slat with matching design as lower closure.

Colours

Powder coating of aluminium parts (except slats) with chrome-free pre-treatment according to current RAL CLASSIC colour chart (except camouflage and luminous colours) or in DB 701, 702, 703 as well as 8 textured colours according to WAREMA colour specification.
Other colour specifications, special colours or anodising are available subject to surcharge.

Insect screen (optional) – for FSR S1

Insect screen cassette roller blinds

only in combination with 95 mm guide profiles and max. 80 mm slat width
Insect screen roller blind for vertical mounting between sun shading curtain and window.

Operation:	with handle rail, fixing of handle rail by engaging into the labyrinth closure

Curtain

Material:	Fibre glass fabric gauze, plastic coating
Colour:	grey, optionally black

Profiles

Material:	aluminium, extruded
Surface:	powder-coated
Dimensions (w x h):	guide rails 24x34 mm
Handle rail:	17 x 40 mm
Brush strip:	brush sealing strip in handle rail and guide rail

Insect screen swivel frame

Models with 1 or 2 wings with continuous mounting frame. The swivel frame opens outwards. Includes integrated closing aid and continuous brush strip.

Operation:	up to frame height of 1800 mm with handle, from frame height 1801 mm with horizontal bar with integrated handle rail.

Curtain

Material:	Fibre glass fabric gauze, plastic coating
Colours:	grey, optionally black

Profiles

Material:	aluminium, extruded
Surface:	powder coated
Dimensions (w x h):	frame profile 12.5 x 30 mm, horizontal bar 12.5 mm x 28 mm with integrated handle rail 10 x 52 mm

Plastic parts

Colours:	white, grey, brown or black

Venetian blind window system FSR S1 and S2

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

Construction limit values

FSR S1

Types	Individual units – FSR S1 (cover panel variant)				
	Order width = back edge of guide rail		Height (mm)	Area (m^2) E units	Area (m^2) C units
	min.	max. (without additional cover panel fixing)	max.	max.	max.
E/C 60/80 A6	680[1)]	4000	4000	16	5
E/C 60/80 AF A6 with eyelets	680[1)]	3000[2)]	4000	12	5
E/C 73/90/93 A6	680[1)]	4000	4000	15	5

Tab. 5: Construction limit values FSR S1

[1)] *Asymmetrical running of slats cannot be prevented for small widths.*
[2)] *For widths >2400 mm an additional tension cable guide is required (for additional tension cables and a cover panel length >3000 mm an additional on-site cover panel fixing is generally required).*

FSR S2

Types	Individual units – FSR S2 (top rail variant)					
	Order width = back edge of guide rail			Height (mm)	Area (m^2) E units	Area (m^2) C units
	min.	max. (without additional top rail fixing)	max. (with additional on-site top rail fixing)	max.	max.	max.
E/C 60/80 A6	680[1)]	2000[2)]	4000	4000	8 (16)	13
E/C 60/80 AF A6 with eyelets	680[1)]	2000[2)]	4000	4000	8 (16)	13
E/C 73/90/93 A6	680[1)]	2000[2)]	4000	4000	8 (15)	13

Tab. 6: Construction limit value FSR S2

[1)] *Asymmetrical running of slats cannot be prevented for small widths.*
[2)] *For additional tension cable guides an additional mounting support is generally required (substructure has to be provided on-site).*

Note: For coupled units (model FSR S1) the external venetian blinds are not preinstalled in the cover panel when delivered.

Slat stack heights

External venetian blinds FSR S1, FSR S2

The external venetian blind height is the distance between the top edge of the top rail of the external venetian blind and the bottom edge of the bottom rail.

Slat stack height determined using external venetian blind height

Types	External venetian blind height in mm																				
	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000
C 60 A6	165	180	195	210	225	240	255	270	285	300	315	330	350	365	380	395	410	425	440	455	470
E 60 A6	185	200	215	230	245	260	275	290	305	325	340	355	370	385	400	415	430	445	460	475	490
C 80 A6	150	160	175	185	200	210	220	235	245	260	270	285	295	310	320	335	345	360	370	385	395
E 80 A6	170	180	195	205	220	230	245	255	270	280	295	305	320	330	345	355	365	380	390	405	415
C 60 AF A6	117	124	131	138	145	151	158	165	172	178	185	192	199	206	212	219					
E 60 AF A6	138	145	151	158	165	172	193	200	206	213	220	227	234	240	247	254					
C 60 AF A6 (with eyelets)	125	133	141	149	158	166	174	183	191	199	208	216	224	233	241	249					
E 60 AF A6 (with eyelets)	145	153	161	170	178	186	195	203	211	219	228	236	244	253	261	269					
C 80 AF A6	114	120	125	131	137	144	149	155	161	167	173	179	185	191	197	203					
E 80 AF A6	134	140	146	152	158	164	170	176	182	202	208	214	220	226	232	238					
C 80 AF A6 (with eyelets)	117	124	131	138	145	152	159	166	172	179	186	193	200	207	213	220					
E 80 AF A6 (with eyelets)	138	145	152	158	165	172	179	186	193	199	206	213	220	227	234	240					
C 73 A6	145	160	170	180	190	200	210	220	230	240	255	265	275	285	295	305	315				
E 73 A6	160	175	185	195	205	215	225	235	245	255	270	280	290	300	310	320	330				
C 93/90 A6	135	145	150	160	170	175	185	190	200	210	215	225	230	240	250	255	265				
E 93/90 A6	150	160	165	175	185	190	200	205	215	225	230	240	245	255	265	270	280				

Slat stack heights are approximate values. For technical reasons, they might be higher or lower.
For external venetian blinds with equipment variant vivamatic® and slowturn the construction limit values and slat stack heights of the corresponding basic type should be assumed.

Shaft height FSR S1 and S2:
Slat stack height + 30 mm = minimum shaft height.

Shaft heights FSR S1 for reduced shaft depth:
Slat stack height + 75 mm = minimum shaft height.

Values highlighted in dark grey: Minimum shaft height for C/E 73 = 205 mm and for C/E 90/93 220 mm.

Slat stack height determined using clear shading height

Types	Clear shading height in mm																		
	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4200	4400	4600
C 60 A6	180	195	210	230	245	265	280	295	315	330	345	365	380	395	415	430	445	465	480
E 60 A6	200	215	230	250	265	285	300	315	335	350	365	385	400	415	435	450	465	485	500
C 80 A6	160	175	185	200	215	225	240	255	265	280	290	305	320	330	345	360	370	385	400
E 80 A6	180	195	205	220	235	245	260	275	285	300	310	325	340	350	365	380	390	405	420
C 80 A6 offset	130	141	152	163	174	185	196	207	218	229	240	251	262	273	283	294	305	316	327
C 60 AF A6	122	129	136	143	150	156	163	170	177	184	191	198	205	212	220				
E 60 AF A6	142	149	156	163	170	192	199	206	213	220	227	234	241	248	255				
C 60 AF A6 (with eyelets)	131	139	148	157	166	174	183	192	201	209	218	227	236	244	253				
E 60 AF A6 (with eyelets)	151	159	168	177	186	194	203	212	221	229	238	247	256	264	273				
C 80 AF A6	118	124	130	136	143	149	155	161	166	173	179	185	191	197	203				
E 80 AF A6	138	144	150	156	163	169	175	181	202	208	215	221	227	233	239				
C 80 AF A6 (with eyelets)	122	129	136	143	150	157	164	171	178	185	192	199	206	213	220				
E 80 AF A6 (with eyelets)	142	149	156	163	170	177	184	191	198	205	212	219	226	233	240				
C 73 A6	155	165	180	190	200	210	225	235	245	255	270	280	290	300	315				
E 73 A6	170	180	195	205	215	225	240	250	260	270	285	295	305	315	330				
C 93/90 A6	140	150	160	165	175	185	190	200	210	215	225	235	240	250	260				
E 93/90 A6	155	165	175	180	190	200	205	215	225	230	240	250	255	265	275				

Slat stack heights are approximate values. For technical reasons, they might be higher or lower.
For external venetian blinds with equipment variant vivamatic® and slowturn the construction limit values and slat stack heights of the corresponding basic type should be assumed.

Shaft height FSR S1 and S2:
Slat stack height + 30 mm = minimum shaft height.

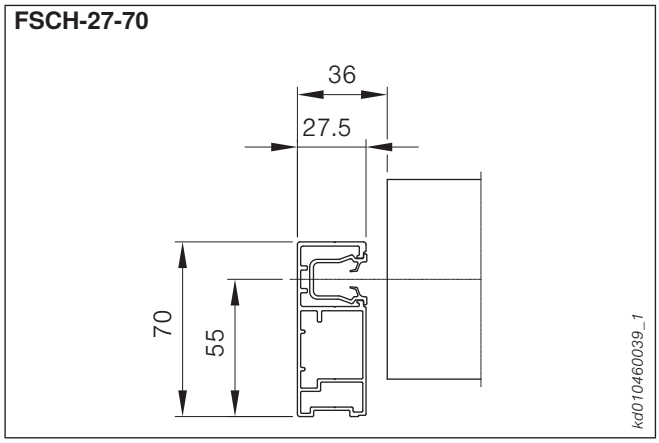
Shaft heights FSR S1 for reduced shaft depth:
Slat stack height + 75 mm = minimum shaft height.

Values highlighted in dark grey: Minimum shaft height for C/E 73 = 205 mm and for C/E 90/93 220 mm.

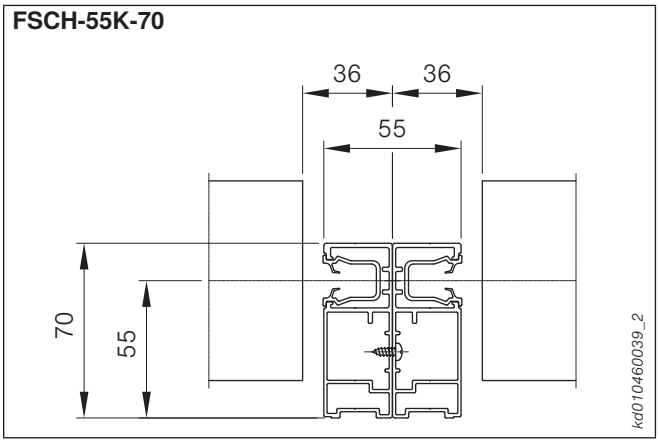
Venetian blind window system FSR S1 and S2

Guide profile FSR S1 and S2

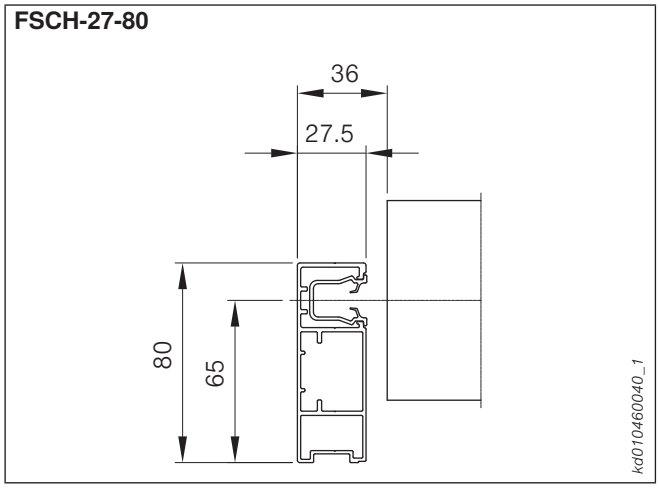
FSCH-27-70



FSCH-55K-70



FSCH-27-80



FSCH-55K-80

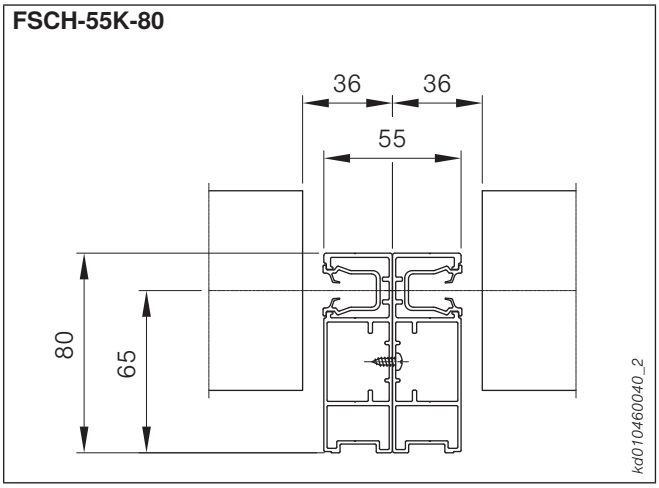
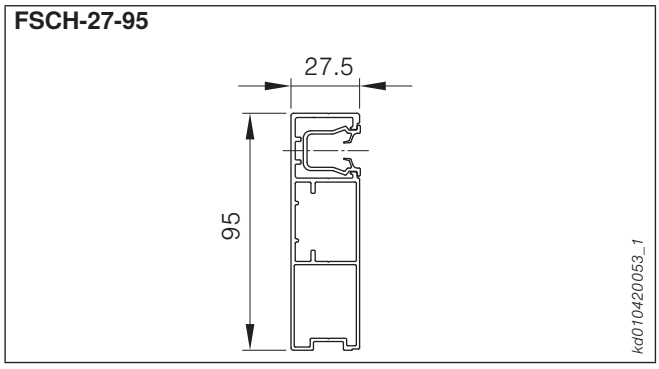


Fig. 51: Guide profiles FSR S1 and S2

Guide profile FSR S1

FSCH-27-95



FSCH-55K-95

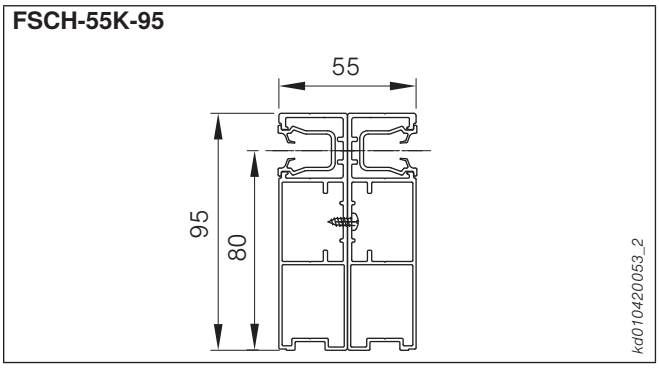


Fig. 52: Guide profiles FSR S1

Number of fixing holes

Guide rail length (mm)	Quantity
up to 1350	2
1351 to 2400	3
2401 to 3450	4
3451 to 4000	5

Position of the drilled holes

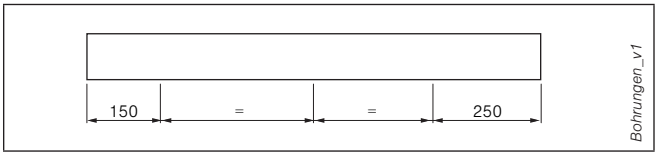


Fig. 53: Position of the drilled holes

Allocation of shaft depths/external venetian blind types/guide profiles FSR S1 (cover panel variant)

External venetian blind	Guide profile 27.5x70 Art. no. 112 683 Dimension A = 55	Guide profile 27.5x80 Art. no. 112 684 Dimension A = 65	Guide profile 27.5x95 Art. no. 112 245 Dimension A = 80 (required for insect screen)
min. shaft depth ►	130 mm[1)]	140 mm	150 mm
C/E 60 A6 / AFA6	●	○	●
C/E 73 A6	●	○	●
C/E 80 A6 / AFA6	●	○	●
C/E 90/93 A6	–	●	○[2)]

[1)] *The minimum shaft depth 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.*
[2)] *not in combination with insect screen roller blind*

● Standard allocation
○ Guide profile optional
– not possible

Shaft external venetian blind FSR S2 (OS variant)

External venetian blind	Guide profile 27.5x70 Art. no. 112 683 Dimension A = 55	Guide profile 27.5x80 Art. no. 112 684 Dimension A = 65
min. shaft depth ►	120 mm	130 mm
C/E 60 A6 / AFA6	●	○
C/E 73 A6	●	○
C/E 80 A6 / AFA6	●	○
C/E 90/93 A6	–	●

● Standard allocation
○ Guide profile optional
– not possible

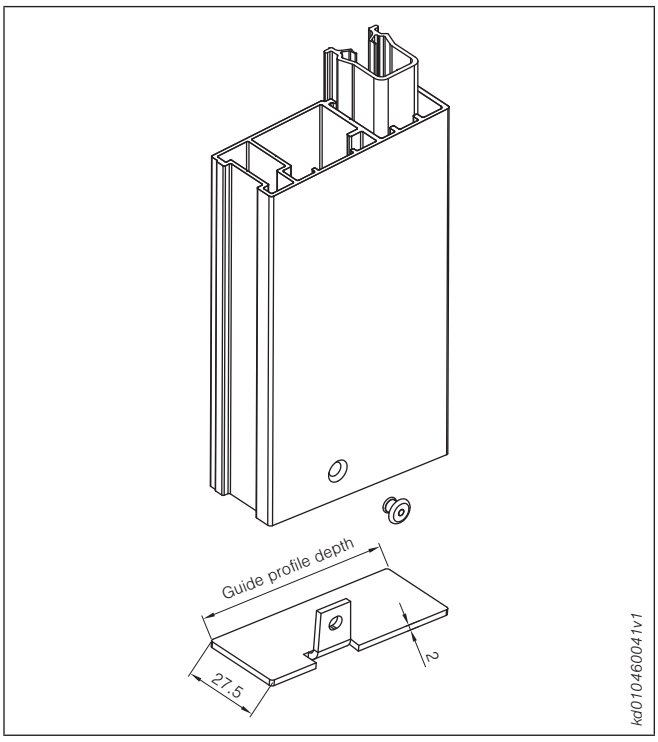


Fig. 54: End cap for aluminium guide profile

Note: The optionally available end cap for the aluminium guide profile is preinstalled at the factory and is powder-coated together with the guide profile. Also available for guide profiles with diagonal cut.

Venetian blind window system FSR S1 and S2

Fixing material for guide profiles

Substructure	Drilled hole 2 (installation in the window frame)				Head diameter (mm)	
	Art. no.	DIN	Drilling diameter (mm)	Depth of borehole (mm)		
Fixing material for guide profile 27.5x70						
Aluminium/PVC with steel core	720329	Screw DIN 7504 galv. N 4.8x60 Torx	4	30	8.5	Torx[1)]
Wood	728033	DIN 7995 A2 4.5x50 screw	3.5	25	8.3	Cross-head[1)]
Fixing material for guide profile 27.5x80						
Aluminium/PVC with steel core	720329	Screw DIN 7504 galv. N 4.8x60 Torx	4	30	8.5	Torx[1)]
Wood	728030	DIN 7995 A2 4.5x60 screw	3.5	30	8.3	Cross-head[1)]
Fixing material for guide profile 27.5x95						
Aluminium/PVC with steel core	720295	Screw DIN 7504 galv. N 4.8x80 Torx	4	45	8.5	Torx[1)]
Wood	720265	DIN 7995 C4.5x80	3.5	40	8.3	Cross-head[1)]

[1)] *Bits/screw drivers of min. 120 mm length are required for these screws, these are not included in the delivery.*

Venetian blind window system FSR S1
E 80 A6

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

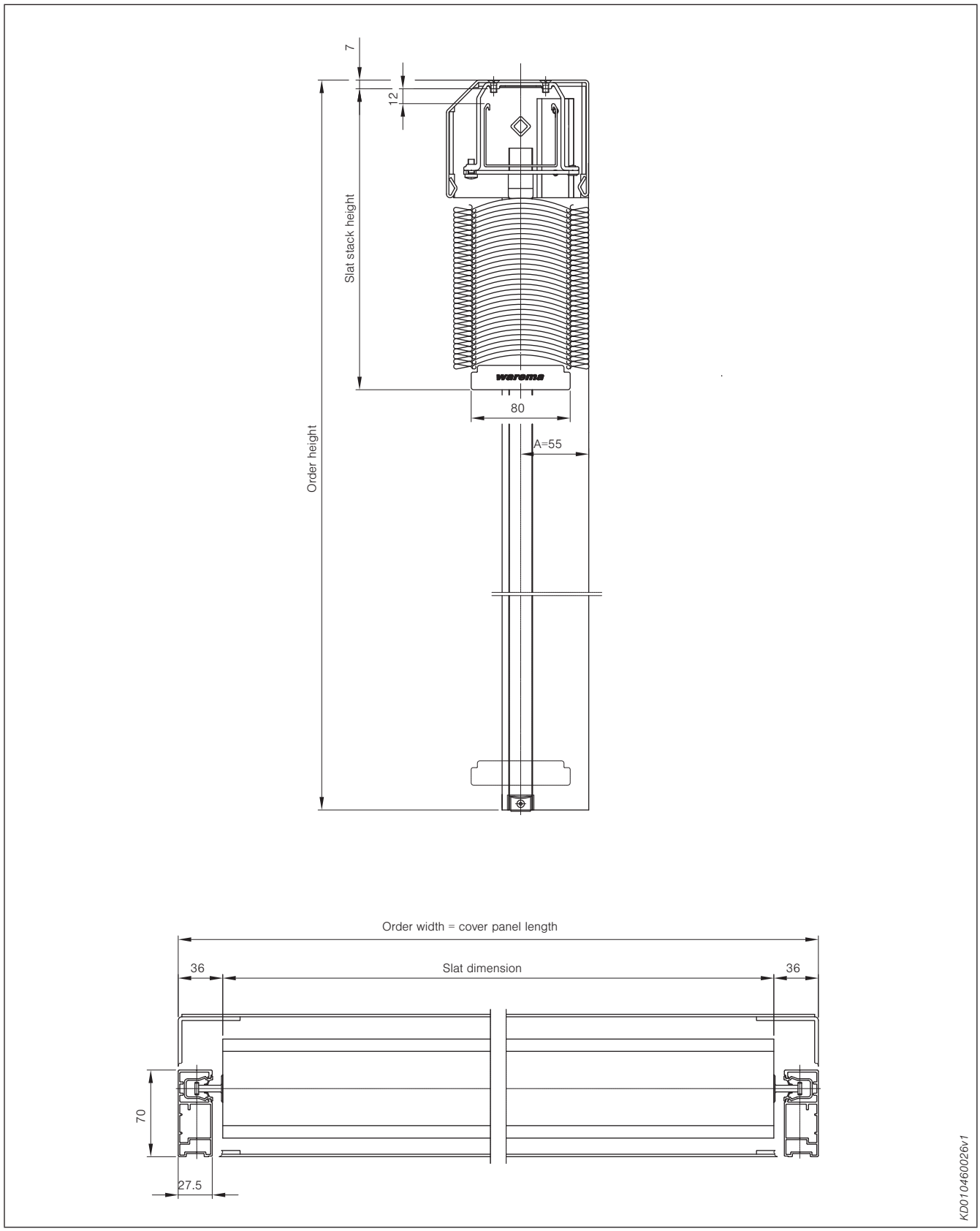


Fig. 55: Measuring instructions for venetian blind window system FSR S1

Venetian blind window system FSR S1
E 80 A6

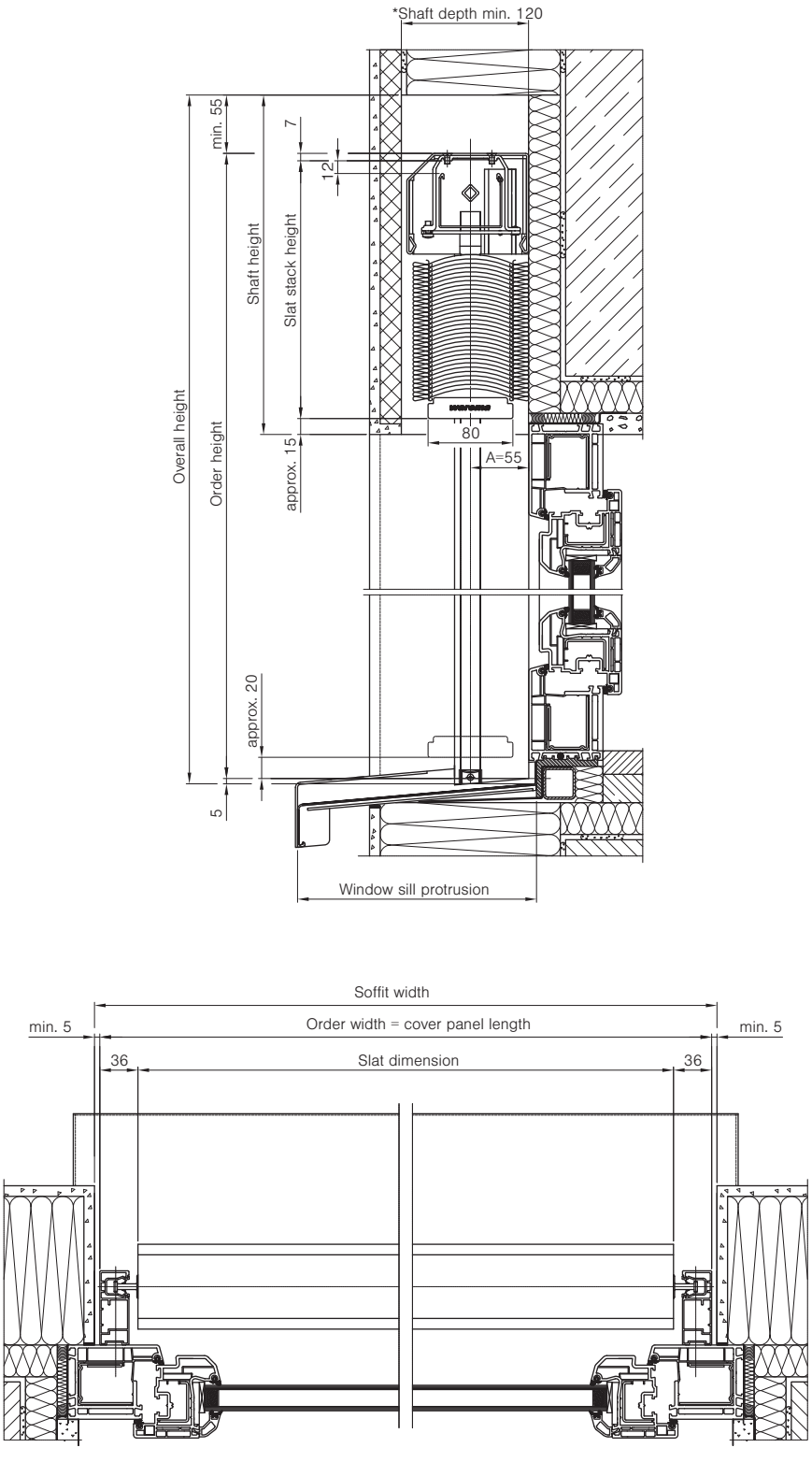
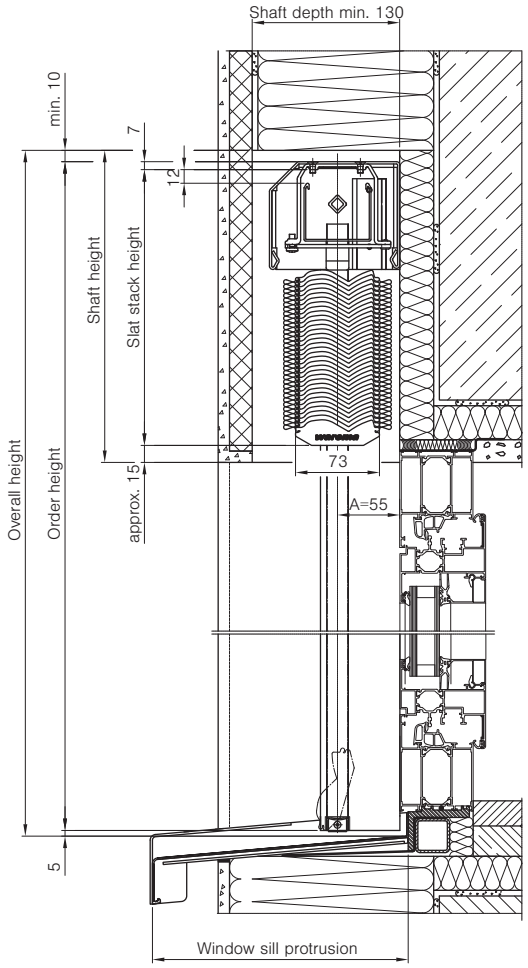
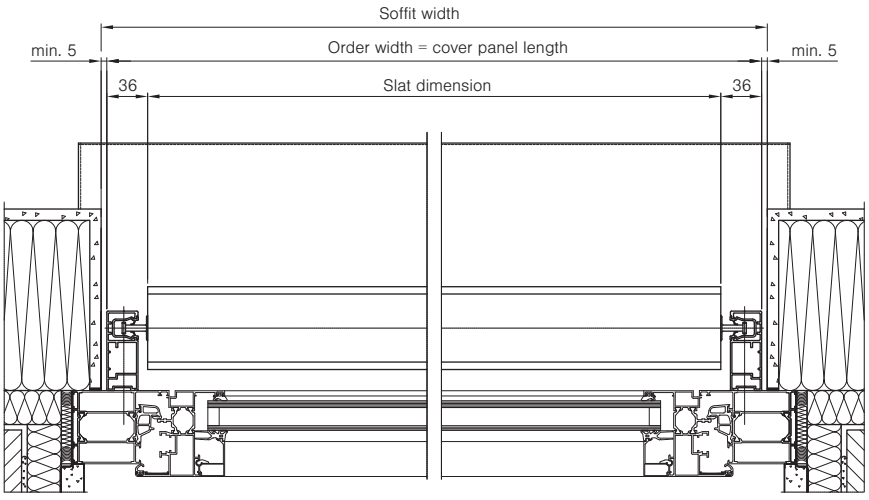


Fig. 56: Mounting example for venetian blind window system FSR S1

* The minimum shaft depth can be 120 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.

Venetian blind window system FSR S1
E 73 A6





KD010460024v1

Fig. 57: Mounting example for venetian blind window system FSR S1

Venetian blind window system FSR S1
E 90 A6

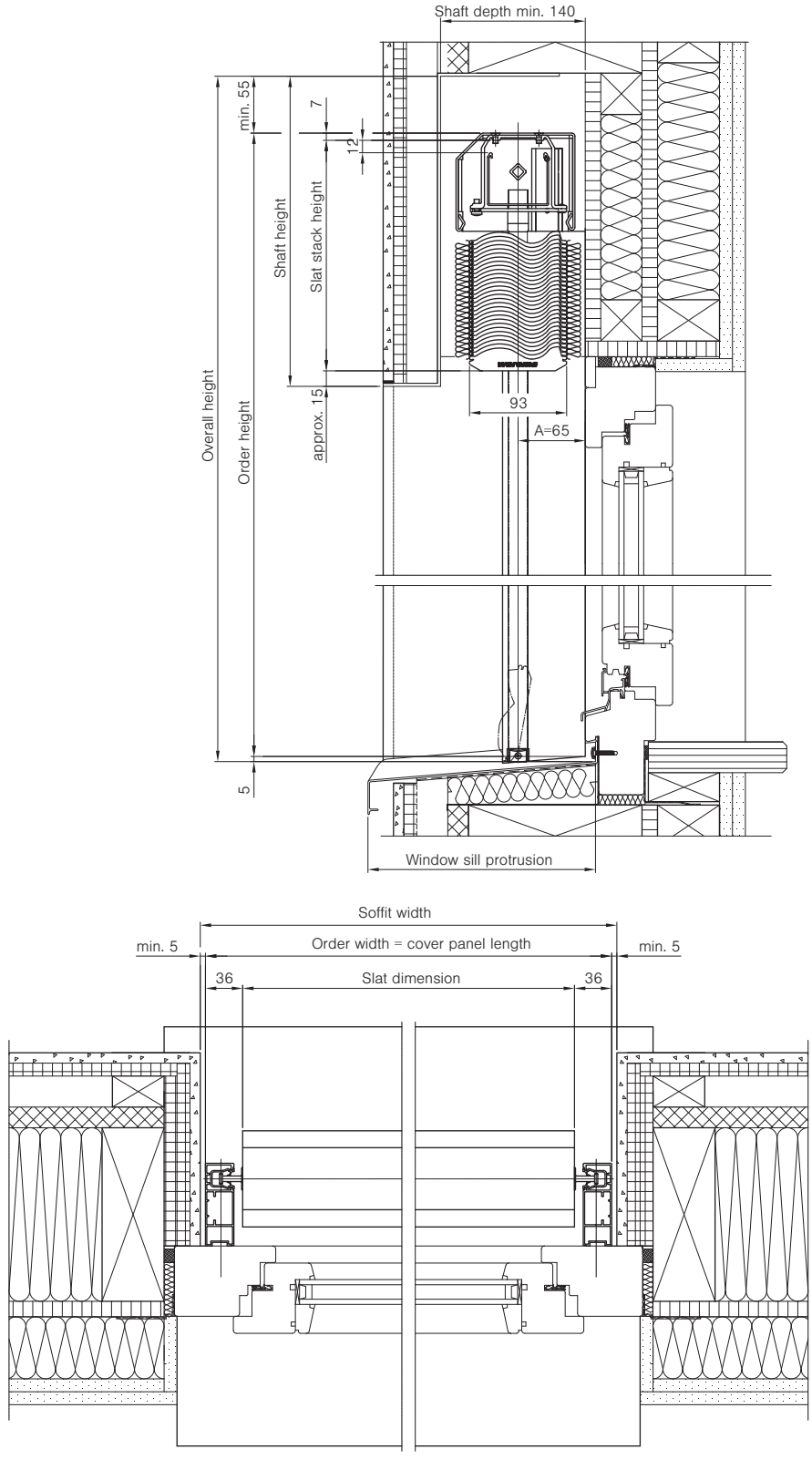
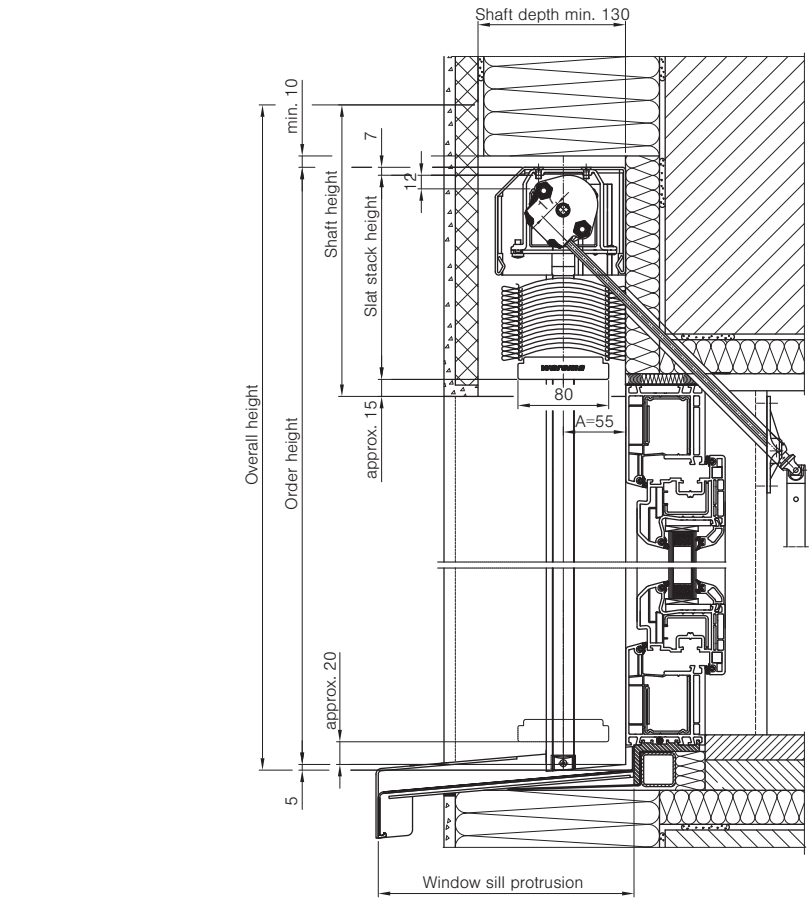
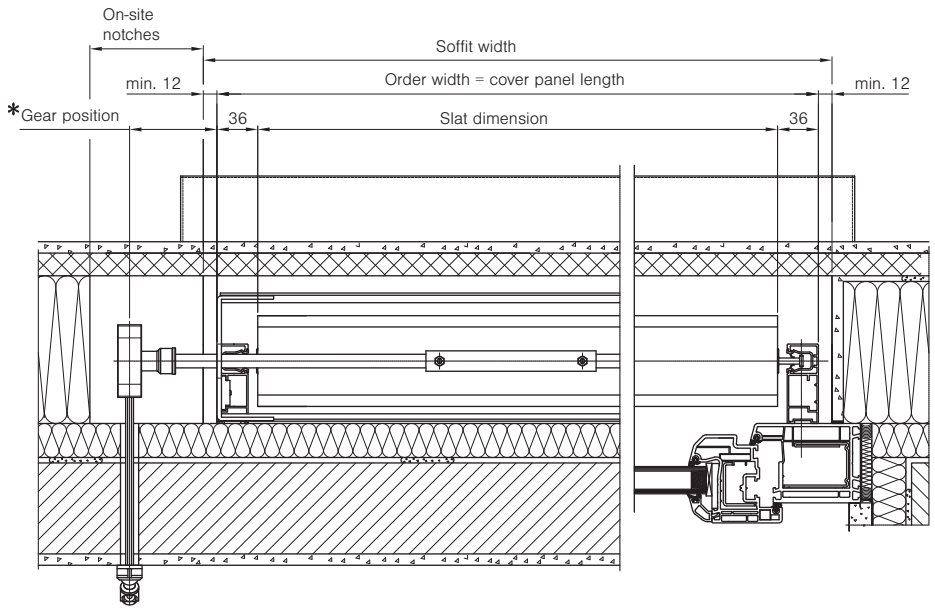


Fig. 58: Mounting example for venetian blind window system FSR S1

Venetian blind window system FSR S1
C 80 A6, with external gear in existing recess





KD010460028v1

Fig. 59: Mounting example for venetian blind window system FSR S1

Venetian blind window system FSR S1
C 80 A6, with internal gear in existing roller shutter box

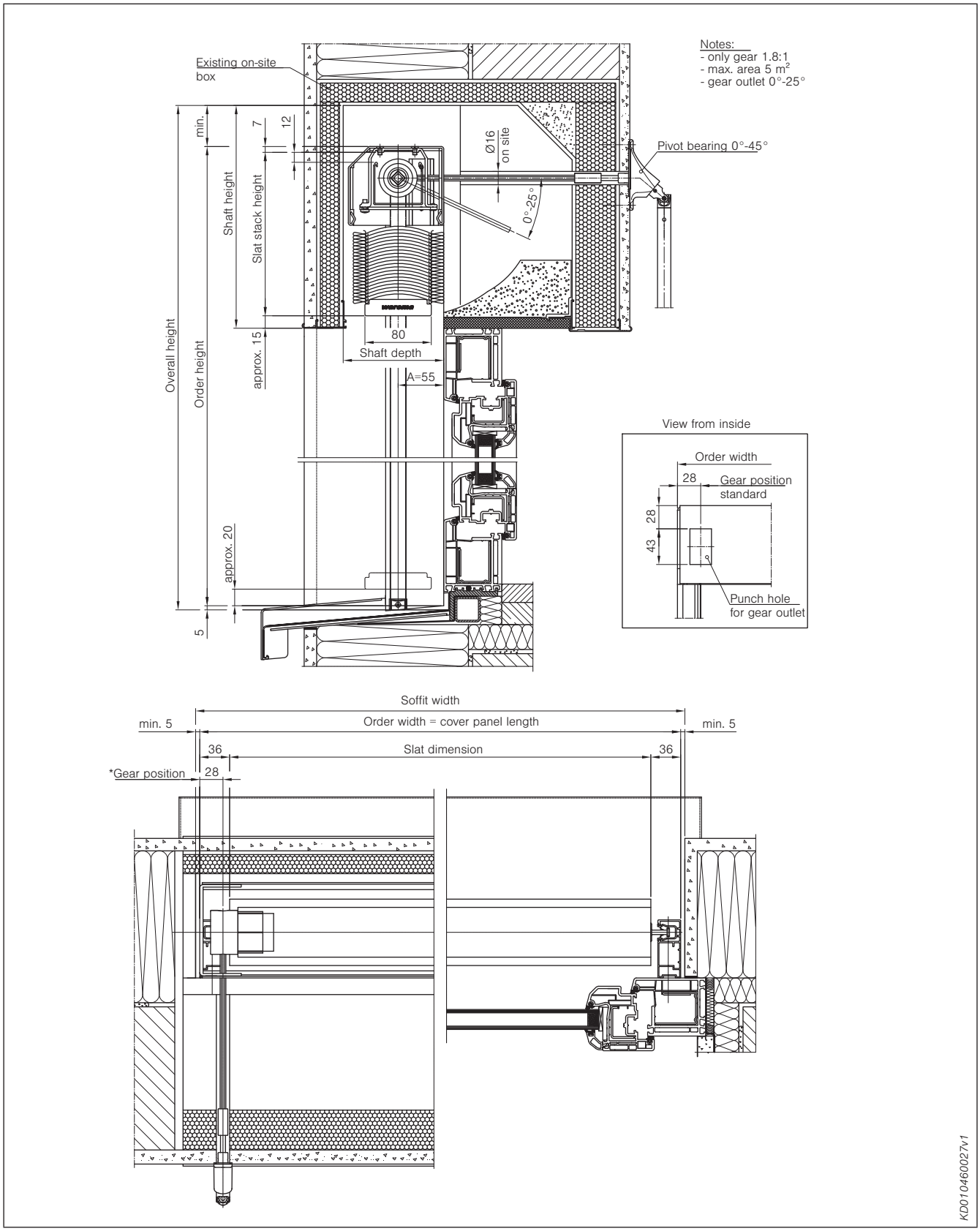


Fig. 60: Mounting example for venetian blind window system FSR S1

Venetian blind window system FSR S2
E 80 A6

You can also use our free planning program at www.sonnenschutzplaner.de for planning the sun shading systems – configure the product and create a technical drawing for integrating into your plans.

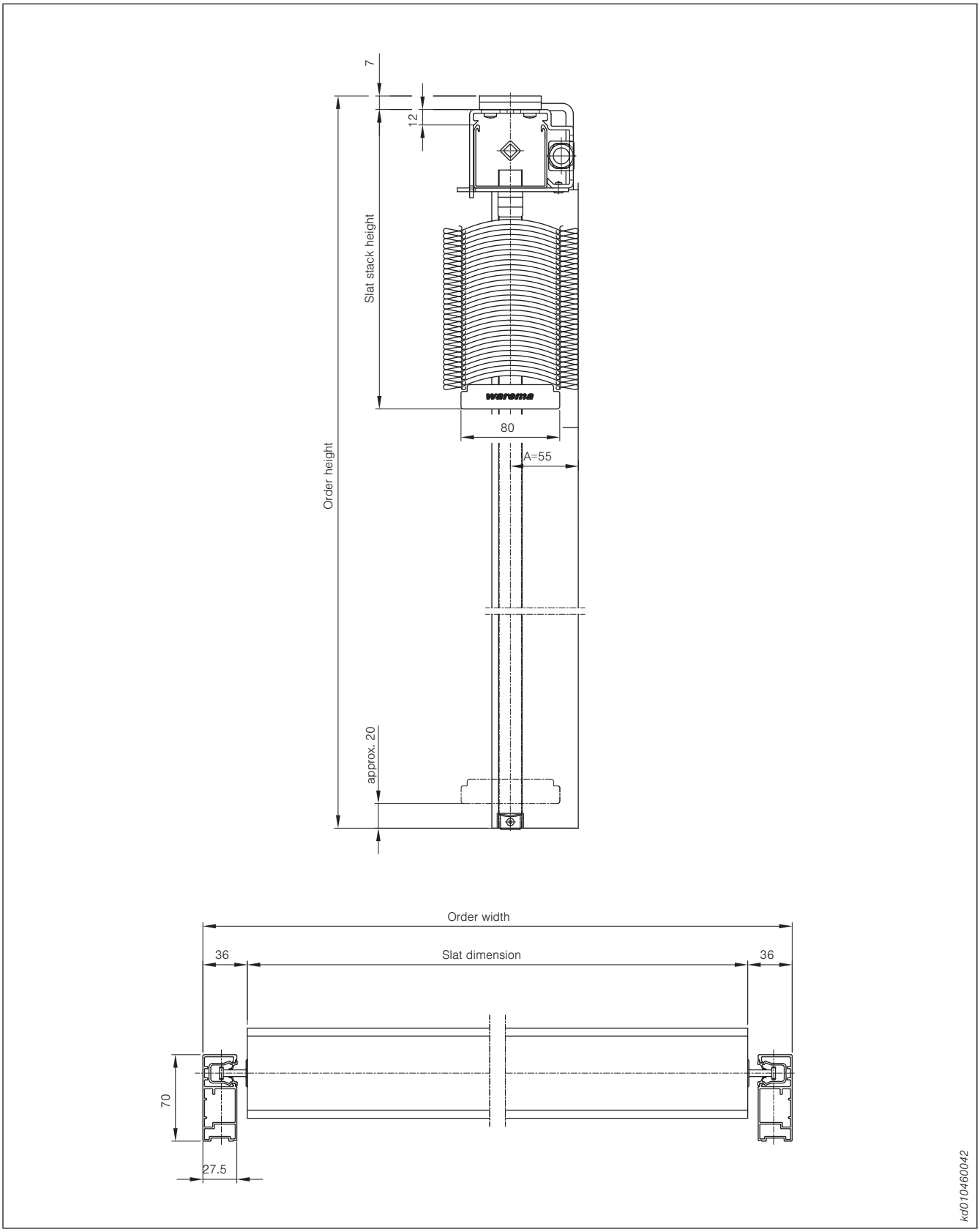


Fig. 61: Measuring instructions for venetian blind window system FSR S2

Venetian blind window system FSR S2
E 73 A6

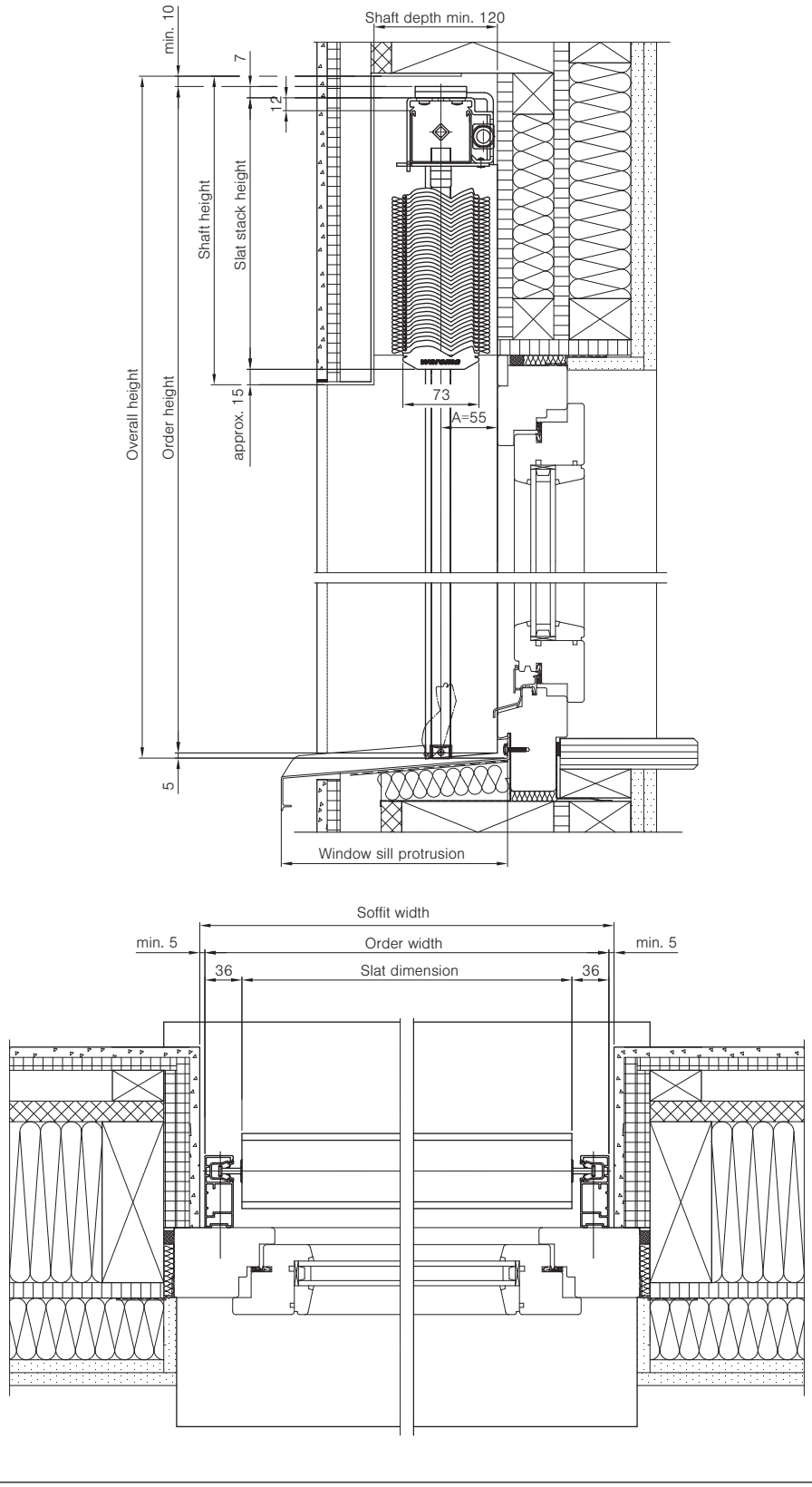
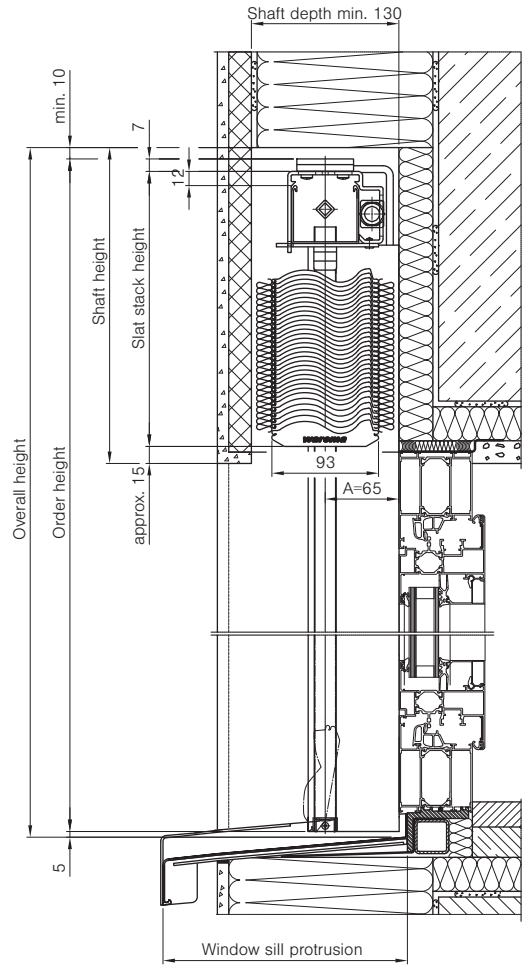
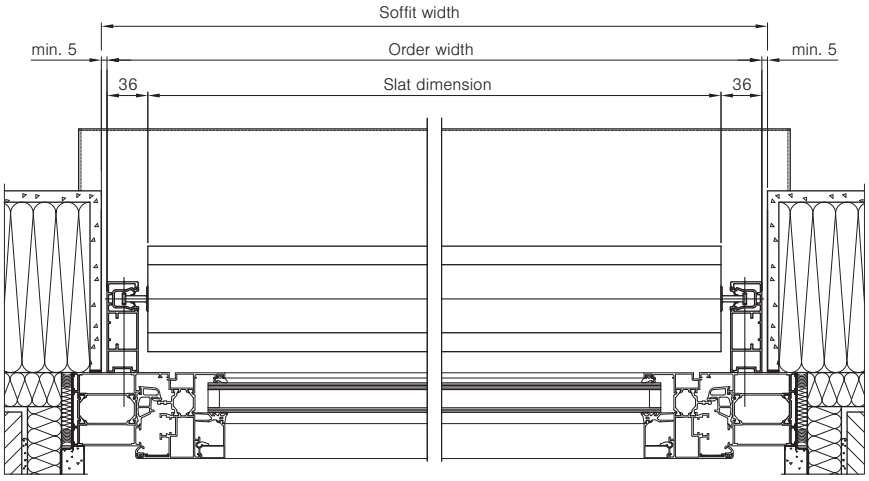


Fig. 62: Mounting example for venetian blind window system FSR S2

Venetian blind window system FSR S2
E 93 A6





KD010460030v1

Fig. 63: Mounting example for venetian blind window system FSR S2

Venetian blind window system FSR S2
E 80 A6

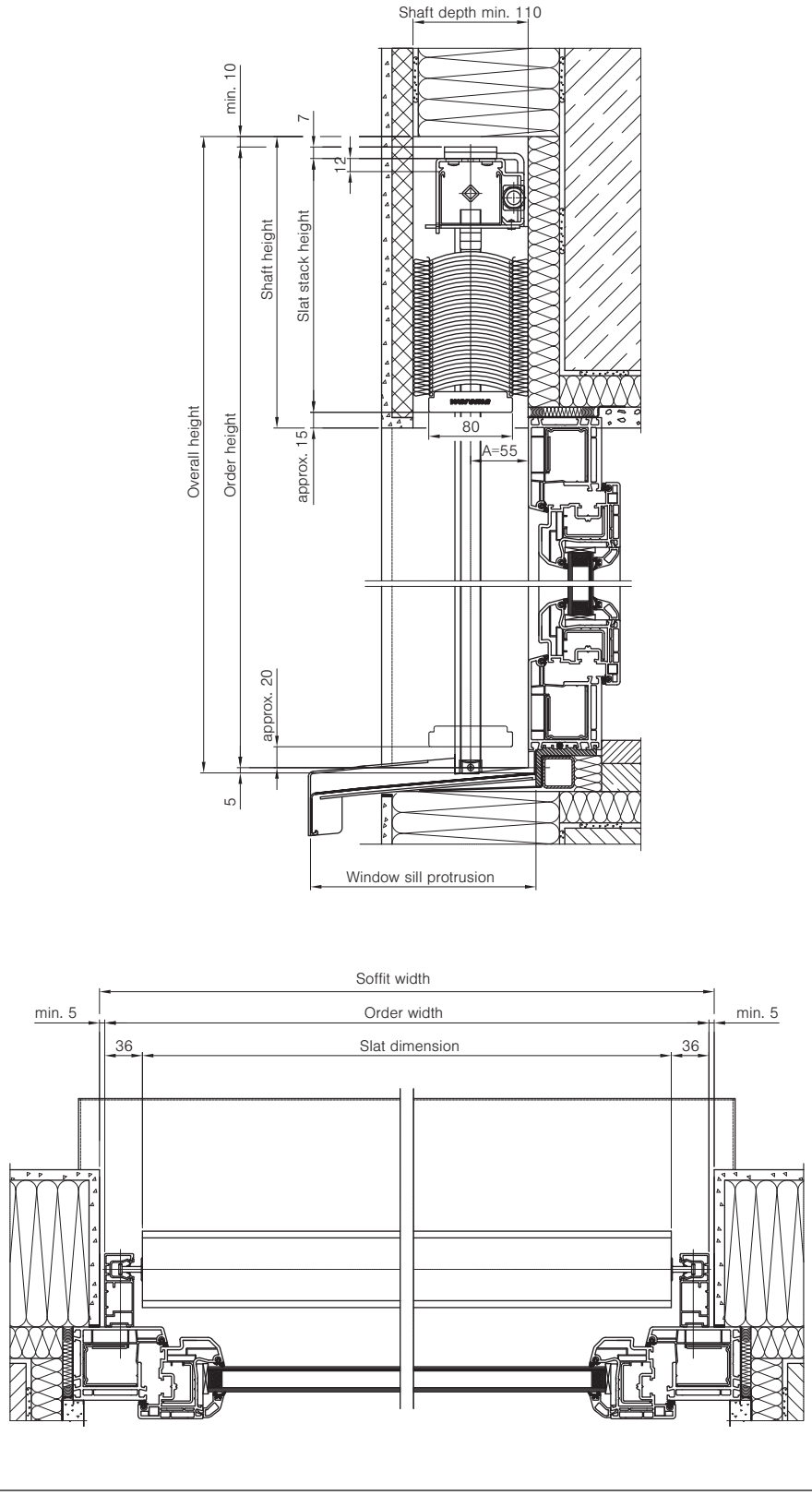


Fig. 64: Mounting example for venetian blind window system FSR S2

Venetian blind window system FSR S2
E 80 A6, with internal gear in existing roller shutter box

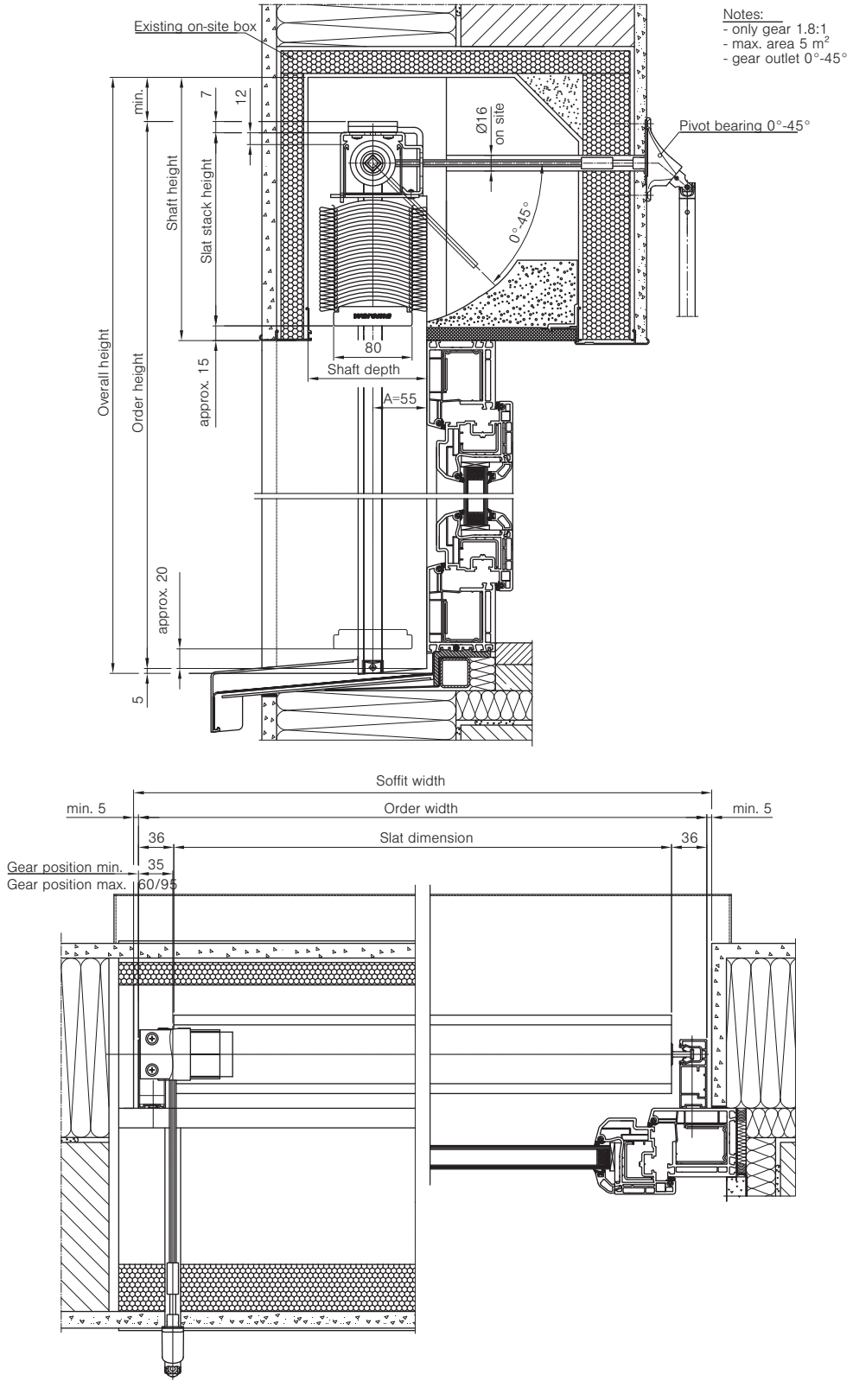


Fig. 65: Mounting example for venetian blind window system FSR S2

Venetian blind window system FSR S2
E 80 A6, with external gear in existing roller shutter box

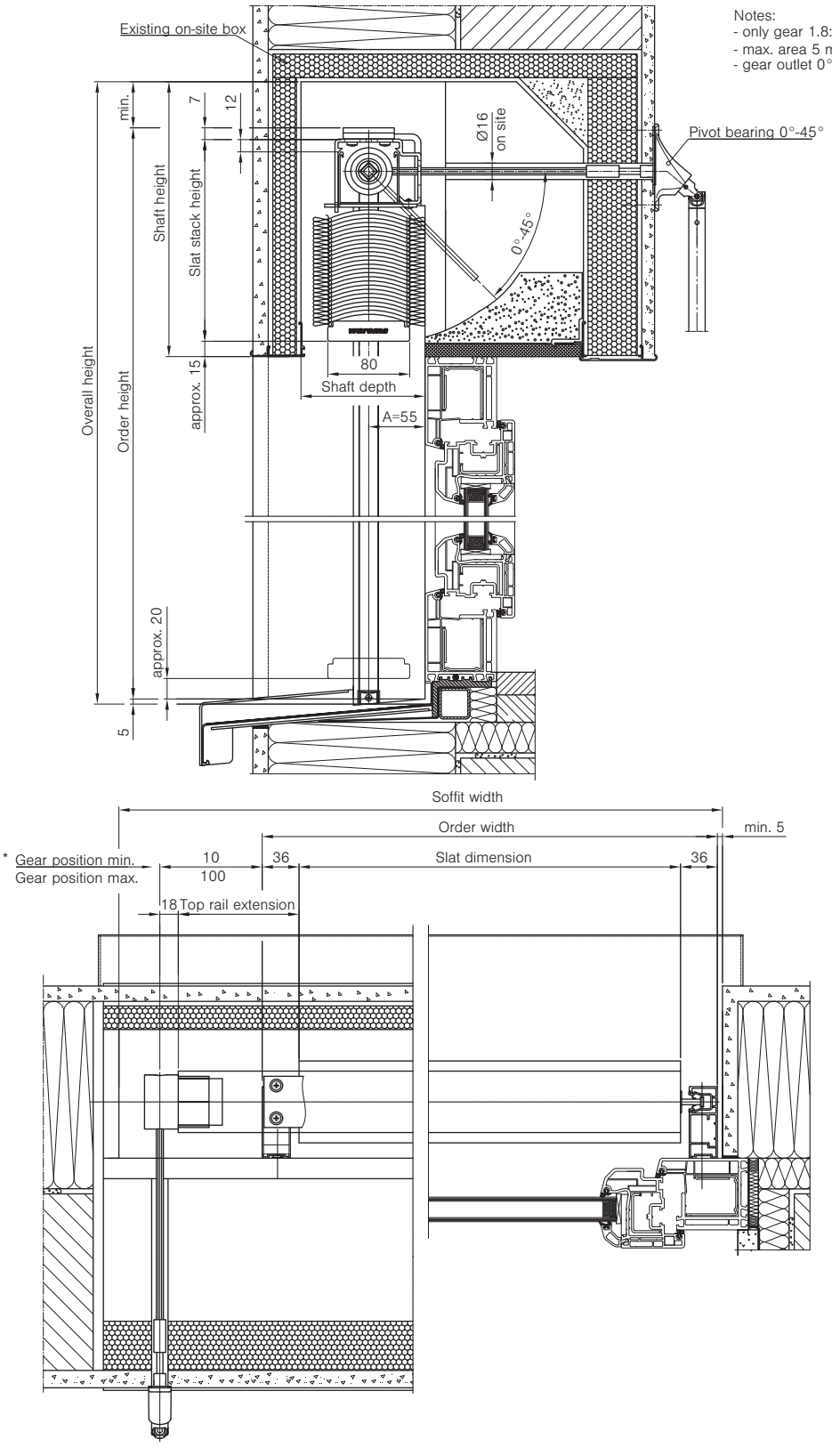


Fig. 66: Mounting example for venetian blind window system FSR S2

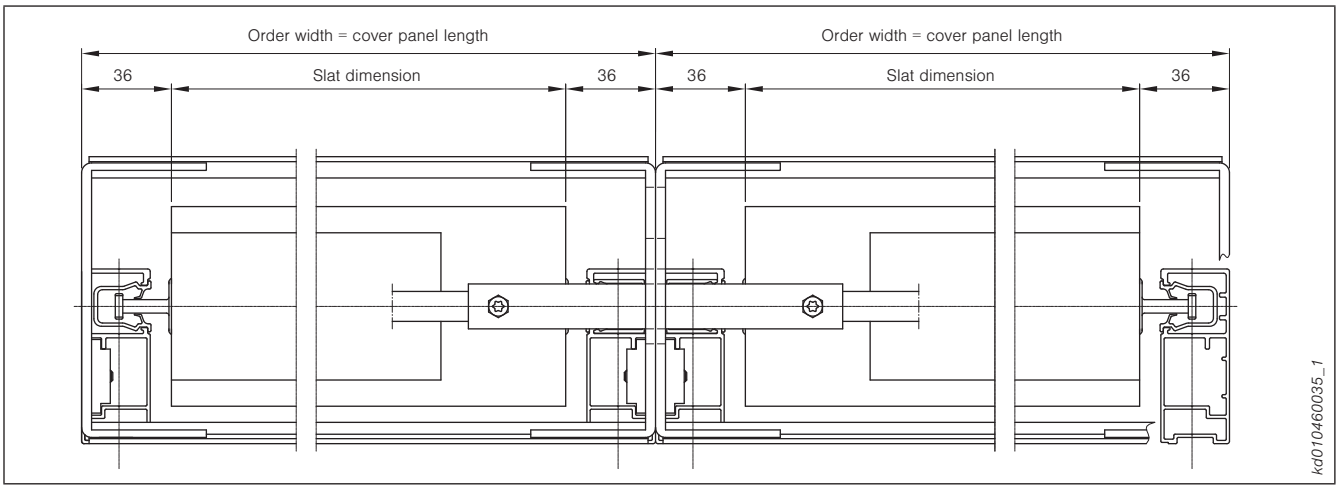


Fig. 67: Coupling situation FSR S1

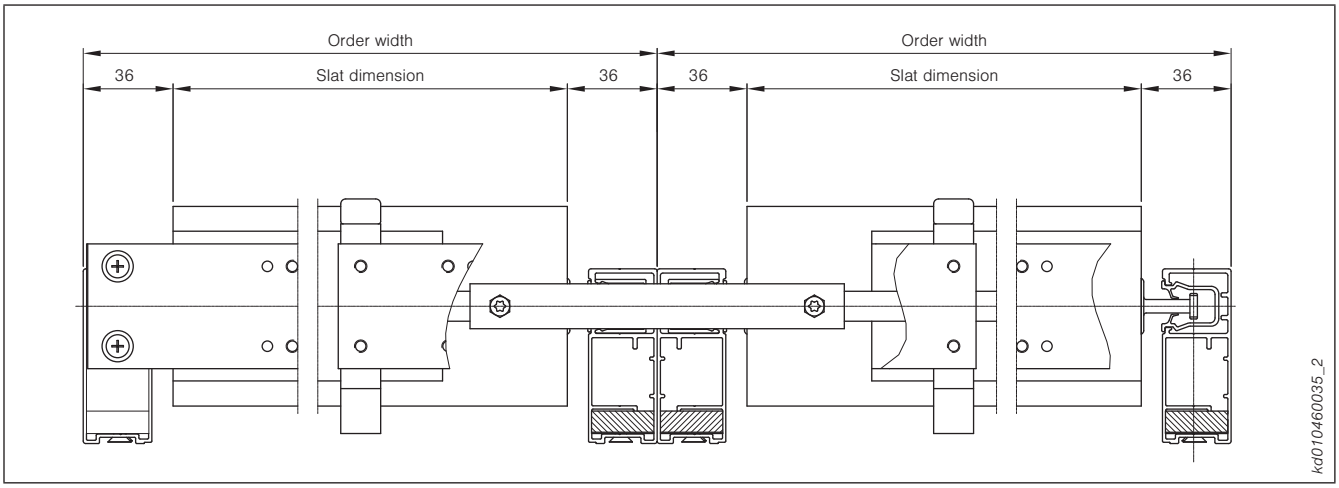


Fig. 68: Coupling situation FSR S2

For coupled units the external venetian blinds are not preinstalled in the cover panel when delivered.

Contents

Cover panel fixing
FSR 1–4

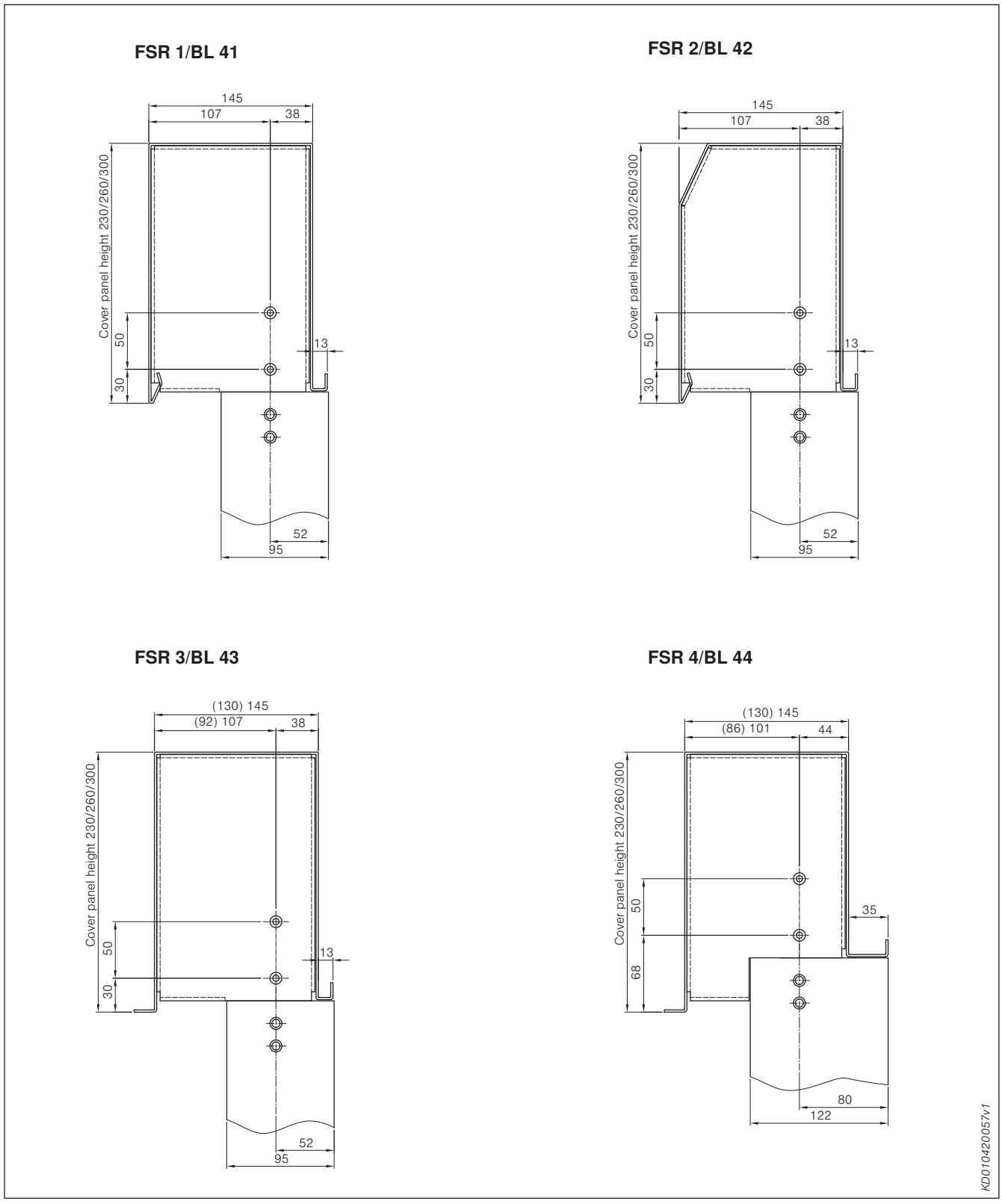


Fig. 69: Fixing of cover panel on guide rail

Additional cover panel fixing FSR 1–4

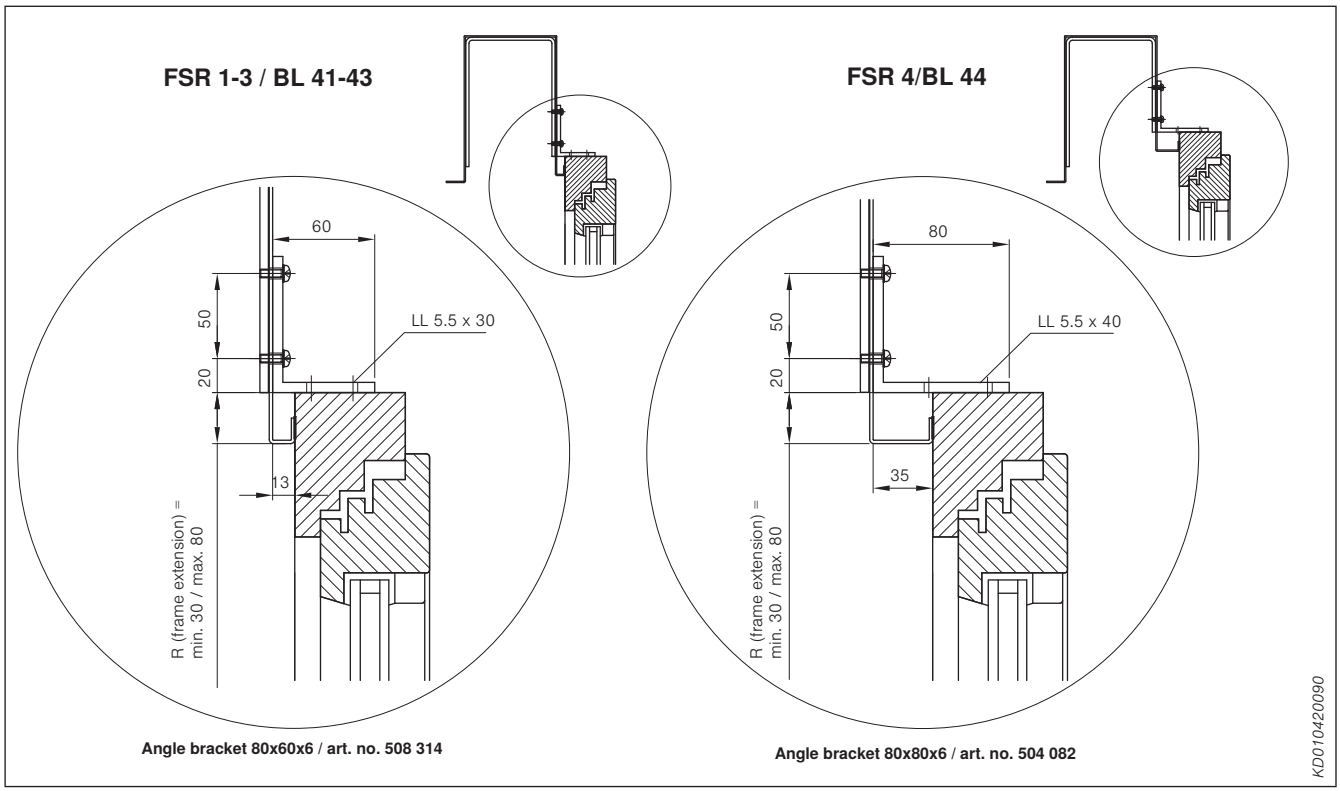


Fig. 70: Installation situation angle bracket

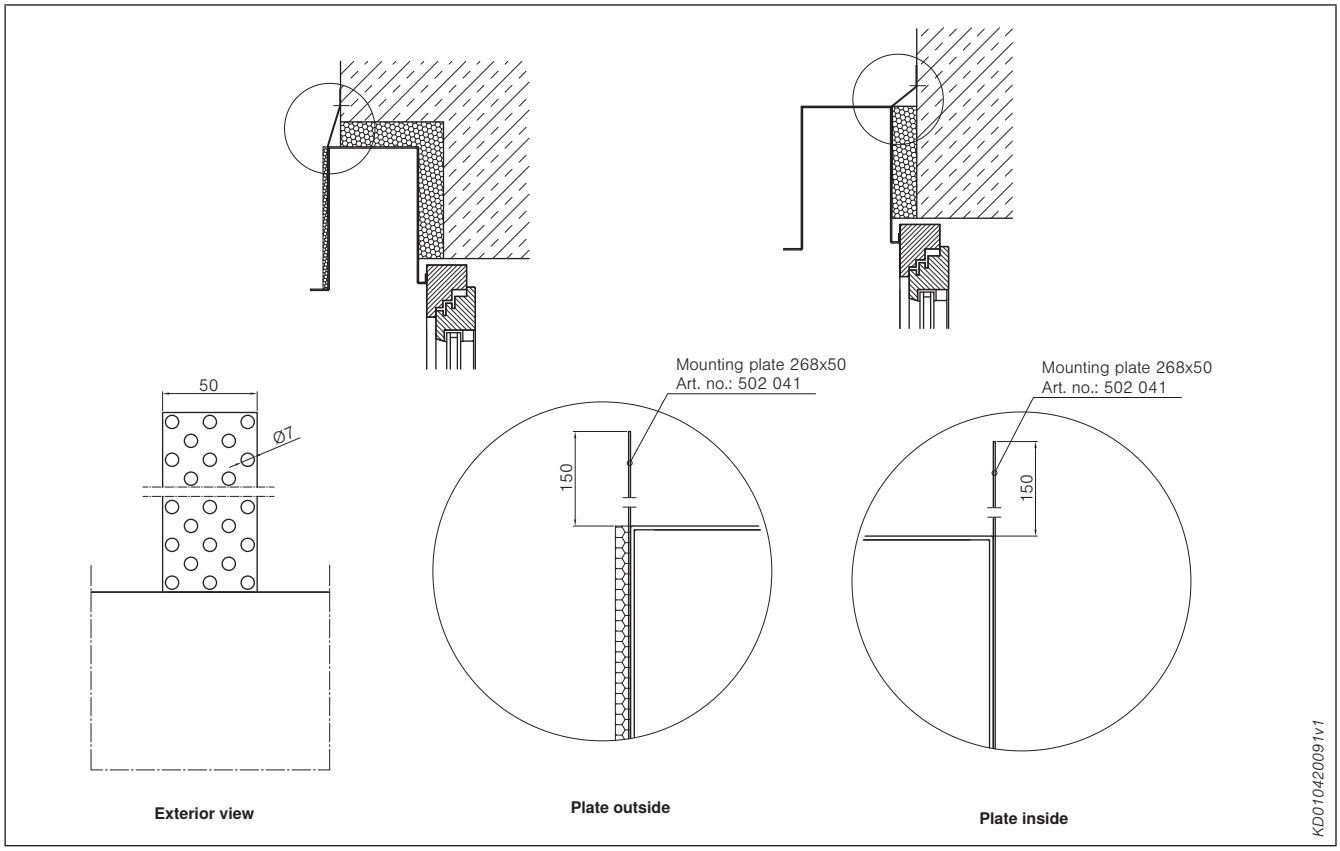


Fig. 71: Installation situation mounting strap

Dummy cover panels
FSR 1–4

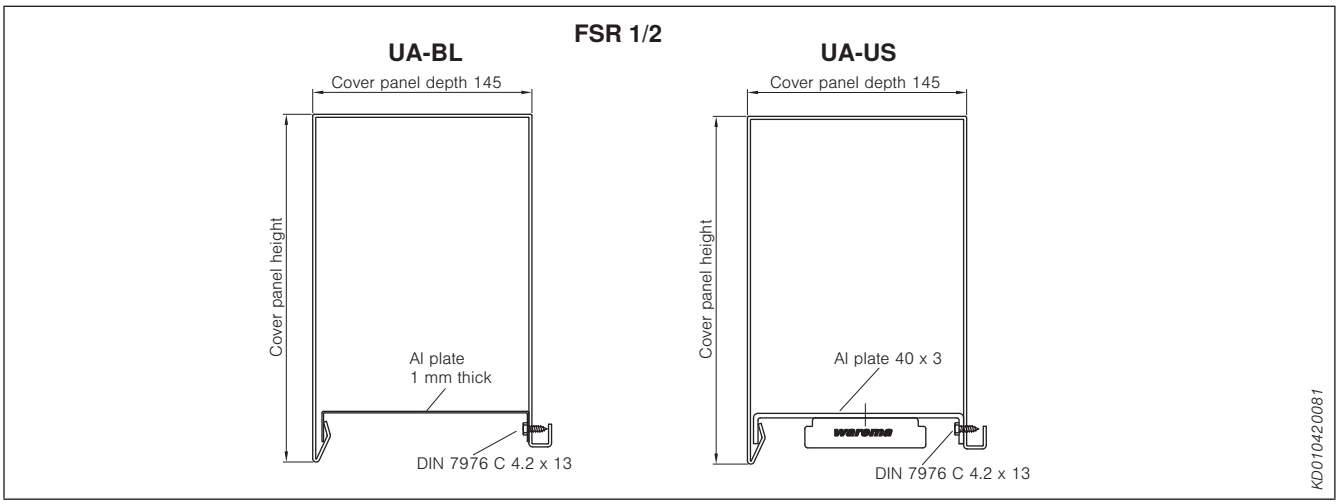


Fig. 72: Dummy cover panel FSR 1/2

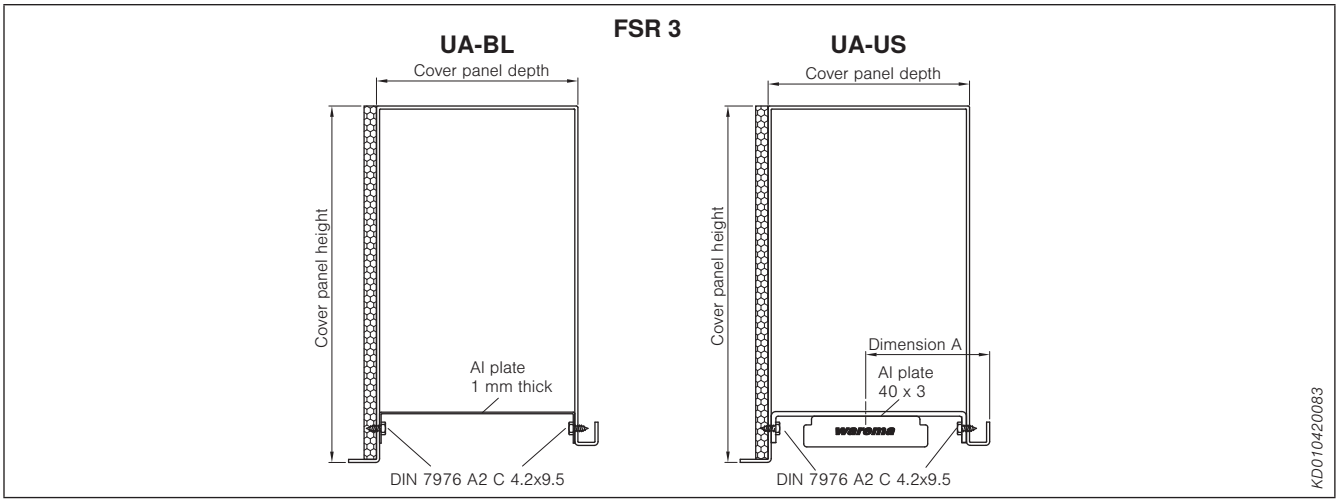


Fig. 73: Dummy cover panel FSR 3

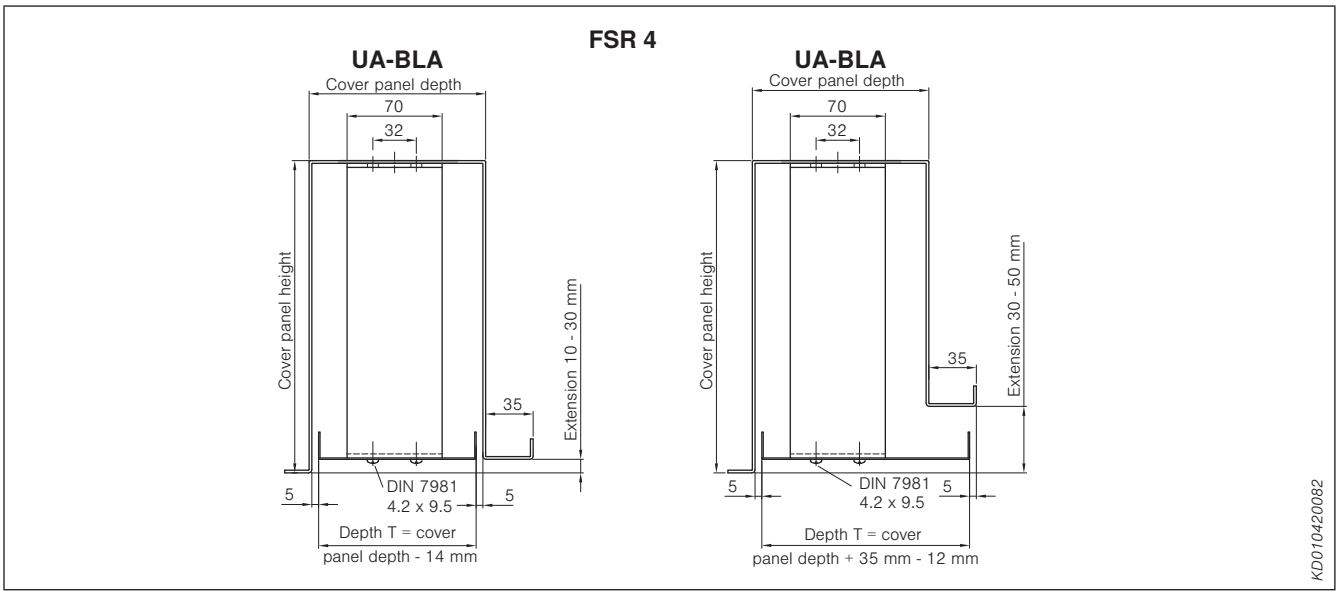


Fig. 74: Dummy cover panel FSR 4

Combination
FSR 1–4

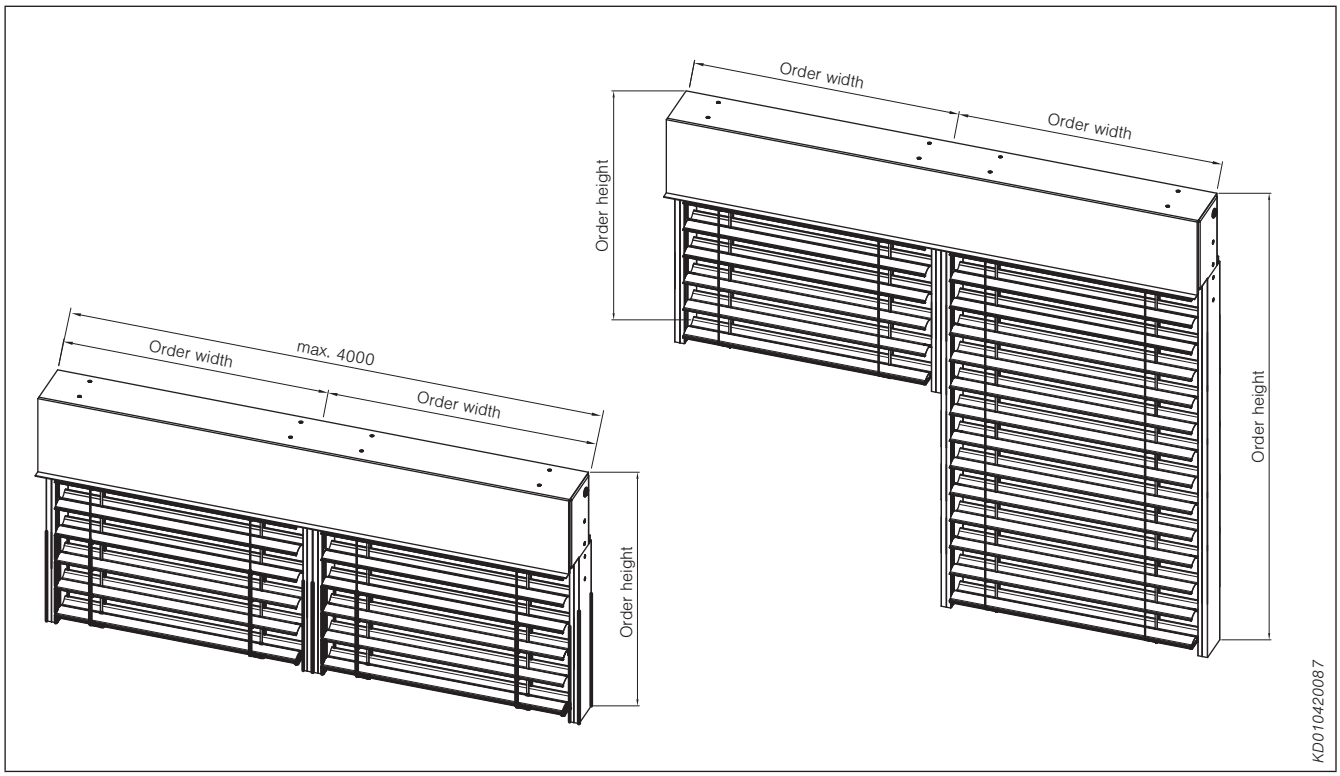


Fig. 75: Combination window – window, door – window

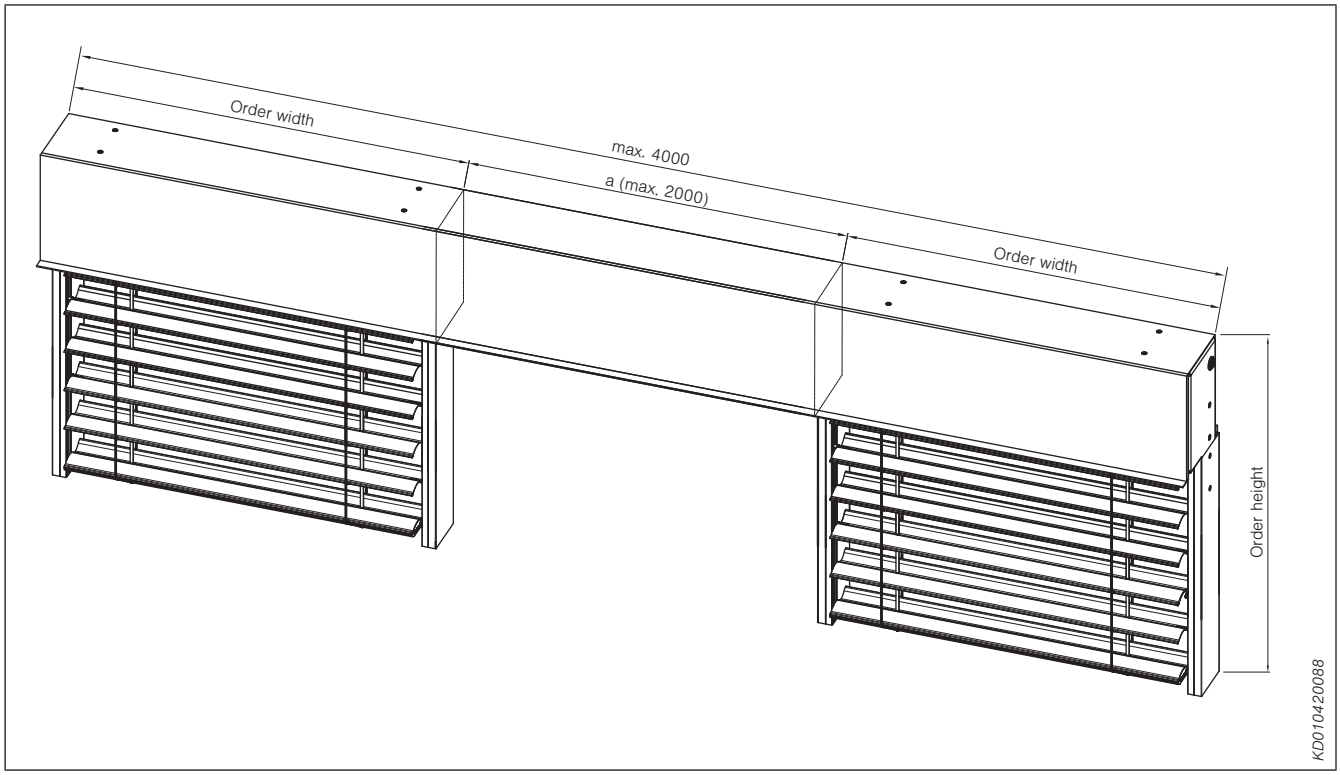
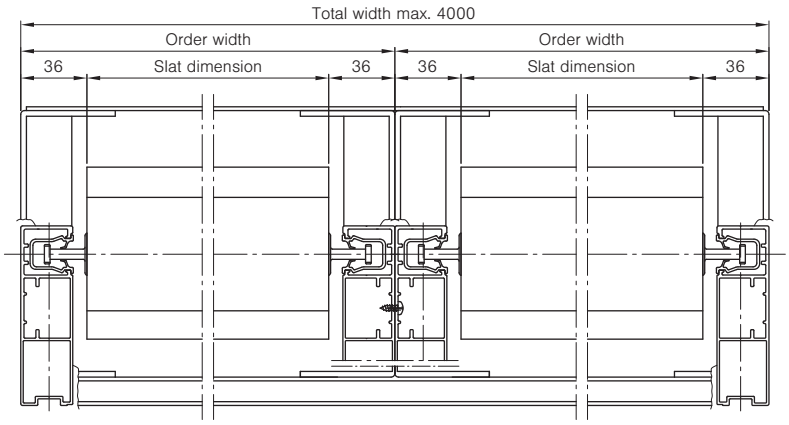
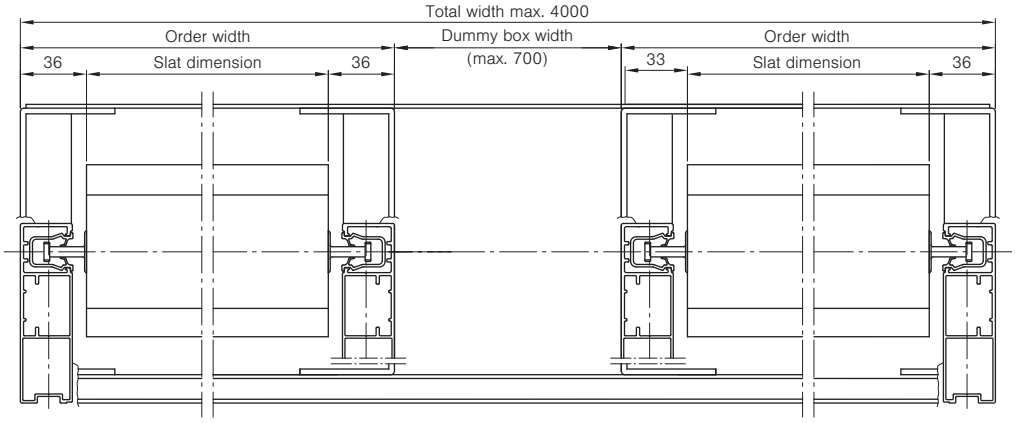


Fig. 76: Combination – continuous cover panel strip

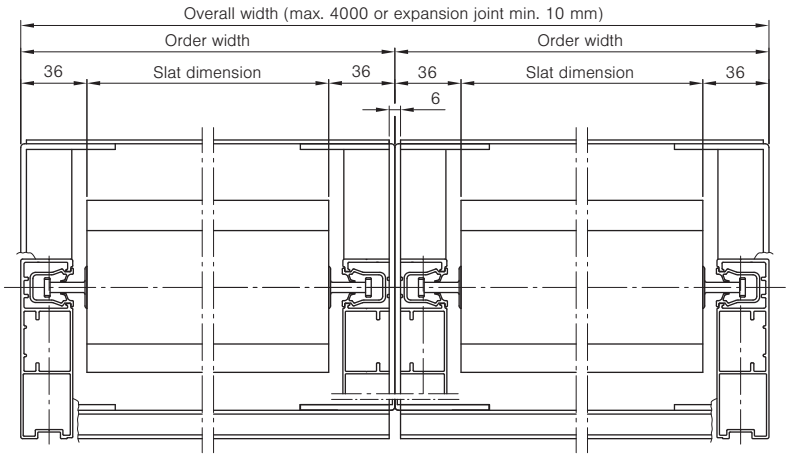
max. three units in one cover panel



Units with dummy cover panel in one cover panel



Two units side by side



Individual units cannot be coupled mechanically!

KD0104200S8

Fig. 77: Details continuous cover panel strip

Combination
FSR 1–4

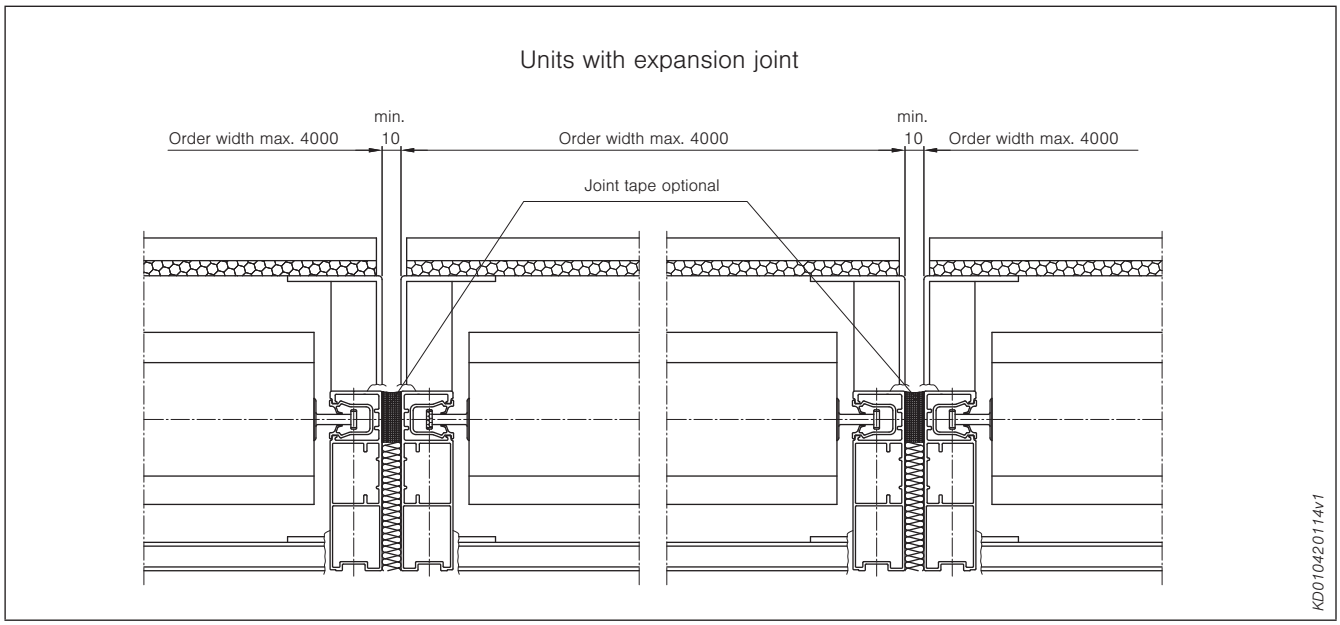


Fig. 78: Details continuous cover panel strip

Cover panel extension/corners FSR 1–4

Minimum protrusion for corners

Outside corner				Inside corner			
BL 41–43		BL 44		BL 41+42		BL 43+44	
Angle α	l1 min	Angle α	l1 min	Angle α	l1 min	Angle α	l1 min
90°–119°	40	90°–119°	25	90°–119°	50	90°–119°	35
120°–149°	35	120°–149°	30	120°–149°	45	120°–149°	35
150°–180°	40	150°–180°	40	150°–180°	40	150°–180°	40

Delivery of cover panel joint loose, cover panel is delivered 5 mm shortened.

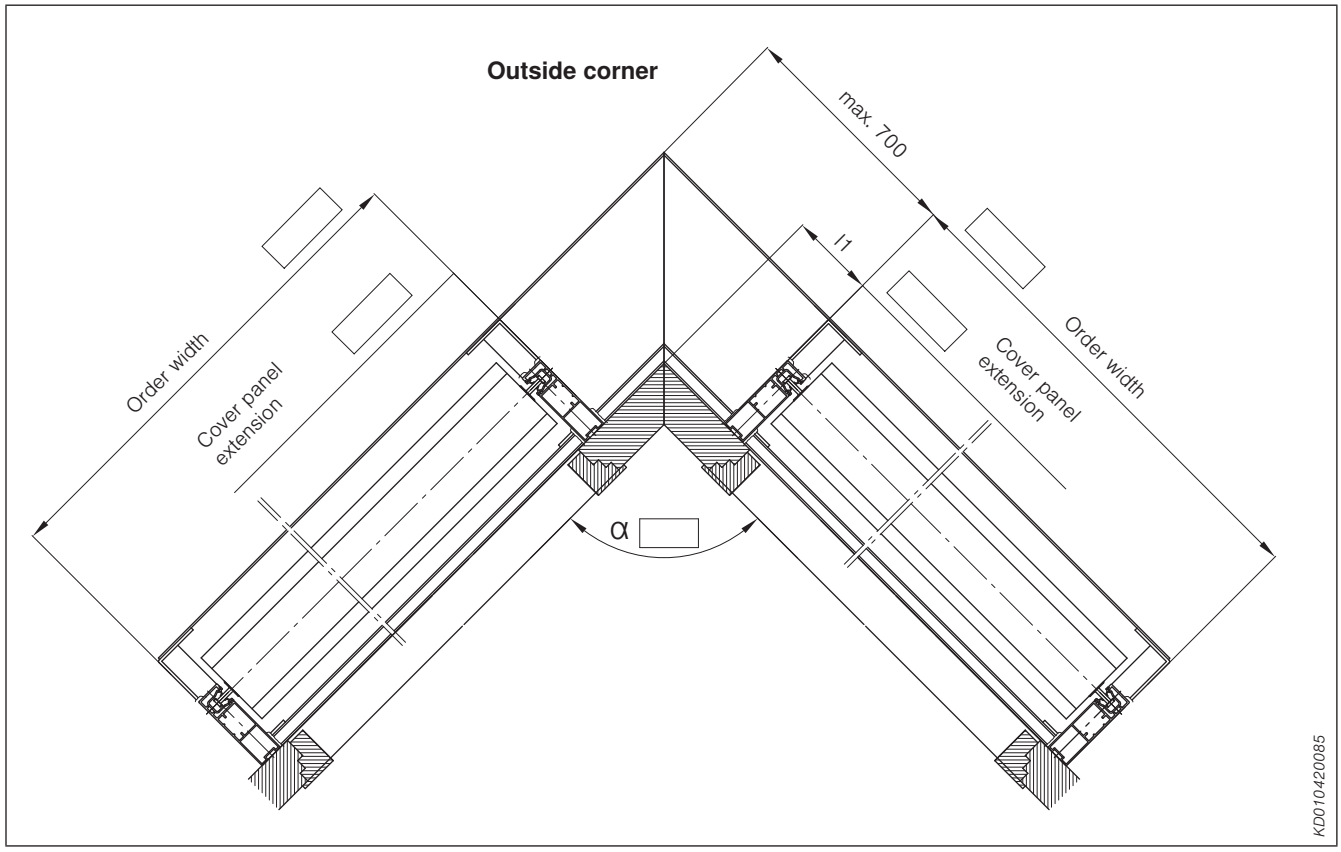


Fig. 79: Outside corner

Cover panel extension/corners FSR 1–4

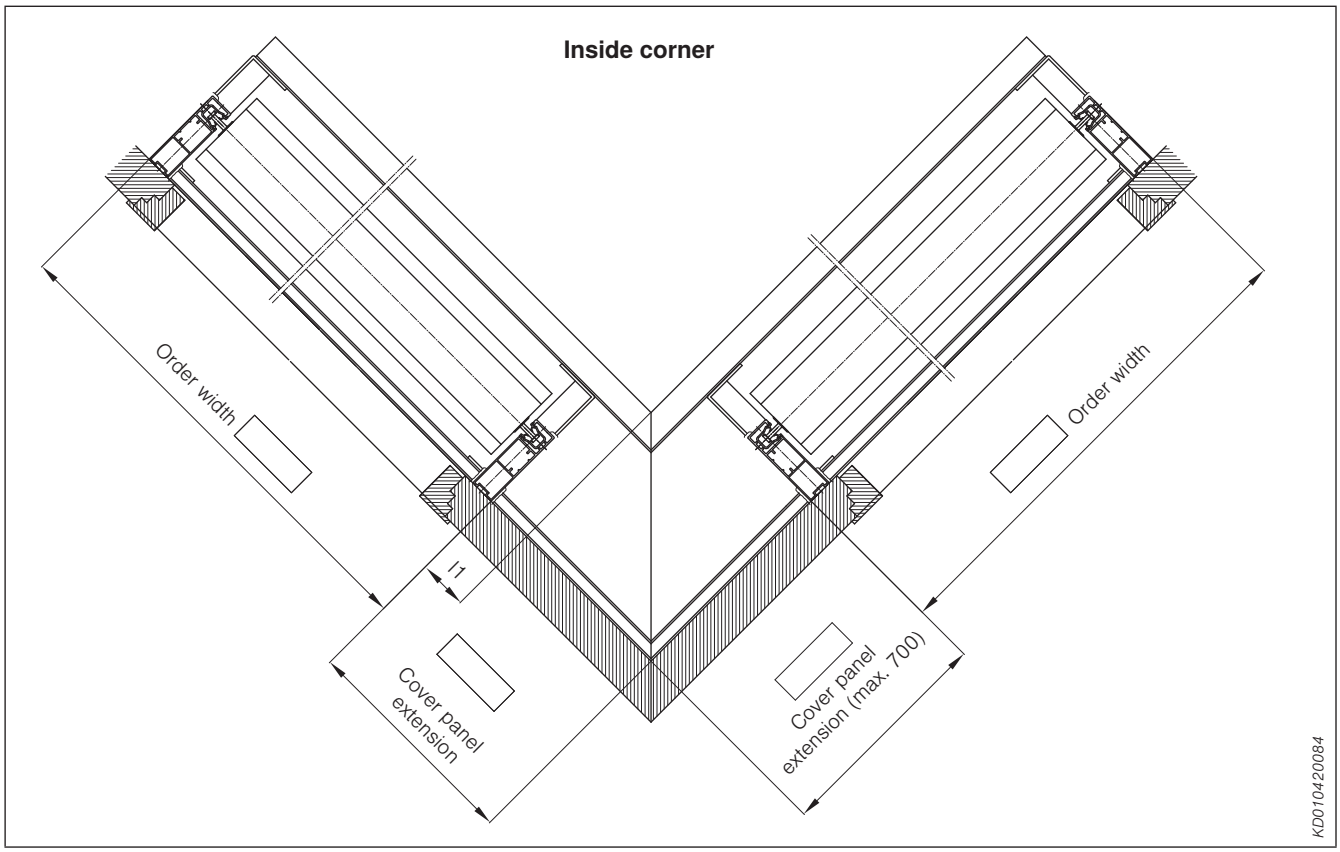


Fig. 80: Inside corner

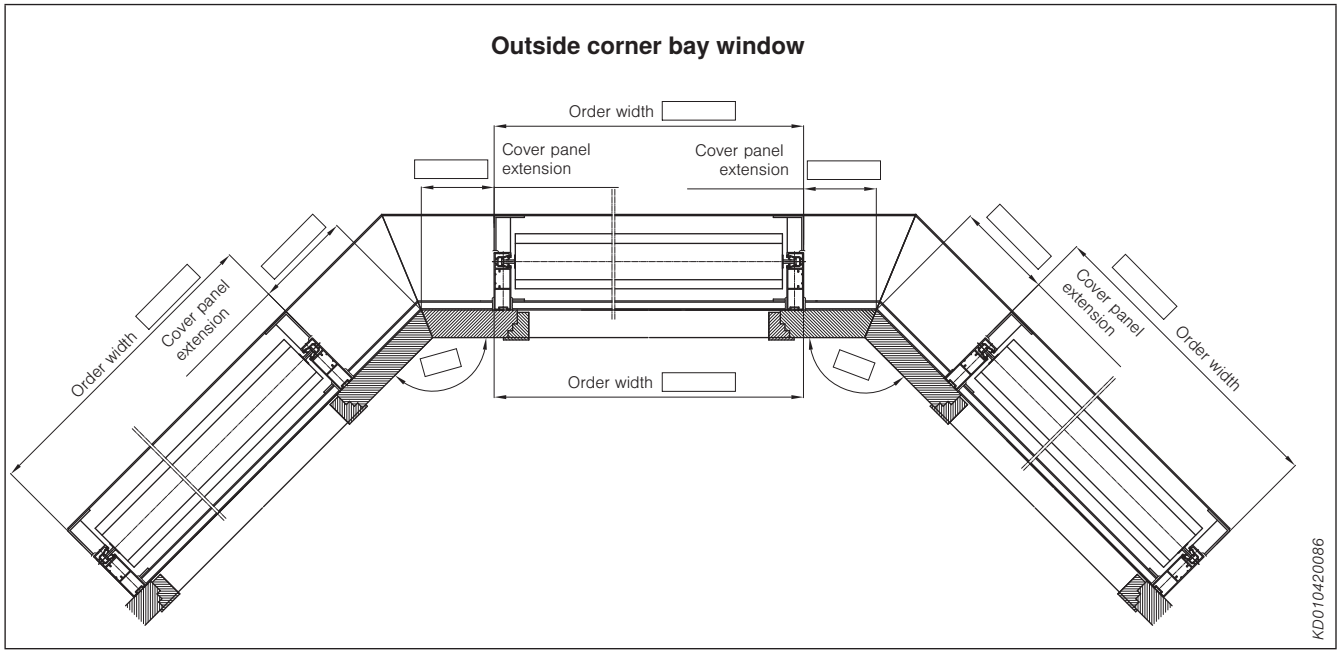


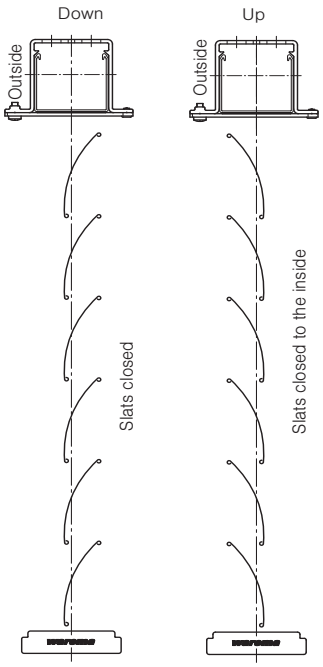
Fig. 81: Outside corner oriel

Contents

Venetian blind window systems FSR 1–4, FSR S1 and S2

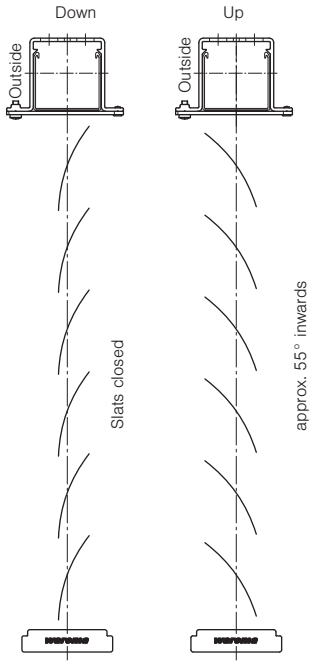
Slat tilting

External venetian blinds FSR 1-4
C/E 80 A6
External venetian blinds FSR S1/S2
C/E 60/80 A6



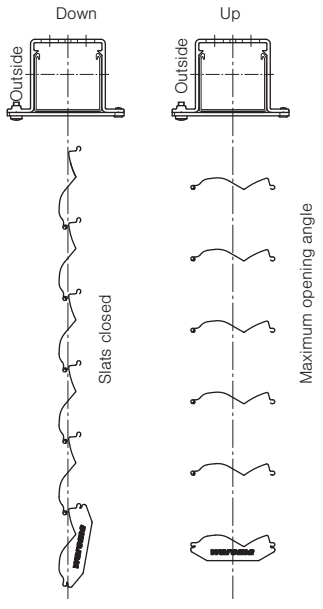
The slats can be closed in any intermediate position or can be tilted from closed to the outside to closed to the inside.

External venetian blinds FSR 1–4, FSR S1/S2
C/E 80 AFA6



The slats can be closed in any intermediate position or can be tilted from closed to the outside to horizontal.

External venetian blinds FSR 1–4, 60 AF A6 only for FSR S1/S2
C/E 73/93 A6, C/E 60 AF A6
External venetian blinds with vivamatic® – all types



On external venetian blinds with vivamatic® the lowering angle can be freely defined before lowering using the control. See also description on page 97f.

External venetian blinds FSR 1–4 and FSR S1/S2
C/E 90 A6

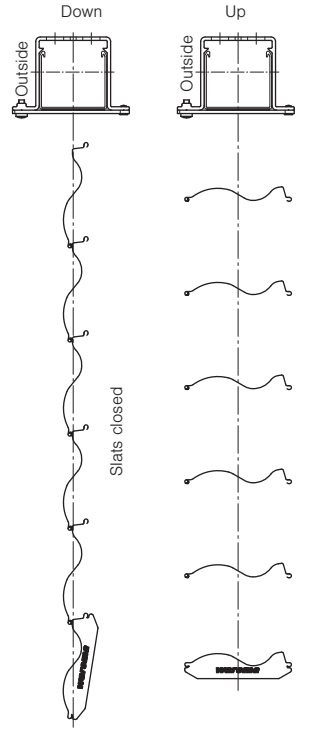


Fig. 82: Slat tilting

vivamatic®

NEW

WAREMA vivamatic® – daylight management for external venetian blinds

External venetian blinds with vivamatic® technology are the blinds of the future, both with regard to energy efficiency and to economy. In contrast to conventional external venetian blinds they are lowered with the slats already perfectly adjusted to the sun azimuth circle angle, achieving ideal illumination of the room and heat protection during lowering. This results in optimised incidence of energy from the first moment while at the same time the user is not disturbed unnecessarily or even forced to manually readjust the slats. External venetian blinds with vivamatic® are generally controlled by the intelligent WAREMA climatronic® central control system which is ideally coordinated with this system. It uses current time of day, date, positioning of the building and insolation intensity to determine the best possible slat angle and positions the external venetian blind slats perfectly.
The reduced slat tilting time slowturn is a standard feature for external venetian blinds with vivamatic®!

Highlights:
- Maximum daylight utilisation without darkening the room already during lowering (user remains undisturbed)
- Reduced slat tilting speed for more precise positioning (slowturn)
- Variable slat positioning at the best possible angle through intelligent control with WAREMA climatronic® already before lowering the external venetian blinds
- Continuous automated readjustment of the slat angle during the course of the day
- Reduced use of artificial light, artificial light not required for the short period of lowering the external venetian blinds
- Reduced cooling loads for air-conditioned rooms
- Models generally with standard external venetian blinds motors 230 V AC

More information, visualisations as well as a demo tool can be found on www.vivamatic.com.

Table of available types with vivamatic® (VM)

vivamatic®	Maximum dimensions
E 60/80 A6 VM	see resp. ext. venetian blind basic type
E 80 A6 VM offset	
E 60/80 AF A6 VM	
E 73/90/93 A6 VM	

Notes:
- Max. 3 units can be coupled mechanically
- Slat tilting of external venetian blinds from closed towards the outside to horizontal (page 96)
- Controlled via WAREMA climatronic® with vivamatic® actuator

Operating principle vivamatic®

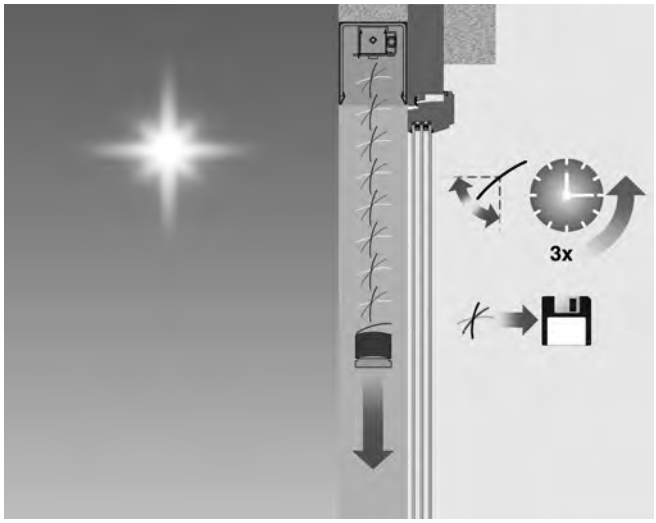
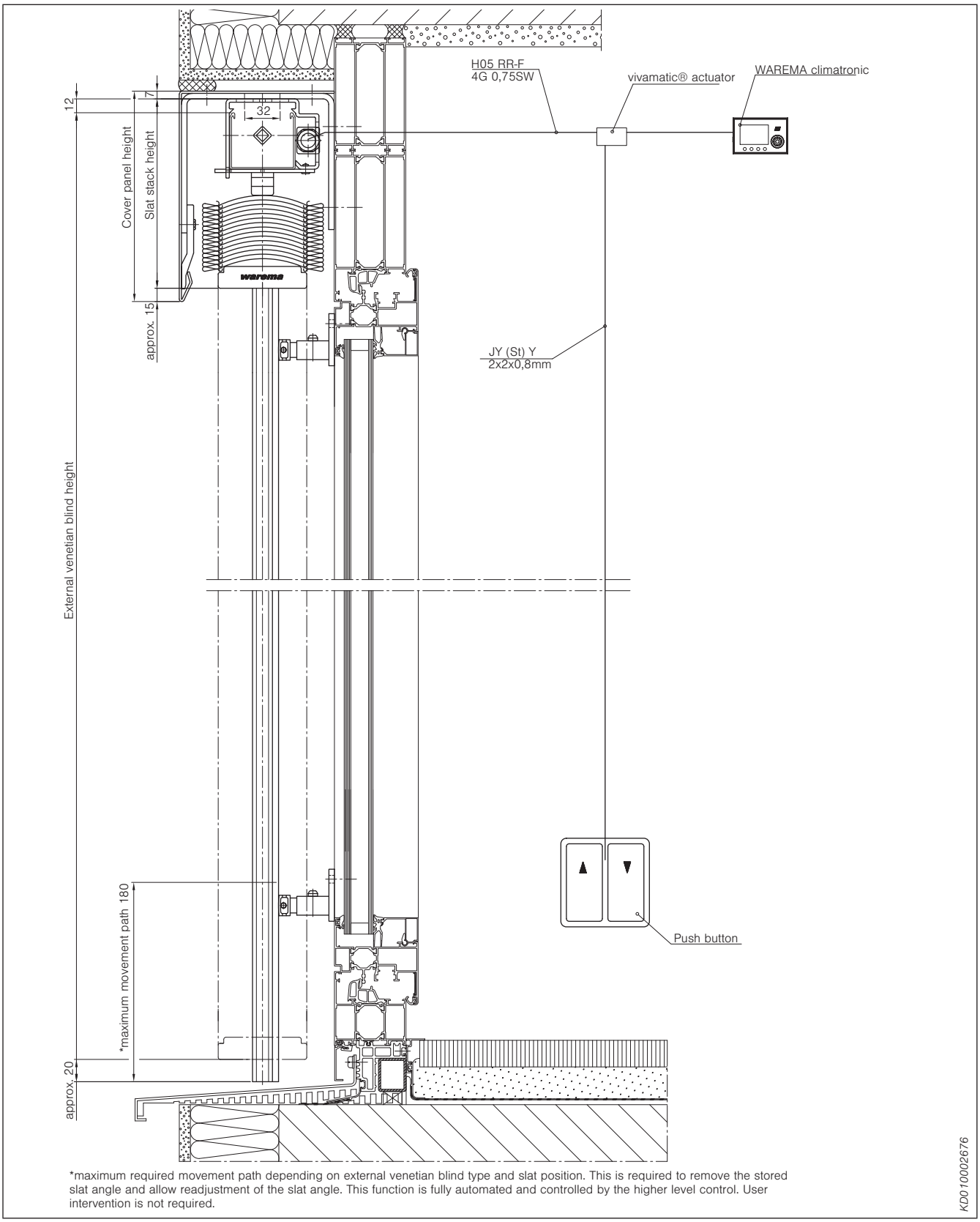


Fig. 83: Operating principle of external venetian blinds with vivamatic®

Venetian blinds facade system with vivamatic®

NEW



*maximum required movement path depending on external venetian blind type and slat position. This is required to remove the stored slat angle and allow readjustment of the slat angle. This function is fully automated and controlled by the higher level control. User intervention is not required.

Fig. 84: Mounting example for venetian blinds facade system with vivamatic®

**maximum required movement path depending on external venetian blind type and slat position. This allows readjusting or closing the slats when the external venetian blind is fully lowered. This function is automated and controlled by the higher level control. User intervention is not required.*

slowturn

NEW

slowturn – reduced slat tilting speed for external venetian blinds

External venetian blinds with the equipment option slowturn feature a reduced slat tilting speed which allows more exact positioning of slats compared to standard external venetian blinds, with higher-level control system as well as with manual operation. The available tilting time is three times as long as for standard external venetian blinds.

Highlights:

- More precise slat positioning through reduced slat tilting time
- Models generally with standard external venetian blinds motors 230 V AC
- We recommend control via an intelligent WAREMA sun shading control system for best possible energy efficiency.

Notes:

- Control should be effected via a sun shading control system with adjustable slat tilting times (e.g. WAREMA climatronic®).
- When using WAREMA mobile system (WMS), commissioning has to be carried out via the WMS Studio software. Operation with WAREMA radio system EWFS is not possible, for control systems with preset time logic function please consult WAREMA before execution.

Table of available types with slowturn

slowturn	Maximum dimensions
E 60/80 A6 ST[1)]	see resp. ext. venetian blind basic type
E 80 A6 ST offset[1)]	
E 60/80 AF A6 ST	
E 73/90/93 A6 ST	

[1)] *Models with 80 mm beaded slats also with special tilting behaviour, slats closed to the outside to slats closed approx. 55° to the inside.*

Notes:

- Slat tilting of external venetian blinds from closed towards the outside to horizontal (page 96)
- Max. 3 units can be coupled mechanically

slowturn with daylight transport element	Maximum dimensions
E 60/80 A6 ST TLT[1)]	see resp. ext. venetian blind basic type
E 80 A6 ST TLT offset[1)]	
E 60/80 AF A6 ST TLT[1)]	
E 73/90/93 A6 ST TLT[1)]	

[1)] *Tilting behaviour of external venetian blinds with slowturn and daylight transport element from page 101 ff.*

Note:

- Max. 3 units can be coupled mechanically

Operating principle of slowturn

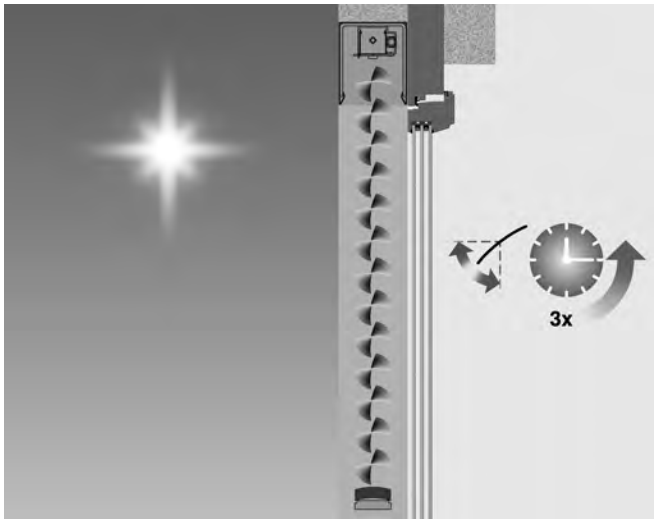


Fig. 85: Operating principle of external venetian blinds with slowturn

Daylight transport element TLT
FSR 1–4, FSR S1 and S2

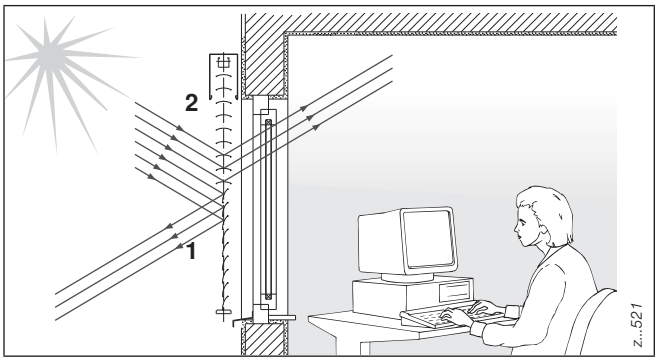


Fig. 86: Daylight transport TLT

1 Glare protection section
2 Light control section

- Glare-free computer workstations
- Sun shading and room lighting at the same time
- Optimises the ratio between thermal radiation transmission and incidence of daylight, reducing the costs for cooling loads and artificial light while ensuring optimum comfort!

Light guidance and glare control – external venetian blinds with the additional advantage of transporting light into the back of the room while providing a glare-free workplace at the same time.
The requirements for modern sun shading systems – especially for office and computer workstation – have become more complex and demanding.
Apart from the standard advantages of external venetian blinds, the ideal sun shading system should also meet additional requirements:

– Glare-free zone in the work area – even when the sun is low
– Daylight guiding for even lighting within a room and thus also reduction of the use of artificial light
– The individual adjustability of the external venetian blinds by the end user guarantees a visual contact to the outside.

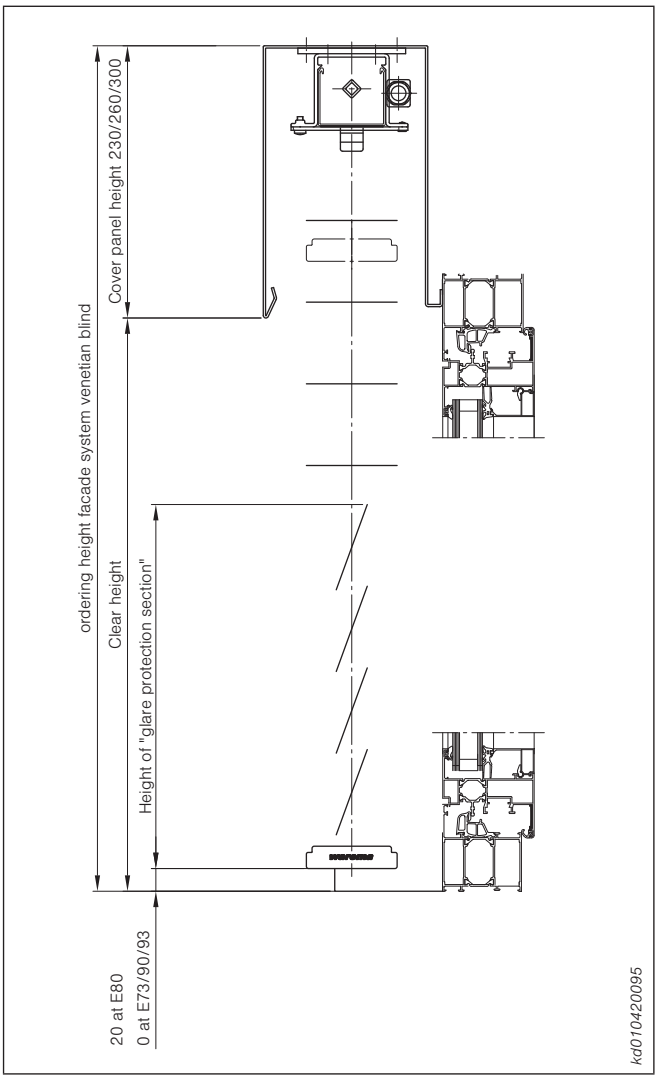
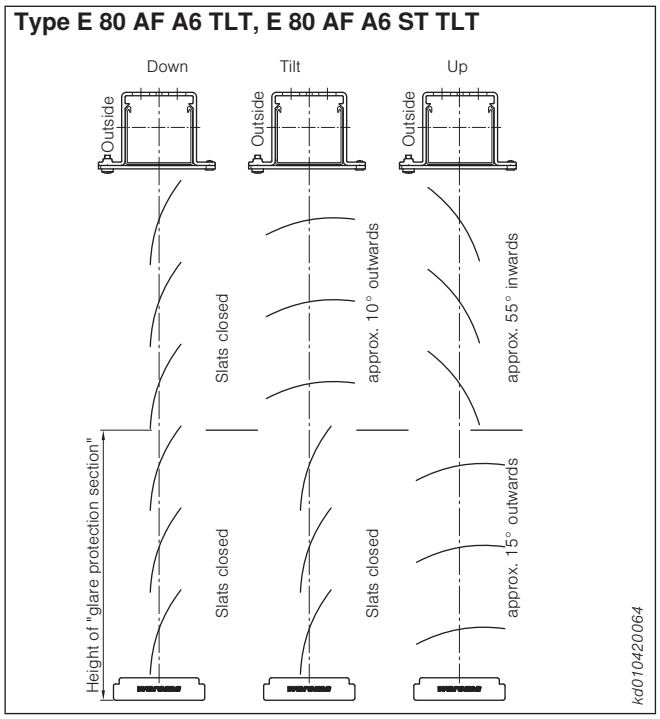
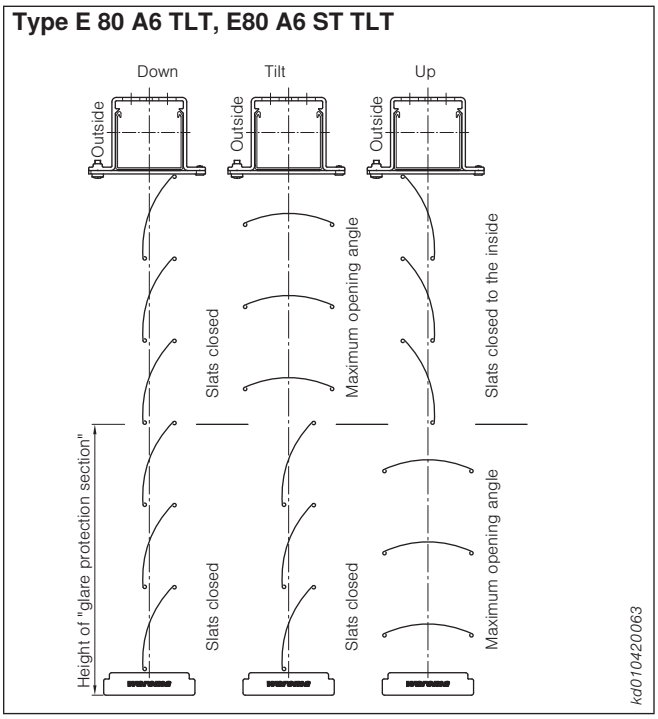
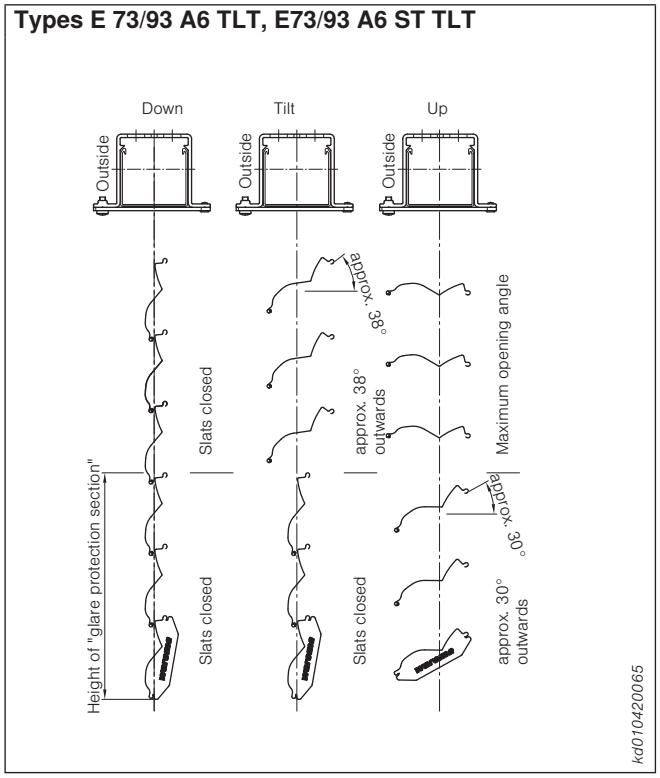


Fig. 87: Determination of the height of the glare protection section for daylight transport element TLT

Daylight transport element TLT
FSR 1–4, FSR S1 and S2







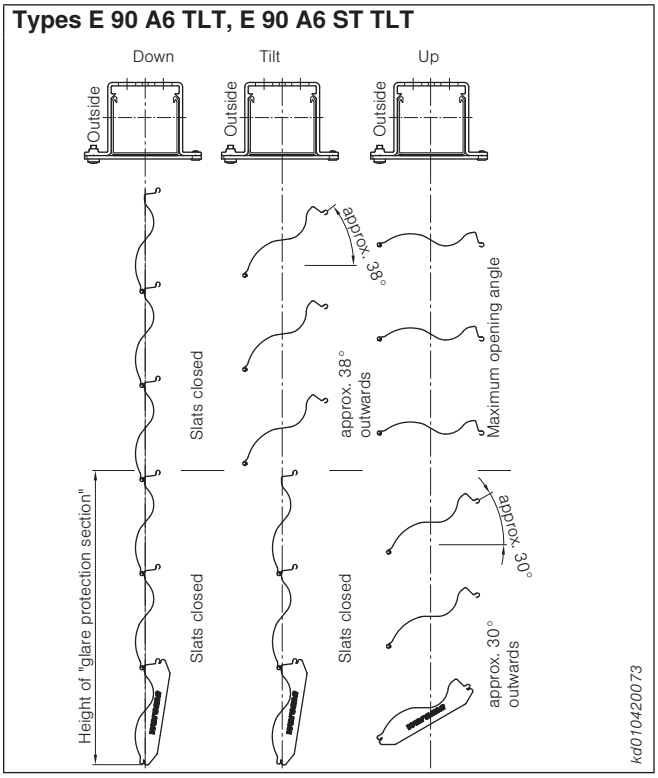


Fig. 88: Movement behaviour and slat positions of different types

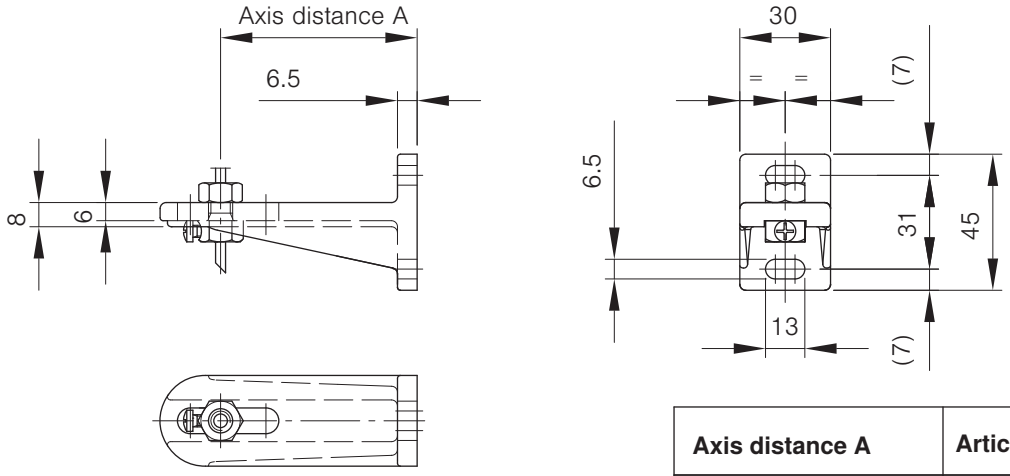
Standard version
up to 1499 mm clear height[1]: "glare protection section" max. $^1/_2$ clear height
above 1500 mm clear height[1]: "glare protection section" max. $^2/_3$ clear height
Other heights of the daylight transport section are available upon request.

[1] *Clear height = order height FSR - cover panel height*

Additional cable guidance

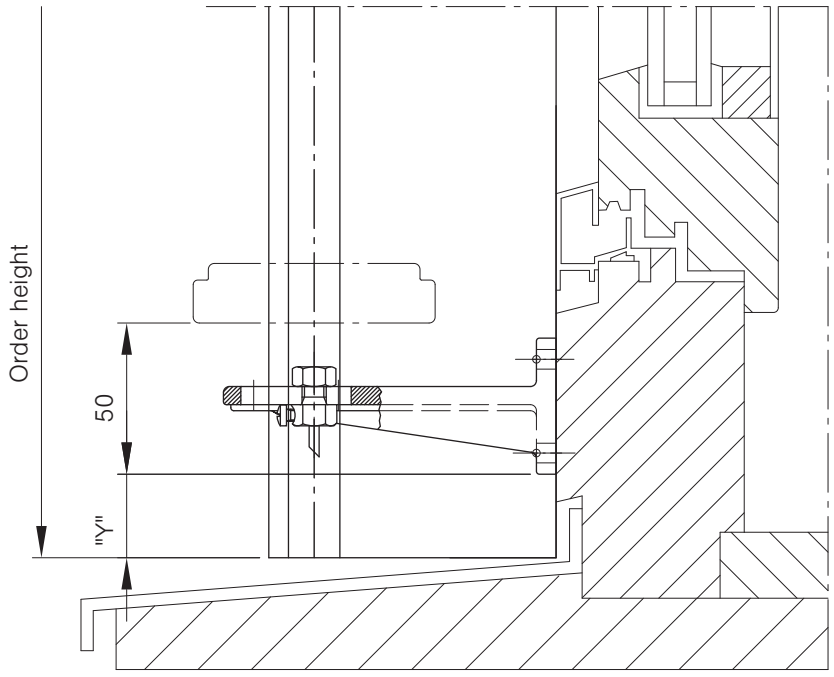
Tension cable bracket for 80 mm flat slat

Tension cable bracket type SO1



Tension cable bracket made of diecast aluminium with screw connection, art no. 514006 and nut M8, art. no. 714007

Axis distance A	Article no.
72-100 mm	101030
97-135 mm	101031



From 2400 mm curtain width we recommend using an additional wind protection in the form of a tension cable for models with flat slats. Please specify dimension "Y" when ordering.

KD010420059

Fig. 89: Additional cable guidance

Standard situation

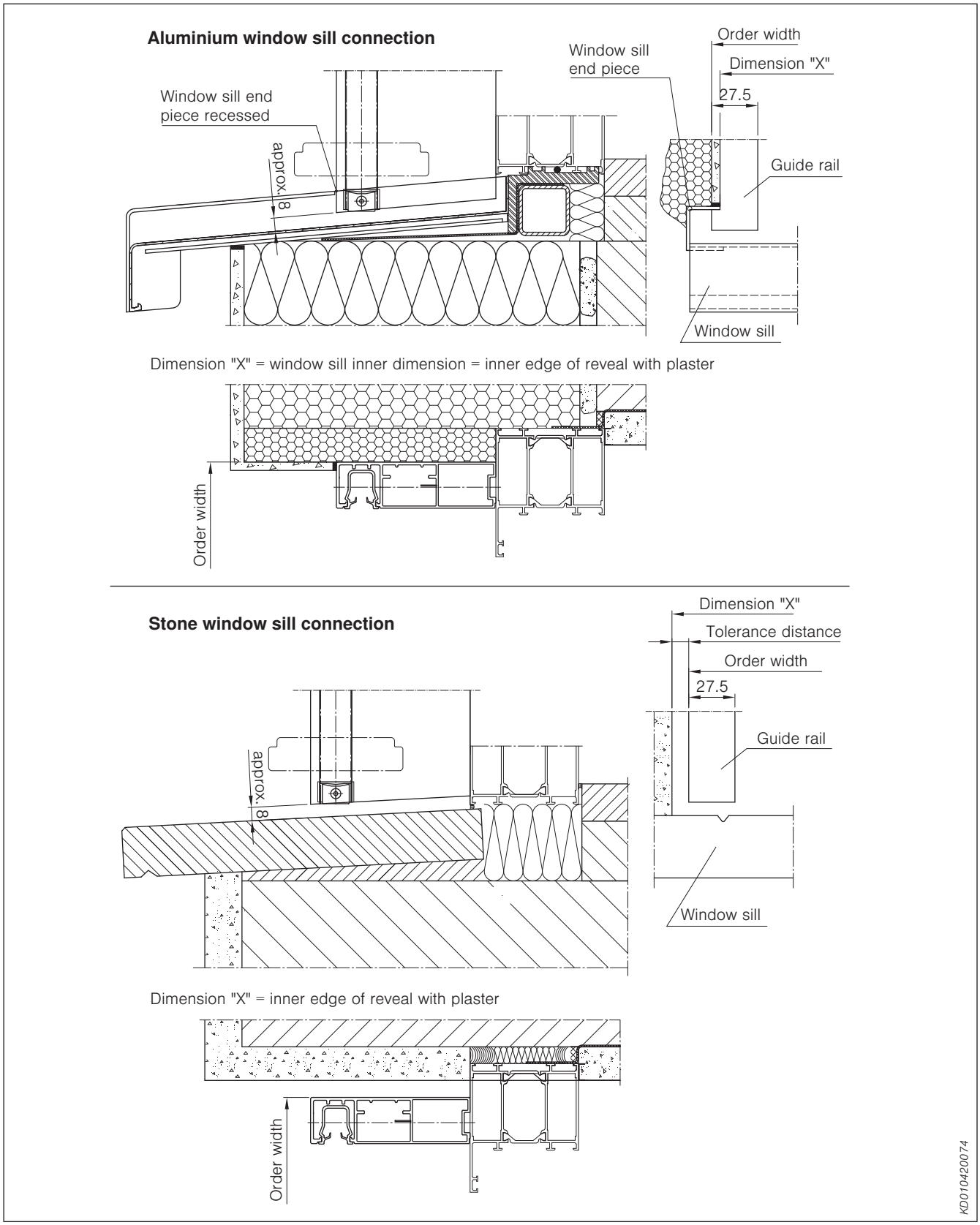


Fig. 90: Window sill connection guide rail - standard situation

Also in the event of the plaster-base profiles being cut diagonally, the external venetian blind height relates to the order height on the window frame.

This produces a gap (depending on the slope) between window sill and bottom edge of bottom rail.

Special situation - guide rail embedded in plaster on the front

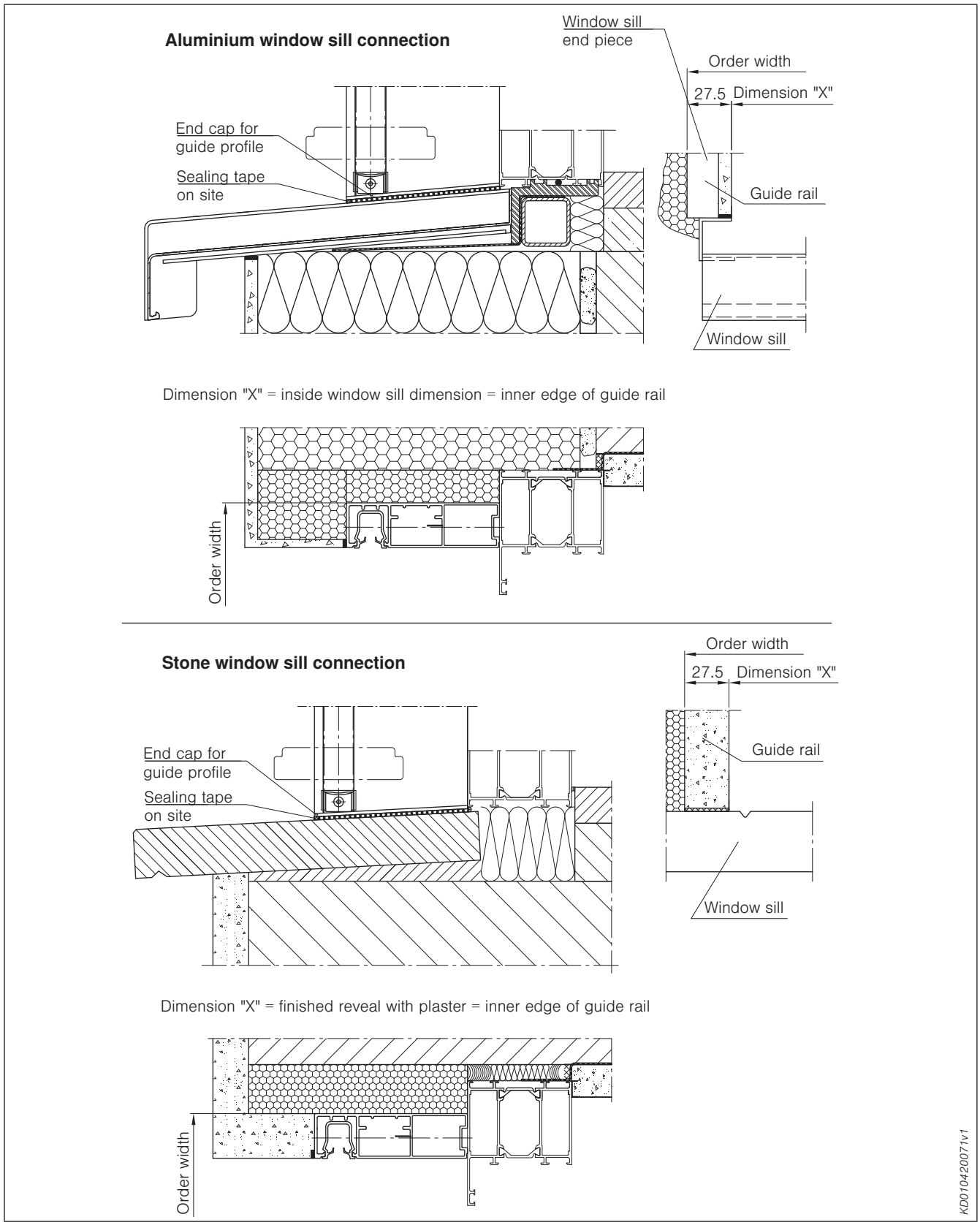


Fig. 91: Window sill connection guide rail - special situation: Guide rail embedded in plaster on the front

Also in the event of the plaster-base profiles being cut diagonally, the external venetian blind height relates to the order height on the window frame.

This produces a gap (depending on the slope) between window sill and bottom edge of bottom rail.

Special situation

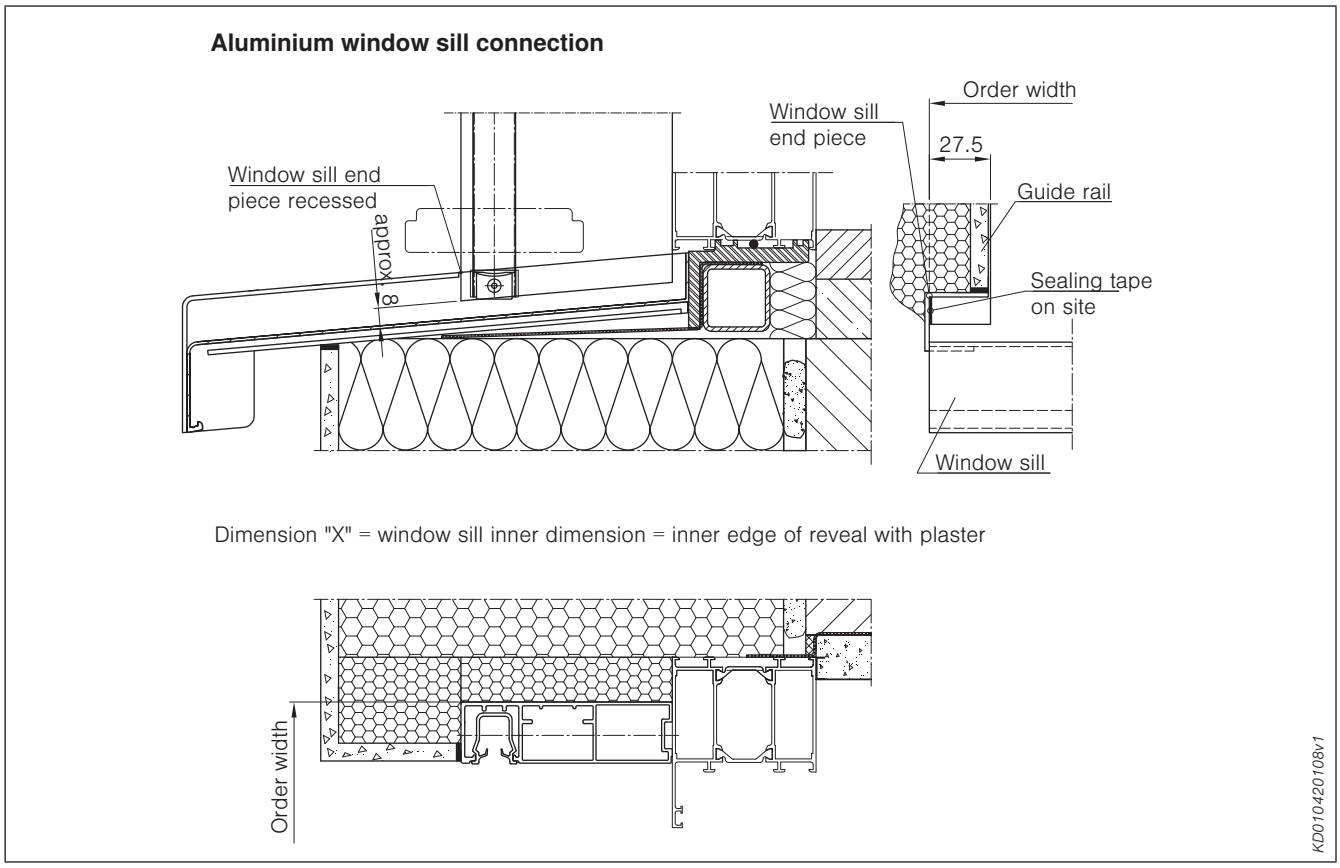
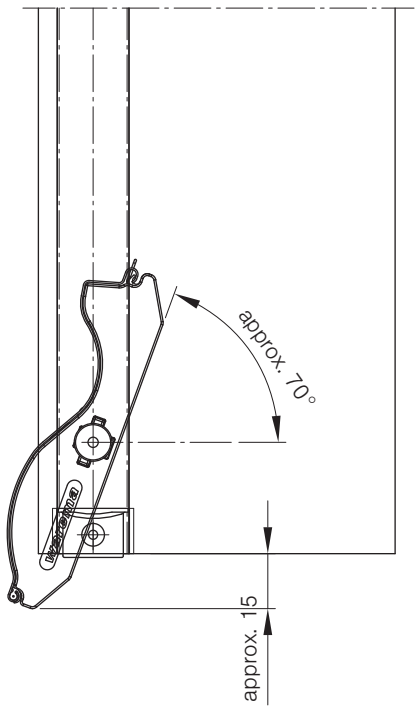


Fig. 92: Window sill connection guide rail - special situation

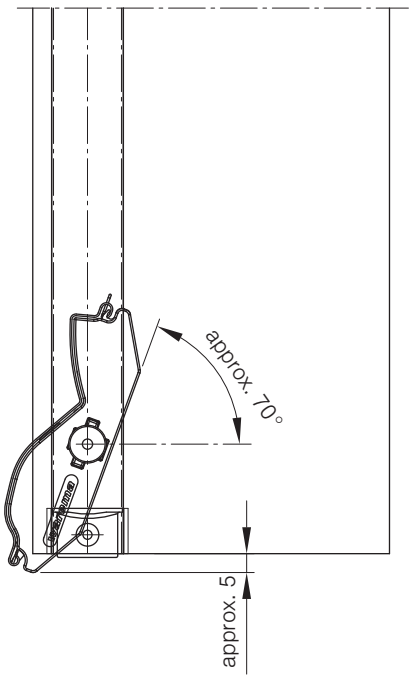
Special situation

Max. possible bottom rail protrusion

size 93/90



size 73



KD010420089

Fig. 93: Curtain extension for dim-out venetian blinds

Contents

Insect screens

Assignment usable insect screen types

Venetian blind window system	Swivel frame		Insect screen roller blind
	One-wing	Two-wing	
FSR 1	●	●	
FSR 2	●	●	
FSR 3	●	●	
FSR 4	●	●	●
FSR S1	●	●	●
FSR S2			

Construction limit values

Insect screen type	Version	Construction limit values				
		Width (mm)		Height (mm)		Surface (m^2)
		min.	max.	min.	max.	max.
Swivel frame, one-wing[1)]	for doors	500	1300	1800	2500	2.5
	for windows	500	1300	600	1800	2.5
Swivel frame, two-wing[1)]	for doors	900	2600[2)]	1800	2500	5.0
	for windows	900	2600[2)]	600	1800	5.0
Roller blind		760	2000	600	2400	5.0

[1)] *When ordering, please specify if door or window version.*
[2)] *Max. width for complete insect screen unit, max. width per wing = half of total width.*

Construction limit values refer to insect screens. Deduction measurements for venetian blind window system are shown in the detailed figures on the following pages.

Venetian blind window system FSR 1/2/3(4) with insect screen swivel frame one-wing

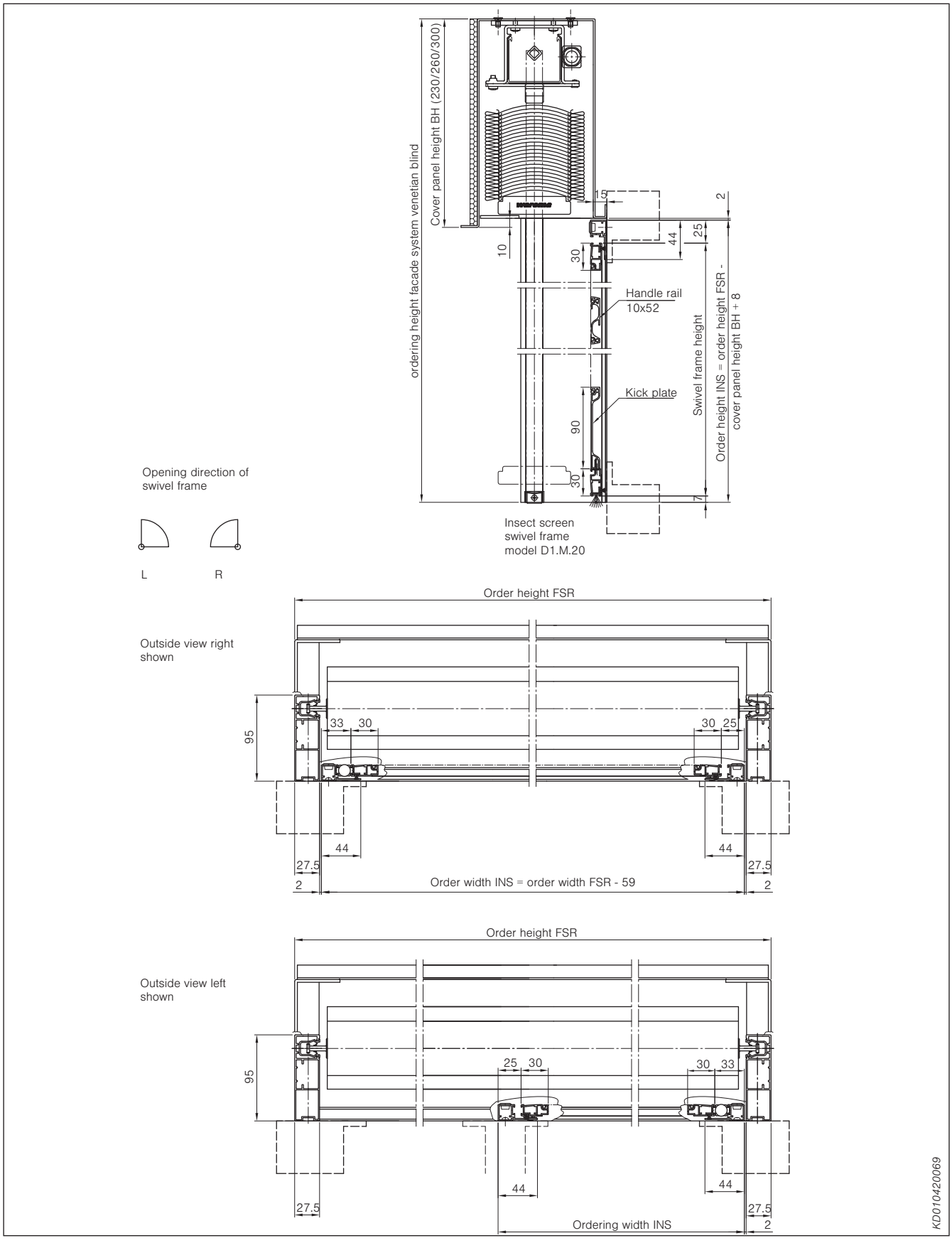
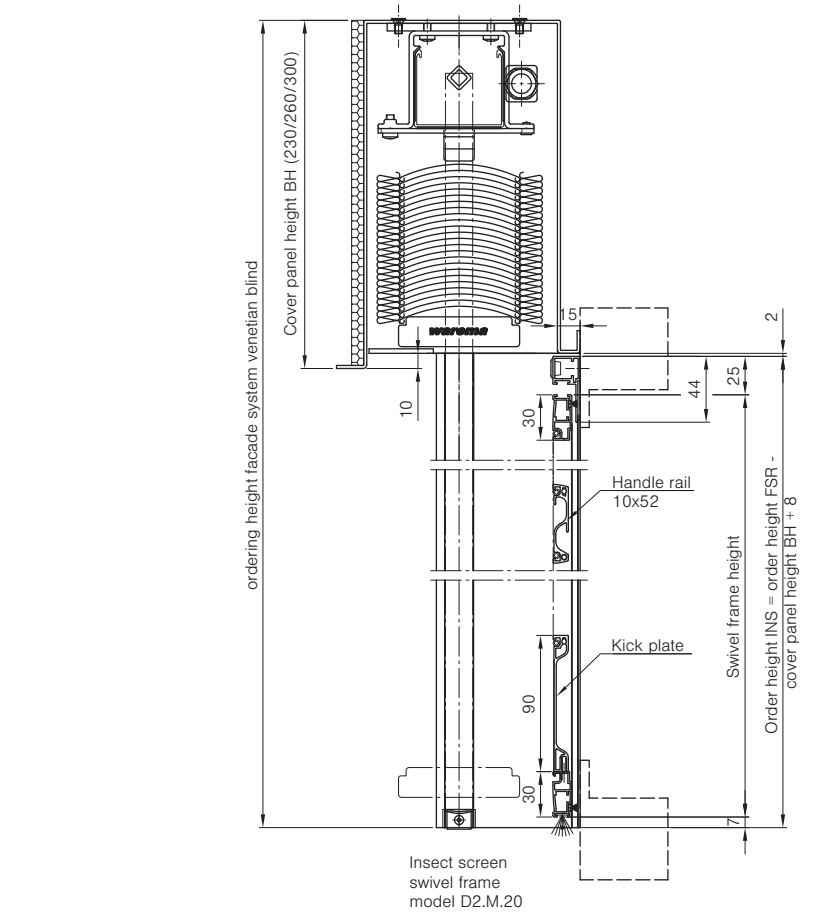
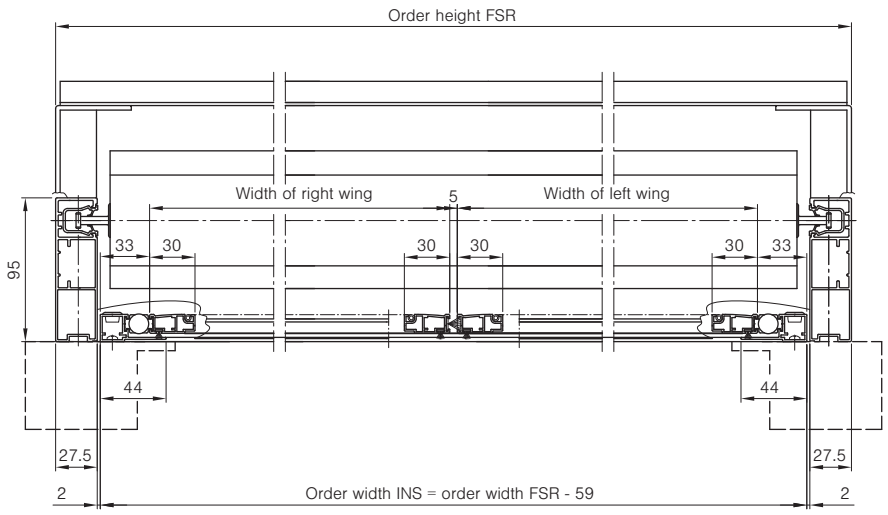


Fig. 94: Measuring instructions for venetian blind window system FSR 1/2/3(4) with insect screen swivel frame one-wing

Venetian blind window system FSR 1/2/3(4) with insect screen swivel frame two-wing

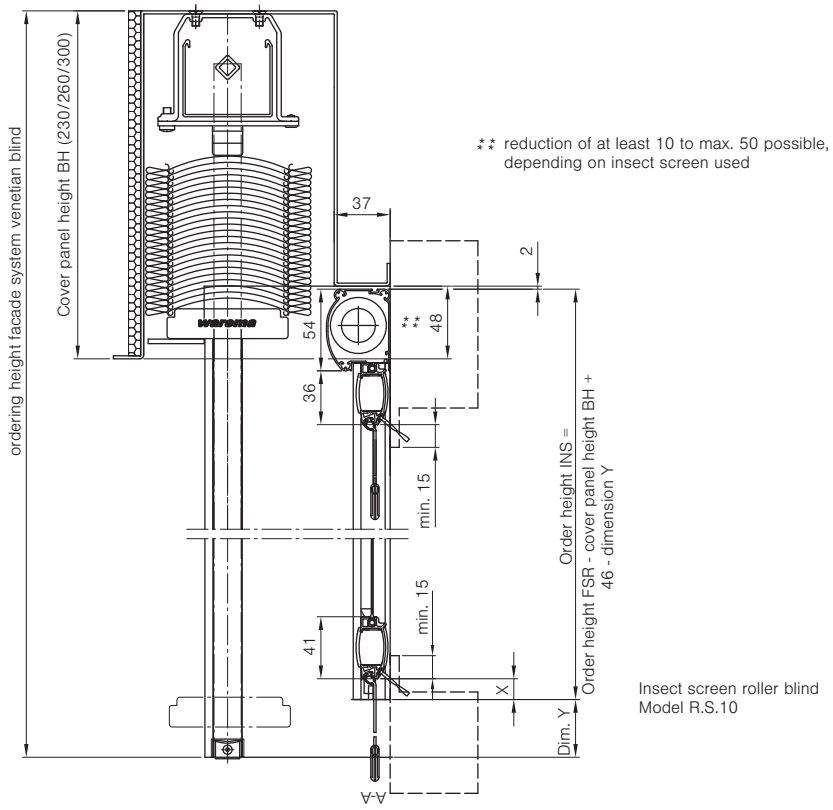




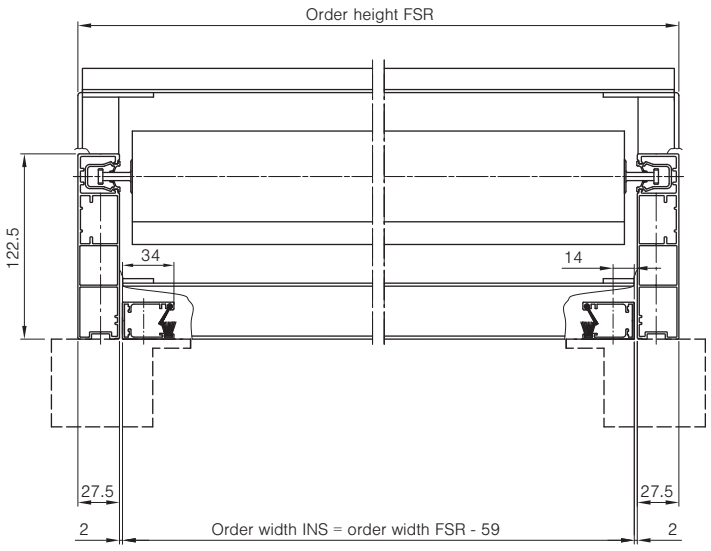
KD0104200070

Fig. 95: Measuring instructions for venetian blind window system FSR 1/2/3(4) with insect screen swivel frame two-wing

Venetian blind window system FSR 4 with insect screen roller blind



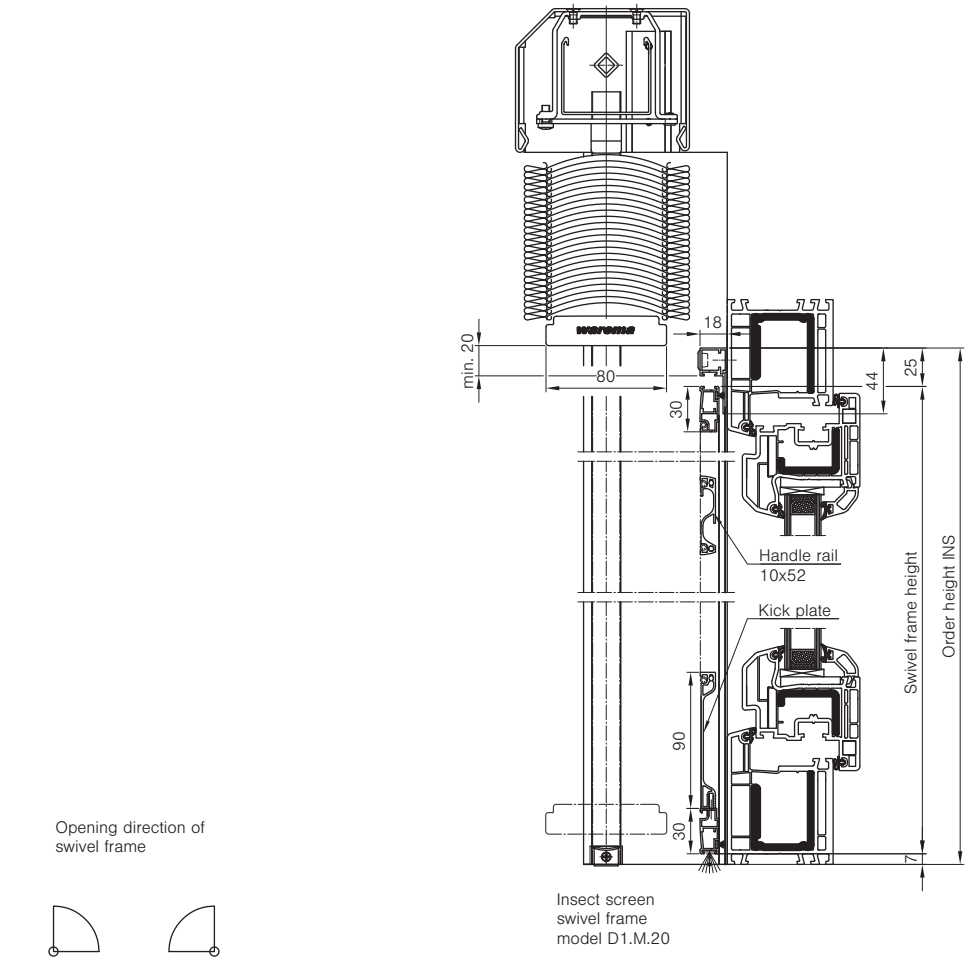
X = bottom edge of handle rail to bottom edge of guide rail; standard setting X = 15 mm when ordered without stating

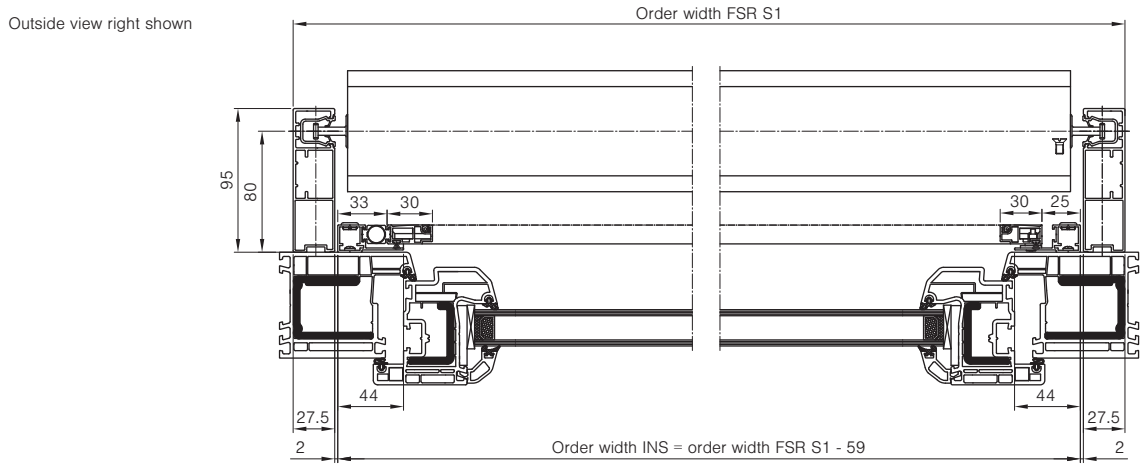


KD0104200066v1

Fig. 96: Measuring instructions for venetian blind window system FSR 4 with insect screen roller blind

Measuring instructions for venetian blind window system FSR S1 with insect screen swivel frame, one-wing

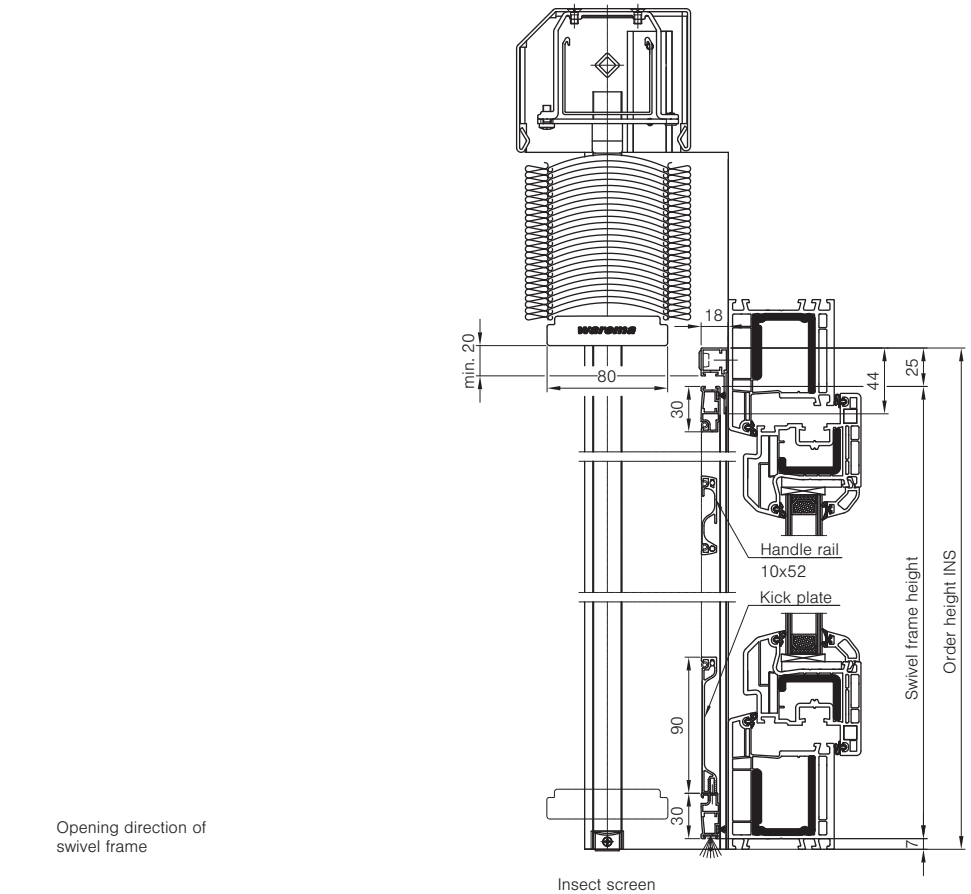


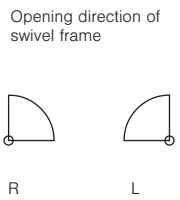


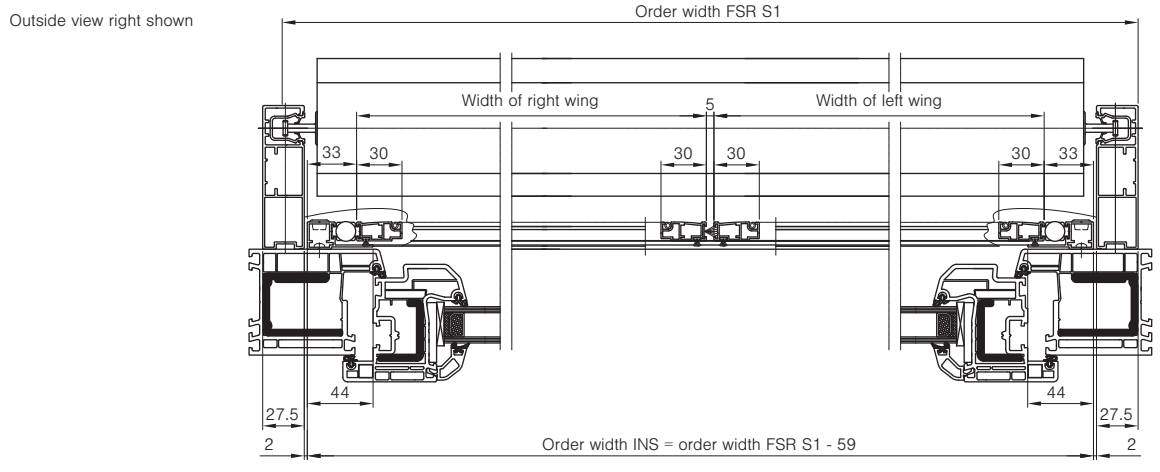
KD0104600036

Fig. 97: Measuring instructions for venetian blind window system FSR S1 with insect screen swivel frame, one-wing

Measuring instructions for venetian blind window system FSR S1 with insect screen swivel frame, two-wing







KD010460037

Fig. 98: Measuring instructions for venetian blind window system FSR S1 with insect screen swivel frame, two-wing

Venetian blind window system FSR S1 with insect screen roller blind

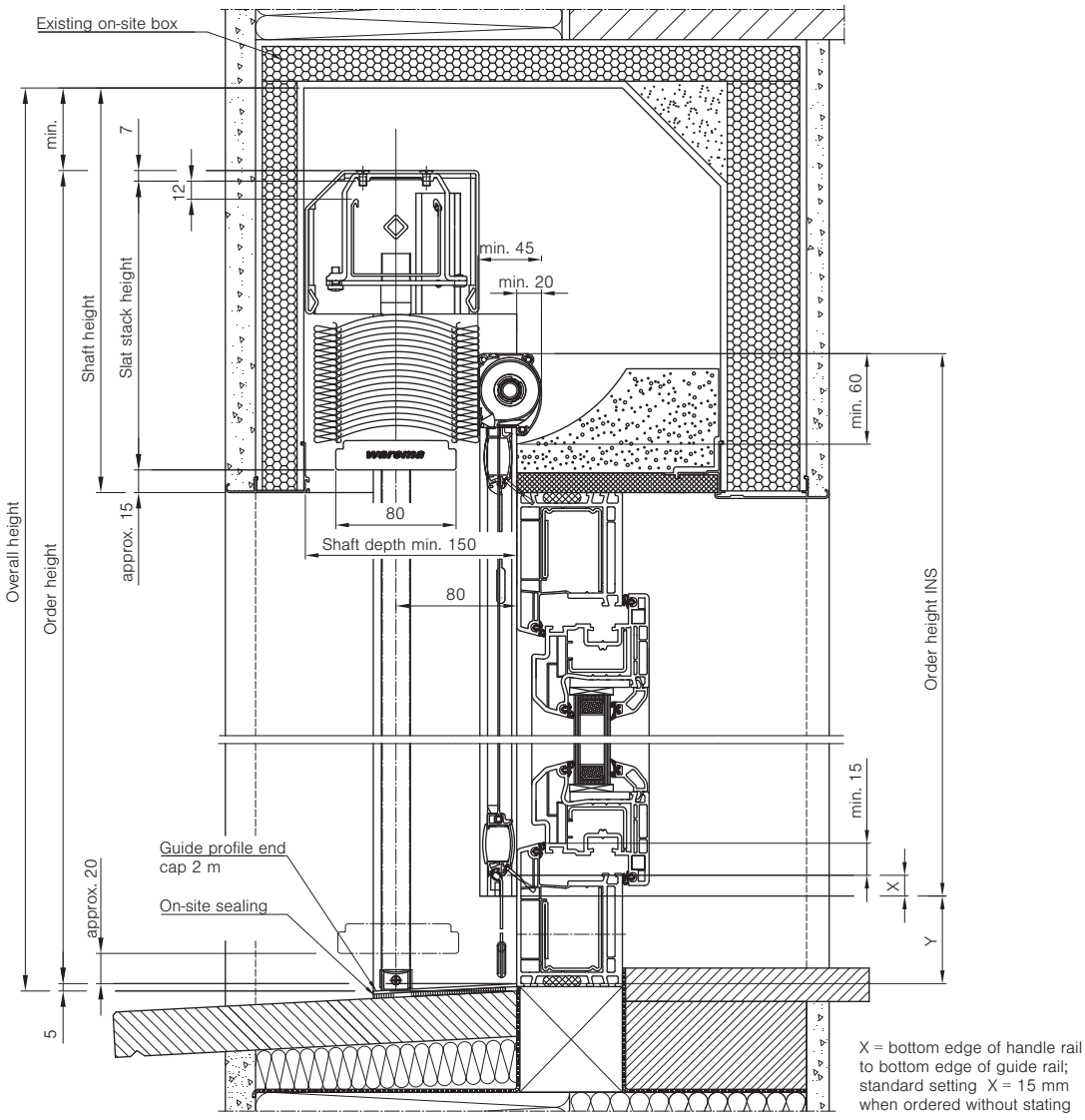


Fig. 99: Measuring instructions for venetian blind window system FSR S1 with insect screen roller blind

Contents

Possible cable exits
FSR 1–4

Standard cable exit
FSR 1/FSR 2: rear
FSR 3/FSR 4: side

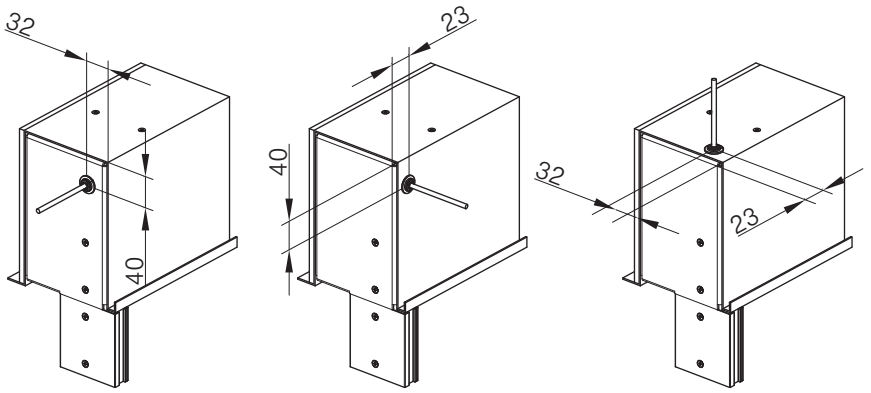


Fig. 100: Possible cable exits

In case of a cable exit at the side or on the top, the motor cable is sealed by means of plug-in grommets.

Cable excess 1000 mm. 5000 mm or 10000 mm also optionally possible.

Motor operation

Description

Concealed alternating current motor with flanged planetary gear and integrated limit switch which switches off in the lower position.
When the upper limit position is reached, the blind is switched off by a contact switch. This contact switch is required as the stack might be higher than previously calculated, e.g. due to ice forming on the slats.
The upper and lower limit position can be set by using the setting buttons.
A thermal protection which switches off automatically after approx. 4 minutes of overload is built into the motor.After reconnection, the chosen operation is then brought to its end. Each drive is equipped with a miniature plug connector via a flexible line. The coupling half (for connection by customer) is equipped with sleeve connection terminals.
The motor must be covered (degree of protection IP54: „Protection against jet water from all directions“).

Structure of the alternating current drive

Motor
Automatic asynchronous short-circuit motor.
Bearing
Ball bearing
Brake
Electro-mechanical brake.
Limit switch
Differential cam end switch.
Lubrication
Special grease providing sufficient lifetime lubrication.

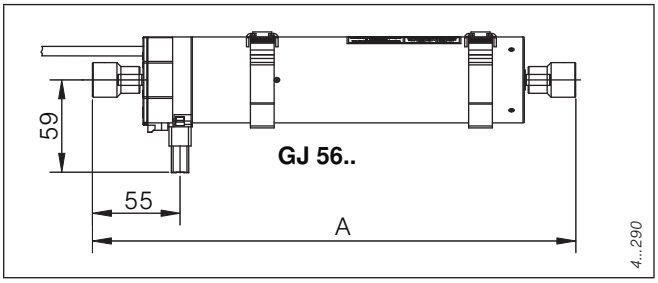


Fig. 101: Measuring instructions for external venetian blind middle motor type GJ 56...

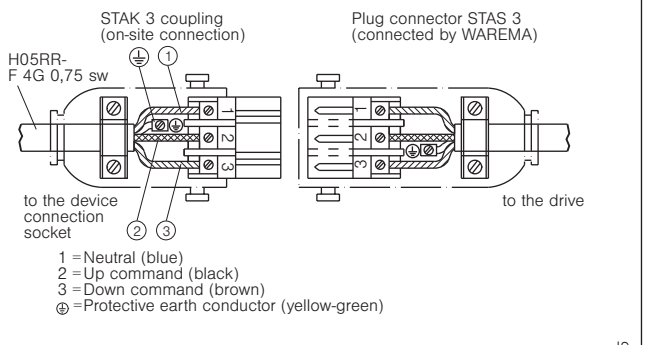
Technical data for standard motors

Motor type		GJ 5606a	GJ 5610	GJ 5620
Torque	Nm	6	10	2x 10
Power consumption	W	108	135	190
Current	A	0.49	0.6	0.85
Speed	rpm	26	26	26
Voltage	V	230	230	230
Frequency	Hz	50	50	50
Operating mode	KBmin	4	4	4
Protection rating	IP	54	54	54
Limit switch range	rev.	80	80	80
Dimension A	mm	307	311	338
Cable length	mm	500/900	500/900	900
Plug-in connector		STAS 3	STAS 3	STAS 3
VDE 0700		yes	yes	yes
CE mark approval		yes	yes	yes
VDE EMC		yes	yes	yes
Temperature range	°C	-20 to +80	-20 to +80	-20 to +80

Note:
The motors can be controlled with the WAREMA radio systems WMS and EWFS using a radio plug receiver. These are preinstalled in the cover panel when ordered.

Motor operation – Wiring diagram

Wiring diagram for plug-in connection



Wiring diagram for 1 motor via 1-pole switch

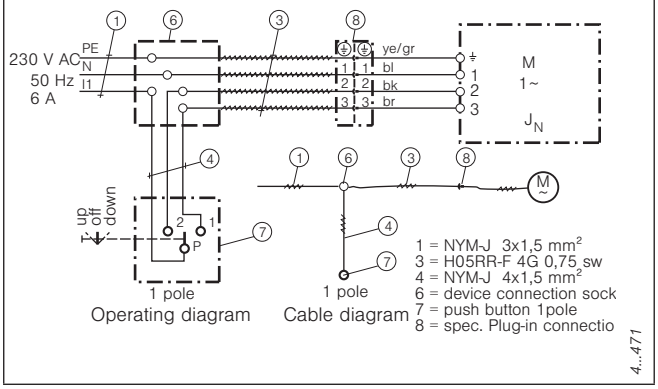


Fig. 102: Switching instructions

Nominal current of motor types

Type D 249 I_n = 0.41 A
Type D 349 I_n = 0.67 A
Type GJ 5606 I_n = 0.49 A
Type GJ 5610 I_n = 0.6 A
Type GJ 5620 I_n = 0.85 A

Attention!

Follow the wiring diagram carefully to avoid damaging the motor. Do not connect motors in parallel.
Several motors must not be controlled without cutoff relay or suitable motor control unit via an operating switch.
We cannot accept liability for damage caused by improper installation.
The fixed electrical installation has to be carried out by a certified electrician in accordance with VDE 0100 or the legal requirements and standards of the respective country.
According to VDE 0022, the operator and constructor are solely responsible for compliance with power supply company and VDE regulations.

Plug connector with WMS/EWFS plug receiver with enclosure

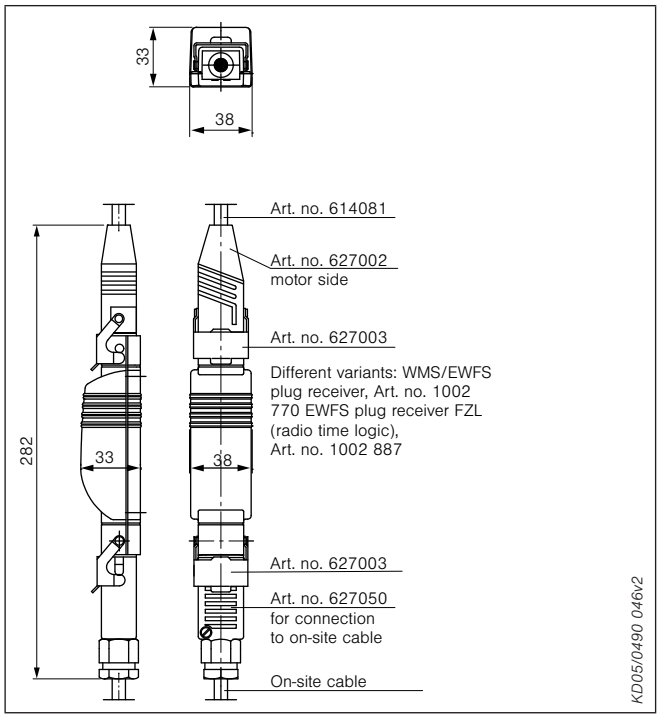


Fig. 103: WMS /EWFS radio plug receiver

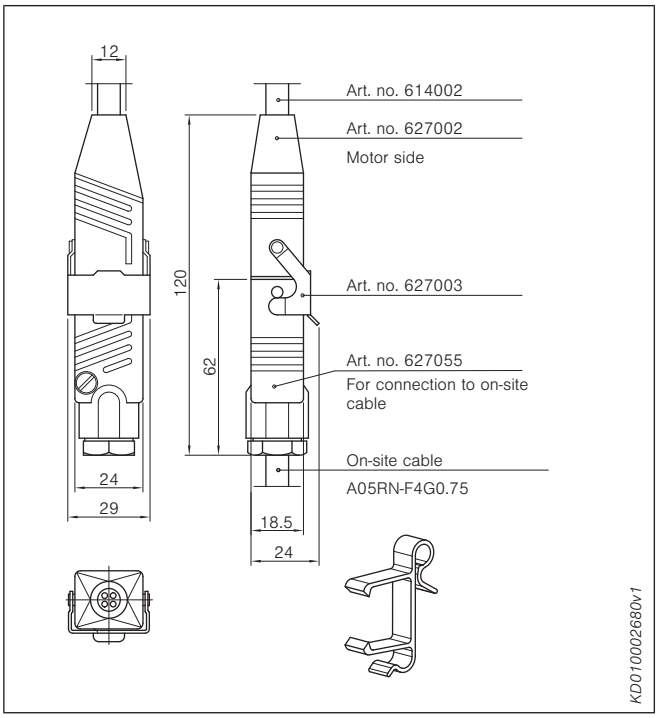


Fig. 104: Plug-in connector and plug-in connector holder with integrated cable hook

Crank operation FSR S1 and S2

FSR S1 (cover panel variant)

Crank drive internal:

The maximum curtain area for crank drive is 5 m^2. The gear 1.8:1 is generally used. The internal crank drive is fixed to a standard measurement of 28 mm from outer edge of box to centre of crank. This results in a top rail reduction of 18 mm.

Crank drive external:

The maximum curtain area is also 5 m^2. A BG gear 4:1 with coupling piece is used for the tilt rod. The shifting ranges vary, depending on external venetian blind width or end distance. A dummy bearing fixed with a motor fixing clamp generally has to be placed on the drive end.

FSR S1	External venetian blind width			
	up to 759		up to max. width	
	min.	max.	min.	max.
Gear position + external	11	50	11	100

Tab. 7: Overview table of gear position FSR S1

FSR S2 (OS variant)

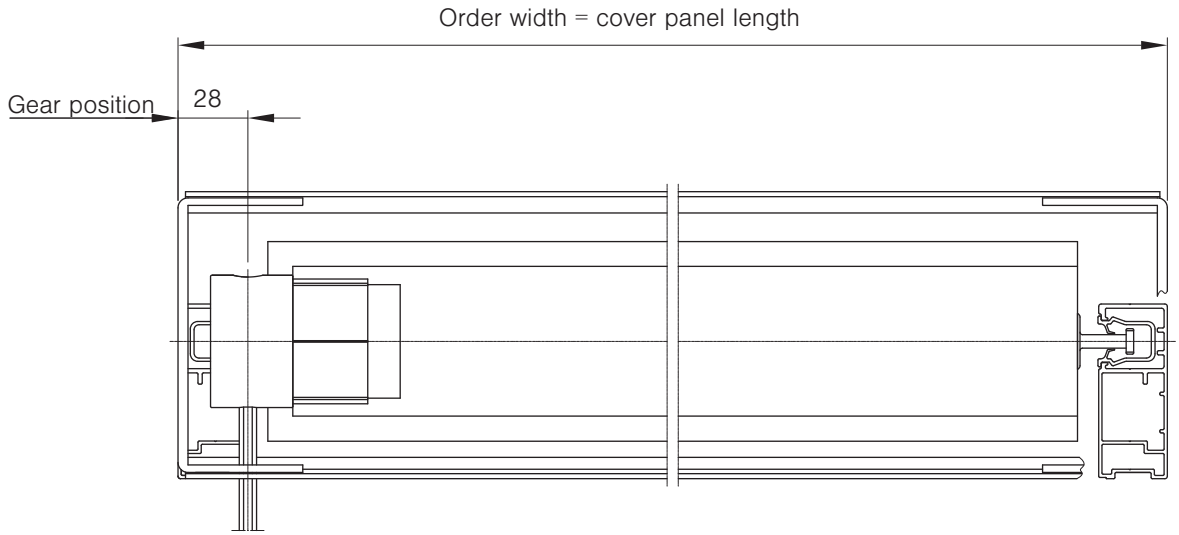
The gear 1.8:1 is generally used for the OS variant. The maximum curtain area is limited to 5 m^2. The gear outlet is possible from 0–45°. The guide rail bracket and the support position on the bracket lug limit the shifting ranges. The gear position has to be stipulated in the customer order. Depending on the gear position (inside or outside) the top rail has to be shortened or extended.

FSR S2	External venetian blind width							
	up to 672		up to 972		up to 1172		up to max. width	
	min.	max.	min.	max.	min.	max.	min.	max.
Gear position – inside	–	–	35	60	35	95	35	95
Gear position + external	10	100	10	100	10	100	10	100

Tab. 8: Overview table of gear position FSR S2

Crank operation FSR S1

Internal gear



External gear

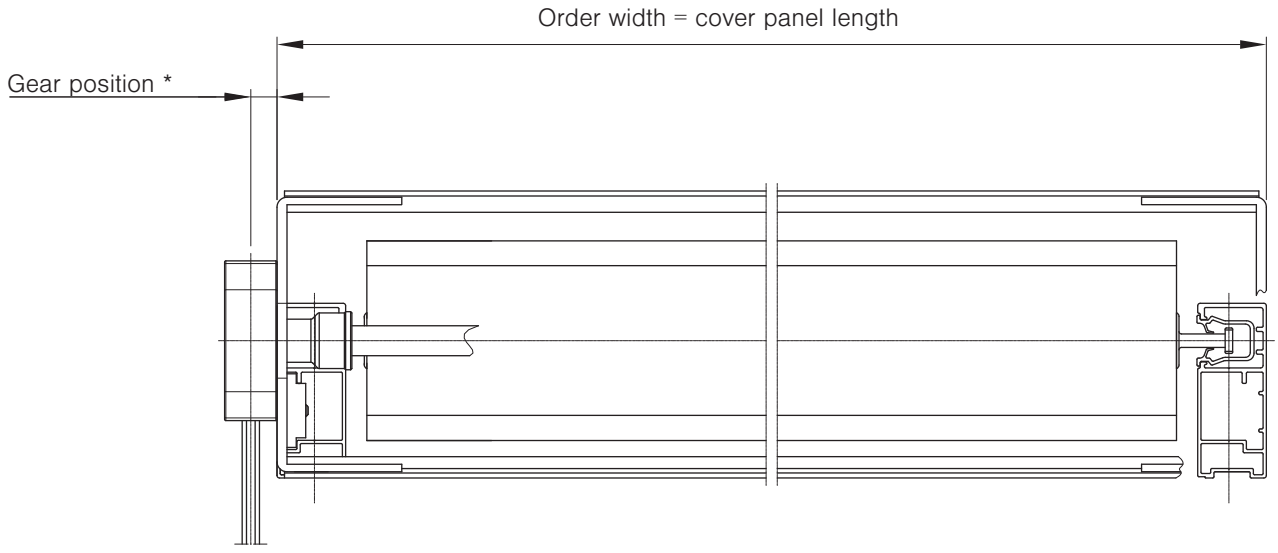
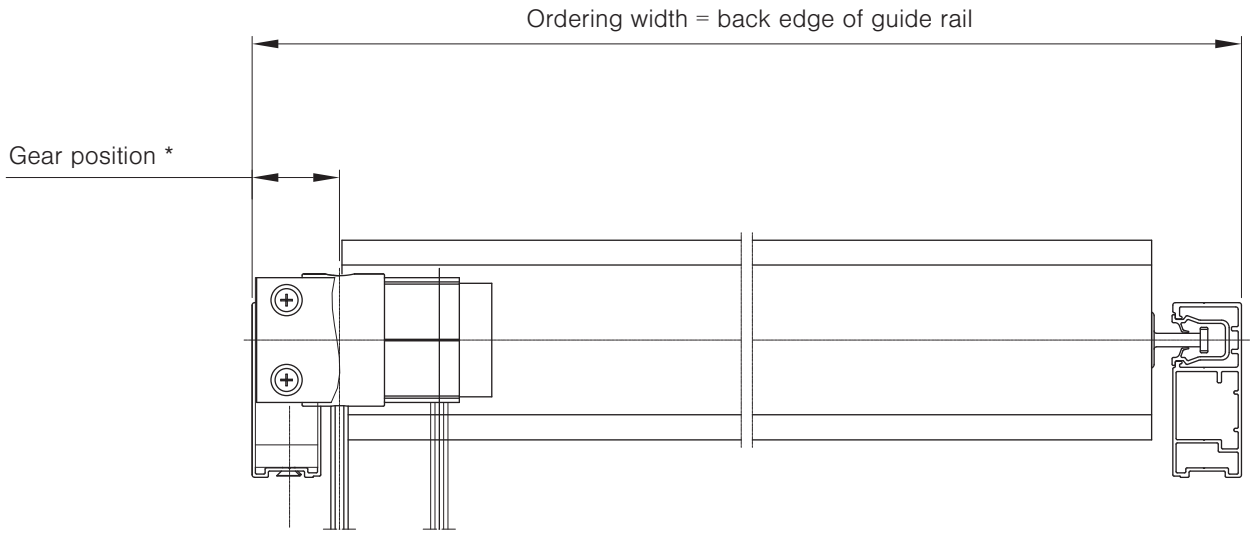


Fig. 105: Crank – gear position S1

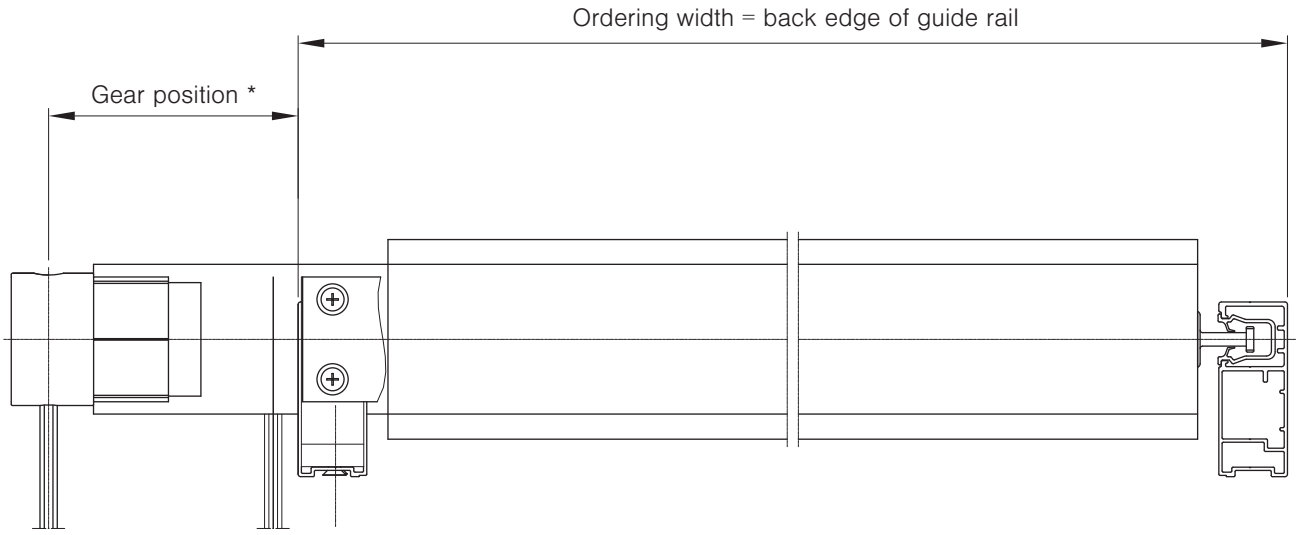
* The shifting ranges vary, depending on external venetian blind width or end distance.
From 600 mm – 759 mm: shifting range from +11 mm to + 50 mm
From 760 mm – max. width: shifting range from +11 mm to + 100 mm
Gear position: See "Overview table of gear position FSR S1" on page 120.

Crank operation FSR S2

Internal gear



External gear



kd010460034

Fig. 106: Crank – gear position S2

Gear position: See "Overview table of gear position FSR S2" on page 120.

Function overview

		Radio systems		Central control systems		
		EWFS	WMS	WAREMA Timer	WAREMA Comfort timer	Time switch
						
Product description		Additional information can be found in the document Control system technical documentation / purchase prices				
Control channels		1/ 8	96	1	1	1
Transmission frequency		433.92 MHz	2.4 GHz	–	433.92 MHz	–
EWFS compatible		●	–	–	●	–
Automatic presets for different sun shading products		–	●	–	–	–
Safety functions	**Wind monitoring (max. connectible sensors)**	●	●	–	–	–
	Evaluation of wind direction	–	–	–	–	–
	Precipitation monitoring	●	●	–	–	–
	Ice monitoring	–	●	–	–	–
Energy efficiency/comfort functions	**Sun control**	●	●	–	–	●[2]
	Dawn/dusk control	–	●	●[3]	●[2] [4]	●[2]
	Time switch	●	●	●	●	●
	Control timer	–	–	–	–	–
	Temperature control with inside temperature sensor	–	–	–	–	–
	Temperature control with outside temperature sensor	–	●	–	–	–
	Automatic differential temperature control	–	–	–	–	–
	Humidity control	–	–	–	–	–
	Adjustable awning run time	–	●	●	●	●
	Window control	–	●	–	–	–
	Intermittent ventilation	–	–	–	–	–
	Slat tilting	–	●	–	●	–
	Slat tracking	–	–	–	–	–
	Radio clock (DCF77)	–	–	–	–	–
	Dimming of light	●	–	–	–	–
	Fan control	–	–	–	–	–
	Astro function	–	●	●	●	–
	Scenes	–	–	–	–	–
	Occupancy simulation	–	–	●	●	–
	History of measuring values and trigger events	–	–	–	–	–
Operation	**Mobile remote control**	●	●	–	●	–
	Central unit/wall-mounted transmitter	●	●	●	●	●
	External channel push button connectible	–	–	–	–	–
	PC	–	–	–	–	–
	Control via BSC	–	–	–	–	–
Commis-sioning	**online via PC**	–	–	–	–	–
	offline via PC	–	●	–	–	–

● *possible*
– *not possible*

[1] *Weather station multisense is included in the max. number of sensors*
[2] *Optional photo sensor with suction cup for window pane*
[3] *Integrated astro function*
[4] *Optional dawn/dusk sensor with suction cup for window pane*

Central control systems				WAREMA climatronic®	Bus systems	
Minitronic dialog	**Wisotronic 1 channels**	**Wisotronic 2/3/4 channels**	**Quatronic dialog**	**WAREMA climatronic®**	**KNX**	**LonWorks®**
						
Additional information can be found in the document Control system technical documentation / purchase prices						
1	1	2-4	4	64	any number	any number
433.92 MHz	433.92 MHz	433.92 MHz	–	433.92 MHz	433.92 MHz	433.92 MHz
●	●	●	–	●	●	●
–	●	●	●	●	●	●
1	1	4[1)]	4	12	●	●
–	–	–	–	●	●	●
●	●	●	●	●	●	●
–	●	●	●	●	●	●
●	●	●	●	●	●	●
–	●	●	●	●	●	●
–	●	●	●	●	●	●
–	●	●	●	●	●	●
–	●	●	●	●	●	●
–	●	●	●	●	●	●
–	●	●	●	●	●	●
–	●	●	–	●	●	●
–	–	–	●	●	●	●
●	●	●	●	●	●	●
–	●	●	–	●	●	●
–	●	●	–	●	●	●
●	●	●	●	●	●	●
–	–	–	–	●	●	●
–	–	–	●	●	●	●
–	–	–	–	●	●	●
–	–	–	–	●	●	●
–	–	–	–	–	●	●
–	●	●	–	●	●	●
–	–	–	–	–	●	●
–	●	●	–	●	●	●
●	●	●	–	●	●	●
●	●	●	●	●	●	●
–	●	●	●	●	●	●
–	–	–	–	●	●	●
–	–	●	●	●	●	●
–	–	–	–	●	●	●
–	–	–	–	●	●	●

● *possible*
– *not possible*

[1)] *Weather station multisense is included in the max. number of sensors*
[2)] *Optional photo sensor with suction cup for window pane*
[3)] *Integrated astro function*
[4)] *Optional dawn/dusk sensor with suction cup for window pane*

WMS – WAREMA Mobile System

WMS – mobile control for discerning requirements

The WAREMA Mobile System unites modern technology and aesthetic design in a radio remote control for discerning requirements. In the WAREMA Mobile System the only components needed are the transmitter and receiver. Distant products can also be reached by transmitting commands from receiver to receiver (routing function). Users receive feedback about all move commands of their sun shading systems.

System components

1 **WMS hand-held transmitter**
2 **WMS central transmitter**
3 **WMS weather station eco**
4 **WMS weather station plus**
5 **WMS flush mounted receiver/transmitter**
6 **WMS plug receiver**
7 **WMS power socket**
8 **WMS wind sensor for patio awnings**
9 **WMS stick with free WMS software**

Features

- transmission frequency: 2.4 GHz
- control of sun shading products on up to 96 channels
- offers maximum protection against unauthorised controlling
- control functions:
  - brightness
  - wind
  - precipitation
  - time
  - dawn/dusk
  - outside temperature
  - ice monitoring

Benefits

- larger range through intelligent routing function
- optical feedback of the executed move command
- scene control for up to 32 different scenes
- move to individual comfort positions at the press of a button
- commissioning and changing of limit values possible via PC
- individual expansion of the control with minimum installation work
- window control possible

Typical applications

- one-family houses
- multiple occupancy buildings
- renovation
- retrofitting

Operating principle

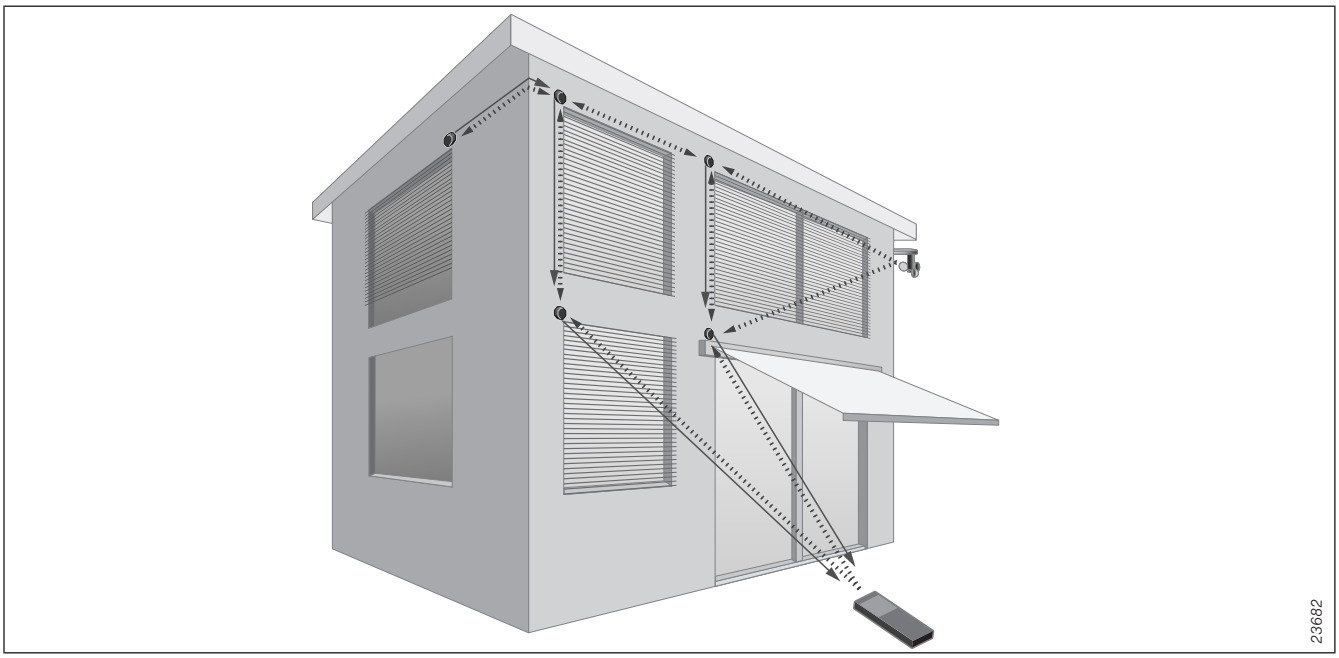


Fig. 107: Intelligent routing function transfers move commands to distant devices

product design award 2012

Wisotronic – visual accents and ingenious functionality

Wisotronic is an intelligent control system for your individual sun shading combination. It is suitable for all WAREMA products and at home in various environments. The control system provides a comfortable room climate and a pleasant living or working environment, even when you are busy or not at home. The design provides visual highlights – it received the iF product design award 2012.

System components

1 **Wisotronic operating panel**
2 **Wisotronic power unit surface mounted**
3 **Wisotronic power unit rail mounted**
4 **Weather station multisense**
5 **EWFS hand-held transmitter**

Features

- operation via EWFS hand-held or wall-mounted transmitter possible
- 1-4 channels for controlling different sun shading products or facade sides
- different mounting options possible for the operating panel (surface mounted, set in plaster or almost flush)
- control functions:
  - brightness
  - wind
  - precipitation
  - time
  - inside/outside temperature
  - dawn/dusk
  - ice monitoring
  - different ventilation functions for electrically operated windows

Benefits

- high-gloss surface provides visual highlights in the living area
- operating panels available in black or white
- 4 adjustable scenes create an individual feel-good atmosphere
- temperature sensor integrated into the operating panel
- weather data such as temperature or wind speed displayed on the operating panel
- integrated timer
- integrated ice monitoring protects sun shading products against damage
- easy commissioning using the quick start menu (ready for operation after 5 settings)
- system can be expanded or extended at any time

Typical applications

- one-family houses
- multiple occupancy buildings
- office buildings
- new buildings
- retrofitting

Wiring diagram

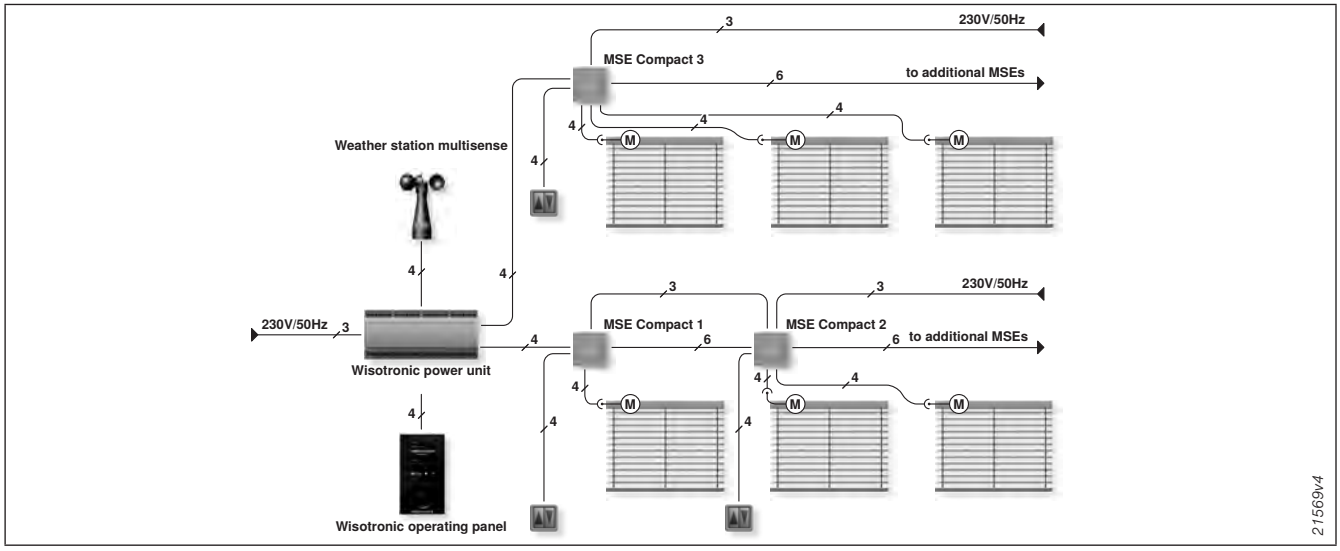


Fig. 108: Wiring diagram Wisotronic

WAREMA climatronic® – a complete control system for an ideal climate

WAREMA climatronic® coordinates your sun shading system with heating, air conditioning and ventilation systems to create the best possible room climate. In smaller and larger buildings it monitors and controls according to environmental influences which have an effect on your well-being. Humidity, temperature or light intensity are controlled according to your preset values. Intuitive operation makes it easy to create your personal preferred climate for working and relaxing.

System components

1 **WAREMA climatronic® control panel**
2 **WAREMA climatronic® switch actuator for installation in electric distribution box**
3 **EWFS hand-held transmitter**

Features

- channels can be operated via EWFS transmitter
- up to 7200 individual products are controlled on 64 channels in individual or group circuits
- operating panel with control wheel, sensor keys, glass front and 3.5" TFT colour display
- temperature and humidity sensors are already integrated into the operating panel

Benefits

- slat tracking according to sun position allows best possible light gain and prevents direct glare
- switching and dimming of light possible
- up to 16 channels can be set
- settings using free software and operating panel:
  - convenient adjustment at any time
  - can be saved to and loaded from an SD card
  - prevents re-wiring when user requirements change
- using the operating panel as KNX central control unit via KNX Gateway
- use as KNX central control unit requires no commissioning tool and allows user changes

Typical applications

- one-family houses
- multiple occupancy buildings
- office buildings
- new buildings
- renovation

Wiring diagram

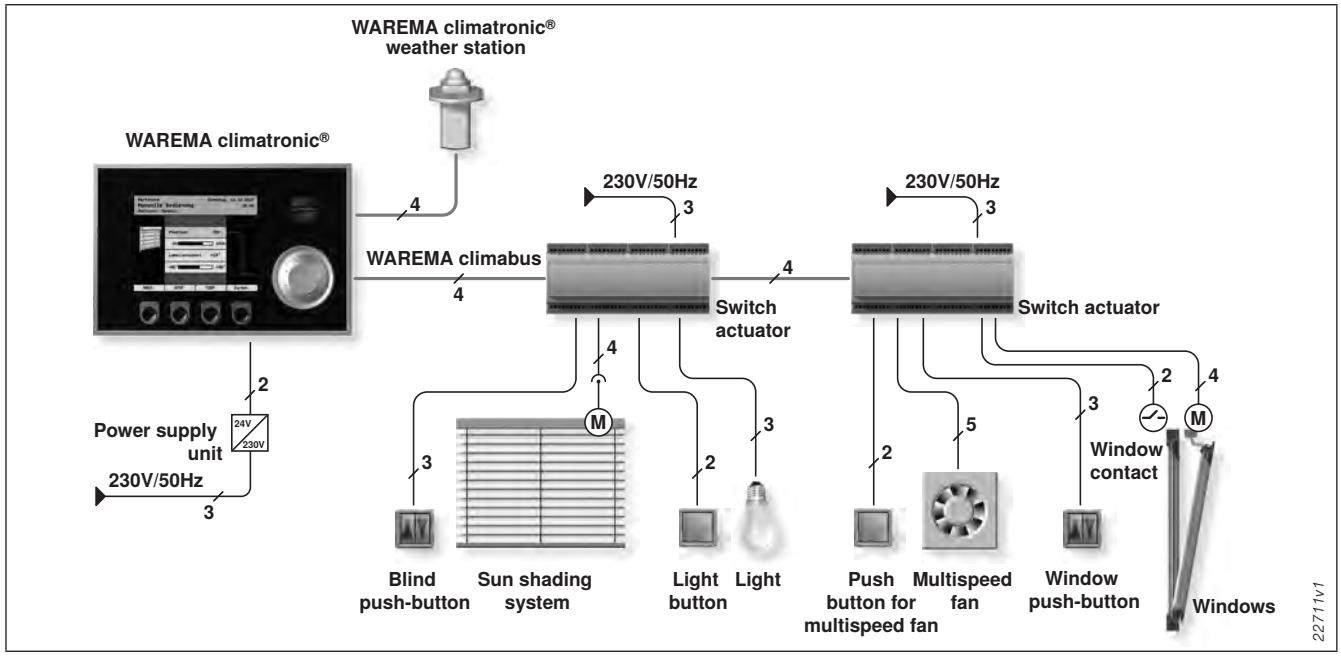


Fig. 109: Wiring diagram WAREMA climatronic®

Index

List of figures

List of figures

Notes

Customer Service Centre

External venetian blinds
Tel. +49 9391 20-3140 • Fax -3149
raffstoren.international@warema.de

Roller shutters
Tel. +49 9391 20-3240 • Fax -3249
rollladen.international@warema.de

Blackout units
Tel. +49 9391 20-3240 • Fax -3249
verdunkelungen.international@warema.de

Awnings
Tel. +49 9391 20-3440, 3340
Fax +49 9391 20-3349
markisen.international@warema.de

Internal sun shading systems
Offers:
Tel. +49 9391 20-3540 • Fax -3549
inside.international@warema.de

Order processing/Application technology:
Tel. +49 3722 710-3540 • Fax -3549
inside.international@warema.de

Control systems
Tel. +49 9391 20-3740 • Fax -3749
steuerungssysteme.international@warema.de

WAREMA Renkhoff SE
Hans-Wilhelm-Renkhoff Straße 2
97828 Marktheidenfeld • Germany
Tel. +49 9391 20-0 • Fax -4299
info@warema.de • www.warema.de

WAREMA International GmbH
Hans-Wilhelm-Renkhoff Straße 2
97828 Marktheidenfeld • Germany
Tel. +49 9391 20-0 • Fax -3899
info@warema.com • www.warema.com

WAREMA Austria GmbH
Zaunweg 6
5071 Wals bei Salzburg • Austria
Tel. +43 662 853015-0 • Fax -99
info@warema.at • www.warema.at

WAREMA France SARL
96, Avenue du Général de Gaulle
92250 La Garenne Colombes • France
Tel. +33 155 6609-40 • Fax -49
info@warema.fr • www.warema.fr

WAREMA Iberia S.L.
C/Juan Ramón Jiménez, 8 - 1a planta
Complejo Eurobuilding
28036 Madrid • Spain
Tel. +34 91 18191-58 • Fax -59
info@warema.es • www.warema.es

WAREMA Schweiz GmbH
Staldenhof 1a
6014 Luzern • Switzerland
Tel. +41 41 25912-20 • Fax -49
info@warema.ch • www.warema.ch

WAREMA Sun Shading (Shanghai) Co., Ltd.
Bldg. 1, No. 123, Jiu Ye Road SQIZ
201700 Shanghai • P.R. China
Tel. +86 21 59869288 • Fax +86 21 59869145
info.china@warema.cn • www.warema.cn

Beijing:
Jianwai SOHO, Room 803 Building 11
39 East 3rd-Ring Road • Chao Yang District
100022 Beijing • P.R. China
Tel. +86 10 58694230 • Fax +86 10 58694223
info@warema.cn • www.warema.cn

Guangzhou:
South Tower of Fuli Yingli Building
1st unit at No. 3, Room 504 • Huaqiang Road
510623 Guangzhou • P.R. China
Tel. +86 20 3803 9940 • Fax +86 20 3803 9942
info@warema.cn • www.warema.cn

Chengdu:
Room 2508, Unit 1 • Building of Shangding International
South of Renmin Road
610000 Chengdu • P.R. China
Tel. +86 28 62336586 • Fax +86 28 62336596
info@warema.cn • www.warema.cn

158302en/02.2013 Art. no. 874782

WAREMA Renkhoff SE · Hans-Wilhelm-Renkhoff-Straße 2 · 97828 Marktheidenfeld · Germany
www.warema.com · info@warema.com

Technical data

Venetian blind window system