National Technical Approval (abZ) **Z-14.4-806**

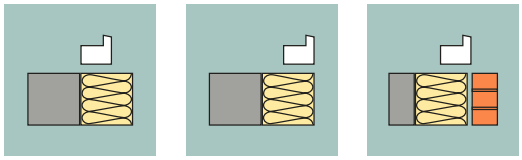
JB-D®

PLUS

Technical Documentation 2023

In front of the wall installation

The continuing trend for thicker insulation layers has meant windows are much more often installed in front of the wall in double-skin wall systems such as external thermal insulation composite systems (ETICS), suspended rear ventilated facades (RVF)/rainscreens and brickwork. Energy-efficient triple glazing, large windows with a high proportion of glass and weak wall substrates add further difficulties. Ensuring efficient load transfer in compliance with the structural requirements is becoming increasingly complex and presents huge challenges to contractors involved in the installation of durable and safe systems.

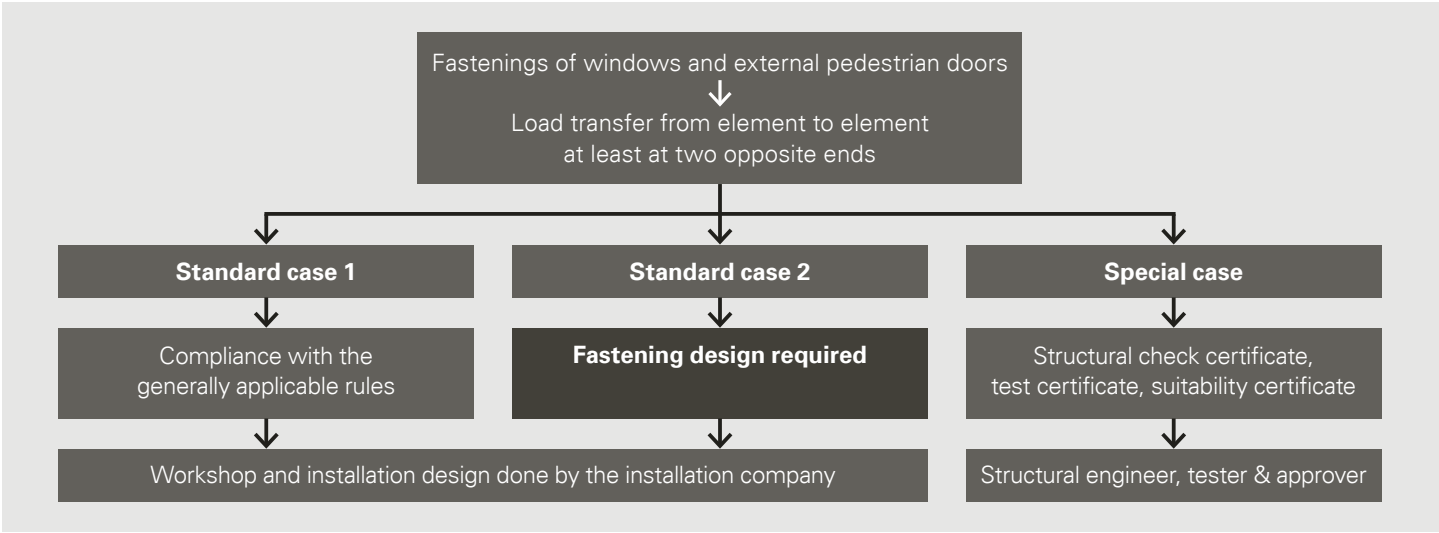


Typical window positions in ETICS, RVF/rainscreen and double-skin brick wall

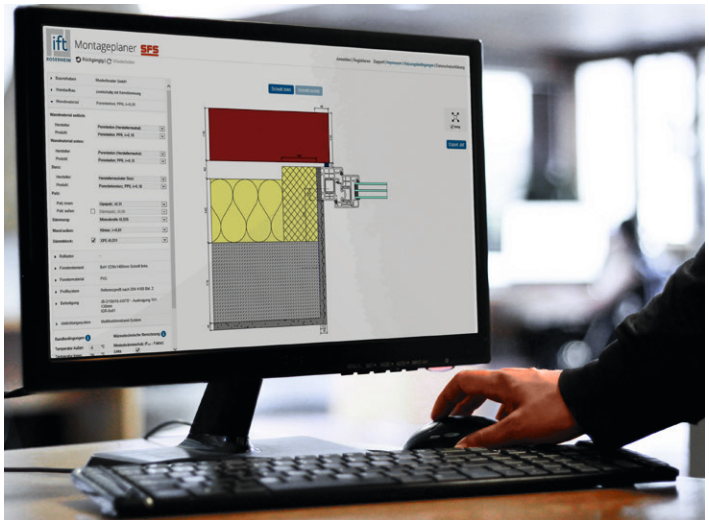
Recognising this, the latest guideline for installation (LzM 2020) defines more stringent requirements for fixings with the aim of ensuring that all the forces acting on the window are reliably transferred into the building's load-bearing structure. These requirements must be observed for the design and installation. Among other requirements, the LzM 2020 guideline states that fastenings must be designed for standard case 2 – for the critical cases such as in front of the wall installation and weak wall substrates – to ensure safe load transfer. Regulatory requirements for fire protection are also to be considered, depending on the type of use. The use of Certified fastening systems is essential for reliable design in compliance with LZM in order to verify the required design forces for load transfer to the building's load-bearing structure.

Important factors relevant to the transferred loads

- Large cantilevers
- Heavy windows
- Weak wall substrates



Various load case situations to be checked for window fastenings, extracts from LzM 2020-03



SFS Installation Planner:
Fastening design made easy

For a quick and safe design of the connection to the building's load-bearing structure for window installation: SFS Installation Planner, a free, ift-based installation planning software tool, takes you step-by-step through the planning and design process, systematically posing questions to identify the required criteria for compliant fastenings. All the performance parameters for SFS fastening systems are integrated into the online installation planner.

The advantages

- High-quality solutions – reliable evidence of compliance
- Determination and design of suitable fastening solutions – quickly and in compliance with the rules
- Measures for safe installation clearly defined by documentation of the information and results recorded in the ift installation pass

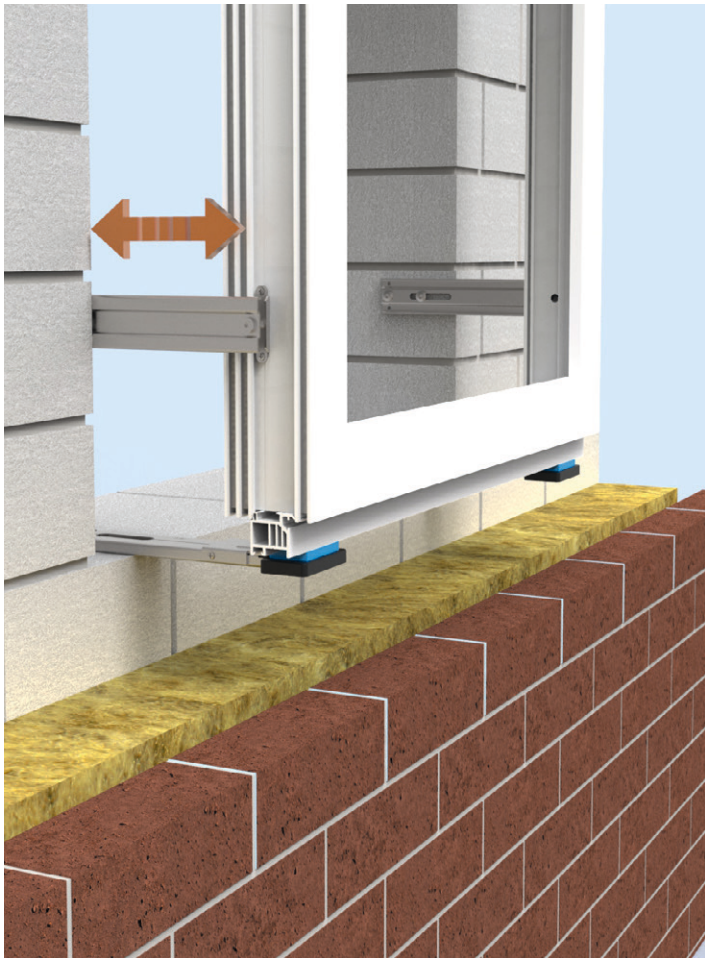
The solution – JB-D® PLUS bracket system

From now on, window installation in front of load-bearing wall constructions will be simpler, quicker and safer than ever before: the JB-D® PLUS fastening system for in front of the wall installation – suitable for use for load transfer and safety barrier – has a National Technical Approval (abZ). Specially designed for transferring large loads, the structurally certified system solution with documented component load capacities provides the best basis for durable, safe assembly and installation. Manufactured out of the non-combustible material steel in accordance with the provisions of DIN 4102-1 class A, the system can satisfy high requirements for safety against fire. High quality is also assured by ift certification, proof of burglar resistance and thermal calculations.

Consistently designed for added value
The high capabilities of the JB-D® PLUS create additional advantages for fabricators, assemblers and installers. All the forces acting on the window are transferred as point loads through rigid brackets which can be also be used for cantilevers up to 150mm. Thus providing the greatest possible flexibility For compliant fabrication and assembly. This greatly increased scope of application means the system can be used with all common frame materials, frame extensions and wall substrates.

Further Added Value comes from the rectangular cross section specially designed for long cantilevers: ensuring the highest load capacity without additional support angles, forming the ideal solution for installation in double-skinned masonry with wall opening edging strips. JB-D PLUS® installation does not necessarily require any change in the sequence of traditional construction operations around the opening.

Fusing cost-effectiveness and efficiency
High cost-effectiveness, efficient installation and low fabrication costs – the JB-D® PLUS system has inherent advantages when it comes to saving time and money. They extend from easy 3D adjustment and robust load transfer during installation to trouble-free interfaces with subsequent trades such as ETICS installation. Other great benefits include the ability to install from inside the building and the consistent implementation of a well-designed modular system, versatility and reduced warehousing requirements.



Product advantages at a glance

- A fastening system for in front of the wall installation with national technical approval – which also satisfies building components with safety barrier characteristics
- Reduced number of fastening points required due to this solution catering for both load transfer and the installation of safety barriers (e.g. Juliet balconies)
- Structurally certifiable solution with documented component load capacities
- Point load transfer of all the forces from the installed elements through rigid brackets
- 3D adjustability for simple and quick alignment
- Suitable for use on all cantilevers up to 150 mm
- Universal application, including double-skin brick wall with wall opening edge strips
- Flexible installation – can be installed from the interior of the building
- Steel-based system, non-combustible material in accordance with DIN 4102-1 class A

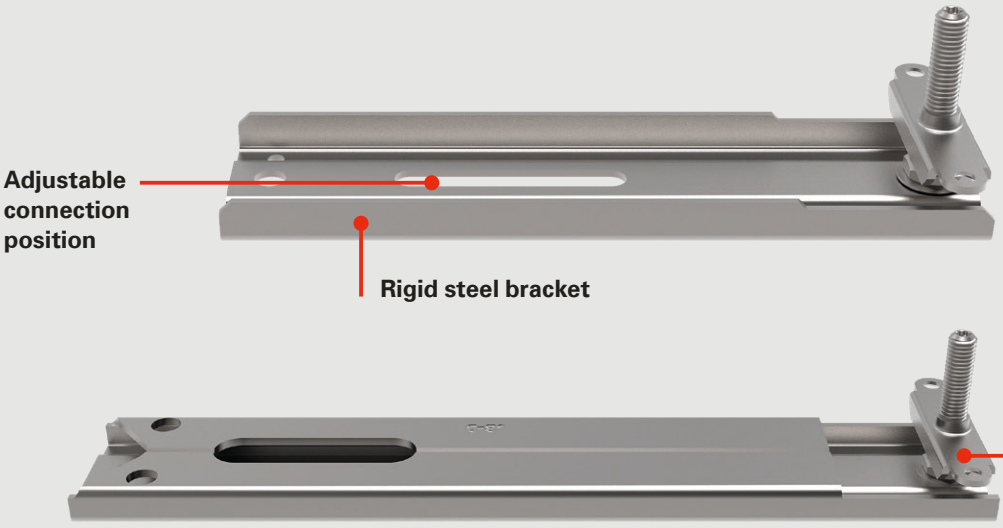
Tested and approved

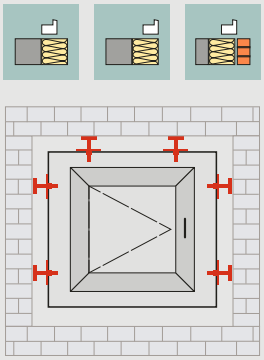
- National Technical Approval (abZ), Z-14.4-806 (DIBt)
- MO-02/1 – usability in accordance with ift guideline
- Fastenings in accordance with Austrian standard ÖNORM B 5320
- ift certified
- RC2 – burglary resistance class in accordance with DIN EN 1627

SFS Werk 30 Z-14.4-806

JB-D® PLUS system advantages

Connection at the sides and top





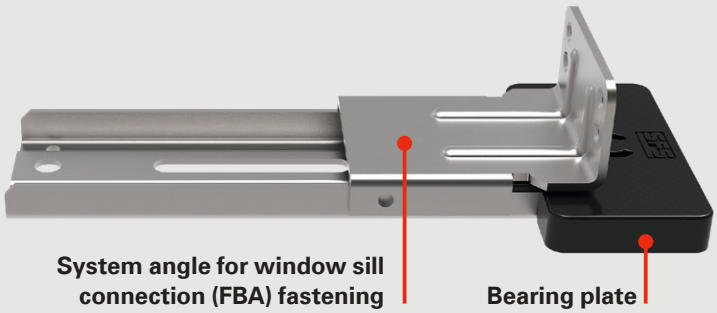
Rotatable, threaded bolts
Mounting plate for fixing to frame profile (predrilled 10.5 mm), adjustable

JB-D® PLUS – efficient fastening
JB-D® PLUS clearly demonstrates its strengths with fastenings at the sides and top of the window element. In addition to the high load capacity of the rigid steel brackets, they are infinitely adjustable and can be pre-assembled at the factory. Furthermore, the ability to connect to all commonly available frame materials increases flexibility of use.

Simple to use, even in Double-skinned walls
When used in double-skin walls, both the installer and the fabricator benefit from significant time and cost savings: Importantly, the JB-D design is practice-proven and does not require any change to the traditional sequence of construction work on site.

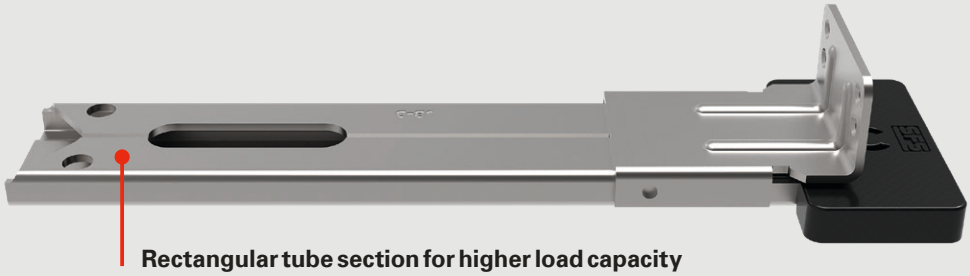
Product advantages at a glance
- High load capacity through rigid steel brackets
- Ideal for installation in double-skin walls
- Stepless adjustable
- Pre-assembly in the factory possible
- Suitable for connection to all commonly available frame materials

Connection at bottom

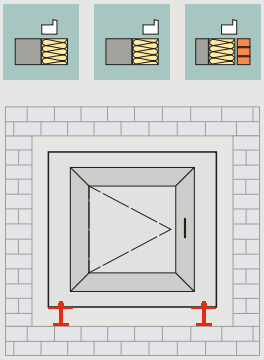


System angle for window sill connection (FBA) fastening

Bearing plate



Rectangular tube section for higher load capacity

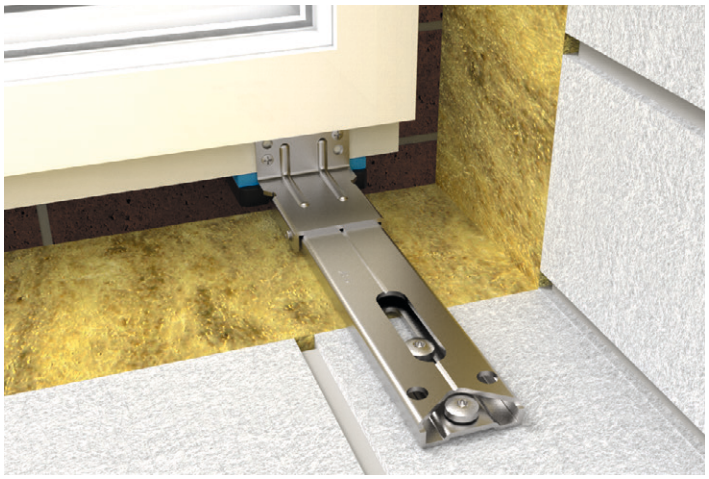


Optional blockwork clamp
For installation on Hollow brick and low load-transfer capacity substrates

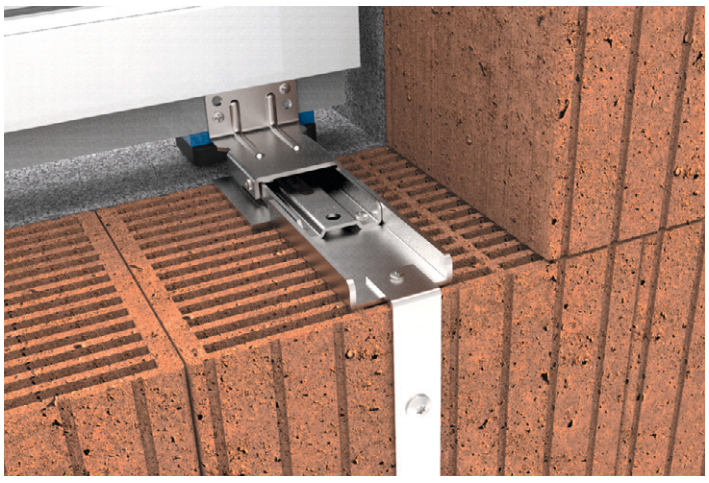
JB-D® PLUS – high load capacity
When fitted at the bottom of the window opening, the JB-D® PLUS is an efficient system (chose which one you want to use) with high load-bearing capacity Furthermore, the high strength of the rectangular tube makes the use of an additional support angle unnecessary, even for large cantilevers. The same is true for both hollow brick and weak wall substrates. Carefully designed clamp solutions ensure long-term, safe load transfer.

The simple way of adjusting the height of the JB-D® PLUS using commonly available spacer blocks and the stable, flat bearing surface for load transfer prove extremely practical during installation, as does the attachment of the window sill connection (FBA) profile using system angles. Subsequent Follow-on trades benefit from considerable time and cost savings As a result of the connection assembly lying flat on the reveal and having a low profile.

Product advantages at a glance
- Highest possible load transfer capacity ensured by the rectangular tube, even with large cantilevers
- As the Fastener connection boasts a low profile ans sits flat on the reveal leaves the optimum conditions for the completion of follow-on-trades such as sealing and ETICS installation.
- The Stable and flat bearing surface transmits loads from the installed windows
- Simple height adjustment using commonly available spacers, similar to soffit mounting
- Quick and secure attachment of window sill connection (FBA) profile using system angles
- Increased load transfer capacity from brackets for hollow bricks and weak wall substrates



Direct attachment



Attachment with clamp

Application range

Connection at the sides and top

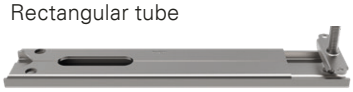
Window in front of the wall

Cantilever AK_B

Side, top	**Wall type** / width (mm)		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
Side, top	Concrete  Min. C20/C25	160			15 **20** 50							85 **22/24** 120						
								45 **21** 80								125 **23/25** 150		
		170		5 **20** 50							75 **22/24** 120							
							35 **21** 80								115 **23/25** 150			
		180	0 **20** 50							70 **22/24** 120								
						30 **21** 80								110 **23/25** 150				
		200	0 **20** 50							70 **22/24** 120								
						30 **21** 80								110 **23/25** 150				
	Lime-sand stone block (KS)/XL 	175		10 **20** 50							80 **22/24** 120							
							40 **21** 80								120 **23/25** 150			
		200	0 **20** 50							70 **22/24** 120								
						30 **21** 80								110 **23/25** 150				
		240	0 **20** 50							70 **22/24** 120								
						30 **21** 80								110 **23/25** 150				
	Timber 	160					35 **20** 50							**22/24**				
									65 **21** 80							**23/25**		
		180			15 **20** 50							85 **22/24** 120						
								45 **21** 80								125 **23/25** 150		
		200	0 **20** 50							70 **22/24** 120								
						30 **21** 80								110 **23/25** 150				
		220	0 **20** 50							70 **22/24** 120								
						30 **21** 80								110 **23/25** 150				
		240	0 **20** 50							70 **22/24** 120								
						30 **21** 80								110 **23/25** 150				
	Aerated concrete 	175		10 **20** 50							80 **22/24** 120							
							40 **21** 80								120 **23/25** 150			
		200	0 **20** 50							70 **22/24** 120								
						30 **21** 80								110 **23/25** 150				
		240	0 **20** 50							70 **22/24** 120								
						30 **21** 80								110 **23/25** 150				
	Hollow brick clay block (HLZ) 	175		10 **20** 50							80 **22/24** 120							
							40 **21** 80								120 **23/25** 150			
		200	0 **20** 50							70 **22/24** 120								
						30 **21** 80								110 **23/25** 150				
		240	0 **20** 50							70 **22/24** 120								
						30 **21** 80								110 **23/25** 150				

Product and ordering code for **# 20–25**, see following page, column **#**

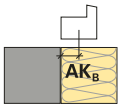
Components

Wall type	Product	Ordering code	#	PU	Art No.	Application example
Concrete, lime-sand stone (KS), vertically hollow bricks (HLZ), aerated concrete class PP2/4/6, timber	U-bracket 	JB-D-U155	**20**	50	1651506	
		JB-D-U185	**21**		1651529	
		JB-D-U225	**22**		1651505	
		JB-D-U265	**23**		1651504	
	Rectangular tube 	JB-D-R225	**24**	25	1651503	
		JB-D-R265	**25**		1651502	

Side/top: for safety barrier requirements

- Can be attached directly to concrete, lime-sand stone XL and timber substrates. Solutions and application range for other substrates: see JB-D/FA PLUS

Joint width up to 35 mm
Cantilever AK_B = distance of the fastening point from the reveal edge



Application range

Connection at bottom

Window in front of the wall

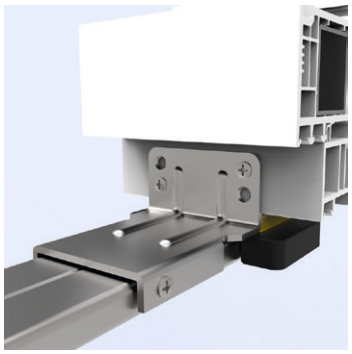
Cantilever AK_B

Wall type / width (mm)		0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
Bottom, direct		
Concrete  Min. C20/C25	160	15 **26** 50 · 85 **28/30** 120 · 45 **27** 80 · 125 **29/31** 150
	170	5 **26** 50 · 75 **28/30** 120 · 35 **27** 80 · 115 **29/31** 150
	180	0 **26** 50 · 70 **28/30** 120 · 30 **27** 80 · 110 **29/31** 150
	200	0 **26** 50 · 70 **28/30** 120 · 30 **27** 80 · 110 **29/31** 150
Lime-sand stone (KS)/XL 	175	10 **26** 50 · 80 **28/30** 120 · 40 **27** 80 · 120 **29/31** 150
	200	0 **26** 50 · 70 **28/30** 120 · 30 **27** 80 · 110 **29/31** 150
	240	0 **26** 50 · 70 **28/30** 120 · 30 **27** 80 · 110 **29/31** 150
Timber 	160	35 **26** 50 · **28/30** · 65 **27** 80 · **29/31**
	180	15 **26** 50 · 85 **28/30** 120 · 45 **27** 80 · 125 **29/31** 150
	200	0 **26** 50 · 70 **28/30** 120 · 30 **27** 80 · 110 **29/31** 150
	220	0 **26** 50 · 70 **28/30** 120 · 30 **27** 80 · 110 **29/31** 150
	240	0 **26** 50 · 70 **28/30** 120 · 30 **27** 80 · 110 **29/31** 150
Aerated concrete  PP2/4/6	175	10 **26** 50 · 80 **28/30** 120 · 40 **27** 80 · 120 **29/31** 150
	200	0 **26** 50 · 70 **28/30** 120 · 30 **27** 80 · 110 **29/31** 150
	240	0 **26** 50 · 70 **28/30** 120 · 30 **27** 80 · 110 **29/31** 150
Bottom, clamp		
Aerated concrete  PP2	175	5 **32+26** 50 · 75 **32+28/30** 120 · 35 **32+27** 80 · 115 **32+29/31** 150
	200	0 **33+26** 50 · 70 **33+28/30** 120 · 30 **33+27** 80 · 110 **33+29/31** 150
	240	0 **34+26** 50 · 70 **34+28/30** 120 · 30 **34+27** 80 · 110 **34+29/31** 150
Vertically hollow bricks (HLZ) 	175	5 **32+26** 50 · 75 **32+28/30** 120 · 35 **32+27** 80 · 115 **32+29/31** 150
	200	0 **33+26** 50 · 70 **33+28/30** 120 · 30 **33+27** 80 · 110 **33+29/31** 150
	240	0 **34+26** 50 · 70 **34+28/30** 120 · 30 **34+27** 80 · 110 **34+29/31** 150

Product and ordering code for **# 26–34**, see following page, column **#**

A window sill connection (FBA) angle #35 or #36 must be used as an additional component for the connection to the profile

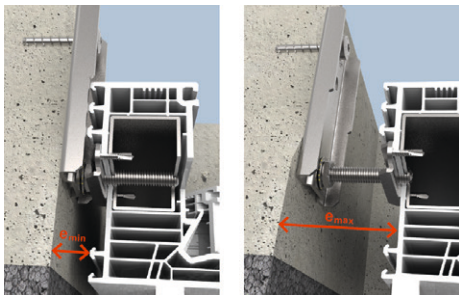
Components

Wall type	Product	Ordering code	#	PU	Art No.	Application example
Concrete, lime-sand stone block (KS), aerated concrete PP2/4/6, timber	U-bracket 	JB-DK-U155	**26**	50	1651501	
		JB-DK-U185	**27**		1651496	
		JB-DK-U225	**28**		1651493	
		JB-DK-U265	**29**		1772128	
	Rectangular tube 	JB-DK-R225	**30**	25	1651494	
		JB-DK-R265	**31**		1651495	
Vertically hollow bricks block (HLZ), aerated concrete class PP2	Clamp, bottom 	JB-D-CB175	**32**	25	1651497	
		JB-D-CB200	**33**		1651499	
		JB-D-CB240	**34**		1651500	
	Window sill connection (FBA) angle 	JB-D-W32/47	**35**	25	1644746	
		JB-D-W65/47	**36**		1644747	

Cantilever AK_B = distance of the fastening point from the reveal edge

Fabrication instructions

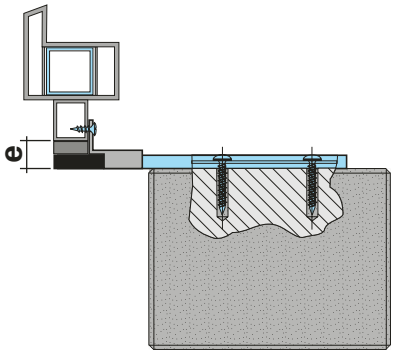
Joint width “e” sides and top



	Joint width “e” (mm)	
Frame material	Direct attachment	
	e_{min}	e_{max}
PVC	10	35
Timber, with AM8-UD	17	
Timber, with AM8-T	12	25
Aluminium, with AM8-UD	17	35
Aluminium, with AM8-T, surface mounted	12	
Aluminium, with AM8-T, inserted	10	

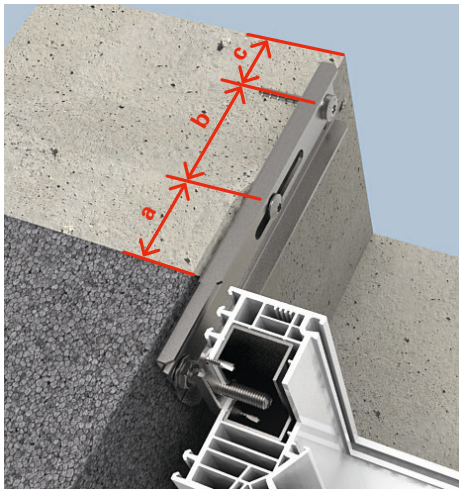
All brackets come supplied with AM8-UD as standard.
The AM8-T can be ordered separately. See product list.
Processing window frame profile: hole Ø 10.5 mm.

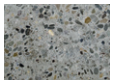
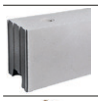
Joint width “e” bottom



	Joint width “e” (mm)	
Frame material	Direct attachment	Clamp attachment
	e_{min}	e_{min}
PVC	12	15
Timber		
Aluminium		

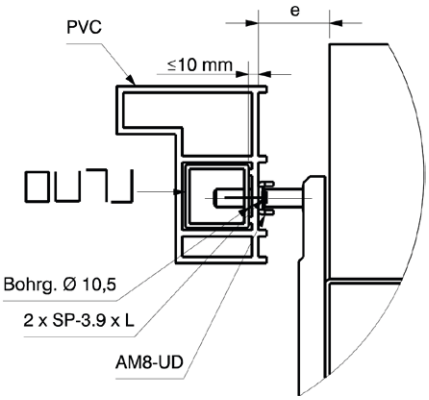
Edge distance and distance between fasteners



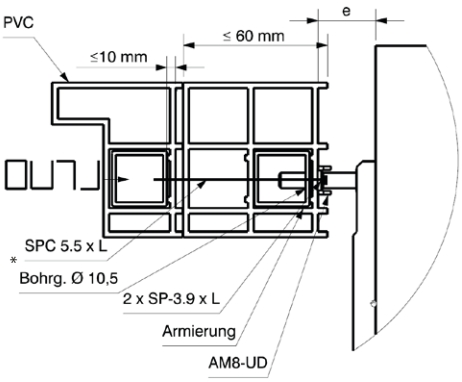
Wall type	**a** mm	**b** mm	**c** mm		
	50	≥ 35	≥ 40	Ø 7.5×60	Ø 6 mm, hammer drill
			≥ 50		
			≥ 60	Ø 8×80	Ø 5 mm, rotary drill
			≥ 50	Ø 7.5×132	
				Ø 8×61 Ø 9×245	No predrilling

Profile variants and connection

PVC, profile reinforced

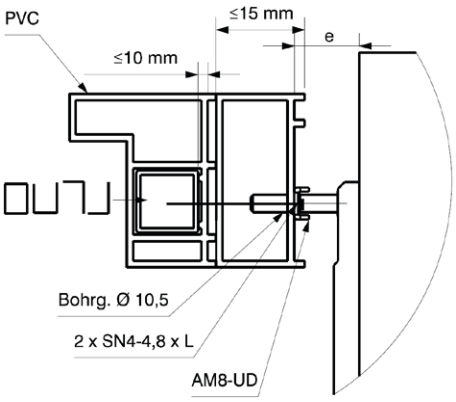


PVC with extension, profile reinforced

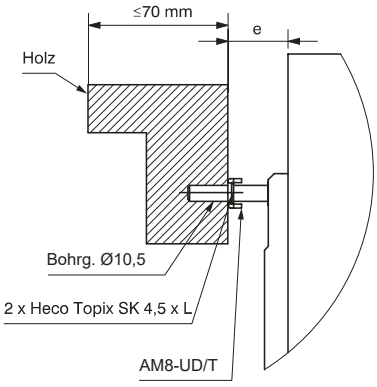


* Extensions must always be connected with two SPC screws at a maximum distance of 150 mm to the connection

PVC with extension, profile not reinforced

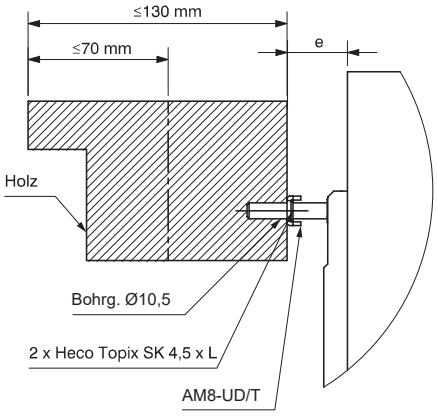


Timber

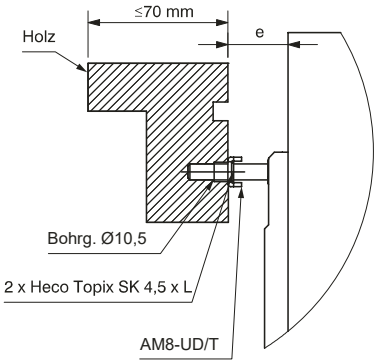


Timber

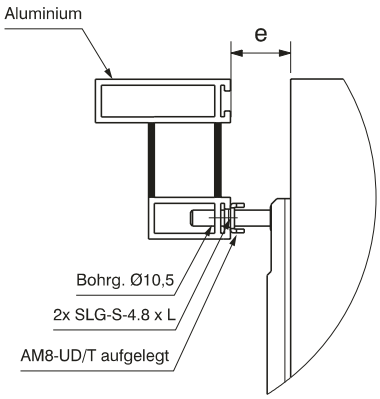
Frames with large face widths (one-part or parts structurally connected together)

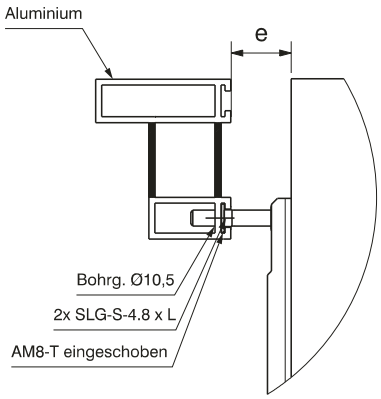


Profiled Timber

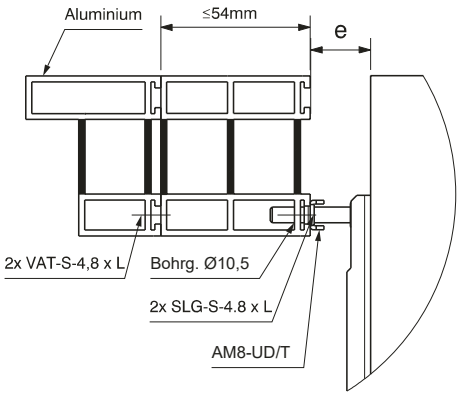


Aluminium





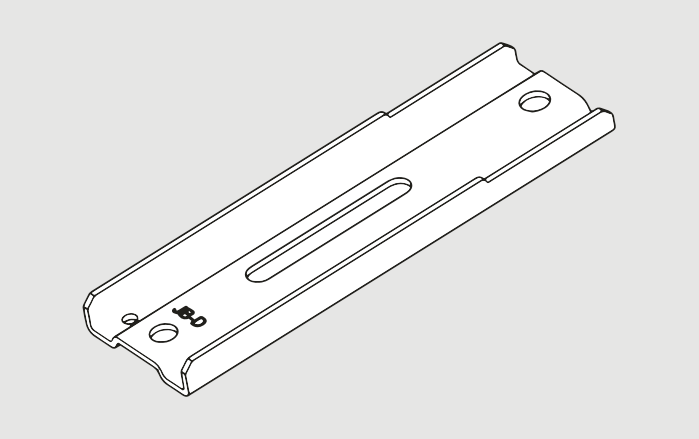
Aluminium with extension



Requirements for the frame profiles see approval Z-14.4-806

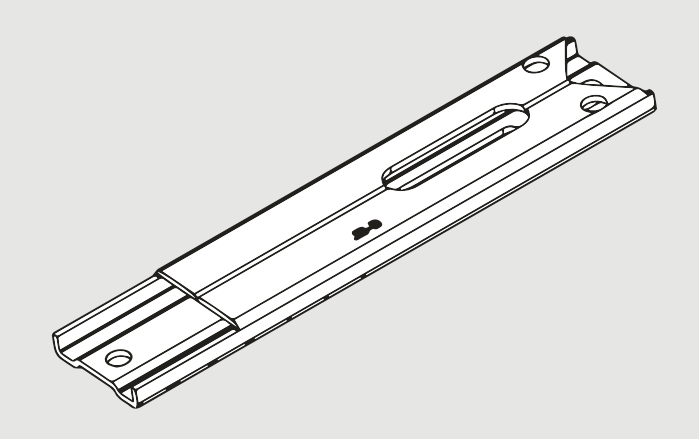
Technical data

JB-D® PLUS – Steel bracket



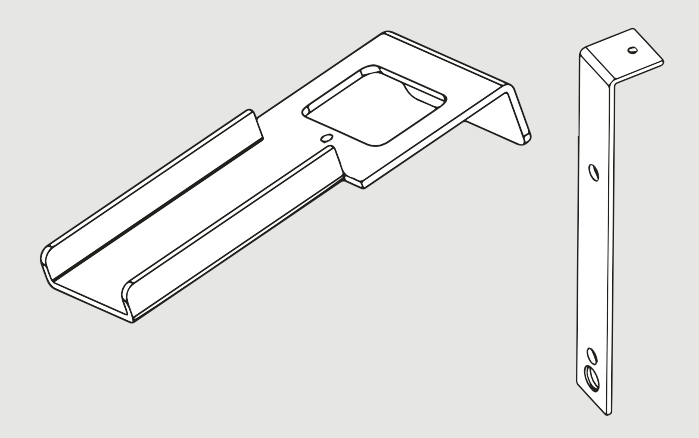
Mat.	Surface	Mat. thick (mm)	Width (mm)	Height (mm)	Length (mm)	Cross section (mm^2)	Moment of inertia (mm^4)
S 350 GD	Galvanised Z275	2	47	12	155 185 225 265	134.9	1144

JB-D® PLUS – Rectangular tube



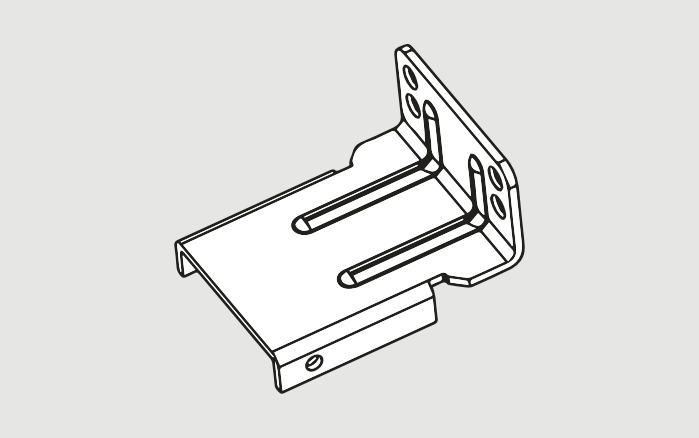
Mat.	Surface	Mat. thick (mm)	Width (mm)	Height (mm)	Length (mm)	Cross section (mm^2)	Moment of inertia (mm^4)
S 355 MC	Galvanised Zinc flake	2.5	47	12	– – 225 265	260.7	5395

JB-D® PLUS – Clamp, bottom



Mat.	Surface	Mat. thick (mm)	Width (mm)	Height (mm)	Length (mm)	Cross section (mm^2)	Moment of inertia (mm^4)
S 350 GD	Galvanised Z275	3	74/53	28/15	171 196 236	–	–
S 350 GD	Galvanised Z275	2.5	25	192	33	–	–

JB-D® PLUS – Window sill connection (FBA) angle



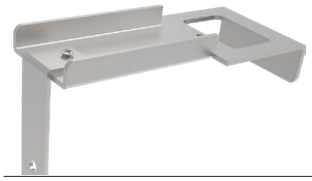
Mat.	Surface	Mat. thick (mm)	Width (mm)	Height (mm)	Length (mm)	Cross section (mm^2)	Moment of inertia (mm^4)
S 350 GD	Galvanised Z275	2.5	57	32/65	70	–	–

Test reports/ installation instructions

Use	System	What	Substrate/ note	Approval body	No.	Link	Year	QR-code
Safety barrier & load transfer	JB-D® PLUS JB-D® FA PLUS	Approval	National Technical Approval (abZ)	DIBt	Z-14.4-808	www.sfs.com/bc_70	2022	
Direct attachment	JB-D® PLUS	Installation instructions	All substrates	–	–	www.sfs.com/bc_71	2022	
Clamp attachment		Installation instructions	Vertically hollow bricks (HLZ) and aerated concrete			www.sfs.com/bc_72	2022	
Design		Compendium	–			www.sfs.com/bc_73	2022	
Burglar resistance		RC2 certificate		EPH		www.sfs.com/bc_74	2022	
Thermal performance certificate		Thermal bridge calculation		gbd Dornbirn		www.sfs.com/bc_75	2022	
ift certification		Component test		ift		www.sfs.com/bc_76	2022	

Product list

JB-D® PLUS – Steel bracket and rectangular tube for direct attachment in concrete, lime-sand stone, timber and aerated concrete

Product	Description/use	Ordering code	#	Length (mm)	Width (mm)	PU	Art No.
	JB-D® PLUS steel bracket side	JB-D-U155	**20**	155	47	50	1651506
		JB-D-U185	**21**	185			1651529
		JB-D-U225	**22**	225			1651505
		JB-D-U265	**23**	265			1651504
	JB-D® PLUS rectangular tube side	JB-D-R225	**24**	225	47	25	1651503
		JB-D-R265	**25**	265			1651502
	JB-DK® PLUS steel bracket bottom	JB-DK-U155	**26**	155	47	50	1651501
		JB-DK-U185	**27**	185			1651496
		JB-DK-U225	**28**	225			1651493
		JB-DK-U265	**29**	265			1772128
	JB-DK® PLUS rectangular tube bottom	JB-DK-R225	**30**	225	47	25	1651494
		JB-DK-R265	**31**	265			1651495
	JB-D® PLUS clamp bottom	JB-D-CB175	**32**	175	74	25	1651497
		JB-D-CB200	**33**	200			1651499
		JB-D-CB240	**34**	240			1651500
	JB-D® PLUS window sill connection (FBA) angle	JB-D-W32/47	**35**	32	57	25	1644746
		JB-D-W65/47	**36**	65			1644747

JB-D® PLUS – Accessories for fastenings in substrates

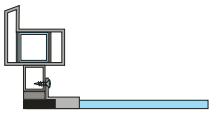
Product	Description/use	Product code	Drive bit	Ø	Length (mm)	PU	Art No.
	Concrete, lime-sand stone (KS)	MMS-plus-P-D15-7.5×60	T30	7.5	60	50	1205035
	Timber	HTP-T-FH-FT-8×80/74	T30	8	80	50	1205373
	Vertically hollow bricks (HLZ)	FB-FK-T30-7.5×132	T30	7.5	132	100	1089936
	Aerated concrete	IGR-FK/T25-8×61	T25	8	61	100	1407343
	PP2/vertically hollow bricks (HLZ) bottom with clamp	SXRL-10×80-T	T30	10	80	25	1562247
	PP2/PP4	FL-FK-T30-9×245	T30	9	245	50	1580711

JB-D® PLUS – Accessories for fastenings to window frames

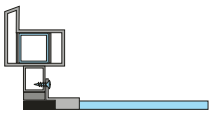
Product	Description/use	Product code	Drive bit	Ø	Length (mm)	PU	Art No.
	PVC, profile reinforced/steel	SP3/9-M3.9×16-GSW	PH2	3.9	16	2000	1550925
	PVC with ≤15 mm extension	SN4/24-7504P-4.8×32	PH2	4.8	32	1000	689570
	Timber	HTP-T-CS-PT-4.5×40	T25	4.5	40	500	1205259
	Aluminium	SLG-S-4.8×20	HEX 8	4.8	20	100	1772647
	Connection PVC extension	SPC4/33-5.5×45-GS	T30	5.5	45	100	1133336
	Timber and aluminium, for smaller joint widths	JB-AM8-T	–	–	70	250	1346176
	Colour: White	CC-JB/10.5 RAL9010	–	–	13	100	846879
	Colour: Brown	CC-JB/10.5 RAL8011	–	–			846877
	Drive bit: T25/¼"	T25-70-HEX¼"	¼"	–	70	10	1167067

*Extension must be predrilled. / **Length of SPC screw must be matched to the extension.

Attachment JB-D-W to the window sill connection without profile reinforcement

Product	Description/use	Product code	Drive bit	Ø	Length (mm)	PU	Art No.
		SPT/24-4.3×30	PH2	4.3	30	1000	1523991

Attachment JB-D-W to the window sill connection with profile reinforcement

Product	Description/use	Product code	Drive bit	Ø	Length (mm)	PU	Art No.
		SP3-3.9×25	PH2	3.9	25	2000	1550934

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All information is non-binding and given without liability. All information and calculations are to be checked by a specialist before the product is used and local regulations are to be observed. This document is subject to revision. We reserve the right to make technical modifications.

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