

GL/-SS///7E

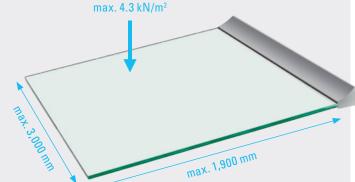
Planning manual

CANOPY cloud

All-glass canopy system



CANOPY cloud All-glass canopy system



- Projection up to 1,900 mm
- ✓ Glass width up to 3,000 mm
- Only linearly mounted
- For snow loads up to 4.3 kN/m² (corresponds to approx. 4.3 m new snow depth!)
- The simplest installation principle without drilling the glass
- **LED** lighting possible
- Glass stock program with 64 pane sizes
- Online configuration tool for fast requests and orders

You can now configure **CANOPY** cloud online for a fast and precise request: www.glassline.de/canopy-configuration-tool



Technical Assess-

ment (ETA)





With General Building Inspectorate Approval (AbZ)



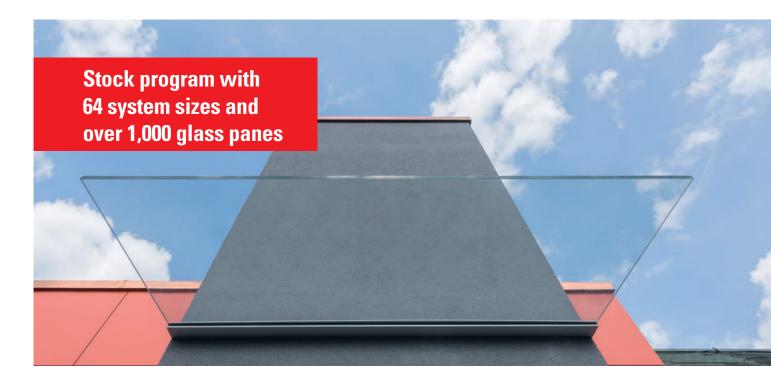
With statics calculations



LGA-tested safety







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CANOPY cloud

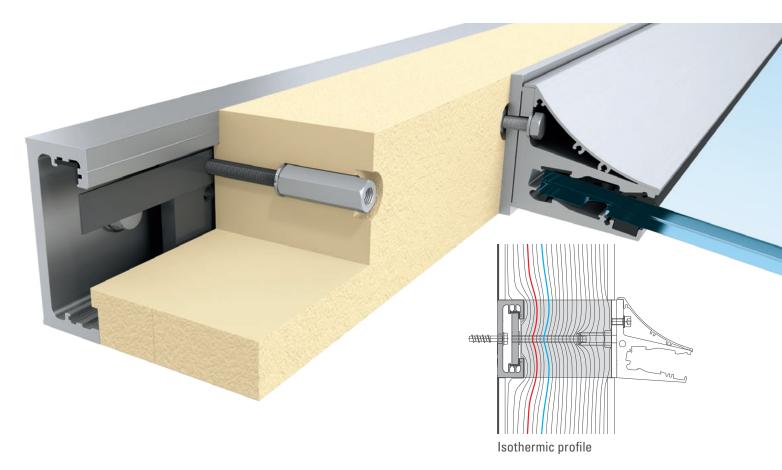
100% transparent, 100% simple assembly and 100% design-focussed.

The **CANOPY** cloud all-glass canopy system sets new standards for the trend topic "transparency in canopies". Glass canopies just don't get more transparent than this.

Where other functional structures dominate the atmosphere of the entrance area with columns, braces and wall brackets, **CANOPY** *cloud* focuses on pure transparency:

As much as desired and as little as required.





Safe attachment of CANOPY cloud to thermally insulated façades FIX'N SLIDE

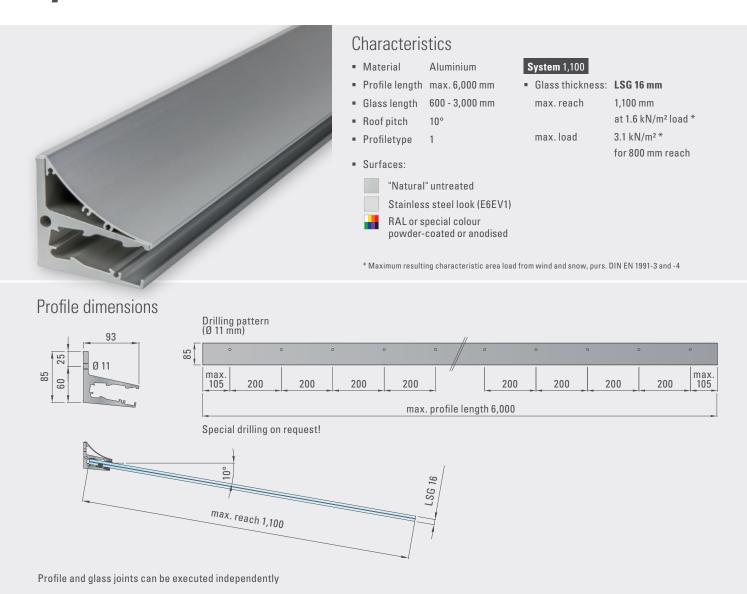
- reduction of heat bridges
- secure mounting of add-on elements

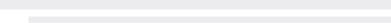
The proven FIX*N SLIDE from GLASSLINE ensures securely fastened add-on elements on heat-insulated walls and facades. Thermal bridges are reduced. With few components and different insulation element sizes, any insulation thickness can easily be thermically and statically bridged.

Whether new or existing construction – FIX*N SLIDE acts as a rail for linear installation of every on-site situation.



System 1,100





All intermediate formats and individual sizes for all systems are available.

End cap
Screwed flashing

left

t = 3 mm

right

OPTIONAL: Additional, self-adhesive end cap to cover the screws, self-adhesive on one side

t = 2 mm

right

left

Facing cover



System 1,300 | **System** 1,500



Characteristics

Material Aluminium

Profile length max. 6,000 mm

Glass length 600 - 3,000 mm

Roof pitch 10°

■ Profiletype 3

Surfaces:

"Natural" untreated

Stainless steel look (E6EV1)

RAL or special colour powder-coated or anodised

System 1,300

 Glass thickness: LSG 20 mm max. reach 1,300 mm

for 1.6 kN/m² load *

max. load 4.2 kN/m² *

for 900 mm reach

System 1,500

Glass thickness: LSG 24 mm

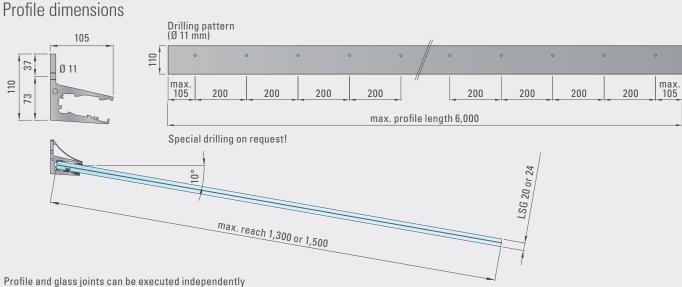
max. reach 1,500 mm

for 1.6 kN/m² load *

max.load 4.2 kN/m²*

for 1,050 mm reach

 * Maximum resulting characteristic area load from wind and snow, purs. DIN EN 1991-3 and -4







ADVANTAGES OF OUR STOCK PROGRAM

- short delivery time & speedy availability
- favourable price
- completely picked and ready to go
- proven standard dimensions

Stock program

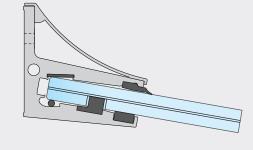
System 800 | **System** 900 | **System** 1,000 | **System** 1,100

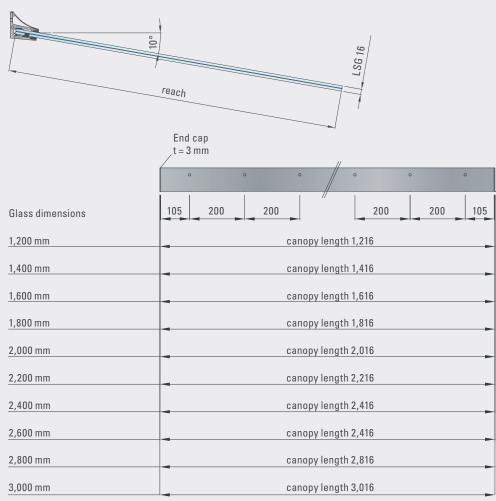
- Reach: 800 mm, 900 mm, 1,000 mm, 1,100 mm
- Glass thickness: LSG 16 mm
- Pitch: 10°
- Profiletype: 1
- Material: Aluminium

- Surfaces:
 - "Natural" untreated
 - E6EV1 anodised
 - Anthracite RAL 7016
 - White RAL 9016
 - Iron mica gray DB 703

Permissable effects from snow and wind pressure pursuant ETA-15/0838

- Reach **800 mm**: 3.1 kN/m²
- Reach 900 mm: 2.6 kN/m²
- Reach 1,000 mm: 2.0 kN/m²
- Reach **1,100 mm**: 1.6 kN/m²





Glass joints (right and left) approx. 5 mm



System 1,200 | **System** 1,300

reach: 1,200 mm, 1,300 mmGlass thickness: LSG 20 mm

Pitch: 10°Profiletype: 3Material: Aluminium

Surfaces:

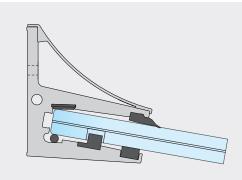
"Natural" untreated

E6EV1 anodised

Anthracite RAL 7016

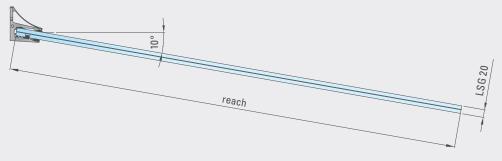
White RAL 9016

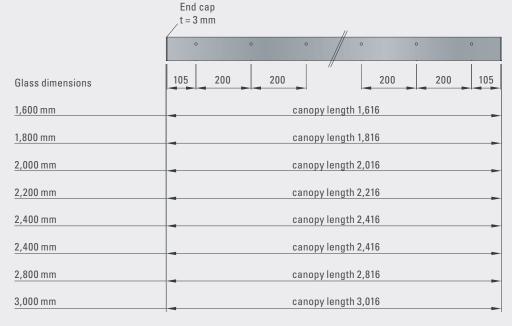
Iron mica gray DB 703



Permissable effects from snow and wind pressure pursuant ETA-15/0838

Reach 1,200 mm: 2.0 kN/m²
 Reach 1,300 mm: 1.6 kN/m²





Glass joints (right and left) approx. 5 mm



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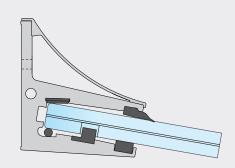
Stock program

System 1,500

Reach: 1,500 mm
 Glass thickness: LSG 24 mm
 Pitch: 10°
 Profiletype: 5
 Material: Aluminium
 Surfaces:

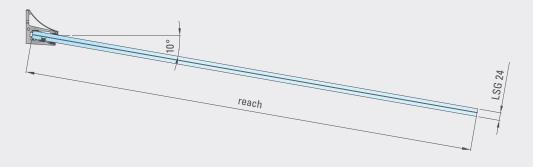
 "Natural" untreated
 E6EV1 anodised

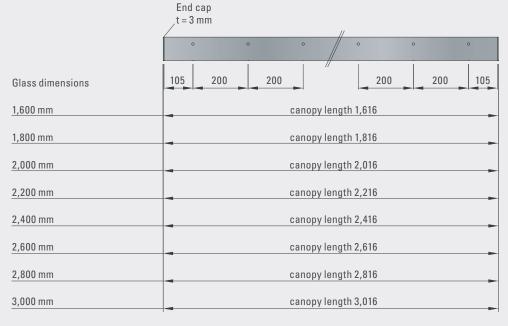
 Anthracite RAL 7016
 White RAL 9016
 Iron mica gray DB 703



Permissable effects from snow and wind pressure pursuant ETA-15/0838

■ Reach **1,500 mm**: 1.6 kN/m²





Glass joints (right and left) approx. 5 mm



System 1,700 individual **System** 1,900 individual



t = 3 mm

right

left

to cover the screws, self-adhesive on one side

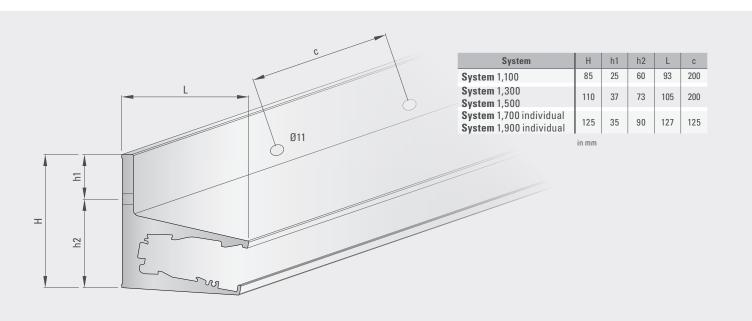
t = 2 mm

right

left

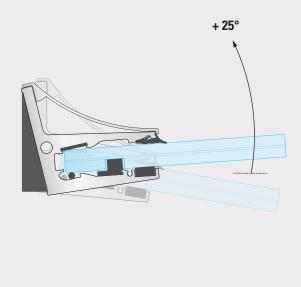


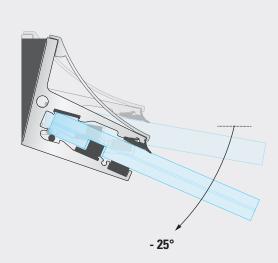
System dimensions



Adjustment of the inclination

By adding shims to the profile, it is possible to create a pitch that deviates by +/- 25° from the horizontal.





GL/-SS///7E

CANOPY cloud





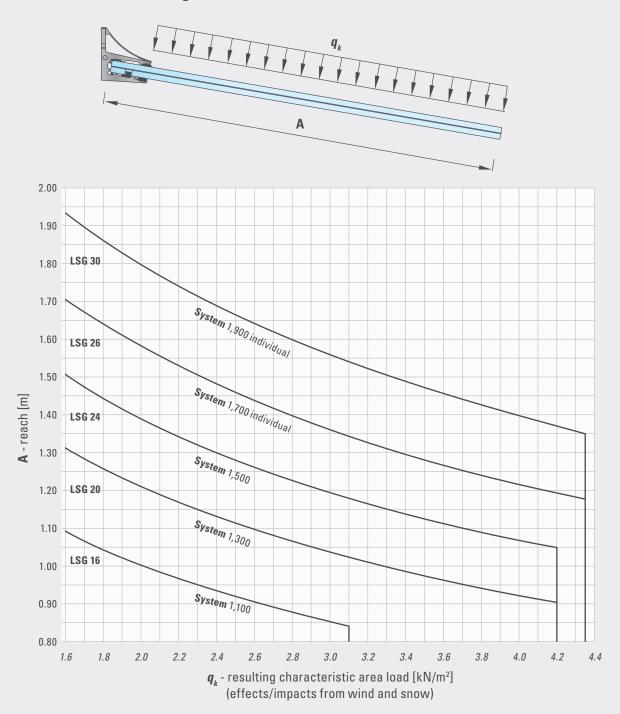




Technical specifications (PURS. ETA-15/0838)

Glass reaches

with the associated resulting characteristic area loads



Calculating the characteristic area loads q_k from wind and snow



Downward loads from snow and wind (pressure) ($q_k > 0$): $q_k = {}_S + 0.6 \cdot {}_{W_e}$ or $q_k = 0.5 \cdot {}_S + {}_{W_e}$

(the larger value is decisive: downward loads S and W are to be set as positive values)

Upward loads from wind (suction) ($q_k < 0$): $q_k = W_e$

(downward load w is to be set as a negative value)

Wind and snow loads(w_e , s) must be determined purs. DIN EN 1991-1-3 or DIN EN 1991-1-4.

Determining the uniform snow load (purs. ETA-15/0838)

Snow load (S) purs. DIN EN 1991-1-3, Para. 5.3.6, Height differences on roofs.

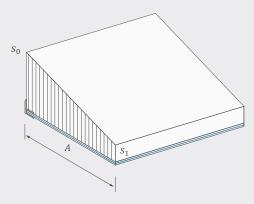
(Laterally open canopies accessible for snow removal)

Uniform area load from snow:

$$s = \frac{s_0 + s_1}{2,02}$$

 S_0 - Snow on the building

 S_1 - Snow at the exposed/open edge



Determining the uniform wind load (purs. ETA-15/0838)

Wind load (W_e) purs. DIN EN 1991-1-4/NA, Annex NA.V, Pressure coefficients for canopies

Uniform area load from wind:

$$w_e = 1.1 \frac{2 \cdot w_A \cdot S_A + w_B \cdot S_B}{S_A + S_b}$$

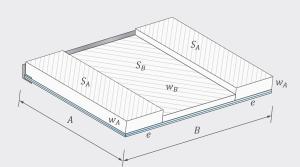
 w_A - Wind load area A (edge area)

 w_B - Wind load area B (middle area)

 S_A - Surface area A: $S_A = e \cdot A$

e = A/4 or B/2; the smaller value is decisive

 S_B - Surface area B: $S_B = A \cdot B - 2 \cdot S_A$



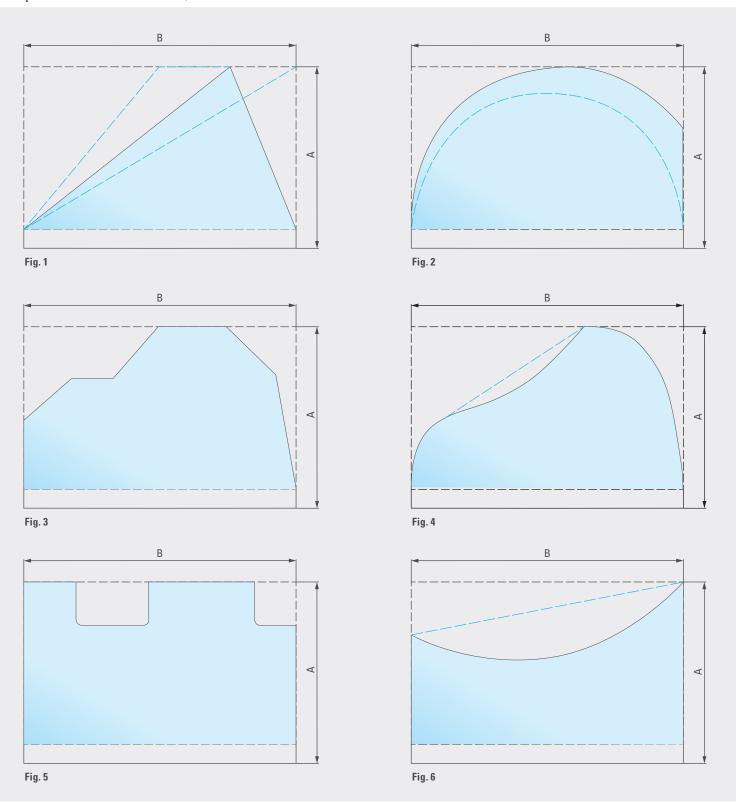
For canopies with the ratio width to reach $B: A \le 1.5:1$ is to be assumed as the wind load of the area A for the complete canopy: $w = w_A$

Alternatively, the maximum load components can be assumed to be uniform: ($w_e = w_{e,max}$; $s = s_{max}$)



Glass pane models

Polygonal glass plates, curved edges and cutouts purs. AbZ and ETA-15/0838



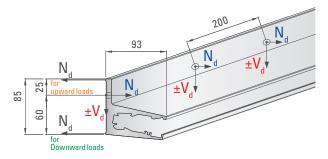






Bearing forces

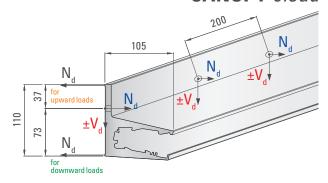
Resulting calculated bearing forces per attachment element purs. ETA-15/0838



System 1,100 Glass thickness LSG 16 (LSG-STG 2x8 mm with SGP 1.52 mm), Profiletype 1

		R	esultin	g char	acteris	tic are	(effects/impacts from wind and snow)												
А		Upwar	d loads							Downward loads									
[mm]	-2.00	-1.50	-1.00	-0.80	0.60	0.80	1.00	1.20	1.40	1.60	1.8	2.00	2.20	2.40	2.60	2.80	3.00	3.10	
	Design values of the horizontal bearing forces per attachment element N_d [kN]																		
1100	14.30	10.18	6.05	4.40	3.06	3.69	4.33	4.97	5.60	6.24	-	-	-	-	-	-	-	-	
1000	11.82	8.41	5.00	3.64	2.53	3.05	3.58	4.11	4.63	5.16	5.68	6.21	-	-	-	-	-	-	
900	9.57	6.81	4.05	2.95	2.05	2.47	2.90	3.33	3.75	4.18	4.60	5.03	5.46	5.88	6.31	-	-	-	
800	7.56	5.38	3.20	2.33	1.62	1.95	2.29	2.63	2.96	3.30	3.64	3.97	4.31	4.65	4.99	5.32	5.66	5.83	
700	5.79	4.12	2.45	1.78	1.24	1.50	1.75	2.01	2.27	2.53	2.79	3.04	3.30	3.56	3.82	4.07	4.33	4.46	
			D	esign	values	of the	vertica	l beari	ng ford	es per	attach	ment e	lement	t V _d [kľ	N]				
1100	-0.57	-0.41	-0.24	-0.18	0.32	0.38	0.45	0.51	0.58	0.65	-	-	-	-	-	-	-	-	
1000	-0.52	-0.37	-0.22	-0.16	0.29	0.35	0.41	0.47	0.53	0.59	0.65	0.71	-	-	-	-	-	-	
900	-0.47	-0.33	-0.20	-0.14	0.26	0.31	0.37	0.42	0.48	0.53	0.58	0.64	0.69	0.75	0.80	-	-	-	
800	-0.42	-0.30	-0.18	-0.13	0.23	0.28	0.33	0.37	0.42	0.47	0.52	0.57	0.61	0.66	0.71	0.76	0.81	0.83	
700	-0.36	-0.26	-0.15	-0.11	0.20	0.24	0.29	0.33	0.37	0.41	0.45	0.50	0.54	0.58	0.62	0.66	0.71	0.73	





System 1,300 Glass thickness LSG 20 (LSG-STG 2x10 mm with SGP 1.52 mm), Profiletype 3

		R	esultin	g char	acteris	tic are	(e	(effects/impacts from wind and snow)											
Α		Upwar	d loads								ard loads								
[mm]	-2.40	-2.10	-1.60	-1.20	1.20	1.40	1.60	1.8	2.00	2.40	2.60	2.80	3.00	3.20	3.40	3.60	3.80	4.20	
Design values of the horizontal bearing forces per attachment element N_d [kN]																			
1300	-	13.17	9.44	6.46	5.98	6.70	7.42	-	-	-	-	-	-	-	-	-	-	-	
1100	11.03	9.43	6.76	4.63	4.28	4.80	5.32	5.83	6.35	7.39	7.91	-	-	-	-	-	-	-	
1000	9.12	7.79	5.59	3.82	3.54	3.96	4.39	4.82	5.25	6.11	6.54	6.96	7.39	7.82	8.25	8.68	-	-	
900	7.39	6.31	4.53	3.10	2.86	3.21	3.56	3.91	4.25	4.95	5.29	5.64	5.99	6.34	6.68	7.03	7.38	8.07	
800	5.84	4.99	3.58	2.45	2.26	2.54	2.81	3.09	3.36	3.91	4.18	4.46	4.73	5.01	5.28	5.55	5.83	6.38	
			D	esign	values	of the	vertica	l beari	ng ford	es per	attach	ment e	lement	t V _d [kľ	V]				
1300	-	-0.69	-0.49	-0.34	0.64	0.72	0.80	-	-	-	-	-	-	-	-	-	-	-	
1100	-0.68	-0.58	-0.42	-0.29	0.54	0.61	0.68	0.74	0.81	0.94	1.01	-	-	-	-	-	-	-	
1000	-0.62	-0.53	-0.38	-0.26	0.50	0.56	0.62	0.68	0.74	0.86	0.92	0.98	1.04	1.10	1.16	1.22	-	-	
900	-0.56	-0.48	-0.34	-0.23	0.45	0.50	0.55	0.61	0.66	0.77	0.82	0.88	0.93	0.99	1.04	1.09	1.15	1.26	
800	-0.50	-0.42	-0.30	-0.21	0.40	0.44	0.49	0.54	0.59	0.68	0.73	0.78	0.83	0.88	0.92	0.97	1.02	1.12	

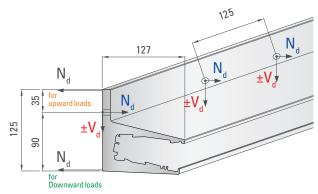
$\textbf{System 1,500} \ \ \text{Glass thickness LSG 24 (LSG-STG 2x12 mm with SGP 1.52 mm), Profiletype 3}$

		R	esultin	g char	acteris	tic are	a loads	(e	(effects/impacts from wind and snow)									
Α		Upwar	d loads								Downwa	ard loads						
[mm]	-2.40	-2.20	-1.60	-1.20	1.20	1.40	1.60	1.8	2.00	2.40	2.60	2.80	3.00	3.20	3.40	3.60	3.80	4.20
	Design values of the horizontal bearing forces per attachment element N_d [kN]																	
1500	-	18.20	12.24	8.27	8.17	9.14	10.10	-	-	-	-	-	-	-	-	-	-	-
1300	15.16	13.67	9.20	6.21	6.14	6.86	7.59	8.31	9.04	10.48	-	-	-	-	-	-	-	-
1100	10.85	9.79	6.58	4.45	4.39	4.91	5.43	5.95	6.47	7.51	8.02	8.54	9.06	9.58	10.10	10.62	11.14	-
1050	9.89	8.92	6.00	4.05	4.00	4.48	4.95	5.42	5.89	6.84	7.31	7.78	8.26	8.73	9.20	9.67	10.15	11.09
900	7.27	6.55	4.41	2.98	2.94	3.29	3.64	3.98	4.33	5.02	5.37	5.72	6.07	6.41	6.76	7.11	7.45	8.15
			D	esign	values	of the	vertica	l beari	ng ford	es per	attach	ment e	lement	t V _d [kľ	V]			
1500	-	-0.83	-0.56	-0.38	0.76	0.85	0.94	-	-	-	-	-	-	-	-	-	-	-
1300	-0.79	-0.72	-0.48	-0.33	0.66	0.74	0.82	0.90	0.97	1.13	-	-	-	-	-	-	-	-
1100	-0.67	-0.61	-0.41	-0.28	0.56	0.63	0.69	0.76	0.82	0.96	1.02	1.09	1.15	1.22	1.29	1.35	1.42	-
1050	-0.64	-0.58	-0.39	-0.26	0.53	0.60	0.66	0.72	0.79	0.91	0.97	1.04	1.10	1.16	1.23	1.29	1.35	1.48
900	-0.55	-0.50	-0.33	-0.23	0.46	0.51	0.57	0.62	0.67	0.78	0.84	0.89	0.94	1.00	1.05	1.11	1.16	1.27



Bearing forces

Resulting calculated bearing forces per attachment element purs. ETA-15/0838



System 1,700 individual Glass thickness LSG 26 (LSG-STG 6+10+10 mm with SGP 1.52 mm), Profiletype 5

		R	esultin	g char	acteris	tic are	a loads	(effects/impacts from wind and snow)										
Α		Upwar	d loads								Downwa	ard loads						
[mm]	-3.25	-2.30	-1.60	-1.30	1.20	1.40	1.60	1.8	2.00	2.30	2.60	2.80	3.00	3.20	3.40	3.60	3.80	4.35
Design values of the horizontal bearing forces per attachment element N _d [kN]																		
1700	-	-	9.88	7.34	5.56	6.18	6.80	-	-	-	-	-	-	-	-	-	-	-
1500	-	12.30	7.69	5.71	4.33	4.81	5.30	5.78	6.27	6.99	-	-	-	-	-	-	-	-
1300	13.95	9.24	5.78	4.29	3.25	3.61	3.98	4.34	4.71	5.25	5.80	6.16	6.53	6.89	-	-	-	-
1175	11.39	7.55	4.72	3.51	2.66	2.95	3.25	3.55	3.85	4.29	4.74	5.04	5.33	5.63	5.93	6.23	6.52	7.34
900	6.68	4.43	2.77	2.06	1.56	1.73	1.91	2.08	2.26	2.52	2.78	2.95	3.13	3.30	3.48	3.65	3.83	4.31
			D	esign (values	of the	vertica	l beari	ng ford	es per	attach	ment e	lement	t V _d [kľ	V]			
1700	-	-	-0.37	-0.28	0.57	0.63	0.70	-	-	-	-	-	-	-	-	-	-	-
1500	-	-0.53	-0.33	-0.24	0.50	0.56	0.61	0.67	0.73	0.81	-	-	-	-	-	-	-	-
1300	-0.69	-0.46	-0.28	-0.21	0.44	0.48	0.53	0.58	0.63	0.70	0.78	0.83	0.87	0.92	-	-	-	-
1175	-0.62	-0.41	-0.26	-0.19	0.39	0.44	0.48	0.53	0.57	0.64	0.70	0.75	0.79	0.83	0.88	0.92	0.97	1.09
900	-0.48	-0.32	-0.20	-0.15	0.30	0.33	0.37	0.40	0.44	0.49	0.54	0.57	0.60	0.64	0.67	0.71	0.74	0.83

System 1,900 individual Glass thickness LSG 30 (LSG-STG 6+12+12 mm with SGP 1.52 mm), Profiletype 5

		R	esultin	g char	acteris	tic are	a loads	(effects/impacts from wind and snow)										
Α		Upwar	d loads								Downwa	ard loads	;					
[mm]	-3.25	-2.60	-1.60	-1.20	1.20	1.40	1.60	1.8	2.00	2.35	2.60	2.80	3.00	3.30	3.50	3.70	4.00	4.35
	Design values of the horizontal bearing forces per attachment element N_d [kN]																	
1900	-	-	11.63	7.40	7.29	8.07	8.85	-	-	-	-	-	-	-	-	-	-	-
1700	-	17.78	9.31	5.93	5.84	6.46	7.08	7.71	8.33	9.42	-	-	-	-	-	-	-	-
1500	18.13	13.84	7.25	4.61	4.55	5.03	5.52	6.00	6.49	7.33	7.94	8.43	8.91	9.64	-	-	-	-
1350	14.68	11.21	5.87	3.74	3.68	4.08	4.47	4.86	5.25	5.94	6.43	6.82	7.22	7.81	8.20	8.59	9.18	9.87
1100	9.75	7.44	3.90	2.48	2.44	2.71	2.97	3.23	3.49	3.94	4.27	4.53	4.79	5.18	5.44	5.70	6.10	6.55
			D	esign	values	of the	vertica	l beari	ng ford	es per	attach	ment e	lement	t V _d [kľ	V]			
1900	-	-	-0.39	-0.25	0.67	0.74	0.81	-	-	-	-	-	-	-	-	-	-	-
1700	-	-0.67	-0.35	-0.22	0.60	0.66	0.73	0.79	0.85	0.96	-	-	-	-	-	-	-	-
1500	-0.77	-0.59	-0.31	-0.20	0.53	0.58	0.64	0.70	0.75	0.85	0.92	0.98	1.03	1.12	-	-	-	-
1350	-0.70	-0.53	-0.28	-0.18	0.47	0.53	0.58	0.63	0.68	0.77	0.83	0.88	0.93	1.01	1.06	1.11	1.18	1.27
1100	-0.57	-0.43	-0.23	-0.14	0.39	0.43	0.47	0.51	0.55	0.62	0.68	0.72	0.76	0.82	0.86	0.90	0.96	1.04

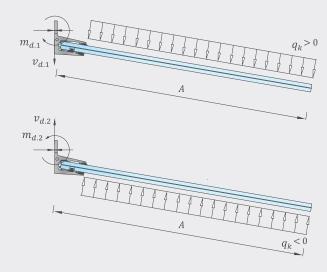






Design values of the bearing forces

Linear bearing torque/moment m_d and linear bearing force v_d (e.g. for calculation of substructure)



Linear bearing torque:

$$m_{d.1} = (\gamma_Q \cdot q_k + \gamma_{G.sup} \cdot g) \cdot \frac{A^2}{2} \quad \text{ under downward load (} q_k > 0)$$

$$m_{d.2} = (\gamma_Q \cdot q_k - \gamma_{G.inf} \cdot g) \cdot \frac{A^2}{2} \quad \text{ under upward load } (q_k < 0)^{\scriptscriptstyle (1)}$$

Linear bearing force: $v_{d.1} = (\gamma_Q \cdot q_k + \gamma_{G.sup} \cdot g) \cdot A$

unter downward load ($q_k > 0$)

$$v_{d.2} = (\gamma_Q \cdot q_k - \gamma_{G.inf} \cdot g) \cdot A \qquad \text{unter upward load } (q_k < 0)^{\scriptscriptstyle (1)}$$

The "upward load" load case ($q_k < 0$) is not relevant if the glass weight is greater than the area load.

- The resulting characteristic area load [kN/m²]: $q_k = s + 0.6 \cdot w$ or $q_k = 0.5 \cdot s + w$ q_k

- The characteristic glass weight [kN/m²]: g = D / 1000· ρ_{glass} g ρ_{glass} = 25 kN/m³, D - glass thickness [mm] (only glass)

- Partial safety factor for variable effects/impacts (γ_Q = 1.50) γ_Q

- Partial safety factor for unfavourable permanent effects/impacts ($\gamma_{G.sup}$ = 1.35) $\gamma_{G.sup}$

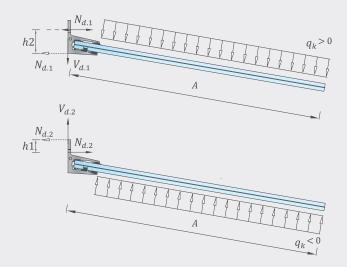
- Partial safety factor for favourable permanent effects/impacts ($\gamma_{G.inf} = 1.00$) $\gamma_{G.inf}$

- Overhang A



Linear bearing torque ${\cal N}_d$ and ${\cal V}_d$ per fastener under downward and upward loads:

(e.g. layout of fasteners)



Tensile force in the support: $N_{d.1} = m_{d.1} \cdot C/(h2 - \Delta h)$ under downward load ($q_k > 0$)

 $N_{d.2} = m_{d.2} \cdot C/(h1 - \Delta h)$ under upward load ($q_k < 0$)

Shear force in the support: $V_{d.1} = v_{d.1} \cdot C$ under downward load ($q_k > 0$)

 $V_{d.2} = v_{d.2} \cdot C$ under upward load ($q_k < 0$)

 $m_{d.1,}m_{d.2}$ - Linear bearing torque (page 18) $v_{d.1},v_{d.2}$ - Linear bearing force (page 18)

C - between fasteners (Profiles 1 and 3: C = 200 mm, Profile 5: C = 125 mm)

h1 - Cantilever up: distance between mounting axis and upper mounting rail edge [mm] h2 - Cantilever down: distance between mounting axis and lower mounting rail edge [mm]

 Δh - Cantilever arm reduction (Δh = 3 mm for mounting rails of all types)

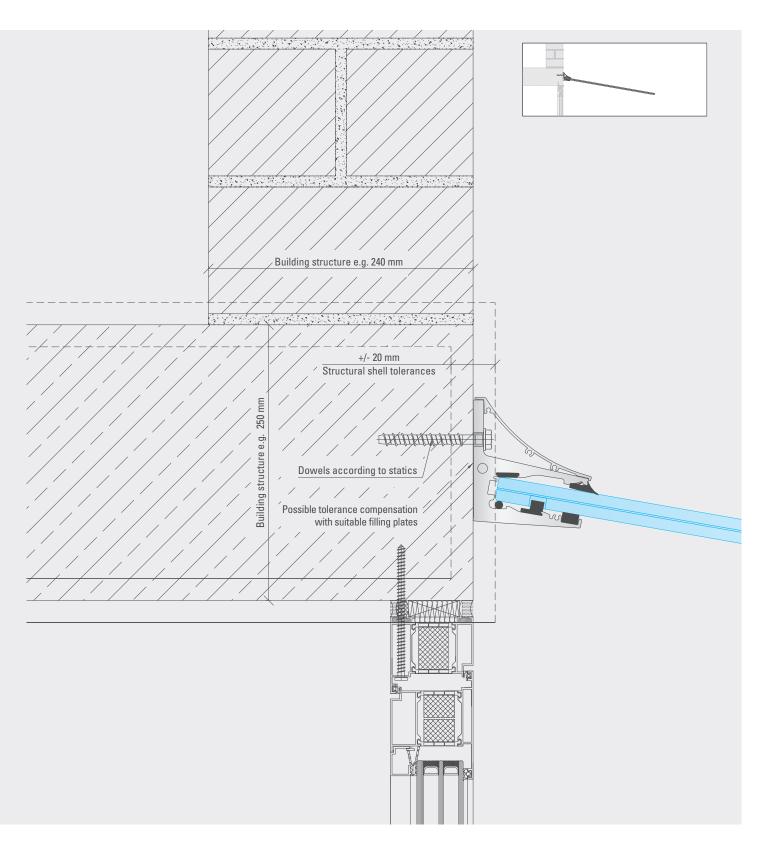
The calculated values of the tensile and shear forces (N_d and V_d) are given on pages 16 to 18 for the various canopy types and stepwise for upward and downward loads. Intermediate values may be generated by linear interpolation.



Application examples

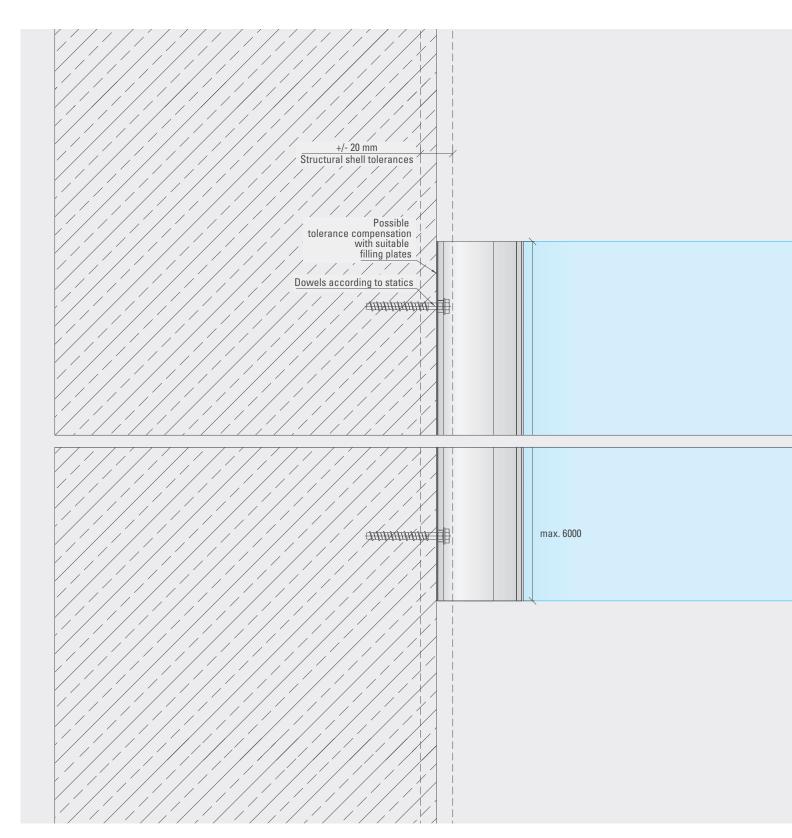
Glass canopy CANOPY cloud

Concrete





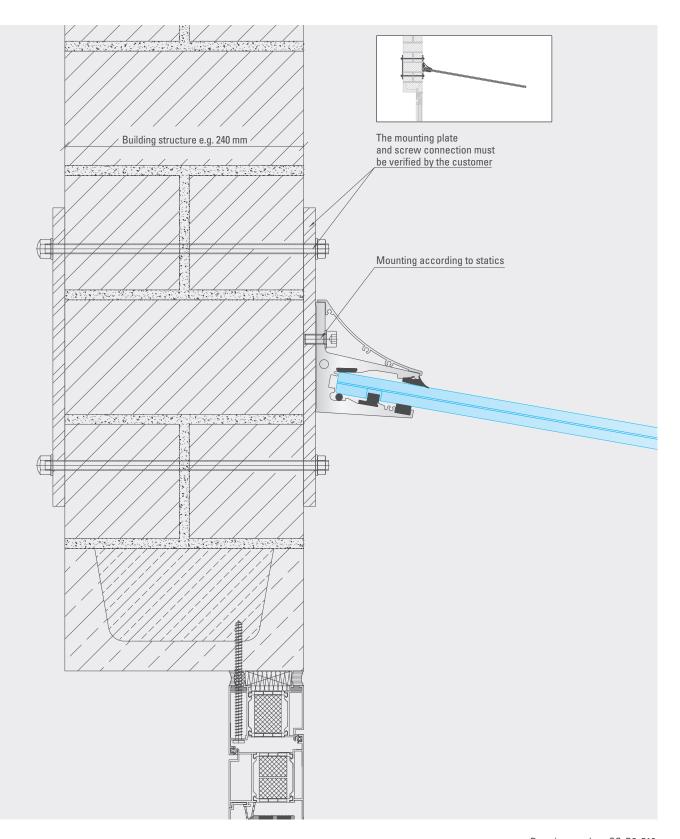
Horizontal section





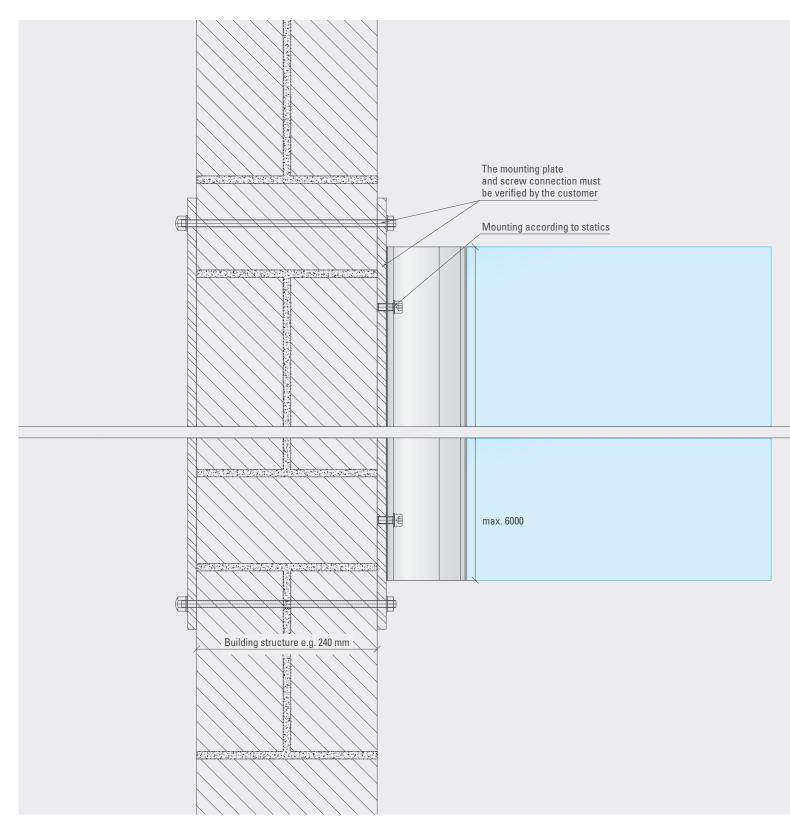
Glass canopy CANOPY cloud

masonry Vertical section





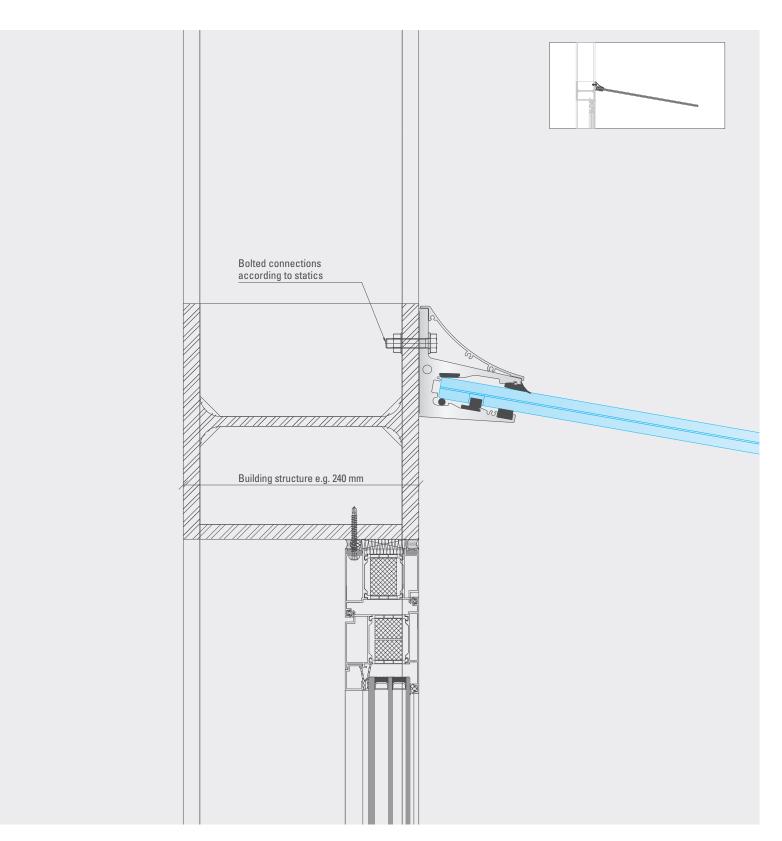
Horizontal section





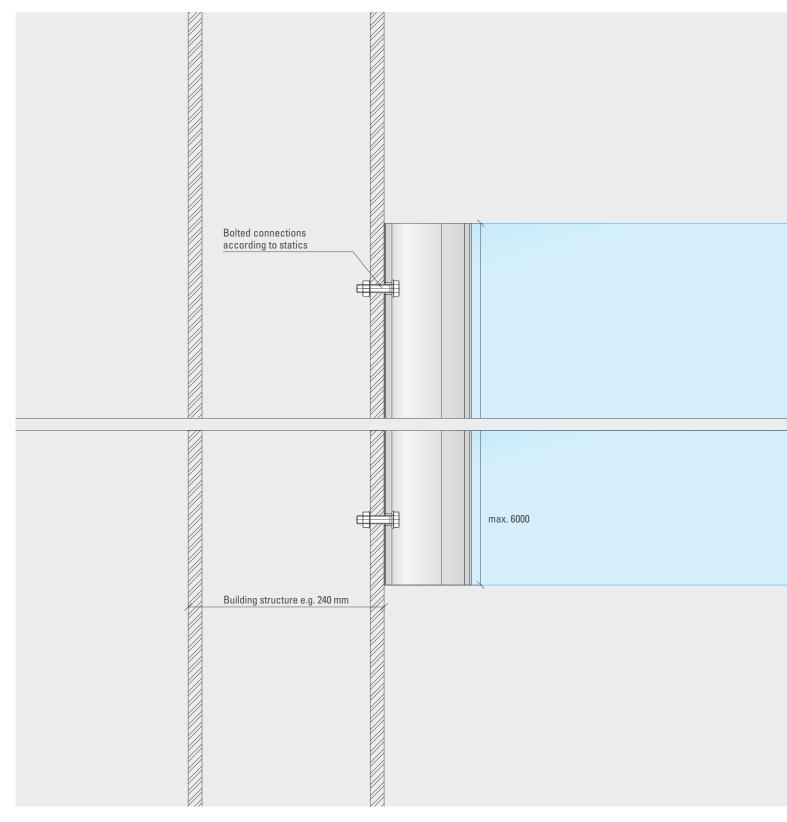
Glass canopy CANOPY cloud

steel beams Vertical section





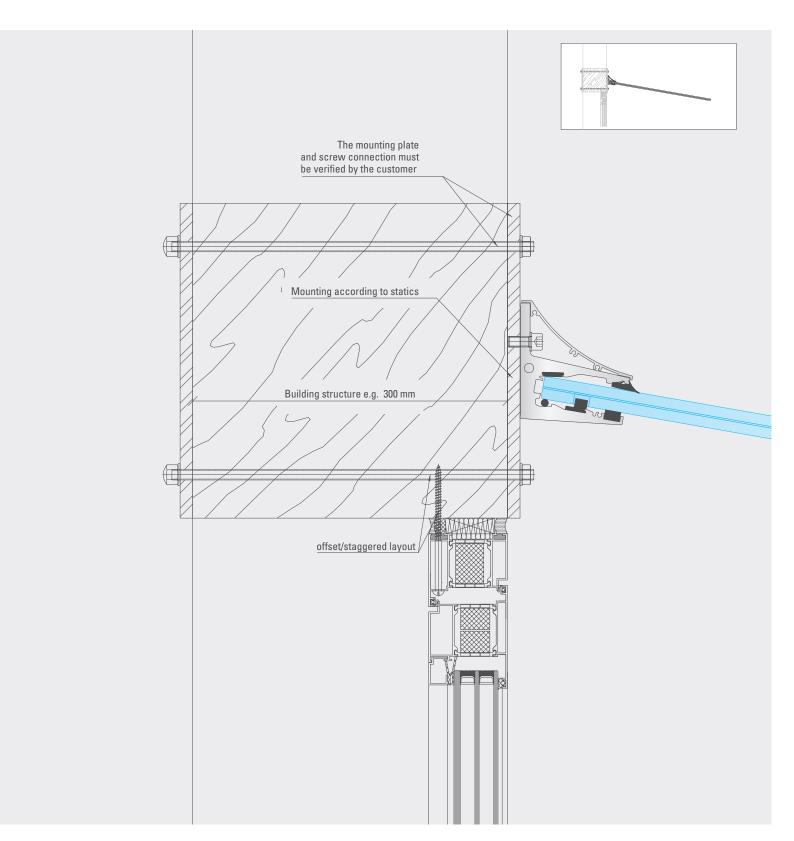
Horizontal section





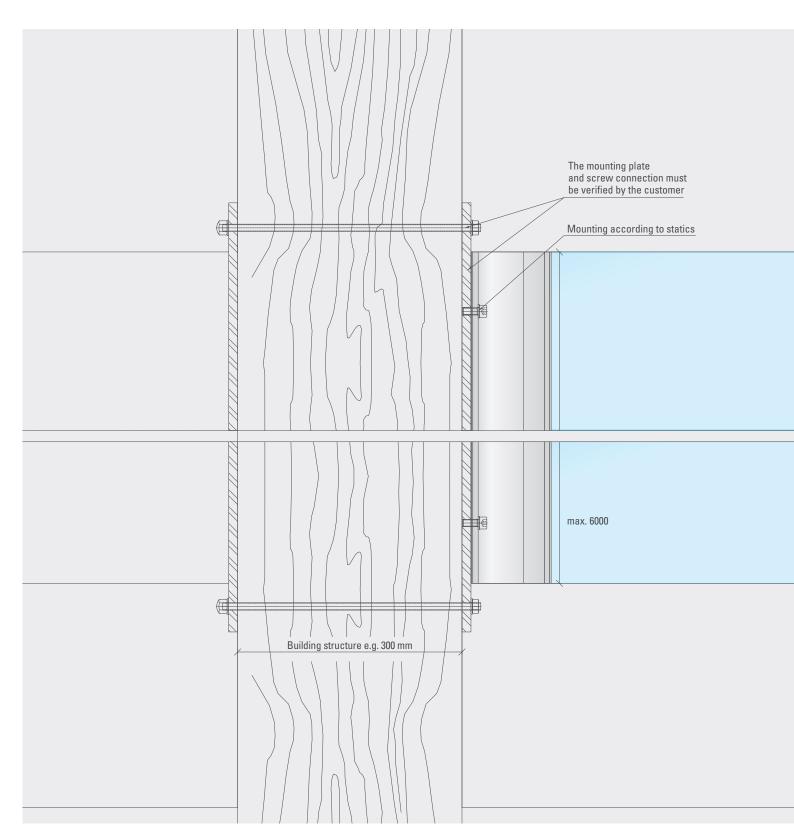
Glass canopy CANOPY cloud

wooden beams Vertical section





Horizontal section





FIX'N SLIDE

Safe attachment to thermally insulated façades

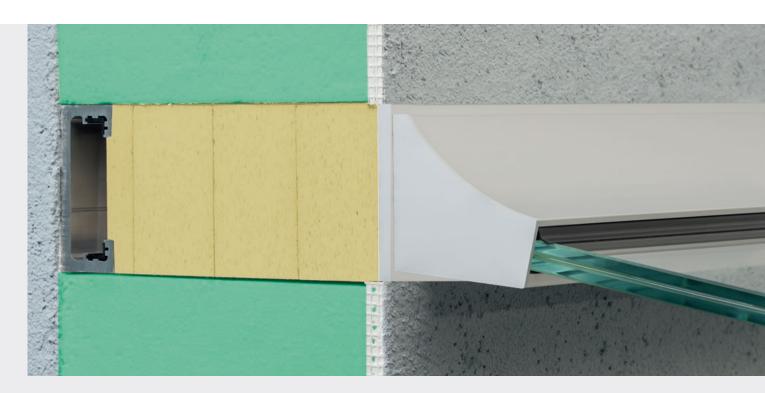


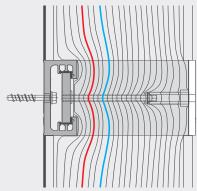
Flexible, easy to assemble and absolutely safe - the new FIX*N SLIDE revolutionises construction component assembly in the ETICS (External Thermal Insulation System) area. FIX*N SLIDE ensures secure attachment of add-on elements and simultaneously reduces thermal bridges in new buildings and retrofitting.

With only a few components and different insulating thicknesses, virtually any insulation thickness can be easily thermally and statically bridged. FIX*N SLIDE as a rail for linear installation and as a system component for point-to-point attachment is suitable for every on-site situation.



The advantages





- reduction of heat bridges
- secure mounting of add-on elements

Thermal characteristics / Energy planning according to EnEV 2016

Thermal evidence shows that deploying FIX*N SLIDE reduces thermal bridges to a minimum. The system is optimally suited for energy planning in new or existing buildings.

Safe load transfer

The tension, shearing and torque transfer allows the system to cover a wide range of applications.

Variable connection and mounting design

The variable arrangement of the fasteners allows the load transfer to be optimally adapted to the substructure and adapted and optimised to the local conditions.

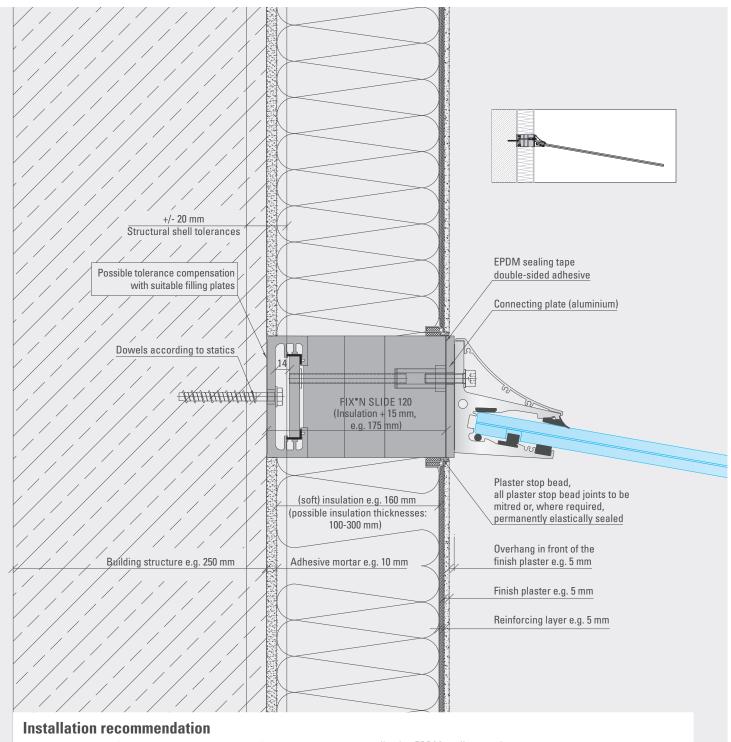


CANOPY cloud with FIX"N SLIDE

Application examples – without insulation Glass canopy CANOPY *cloud*

Finish plaster and soft insulation

Vertical section



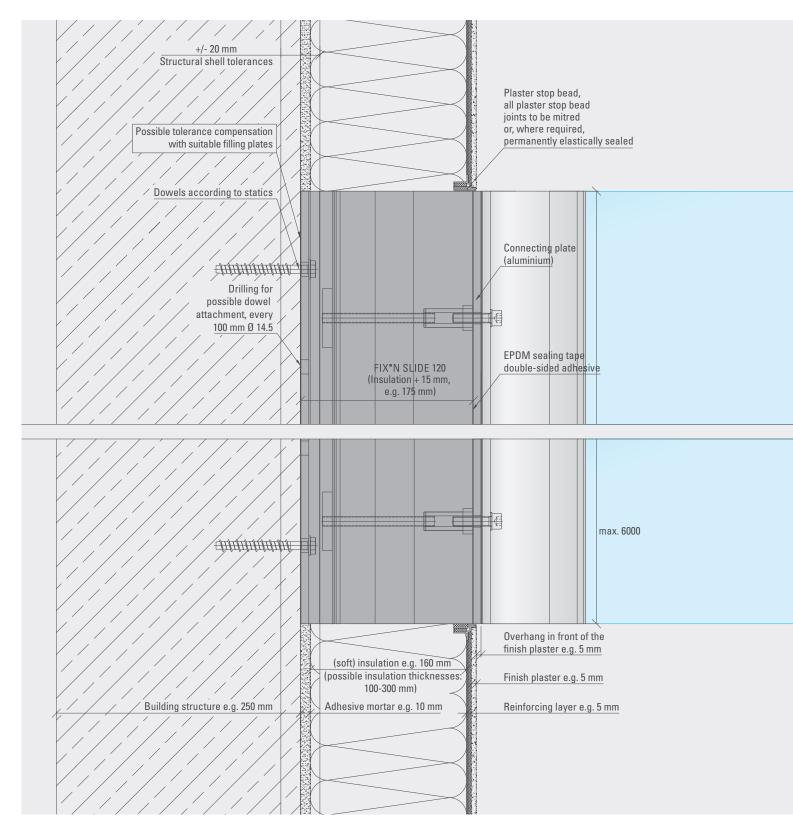
- String out building (determine insulation outer edge)
- Install FIX*N SLIDE
 - (possible tolerance compensation with suitable filler plates/shims)
- Ensure exterior impermeability with double-sided

- adhesive EPDM sealing membrane
- Fix connection plate
- Create ETICS with finish plaster
- Installation of the canopy



CANOPY cloud with FIX"N SLIDE

Horizontal section



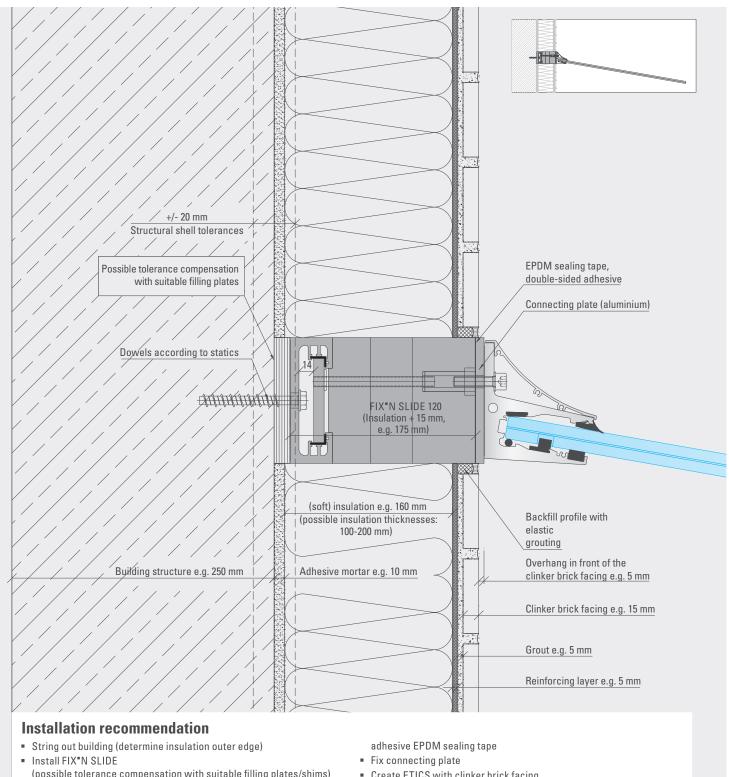


CANOPY cloud with FIX*N SLIDE

Glass canopy CANOPY cloud

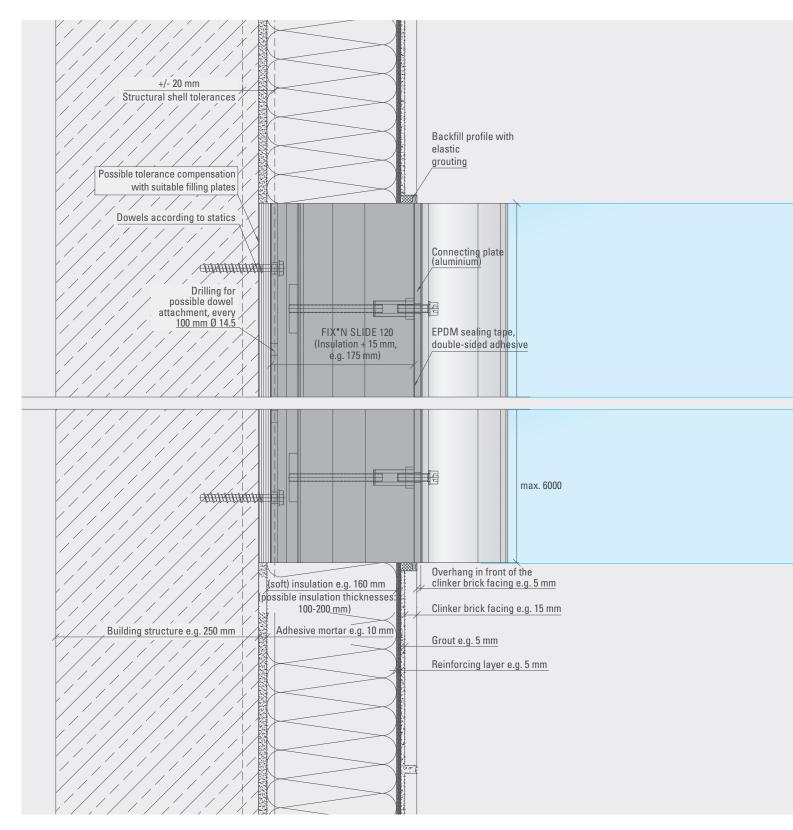
clinker brick facing and soft insulation

Vertical section



- (possible tolerance compensation with suitable filling plates/shims)
- Ensure exterior impermeability with double-sided
- Create ETICS with clinker brick facing
- Install the canopy

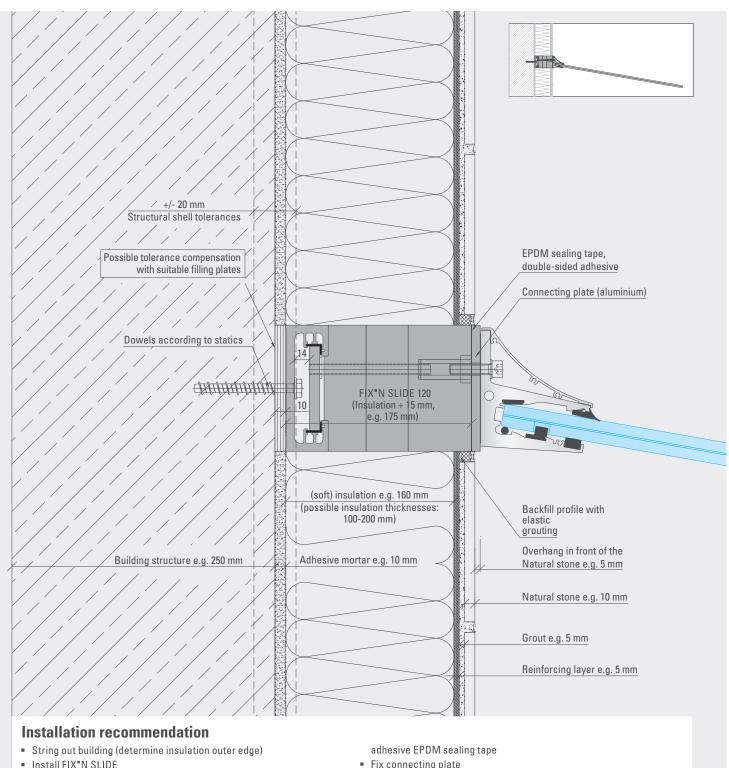






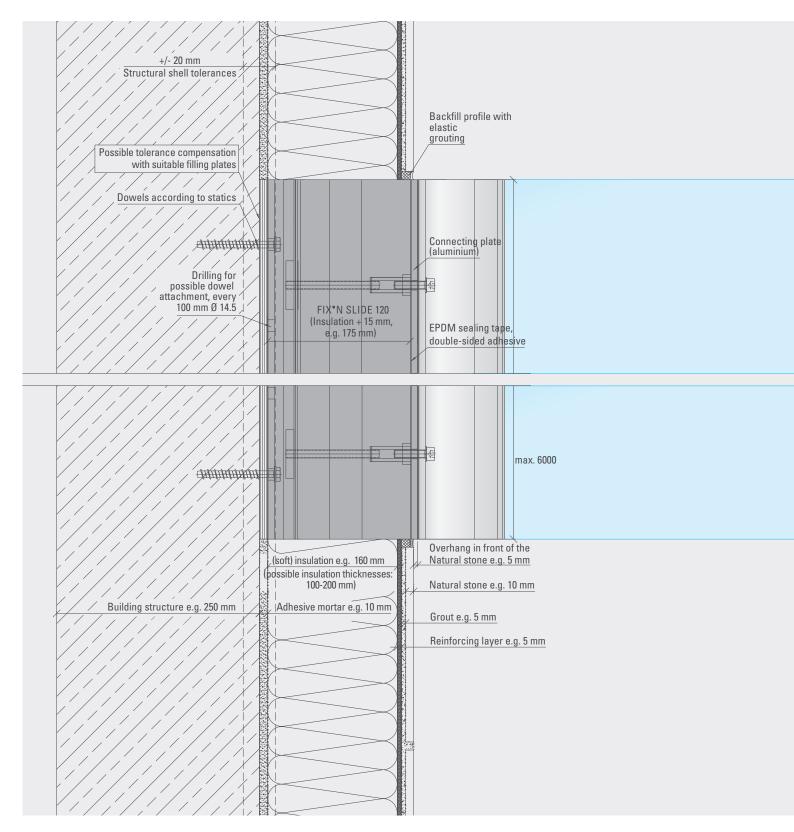
Glass canopy CANOPY cloud

natural stone and soft insulation



- Install FIX*N SLIDE
- (possible tolerance compensation with suitable filling plates/shims)
- Ensure exterior impermeability with double-sided
- Fix connecting plate
- Create ETICS with natural stone
- Install the canopy

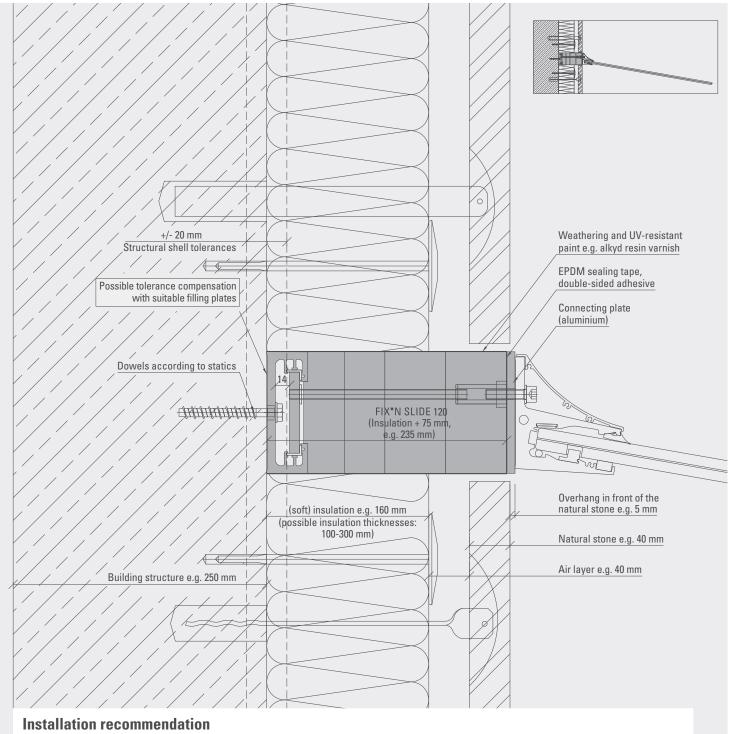






Glass canopy CANOPY cloud

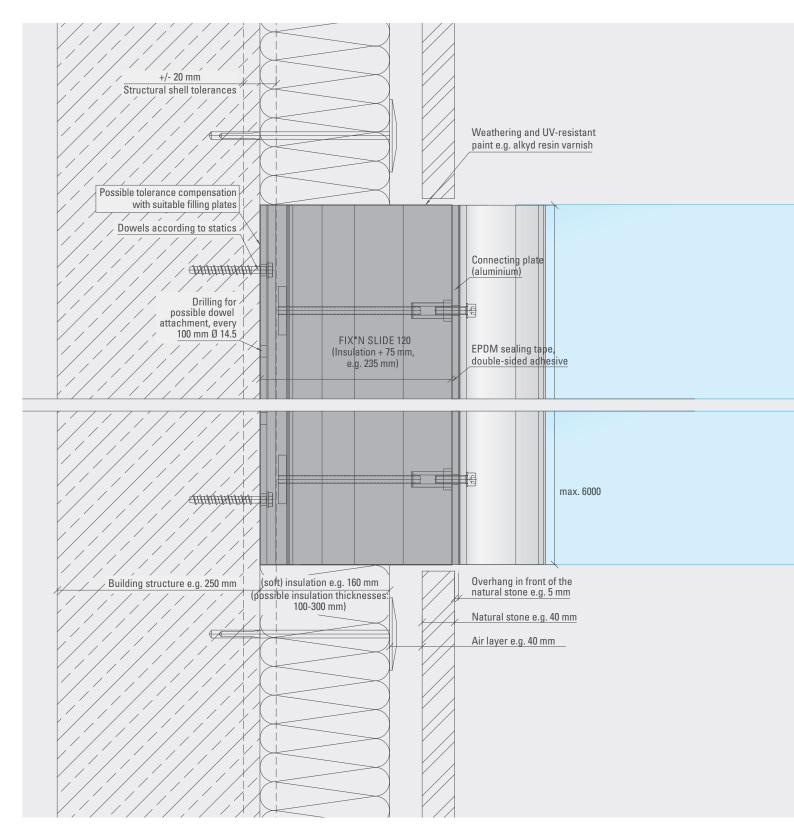
natural stone and soft insulation



- String out building (determine outer edge of natural stone)
- Install FIX*N SLIDE
- (possible tolerance compensation with suitable filling plates/shims)
- Ensure exterior impermeability with double-sided

- adhesive EPDM sealing tape
- Apply weathering and UV resistant paint e.g. alkyd resin paint
- Install natural stone
- Install the canopy

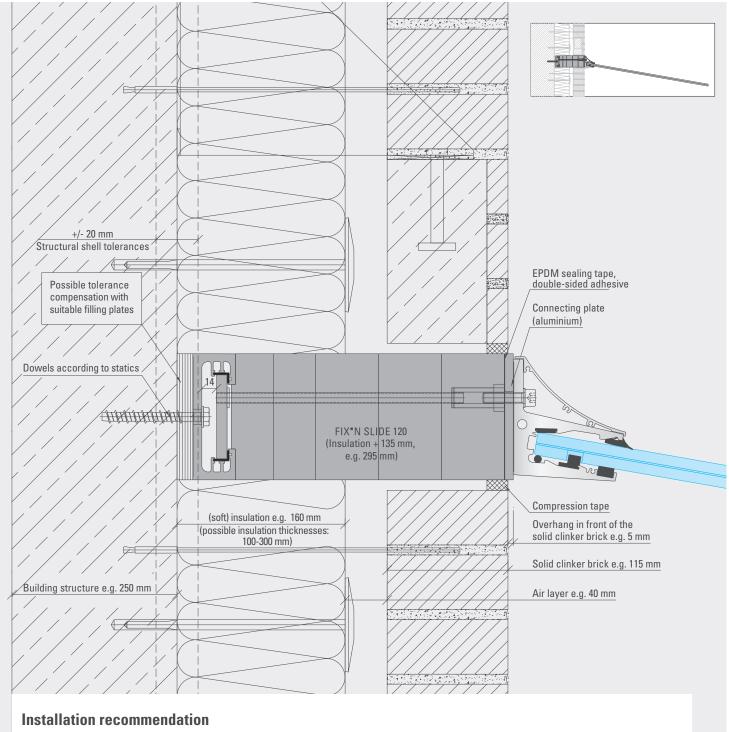






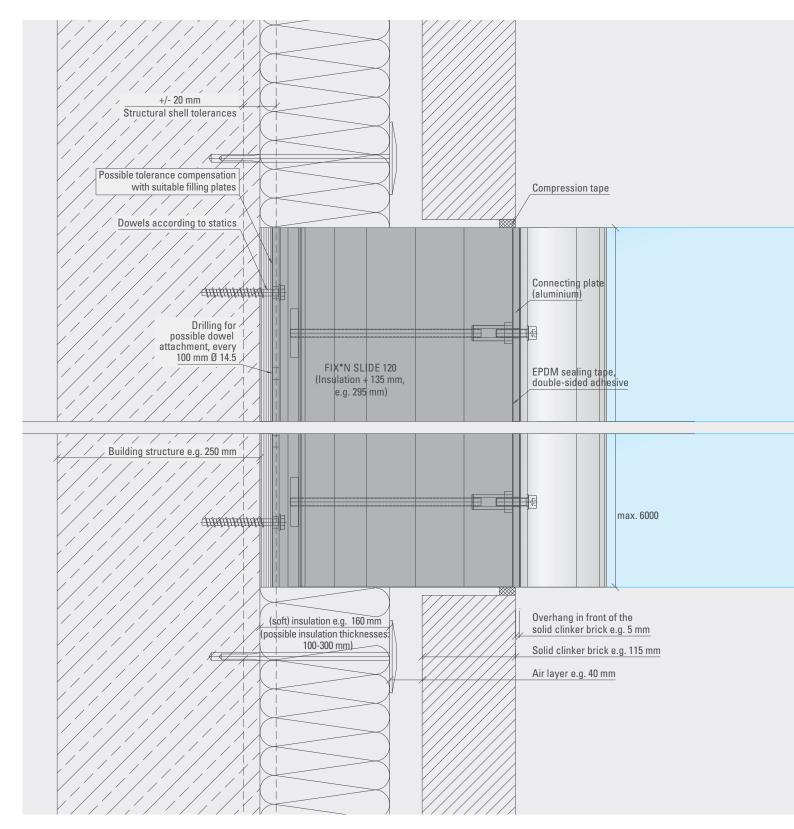
Glass canopy CANOPY cloud

solid clinker brick and soft insulation (160 mm)



- String out building (determine outer edge of solid clinker brick)
- Install FIX*N SLIDE (possible tolerance compensation with suitable filling plates/shims)
- Ensure exterior impermeability with double-sided adhesive EPDM sealing tape
- Fix connecting plate
- Install solid clinker brick
- Install the canopy
- Install foam (compressed/impregnated) sealing tape

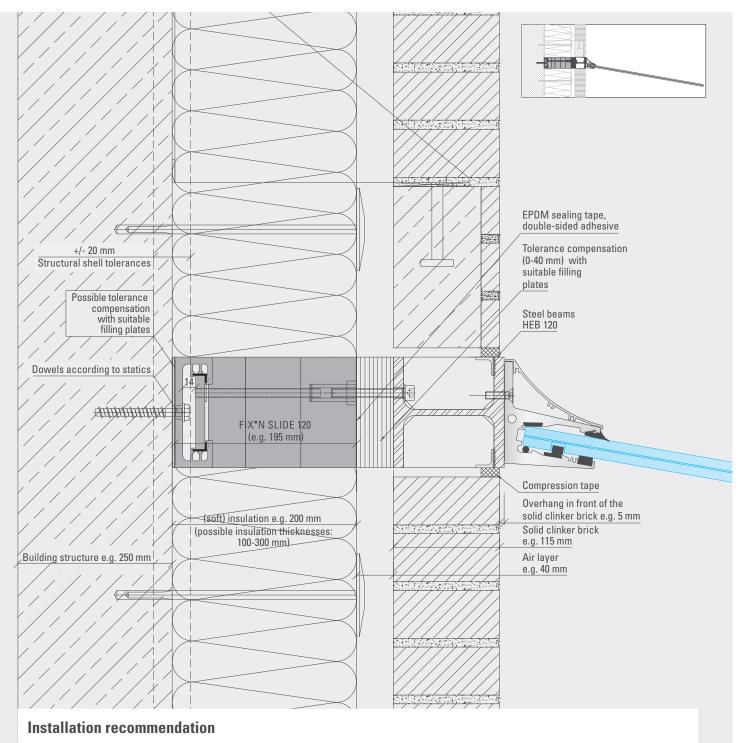






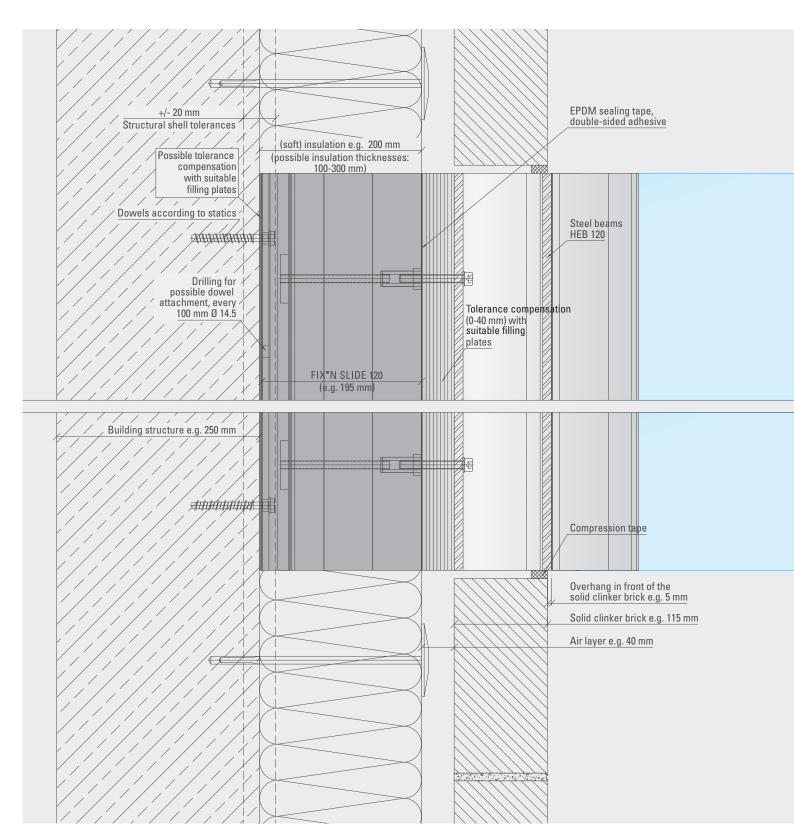
Glass canopy CANOPY cloud

solid clinker brick and soft insulation (200 mm)



- String out building (determine outer edge of solid clinker brick)
- Install FIX*N SLIDE (possible tolerance compensation with suitable filling plates/shims)
- Ensure exterior impermeability with double-sided adhesive EPDM sealing tape
- Install further filling plates/shims
- Fix steel beam
- Install solid clinker brick
- Install the canopy
- Install foam (compressed/impregnated) sealing tape

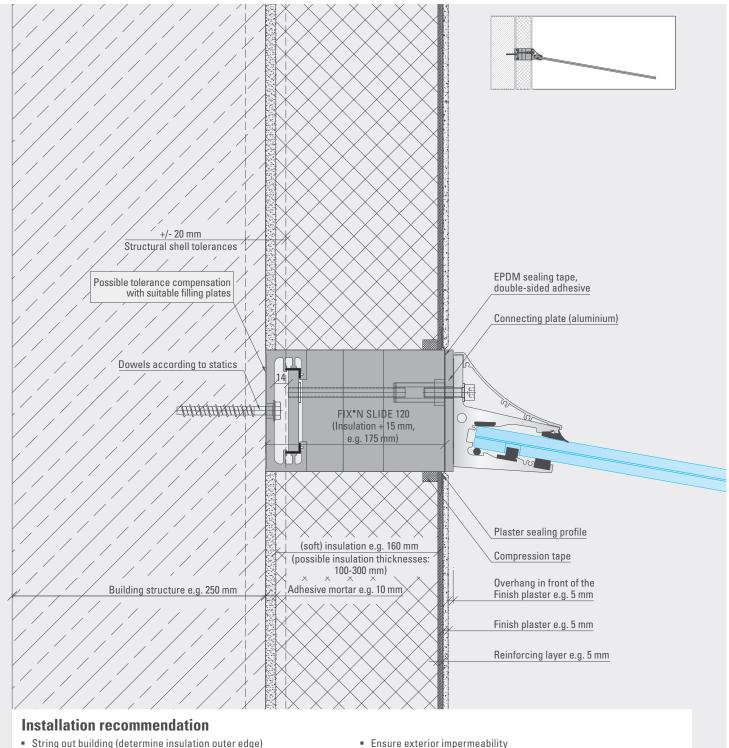






Glass canopy CANOPY cloud

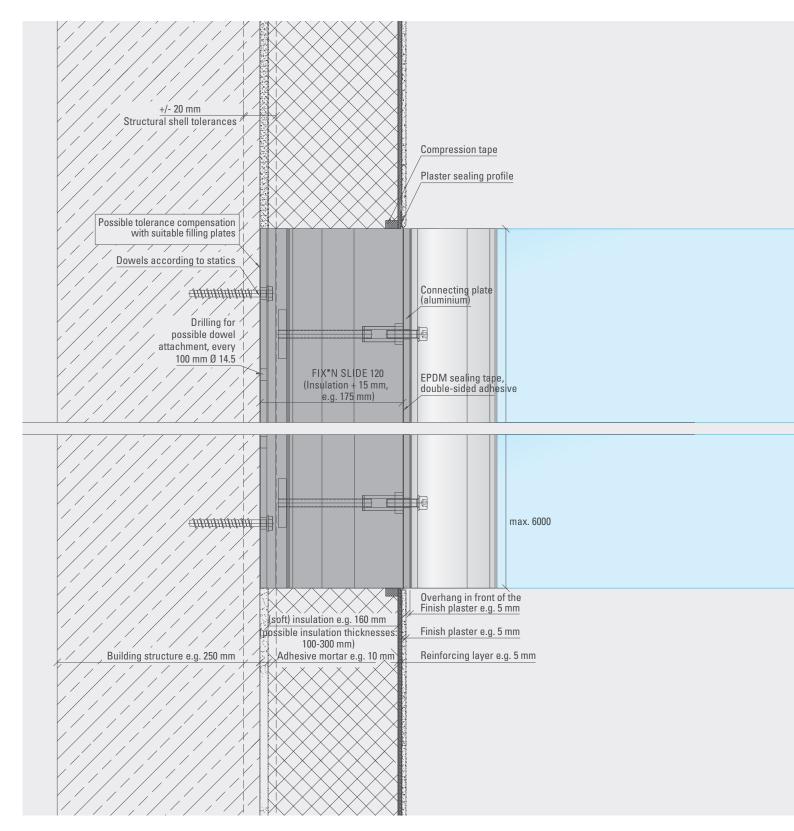
finish plaster and hard insulation



- Install FIX*N SLIDE (possible tolerance compensation with suitable filling plates/shims)
- Fix connecting plate

- Ensure exterior impermeability durch double-sided adhesive EPDM sealing tape
- Create ETICS with finish plaster
- Install the canopy

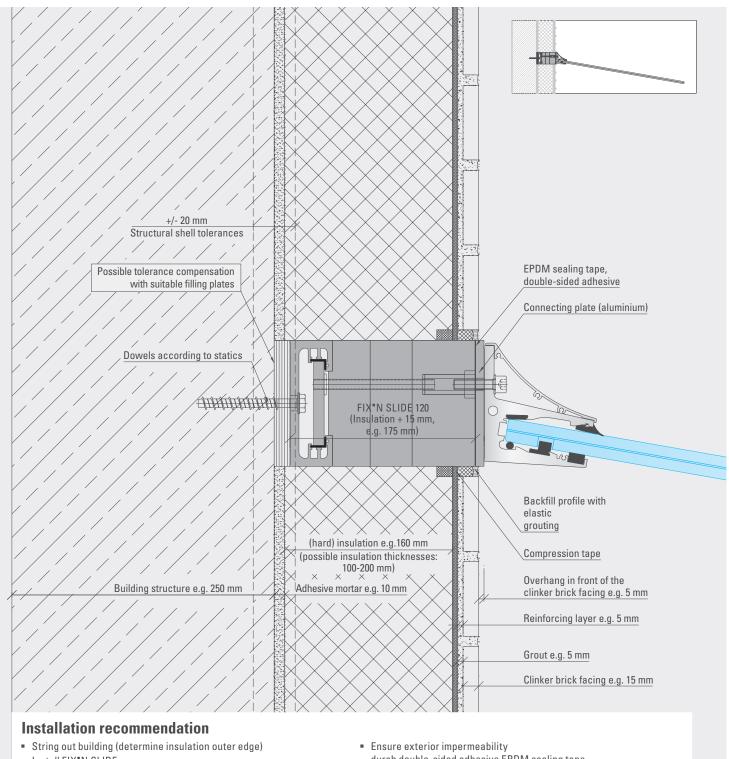






Glass canopy CANOPY cloud

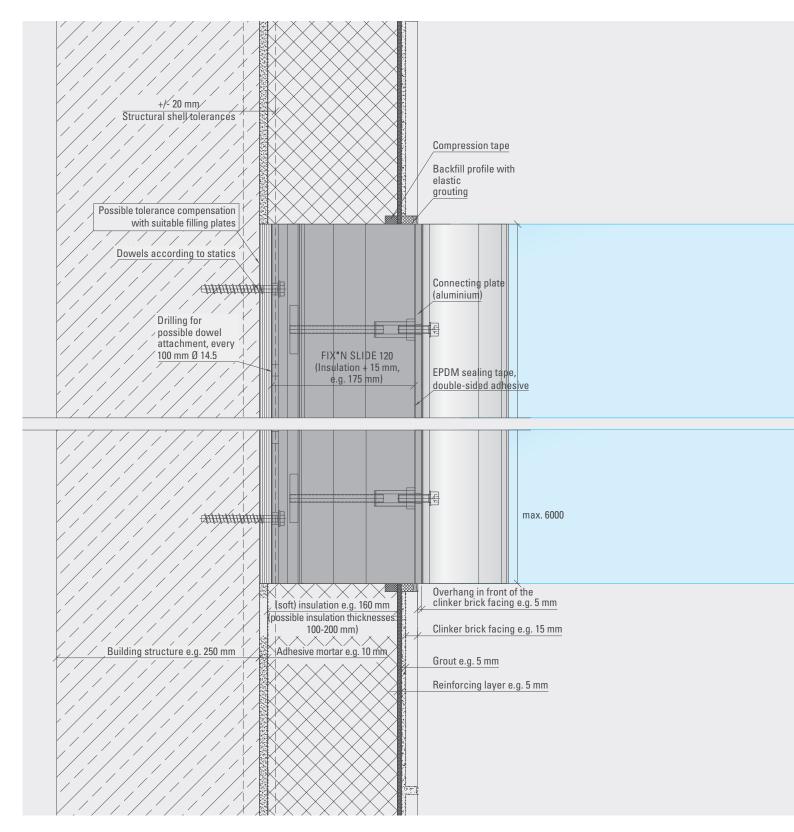
clinker brick facing and hard insulation



- Install FIX*N SLIDE (possible tolerance compensation with suitable filling plates/shims)
- Fix connecting plate

- durch double-sided adhesive EPDM sealing tape
- Create ETICS with clinker brick facing
- Install the canopy

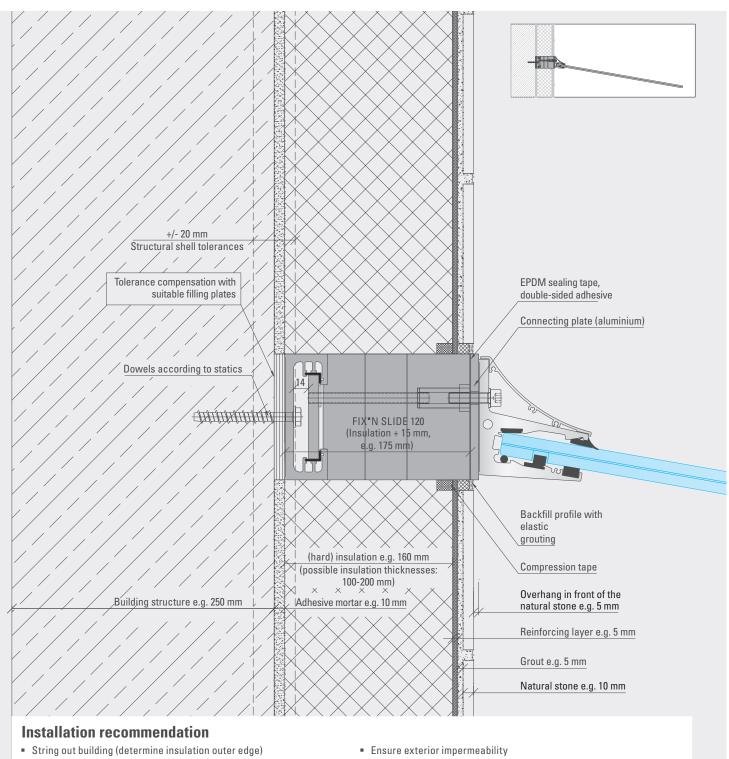






Glass canopy CANOPY cloud

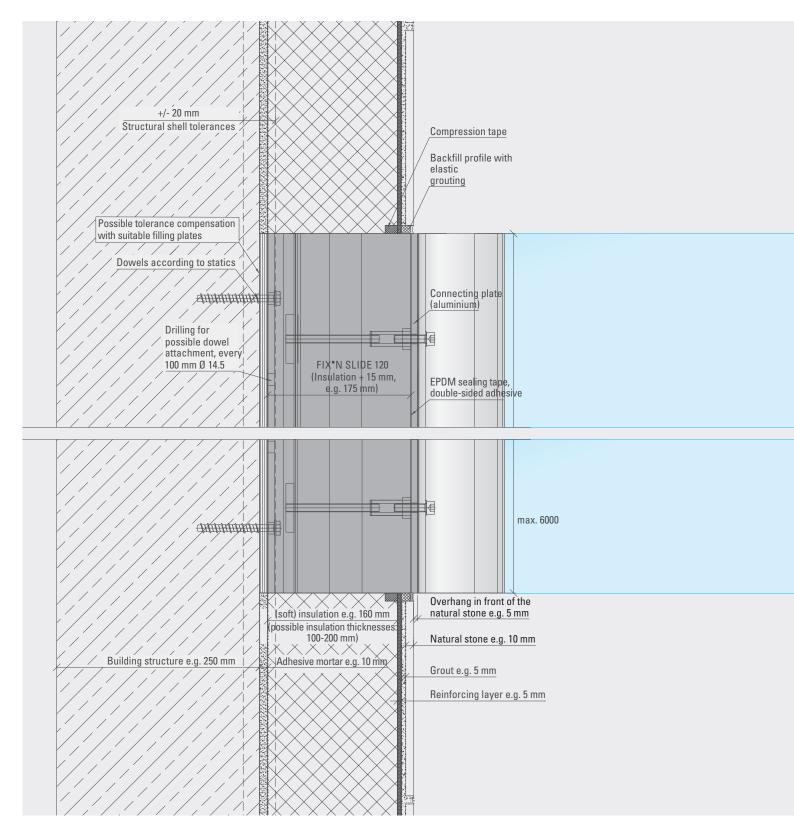
natural stone and hard insulation



- Install FIX*N SLIDE (possible tolerance compensation with suitable filling plates/shims)
- Fix connecting plate

- durch double-sided adhesive EPDM sealing tape
- Create ETICS with natural stone
- Install the canopy





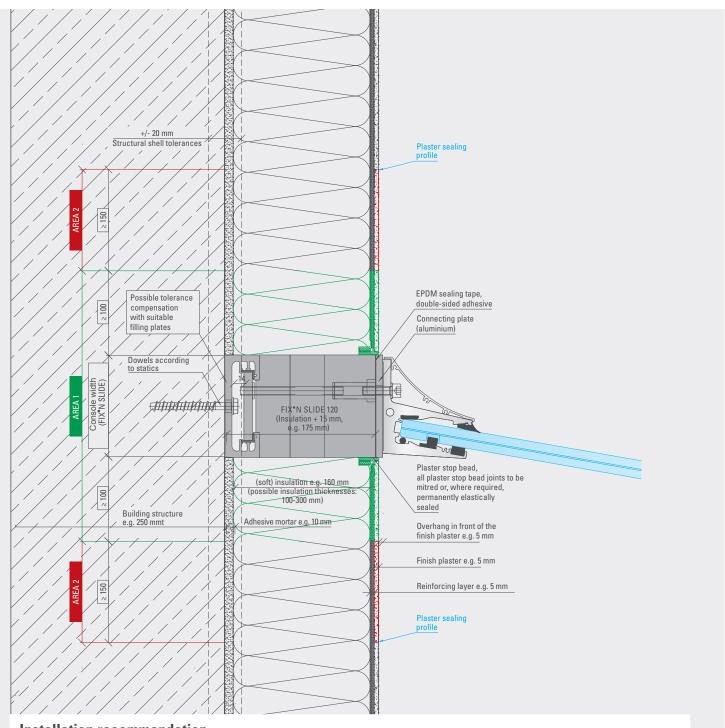


Application examples existing building

Glass canopy CANOPY cloud

finish plaster and soft insulation

Vertical section

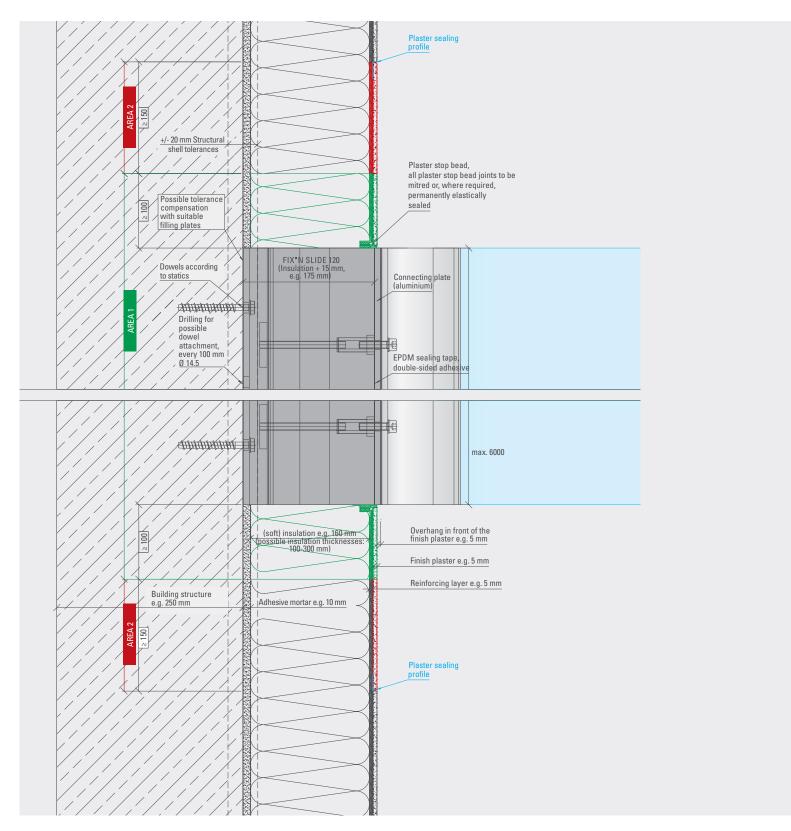


Installation recommendation

- Cut ETICS back: AREA 1 (console width FIX*N SLIDE + 200 mm)
- Mill off finish plaster to reinforcing layer: AREA 2
- Install FIX*N SLIDE

- Execute insulation and reinforcing layer (reinforcing layer must overlap existing reinforcing layer by approx. 150 mm).
- It is recommended to plaster the finish plaster with the plaster sealing profile
- Restore ETICS with finish plaster



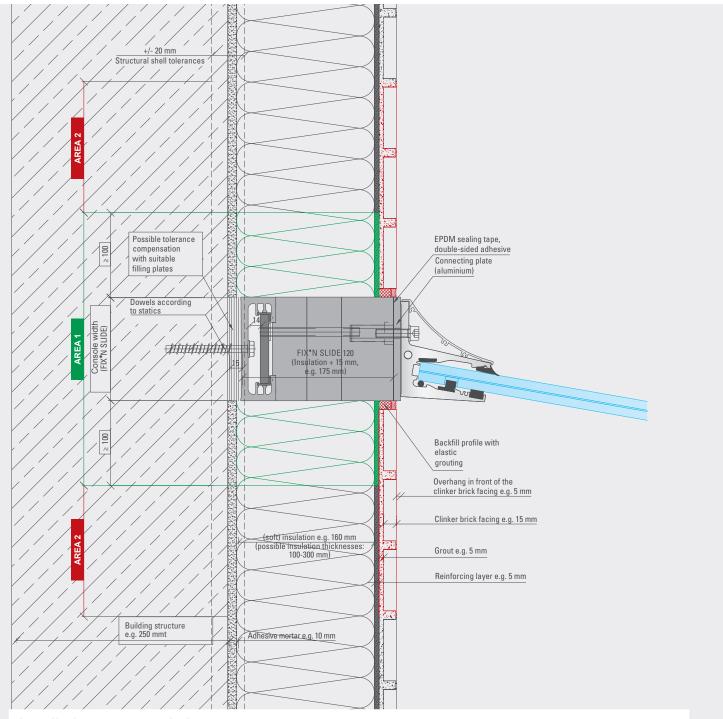




Glass canopy CANOPY cloud

clinker brick facing and soft insulation

Vertical section

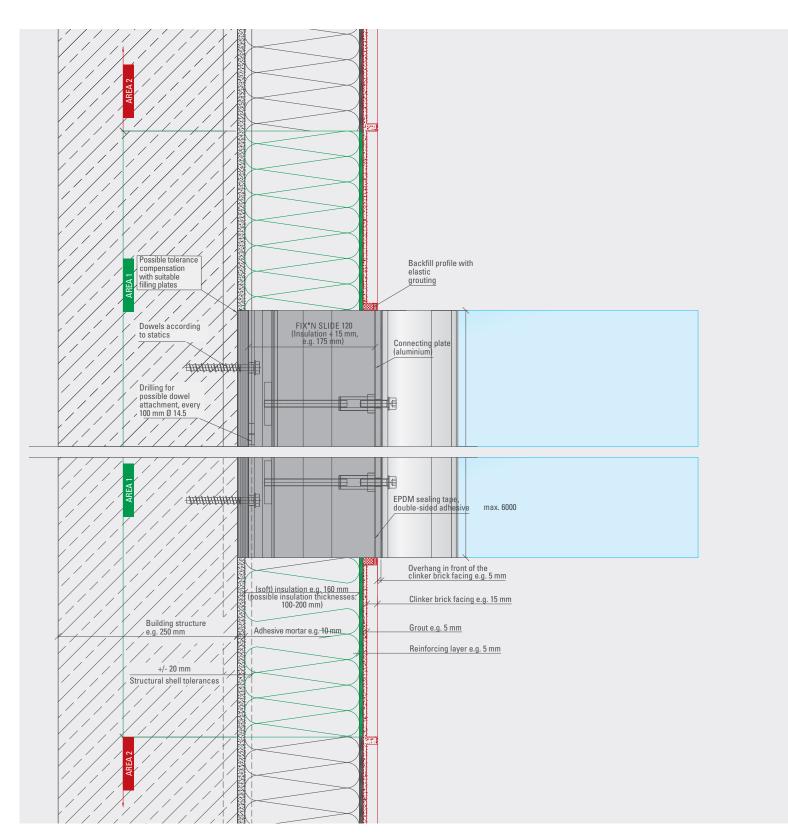


Installation recommendation

- Cut ETICS back: AREA 1 (console width FIX*N SLIDE + 200 mm)
- Mill off clinker brick facing to reinforcing layer: AREA 2
- Install FIX*N SLIDE

- Execute insulation and reinforcing layer (reinforcing layer must overlap existing reinforcing layer by approx. 150 mm).
- Observe the specifications of the ETICS system provider
- Restore ETICS with clinker brick facing

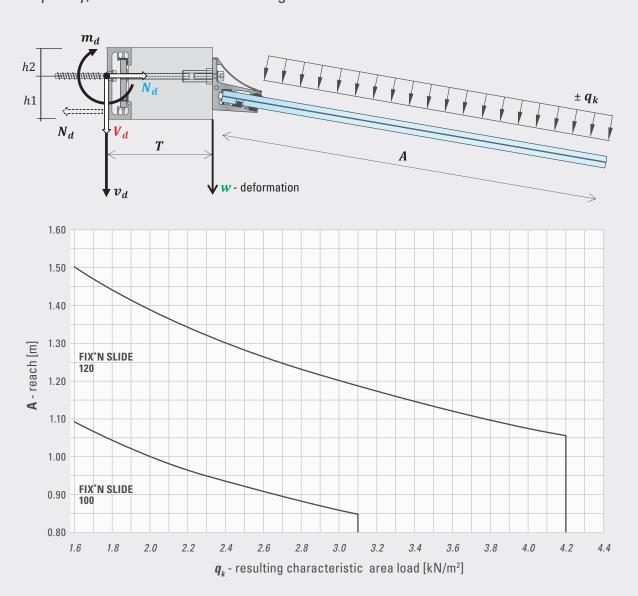






Dimensioning FIX'N SLIDE

Load capacity, deformations and bearing forces



Calculated values of the linear bearing moment $\,m_d\,$ and the linear bearing force $\,v_d\,$

 $\begin{aligned} \boldsymbol{v}_{d.1\text{[kN/m]}} &= (\gamma_Q \cdot \boldsymbol{q}_{k\text{[kN/m^2]}} + \gamma_{G.sup} \cdot \boldsymbol{g}_{\text{[kN/m^2]}}) \cdot \boldsymbol{A}_{\text{[m]}} & \text{under downward loads} \\ \boldsymbol{v}_{d.2\text{[kN/m]}} &= (\gamma_Q \cdot \boldsymbol{q}_{k\text{[kN/m^2]}} - \gamma_{G.inf} \cdot \boldsymbol{g}_{\text{[kN/m^2]}}) \cdot \boldsymbol{A}_{\text{[m]}} & \text{under upward loads} \end{aligned} \qquad (q_k < 0) \qquad \qquad \gamma_Q = 1,5 \; , \; \gamma_{G.sup} = 1,35 \; , \quad \gamma_{G.sup$

 $m_{d.1[kNm/m]} = v_{d.1[kN/m]} (T_{[m]} + A_{[m]}/2)$

 $m_{d.2[kNm/m]} = v_{d.2[kN/m]} (T_{[m]} + A_{[m]}/2)$

 $g-{
m Glass}$ weight = 0.4 kN/m² for VSG 16, 0.5 kN/m² for LSG 20 bzw. 0.6 kN/m² or VSG 24

Characteristic value of the linear bearing moment $m{m}$

 $m_{[kNm/m]} = (q_{k[kN/m^2]} + g_{[kN/m^2]}) \cdot A_{[m]} \cdot (T_{[m]} + A_{[m]}/2)$



Limit state of carrying capacity

$m_{d,1}$	$\leq m_{Rd}$	$-m_{d,2} \leq m_{R,d}$	and	$v_d \leq v_{Rd}$
u. i	- · · · n.u.	u.z —n.u		- u — - n.u

	T [mm]	to 90	90-100	100-120	120-140	140-160	160-180	180-200	100-220	220-240	240-260	260-280	280-300	300-320
FS 100	$m_{R.d}[ext{kNm/m}]$	4.24	3.98	3.56	3.25	2.99	2.79	2.62	2.47	2.34	2.23	2.14	2.05	1.97
	$v_{R.d}[ext{kN/m}]$	47.1	39.8	29.7	23.2	18.7	15.5	13.1	11.3	9.8	8.6	7.7	6.9	6.2
FS 120	$m_{R.d}[ext{kNm/m}]$	7.76	7.19	6.31	5.65	5.14	4.72	4.38	4.09	3.84	3.63	3.44	3.28	3.13
	$v_{{\scriptscriptstyle R.d}}$ [kN/m]	52.4	52.4	52.4	40.4	32.1	26.3	21.9	18.6	16.0	14.0	12.3	11.0	9.8

Limit state of carrying capacity - deformations

Existing deformation ${\pmb w}$ at the front edge of the **FS 100** element as a function of the element depth ${\pmb T}$ and the characteristic linear moment ${\pmb m}$

	T [mm]	to 90	90-100	100-120	120-140	140-160	160-180	180-200	100-220	220-240	240-260	260-280	280-300	300-320
	m [kNm/m]		existing deformation w [mm]											
	to 0.25 kNm/m	< 1 mm	<1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	2	2
	0.25 - 0.50	<1	<1	< 1	< 1	< 1	< 1	< 1	2	2	2	2	2	3
	0.50 - 0.75	<1	<1	< 1	<1	< 1	< 1	2	2	2	3	3	4	4
FS 100	0.75 - 1.00	<1	< 1	< 1	< 1	< 1	< 1	2	2	3	3	4	5	5
	1.00 - 1.25	< 1	< 1	< 1	< 1	2	2	2	3	3	4			
	1.25 - 1.50	<1	<1	< 1	<1	2	2	2	3	4		•		
	1.50 - 1.75	< 1	<1	< 1	<1	2	2	3	4					

Existing deformation ${\pmb w}$ at the front edge of the **FS 120** element as a function of the element depth ${\pmb T}$ and the characteristic linear moment ${\pmb m}$

	T [mm]	to 90	90-100	100-120	120-140	140-160	160-180	180-200	100-220	220-240	240-260	260-280	280-300	300-320
	m [kNm/m]		existing deformation w [mm]											
	to 1.00 kNm/m	< 1 mm	<1	<1	<1	<1	< 1	< 1	< 1	2	2	2	2	3
	1.0 - 1.250	<1	<1	< 1	< 1	< 1	< 1	2	2	2	2	3	3	4
	1.25 - 1.75	<1	<1	< 1	< 1	<1	< 1	2	2	3	3	4	4	5
FS 120	1.75 - 2.00	<1	<1	< 1	< 1	<1	2	2	3	3	4	4	5	6
	2.00 - 2.25	<1	<1	<1	<1	2	2	2	3	4	4	5	6	
	2.25 - 2.75	<1	<1	< 1	< 1	2	2	3	3	4				•
	2.75 - 3.25	<1	<1	<1	<1	2	2	3	4					

Bearing forces: N_d and V_d

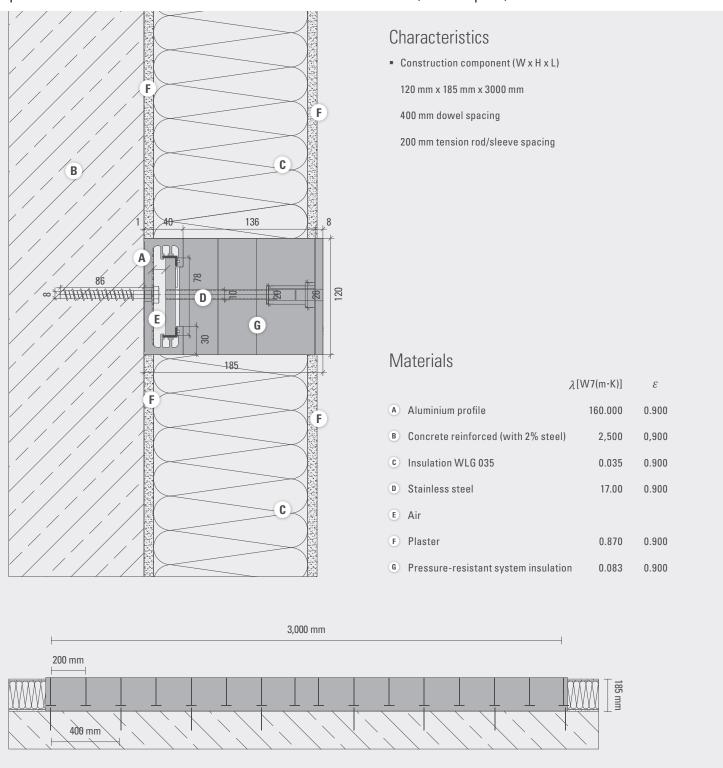
Bearing forces N_d and V_d are to be calculated according to the specifications on pages 20 and 21 with the linear moments and shear forces for FS $m_{d.1}$, $m_{d.2}$, $v_{d.1}$ and $v_{d.2}$.

For this C = 100 mm, h1 = h2 = 50 mm for FS 100 or 60 mm for FS 120



Thermal insulation calculations

purs. DIN 4108-2 and χ -value calculation (example)





Contraints

Exterior temperatures

: $T_a = -5^{\circ} C$ inside: $T_i = 20^{\circ} C$

External thermal transfer

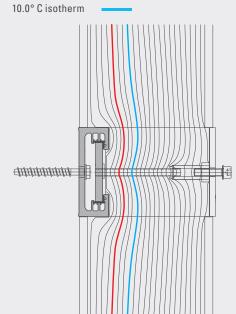
: $R_a = 0.04 \text{ m}^2 \text{ K/W}$

inside: $R_i = 0.13 \text{ m}^2 \text{ K/W (heat flow)}$

 $R_i = 0.25 \text{ m}^2 \text{K/W} \text{ (temperature)}$

Isotherm calculation

12.6° C isotherm



Results

Minimum heat insulation

 $f_{RSi} = 0.930 (>0.70)$ T = 18.13° C

Minimum heat insulation complied with

Wall structure U = 0.20 W/m²K
 250 mm reinforced concrete
 10 mm plaster
 160 mm insulation WLG 035
 10 mm reinforcing, plaster

• Extracts from relevant standards/norms

DIN 4108-2

DIN EN ISO 13788

DIN EN ISO 10211

DIN EN ISO 10077

DIN EN ISO 12631

DIN EN ISO 6946

 Thermal bridge allowance for energy planning according to EnEV 2016

Xi value of the punctiform thermal bridge

 $\chi = 0.277 \, \text{W/K}$

Audit/test report of the thermal simulation

Audit/test report No.

FS_120_3000_WDVS_160_P

Linear connection

FIX"N SLIDE	Insulation thickness mm	Xi value W/K	f _{rsi} >70	T °C
	80	0.507	0.870	16.63
100	160	0.250	0.930	18.20
	300	0.130	0.960	19.02
	80	0.546	0.860	16.52
120	160	0.277	0.930	18.13
	300	0.140	0.960	18.99





- Printed circuit board: flexible printed circuit with adhesive tape
- Voltage: 24V DC
- Power: 14.4 W/m
- LED type: SMD5050
- Number of LEDs: 60 pces./m
- Luminous flux/LED: 18-20 lm
- Separability: every LEDs or every 10 cm
- Colour temperature: 6000 K +/- 100 K
- Dimensions: 10 x 2 mm (W x H)
- Degree of protection: IP65

- Cable length: 1 m
- Packing unit:2.5 m roll or 6.0 m roll
- Energy efficiency class: A+

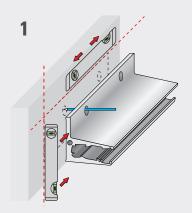




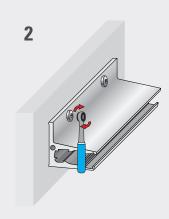




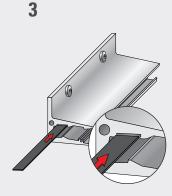
Installation manual - CANOPY cloud



Align to the substructure. Determine the attachment points with the help of the profile.

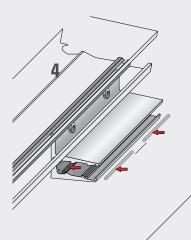


Attach the profile to the substructure or building element with approved means of connection.

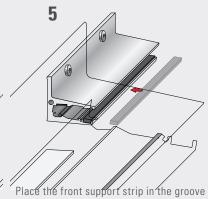


Slide the rear support strip into the upper groove.

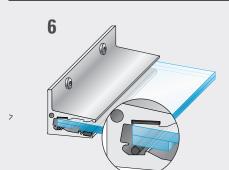
Profile projection left and right approx. 5 mm



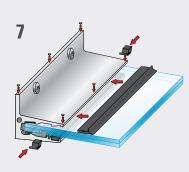
Place the clipping strips in the inner profile notch at a spacing of 200 mm, minimum of 3 clipping strips per washer.



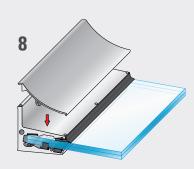
provided for this purpose.



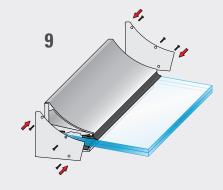
Insert the glass pane into the profile stop.



Fix the glass pane double-sided with the securing blocks. Press the front support seal between the glass and the profile. Glue the silicone buffers at regular intervals on the profile top and front edge.



Place the facing cover on the profile.



Secure the side covers and the facing cover with the locking screws. Optionally additional end plates can be glued on.



Installation manual FIX'N SLIDE



Slide the plastic elements for thermal bridging reduction into the areas of the aluminium mounting rail provided for this purpose.



Determine the attachment points using the aluminum mounting rail. Attach the aluminium mounting rail to the substructure or building element with regulated/approved means of connection.



Screw the tension-resistant threaded rods into the insert plates and guide the insert plates into the aluminium mounting rail.





Align the insert plates according to the attachment points of the add-on element by sliding. Secure the insert plates with the predrilled installation aid.

5

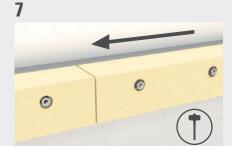


Slide the pre-drilled insulating elements over the threaded rods.

6



Insert the washers and threaded sleeves on the threaded rods and fasten them with a tightening torque of 10 Nm.



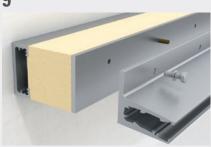
After attaching the first insulating elements, slide the other elements end-to-end together (if the case may be, knock with a hammer).

8



To help with installing, insert a bolt into a threaded sleeve and attach the optional aluminium connection plate with self-adhesive EPDM tape to the insulting element.

9



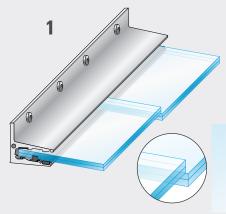
Align the attachment (here CANOPY CLOUD from GLASSLINE) with a bolt. Fasten the attachment to the substructure with regulated/approved means of connecting with a tightening torque of 24 Nm for M10 or M12 Nm for M8.

All screw connections must be secured against loosening with appropriate measures.

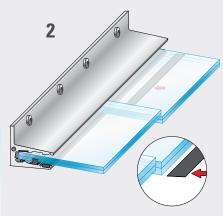


Options for aligning the glass joints

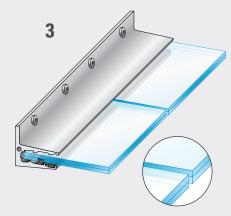
Alignment via underlaying with EPDM



Assemble the canopy as described under points 1-6 on page 62.



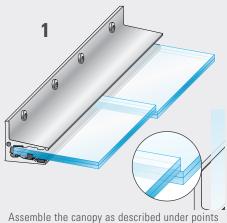
For a possible offset glass pane, place an additional EPDM strip under the front support strip.



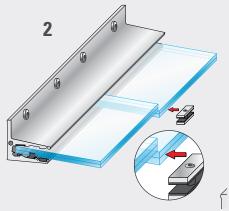
The glass pane is now aligned.

Optional fasteners for 2 glass panes in the drainage area

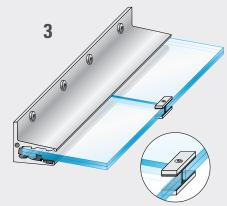
Alignment with optional fasteners



Assemble the canopy as described under points 1-9 on page 62.



Insert and fix the aluminium clip over the two glass panes.



The glass pane is now aligned.









Online 3D configuration tool

Unique!

You can now configure **CANOPY** cloud online for a fast and precise request.

- Simple, intuitive usability
- Real-time 3D visualisation of your configured **CANOPY** cloud canopy

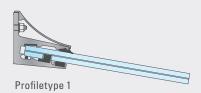


CANOPY cloud product inquiry

Name		Your inquiry will be processed as soon as possible.
Company		<u> </u>
Street address		Construction project
Postcode/ City		
Telephone	Telefax	
	(PI	ease fill in all fields)

Glass canopy stock program

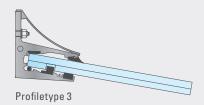
System 800 | **System** 900 **System** 1,000 | **System** 1,100



Please fill in or

check					
on on		Sy	stem /	Reachi	mm
Glass dimensions	piece(s)	800	900	1,000	1,100
1,200 mm					
1,400 mm					
1,600 mm					
1,800 mm					
2,000 mm					
2,200 mm					
2,400 mm					
2,600 mm					
2,800 mm					
3,000 mm					

System 1,200 | **System** 1,300 **System** 1,500



Please fill in or

check

System / Reach mm	Glass dimensions	piece(s)	1,200	1,300	1,500		
1,600 mm							
1,800 mm							
2,000 mm							
2,400 mm							
2,600 mm							
2,800 mm							
3,000 mm							

Surface

(please check)

_	"Natural" untreated

The speedy inquiry:

Fax to +49 (0) 6291/6259-11 or
 by email to info@glassline.de

Print/save inquiry

• Fill in



Anthracite RAL 7016





FIX"N SLIDE

☐ Optional connecting plate, aluminium 8 mm

FS 100 + 120	
□ 65 mm	

□ 85 mm

□ 95 mm

□ 115 mm

□ 135 mm □ 155 mm □ 175 mm





□ 235 mm
□ 255 mm

□ 275 mm
□ 295 mm
□ 315 mm

Accessories

 \square LED strip

☐ Aluminium clip

☐ Additional end caps to cover the screws

GL/-SS///7E

CANOPY cloud product inquiry

Your inquiry will be processed as Name soon as possible. Company Street address Construction project Postcode/ City Telephone Telefax Email (Please fill in all fields) **System** 1,100 – LSG 16 **System** 1,300 – LSG 20 System 1,700 individual – LSG 26 max. reach: 1,300 mm max. reach: 1,700 mm max. reach: 1,100 mm **System** 1,500 – LSG 24 System 1,900 individual – LSG 30 max. reach: 1,500 mm max. reach: 1,900 mm max. glass width: 5,690 mm max. glass width: 5,690 mm max. glass width: 5,100 mm Surface (please check) width in mm: RAL or special colour Stainless steel look (E6EV1) "Natural" powder-coated or anodised reach in mm: untreated piece(s):

FIX"N SLIDE $\hfill\Box$ Optional connecting plate, aluminium 8 mm FS 100 + 120 □ 135 mm □ 235 mm $\square~65\,mm$ □ 155 mm □ 255 mm □ 85 mm

□ 95 mm

□ 115 mm

□ 175 mm □ 275 mm □ 195 mm □ 295 mm □ 215 mm □ 315 mm

Accessories

The speedy inquiry:

• Fax to +49 (0) 6291/6259-11 or by email to info@glassline.de

Print/save inquiry

Fill in

- ☐ LED strip
- ☐ Aluminium clip
- ☐ Additional end caps to cover the screws

GL/-SS///7E

GLASSLINE GmbH

Industriestraße 7-10 74740 Adelsheim, Germany Telephone +49 (0) 6291 6259-0 Fax +49 (0) 6291 6259-11 info@glassline.de

www.glassline.de

The system vendor for frameless glass architecture

As a leading supplier, GLASSLINE develops, manufactures and sells high-quality system solutions in the fields of point-to-point fixing systems, all-glass railing systems, frameless canopy constructions and systems with thermal separation for secure attachment of add-on elements to building envelopes.

