



Bracket overview

Wall mounting | Roof mounting
Rafter mounting

Last revised January 2022

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Bracket overview 2022

Overview of all available bracket alternatives as well the resulting extraction or shear forces and transverse forces.



Square/carryer bar awnings

- **Kubata (cassette-awning)**
- **I/K 2000 (cassette-awning)**
- **N 2000**
- **Semina**
- **Topas**
 - all alternatives



Cassette-awnings

- **Opal Design II**
 - without Valance Plus
 - with Valance Plus
- **Semina Life**
 - without Valance Plus
 - with Valance Plus
- **Cassita II**

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Subject to technical modifications as well as range/programme changes.

Introduction and explanations

What is the extraction force?

(wall mounting, roof mounting, front roof mounting)

The extraction force is the force with which the resulting load of awning weight and wind load pulls on each top or front fixing material.

It varies depending on the unit size and the type of bracket or mount used.

The maximum permissible extraction force depends on the installation surface and choice of fixing materials.

What is the shear force?

(Rafter mounting)

For rafter mounting, the shear force is relevant instead of the extraction force.

The shear force is the force with which the resulting load of awning weight and wind load stresses the front fixing material with shear.

It varies depending on the unit size and the way it is mounted to the rafter.

The maximum permissible shear force depends on the rafter properties and choice of fixing materials.

What is the transverse force?

(Wall mounting, rafter mounting, front roof mounting)

For installation on a non-pressure-resistant surface (facing) the transverse force is relevant.

The transverse force is the force resulting from the total awning weight, which acts on each individual fixing material with bending stress.

Due to the bending of the screws under load, there is not only the danger of buckling but also the danger of water getting into the insulation.

The manufacturers of the fixing materials provide values for the maximum loads in their data sheets.

Selecting the appropriate bracket assembly:

1. Consult the relevant table for extraction force per fixing material for selected awning size.
2. Select a bracket assembly for which there is fixing material which can resist the indicated extraction force. The distances to the edges for the fixing material must be taken into account.

Please note: The fixing material specifications (maximum extraction force, edge distances,...) can be requested from the respective manufacturers.

Please note: When ordering the bracket type "rafter bracket", a set of screws is supplied: "Set of screws for rafters from 2009";

weinor item no. 111458-0000

When the supplied fixing materials are used correctly, the maximum shear force is **8.93 kN** per fixing material. Observe the notes on basic conditions on page 6!

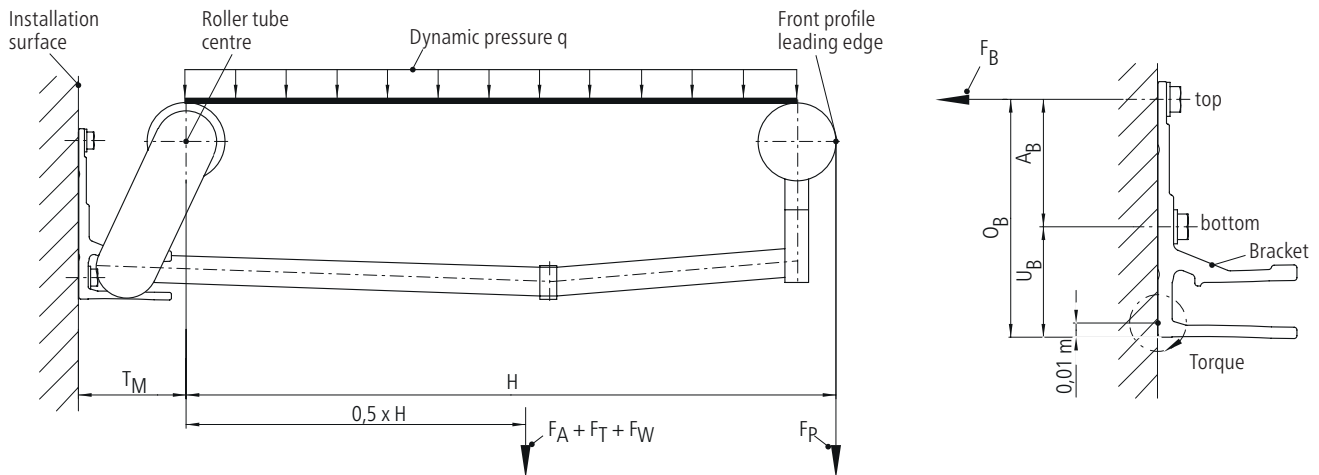
List of abbreviations:

WB	Wall bracket
CTB	Centre bracket
MP	Mounting plate
BP	Base plate
RP	Roof front plate
CB	Ceiling bracket
CCB	Compact ceiling bracket
RB	Rafter bracket
AP	Adaptor plate (for rafter brackets)

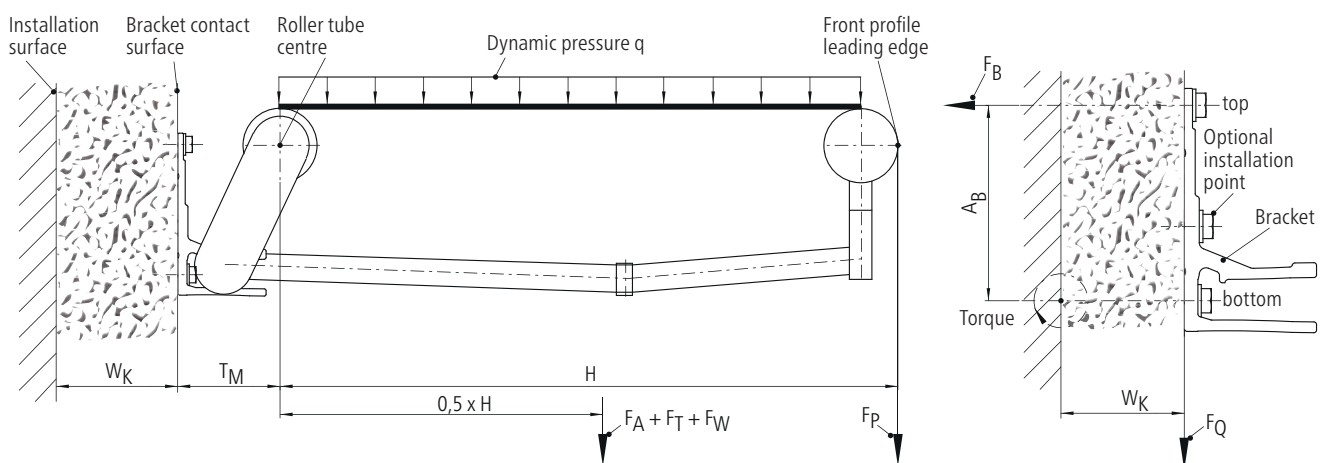
Introduction and explanations

Awning mounting

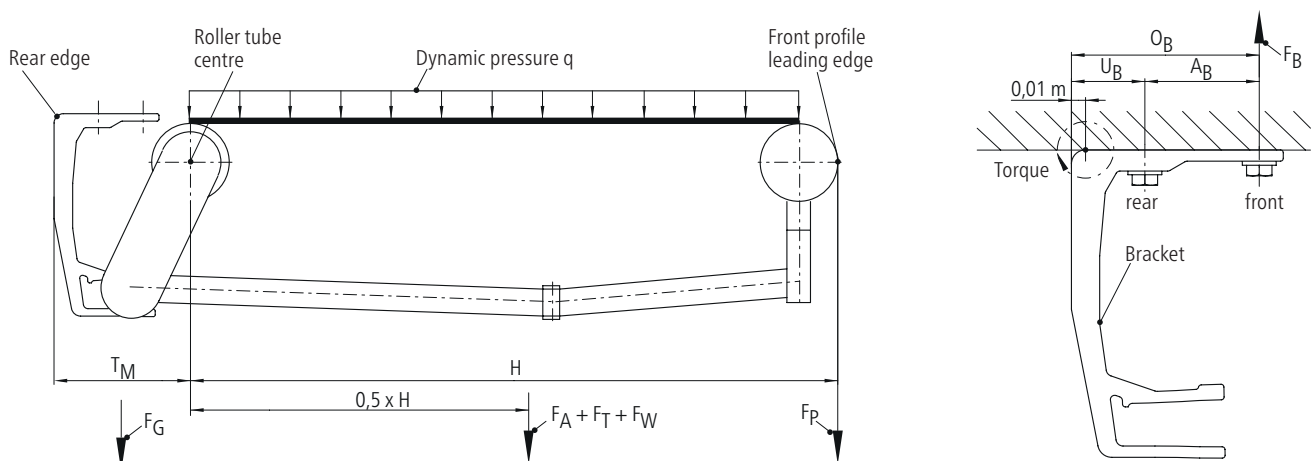
Awning mounting on pressure-resistant surface



Awning mounting on non-pressure-resistant surface



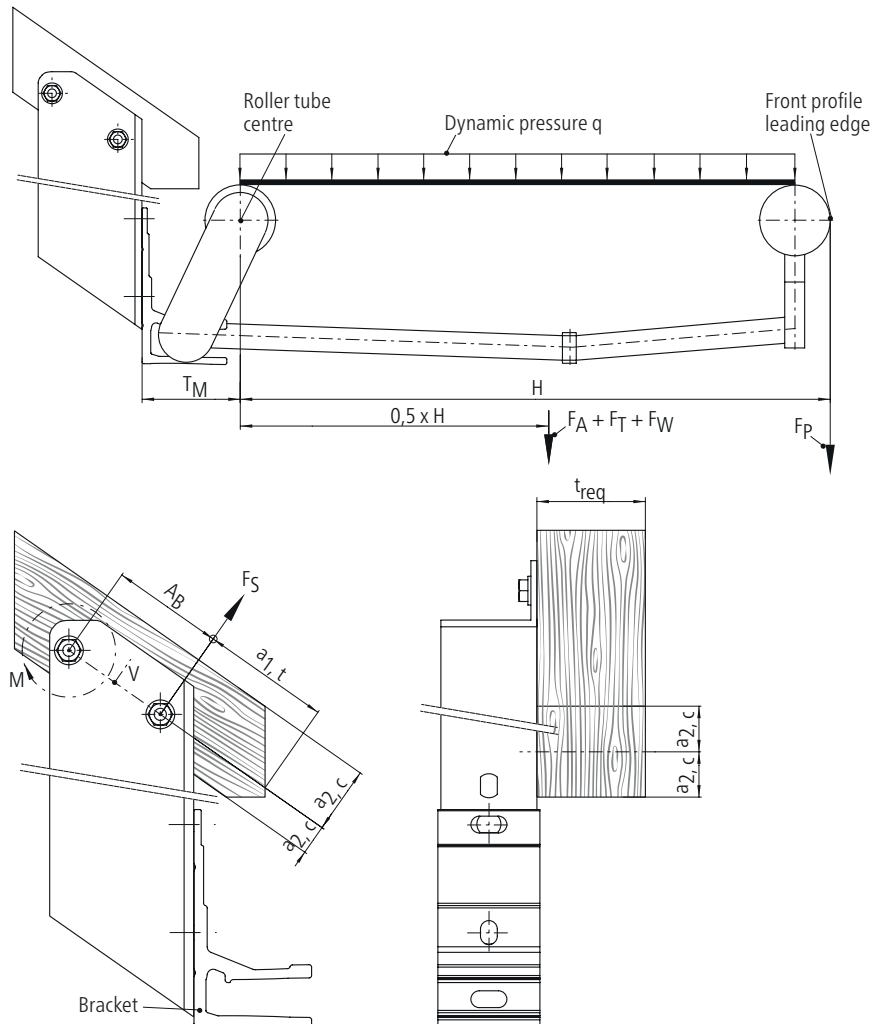
Awning mounting with ceiling bracket



Introduction and explanations

Awning mounting

Awning mounting with rafter bracket



The following basic conditions apply to the use of the “Set of screws for rafters from 2009”;
weinor item no. 111458-0000

Basis	C2 62/12 plate dowel with Ø 12 mm bolts		
Recommended minimum wood thickness	t_{req}	[mm]	70
Pre-drilling		[mm]	≤ 13
Minimum distances	$a_{1,t}$	[mm]	93
Minimum distances	$a_{2,c}$	[mm]	38
Permissible shear force		[kN]	8.93

Introduction and explanations

More details for mounting on rafters

Due to the different wood surfaces (thickness, type of wood, grain, age of the wood, etc.), it must be checked before installation whether the surface is suitably load-bearing. The enclosed fixing materials are not necessarily suitable for the local structural conditions. The enclosed mounting set is designed for the following basic conditions:

- C24 coniferous wood
- The duration of load effect is classified as "short"
- Texture class 2 (wood, outdoor use)
- The angle between the direction of force and the direction of the wood grain is 0°
- Recommended minimum wood thickness $t_{\text{req}} = 70 \text{ mm}$
- Recommended minimum edge distances $a_{1,t} = 93 \text{ mm}$ und $a_{2,c} = 38 \text{ mm}$

List of abbreviations from the illustrations on page 5-6

F_A	Resulting load from weight of folding arms
F_T	Resulting load from the weight of the fabric
F_W	Resulting load from fabric surface and dynamic pressure (wind load)
F_P	Resulting load from the weight of the front profile
F_G	Resulting load from the weight of the frame, without folding arms and front profile
q	Dynamic pressure

M	Resulting torque
F_B	Extraction force on top or front fixing material
F_S	Shear force on the front fixing material
F_Q	Transverse force per fixing material

H	Projection according to EN 1932
T_M	Spacing between middle of roller tube and rear edge of bracket
W_K	Total thickness of the facing to be bridged
O_B	Spacing between bottom/rear edge of bracket and top/front installation point
U_B	Spacing between bottom/rear edge of bracket and bottom/rear installation point
A_B	Spacing between bottom/rear to top/front installation point

Square/carrier bar awnings



01 Square/carrier bar awnings

Selection of brackets

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Selection of brackets

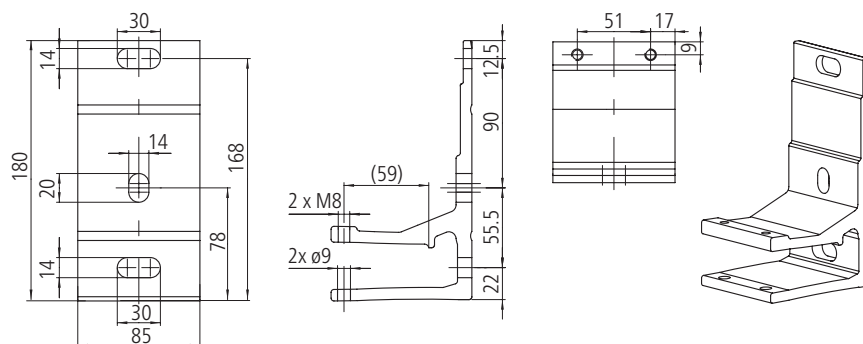
Wall mounting

Bracket assembly consisting of:
85 mm wall bracket; item no. 106810

Notes on this bracket assembly:
1x 85 mm wall bracket (WB85)
1 bracket per arm
1 top installation point
2 installation points in total
Standard installation points: Top + middle
Optional installation points: Top + bottom (reduced extraction force if not pressure-resistant)



Corresponding centre bracket assembly:
85 mm wall bracket (WB85); item no. 106810



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2	2x WB85	without CTB	2x 106810
3	3x WB85	with CTB	3x 106810
4	4x WB85	3 arms, with CTB	4x 106810

Design as niche bracket possible:
Niche wall bracket; item no. 101429

Selection of brackets

Wall mounting

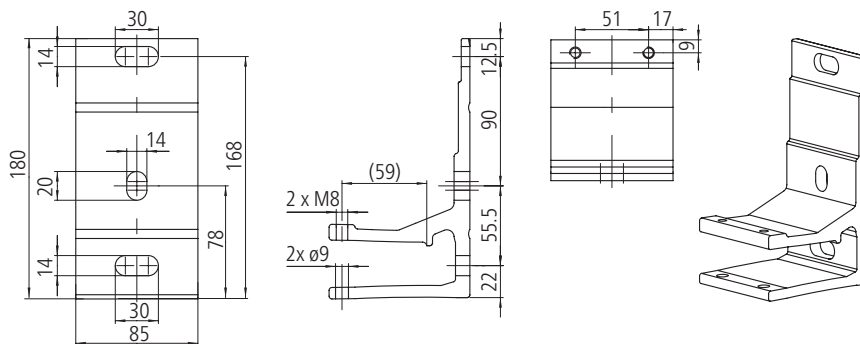
Bracket assembly consisting of:
85 mm wall bracket; item no. 106810

Notes on this bracket assembly:
2x 85 mm wall bracket (WB85)
2 brackets per awning arm, distance between centre lines 210 mm
2 top installation points
4 installation points in total
Standard installation points: Top + middle
Optional installation points: Top + bottom (reduced extraction force if not pressure-resistant)
Reduced width/length ratio



Different representation for Topas

Corresponding centre bracket assembly:
85 mm wall bracket (WB85); item no. 106810



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
4	4x WB85	without CTB	4x 106810
5	5x WB85	with CTB	5x 106810
7	7x WB85	3 arms, with CTB	7x 106810

Design as niche bracket possible:
Niche wall bracket; item no. 101429

Selection of brackets

Wall mounting

Bracket assembly consisting of:

260 mm wall bracket; item no. 108752

Notes on this bracket assembly:

1x 260 mm wall bracket (WB260)

1 bracket per arm

2 top installation points, distance between centre lines 210 mm

4 installation points in total

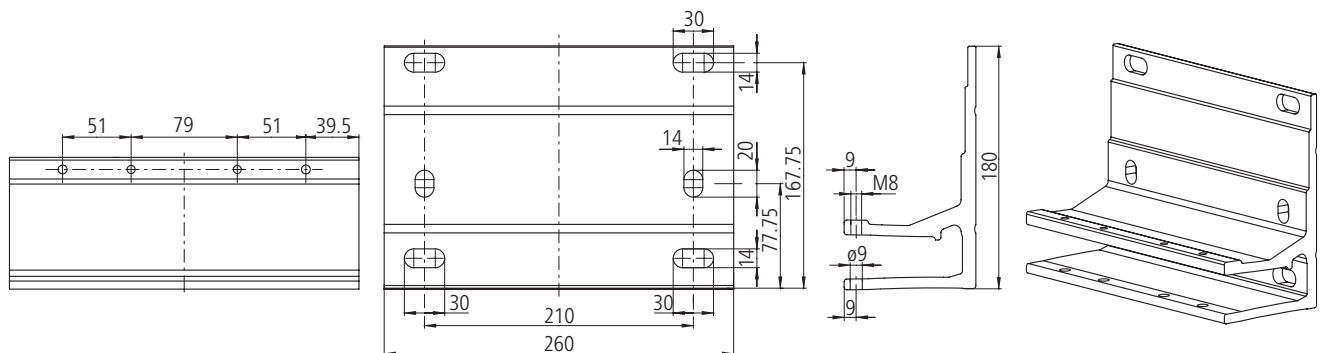
Standard installation points: Top + middle

Optional installation points: Top + bottom (reduced extraction force if not pressure-resistant)



Corresponding centre bracket assembly:

85 mm wall bracket (WB85); item no. 106810



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2	2x WB260	without CTB	2x 108752
2;1	2x WB260, 1x WB85	with CTB	2x 108752 + 1x 106810
3;1	3x WB260, 1x WB85	3 arms, with CTB	3x 108752 + 1x 106810

Selection of brackets

Wall mounting

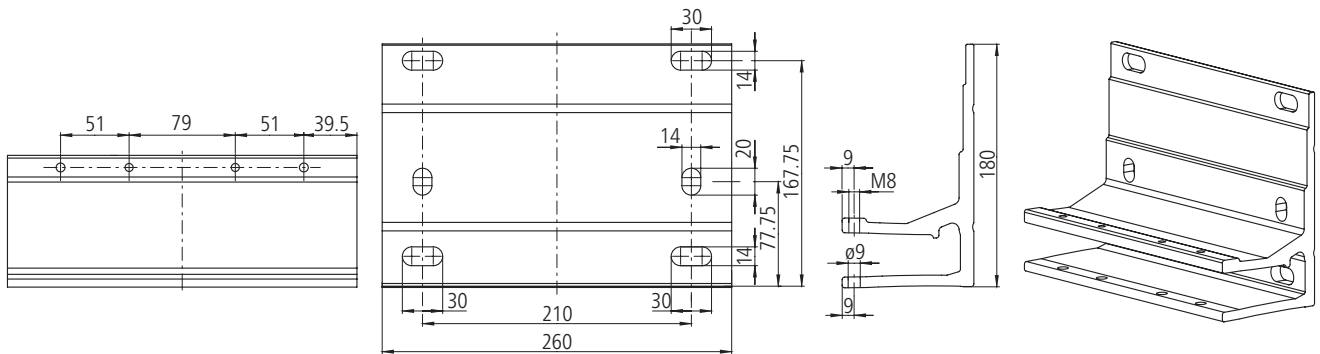
Bracket assembly consisting of:
260 mm wall bracket; item no. 108752

Notes on this bracket assembly:
2x 260 mm wall bracket (WB260)
2 brackets per awning arm, distance between centre lines 285 mm
4 top installation points, distance between centre lines per bracket 210 mm
8 installation points in total
Standard installation points: Top + middle
Optional installation points: Top + bottom (reduced extraction force if not pressure-resistant)
Not for Kubata with LED
Reduced width/length ratio



Different representation for Topas

Corresponding centre bracket assembly:
85 mm wall bracket (WB85); item no. 106810



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
4	4x WB260	without CTB	4x 108752
4;1	4x WB260, 1x WB85	with CTB	4x 108752 + 1x 106810
6;1	6x WB260, 1x WB85	3 arms, with CTB	6x 108752 + 1x 106810

Selection of brackets

Wall mounting

Kubata bracket assembly consisting of:
295 mm wall bracket; item no. 125667

Notes on this bracket assembly:

1x 295 mm wall bracket (WB295)

1 bracket per arm

3 top installation points, distance between centre lines 105 mm

6 installation points in total

Standard installation points: Top + middle

Optional installation points: Top + bottom (reduced extraction force if not pressure-resistant)

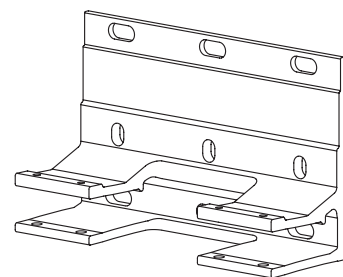
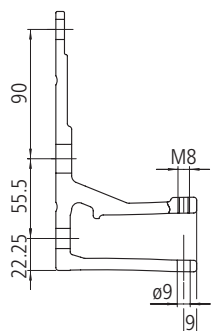
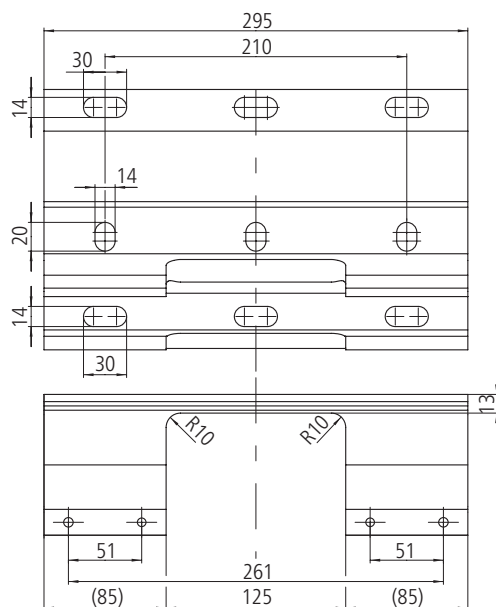
Reduced width/length ratio

Cannot be used with three-arm constructions!



Corresponding centre bracket assembly:

85 mm wall bracket (WB85); item no. 106810



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2	2x WB295	without CTB	2x 125667
2;1	2x WB295, 1x WB85	with CTB	2x 125667 + 1x 106810

Selection of brackets

Wall mounting with mounting plate

Bracket assembly consisting of:

250 x 290 x 15 mm mounting plate with:
- 1x 85 mm wall bracket; item no. 108753

Notes on this bracket assembly:

1x 250 x 290 x 15 mm mounting plate (MP250)

incl. 1x 85 mm wall bracket (WB85)

1 mounting plate per arm

2 top installation points, distance between centre lines 200 mm

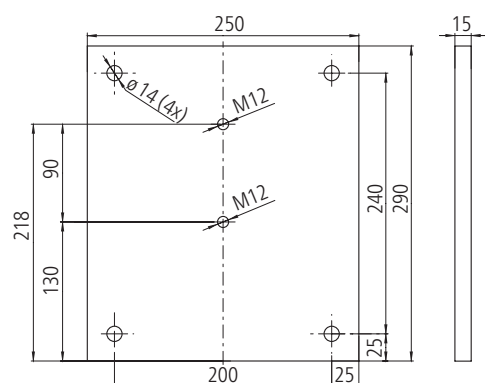
4 installation points in total

Only 1 bracket per arm



Corresponding centre bracket assembly:

15 mm base plate (BP) including 1x 85 mm wall bracket (WB85); item no. 108751



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2	2x MP250, 2x WB85	without CTB	2x 108753
2;3;1	2x MP250, 3x WB85, 1x BP	with CTB	2x 108753 + 1x 108751
3;4;1	3x MP250, 4x WB85, 1x UP	3 arms, with CTB	3x 108753 + 1x 108751

Selection of brackets

Wall mounting with mounting plate

Bracket assembly consisting of:

660 x 300 x 15 mm mounting plate with:

- 1x 85 mm wall bracket; item no. 108754
- 2x 85 mm wall bracket; item no. 108755

Notes on this bracket assembly:

1x 660 x 300 x 15 mm mounting plate (MP300)

incl. 1x 85 mm wall bracket (WB85)

or 2x 85 mm wall bracket (WB85)

1 mounting plate per arm

4 top installation points, distance between centre lines 200 mm

6 installation points in total

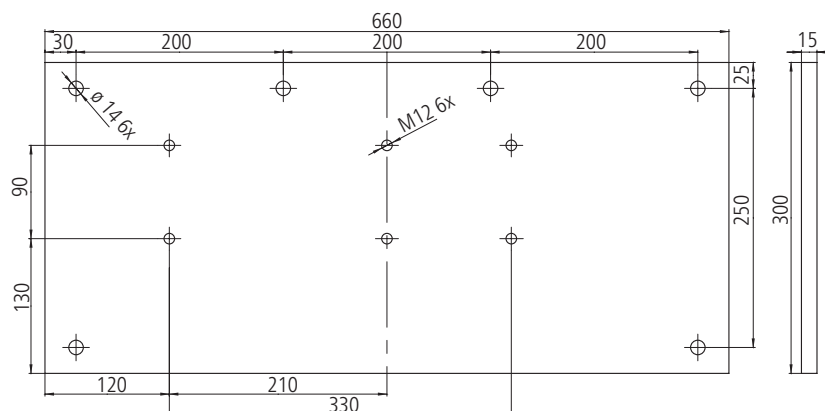
Reduced width/length ratio if using 2 brackets per arm



Different representation for Topas

Corresponding centre bracket assembly:

15 mm base plate (BP) including 1x 85 mm wall bracket (WB85); item no. 108751



Information for ordering brackets

Assemblies for one bracket per arm

Number	Scope of delivery	Note	Item number for order
2;2	2x MP300, 2x WB85	without CTB	2x 108754
2;3;1	2x MP300, 3x WB85, 1x UP	with CTB	2x 108754 + 1x 108751
3;4;1	3x MP300, 4x WB85, 1x BP	3 arms, with CTB	3x 108754 + 1x 108751

Assemblies for two brackets per arm

Number	Scope of delivery	Note	Item number for order
2;4	2x MP300, 4x WB85	without CTB	2x 108755
2;5;1	2x MP300, 5x WB85, 1x BP	with CTB	2x 108755 + 1x 108751
3;7;1	3x MP300, 7x WB85, 1x BP	3 arms, with CTB	3x 108755 + 1x 108751

Selection of brackets

Wall mounting with mounting plate

Bracket assembly consisting of:

660 x 390 x 15 mm mounting plate with:

- 1x 85 mm wall bracket; item no. 108756
- 2x 85 mm wall bracket; item no. 108745

Notes on this bracket assembly:

1x 660 x 390 x 15 mm mounting plate (MP390)

incl. 1x 85 mm wall bracket (WB85)

or 2x 85 mm wall bracket (WB85)

1 mounting plate per arm

4 top installation points, distance between centre lines 200 mm

6 installation points in total

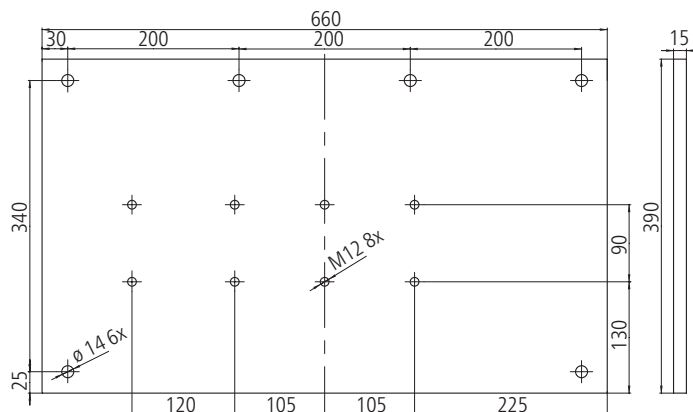
Reduced width/length ratio if using 2 brackets per arm



Different representation for Topas

Corresponding centre bracket assembly:

15 mm base plate (BP) including 1x 85 mm wall bracket (WB85); item no. 108751



Information for ordering brackets

Assemblies for one bracket per arm

Number	Scope of delivery	Note	Item number for order
2;2	2x MP390, 2x WB85	without CTB	2x 108756
2;3;1	2x MP390, 3x WB85, 1x BP	with CTB	2x 108756 + 1x 108751
3;4;1	3x MP390, 4x WB85, 1x BP	3 arms, with CTB	3x 108756 + 1x 108751

Assemblies for two brackets per arm

Number	Scope of delivery	Note	Item number for order
2;4	2x MP390, 4x WB85	without CTB	2x 108745
2;5;1	2x MP390, 5x WB85, 1x BP	with CTB	2x 108745 + 1x 108751
3;7;1	3x MP390, 7x WB85, 1x BP	3 arms, with CTB	3x 108745 + 1x 108751

Selection of brackets

Wall mounting with mounting plate

Bracket assembly consisting of:

450 x 200 x 30 mm mounting plate with:

- 1x 85 mm wall bracket; item no. 124500
- 2x 85 mm wall bracket; item no. 124152

Notes on this bracket assembly:

1x 450 x 200 x 30 mm mounting plate (MP450)

incl. 1x 85 mm wall bracket (WB85)

or 2x 85 mm wall bracket (WB85)

1 mounting plate per arm

3 top installation points, distance between centre lines 200 mm

6 installation points in total

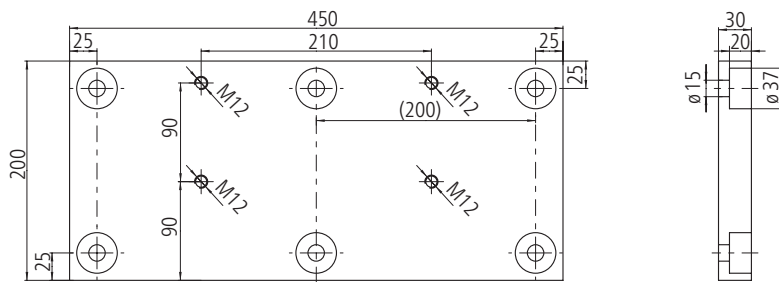
Reduced width/length ratio if using 2 brackets per arm

Cannot be used with 2 brackets per arm with 3-arm constructions!



Corresponding centre bracket assembly:

2x 15 mm base plate (BP) including 1x 85 mm wall bracket (WB85); item no. 124153



Information for ordering brackets

Assemblies for one bracket per arm

Number	Scope of delivery	Note	Item number for order
2;2	2x MP450, 2x WB85	without CTB	2x 124500
2;3;2	2x MP450, 3x WB85, 2x BP	with CTB	2x 124500 + 1x 124153
3;4;2	3x MP450, 4x WB85, 2x BP	3 arms, with CTB	3x 124500 + 1x 124153

Assemblies for two brackets per arm

Number	Scope of delivery	Note	Item number for order
2;4	2x MP450, 4x WB85	without CTB	2x 124152
2;5;2	2x MP450, 5x WB85, 2x BP	with CTB	2x 124152 + 1x 124153

Selection of brackets

Wall mounting with mounting plate

Bracket assembly consisting of:

640 x 200 x 30 mm mounting plate with:

- 1x 85 mm wall bracket; item no. 124501
- 2x 85 mm wall bracket; item no. 124411

Notes on this bracket assembly:

1x 640 x 200 x 30 mm mounting plate (MP640)

incl. 1x 85 mm wall bracket (WB85)

or 2x 85 mm wall bracket (WB85)

1 mounting plate per arm

6 top installation points, distance between centre lines 200 mm

12 installation points in total

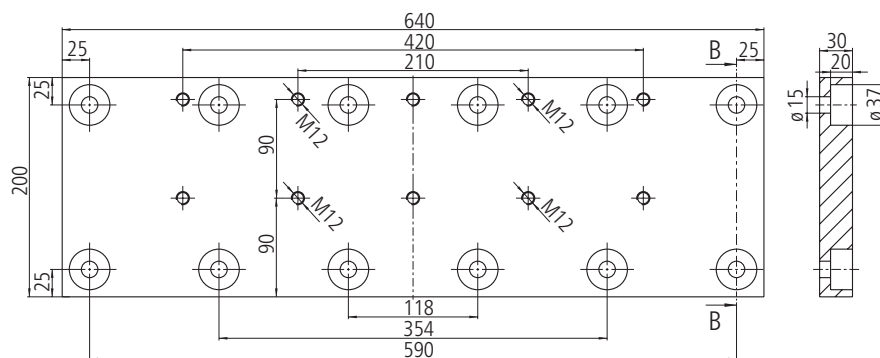
Reduced width/length ratio if using 2 brackets per arm

Cannot be used with 2 brackets per arm with 3-arm constructions!



Corresponding centre bracket assembly:

2x 15 mm base plate (BP) including 1x 85 mm wall bracket (WB85); item no. 124153



Information for ordering brackets

Assemblies for one bracket per arm

Number	Scope of delivery	Note	Item number for order
2;2	2x MP640, 2x WB85	without CTB	2x 124501
2;3;2	2x MP640, 3x WB85, 2x BP	with CTB	2x 124501 + 1x 124153
3;4;2	3x MP640, 4x WB85, 2x BP	3 arms, with CTB	3x 124501 + 1x 124153

Assemblies for two brackets per arm

Number	Scope of delivery	Note	Item number for order
2;4	2x MP640, 4x WB85	without CTB	2x 124411
2;5;2	2x MP640, 5x WB85, 2x BP	with CTB	2x 124411 + 1x 124153

Selection of brackets

Roof mounting

Bracket assembly consisting of:

85 mm ceiling bracket with:
- 85 mm wall bracket; item no. 101428

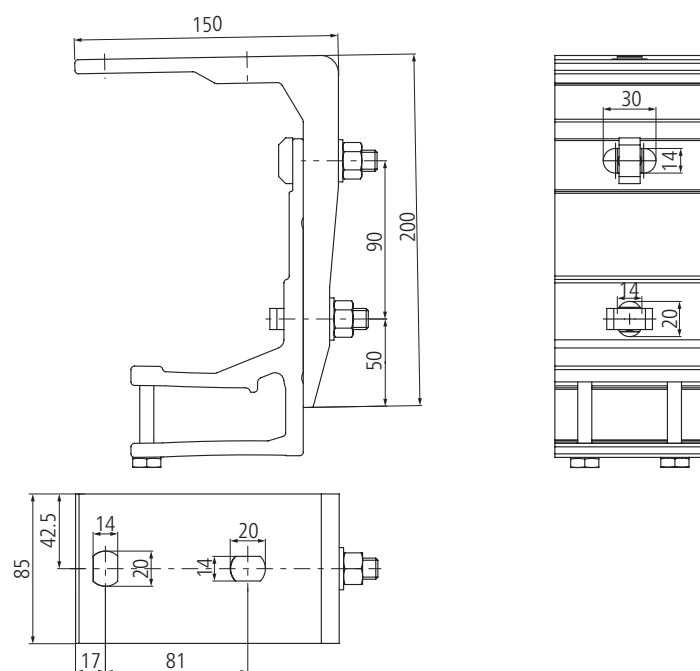
Notes on this bracket assembly:

1x 85 mm ceiling bracket (CB85)
incl. 1x 85 mm wall bracket (WB85)
1 bracket per arm
1 front installation point
2 installation points in total



Corresponding centre bracket assembly:

85 mm ceiling bracket (CB85) including 1x 85 mm wall bracket (WB85); item no. 101428



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2	2x CB85, 2x WB85	without CTB	2x 101428
3;3	3x CB85, 3x WB85	with CTB	3x 101428
4;4	4x CB85, 4x WB85	3 arms, with CTB	4x 101428

Selection of brackets

Roof mounting

Bracket assembly consisting of:

85 mm ceiling bracket with:
- 85 mm wall bracket; item no. 101428

Notes on this bracket assembly:

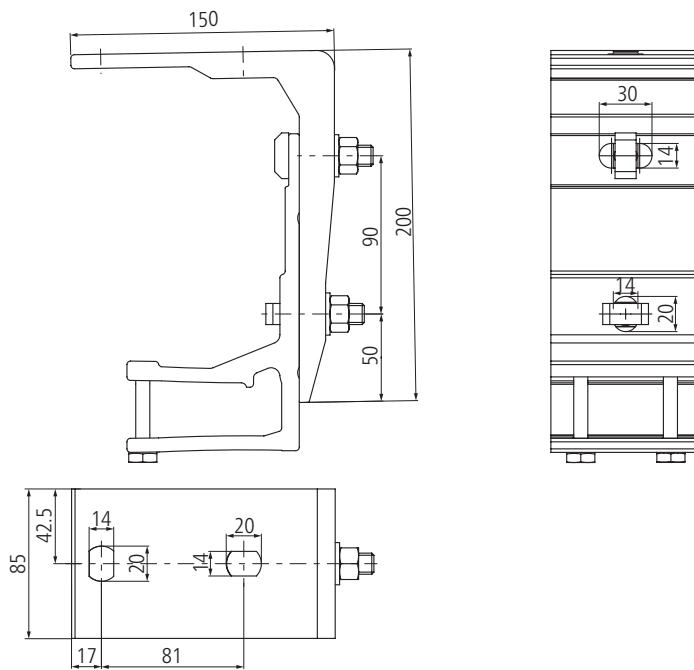
2x 85 mm ceiling bracket (CB85)
incl. 2x 85 mm wall bracket (WB85)
2 brackets per arm
2 front installation points
4 installation points in total



Different representation for Topas

Corresponding centre bracket assembly:

85 mm ceiling bracket (CB85) including 1x 85 mm wall bracket (WB85); item no. 101428



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
4;4	4x CB85, 4x WB85	without CTB	4x 101428
5;5	5x CB85, 5x WB85	with CTB	5x 101428
7;7	7x CB85, 7x WB85	3 arms, with CTB	7x 101428

Selection of brackets

Roof mounting

Bracket assembly consisting of:

295 mm ceiling bracket with:

- 260 mm wall bracket; item no. 127321

Notes on this bracket assembly:

1x 295 mm ceiling bracket (CB295)

incl. 1x 260 mm wall bracket (WB260)

1 bracket per arm

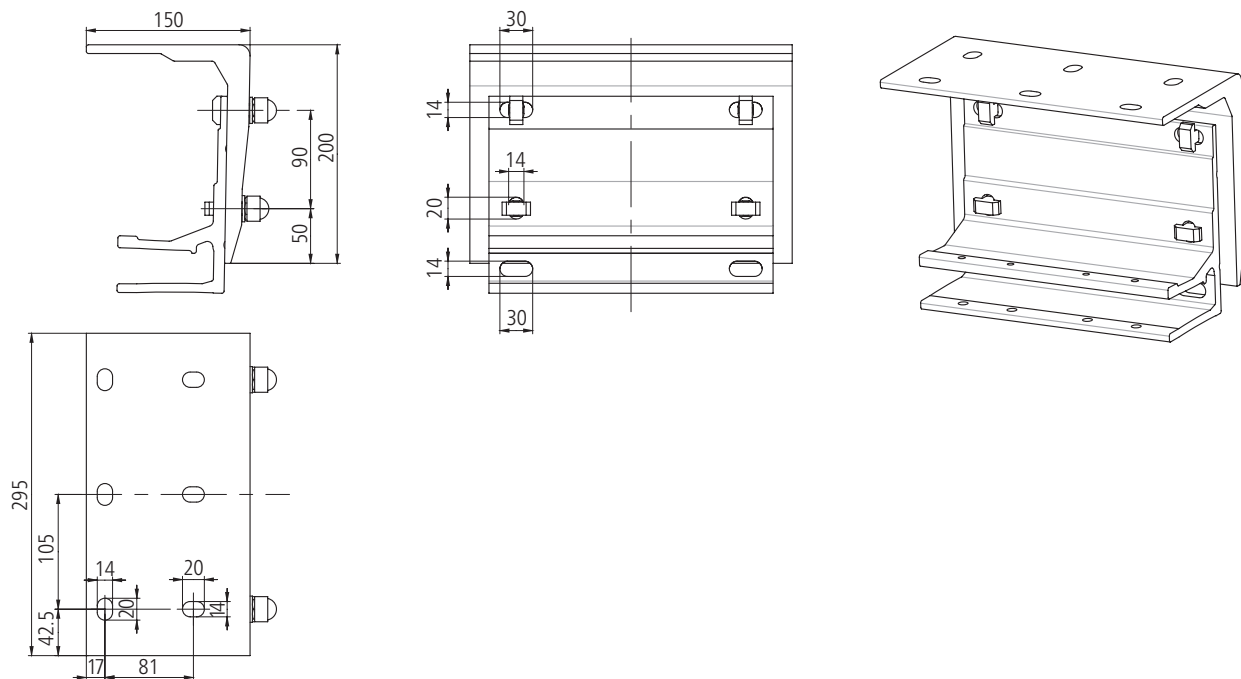
3 front installation points

6 installation points in total



Corresponding centre bracket assembly:

85 mm ceiling bracket (CB85) including 1x 85 mm wall bracket (WB85); item no. 101428



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2	2x CB295, 2x WB260	without CTB	2x 127321
2;2;1;1	2x CB295; 2x WB260; 1x CB85; 1x WB85	with CTB	2x 127321 + 1x 101428
3;3;1;1	3x CB295, 3x WB260; 1x CB85; 1x WB85	3 arms, with CTB	3x 127321 + 1x 101428

Selection of brackets

Roof mounting

Bracket assembly consisting of:

295 mm ceiling bracket with:
- 260 mm wall bracket; item no. 127321

Notes on this bracket assembly:

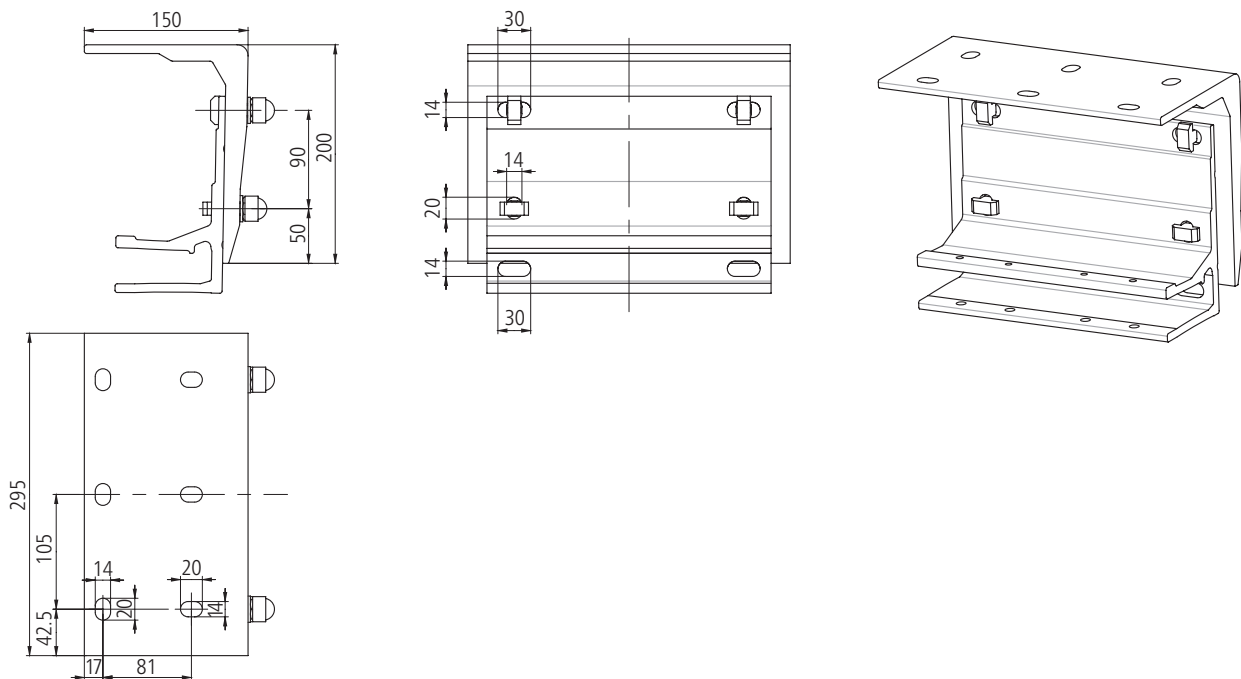
2x 295 mm ceiling bracket (CB295)
incl. 2x 260 mm wall bracket (WB260)
2 brackets per arm
6 front installation points
12 installation points in total



Different representation for Topas

Corresponding centre bracket assembly:

85 mm ceiling bracket (CB85) including 1x 85 mm wall bracket (WB85); item no. 101428



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
4;4	4x CB295, 4x WB260	without CTB	4x 127321
4;4;1;1	4x CB295; 4x WB260, 1x CB85; 1x WB85	with CTB	4x 127321 + 1x 101428
6;6;1;1	6x CB295; 6x WB260, 1x CB85; 1x WB85	3 arms, with CTB	6x 127321 + 1x 101428

Selection of brackets

Roof mounting

Bracket assembly consisting of:

295 mm ceiling bracket with:
- 295 mm wall bracket; item no. 127320

Notes on this bracket assembly:

1x 295 mm ceiling bracket (CB295)
incl. 1x 295 mm wall bracket (WB295)

1 bracket per arm

1 front installation point

2 installation points in total

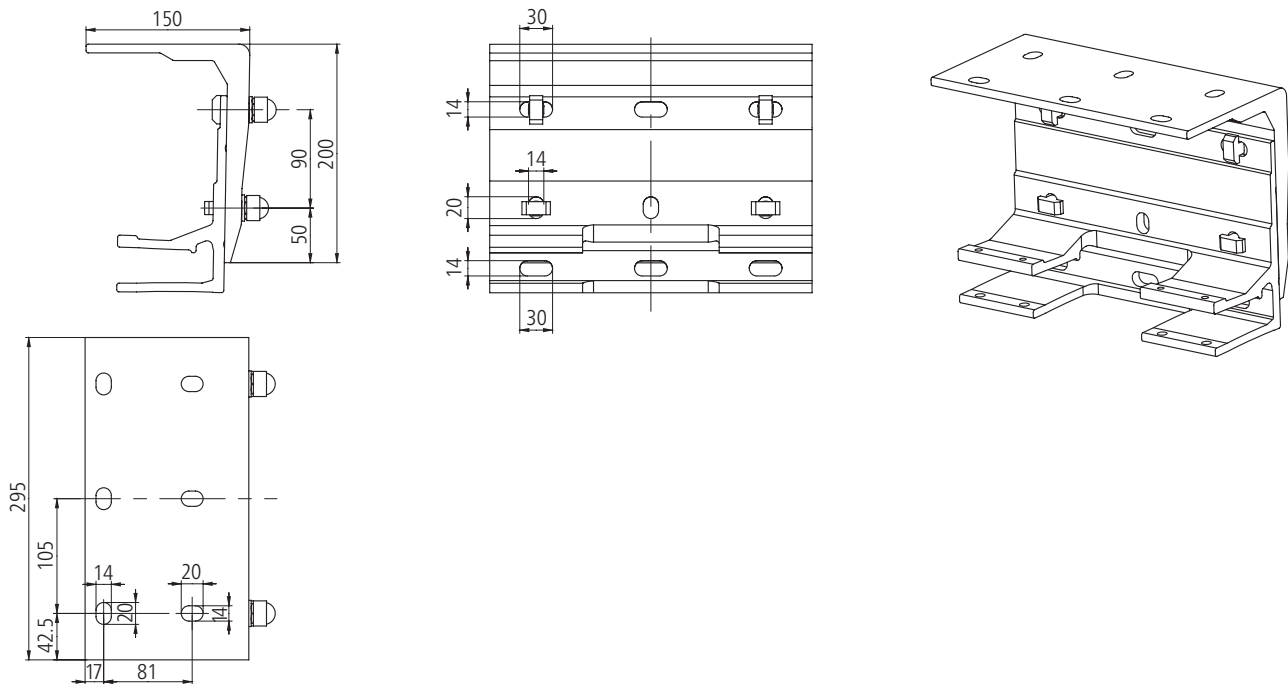
Cannot be used with three-arm constructions!



Different representation for Topas

Corresponding centre bracket assembly:

85 mm ceiling bracket (CB85) including 1x 85 mm wall bracket (WB85); item no. 101428



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2	2x CB295, 2x WB295	without CTB	2x 127320
2;2;1;1	2x CB295; 2x WB295; 1x CB85; 1x WB85	with CTB	2x 127320 + 1x 101428
2;2;3;3	2x CB295, 2x WB295; 3x CB85; 3x WB85	3 arms, with CTB	2x 127320 + 3x 101428

Selection of brackets

Roof mounting

Bracket assembly consisting of:

Compact ceiling bracket, item no. 101432

Notes on this bracket assembly:

1x compact ceiling bracket (CCB)

1 bracket per arm

1 front installation point

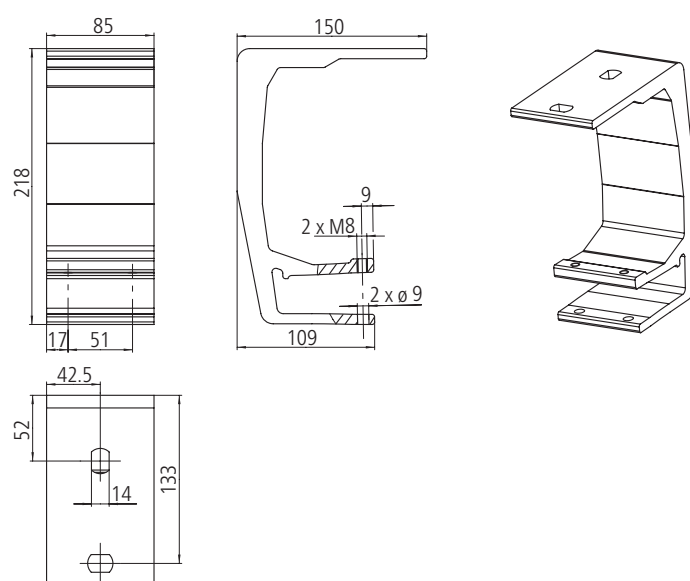
2 installation points in total

Only for Topas without roof



Corresponding centre bracket assembly:

Compact ceiling bracket (CCB), item no. 101432



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2	2x CCB	without CTB	2x 101432
3	3x CCB	with CTB	3x 101432
4	4x CCB	3 arms, with CTB	4x 101432

Selection of brackets

Roof mounting

Bracket assembly consisting of:

Compact ceiling bracket, item no. 101432

Notes on this bracket assembly:

2x compact ceiling bracket (CCB)

2 brackets per arm

2 front installation points

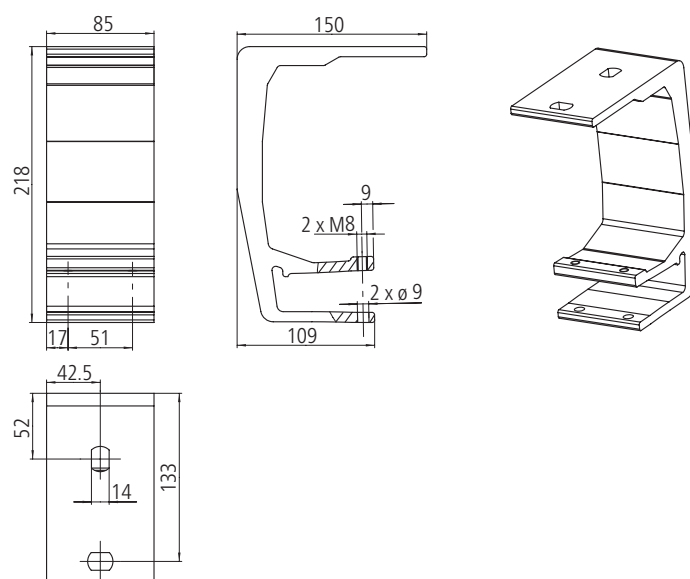
4 installation points in total

Only for Topas without roof



Corresponding centre bracket assembly:

Compact ceiling bracket (CCB), item no. 101432



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
4	4x CCB	without CTB	4x 101432
5	5x CCB	with CTB	5x 101432
7	7x CCB	3 arms, with CTB	7x 101432

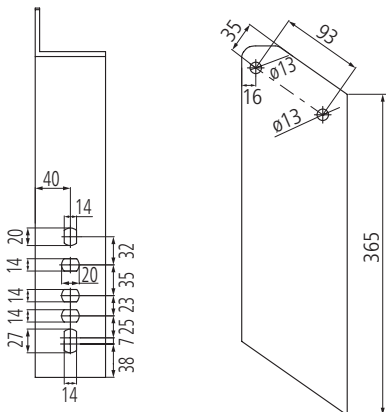
Rafter mounting

- 85 mm wall bracket; item no. 111545

One left and right version each



Rafter bracket (RB) including 1x 85 mm wall bracket (WB85); item no. 111545



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2	2x RB, 2x WB85	without CTB	2x 111545
3;3	3x DH, 3x WB85	with CTB	3x 111545
4;4	4x DH, 4x WB85	3 arms, with CTB	4x 111545

Selection of brackets

Rafter mounting

Bracket assembly consisting of:

Rafter bracket with:

- 85 mm wall bracket; item no. 111545

Notes on this bracket assembly:

2x rafter bracket (RB)

incl. 2x 85 mm wall bracket (WB85)

2 brackets per arm

2 front installation points

4 installation points in total

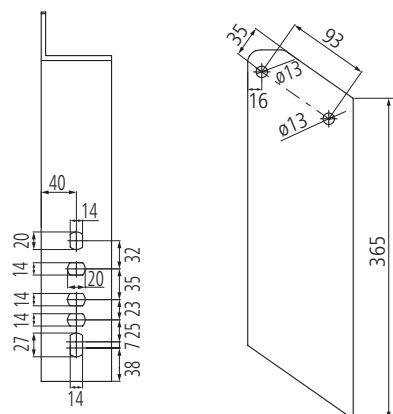
One left and right version each



Different representation for Topas

Corresponding centre bracket assembly:

Rafter bracket (RB) including 1x 85 mm wall bracket (WB85); item no. 111545



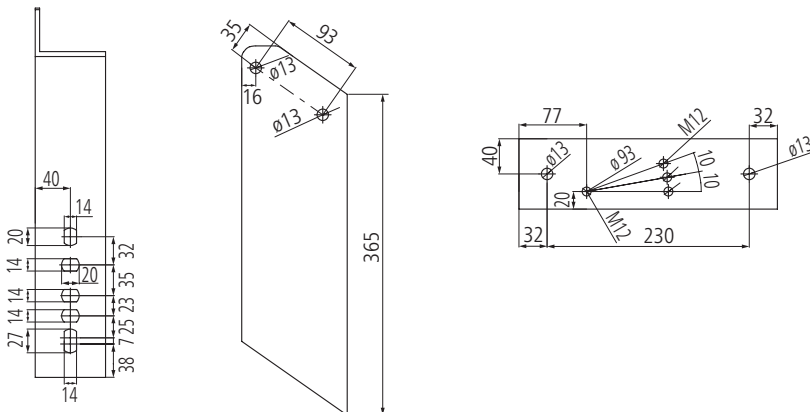
Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
4;4	4x RB, 4x WB85	without CTB	4x 111545
5;5	5x RB, 5x WB85	with CTB	5x 111545
7;7	7x RB, 7x WB85	3 arms, with CTB	7x 111545

Rafter mounting

One left and right version each

Rafter bracket (RB) and mounting plate (MP) including 1x 85 mm wall bracket (WB85); item no. 111546



Number	Scope of delivery	Note	Item number for order
2;2;2	2x RB, 2x WB85, 2x MP	without CTB	2x 111546
3;3;3	3x DH, 3x WB85, 3x MP	with CTB	3x 111546
4;4;4	4x DH, 4x WB85, 4x MP	3 arms, with CTB	4x 111546

01 Square/carrier bar awnings

Extraction forces and transverse forces

Kubata	32
I/K 2000	47
N 2000	62
Semina	77
Topas (all alternatives)	92



Shaded area means limiting size

Extraction forces and transverse forces

Kubata – wall mounting

Type of mount: **1x 85 mm wall bracket (WB85) per arm**

Table valid for all the following bracket assemblies:	2	3
Total number of installation points:	4	6

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	1854	2710	3750				without CTB
3000	2145	3134	4330	5792			
3500	2436	3559	4909	6549			
4000	2727	3984	5489	7305			
4500	3018	4408	6069	8062			
5000	3309	4833	6649				with CTB
5500	3600	5257	7229				
6000	3890	5682	7809				
6500	4181	6107	8388				
7000	4472	6531	9928				

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	146	151	157				without CTB
3000	164	169	175	183			
3500	182	187	194	202			
4000	200	206	212	221			
4500	218	224	230	239			
5000	159	163	167				with CTB
5500	171	175	179				
6000	183	187	192				
6500	195	199	204				
7000	207	211	216				

Extraction forces and transverse forces

Kubata – wall mounting

Type of mounting: **2x 85 mm wall bracket (WB85) per arm**

Table valid for all the following bracket assemblies:	4	5
Total number of installation points:	8	10

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	927	1355	1875				without CTB
3000	1073	1567	2165	2896			
3500	1218	1779	2455	3274	4126		
4000	1364	1992	2745	3653	4603	6417	
4500	1509	2204	3035	4031	5081	7089	
5000	1654	2416	3324	4409	6199	7762	with CTB
5500	1800	2629	3614	4787	6742	8435	
6000	1945	2841	3904	5743	7286	9107	
6500	2091	3053	4194	6170	7829	9780	
7000	2236	3266	4964	6598			

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	75	77	80				without CTB
3000	84	87	90	94			
3500	93	96	99	103	105		
4000	102	105	108	112	115	119	
4500	111	114	117	122	124	129	
5000	97	99	102	105	108	112	with CTB
5500	104	106	109	113	115	119	
6000	111	114	117	120	123	127	
6500	119	121	124	128	130	134	
7000	126	128	131	135			

Extraction forces and transverse forces

Kubata – wall mounting

Type of mounting: **1x 260 mm wall bracket (WB260) per arm**

Table valid for all the following bracket assemblies:	2	2;1
Total number of installation points:	8	10

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	927	1355	1875				without CTB
3000	1073	1567	2165	2896			
3500	1218	1779	2455	3274			
4000	1364	1992	2745	3653			
4500	1509	2204	3035	4031			
5000	1654	2416	3324				with CTB
5500	1800	2629	3614				
6000	1945	2841	3904				
6500	2091	3053	4194				
7000	2236	3266	4964				

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	77	79	82				without CTB
3000	86	88	91	96			
3500	95	98	101	105			
4000	104	107	110	114			
4500	113	116	119	124			
5000	99	101	103				with CTB
5500	106	108	111				
6000	113	115	118				
6500	120	123	125				
7000	127	130	133				

Extraction forces and transverse forces

Kubata – wall mounting

Type of mounting: **2x 260 mm wall bracket (WB260) per arm**

Table valid for all the following bracket assemblies:	4	4;1
Total number of installation points:	16	18

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	464	577	637				without CTB
3000	536	784	1082	1448			
3500	609	890	1227	1631	2065		
4000	682	996	1372	1826	2302	3208	
4500	754	1102	1517	2015	2540	3545	
5000	827	1208	1662	2205	3099	3881	with CTB
5500	900	1314	1807	2394	3371	4217	
6000	973	1420	1952	2871	3643	4554	
6500	1045	1527	2097	3085	3915	4890	
7000	1118	1633	2482	3299			

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	42	43	44				without CTB
3000	46	47	49	51			
3500	51	52	53	55	57		
4000	55	56	58	60	61	64	
4500	60	61	62	65	66	68	
5000	57	59	60	62	63	65	with CTB
5500	61	63	64	66	67	70	
6000	65	67	68	70	72	74	
6500	69	71	72	74	76	78	
7000	73	75	76	79			

Extraction forces and transverse forces

Kubata – wall mounting

Type of mount: **1x 295 mm wall bracket (WB295) per arm**

Table valid for all the following bracket assemblies:	2	2;1
Total number of installation points:	12	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	618	903	1250				without CTB
3000	715	1045	1443	1931			
3500	812	1186	1636	2183	2751		
4000	909	1328	1830	2435	3069	4278	
4500	1006	1469	2023	2687	3387	4726	
5000	1103	1611	2216	2939	4132	5175	with CTB
5500	1200	1752	2410	3192	4495	5623	
6000	1297	1894	2603	3828	4857	6072	
6500	1394	2036	2796	4114	5219	6520	
7000	1491	2177	3309	4399			

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	51	52	54				without CTB
3000	57	58	61	63			
3500	63	65	67	69	71		
4000	69	71	73	76	77	80	
4500	75	77	79	82	84	87	
5000	70	72	73	76	78	80	with CTB
5500	75	77	79	81	83	86	
6000	80	82	84	87	88	91	
6500	85	87	89	92	94	97	
7000	91	92	94	97			

Extraction forces and transverse forces

Kubata – wall mounting with mounting plate

Type of mount: **1x 250x290x15 mm mounting plate (MP250) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1
Total number of installation points:	8	10

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	176	257	354				without CTB
3000	204	297	409	547			
3500	231	337	464	618			
4000	259	377	519	690			
4500	286	417	574	761			
5000	314	457	628				with CTB
5500	341	498	683				
6000	369	538	738				
6500	397	578	793				
7000	424	618	938				

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	80	83	85				without CTB
3000	89	92	95	99			
3500	98	101	104	108			
4000	107	110	113	117			
4500	116	119	122	127			
5000	102	104	107				with CTB
5500	109	111	114				
6000	116	119	121				
6500	123	126	129				
7000	131	133	136				

Extraction forces and transverse forces

Kubata – wall mounting with mounting plate

Type of mount: **1x 660x300x15 mm mounting plate (MP300) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1
	2;4	2;5;1
Total number of installation points:	12	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	169	246	340				without CTB
3000	195	285	393	525			
3500	222	323	446	594	747		
4000	248	362	498	662	834	1162	
4500	275	401	551	731	920	1284	
5000	301	439	603	799	1123	1405	with CTB
5500	328	478	656	868	1221	1527	
6000	354	516	709	1041	1320	1649	
6500	381	555	761	1119	1418	1771	
7000	407	593	901	1196			

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 90% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	63	65	66				without CTB
3000	69	71	73	75			
3500	75	77	79	82	83		
4000	81	83	85	88	89	93	
4500	87	89	91	94	96	99	
5000	81	82	84	87	88	91	with CTB
5500	86	88	90	92	94	97	
6000	91	93	95	98	99	102	
6500	96	98	100	103	105	107	
7000	101	103	105	108			

Extraction forces and transverse forces

Kubata – wall mounting with mounting plate

Type of mount: **1x 660x390x15 mm mounting plate (MP390) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1
	2;4	2;5;1
Total number of installation points:	12	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	124	181	250				without CTB
3000	144	209	289	386			
3500	163	238	328	436	550		
4000	183	266	366	487	613	854	
4500	202	295	405	537	677	944	
5000	222	323	444	588	826	1033	with CTB
5500	241	351	482	638	898	1123	
6000	260	380	521	766	971	1212	
6500	280	408	560	823	1043	1302	
7000	299	436	662	880			

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 90% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	67	68	70				without CTB
3000	73	74	76	79			
3500	79	80	82	85	87		
4000	85	86	89	92	93	96	
4500	91	93	95	98	99	103	
5000	84	86	88	90	92	94	with CTB
5500	89	91	93	95	97	100	
6000	94	96	98	101	102	105	
6500	99	101	103	106	108	111	
7000	105	106	109	111			

Extraction forces and transverse forces

Kubata – wall mounting with mounting plate

Type of mount: **1x 450x200x30 mm mounting plate (MP450) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;2
	2;4	2;5;2
Total number of installation points:	12	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	380	553	763				without CTB
3000	439	639	880	1175			
3500	499	726	998	1329	1672		
4000	558	812	1116	1482	1865	2597	
4500	618	899	1234	1636	2058	2869	
5000	677	985	1352	1789	2512	3141	with CTB
5500	737	1072	1469	1942	2732	3413	
6000	796	1158	1587	2331	2952	3685	
6500	856	1245	1705	2504	3172	3957	
7000	915	1331	2019	2678			

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	61	63	65				without CTB
3000	67	69	71	74			
3500	73	75	77	80	81		
4000	79	81	83	86	88	91	
4500	85	87	89	92	94	97	
5000	80	81	83	86	87	90	with CTB
5500	85	87	89	91	93	96	
6000	90	92	94	96	98	101	
6500	95	97	99	102	103	106	
7000	100	102	104	107			

Extraction forces and transverse forces

Kubata – wall mounting with mounting plate

Type of mount: **1x 640x200x30 mm mounting plate (MP640) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;2
	2;4	2;5;2
Total number of installation points:	24	26

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	190	216	381				without CTB
3000	220	320	440	588			
3500	249	363	499	664	836		
4000	279	406	558	741	932	1298	
4500	309	449	617	818	1029	1434	
5000	339	493	676	894	1256	1571	with CTB
5500	368	536	735	971	1366	1707	
6000	398	579	794	1165	1476	1843	
6500	428	622	853	1252	1586	1979	
7000	458	666	1009	1339			

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	33	34	35				without CTB
3000	36	37	38	39			
3500	39	40	41	42	43		
4000	42	43	44	45	46	48	
4500	45	46	47	48	49	51	
5000	45	46	47	48	49	51	with CTB
5500	48	49	50	51	52	54	
6000	51	51	53	54	55	56	
6500	53	54	55	57	58	59	
7000	56	57	58	60			

Extraction forces

Kubata – roof mounting

Type of mount: **1x 85 mm ceiling bracket (CB85) per arm**

Table valid for all the following bracket assemblies:	2;2	3;3
Total number of installation points:	4	6

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	1388	1996	2737				without CTB
3000	1601	2303	3155	4201			
3500	1814	2611	3573	4745			
4000	2027	2918	3991	5289			
4500	2240	3226	4409	5832			
5000	2375	3454	4745				with CTB
5500	2582	3755	5156				
6000	2789	4057	5568				
6500	2996	4358	5980				
7000	3203	4659	7042				

Type of mount: **2x 85 mm ceiling bracket (CB85) per arm**

Table valid for all the following bracket assemblies:	4;4	5;5
Total number of installation points:	8	10

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	699	1002	1373				without CTB
3000	805	1156	1582	2105			
3500	912	1310	1791	2377	2988		
4000	1018	1464	2000	2649	3331	4618	
4500	1124	1617	2209	2921	3673	5099	
5000	1208	1747	2393	3167	4433	5553	with CTB
5500	1312	1899	2600	3437	4820	6032	
6000	1417	2051	2807	4103	5206	6511	
6500	1522	2203	3015	4407	5593	6990	
7000	1626	2355	3547	4711			

Extraction forces and transverse forces

Kubata – roof mounting

Type of mount: **1x 295 mm ceiling bracket with 260 mm wall bracket (CB295/260) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1
Total number of installation points:	12	14

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	470	673	920				without CTB
3000	541	775	1.059	1.408			
3500	612	878	1.199	1.589			
4000	683	980	1.338	1.770			
4500	754	1.083	1.477	1.952			
5000	814	1.174	1.604				with CTB
5500	884	1.275	1.743				
6000	954	1.377	1.881				
6500	1.024	1.479	2.020				
7000	1.094	1.580	2.375				

Type of mount: **2x 295 mm ceiling bracket with 260 mm wall bracket (CB295/260) per arm**

Table valid for all the following bracket assemblies:	4;4	4;4;1;1
Total number of installation points:	24	26

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	240	342	465				without CTB
3000	276	393	535	709			
3500	311	444	605	800	1.003		
4000	347	495	674	890	1.118	1.547	
4500	382	547	744	981	1.232	1.707	
5000	415	595	810	1.068	1.490	1.864	with CTB
5500	450	646	880	1.159	1.620	2.024	
6000	485	697	949	1.381	1.749	2.184	
6500	521	748	1.018	1.483	1.878	2.344	
7000	556	799	1.196	1.584			

Extraction forces and transverse forces

Kubata – roof mounting

Type of mount: **1x 295 ceiling bracket mm with 295 mm wall bracket (CB295/295) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1
Total number of installation points:	12	14

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	470	672	919				without CTB
3000	541	775	1.059	1.407			
3500	612	877	1.198	1.589	1.996		
4000	683	980	1.337	1.770	2.224	3.083	
4500	754	1.082	1.477	1.951	2.453	3.403	
5000	813	1.173	1.604	2.120	2.964	3.711	with CTB
5500	883	1.275	1.742	2.301	3.222	4.031	
6000	954	1.377	1.881	2.745	3.480	4.351	
6500	1.024	1.478	2.019	2.948	3.738	4.670	
7000	1.094	1.580	2.374	3.151			

Shear forces

Kubata – rafter mounting

Type of mount: **1x rafter bracket (RB) per arm**

Table valid for all the following bracket assemblies:	2;2	3;3
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	1932	2762	3771				without CTB
3000	2230	3188	4348	5767			
3500	2527	3615	4924	6515			
4000	2824	4042	5501	7262			
4500	3122	4468	6077	8009			
5000	3342	4815	6572				with CTB
5500	3633	5236	7143				
6000	3924	5656	7713				
6500	4216	6077	8283				
7000	4507	6497	9776				

Type of mount: **2x rafter bracket (DH) per arm**

Table valid for all the following bracket assemblies:	4;4	5;5
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	1861	2688	3695				without CTB
3000	2150	3106	4262	5678			
3500	2438	3523	4829	6416	8063		
4000	2726	3941	5397	7154	8992	12497	
4500	3014	4358	5964	7892	9922	13803	
5000	3280	4752	6507	8604	12059	15082	with CTB
5500	3566	5167	7072	9340	13114	16387	
6000	3853	5583	7638	11187	14169	17691	
6500	4139	5999	8203	12018	15224	18996	
7000	4426	6414	9691	12850			

When mounted on two separate rafters, the shear forces are reduced to 50%.

Shear forces

Kubata – rafter mounting

Type of mount: **1x rafter bracket with mounting plate (RB MP) per arm**

Table valid for all the following bracket assemblies:	2;2;2	3;3;3
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	876	1215	1626				without CTB
3000	1007	1398	1870	2449			
3500	1138	1581	2114	2762			
4000	1269	1765	2358	3076			
4500	1400	1948	2602	3389			
5000	1454	2052	2765				with CTB
5500	1579	2229	3003				
6000	1704	2406	3241				
6500	1829	2584	3479				
7000	1954	2761	4090				

Type of mount: **2x rafter bracket with mounting plate (DH MP) per arm**

Table valid for all the following bracket assemblies:	4;4;4	5;5;5
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	805	1141	1550				without CTB
3000	927	1315	1785	2359			
3500	1049	1490	2019	2663	3331		
4000	1171	1664	2254	2967	3712	5132	
4500	1293	1838	2489	3271	4094	5666	
5000	1392	1988	2700	3550	4948	6173	with CTB
5500	1512	2161	2933	3852	5379	6705	
6000	1632	2333	3166	4603	5810	7237	
6500	1752	2506	3399	4944	6241	7769	
7000	1872	2678	4005	5284			

When mounted on two separate rafters, the shear forces are reduced to 50%.

Extraction forces and transverse forces

I/K 2000 – wall mounting

Type of mount: **1x 85 mm wall bracket (WB85) per arm**

Table valid for all the following bracket assemblies:	2	3	4
Total number of installation points:	4	6	8

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	1567	2338	3295				without CTB
3000	1804	2693	3789	5152			
3500	2041	3048	4283	5807			
4000	2278	3403	4777	6462			with CTB
4500	2514	3757	5271	7117			
5000	2751	4112	5765	7772			
5500	2988	4467	6259				
6000	3225	4822	6753				
6500	3462	5176	7247				
7000	2597	3885	6093				3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	128	132	138				without CTB
3000	143	147	153	162			
3500	157	162	169	177			
4000	172	177	184	192			with CTB
4500	126	129	134	140			
5000	136	139	144	150			
5500	151	155	160				
6000	161	165	170				
6500	171	175	180				
7000	143	147	152				3 arms

The specified transverse forces apply to the "heaviest" application: K 2000.

Extraction forces and transverse forces

I/K 2000 – wall mounting

Type of mount: **2x 85 mm wall bracket (WB85) per arm**

Table valid for all the following bracket assemblies:	4	5	7
Total number of installation points:	8	10	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	783	1169	1647				without CTB
3000	902	1347	1894	2576			
3500	1020	1524	2141	2903	3698		
4000	1139	1701	2388	3231	4116	5866	with CTB
4500	1257	1879	2636	3558	4535	6472	
5000	1376	2056	2883	3886	5595	7078	
5500	1494	2233	3130	4213	6080	7684	
6000	1613	2411	3377	5119	6565	8290	
6500	1731	2588	3624	5495	7050	8896	3 arms
7000	1298	1942	3047	4132	5299	6710	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	66	68	71				without CTB
3000	73	76	79	83			
3500	81	83	86	91	75		
4000	88	91	94	98	81	85	with CTB
4500	77	79	82	85	88	91	
5000	83	85	88	92	94	98	
5500	92	95	97	101	103	107	
6000	98	101	104	107	110	114	
6500	104	107	110	113	116	120	3 arms
7000	83	86	88	92	95	99	

The specified transverse forces apply to the "heaviest" application: K 2000.

Extraction forces and transverse forces

I/K 2000 – wall mounting

Type of mount: **1x 260 mm wall bracket (WB260) per arm**

Table valid for all the following bracket assemblies:	2	2;1	3;1
Total number of installation points:	8	10	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	783	1169	1647				without CTB
3000	902	1347	1894	2576			
3500	1020	1524	2141	2903			
4000	1139	1701	2388	3231			with CTB
4500	1257	1879	2636	3558			
5000	1376	2056	2883	3886			
5500	1494	2233	3130				
6000	1613	2411	3377				
6500	1731	2588	3624				
7000	1298	1942	3047				3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	68	70	73				without CTB
3000	75	78	81	85			
3500	83	85	88	92			
4000	90	93	96	100			with CTB
4500	79	81	83	87			
5000	85	87	90	93			
5500	94	96	99				
6000	100	102	105				
6500	106	108	111				
7000	85	87	90				3 arms

The specified transverse forces apply to the "heaviest" application: K 2000.

Extraction forces and transverse forces

I/K 2000 – wall mounting

Type of mount: **2x 260 mm wall bracket (WB260) per arm**

Table valid for all the following bracket assemblies:	4	4;1	6;1
Total number of installation points:	16	18	26

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	392	585	824				without CTB
3000	451	673	947	1288			
3500	510	762	1071	1452	1849		
4000	569	851	1194	1615	2056	2935	with CTB
4500	629	939	1318	1779	2268	3236	
5000	688	1028	1441	1943	2798	3539	
5500	747	1117	1565	2107	3040	3842	
6000	806	1205	1688	2559	3282	4145	
6500	865	1294	1812	2748	3525	4448	
7000	649	971	1523	2066	2649	3355	3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	37	38	39				without CTB
3000	41	42	43	45			
3500	44	45	47	49	45		
4000	48	49	51	53	49	51	with CTB
4500	46	48	49	51	52	54	
5000	50	51	52	54	56	58	
5500	55	56	58	60	61	63	
6000	58	59	61	63	64	67	
6500	61	63	64	67	68	70	
7000	48	50	51	53	55	57	3 arms

The specified transverse forces apply to the "heaviest" application: K 2000.

Extraction forces and transverse forces

I/K 2000 – wall mounting

Type of mount: **1x 295 mm wall bracket (WB295) per arm**

Table valid for all the following bracket assemblies:	2	2;1
Total number of installation points:	12	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	522	779	1.098				without CTB
3000	601	898	1.263	1.717			
3500	680	1.016	1.428	1.936	2.465		
4000	759	1.134	1.592	2.154	2.744	3.911	with CTB
4500	838	1.252	1.757	2.372	3.023	4.315	
5000	917	1.371	1.922	2.591	3.730	4.719	
5500	996	1.489	2.086	2.809	4.053	5.123	
6000	1.075	1.607	2.251	3.412	4.376	5.526	
6500	1.154	1.725	2.416	3.664	4.700	5.930	
7000							3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	45	46	48				without CTB
3000	50	51	53	56			
3500	55	56	58	61	54		
4000	60	61	63	66	59	61	with CTB
4500	56	57	59	62	63	66	
5000	60	62	64	66	68	70	
5500	67	68	70	73	75	77	
6000	71	73	75	77	79	82	
6500	75	77	79	82	83	86	
7000							3 arms

The specified transverse forces apply to the "heaviest" application: K 2000.

Extraction forces and transverse forces

I/K 2000 – wall mounting with mounting plate

Type of mount: **1x 250x290x15 mm mounting plate (MP250) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1	3;4;1
Total number of installation points:	8	10	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	149	221	312				without CTB
3000	171	255	358	487			
3500	194	289	405	549			
4000	216	322	452	610			with CTB
4500	239	356	498	672			
5000	261	389	545	734			
5500	284	423	592				
6000	306	457	639				
6500	329	490	685				
7000	246	368	576				3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	71	73	76				without CTB
3000	78	81	84	88			
3500	86	88	91	96			
4000	93	96	99	103			with CTB
4500	82	84	87	90			
5000	88	90	93	96			
5500	97	100	102				
6000	103	105	108				
6500	109	111	114				
7000	88	90	93				3 arms

The specified transverse forces apply to the "heaviest" application: K 2000.

Extraction forces and transverse forces

I/K 2000 – wall mounting with mounting plate

Type of mount: **1x 660x300x15 mm mounting plate (MP300) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1	3;4;1
	2;4	2;5;1	3;7;1
Total number of installation points:	12	14	20

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	143	213	299				without CTB
3000	164	245	344	467			
3500	186	277	389	527	670		
4000	208	309	434	586	746	1062	with CTB
4500	229	342	478	645	822	1172	
5000	251	374	523	705	1014	1282	
5500	272	406	568	764	1102	1391	
6000	294	438	613	928	1190	1501	
6500	315	471	658	997	1277	1611	
7000	237	353	553	750	960	1215	3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 90% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	57	58	60				without CTB
3000	62	63	65	68			
3500	67	68	70	73	65		
4000	72	73	75	78	70	72	with CTB
4500	67	68	70	73	74	77	
5000	71	72	74	77	79	81	
5500	78	79	81	84	85	88	
6000	82	83	86	88	90	93	
6500	86	88	90	93	94	97	
7000	70	72	74	77	78	81	3 arms

The specified transverse forces apply to the "heaviest" application: K 2000.

Extraction forces and transverse forces

I/K 2000 – wall mounting with mounting plate

Type of mount: **1x 660x390x15 mm mounting plate (MP390) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1	3;4;1
	2;4	2;5;1	3;7;1
Total number of installation points:	12	14	20

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	105	156	220				without CTB
3000	121	180	253	344			
3500	137	204	286	387	493		
4000	153	227	319	431	548	781	with CTB
4500	168	251	352	475	604	862	
5000	184	275	385	518	746	942	
5500	200	299	418	562	810	1023	
6000	216	322	451	683	875	1104	
6500	232	346	484	733	939	1184	
7000	174	260	407	551	706	894	3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 90% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	61	62	64				without CTB
3000	66	67	69	72			
3500	70	72	74	77	68		
4000	75	77	79	82	73	76	with CTB
4500	70	71	73	76	77	80	
5000	74	76	78	80	82	85	
5500	81	82	84	87	89	91	
6000	85	87	89	91	93	96	
6500	89	91	93	96	98	100	
7000	74	75	77	80	82	84	3 arms

The specified transverse forces apply to the "heaviest" application: K 2000.

Extraction forces and transverse forces

I/K 2000 – wall mounting with mounting plate

Type of mount: **1x 450x200x30 mm mounting plate (MP450) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;2	3;4;2
	2;4	2;5;2	–
Total number of installation points:	12	14	20

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	321	477	670				without CTB
3000	370	550	771	1046			
3500	418	622	871	1179	1499		
4000	467	694	972	1312	1669	2375	with CTB
4500	515	767	1072	1445	1838	2620	
5000	564	839	1173	1578	2268	2865	
5500	612	911	1273	1711	2465	3111	
6000	661	984	1374	2079	2661	3356	
6500	710	1056	1474	2232	2858	3601	
7000	532	793	1240				3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	55	57	59				without CTB
3000	60	62	64	66			
3500	65	67	69	71	64		
4000	70	72	74	77	69	71	with CTB
4500	66	67	69	72	73	76	
5000	70	71	73	76	77	80	
5500	77	78	80	83	84	87	
6000	81	82	84	87	89	92	
6500	85	87	89	92	93	96	
7000	69	71	73				3 arms

The specified transverse forces apply to the “heaviest” application: K 2000.

Extraction forces and transverse forces

I/K 2000 – wall mounting with mounting plate

Type of mount: **1x 640x200x30 mm mounting plate (MP640) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;2	3;3;2
	2;4	2;5;2	–
Total number of installation points:	24	26	38

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	161						without CTB
3000	185						
3500	209						
4000	233						with CTB
4500	258						
5000	282						
5500	306						
6000	331						
6500	355						
7000	266	396	620				3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	30						without CTB
3000	32						
3500	35						
4000	37						with CTB
4500	37						
5000	40						
5500	43						
6000	46						
6500	48						
7000	38	39	40				3 arms

The specified transverse forces apply to the “heaviest” application: K 2000.

Extraction forces

I/K 2000 – roof mounting

Type of mount: **1x 85 mm ceiling bracket (CB85) per arm**

Table valid for all the following bracket assemblies:	2;2	3;3	4;4
Total number of installation points:	4	6	8

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	1173	1719	2399				without CTB
3000	1345	1975	2754	3727			
3500	1518	2230	3108	4196			with CTB
4000	1691	2486	3462	4664			
4500	1802	2679	3752	5065			
5000	1970	2930	4101	5529			
5500	2144	3186	4456				
6000	2312	3437	4806				
6500	2479	3687	5155				
7000	1874	2782	4328				3 arms

The specified extraction forces apply to the “heaviest” application: K 2000.

Type of mount: **2x 85 mm ceiling bracket (CB85) per arm**

Table valid for all the following bracket assemblies:	4;4	5;5	7;7
Total number of installation points:	8	10	14

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	591	864	1204				without CTB
3000	677	992	1382	1868			
3500	764	1120	1559	2102	2653		with CTB
4000	850	1248	1736	2337	2951	4191	
4500	918	1357	1894	2551	3249	4621	
5000	1003	1483	2069	2784	3990	5052	
5500	1091	1613	2248	3020	4338	5485	
6000	1176	1739	2424	3649	4681	5916	
6500	1261	1866	2600	3916	5025	6346	
7000	951	1406	2179	2952	3785	4795	3 arms

The specified extraction forces apply to the “heaviest” application: K 2000.

Extraction forces and transverse forces

I/K 2000 – roof mounting

Type of mount: **1x 295 mm ceiling bracket with 260 mm wall bracket (CB295/260) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1	3;3;1;1
Total number of installation points:	12	14	20

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	398	580	807				without CTB
3000	456	666	925	1.250			
3500	514	751	1.044	1.406			
4000	571	836	1.162	1.562			with CTB
4500	620	912	1.270	1.709			
5000	677	997	1.388	1.864			
5500	736	1.084	1.508				
6000	793	1.168	1.625				
6500	850	1.253	1.742				
7000	641	944	1.460				3 arms

The specified extraction forces apply to the “heaviest” application: K 2000.

Type of mount: **2x 295 mm ceiling bracket with 260 mm wall bracket (CB295/260) per arm**

Table valid for all the following bracket assemblies:	4;4	4;4;1;1	6;6;1;1
Total number of installation points:	24	26	38

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	205	296	409				without CTB
3000	233	338	468	630			
3500	262	381	527	708	896		
4000	291	423	586	786	995	1.409	with CTB
4500	317	463	643	862	1.095	1.552	
5000	346	506	701	940	1.342	1.696	
5500	376	550	762	1.019	1.458	1.841	
6000	404	592	821	1.229	1.573	1.985	
6500	433	635	879	1.318	1.688	2.129	
7000	327	479	737	994	1.272	1.609	3 arms

The specified extraction forces apply to the “heaviest” application: K 2000.

Extraction forces and transverse forces

I/K 2000 – roof mounting

Type of mount: **1x 295 mm ceiling bracket with 295 mm wall bracket (CB295/295) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1
Total number of installation points:	12	14

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	398	580	807				without CTB
3000	455	665	925	1.249			
3500	513	750	1.043	1.406	1.776		
4000	571	836	1.161	1.562	1.975	2.802	with CTB
4500	619	912	1.270	1.708	2.174	3.089	
5000	676	996	1.387	1.864	2.668	3.376	
5500	736	1.083	1.507	2.022	2.900	3.666	
6000	792	1.168	1.625	2.441	3.130	3.953	
6500	849	1.252	1.742	2.619	3.359	4.240	
7000							3 arms

The specified extraction forces apply to the “heaviest” application: K 2000.

Shear forces

I/K 2000 – rafter mounting

Type of mount: **1x rafter bracket (RB) per arm**

Table valid for all the following bracket assemblies:	2;2	3;3	4;4
Total number of installation points:	4	6	8

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	1637	2386	3314				without CTB
3000	1879	2742	3805	5128			
3500	2122	3098	4295	5774			with CTB
4000	2364	3454	4786	6420			
4500	2545	3747	5211	6998			
5000	2782	4098	5697	7639			
5500	3025	4455	6188				
6000	3262	4806	6674				
6500	3500	5157	7160				
7000	2641	3887	6020				3 arms

The specified extraction forces apply to the “heaviest” application: K 2000.

Type of mount: **2x rafter bracket (RB) per arm**

Table valid for all the following bracket assemblies:	4;4	5;5	7;7
Total number of installation points:	4	6	8

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	1575	2321	3247				without CTB
3000	1810	2670	3730	5049			
3500	2045	3018	4213	5688	7206		with CTB
4000	2280	3367	4696	6326	8019	11398	
4500	2496	3697	5159	6944	8832	12573	
5000	2729	4044	5641	7581	10880	13747	
5500	2966	4394	6126	8221	11824	14925	
6000	3199	4741	6608	9970	12764	16099	3 arms
6500	3433	5088	7089	10702	13705	17274	
7000	2581	3825	5957	8056	10310	13040	

The specified extraction forces apply to the “heaviest” application: K 2000.

When mounted on two separate rafters, the shear forces are reduced to 50%.

Shear forces

I/K 2000 – rafter mounting

Type of mount: **1x rafter bracket with mounting plate (RB MP) per arm**

Table valid for all the following bracket assemblies:	2;2;2	3;3;3	4;4;4
Total number of installation points:	4	6	8

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	746						without CTB
3000	853						
3500	960						
4000	1066						with CTB
4500	1112						
5000	1214						
5500	1321						
6000	1423						
6500	1525						
7000	1161	1667	2533				3 arms

The specified extraction forces apply to the “heaviest” application: K 2000.

Type of mount: **2x rafter bracket with mounting plate (RB MP) per arm**

Table valid for all the following bracket assemblies:	4;4;4	5;5;5	7;7;7
Total number of installation points:	4	6	8

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	684						without CTB
3000	783						
3500	883						
4000	982						with CTB
4500	1063						
5000	1161						
5500	1262						
6000	1360						
6500	1458						
7000	1101	1606	2469	3320	4233	5339	3 arms

The specified extraction forces apply to the “heaviest” application: K 2000.

When mounted on two separate rafters, the shear forces are reduced to 50%.

Extraction forces and transverse forces

N 2000 – wall mounting

Type of mount: **1x 85 mm niche wall bracket per arm**

Table valid for all the following bracket assemblies:	2	3
Total number of installation points:	4	6

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	1818	2665	3697			without CTB
3000	2106	3086	4273	5728		
3500	2394	3506	4848	6478		
4000	2682	3927	5423	7229		
4500	2969	4348	5998	7980		with CTB
5000	3257	4768	6573	8731		
5500	3545	5189	7148			
6000	3833	5610	7723			

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	109	114	120			without CTB
3000	120	125	131	140		
3500	132	137	143	151		
4000	143	148	155	163		
4500	104	108	112	118		with CTB
5000	112	115	120	126		
5500	126	129	134			
6000	133	137	142			

Extraction forces and transverse forces

N 2000 – wall mounting

Type of mount: **2x 85 mm niche wall bracket per arm**

Table valid for all the following bracket assemblies:	4	5
Total number of installation points:	8	10

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	909	1332	1849			without CTB
3000	1053	1543	2136	2864		
3500	1197	1753	2424	3239	4087	
4000	1341	1964	2711	3615	4561	
4500	1485	2174	2999	3990	5035	with CTB
5000	1629	2384	3286	4365	6153	
5500	1773	2595	3574	4741	6693	
6000	1916	2805	3861	5696	7234	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	57	59	62			without CTB
3000	62	65	68	72		
3500	68	70	73	78	80	
4000	74	76	79	84	86	
4500	64	66	69	72	75	with CTB
5000	69	71	74	77	79	
5500	77	79	82	86	88	
6000	81	84	87	90	93	

Extraction forces and transverse forces

N 2000 – wall mounting

Type of mount: **1x 260 mm wall bracket (WB260) per arm**

Table valid for all the following bracket assemblies:	2	2;1
Total number of installation points:	8	10

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	909	1332	1849			without CTB
3000	1053	1543	2136	2864		
3500	1197	1753	2424	3239		
4000	1341	1964	2711	3615		
4500	1485	2174	2999	3990		with CTB
5000	1629	2384	3286	4365		
5500	1773	2595	3574			
6000	1916	2805	3861			

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	59	61	64			without CTB
3000	64	67	70	74		
3500	70	72	75	80		
4000	75	78	81	86		
4500	66	68	70	74		with CTB
5000	70	72	75	79		
5500	78	81	84			
6000	83	85	88			

Extraction forces and transverse forces

N 2000 – wall mounting

Type of mount: **2x 260 mm wall bracket (WB260) per arm**

Table valid for all the following bracket assemblies:	4	4;1
Total number of installation points:	16	18

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	455	666	924			without CTB
3000	526	771	1068	1432		
3500	598	877	1212	1620	2044	
4000	670	982	1356	1807	2281	
4500	742	1087	1499	1995	2518	with CTB
5000	814	1192	1643	2183	3077	
5500	886	1297	1787	2370	3347	
6000	958	1402	1931	2848	3617	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	32	33	35			without CTB
3000	35	36	38	40		
3500	38	39	41	43	44	
4000	41	42	44	46	47	
4500	39	40	42	44	45	with CTB
5000	42	43	44	46	48	
5500	46	47	49	51	52	
6000	49	50	52	54	55	

Extraction forces and transverse forces

N 2000 – wall mounting

Type of mount: **1x 295 mm wall bracket (WB295) per arm**

Table valid for all the following bracket assemblies:	2	2;1
Total number of installation points:	12	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	606	888	1.232			without CTB
3000	702	1.029	1.424	1.909		
3500	798	1.169	1.616	2.159	2.725	
4000	894	1.309	1.808	2.410	3.041	
4500	990	1.449	1.999	2.660	3.357	with CTB
5000	1.086	1.589	2.191	2.910	4.102	
5500	1.182	1.730	2.383	3.161	4.462	
6000	1.278	1.870	2.574	3.797	4.822	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	39	40	42			without CTB
3000	42	44	46	49		
3500	46	48	50	53	54	
4000	50	52	54	57	58	
4500	46	48	50	52	54	with CTB
5000	50	51	53	56	57	
5500	56	57	59	62	63	
6000	59	61	63	65	67	

Extraction forces and transverse forces

N 2000 – wall mounting with mounting plate

Type of mount: **1x 250x290x15 mm mounting plate (MP250) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1
Total number of installation points:	8	10

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	173	252	350			without CTB
3000	200	292	404	541		
3500	227	332	458	612		
4000	254	372	513	683		
4500	282	412	567	754		with CTB
5000	309	451	621	824		
5500	336	491	676			
6000	364	531	730			

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	62	64	67			without CTB
3000	67	70	73	77		
3500	73	75	79	83		
4000	79	81	84	89		
4500	69	71	74	77		with CTB
5000	73	76	78	82		
5500	82	84	87			
6000	86	89	91			

Extraction forces and transverse forces

N 2000 – wall mounting with mounting plate

Type of mount: **1x 660x300x15 mm mounting plate (MP300) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1
	2;4	2;5;1
Total number of installation points:	12	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	166	242	336			without CTB
3000	192	280	388	519		
3500	218	319	440	587	740	
4000	244	357	492	655	826	
4500	270	395	544	723	912	with CTB
5000	297	433	596	791	1115	
5500	323	472	649	860	1213	
6000	349	510	701	1033	1310	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 90% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	51	52	54			without CTB
3000	54	56	58	61		
3500	58	60	62	65	66	
4000	62	64	66	69	70	
4500	57	59	61	63	65	with CTB
5000	61	62	64	67	68	
5500	66	68	70	73	74	
6000	70	71	73	76	78	

Extraction forces and transverse forces

N 2000 – wall mounting with mounting plate

Type of mount: **1x 660x390x15 mm mounting plate (MP390) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1
	2;4	2;5;1
Total number of installation points:	12	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	122	178	247			without CTB
3000	141	206	285	382		
3500	160	234	323	432	544	
4000	180	262	362	482	608	
4500	199	291	400	532	671	with CTB
5000	218	319	439	582	820	
5500	237	347	477	632	892	
6000	257	375	515	759	964	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 90% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	54	56	58			without CTB
3000	58	60	62	65		
3500	62	64	66	68	70	
4000	66	67	70	72	74	
4500	61	62	64	67	68	with CTB
5000	64	65	67	70	71	
5500	70	71	73	76	78	
6000	73	75	77	79	81	

Extraction forces and transverse forces

N 2000 – wall mounting with mounting plate

Type of mount: **1x 450x200x30 mm mounting plate (MP450) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;2
	2;4	2;5;2
Total number of installation points:	12	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	373	544	752			without CTB
3000	431	629	869	1162		
3500	490	715	986	1315	1656	
4000	549	801	1103	1467	1848	
4500	608	886	1219	1619	2040	with CTB
5000	667	972	1336	1771	2493	
5500	726	1058	1453	1924	2712	
6000	785	1144	1570	2312	2931	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	49	50	52			without CTB
3000	53	54	56	59		
3500	56	58	60	63	65	
4000	60	62	64	67	69	
4500	56	58	60	62	64	with CTB
5000	60	61	63	66	67	
5500	65	67	69	72	73	
6000	69	70	72	75	77	

Extraction forces and transverse forces

N 2000 – wall mounting with mounting plate

Type of mount: **1x 640x200x30 mm mounting plate (MP640) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;2
	2;4	2;5;2
Total number of installation points:	24	26

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	186	212	316			without CTB
3000	216	315	434	581		
3500	245	358	493	657	828	
4000	275	400	551	733	924	
4500	304	443	610	810	1020	with CTB
5000	333	486	668	886	1247	
5500	363	529	727	962	1356	
6000	392	572	785	1156	1466	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	27	27	28			without CTB
3000	28	29	30	32		
3500	30	31	32	34	34	
4000	32	33	34	36	36	
4500	32	33	34	36	36	with CTB
5000	34	35	36	37	38	
5500	37	38	39	41	42	
6000	39	40	41	42	43	

Extraction forces

N 2000 – roof mounting

Type of mount: **1x 85 mm ceiling bracket (CB85) per arm**

Table valid for all the following bracket assemblies:	2;2	3;3
Total number of installation points:	4	6

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	1326	1927	2663			without CTB
3000	1530	2225	3071	4111		
3500	1734	2523	3479	4644		
4000	1938	2821	3886	5177		
4500	2092	3067	4240	5653		with CTB
5000	2292	3362	4644	6182		
5500	2499	3662	5054			
6000	2699	3956	5458			

Type of mount: **2x 85 mm ceiling bracket (CB85) per arm**

Table valid for all the following bracket assemblies:	4;4	5;5
Total number of installation points:	8	10

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	668	968	1336			without CTB
3000	770	1117	1540	2060		
3500	872	1266	1744	2327	2935	
4000	974	1415	1948	2593	3272	
4500	1061	1549	2135	2843	3591	with CTB
5000	1162	1697	2338	3108	4372	
5500	1266	1848	2545	3377	4757	
6000	1367	1996	2747	4040	5139	

Extraction forces and transverse forces

N 2000 – roof mounting

Type of mount: **1x 295 mm ceiling bracket with 260 mm wall bracket (CB295/260) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1
Total number of installation points:	12	14

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	449	650	895			without CTB
3000	517	749	1.031	1.378		
3500	586	849	1.167	1.556		
4000	654	948	1.303	1.733		
4500	714	1.040	1.431	1.903		with CTB
5000	782	1.138	1.566	2.080		
5500	852	1.240	1.704			
6000	919	1.339	1.840			

Type of mount: **2x 295 mm ceiling bracket with 260 mm wall bracket (CB295/260) per arm**

Table valid for all the following bracket assemblies:	4;4	4;4;1;1
Total number of installation points:	24	26

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	230	330	453			without CTB
3000	264	380	521	694		
3500	298	430	589	783	986	
4000	332	479	657	872	1.098	
4500	364	527	723	958	1.208	with CTB
5000	398	576	790	1.047	1.469	
5500	433	627	860	1.137	1.598	
6000	467	677	927	1.358	1.725	

Extraction forces and transverse forces

N 2000 – roof mounting

Type of mount: **1x 295 mm ceiling bracket with 295 mm wall bracket (CB295/295) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1
Total number of installation points:	12	14

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	449	649	895			without CTB
3000	517	749	1.031	1.377		
3500	585	848	1.167	1.555	1.960	
4000	653	947	1.302	1.733	2.185	
4500	714	1.039	1.431	1.902	2.401	with CTB
5000	781	1.138	1.566	2.079	2.922	
5500	852	1.240	1.704	2.259	3.179	
6000	919	1.338	1.839	2.701	3.434	

Shear forces

N 2000 – rafter mounting

Type of mount: **1x rafter bracket (RB) per arm**

Table valid for all the following bracket assemblies:	2;2	3;3
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	1860	2682	3684			without CTB
3000	2148	3098	4249	5661		
3500	2436	3514	4814	6396		
4000	2723	3930	5379	7131		
4500	2961	4294	5890	7809		with CTB
5000	3245	4706	6451	8541		
5500	3535	5125	7019			
6000	3819	5537	7580			

Type of mount: **2x rafter bracket (RB) per arm**

Table valid for all the following bracket assemblies:	4;4	5;5
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	1808	2627	3626			without CTB
3000	2090	3037	4185	5593		
3500	2372	3447	4744	6323	7963	
4000	2654	3858	5304	7052	8883	
4500	2921	4252	5847	7764	9785	with CTB
5000	3202	4661	6405	8492	11943	
5500	3486	5074	6967	9224	12992	
6000	3767	5484	7525	11066	14039	

When mounted on two separate rafters, the shear forces are reduced to 50%.

Shear forces

N 2000 – rafter mounting

Type of mount: **1x rafter bracket with mounting plate (RB MP) per arm**

Table valid for all the following bracket assemblies:	2;2;2	3;3;3
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	825	1160	1569			without CTB
3000	948	1335	1804	2380		
3500	1071	1510	2040	2684		
4000	1194	1685	2275	2989		
4500	1267	1808	2456	3236		with CTB
5000	1387	1980	2688	3536		
5500	1512	2157	2926			
6000	1631	2328	3157			

Type of mount: **2x rafter bracket with mounting plate (RB MP) per arm**

Table valid for all the following bracket assemblies:	4;4;4	5;5;5
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	772	1105	1511			without CTB
3000	890	1274	1740	2312		
3500	1007	1444	1970	2611	3275	
4000	1125	1613	2200	2909	3651	
4500	1227	1767	2413	3190	4009	with CTB
5000	1343	1935	2642	3488	4884	
5500	1463	2107	2874	3788	5314	
6000	1580	2275	3102	4536	5740	

When mounted on two separate rafters, the shear forces are reduced to 50%.

Extraction forces and transverse forces

Semina – wall mounting

Type of mount: **1x 85 mm wall bracket (WB85) per arm**

Table valid for all the following bracket assemblies:	2	3	4
Total number of installation points:	4	6	8

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	1721	2539	3543			without CTB
3000	1978	2921	4070	5487		
3500	2236	3302	4597	6181		
4000	2494	3684	5124	6875		
4500	2751	4066	5651	7570		with CTB
5000	3009	4447	6178	8264		
5500	3267	4829	6706			
6000	3524	5211	7233			
6500	3782	5592	7760			
7000	2824	4180	6459			3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	118	123	129			without CTB
3000	131	136	142	151		
3500	145	150	156	164		
4000	159	164	171	180		
4500	116	120	124	130		with CTB
5000	125	129	133	139		
5500	134	138	142			
6000	143	147	151			
6500	152	156	160			
7000	127	131	136			3 arms

Extraction forces and transverse forces

Semina – wall mounting

Type of mount: **2x 85 mm wall bracket (WB85) per arm**

Table valid for all the following bracket assemblies:	4	5	7
Total number of installation points:	8	10	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	860	1269	1771			without CTB
3000	989	1460	2035	2744		
3500	1118	1651	2298	3091	3915	
4000	1247	1842	2562	3438	4357	
4500	1376	2033	2826	3785	4798	with CTB
5000	1505	2224	3089	4132	5883	
5500	1633	2414	3353	4479	6390	
6000	1762	2605	3616	5405	6898	
6500	1891	2796	3880	5802	7405	3 arms
7000	1412	2090	3229	4350	5551	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	61	63	66			without CTB
3000	68	70	73	77		
3500	74	77	80	84	87	
4000	82	84	87	92	94	
4500	71	73	76	80	82	with CTB
5000	77	79	82	85	87	
5500	82	84	87	91	93	
6000	87	90	92	96	98	
6500	92	95	98	102	104	3 arms
7000	74	77	80	83	86	

Extraction forces and transverse forces

Semina – wall mounting

Type of mount: **1x 260 mm wall bracket (WB260) per arm**

Table valid for all the following bracket assemblies:	2	2;1	3;1
Total number of installation points:	8	10	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	860	1269	1771			without CTB
3000	989	1460	2035	2744		
3500	1118	1651	2298	3091		
4000	1247	1842	2562	3438		
4500	1376	2033	2826	3785		with CTB
5000	1505	2224	3089	4132		
5500	1633	2414	3353			
6000	1762	2605	3616			
6500	1891	2796	3880			3 arms
7000	1412	2090	3229			

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	63	65	68			without CTB
3000	70	72	75	79		
3500	76	79	82	86		
4000	84	86	89	94		
4500	73	75	78	81		with CTB
5000	78	80	83	87		
5500	84	86	89			
6000	89	91	94			
6500	94	96	99			3 arms
7000	76	78	81			

Extraction forces and transverse forces

Semina – wall mounting

Type of mount: **2x 260 mm wall bracket (WB260) per arm**

Table valid for all the following bracket assemblies:	4	4;1	6;1
Total number of installation points:	16	18	26

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	430	635	886			without CTB
3000	495	730	1011	1372		
3500	559	826	1149	1545	1958	
4000	623	921	1281	1719	2178	
4500	688	1016	1413	1892	2399	with CTB
5000	752	1112	1545	2066	2941	
5500	817	1207	1676	2239	3195	
6000	881	1303	1808	2703	3449	
6500	946	1398	1940	2901	3703	3 arms
7000	706	1045	1615	2175	2776	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	34	36	37			without CTB
3000	38	39	40	43		
3500	41	42	44	46	47	
4000	45	46	48	50	51	
4500	43	44	46	48	49	with CTB
5000	46	47	49	51	52	
5500	49	50	52	54	55	
6000	52	53	55	57	58	
6500	55	56	58	60	61	3 arms
7000	44	45	46	49	50	

Extraction forces and transverse forces

Semina – wall mounting

Type of mount: **1x 295 mm wall bracket (WB295) per arm**

Table valid for all the following bracket assemblies:	2	2;1	3;1
Total number of installation points:	12	14	20

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	574	846	1.181			without CTB
3000	659	974	1.357	1.829		
3500	745	1.101	1.532	2.060	2.610	
4000	831	1.228	1.708	2.292	2.904	
4500	917	1.355	1.884	2.523	3.199	with CTB
5000	1.003	1.482	2.059	2.755	3.922	
5500	1.089	1.610	2.235	2.986	4.260	
6000	1.175	1.737	2.411	3.603	4.598	
6500	1.261	1.864	2.587	3.868	4.937	3 arms
7000						

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	42	43	45			without CTB
3000	46	48	50	52		
3500	50	52	54	57	59	
4000	55	57	59	62	64	
4500	52	53	55	58	59	with CTB
5000	55	57	59	62	63	
5500	59	61	63	65	67	
6000	63	65	67	69	71	
6500	67	68	71	73	75	3 arms
7000						

Extraction forces and transverse forces

Semina – wall mounting with mounting plate

Type of mount: **1x 250x290x15 mm mounting plate (MP250) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1	3;4;1
Total number of installation points:	8	10	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	163	240	335			without CTB
3000	188	277	385	518		
3500	212	313	435	584		
4000	237	349	484	649		
4500	261	385	534	715		with CTB
5000	286	421	584	780		
5500	310	457	634			
6000	334	493	684			
6500	359	529	734			
7000	268	396	611			3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	66	69	71			without CTB
3000	73	75	78	82		
3500	79	82	85	89		
4000	87	89	93	97		
4500	76	78	81	85		with CTB
5000	81	84	86	90		
5500	87	89	92			
6000	92	94	97			
6500	97	100	103			
7000	79	82	84			3 arms

Extraction forces and transverse forces

Semina – wall mounting with mounting plate

Type of mount: **1x 660x300x15 mm mounting plate (MP300) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1	3;4;1
	2;4	2;5;1	3;7;1
Total number of installation points:	12	14	20

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	157	231	322			without CTB
3000	180	265	369	498		
3500	204	300	417	560	709	
4000	227	335	465	623	789	
4500	251	370	513	686	869	with CTB
5000	274	404	561	749	1066	
5500	298	439	609	812	1158	
6000	321	474	656	980	1250	
6500	345	508	704	1052	1342	3 arms
7000	257	380	586	789	1006	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 90% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	54	55	57			without CTB
3000	58	60	62	64		
3500	62	64	66	69	71	
4000	67	69	71	74	76	
4500	63	64	66	68	70	with CTB
5000	66	68	70	72	74	
5500	70	72	74	76	78	
6000	74	76	78	80	82	
6500	78	79	81	84	86	3 arms
7000	64	66	68	70	72	

Extraction forces and transverse forces

Semina – wall mounting with mounting plate

Type of mount: **1x 660x390x15 mm mounting plate (MP390) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1	3;4;1
	2;4	2;5;1	3;7;1
Total number of installation points:	12	14	20

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	115	170	236			without CTB
3000	133	195	272	366		
3500	150	221	307	412	522	
4000	167	246	342	458	580	
4500	184	272	377	505	639	with CTB
5000	202	297	412	551	784	
5500	219	323	447	597	851	
6000	236	348	483	721	919	
6500	253	374	518	774	987	3 arms
7000	189	279	431	580	740	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 90% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	57	59	61			without CTB
3000	62	63	65	68		
3500	66	68	70	73	74	
4000	71	73	75	78	80	
4500	66	67	69	72	73	with CTB
5000	70	71	73	76	77	
5500	73	75	77	80	81	
6000	77	79	81	83	85	
6500	81	83	85	87	89	3 arms
7000	67	69	71	74	75	

Extraction forces and transverse forces

Semina – wall mounting with mounting plate

Type of mount: **1x 450x200x30 mm mounting plate (MP450) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;2	3;4;2
	2;4	2;5;2	–
Total number of installation points:	12	14	20

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	353	518	721			without CTB
3000	405	596	828	1114		
3500	458	674	935	1255	1587	
4000	511	751	1042	1395	1765	
4500	564	829	1149	1536	1944	with CTB
5000	616	907	1256	1677	2384	
5500	669	985	1364	1818	2590	
6000	722	1063	1471	2194	2796	
6500	775	1141	1578	2355	3001	3 arms
7000	579	853	1314			

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	52	53	55			without CTB
3000	56	58	60	63		
3500	61	62	64	67	69	
4000	66	67	69	72	74	
4500	62	63	65	67	69	with CTB
5000	65	67	69	71	73	
5500	69	71	73	75	77	
6000	73	74	76	79	81	
6500	77	78	80	83	85	3 arms
7000	63	64	66			

Extraction forces and transverse forces

Semina – wall mounting with mounting plate

Type of mount: **1x 640x200x30 mm mounting plate (MP640) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;2	3;3;2
	2;4	2;5;2	–
Total number of installation points:	24	26	38

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	176	259	360			without CTB
3000	203	298	414	557		
3500	229	337	467	627	793	
4000	255	376	521	698	883	
4500	282	415	575	768	972	with CTB
5000	308	454	628	839	1192	
5500	335	492	682	909	1295	
6000	361	531	735	1097	1398	
6500	387	570	789	1178	1501	3 arms
7000	289	426	657			

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	28	29	30			without CTB
3000	30	31	32	34		
3500	33	33	34	36	37	
4000	35	36	37	38	39	
4500	35	36	37	38	39	with CTB
5000	37	38	39	40	41	
5500	39	40	41	43	43	
6000	41	42	43	45	46	
6500	43	44	45	47	48	3 arms
7000	35	36	37			

Extraction forces

Semina – roof mounting

Type of mount: **1x 85 mm ceiling bracket (CB85) per arm**

Table valid for all the following bracket assemblies:	2;2	3;3	4;4
Total number of installation points:	4	6	8

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	1270	1851	2567			without CTB
3000	1456	2124	2943	3956		
3500	1642	2397	3319	4452		
4000	1829	2672	3697	4949		
4500	1958	2887	4014	5381		with CTB
5000	2140	3156	4386	5872		
5500	2321	3425	4758			
6000	2502	3694	5129			
6500	2683	3962	5501			
7000	2017	2976	4574			3 arms

Type of mount: **2x 85 mm ceiling bracket (CB85) per arm**

Table valid for all the following bracket assemblies:	4;4	5;5	7;7
Total number of installation points:	8	10	14

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	640	930	1288			without CTB
3000	733	1067	1476	1983		
3500	825	1203	1664	2230	2822	
4000	919	1341	1853	2479	3138	
4500	995	1460	2024	2708	3433	with CTB
5000	1087	1595	2210	2954	4192	
5500	1178	1730	2397	3200	4551	
6000	1270	1866	2584	3844	4911	
6500	1361	2001	2771	4124	5270	
7000	1022	1502	2301	3100	3959	3 arms

Extraction forces and transverse forces

Semina – roof mounting

Type of mount: **1x 295 mm ceiling bracket with 260 mm wall bracket (CB295/260) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1	3;3;1;1
Total number of installation points:	12	14	20

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	431	625	863			without CTB
3000	493	716	988	1.326		
3500	555	807	1.114	1.491		
4000	617	898	1.240	1.657		
4500	671	981	1.357	1.813		with CTB
5000	732	1.071	1.482	1.977		
5500	793	1.162	1.606			
6000	855	1.252	1.731			
6500	916	1.343	1.856			3 arms
7000	688	1.008	1.541			

Type of mount: **2x 295 mm ceiling bracket with 260 mm wall bracket (CB295/260) per arm**

Table valid for all the following bracket assemblies:	4;4	4;4;1;1	6;6;1;1
Total number of installation points:	24	26	38

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	221	318	437			without CTB
3000	252	363	500	668		
3500	283	409	562	751	948	
4000	314	454	625	834	1.053	
4500	343	498	686	914	1.156	with CTB
5000	373	543	748	996	1.409	
5500	404	588	811	1.079	1.529	
6000	435	634	873	1.294	1.649	
6500	466	679	936	1.387	1.769	3 arms
7000	351	511	777	1.043	1.330	

Extraction forces and transverse forces

Semina – roof mounting

Type of mount: **1x 295 mm ceiling bracket with 295 mm wall bracket (CB295/295) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1
Total number of installation points:	12	14

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	430	624	863			without CTB
3000	492	715	988	1.326		
3500	554	806	1.113	1.491	1.885	
4000	617	898	1.240	1.657	2.096	
4500	670	980	1.356	1.813	2.296	with CTB
5000	732	1.071	1.481	1.977	2.802	
5500	793	1.161	1.606	2.142	3.042	
6000	854	1.252	1.731	2.571	3.282	
6500	915	1.342	1.856	2.758	3.522	
7000						3 arms

Shear forces

Semina – rafter mounting

Type of mount: **1x rafter bracket (RB) per arm**

Table valid for all the following bracket assemblies:	2;2	3;3	4;4
Total number of installation points:	4	6	8

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	1778	2572	3547			without CTB
3000	2039	2953	4069	5446		
3500	2300	3334	4590	6128		
4000	2563	3716	5113	6813		
4500	2768	4039	5574	7433		with CTB
5000	3024	4416	6091	8111		
5500	3281	4792	6608			
6000	3537	5168	7125			
6500	3794	5545	7642			3 arms
7000	2848	4161	6364			

Type of mount: **2x rafter bracket (RB) per arm**

Table valid for all the following bracket assemblies:	4;4	5;5	7;7
Total number of installation points:	4	6	8

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	1721	2513	3485			without CTB
3000	1976	2887	4000	5372		
3500	2230	3261	4514	6048	7644	
4000	2485	3636	5030	6725	8503	
4500	2723	3993	5526	7382	9342	with CTB
5000	2976	4366	6040	8057	11439	
5500	3229	4739	6553	8732	12423	
6000	3482	5111	7066	10522	13408	
6500	3735	5484	7580	11292	14392	3 arms
7000	2795	4106	6307	8475	10798	

When mounted on two separate rafters, the shear forces are reduced to 50%.

Shear forces

Semina – rafter mounting

Type of mount: **1x rafter bracket with mounting plate (RB MP) per arm**

Table valid for all the following bracket assemblies:	2;2;2	3;3;3	4;4;4
Total number of installation points:	4	6	8

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	797	1121	1519			without CTB
3000	911	1283	1738	2299		
3500	1024	1445	1957	2584		
4000	1139	1609	2177	2870		
4500	1196	1713	2336	3091		with CTB
5000	1305	1870	2550	3371		
5500	1414	2028	2765			
6000	1523	2185	2979			
6500	1632	2343	3194			3 arms
7000	1236	1769	2662			

Type of mount: **2x rafter bracket with mounting plate (RB MP) per arm**

Table valid for all the following bracket assemblies:	4;4;4	5;5;5	7;7;7
Total number of installation points:	4	6	8

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	740	1062	1456			without CTB
3000	847	1217	1669	2226		
3500	954	1372	1881	2504	3150	
4000	1061	1528	2094	2782	3502	
4500	1151	1666	2288	3040	3834	with CTB
5000	1257	1820	2499	3316	4685	
5500	1362	1974	2709	3593	5087	
6000	1468	2128	2920	4320	5488	
6500	1573	2282	3131	4634	5889	3 arms
7000	1183	1714	2606	3484	4425	

When mounted on two separate rafters, the shear forces are reduced to 50%.

Extraction forces and transverse forces

Topas (all alternatives) – wall mounting

Type of mount: **1x 85 mm wall bracket (WB85) per arm**

Table valid for all the following bracket assemblies:	2	3	4
Total number of installation points:	4	6	8

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	1364	2076	2973				without CTB
3000	1563	2382	3408	4701			
3500	1763	2688	3842	5285			
4000	1962	2995	4277	5870			with CTB
4500	2161	3301	4711	6454			
5000	2361	3607	5146	7038			
5500	2560	3913	5580				
6000	2759	4219	6015				
6500	2959	4525	6449				
7000	2236	3418	5522				3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	108	112	118				without CTB
3000	119	124	130	138			
3500	131	136	142	150			
4000	142	147	154	162			with CTB
4500	104	107	112	118			
5000	111	115	120	126			
5500	119	123	127				
6000	127	131	135				
6500	140	144	149				
7000	118	122	127				3 arms

The specified transverse forces apply to the "heaviest" application: Topas with roof.

Extraction forces and transverse forces

Topas (all alternatives) – wall mounting

Type of mount: **2x 85 mm wall bracket (WB85) per arm**

Table valid for all the following bracket assemblies:	4	5	7
Total number of installation points:	8	10	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	682	1038	1487				without CTB
3000	782	1191	1704	2351			
3500	881	1344	1921	2643	3397		
4000	981	1497	2138	2935	3774	5479	with CTB
4500	1081	1650	2356	3227	4152	6039	
5000	1180	1803	2573	3519	5172	6598	
5500	1280	1957	2790	3811	5616	7158	
6000	1380	2110	3007	4682	6060	7718	
6500	1479	2263	3225	5023	6504	8277	3 arms
7000	1118	1709	2761	3794	4908	6267	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	56	58	61				without CTB
3000	62	64	67	71			
3500	67	70	73	77	80		
4000	73	76	79	83	86	73	with CTB
4500	64	66	69	72	74	78	
5000	68	71	73	77	79	83	
5500	73	75	78	82	84	88	
6000	78	80	83	87	89	93	
6500	86	88	91	95	97	101	3 arms
7000	69	71	74	78	80	84	

The specified transverse forces apply to the "heaviest" application: Topas with roof.

Extraction forces and transverse forces

Topas (all alternatives) – wall mounting

Type of mount: **1x 260 mm wall bracket (WB260) per arm**

Table valid for all the following bracket assemblies:	2	2;1	3;1
Total number of installation points:	8	10	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	682	1038	1487				without CTB
3000	782	1191	1704	2351			
3500	881	1344	1921	2643			
4000	981	1497	2138	2935			with CTB
4500	1081	1650	2356	3227			
5000	1180	1803	2573	3519			
5500	1280	1957	2790				
6000	1380	2110	3007				
6500	1479	2263	3225				
7000	1118	1709	2761				3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	58	60	63				without CTB
3000	64	66	69	73			
3500	69	72	75	79			
4000	75	78	81	85			with CTB
4500	65	67	70	74			
5000	70	72	75	78			
5500	75	77	80				
6000	79	81	84				
6500	87	90	92				
7000	71	73	76				3 arms

The specified transverse forces apply to the "heaviest" application: Topas with roof.

Extraction forces and transverse forces

Topas (all alternatives) – wall mounting

Type of mount: **2x 260 mm wall bracket (WB260) per arm**

Table valid for all the following bracket assemblies:	4	4;1	6;1
Total number of installation points:	16	18	26

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	341	519	743				without CTB
3000	391	596	852	1175			
3500	441	672	961	1321	1698		
4000	490	749	1069	1467	1887	2740	with CTB
4500	540	825	1178	1614	2076	3019	
5000	590	902	1286	1760	2586	3299	
5500	640	978	1395	1906	2808	3579	
6000	690	1055	1504	2341	3030	3859	
6500	740	1131	1612	2512	3252	4139	
7000	559	855	1381	1897	2454	3133	3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	32	33	34				without CTB
3000	35	36	37	40			
3500	38	39	40	43	44		
4000	40	42	43	46	47	49	with CTB
4500	39	40	42	44	45	47	
5000	41	43	44	46	47	50	
5500	44	45	47	49	50	52	
6000	47	48	49	52	53	55	
6500	51	52	54	56	57	60	
7000	41	42	43	46	47	49	3 arms

The specified transverse forces apply to the "heaviest" application: Topas with roof.

Extraction forces and transverse forces

Topas (all alternatives) – wall mounting

Type of mount: **1x 295 mm wall bracket (WB295) per arm**

Table valid for all the following bracket assemblies:	2	2;1
Total number of installation points:	12	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	455	692	991				without CTB
3000	521	794	1.136	1.567			
3500	588	896	1.281	1.762	2.264		
4000	654	998	1.426	1.957	2.516	3.653	with CTB
4500	720	1.100	1.570	2.151	2.768	4.026	
5000	787	1.202	1.715	2.346	3.448	4.399	
5500	853	1.304	1.860	2.541	3.744	4.772	
6000	920	1.406	2.005	3.121	4.040	5.145	
6500	986	1.508	2.150	3.349	4.336	5.518	
7000							3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing when using the top and middle installation point.

When using the top and bottom installation point the extraction forces are 62% of the specified values.

The extraction forces are 50% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	38	40	42				without CTB
3000	42	43	45	48			
3500	46	47	49	52	54		
4000	50	51	53	56	58	53	with CTB
4500	46	48	50	52	54	56	
5000	50	51	53	56	57	60	
5500	53	54	56	59	61	63	
6000	56	58	60	62	64	67	
6500	62	64	66	68	70	73	
7000							3 arms

The specified transverse forces apply to the "heaviest" application: Topas with roof.

Extraction forces and transverse forces

Topas (all alternatives) – wall mounting with mounting plate

Type of mount: **1x 250x290x15 mm mounting plate (MP250) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1	3;4;1
Total number of installation points:	8	10	14

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	130	197	281				without CTB
3000	148	226	322	444			
3500	167	255	363	499			
4000	186	284	405	555			with CTB
4500	205	313	446	610			
5000	224	342	487	665			
5500	243	371	528				
6000	262	400	569				
6500	281	429	610				
7000	212	324	522				3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	61	63	66				without CTB
3000	67	69	72	76			
3500	73	75	78	82			
4000	78	81	84	88			with CTB
4500	69	71	73	77			
5000	73	75	78	82			
5500	78	80	83				
6000	82	85	88				
6500	90	93	96				
7000	74	76	79				3 arms

The specified transverse forces apply to the "heaviest" application: Topas with roof.

Extraction forces and transverse forces

Topas (all alternatives) – wall mounting with mounting plate

Type of mount: **1x 660x300x15 mm mounting plate (MP300) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1	3;4;1
	2;4	2;5;1	3;7;1
Total number of installation points:	12	14	20

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	124	189	270				without CTB
3000	143	217	309	426			
3500	161	245	349	479	616		
4000	179	272	388	532	684	992	with CTB
4500	197	300	428	585	753	1094	
5000	215	328	467	638	937	1195	
5500	233	356	507	691	1018	1296	
6000	252	384	546	849	1098	1398	
6500	270	412	586	911	1179	1499	
7000	204	311	502	688	890	1135	3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 90% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	50	52	54				without CTB
3000	54	56	58	60			
3500	58	59	62	64	66		
4000	62	63	65	68	70	64	with CTB
4500	57	59	61	63	65	67	
5000	60	62	64	67	68	71	
5500	64	65	67	70	72	74	
6000	67	69	71	73	75	78	
6500	73	74	77	79	81	84	
7000	60	62	64	66	68	71	3 arms

The specified transverse forces apply to the "heaviest" application: Topas with roof.

Extraction forces and transverse forces

Topas (all alternatives) – wall mounting with mounting plate

Type of mount: **1x 660x390x15 mm mounting plate (MP390) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1	3;4;1
	2;4	2;5;1	3;7;1
Total number of installation points:	12	14	20

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	91	139	199				without CTB
3000	105	159	228	314			
3500	118	180	257	353	453		
4000	132	200	286	391	503	730	with CTB
4500	145	221	315	430	553	804	
5000	158	241	344	469	689	879	
5500	172	262	373	508	748	953	
6000	185	282	402	625	808	1028	
6500	198	303	431	670	867	1102	3 arms
7000	150	229	369	506	654	835	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 90% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	54	55	57				without CTB
3000	58	59	61	64			
3500	62	63	65	68	70		
4000	65	67	69	72	74	67	with CTB
4500	60	62	64	66	68	71	
5000	64	65	67	70	71	74	
5500	67	69	71	73	75	78	
6000	70	72	74	77	78	81	
6500	76	78	80	82	84	87	3 arms
7000	64	65	67	70	71	74	

The specified transverse forces apply to the "heaviest" application: Topas with roof.

Extraction forces and transverse forces

Topas (all alternatives) – wall mounting with mounting plate

Type of mount: **1x 450x200x30 mm mounting plate (MP450) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;2	3;4;2
	2;4	2;5;2	–
Total number of installation points:	12	14	20

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	280	424	606				without CTB
3000	321	487	694	955			
3500	362	549	782	1074	1377		
4000	403	612	871	1192	1531	2219	with CTB
4500	444	674	959	1311	1684	2446	
5000	484	737	1048	1430	2098	2672	
5500	525	799	1136	1548	2278	2899	
6000	566	862	1225	1902	2458	3125	
6500	607	924	1313	2041	2638	3352	
7000	459	698	1125				3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	48	50	52				without CTB
3000	52	54	56	59			
3500	56	58	60	63	64		
4000	60	62	64	67	68	63	with CTB
4500	56	58	59	62	64	66	
5000	59	61	63	65	67	70	
5500	63	64	66	69	70	73	
6000	66	68	70	72	74	77	
6500	72	73	75	78	80	83	
7000	59	60	62				3 arms

The specified transverse forces apply to the "heaviest" application: Topas with roof.

Extraction forces and transverse forces

Topas (all alternatives) – wall mounting with mounting plate

Type of mount: **1x 640x200x30 mm mounting plate (MP640) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;2	3;3;2
	2;4	2;5;2	–
Total number of installation points:	24	26	38

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	140	212	303				without CTB
3000	160	243	347	478			
3500	181	275	391	537	689		
4000	201	306	435	596	765	1110	with CTB
4500	222	337	480	656	842	1223	
5000	242	368	524	715	1049	1336	
5500	263	400	568	774	1139	1449	
6000	283	431	612	951	1229	1563	
6500	304	462	656	1021	1319	1676	
7000	229	349	562				3 arms

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	26	27	28				without CTB
3000	28	29	30	31			
3500	30	31	32	33	34		
4000	32	33	34	35	36	36	with CTB
4500	32	33	34	35	36	38	
5000	34	35	36	37	38	40	
5500	36	37	38	39	40	42	
6000	38	38	40	41	42	43	
6500	41	42	43	44	45	47	
7000	33	34	35				3 arms

The specified transverse forces apply to the "heaviest" application: Topas with roof.

Extraction forces

Topas (all alternatives) – roof mounting

Type of mount: **1x 85 mm ceiling bracket (CB85) per arm**

Table valid for all the following bracket assemblies:	2;2	3;3	4;4
Total number of installation points:	4	6	8

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	1014	1516	2154				without CTB
3000	1157	1735	2463	3385			
3500	1301	1954	2772	3800			
4000	1445	2172	3081	4216			with CTB
4500	1539	2339	3337	4575			
5000	1678	2554	3642	4986			
5500	1818	2769	3947				
6000	1958	2983	4253				
6500	2104	3204	4564				
7000	1602	2433	3902				3 arms

The specified extraction forces apply to the “heaviest” application: Topas with roof.

Type of mount: **2x 85 mm ceiling bracket (CB85) per arm**

Table valid for all the following bracket assemblies:	4;4	5;5	7;7
Total number of installation points:	8	10	14

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	511	763	1082				without CTB
3000	583	872	1236	1697			
3500	655	981	1391	1905	2444		
4000	727	1091	1545	2113	2713	3904	with CTB
4500	784	1185	1684	2303	2964	4299	
5000	855	1293	1837	2510	3676	4695	
5500	925	1401	1991	2717	3989	5091	
6000	996	1509	2144	3319	4302	5487	
6500	1070	1621	2301	3563	4619	5886	
7000	814	1229	1964	2698	3493	4465	3 arms

The specified extraction forces apply to the “heaviest” application: Topas with roof.

Extraction forces and transverse forces

Topas (all alternatives) – roof mounting

Type of mount: **1x 295 mm ceiling bracket with 260 mm wall bracket (CB295/260) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1	3;3;1;1
Total number of installation points:	12	14	20

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	345	513	725				without CTB
3000	393	586	828	1.136			
3500	441	659	932	1.274			
4000	489	732	1.035	1.413			with CTB
4500	530	797	1.130	1.543			
5000	577	869	1.232	1.681			
5500	624	942	1.335				
6000	672	1.014	1.437				
6500	722	1.089	1.542				
7000	549	826	1.316				3 arms

The specified extraction forces apply to the “heaviest” application: Topas with roof.

Type of mount: **2x 295 mm ceiling bracket with 260 mm wall bracket (CB295/260) per arm**

Table valid for all the following bracket assemblies:	4;4	4;4;1;1	6;6;1;1
Total number of installation points:	24	26	38

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	178	262	368				without CTB
3000	202	298	420	573			
3500	226	335	471	642	822		
4000	250	371	523	712	912	1.312	with CTB
4500	272	405	572	779	999	1.444	
5000	296	442	623	848	1.236	1.577	
5500	319	478	675	917	1.341	1.709	
6000	343	514	726	1.118	1.446	1.841	
6500	368	552	779	1.200	1.552	1.975	
7000	281	420	665	909	1.174	1.499	3 arms

The specified extraction forces apply to the “heaviest” application: Topas with roof.

Extraction forces and transverse forces

Topas (all alternatives) – roof mounting

Type of mount: **1x 295 mm ceiling bracket with 295 mm wall bracket (CB295/295) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1
Total number of installation points:	12	14

Extraction forces force per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	345	513	725				without CTB
3000	393	585	828	1.135			
3500	441	658	931	1.274	1.633		
4000	489	731	1.034	1.412	1.813	2.609	with CTB
4500	529	796	1.129	1.543	1.983	2.874	
5000	577	869	1.232	1.681	2.458	3.138	
5500	624	941	1.334	1.819	2.667	3.402	
6000	671	1.013	1.437	2.221	2.876	3.666	
6500	721	1.088	1.542	2.384	3.088	3.933	
7000							3 arms

The specified extraction forces apply to the “heaviest” application: Topas with roof.

Extraction forces

Topas (all alternatives) – roof mounting

Type of mount: **1x compact ceiling bracket (CCB) per arm** (only for Topas without roof)

Table valid for all the following bracket assemblies:	2	3	4
Total number of installation points:	4	6	8

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	998						without CTB
3000	1139						
3500	1280						
4000	1421						with CTB
4500	1521						
5000	1659						
5500	1797						
6000	1935						
6500	2080						
7000	1582	2413	3881				3 arms

The specified extraction forces apply to the “heaviest” application: Topas without roof.

Type of mount: **2x compact ceiling bracket (CCB) per arm** (only for Topas without roof)

Table valid for all the following bracket assemblies:	4	5	7
Total number of installation points:	8	10	14

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	503						without CTB
3000	574						
3500	644						
4000	715						with CTB
4500	773						
5000	843						
5500	912						
6000	982						
6500	1055						
7000	802	1218	1952	2686	3480	4451	3 arms

The specified extraction forces apply to the “heaviest” application: Topas without roof.

Shear forces

Topas (all alternatives) – rafter mounting

Type of mount: **1x rafter bracket (RB) per arm**

Table valid for all the following bracket assemblies:	2;2	3;3	4;4
Total number of installation points:	4	6	8

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	1422	2113	2984				without CTB
3000	1625	2419	3414	4670			
3500	1827	2725	3844	5245			
4000	2030	3031	4274	5819			with CTB
4500	2183	3285	4650	6337			
5000	2382	3587	5075	6907			
5500	2581	3889	5501				
6000	2780	4191	5927				
6500	2984	4499	6359				
7000	2268	3412	5444				3 arms

The specified shear forces apply to the “heaviest” application: Topas with roof.

Type of mount: **2x rafter bracket (RB) per arm**

Table valid for all the following bracket assemblies:	4;4	5;5	7;7
Total number of installation points:	4	6	8

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	1370	2059	2927				without CTB
3000	1567	2359	3351	4603			
3500	1764	2659	3775	5171	6629		
4000	1961	2959	4199	5740	7363	10640	with CTB
4500	2143	3243	4606	6291	8080	11723	
5000	2339	3542	5029	6859	10049	12807	
5500	2535	3841	5452	7426	10909	13890	
6000	2731	4140	5875	9106	11770	14974	
6500	2930	4442	6301	9772	12633	16061	
7000	2220	3362	5391	7389	9541	12169	3 arms

The specified transverse forces apply to the “heaviest” application: Topas with roof.

When mounted on two separate rafters, the shear forces are reduced to 50%.

Shear forces

Topas (all alternatives) – rafter mounting

Type of mount: **1x rafter bracket with mounting plate (RB MP) per arm**

Table valid for all the following bracket assemblies:	2;2;2	3;3;3	4;4;4
Total number of installation points:	4	6	8

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	647						without CTB
3000	736						
3500	825						
4000	913						with CTB
4500	952						
5000	1037						
5500	1122						
6000	1207						
6500	1298						
7000	995	1460	2284				3 arms

The specified shear forces apply to the “heaviest” application: Topas with roof.

Type of mount: **2x rafter bracket with mounting plate (RB MP) per arm**

Table valid for all the following bracket assemblies:	4;4;4	5;5;5	7;7;7
Total number of installation points:	4	6	8

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	595						without CTB
3000	678						
3500	761						
4000	844						with CTB
4500	912						
5000	994						
5500	1076						
6000	1158						
6500	1244						
7000	946	1410	2232	3042	3914	4979	3 arms

The specified transverse forces apply to the “heaviest” application: Topas with roof.
When mounted on two separate rafters, the shear forces are reduced to 50%.

Cassette-awnings



02 Cassette-awnings

Opal Design II

Selection of brackets

Wall mounting	110
Wall mounting with mounting plate	112
Roof mounting	114
Rafter mounting	116

Selection of brackets

Opal Design II – wall mounting

Bracket assembly consisting of:

150 mm wall bracket; item no. 115973

Notes on this bracket assembly:

1x 150 mm wall bracket (WB150)

1 bracket per arm

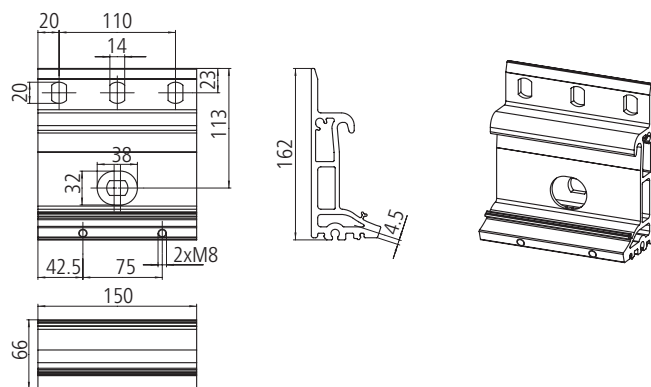
2 top installation points, distance between centre lines 110 mm

3 installation points in total



Corresponding centre bracket assembly:

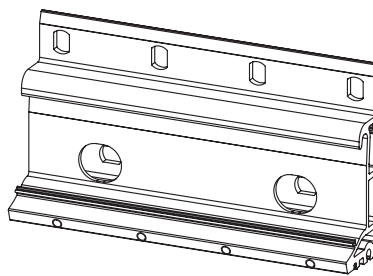
150 mm wall bracket (WB150); item no. 115973



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2	2x WB150	without CTB	2x 115973
3	3x WB150	with CTB	3x 115973

Opal Design II – wall mounting



Number	Scope of delivery	Note	Item number for order
2	2x WB300	without CTB	2x 115976
2;1	2x WB300, 1x WB150	with CTB	2x 115976 + 1x 115973

Selection of brackets

Opal Design II – wall mounting with mounting plate

Bracket assembly consisting of:

660 x 220 x 15 mm mounting plate with:
- 1x 150 mm wall bracket; item no. 115985

Notes on this bracket assembly:

1x 660 x 220 x 15 mm mounting plate (MP220)

incl. 1x 150 mm wall bracket (WB150)

1 mounting plate per arm

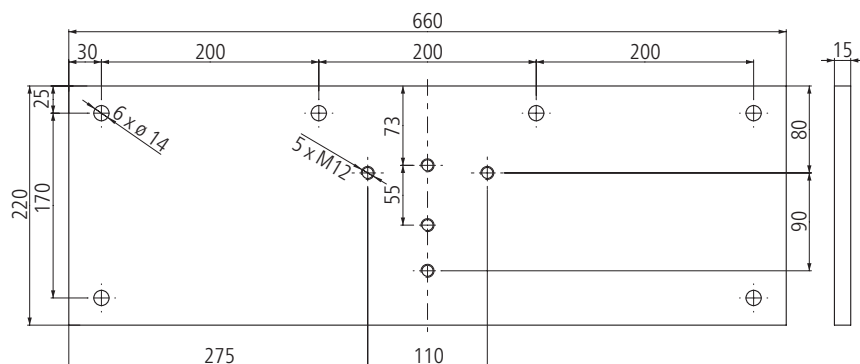
4 top installation points, distance between centre lines 200 mm

6 installation points in total



Corresponding centre bracket assembly:

150 x 160 x 15 mm base plate (BP150) including 1x 150 mm wall bracket (WB150); item no. 116670



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2	2x MP220, 2x WB150	without CTB	2x 115985
2;3;1	2x MP220, 3x WB150, 1x BP150	with CTB	2x 115985 + 1x 116670

Selection of brackets

Opal Design II – wall mounting with mounting plate

Bracket assembly consisting of:

660 x 390 x 15 mm mounting plate with:
- 1x 150 mm wall bracket; item no. 115988

Notes on this bracket assembly:

1x 660 x 390 x 15 mm mounting plate (MP390)

incl. 1x 150 mm wall bracket (WB150)

1 mounting plate per arm

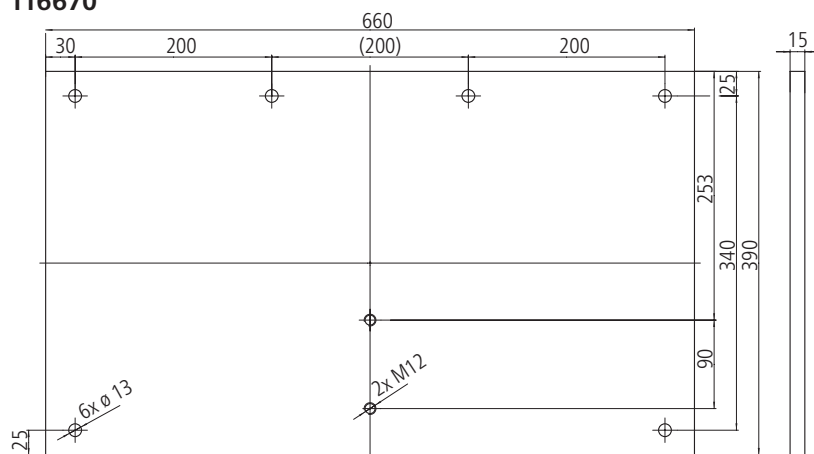
4 top installation points, distance between centre lines 200 mm

6 installation points in total



Corresponding centre bracket assembly:

150 x 160 x 15 mm base plate (BP150) including 1x 150 mm wall bracket (WB150); item no. 116670



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2	2x MP390, 2x WB150	without CTB	2x 115988
2;3;1	2x MP390, 3x WB150, 1x UP150	with CTB	2x 115988 + 1x 116670

Selection of brackets

Opal Design II – roof mounting

Bracket assembly consisting of:

Compact ceiling bracket, item no. 118862

Notes on this bracket assembly:

1x compact ceiling bracket (CCB)

1 bracket per arm

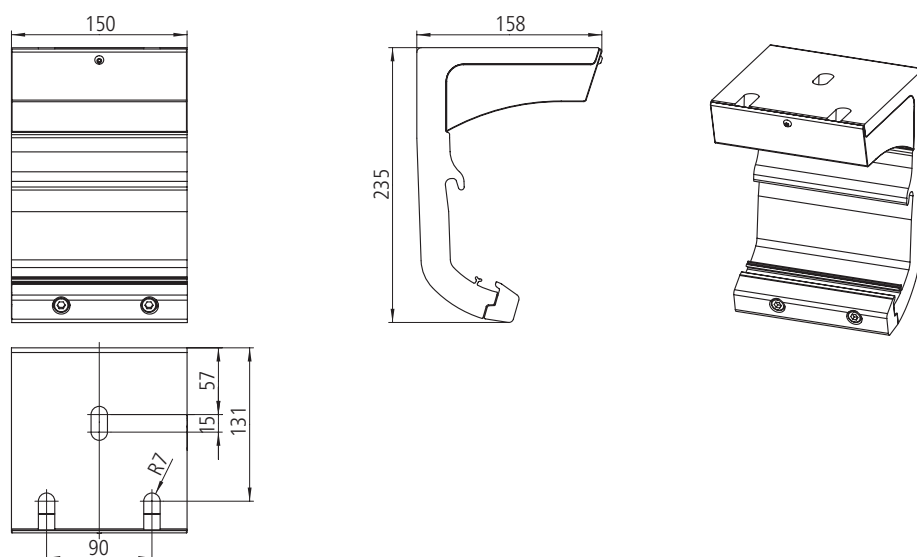
2 front installation points, distance between centre lines 90 mm

3 installation points in total



Corresponding centre bracket assembly:

Compact ceiling bracket (CCB), item no. 118862



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2	2x CCB	without CTB	2x 118862
3	3x CCB	with CTB	3x 118862

Selection of brackets

Opal Design II – front roof mounting

Bracket assembly consisting of:

390 x 160 x 15 mm roof front plate with:
- 1x 150 mm wall bracket; item no. 115960

Notes on this bracket assembly:

1x 390 x 160 x 15 mm roof front plate (RP390)

incl. 1x 150 mm wall bracket (WB150)

1 mounting plate per arm

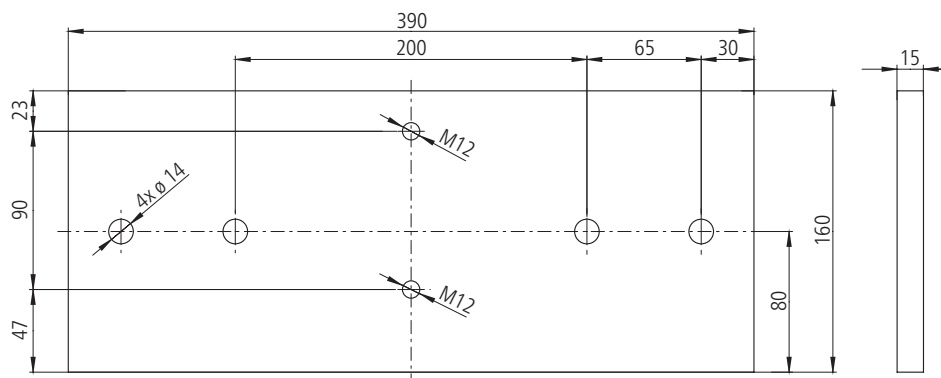
4 installation points, distance between centre lines 65/200/65 mm

4 installation points in total



Corresponding centre bracket assembly:

390 x 160 x 15 mm roof front plate (RP390) including 1x 150 mm wall bracket (WB150); item no. 115960



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2	2x RP390, 2x WB150	without CTB	2x 115960
3;3	3x DS390, 3x WB150	with CTB	3x 115960

Selection of brackets

Opal Design II – rafter mounting

Bracket assembly consisting of:

Rafter bracket with:

- 150 mm wall bracket; item no. 115987

Notes on this bracket assembly:

1x rafter bracket (RB)

incl. 1x 150 mm wall bracket (WB150)

1 bracket per arm

1 front installation point

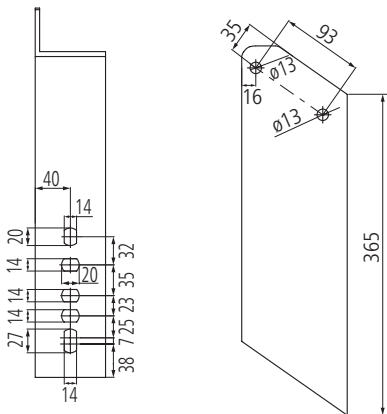
2 installation points in total

One left and right version each



Corresponding centre bracket assembly:

Rafter bracket (RB) including 1x 150 mm wall bracket (WB150); item no. 115987



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2	2x RB, 2x WB150	without CTB	2x 115987
3;3	3x RB, 3x WB150	with CTB	3x 115987

02 Cassette-awnings

Opal Design II

Extraction forces and transverse forces

Opal Design II without Valance Plus	119
Opal Design II with Valance Plus	126



Shaded area means limiting size

Extraction forces and transverse forces

Opal Design II without Valance Plus – wall mounting

Type of mount: **1x 150 mm wall bracket (WB150) per arm**

Table valid for all the following bracket assemblies:	2	3
Total number of installation points:	6	9

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	801	1192					without CTB
3000	923	1375	1930				
3500	1046	1558	2184	2955			
4000	1168	1740	2438	3291	4187		
4500	1291	1923	2691	3626	4614	6565	
5000	1413	2106	2945	3962	5684	7181	
5500	1536	2289	3199	4297	6178	7797	with CTB
6000	1658	2471	3452	5210	6672	8414	
6500	1781	2654	3706	5595	7166	9030	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 65% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	80	83					without CTB
3000	88	92	96				
3500	97	101	105	110			
4000	106	110	114	120	123		
4500	115	119	123	129	132	139	
5000	124	128	132	138	142	148	
5500	90	92	95	100	102	106	with CTB
6000	96	98	102	106	108	113	
6500	102	104	108	112	115	119	

Extraction forces and transverse forces

Opal Design II without Valance Plus – wall mounting

Type of mount: **1x 300 mm wall bracket (WB300) per arm**

Table valid for all the following bracket assemblies:	2	2;1
Total number of installation points:	12	15

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	400	596					without CTB
3000	462	688	965				
3500	523	779	1092	1478			
4000	584	870	1219	1645	2093		
4500	645	962	1346	1813	2307	3282	
5000	707	1053	1473	1981	2842	3590	
5500	768	1144	1599	2149	3089	3899	with CTB
6000	829	1236	1726	2605	3336	4207	
6500	890	1327	1853	2797	3583	4515	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 65% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	42	43					without CTB
3000	46	48	50				
3500	50	52	54	57			
4000	55	57	59	62	63		
4500	59	61	63	66	68	71	
5000	64	66	68	71	73	76	
5500	55	57	59	61	63	65	with CTB
6000	59	60	62	65	66	69	
6500	62	64	66	69	70	73	

Extraction forces and transverse forces

Opal Design II without Valance Plus – wall mounting with mounting plate

Type of mount: **1x 660x220x15 mm mounting plate (MP220) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1
Total number of installation points:	12	15

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	215	319					without CTB
3000	247	368	515				
3500	280	417	583	788			
4000	313	465	651	878	1116		
4500	346	514	718	967	1229	1748	
5000	379	563	786	1056	1515	1912	
5500	411	612	854	1146	1646	2076	with CTB
6000	444	661	922	1390	1778	2240	
6500	477	709	989	1492	1909	2405	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	49	51					without CTB
3000	54	55	57				
3500	58	60	62	65			
4000	63	64	67	69	71		
4500	67	69	71	74	76	79	
5000	72	73	76	79	80	84	
5500	62	64	66	68	70	72	with CTB
6000	66	67	69	72	73	76	
6500	69	71	73	75	77	80	

Extraction forces and transverse forces

Opal Design II without Valance Plus – wall mounting with mounting plate

Type of mount: **1x 660x390x15 mm mounting plate (MP390) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1
Total number of installation points:	12	15

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	107	159					without CTB
3000	124	184	258				
3500	140	208	292	394			
4000	157	233	325	439	558		
4500	173	257	359	484	615	874	
5000	189	282	393	528	757	956	
5500	206	306	427	573	823	1038	with CTB
6000	222	330	461	695	889	1120	
6500	239	355	495	746	955	1202	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 88% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	57	58					without CTB
3000	61	63	65				
3500	66	67	69	72			
4000	70	72	74	77	78		
4500	74	76	78	81	83	86	
5000	79	81	83	86	88	91	
5500	68	70	71	74	75	78	with CTB
6000	72	73	75	78	79	82	
6500	75	77	79	81	83	86	

Extraction forces

Opal Design II without Valance Plus – roof mounting

Type of mount: **1x compact ceiling bracket (bracket (CCB) per arm**

Table valid for all the following bracket assemblies:	2	3
Total number of installation points:	6	9

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	640	925					without CTB
3000	733	1062	1467				
3500	827	1199	1656	2221			
4000	921	1336	1845	2469	3125		
4500	1014	1473	2033	2717	3441	4858	
5000	1108	1611	2222	2965	4213	5311	
5500	1159	1704	2365	3166	4527	5712	with CTB
6000	1249	1838	2551	3819	4886	6161	
6500	1340	1972	2736	4099	5246	6610	

Extraction forces and transverse forces

Opal Design II without Valance Plus – front roof mounting

Type of mount: **1x 390 x 160 x 15 mm roof front plate (RP390) per arm**

Table valid for all the following bracket assemblies:	2;2	3;3
Total number of installation points:	8	16

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	456	678					without CTB
3000	526	781	1095				
3500	596	885	1239	1675			
4000	665	989	1383	1865	2370		
4500	735	1093	1527	2055	2613	3715	
5000	805	1196	1671	2245	3219	4063	
5500	874	1300	1815	2435	3498	4412	with CTB
6000	944	1404	1958	2953	3778	4761	
6500	1014	1508	2102	3171	4058	5110	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 92% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	66	68					without CTB
3000	72	75	78				
3500	79	81	85	89			
4000	86	88	91	96	98		
4500	92	95	98	103	105	110	
5000	99	102	105	110	112	117	
5500	73	75	78	81	83	86	with CTB
6000	78	80	82	85	87	91	
6500	82	84	87	90	92	95	

Note for front roof mounting:

The specified extraction forces apply to an at least 160 mm thick storey ceiling.

In this case, the fixing material are to be inserted exactly in the middle of the storey ceiling, so that there is an edge distance of at least 80 mm at the top and bottom. With this type of installation, lining is required, e.g. with 150 x 50 mm rectangular pipes. The lower edge of the rectangular pipe must be flush with the lower edge of the storey ceiling.

Shear forces

Opal Design II without Valance Plus – rafter mounting

Type of mount: **1x rafter bracket (RB) per arm**

Table valid for all the following bracket assemblies:	2;2	3;3
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	1701	2469					without CTB
3000	1955	2840	3928				
3500	2209	3212	4438	5949			
4000	2463	3584	4948	6618	8365		
4500	2717	3956	5458	7287	9214	13021	
5000	2972	4327	5969	7956	11318	14238	
5500	3161	4633	6410	8554	12223	15377	with CTB
6000	3411	5000	6916	10349	13196	16589	
6500	3661	5367	7421	11111	14170	17801	

Type of mount: **1x rafter bracket with mounting plate (RB MP) per arm**

Table valid for all the following bracket assemblies:	2;2;2	3;3;3
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	767	1080					without CTB
3000	877	1238	1682				
3500	988	1396	1896	2512			
4000	1099	1555	2110	2791	3500		
4500	1209	1713	2325	3069	3852	5397	
5000	1320	1871	2539	3348	4711	5897	
5500	1366	1964	2685	3556	5041	6321	with CTB
6000	1473	2117	2895	4287	5441	6816	
6500	1579	2271	3105	4600	5840	7312	

Extraction forces and transverse forces

Opal Design II with Valance Plus – wall mounting

Type of mount: **1x 150 mm wall bracket (WB150) per arm**

Table valid for all the following bracket assemblies:	2	3
Total number of installation points:	6	9

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	1405	1983				without CTB
3000	1614	2278	3050			
3500	1823	2573	3442	4460		
4000	2033	2869	3834	4958	6130	
4500	2242	3164	4225	5457	6747	
5000	2451	3459	4617	5956	8005	with CTB
5500	2661	3754	5008	6455		
6000	2870	4049	5400	7531		

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 65% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	101	105				without CTB
3000	113	117	121			
3500	125	129	134	140		
4000	137	141	146	152	156	
4500	149	153	158	164	168	
5000	161	165	170	177	181	with CTB
5500	117	119	123	127		
6000	125	128	131	136		

Extraction forces and transverse forces

Opal Design II with Valance Plus – wall mounting

Type of mount: **1x 300 mm wall bracket (WB300) per arm**

Table valid for all the following bracket assemblies:	2	2;1
Total number of installation points:	12	15

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	702	992				without CTB
3000	807	1139	1525			
3500	912	1287	1721	2230		
4000	1016	1434	1917	2479	3065	
4500	1121	1582	2113	2729	3373	
5000	1226	1729	2308	2978	4003	
5500	1330	1877	2504	3227		with CTB
6000	1435	2024	2700	3766		

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 65% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	52	54				without CTB
3000	58	60	63			
3500	64	66	69	72		
4000	70	72	75	78	80	
4500	76	78	81	84	86	
5000	82	84	87	90	92	
5500	71	73	75	78		with CTB
6000	76	78	80	83		

Extraction forces and transverse forces

Opal Design II with Valance Plus – wall mounting with mounting plate

Type of mount: **1x 660x220x15 mm mounting plate (MP220) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1
Total number of installation points:	12	15

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	376	530				without CTB
3000	432	608	814			
3500	488	687	918	1188		
4000	544	766	1022	1321	1632	
4500	600	845	1127	1454	1796	
5000	656	924	1231	1587	2132	with CTB
5500	712	1002	1336	1720		
6000	768	1081	1440	2007		

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	60	62				without CTB
3000	66	68	70			
3500	72	74	76	80		
4000	78	80	83	86	88	
4500	84	86	89	92	94	
5000	90	92	95	98	100	with CTB
5500	78	80	82	85		
6000	83	85	87	90		

Extraction forces and transverse forces

Opal Design II with Valance Plus – wall mounting with mounting plate

Type of mount: **1x 660x390x15 mm mounting plate (MP390) per arm**

Table valid for all the following bracket assemblies:	2;2	2;3;1
Total number of installation points:	12	15

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	188	265				without CTB
3000	216	304	407			
3500	244	344	459	594		
4000	272	383	511	661	816	
4500	300	422	563	727	898	
5000	328	462	616	793	1066	with CTB
5500	356	501	668	860		
6000	384	541	720	1003		

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 88% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	68	69				without CTB
3000	74	75	78			
3500	80	81	84	87		
4000	86	87	90	93	95	
4500	92	94	96	99	101	
5000	97	100	102	105	107	with CTB
5500	84	86	88	91		
6000	89	91	93	96		

Extraction forces

Opal Design II with Valance Plus – roof mounting

Type of mount: **1x compact ceiling bracket (CCB) per arm**

Table valid for all the following bracket assemblies:	2	3
Total number of installation points:	6	9

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	1087	1511				without CTB
3000	1245	1732	2298			
3500	1403	1952	2589	3337		
4000	1561	2173	2880	3707	4568	
4500	1719	2393	3171	4076	5024	
5000	1877	2614	3462	4446	5936	
5500	1979	2776	3694	4753		with CTB
6000	2133	2993	3981	5527		

Extraction forces and transverse forces

Opal Design II with Valance Plus – front roof mounting

Type of mount: **1x 390 x 160 x 15 mm roof front plate (DS390) per arm**

Table valid for all the following bracket assemblies:	2;2	3;3
Total number of installation points:	8	16

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	799	1126				without CTB
3000	918	1293	1729			
3500	1037	1460	1951	2525		
4000	1156	1628	2173	2807	3468	
4500	1275	1795	2394	3090	3817	
5000	1394	1963	2616	3372	4530	
5500	1513	2130	2838	3655		with CTB
6000	1632	2297	3060	4265		

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 92% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	82	85				without CTB
3000	91	94	97			
3500	100	103	106	111		
4000	109	112	115	120	123	
4500	118	121	125	129	132	
5000	127	130	134	139	142	
5500	94	96	98	102		with CTB
6000	100	102	104	108		

Note for front roof mounting:

The specified extraction forces apply to an at least 160 mm thick storey ceiling.

In this case, the fixing material are to be inserted exactly in the middle of the storey ceiling, so that there is an edge distance of at least 80 mm at the top and bottom. With this type of installation, lining is required, e.g. with 150 x 50 mm rectangular pipes. The lower edge of the rectangular pipe must be flush with the lower edge of the storey ceiling.

Shear forces

Opal Design II with Valance Plus – rafter mounting

Type of mount: **1x rafter bracket (RB) per arm**

Table valid for all the following bracket assemblies:	2;2	3;3
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	2917	4048				without CTB
3000	3346	4643	6152			
3500	3774	5239	6935	8923		
4000	4203	5835	7719	9915	12197	
4500	4632	6431	8502	10907	13418	
5000	5060	7026	9286	11899	15894	
5500	5405	7535	9980	12799		with CTB
6000	5827	8125	10757	14916		

Type of mount: **1x rafter bracket with mounting plate (DH MP) per arm**

Table valid for all the following bracket assemblies:	2;2;2	3;3;3
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	1278	1738				without CTB
3000	1462	1990	2604			
3500	1646	2242	2931	3741		
4000	1830	2493	3259	4153	5079	
4500	2014	2745	3587	4565	5584	
5000	2198	2996	3914	4977	6596	
5500	2297	3162	4153	5297		with CTB
6000	2475	3407	4475	6160		

02 Cassette-awnings Semina Life

Selection of brackets

Wall mounting	134
Wall mounting with mounting plate	136
Roof mounting	138
Rafter mounting	140

Selection of brackets

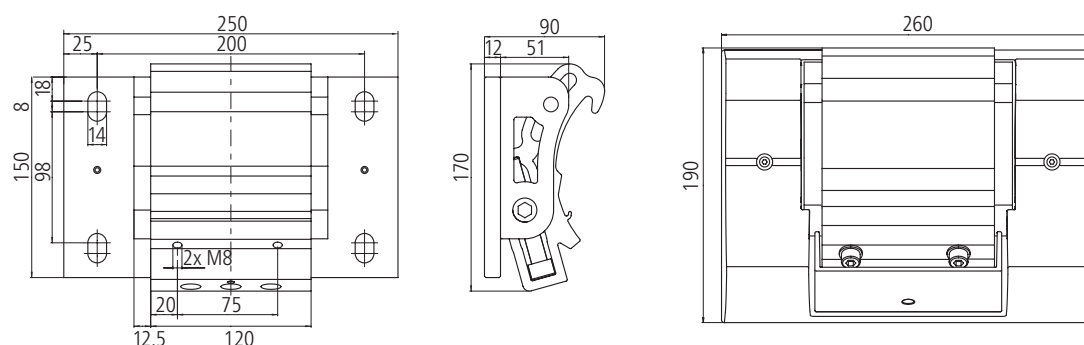
Semina Life – wall mounting

Bracket module consisting of:
250 mm wall bracket; item no. 118942

Notes on this bracket assembly:
1x 250 mm wall bracket (WB250)
1 bracket per arm
2 top installation points, distance between centre lines 200 mm
4 installation points in total



Corresponding centre bracket assembly:
250 mm centre bracket (CTB250); item no. 118963



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2	2x WB250	without CTB	2x 118942
2;1	2x WB250, 1x CTB250	with CTB	2x 118942 + 1x 118963

Selection of brackets

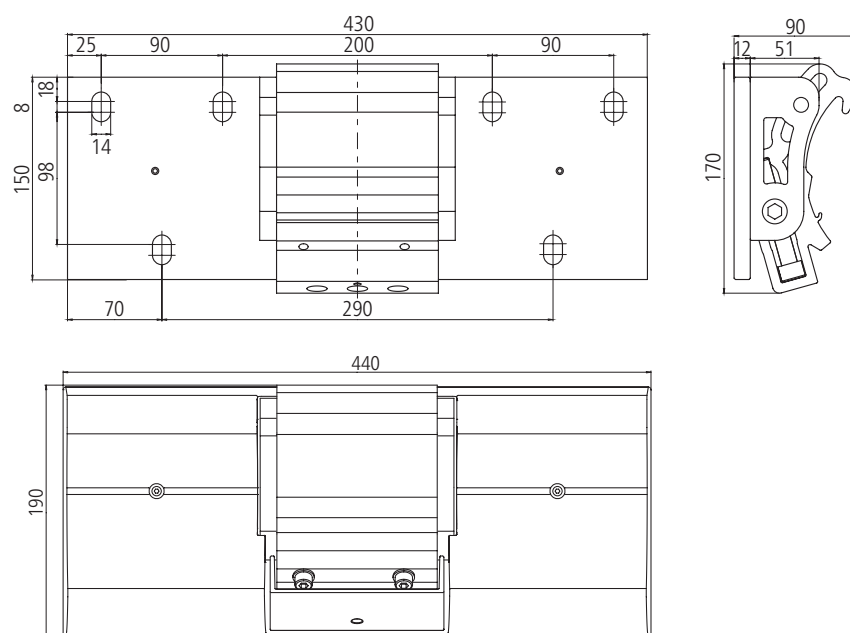
Semina Life – wall mounting

Bracket module consisting of:
430 mm wall bracket; item no. 118949

Notes on this bracket assembly:
1x 430 mm wall bracket (WB430)
1 bracket per arm
4 top installation points, distance between centre lines 90/200/90 mm
6 installation points in total



Corresponding centre bracket assembly:
250 mm centre bracket (CTB250); item no. 118963



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2	2x WB430	without CTB	2x 118949
2;1	2x WB430, 1x CTB250	with CTB	2x 118949 + 1x 118963

Selection of brackets

Semina Life – wall mounting with mounting plate

Bracket module consisting of:

660 x 220 x 15 mm mounting plate with:
- 1x 250 mm wall bracket; item no. 119030

Notes on this bracket assembly:

1x 660 x 220 x 15 mm mounting plate (MP220)

incl. 1x 250 mm wall bracket (WB250)

1 mounting plate per arm

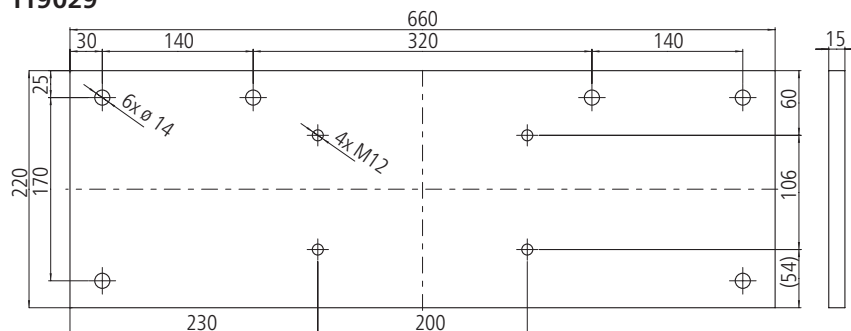
4 top installation points, distance between centre lines 140/320/140 mm

6 installation points in total



Corresponding centre bracket assembly:

370 x 220 x 15 mm mounting plate (BP370) including 1x 250 mm centre bracket (CTB250); item no. 119029



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2	2x MP220, 2x WB250	without CTB	2x 119030
2;2;1;1	2x MP220, 2x WB250, 1x BP370, 1x CTB250	with CTB	2x 119030 + 1x 119029

Selection of brackets

Semina Life – wall mounting with mounting plate

Bracket module consisting of:

660 x 390 x 15 mm mounting plate with:
- 1x 250 mm wall bracket; item no. 119024

Notes on this bracket assembly:

1x 660 x 390 x 15 mm mounting plate (MP390)

incl. 1x 250 mm wall bracket (WB250)

1 mounting plate per arm

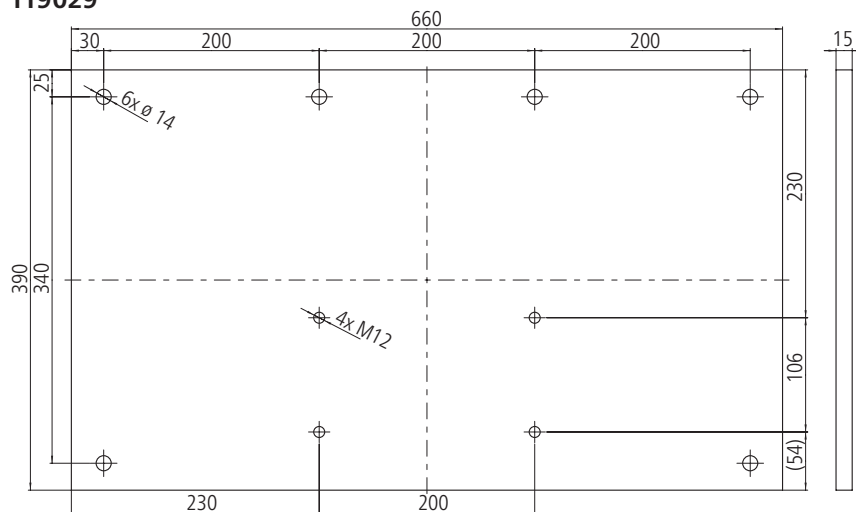
4 top installation points, distance between centre lines 200 mm

6 installation points in total



Corresponding centre bracket assembly:

370 x 220 x 15 mm mounting plate (UP370) including 1x 250 mm centre bracket (CTB250); item no. 119029



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2	2x MP390, 2x WB250	without CTB	2x 119024
2;2;1;1	2x MP390, 2x WB250, 1x UP370, 1x CTB250	with CTB	2x 119024 + 1x 119029

Selection of brackets

Semina Life – roof mounting

Bracket module consisting of:

Ceiling bracket with:

- 250 mm wall bracket; item no. 119006

Notes on this bracket assembly:

1x ceiling bracket (CB)

incl. 1x 250 mm wall bracket (WB250)

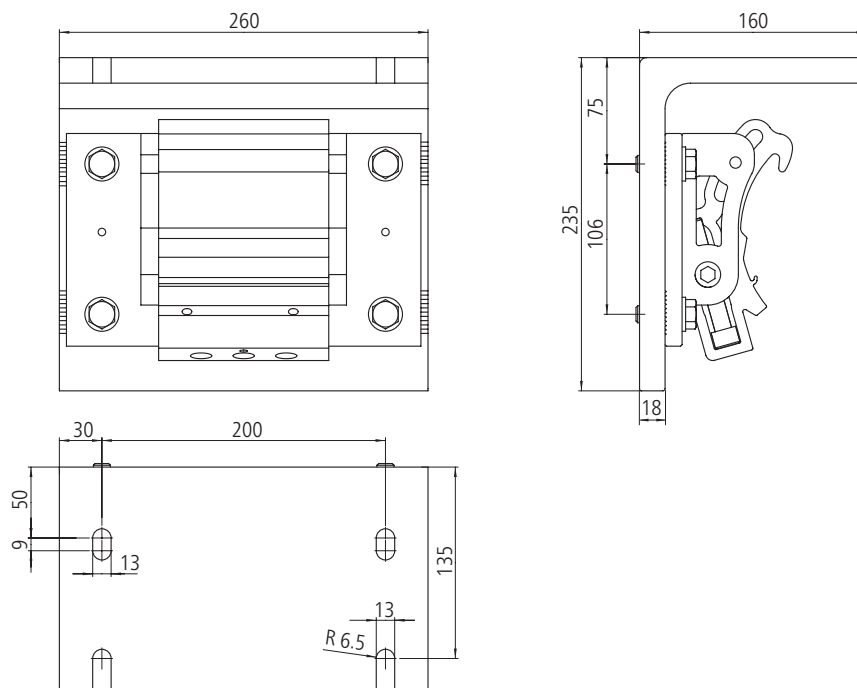
2 front installation points, distance between centre lines 200 mm

4 installation points in total



Corresponding centre bracket assembly:

Ceiling bracket (CB) including 1x 250 mm centre bracket (CTB250); item no. 119009



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2	2x CB, 2x WB250	without CTB	2x 119006
3;2;1	3x CB, 2x WB250, 1x CTB250	with CTB	2x 119006 + 1x 119009

Selection of brackets

Semina Life – front roof mounting

Bracket module consisting of:

540 x 220 x 15 mm roof front plate with:
- 1x 250 mm wall bracket; item no. 119021

Notes on this bracket assembly:

1x 540 x 220 x 15 mm roof front plate (RP540)

incl. 1x 250 mm wall bracket (WB250)

1 mounting plate per arm

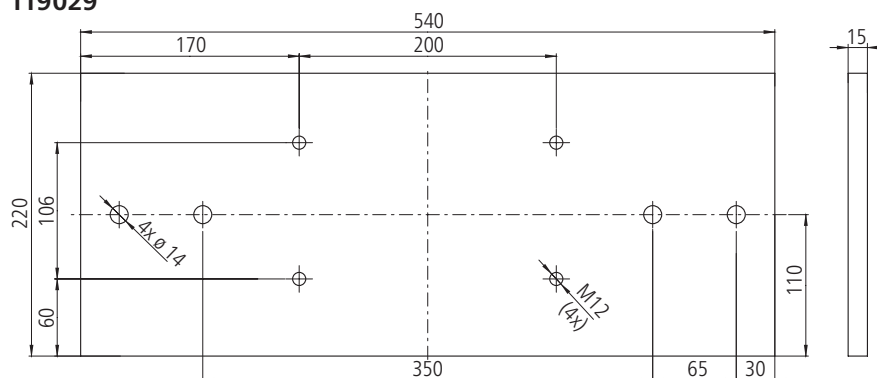
4 installation points, distance between centre lines 65/350/65 mm

4 installation points in total



Corresponding centre bracket assembly:

370 x 220 x 15 mm mounting plate (BP370) including 1x 250 mm centre bracket (CTB250); item no. 119029



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2	2x RP540, 2x WB250	without CTB	2x 119021
2;2;1;1	2x RP540, 2x WB250, 1x BP370, 1x CTB250	with CTB	2x 119021 + 1x 119029

Selection of brackets

Semina Life – rafter mounting

Bracket module consisting of:

Rafter bracket and 260 x 190 x 15 mm adaptor plate with:
- 250 mm wall bracket; item no. 119012

Notes on this bracket assembly:

1x rafter bracket (DH)

incl. 260 x 190 x 15 mm adaptor plate (AP)

incl. 1x 50 mm wall bracket (WB250)

1 bracket per arm

1 front installation point

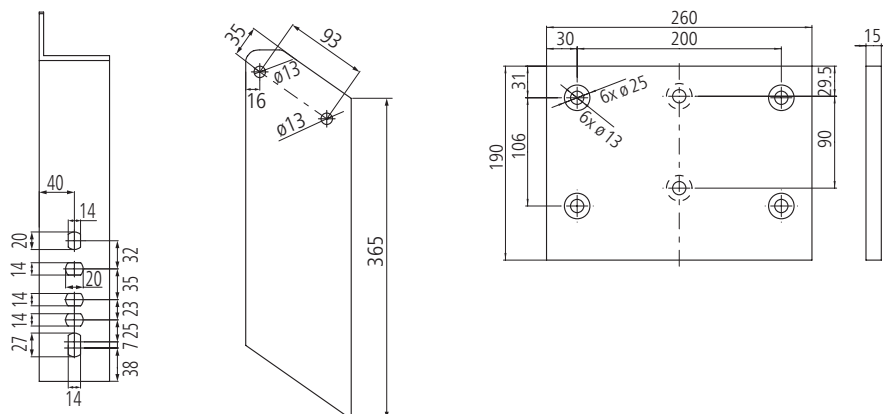
2 installation points in total

One left and right version each



Corresponding centre bracket assembly:

Rafter bracket (RB) and 260 x 190 x 15 mm adaptor plate (AP)
including 1x 250 mm centre bracket (CTB250); item no. 119017



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2;2	2x RB, 2x AP, 2x WB250	without CTB	2x 119012
3;3;2;1	3x RB, 3x AP, 2x WB250, 1x CTB250	with CTB	2x 119012 + 1x 119017

Selection of brackets

Semina Life – rafter mounting

Bracket module consisting of:

Rafter bracket, 260 x 190 x 15 mm adaptor plate, mounting plate with:
- 250 mm wall bracket; item no. 119013

Notes on this bracket assembly:

1x rafter bracket (RB) and mounting plate (MP)

incl. 260 x 190 x 15 mm adaptor plate (AP)

incl. 1x 250 mm wall bracket (WB250)

1 bracket per arm

1 front installation point

2 installation points in total

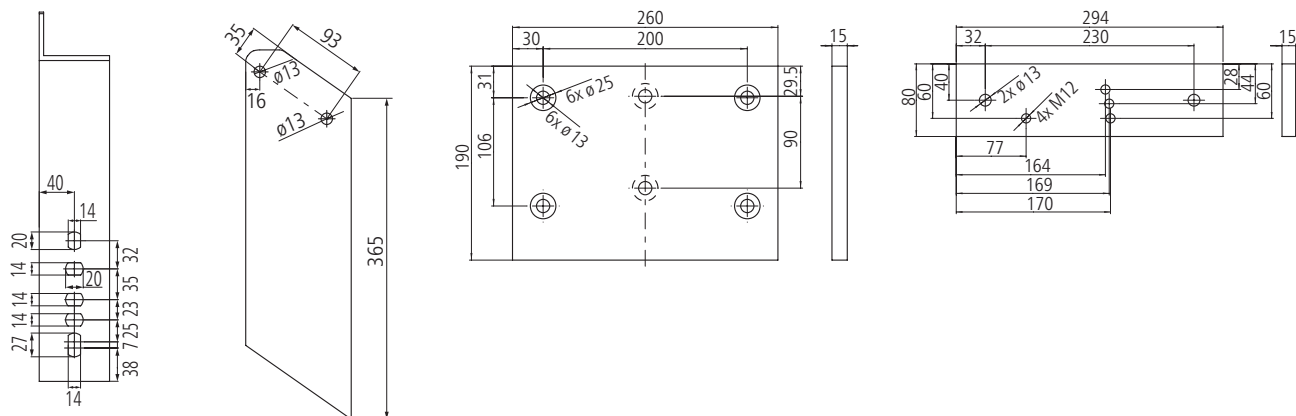
One left and right version each



Corresponding centre bracket assembly:

Rafter bracket (RB), 260 x 190 x 15 mm adaptor plate (AP) and mounting plate (MP)

incl. 1x 250 mm centre bracket (CTB250); item no. 119018



Information for ordering brackets

Number	Scope of delivery	Note	Item number for order
2;2;2;2	2x RB, 2x AP, 2x MP, 2x WB250	without CTB	2x 119013
3;3;3;2;1	3x RB, 3x AP, 3x MP, 2x WB250, 1x CTB250	with CTB	2x 119013 + 1x 119018

02 Cassette-awnings

Semina Life

Extraction forces and transverse forces

Semina Life without Valance Plus	143
Semina Life with Valance Plus	150



Shaded area means limiting size

Extraction forces and transverse forces

Semina Life without Valance Plus – wall mounting

Type of mount: **1x 250 mm wall bracket (WB250) per arm**

Table valid for all the following bracket assemblies:	2	2;1
Total number of installation points:	8	12

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	683	1017					without CTB
3000	786	1171	1644				
3500	890	1326	1859	2516			
4000	993	1480	2074	2800	3562		
4500	1097	1635	2289	3085	3925	5582	
5000	1200	1790	2504	3369	4832	6105	
5500	1304	1944	2719	3653	5250	6628	with CTB
6000	1407	2099	2933	4427	5669	7150	
6500	1510	2253	3148	4753	6088	7673	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 83% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	65	67					without CTB
3000	71	73	76				
3500	77	79	82	86			
4000	83	85	88	93	95		
4500	88	91	94	99	101	106	
5000	94	97	100	105	108	113	
5500	100	103	107	111	114	119	with CTB
6000	76	78	80	83	85	88	
6500	80	82	84	87	89	93	

Extraction forces and transverse forces

Semina Life without Valance Plus – wall mounting

Type of mount: **1x 430 mm wall bracket (WB430) per arm**

Table valid for all the following bracket assemblies:	2	2;1
Total number of installation points:	12	16

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	341	508					without CTB
3000	393	586	822				
3500	445	663	930	1258			
4000	497	740	1037	1400	1781		
4500	548	817	1144	1542	1963	2791	
5000	600	895	1252	1684	2416	3052	
5500	652	972	1359	1827	2625	3314	with CTB
6000	704	1049	1467	2213	2835	3575	
6500	755	1127	1574	2376	3044	3836	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 83% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	45	47					without CTB
3000	49	51	53				
3500	53	55	57	60			
4000	57	59	61	64	66		
4500	61	63	65	68	70	73	
5000	65	67	69	72	74	77	
5500	69	71	73	76	78	82	with CTB
6000	58	60	62	64	66	68	
6500	61	63	65	67	69	71	

Extraction forces and transverse forces

Semina Life without Valance Plus – wall mounting with mounting plate

Type of mount: **1x 660x220x15 mm mounting plate (MP220) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1
Total number of installation points:	12	16

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	216	320					without CTB
3000	248	369	517				
3500	281	417	585	790			
4000	313	466	652	880	1118		
4500	346	515	720	969	1232	1751	
5000	379	563	787	1058	1516	1915	
5500	411	612	855	1147	1648	2078	with CTB
6000	444	661	922	1390	1779	2242	
6500	477	709	990	1493	1910	2406	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	53	54					without CTB
3000	57	58	60				
3500	61	62	64	67			
4000	65	66	68	71	73		
4500	69	70	73	76	77	80	
5000	73	74	77	80	81	85	
5500	77	78	81	84	86	89	with CTB
6000	66	67	69	72	73	76	
6500	69	70	72	75	76	79	

Extraction forces and transverse forces

Semina Life without Valance Plus – wall mounting with mounting plate

Type of mount: **1x 660x390x15 mm mounting plate (MP390) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1
Total number of installation points:	12	16

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	108	160					without CTB
3000	124	184	258				
3500	140	209	292	395			
4000	157	233	326	440	559		
4500	173	257	360	484	616	875	
5000	189	282	394	529	758	957	
5500	206	306	427	574	824	1039	with CTB
6000	222	330	461	695	890	1121	
6500	238	355	495	746	955	1203	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 88% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	60	62					without CTB
3000	64	66	68				
3500	68	70	72	75			
4000	72	74	76	79	80		
4500	76	78	80	83	85	88	
5000	80	82	84	87	89	92	
5500	84	86	88	91	93	96	with CTB
6000	72	73	75	77	79	81	
6500	74	76	78	80	82	84	

Extraction forces

Semina Life without Valance Plus – roof mounting

Type of mount: **1x ceiling bracket (CB) per arm**

Table valid for all the following bracket assemblies:	2;2	3;2;1
Total number of installation points:	8	12

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	638	920					without CTB
3000	729	1054	1453				
3500	821	1188	1638	2194			
4000	912	1322	1823	2437	3080		
4500	1003	1456	2007	2680	3389	4783	
5000	1094	1590	2192	2923	4151	5227	
5500	1185	1724	2377	3166	4507	5670	with CTB
6000	1246	1827	2529	3781	4827	6076	
6500	1335	1959	2711	4057	5181	6518	

Extraction forces and transverse forces

Semina Life without Valance Plus – front roof mounting

Type of mount: **1x 540x220x15 mm roof front plate (RP540) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1
Total number of installation points:	8	10

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	458	680					without CTB
3000	527	784	1099				
3500	597	887	1242	1679			
4000	666	990	1386	1869	2375		
4500	735	1094	1529	2059	2617	3720	
5000	805	1197	1673	2248	3222	4068	
5500	874	1301	1816	2438	3501	4417	with CTB
6000	943	1404	1960	2954	3781	4765	
6500	1013	1507	2103	3172	4060	5113	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 92% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	76	78					without CTB
3000	82	84	87				
3500	88	90	93	98			
4000	94	96	100	104	106		
4500	100	102	106	110	113	117	
5000	106	108	112	116	119	124	
5500	112	114	118	123	125	130	with CTB
6000	103	105	108	112	114	118	
6500	108	110	113	117	119	123	

Note for front roof mounting:

The specified extraction forces apply to an at least 160 mm thick storey ceiling.

In this case, the fixing material are to be inserted exactly in the middle of the storey ceiling, so that there is an edge distance of at least 80 mm at the top and bottom. With this type of installation, lining is required, e.g. with 150 x 50 mm rectangular pipes. The lower edge of the rectangular pipe must be flush with the lower edge of the storey ceiling.

Shear forces

Semina Life without Valance Plus – rafter mounting

Type of mount: **1x rafter bracket (RB) per arm**

Table valid for all the following bracket assemblies:	2;2;2	3;3;2;1
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	1805	2592					without CTB
3000	2068	2975	4087				
3500	2330	3358	4611	6152			
4000	2593	3740	5134	6838	8612		
4500	2855	4123	5658	7523	9479	13360	
5000	3117	4505	6181	8208	11636	14602	
5500	3380	4888	6705	8893	12636	15843	with CTB
6000	3581	5207	7163	10675	13566	17011	
6500	3840	5586	7682	11456	14563	18248	

Type of mount: **1x rafter bracket with mounting plate (RB MP) per arm**

Table valid for all the following bracket assemblies:	2;2;2;2	3;3;3;2;1
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]						Miscellaneous
	1500	2000	2500	3000	3500	4000	Limiting size
2500	821	1142					without CTB
3000	934	1304	1757				
3500	1047	1466	1976	2604			
4000	1160	1627	2195	2889	3609		
4500	1274	1789	2414	3173	3968	5542	
5000	1387	1951	2633	3458	4847	6052	
5500	1500	2113	2852	3742	5259	6562	with CTB
6000	1552	2212	3005	4429	5601	6997	
6500	1661	2370	3220	4750	6008	7503	

Extraction forces and transverse forces

Semina Life with Valance Plus – wall mounting

Type of mount: **1x 250 mm wall bracket (WB250) per arm**

Table valid for all the following bracket assemblies:	2	2;1
Total number of installation points:	8	12

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	1195	1687				without CTB
3000	1372	1937	2594			
3500	1549	2187	2926	3791		
4000	1726	2437	3257	4214	5210	
4500	1903	2687	3589	4637	5733	
5000	2080	2937	3921	5060	6800	
5500	2258	3187	4253	5483	7380	with CTB
6000	2435	3437	4585	6395	7959	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 83% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	81	84				without CTB
3000	89	92	95			
3500	98	100	104	108		
4000	106	109	112	117	120	
4500	114	117	121	125	128	
5000	122	125	129	134	137	
5500	130	134	137	142	146	with CTB
6000	97	99	102	105	108	

Extraction forces and transverse forces

Semina Life with Valance Plus – wall mounting

Type of mount: **1x 430 mm wall bracket (WB430) per arm**

Table valid for all the following bracket assemblies:	2	2;1
Total number of installation points:	12	16

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	597	843				without CTB
3000	686	968	1297			
3500	774	1093	1463	1896		
4000	863	1218	1629	2107	2605	
4500	952	1343	1795	2319	2867	
5000	1040	1468	1961	2530	3400	
5500	1129	1593	2127	2742	3690	with CTB
6000	1217	1718	2293	3198	3979	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 83% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	56	58				without CTB
3000	62	64	66			
3500	67	69	72	75		
4000	73	75	77	80	82	
4500	78	80	83	86	88	
5000	84	86	88	92	94	
5500	89	91	94	97	99	with CTB
6000	75	76	78	81	82	

Extraction forces and transverse forces

Semina Life with Valance Plus – wall mounting with mounting plate

Type of mount: **1x 660x220x15 mm mounting plate (MP220) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1
Total number of installation points:	12	16

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	377	531				without CTB
3000	432	609	815			
3500	488	688	919	1190		
4000	544	766	1023	1322	1634	
4500	600	845	1127	1455	1798	
5000	656	924	1232	1588	2133	
5500	711	1002	1336	1721	2314	with CTB
6000	767	1081	1440	2007	2496	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 85% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	64	65	68			without CTB
3000	69	71	73	76		
3500	75	77	79	82	84	
4000	80	82	84	88	90	
4500	86	88	90	93	95	
5000	91	93	96	99	101	
5500	97	99	101	105	107	with CTB
6000	82	84	86	88	90	

Extraction forces and transverse forces

Semina Life with Valance Plus – wall mounting with mounting plate

Type of mount: **1x 660x390x15 mm mounting plate (MP390) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1
Total number of installation points:	12	16

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	188	265				without CTB
3000	216	305	407			
3500	244	344	459	595		
4000	272	383	512	661	817	
4500	300	422	564	728	899	
5000	328	462	616	794	1066	
5500	356	501	668	860	1157	with CTB
6000	384	540	720	1004	1248	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 88% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	71	73				without CTB
3000	77	78	81			
3500	82	84	86	89		
4000	88	89	92	95	97	
4500	93	95	97	101	103	
5000	98	101	103	106	108	
5500	104	106	109	112	114	with CTB
6000	88	89	91	94	96	

Extraction forces

Semina Life with Valance Plus – roof mounting

Type of mount: **1x ceiling bracket (CB) per arm**

Table valid for all the following bracket assemblies:	2;2	3;2;1
Total number of installation points:	8	12

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	1079	1495				without CTB
3000	1234	1711	2267			
3500	1388	1927	2551	3284		
4000	1543	2143	2836	3646	4488	
4500	1698	2359	3121	4008	4934	
5000	1852	2575	3406	4369	5833	
5500	2007	2791	3691	4731	6326	with CTB
6000	2120	2964	3932	5453	6772	

Extraction forces and transverse forces

Semina Life with Valance Plus – front roof mounting

Type of mount: **1x 540x220x15 mm roof front plate (DS540) per arm**

Table valid for all the following bracket assemblies:	2;2	2;2;1;1
Total number of installation points:	8	10

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	800	1127				without CTB
3000	919	1294	1731			
3500	1037	1461	1953	2528		
4000	1156	1629	2174	2810	3472	
4500	1275	1796	2396	3092	3820	
5000	1393	1963	2617	3374	4532	
5500	1512	2130	2839	3656	4918	with CTB
6000	1630	2297	3060	4265	5304	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 92% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	92	95				without CTB
3000	101	103	107			
3500	109	112	115	120		
4000	117	120	124	128	131	
4500	125	128	132	137	140	
5000	133	137	140	145	148	
5500	142	145	149	154	157	with CTB
6000	129	132	135	139	141	

Note for front ceiling mounting:

The specified extraction forces apply to an at least 160 mm thick storey ceiling.

In this case, the fixing material are to be inserted exactly in the middle of the storey ceiling, so that there is an edge distance of at least 80 mm at the top and bottom. With this type of installation, lining is required, e.g. with 150 x 50 mm rectangular pipes. The lower edge of the rectangular pipe must be flush with the lower edge of the storey ceiling.

Shear forces

Semina Life with Valance Plus – rafter mounting

Type of mount: **1x rafter bracket (RB) per arm**

Table valid for all the following bracket assemblies:	2;2;2	3;3;2;1
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	3061	4212				without CTB
3000	3504	4824	6357			
3500	3947	5437	7160	9180		
4000	4390	6049	7963	10194	12503	
4500	4833	6662	8766	11208	13749	
5000	5276	7275	9569	12222	16284	
5500	5719	7887	10372	13236	17663	with CTB
6000	6080	8415	11087	15324	18948	

Type of mount: **1x rafter bracket with mounting plate (RB MP) per arm**

Table valid for all the following bracket assemblies:	2;2;2;2	3;3;3;2;1
Total number of installation points:	4	6

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]					Miscellaneous
	1500	2000	2500	3000	3500	Limiting size
2500	1348	1816				without CTB
3000	1537	2074	2698			
3500	1726	2332	3033	3855		
4000	1915	2589	3367	4275	5212	
4500	2104	2847	3702	4695	5726	
5000	2293	3104	4037	5115	6761	
5500	2482	3362	4371	5535	7329	with CTB
6000	2588	3535	4618	6336	7804	

02 Cassette-awnings

Cassita II

Selection of brackets

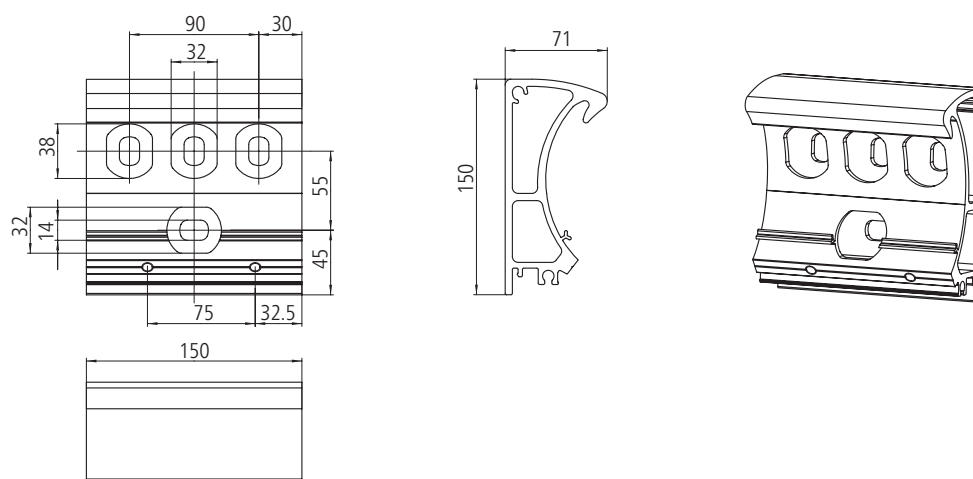
Wall mounting	158
Wall mounting with mounting plate	159
Roof mounting	162
Rafter mounting	164

Selection of brackets

Cassita II – wall mounting

Bracket module consisting of:
150 mm wall bracket; item no. 115950

Notes on this bracket assembly:
1x 150 mm wall bracket (WB150)
1 bracket per arm
2 top installation points, distance between centre lines 90 mm
3 installation points in total



Information for ordering brackets

Number	Scope of delivery	Item number for order
2	2x WB150	2x 115950

Selection of brackets

Cassita II – wall mounting with mounting plate

Bracket module consisting of:

260 x 220 x 15 mm mounting plate with:
- 1x 150 mm wall bracket; item no. 115946

Notes on this bracket assembly:

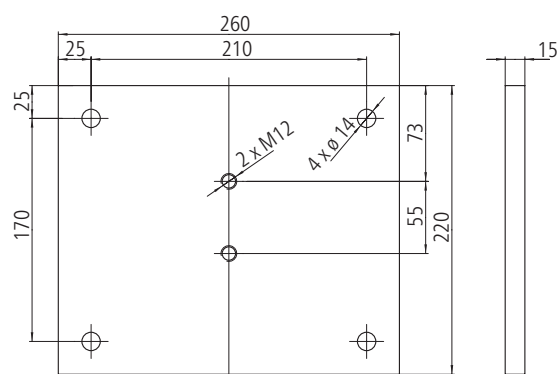
1x 260 x 220 x 15 mm mounting plate (MP260)

incl. 1x 150 mm wall bracket (WB150)

1 mounting plate per arm

2 top installation points, distance between centre lines 210 mm

4 installation points in total



Information for ordering brackets

Number	Scope of delivery	Item number for order
2;2	2x MP260, 2x WB150	2x 115946

Selection of brackets

Cassita II – wall mounting with mounting plate

Bracket module consisting of:

660 x 220 x 15 mm mounting plate with:
- 1x 150 mm wall bracket; item no. 115947

Notes on this bracket assembly:

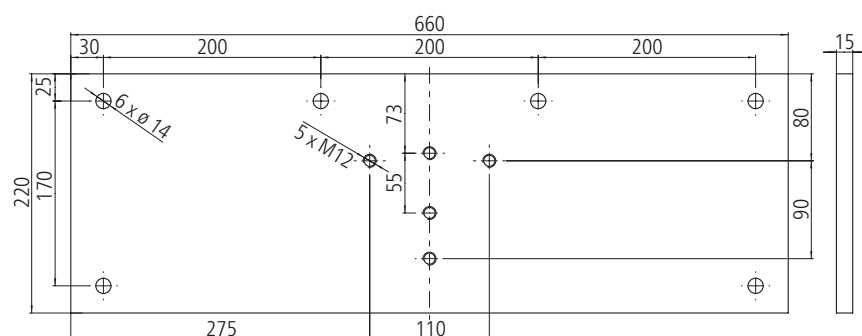
1x 660 x 220 x 15 mm mounting plate (MP220)

incl. 1x 150 mm wall bracket (WB150)

1 mounting plate per arm

4 top installation points, distance between centre lines 200 mm

6 installation points in total



Information for ordering brackets

Number	Scope of delivery	Item number for order
2;2	2x MP220, 2x WB150	2x 115947

Selection of brackets

Cassita II – wall mounting with mounting plate

Bracket module consisting of:

660 x 390 x 15 mm mounting plate with:
- 1x 150 mm wall bracket; item no. 115948

Notes on this bracket assembly:

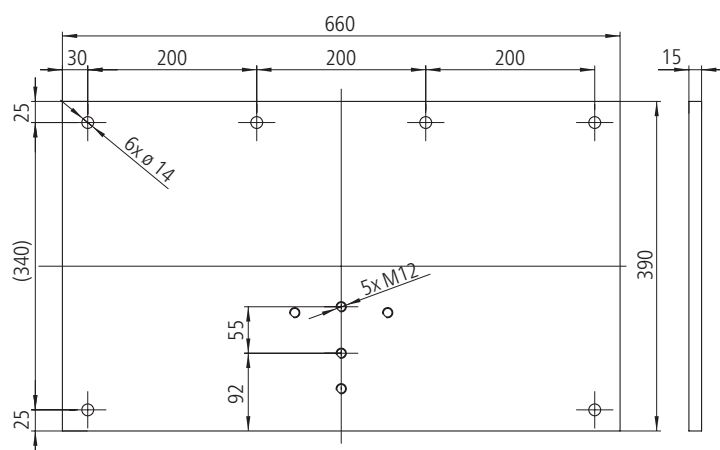
1x 660 x 390 x 15 mm mounting plate (MP390)

incl. 1x 150 mm wall bracket (WB150)

1 mounting plate per arm

4 top installation points, distance between centre lines 200 mm

6 installation points in total



Information for ordering brackets

Number	Scope of delivery	Item number for order
2;2	2x MP390, 2x WB150	2x 115948

Selection of brackets

Cassita II – roof mounting

Bracket module consisting of:

Ceiling bracket with:

- 150 mm wall bracket; item no. 115949

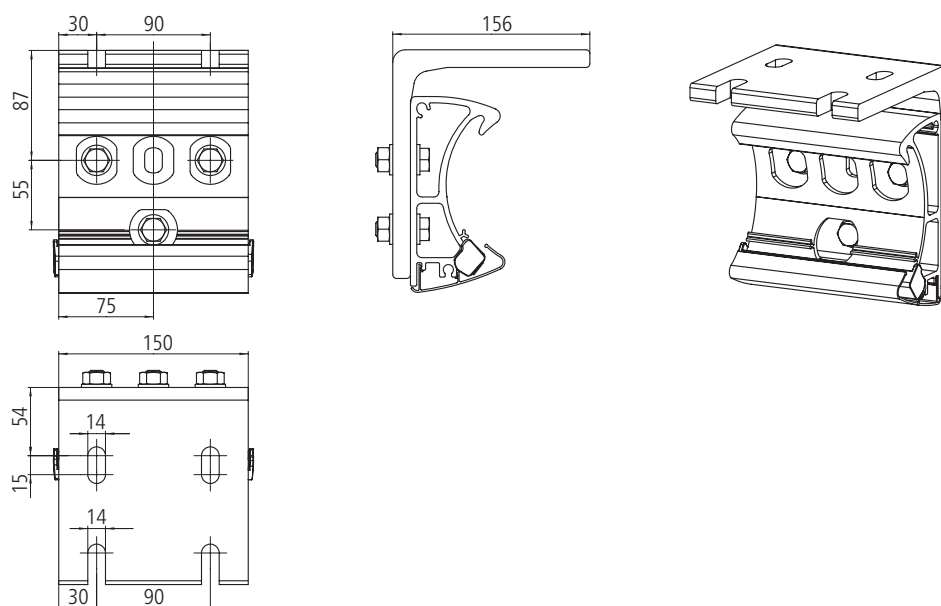
Notes on this bracket assembly:

1x ceiling bracket (CB)

incl. 1x 150 mm wall bracket (WB150)

2 front installation points, distance between centre lines 90 mm

4 installation points in total



Information for ordering brackets

Number	Scope of delivery	Item number for order
2;2	2x CB, 2x WB150	2x 115949

Selection of brackets

Cassita II – roof mounting

Bracket module consisting of:

Compact ceiling bracket, item no. 106813

Notes on this bracket assembly:

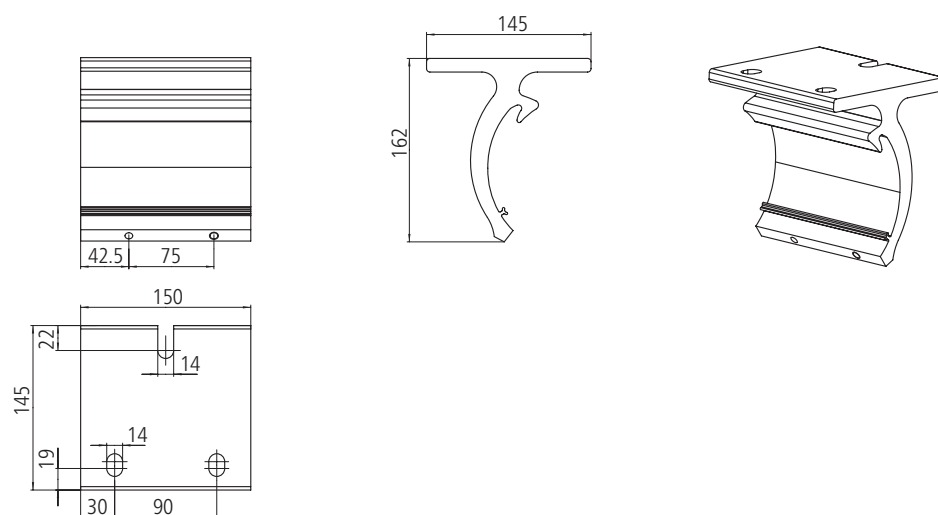
1x compact ceiling bracket (CCB)

1 bracket per arm

2 front installation points, distance between centre lines 90 mm

3 installation points in total

Not for Cassita II with LED!



Information for ordering brackets

Number	Scope of delivery	Item number for order
2	2x CCB	2x 106813

Cassita II – rafter mounting

- 150 mm wall bracket; item no. 115951

Notes on this bracket assembly:

1x rafter bracket (RB)

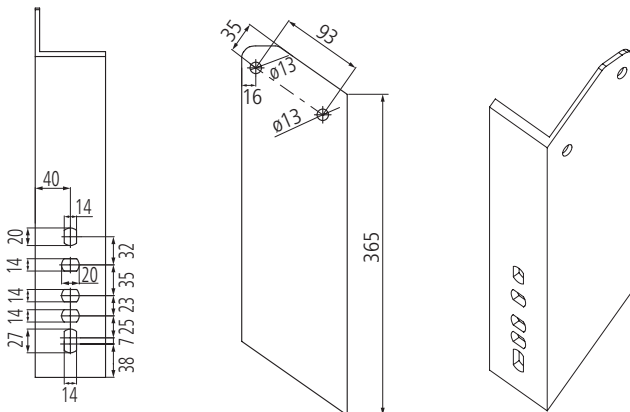
incl. 1x 150 mm wall bracket (WB150)

1 bracket per arm

1 front installation point

2 installation points in total

One left and right version each



Information for ordering brackets

Number	Scope of delivery	Item number for order
2;2	2x RB, 2x WB150	2x 115951

02 Cassette-awnings

Cassita II

Extraction forces and transverse forces

Cassita II

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Shaded area means limiting size

Extraction forces and transverse forces

Cassita II – wall mounting

Type of mount: **1x 150 mm wall bracket (WB150) per arm**

Table valid for all the following bracket assemblies:	2
Total number of installation points:	6

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]				Miscellaneous
	1500	2000	2500	3000	Limiting size
2500	1087	1649	2380		without CTB
3000	1258	1911	2749	3666	
3500	1430	2173	3119	4161	
4000	1602	2435	3489	4656	
4500	1774	2697	3859	5151	
5000	1946	2959	4229	5646	
5500	2118	3221	4599	6141	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 55% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]				Miscellaneous
	1500	2000	2500	3000	Limiting size
2500	60	62	67		without CTB
3000	66	69	73	76	
3500	73	76	80	83	
4000	79	82	87	90	
4500	86	89	94	97	
5000	92	96	101	104	
5500	99	102	107	111	

Extraction forces and transverse forces

Cassita II – wall mounting with mounting plate

Type of mount: **1x 260x220x15 mm mounting plate (MP260) per arm**

Table valid for all the following bracket assemblies:	2;2
Total number of installation points:	8

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]				Miscellaneous
	1500	2000	2500	3000	Limiting size
2500	356	539	777		without CTB
3000	412	625	897	1195	
3500	469	710	1018	1356	
4000	525	796	1139	1518	
4500	581	881	1259	1679	
5000	637	967	1380	1841	
5500	694	1053	1501	2002	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 83% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]				Miscellaneous
	1500	2000	2500	3000	Limiting size
2500	50	52	56	58	without CTB
3000	55	57	61	63	
3500	60	62	66	68	
4000	65	67	71	73	
4500	70	72	76	78	
5000	75	77	81	84	
5500	80	82	86	89	

Extraction forces and transverse forces

Cassita II – wall mounting with mounting plate

Type of mount: **1x 660x220x15 mm mounting plate (MP220) per arm**

Table valid for all the following bracket assemblies:	2;2
Total number of installation points:	12

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]				Miscellaneous
	1500	2000	2500	3000	Limiting size
2500	178	269	388		without CTB
3000	206	312	449	597	
3500	234	355	509	678	
4000	262	398	569	759	
4500	291	441	630	840	
5000	319	484	690	920	
5500	347	526	750	1001	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 83% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]				Miscellaneous
	1500	2000	2500	3000	Limiting size
2500	39	40	43		without CTB
3000	42	44	46	47	
3500	46	47	49	51	
4000	49	51	53	54	
4500	52	54	56	58	
5000	55	57	60	61	
5500	59	61	63	65	

Extraction forces and transverse forces

Cassita II – wall mounting with mounting plate

Type of mount: **1x 660x390x15 mm mounting plate (MP390) per arm**

Table valid for all the following bracket assemblies:	2;2
Total number of installation points:	12

Extraction forces force per top fixing material in [N]

Width [mm]	Projection [mm]				Miscellaneous
	1500	2000	2500	3000	Limiting size
2500	89	135	194		without CTB
3000	103	156	224	299	
3500	117	178	255	339	
4000	131	199	285	379	
4500	145	220	315	420	
5000	159	242	345	460	
5500	173	263	375	501	

The specified extraction forces apply to installation on a **non-pressure-resistant** surface with 200 mm facing.

The extraction forces are 86% of the specified values for a **pressure-resistant** surface.

Transverse forces per fixing material in [N]

Width [mm]	Projection [mm]				Miscellaneous
	1500	2000	2500	3000	Limiting size
2500	47	48	50		without CTB
3000	50	52	54	55	
3500	53	55	57	59	
4000	57	58	60	62	
4500	60	62	64	65	
5000	63	65	67	69	
5500	66	68	71	72	

Extraction forces

Cassita II – roof mounting

Type of mount: **1x ceiling bracket (CB) per arm**

Table valid for all the following bracket assemblies:	2;2
Total number of installation points:	8

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]				Miscellaneous
	1500	2000	2500	3000	Limiting size
2500	514	765	1092		without CTB
3000	593	883	1259	1669	
3500	671	1002	1425	1892	
4000	750	1121	1592	2115	
4500	828	1239	1759	2337	
5000	907	1358	1925	2560	
5500	986	1476	2092	2782	

Type of mount: **1x compact ceiling bracket (bracket (CCB) per arm**

Table valid for all the following bracket assemblies:	2
Total number of installation points:	6

Extraction forces per front fixing material in [N]

Width [mm]	Projection [mm]				Miscellaneous
	1500	2000	2500	3000	Limiting size
2500	551	816	1161		without CTB
3000	635	942	1338	1771	
3500	720	1068	1515	2006	
4000	804	1194	1691	2242	
4500	888	1321	1868	2478	
5000	972	1447	2045	2713	
5500	1056	1573	2222	2949	

Shear forces

Cassita II – rafter mounting

Type of mount: **1x rafter bracket (RB) per arm**

Table valid for all the following bracket assemblies:	2;2
Total number of installation points:	4

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]				Miscellaneous
	1500	2000	2500	3000	Limiting size
2500	1409	2085	2964		without CTB
3000	1626	2410	3418	4513	
3500	1844	2735	3872	5117	
4000	2061	3061	4326	5721	
4500	2279	3386	4780	6324	
5000	2496	3711	5234	6928	
5500	2714	4037	5688	7532	

Type of mount: **1x rafter bracket with mounting plate (RB MP) per arm**

Table valid for all the following bracket assemblies:	2;2;2
Total number of installation points:	4

Shear forces per front fixing material in [N]

Width [mm]	Projection [mm]				Miscellaneous
	1500	2000	2500	3000	Limiting size
2500	631	907	1266		without CTB
3000	725	1044	1455	1901	
3500	818	1182	1645	2151	
4000	912	1319	1835	2402	
4500	1006	1457	2024	2652	
5000	1100	1594	2214	2902	
5500	1194	1732	2404	3152	