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Enclosure systems VX25, VX SE

Technical documentation
Load capacity



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Enclosure systems VX25, VX SE

Contents/general remarks

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1. General remarks

Based on the results of in-depth testing and customer feedback, we hope that this technical documentation will provide you with plenty of useful tips and assistance when transporting and siting large enclosures.

The following technical descriptions for the various load options with the VX25 and VX SE enclosure systems are not warranted properties, and we are unable to accept any liability in this regard.

Additionally, Rittal reserves the right to extend or modify this technical documentation as and when necessary.

To aid understanding of the load specifications given in Newtons, here is the conversion formula for converting into kilograms.

$$F [N] = m [kg] \cdot g [m/s^2]$$

Example: $9.81 \text{ N} = 1 \text{ kg} \cdot 9.81 \text{ m/s}^2$

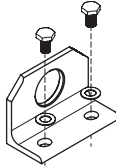
Should you have any further questions or suggestions on the points raised in this technical documentation, please get in touch with your Rittal specialist advisor.

2.1 Transportation by crane

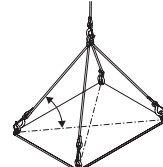
All enclosures are suitable for transporting by crane, either for stand-alone siting (VX25, VX SE) or as bayed suites (VX25).



Eyebolt 4586.000
For transporting enclosures by crane.



Combination angle 4540.000, 4540.500
Combination angles must be used when transporting bayed enclosures by crane, to ensure the optimum distribution of tensile forces.



Cable pull
The cable pull angle between the roof plate and the cable has a significant influence on the total permissible load. The cable pull angle must not be less than 45°, and ideally not less than 60°.

With eyebolts (VX25, VX SE)

Individual enclosures are safely transported using the eyebolts. For symmetrical loads, the following maximum permissible loads apply:

- $F \triangleq$ at 90° cable pull angle 13600 N
- $F \triangleq$ at 60° cable pull angle 6400 N
- $F \triangleq$ at 45° cable pull angle 4800 N

With top mounting module and eyebolts (VX25)

Individual enclosures with top mounting module are safely transported using the eyebolts.

For symmetrical loads, the following maximum permissible loads apply:

- $F \triangleq$ at 90° cable pull angle 6800 N
- $F \triangleq$ at 60° cable pull angle 3200 N
- $F \triangleq$ at 45° cable pull angle 2400 N



Enclosure systems VX25, VX SE

Transportation variants

2.1 Transportation by crane

With combination angles (VX25)

For the enclosure combination shown here with internal baying brackets 8617.500 and combination angles 4540.000, 4540.500 the load capacity with a cable pull angle of 60° is as follows:

F1 = 7000 N
F2 = 7000 N

Note:

- Similarly, with due regard for the specific assembly instructions, the internal baying block 8617.501 and external baying connectors 8617.502, 8617.503 may also be used.

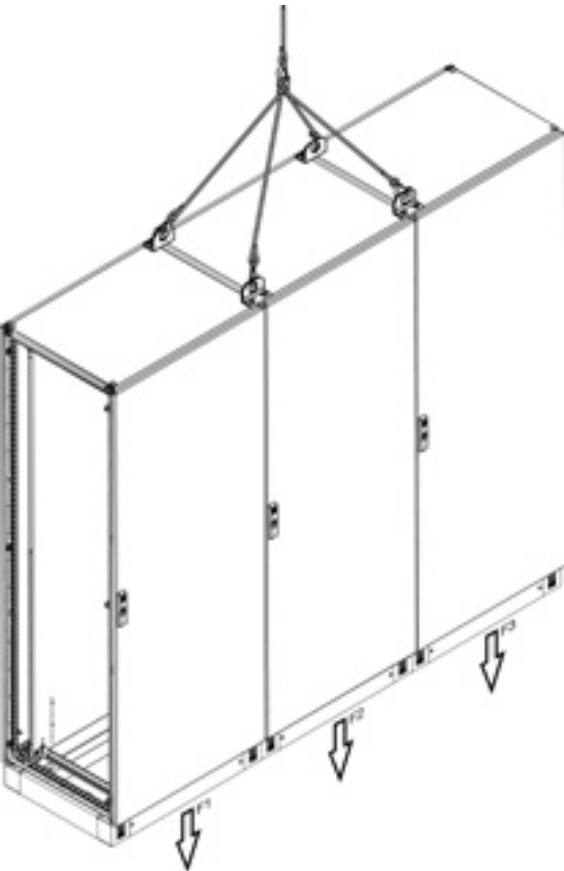


For the enclosure combination shown here with internal baying brackets 8617.500 and combination angles 4540.000, 4540.500 the load capacity with a cable pull angle of 60° is as follows:

F1 = 7000 N
F2 = 14000 N
F3 = 7000 N

Note:

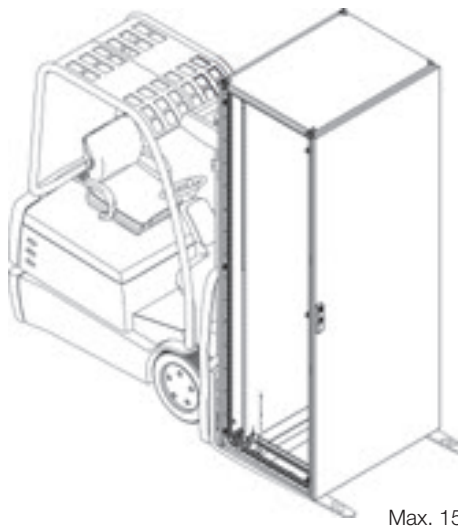
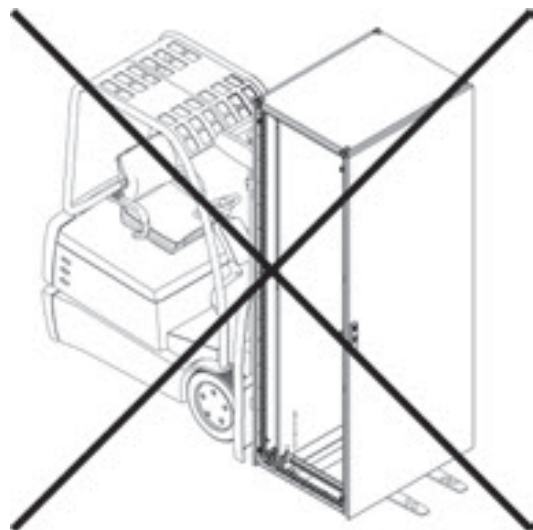
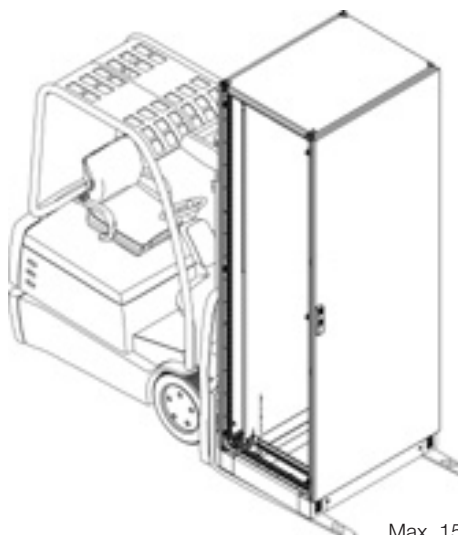
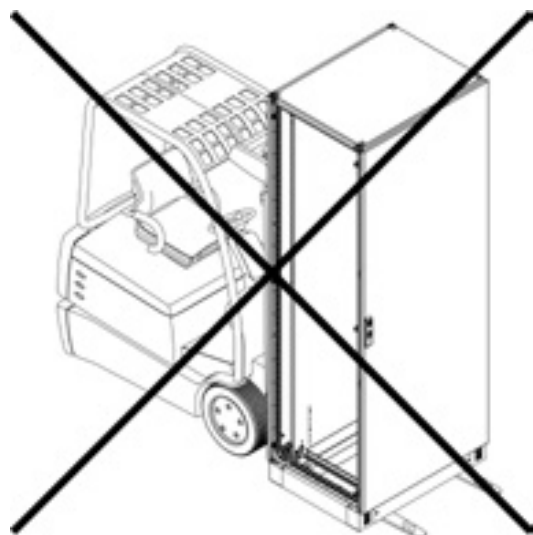
- Similarly, with due regard for the specific assembly instructions, the internal baying block 8617.501 and external baying connectors 8617.502, 8617.503 may also be used.



2.2 Transportation by fork-lift truck

When transporting individual and bayed enclosures, please take care to ensure that all base/plinth trim panels are fitted, and loads are restricted to the immediate vicinity of the base/plinth corner pieces.

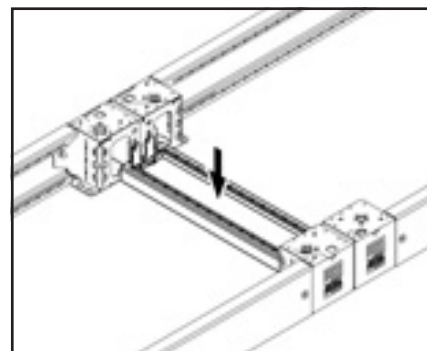
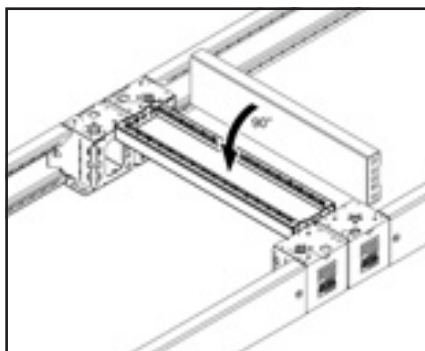
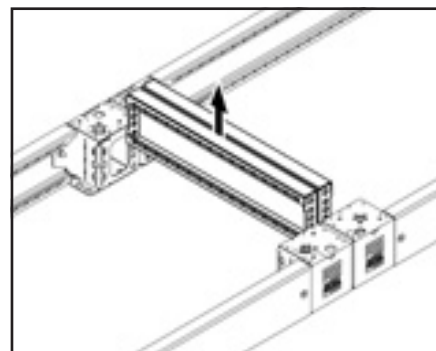
Transportation of individual enclosures (VX25, VX SE)



Transportation of bayed enclosures (VX25)

Note:

– For bayed enclosures, one base/plinth trim panel should be folded over and fitted at the baying point in such a way as to create a stable bayed connection in the base/plinth zone.



Enclosure systems VX25, VX SE

Transportation variants

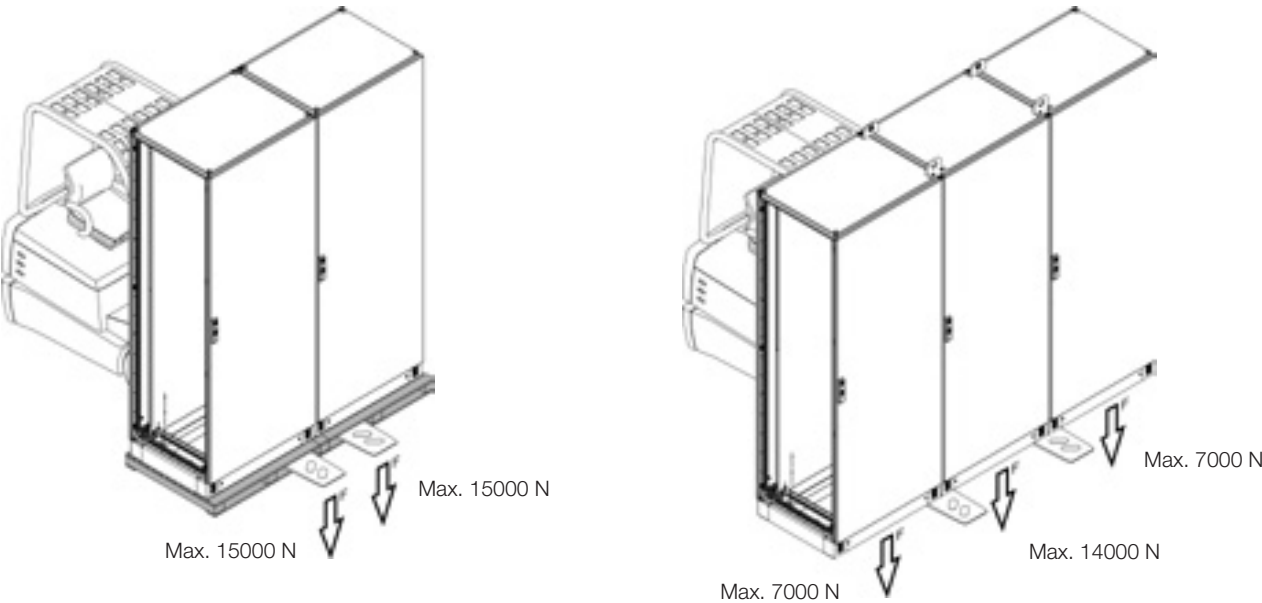
2.2 Transportation by fork-lift truck

Transportation of bayed enclosures (VX25)

For the enclosure combinations shown here with internal baying brackets 8617.500, the following loads are supported:

Note:

- Similarly, with due regard for the specific assembly instructions, the internal baying block 8617.501 and external baying connectors 8617.502, 8617.503 may also be used. A link to the assembly instructions can be found on our website under the relevant Model No.



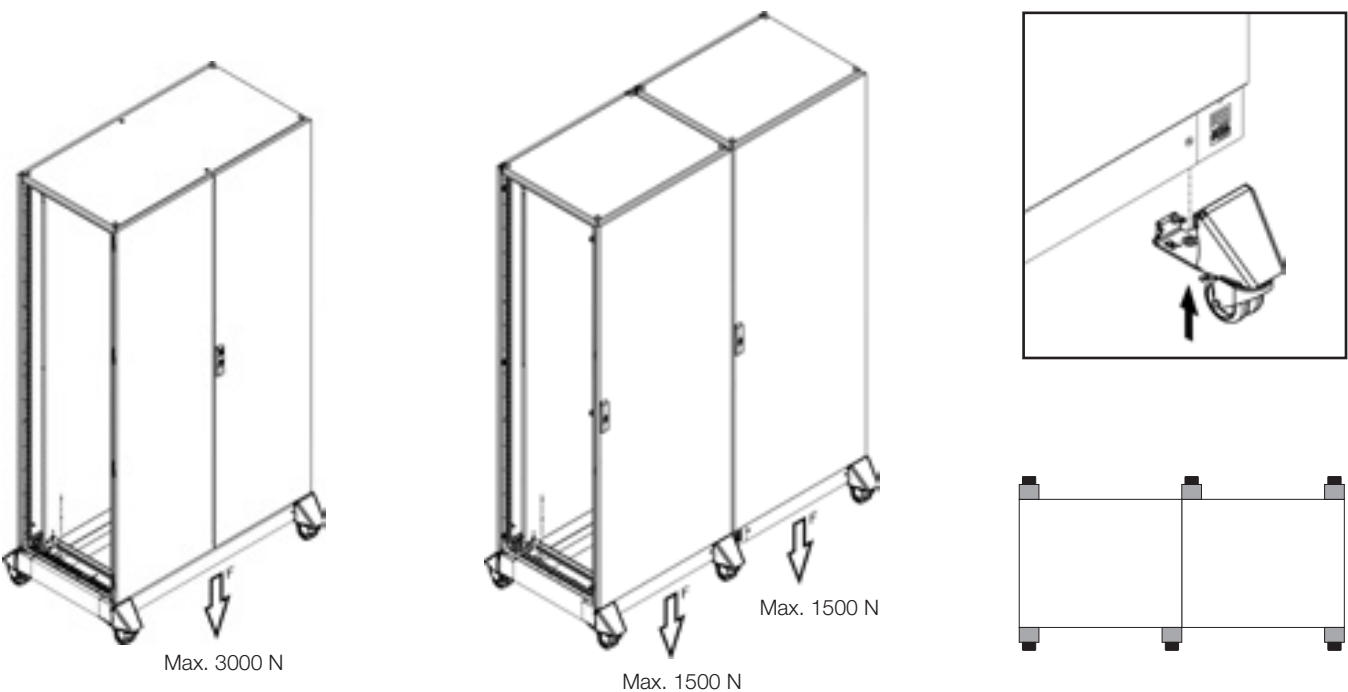
2.3 Transportation on castors

Transportation of individual and bayed enclosures (VX25, VX SE)

Transport castor for base/plinth system VX 8660.110 (only in conjunction with base/plinth)

Max. dynamic load:

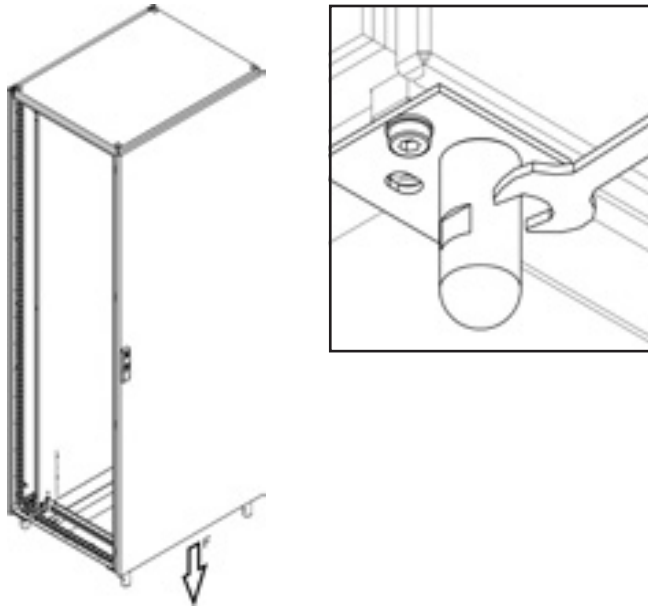
- Individual enclosure: When using 4 castors = 3000 N
- Bayed enclosures: When using 6 castors = 1500 N/enclosure



3.1 Installation of enclosures

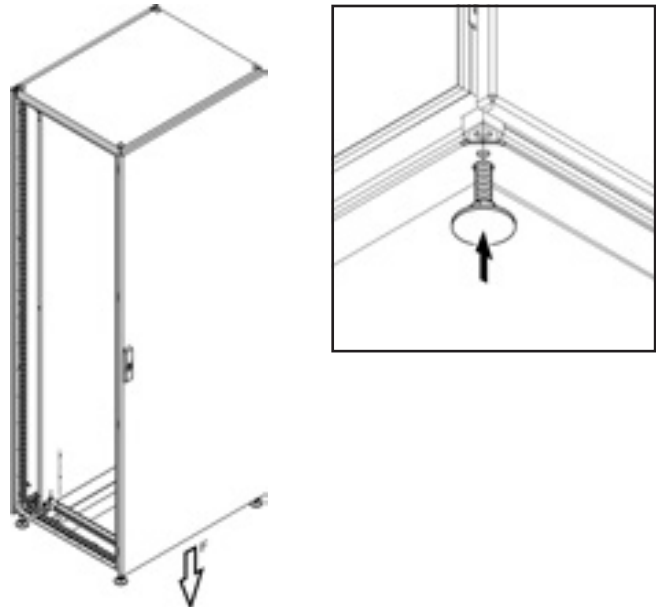
Installation on levelling feet 2859.000 (VX25, VX SE)

With a static load, the maximum admissible total load is $F = 14000 \text{ N}$



Installation on levelling feet 4612.000 and 8100.780 (VX25, VX SE)

With a static load, the maximum admissible total load is $F = 3000 \text{ N}$ per levelling foot



Installation of an enclosure on top of an enclosure (VX25)

When installing enclosures on top of one another, the maximum admissible static load for the top enclosure is $F = 5000 \text{ N}$



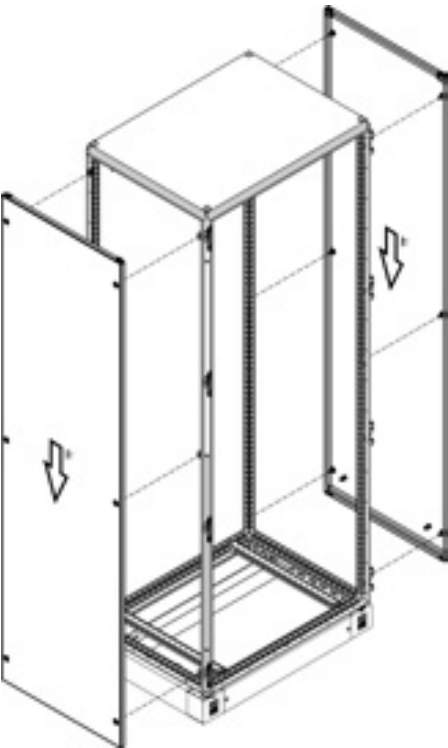
Enclosure systems VX25, VX SE

Installation variants

4.1 Enclosure panels

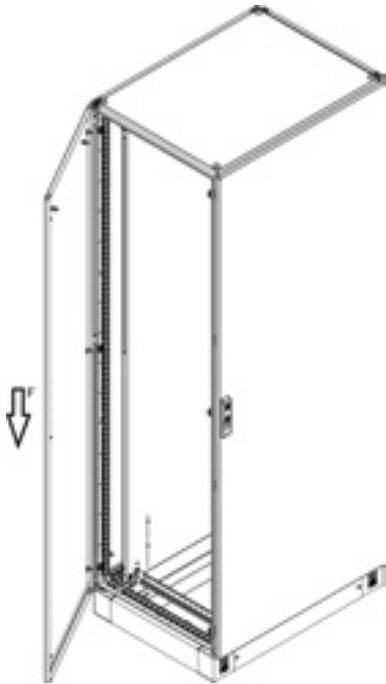
Side panel, screw-fastened (VX25) and side panel (VX SE)

Provided the Rittal assembly components offer adequate protection against tipping over, the following maximum static loads apply to enclosures: $F = 900\text{ N}$



Side panel, hinged (VX25)

Provided the Rittal assembly components offer adequate protection against tipping over, the following maximum static loads apply to enclosures: $F = 200\text{ N}$



Hinge for side panel 8106.260

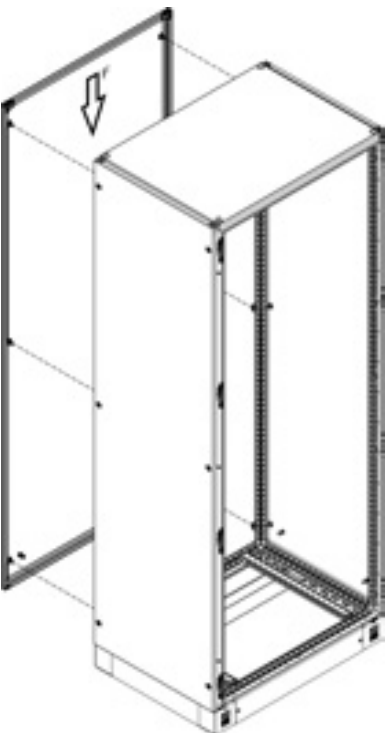
The 180° opening angle allows unhindered access from the side. May be mounted from the inside or the outside of the enclosure. Simply exchange the three panel brackets for hinges.

Note:

- Hinge mounting is only possible in the vicinity of the rear panel

Rear panel (VX25, VX SE)

Provided the Rittal assembly components offer adequate protection against tipping over, the following maximum static loads apply to enclosures: $F = 900\text{ N}$



Roof (VX25)

Provided the Rittal assembly components offer adequate protection against tipping over, the following maximum static loads apply to enclosures: $F = 200\text{ N}$



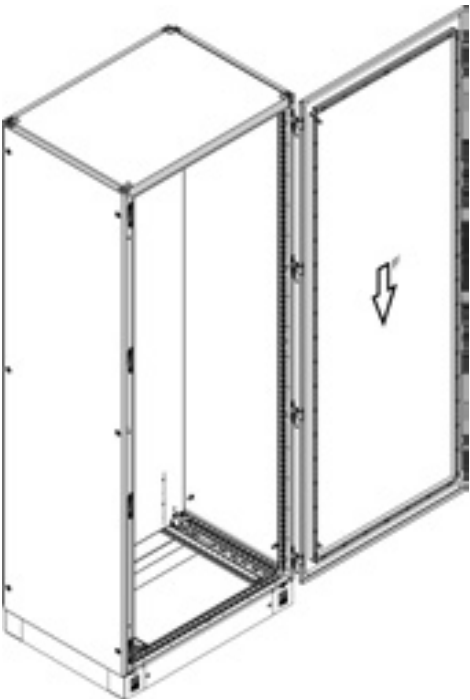
Note:

- When installing roof-mounted cooling units, the specific assembly instructions should be observed.

4.1 Enclosure panels

Door with 130° or 180° hinge (VX25, VX SE)

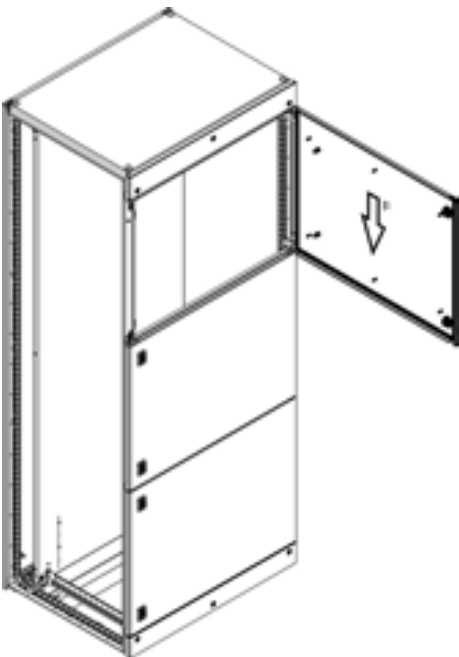
Provided the Rittal assembly components offer adequate protection against tipping over, the following maximum static loads apply to enclosures: F = 900 N (130°/180°)



- Note:**
- For VX SE, the TS 180° hinge 8800.710 is required for the maximum static load of F = 900 N.
 - With a static load, the use of ride-up roller VX 8618.420 is recommended.

Partial door (VX25)

Provided the Rittal assembly components offer adequate protection against tipping over, the following maximum static loads apply to enclosures: See table



Size W x H mm	F [N]	Model No.
600 x 200	10	9682.162
800 x 200	10	9682.182
600 x 400	10	9682.164
800 x 400	10	9682.184
600 x 600	50	9682.166
800 x 600	50	9682.186
600 x 800	50	9682.168
800 x 800	50	9682.188
600 x 1000	50	9682.160
800 x 1000	50	9682.180

Enclosure systems VX25, VX SE

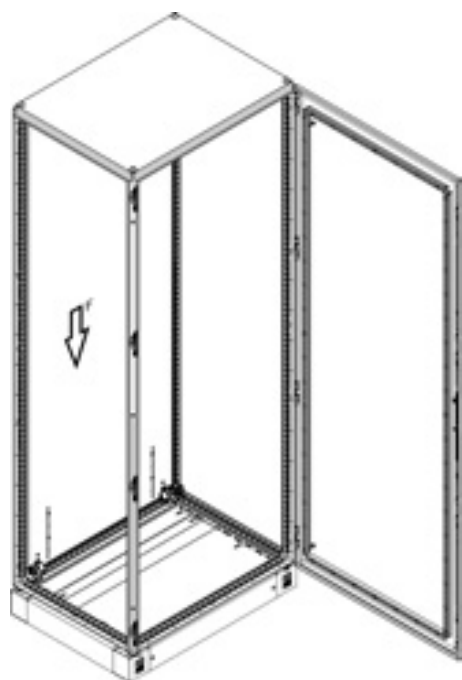
Installation variants

4.1 Enclosure panels

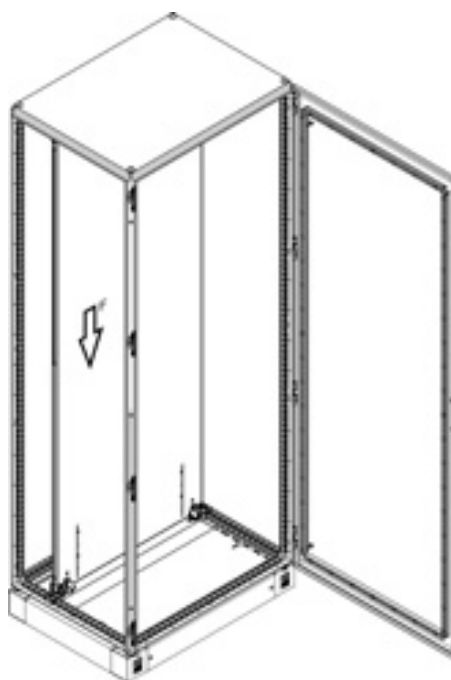
Mounting plate

All mounting plates are suitable for heavy loads, thanks to their exceptionally stable and functional design.

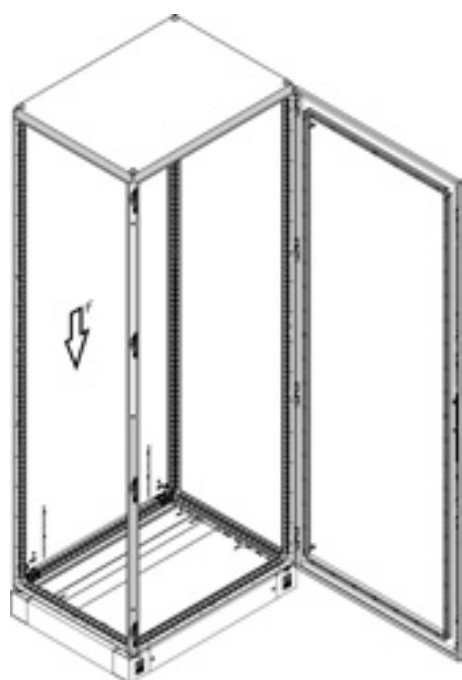
Mounting position: Flush with the enclosure frame (**VX25, VX SE**)
F = 6000 N



Mounting position: Set forward from the enclosure frame (**VX25, VX SE**)
F = 5000 N

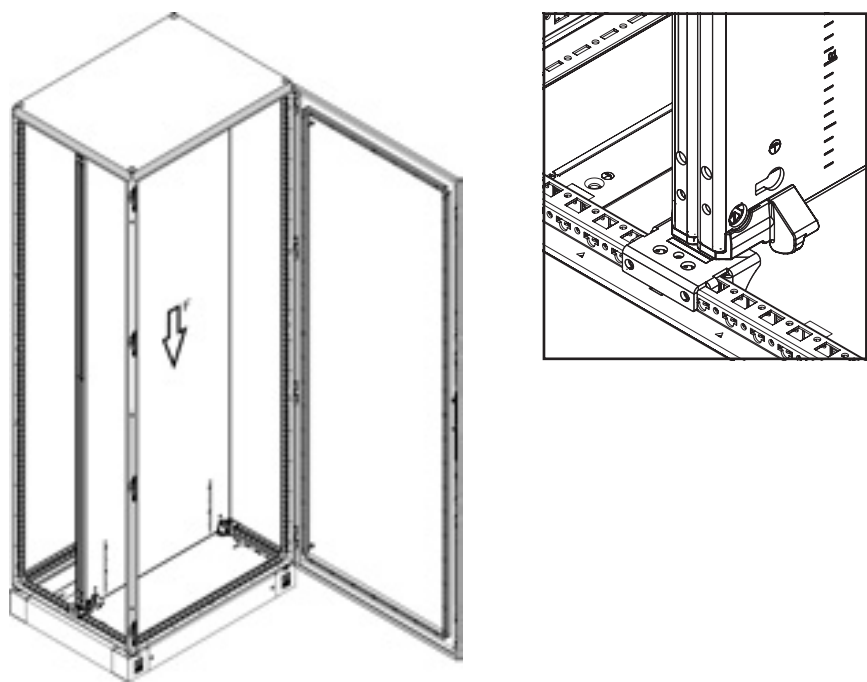


Mounting position: Plus 20 mm, set back behind the enclosure frame (**VX25**)
F = 3500 N



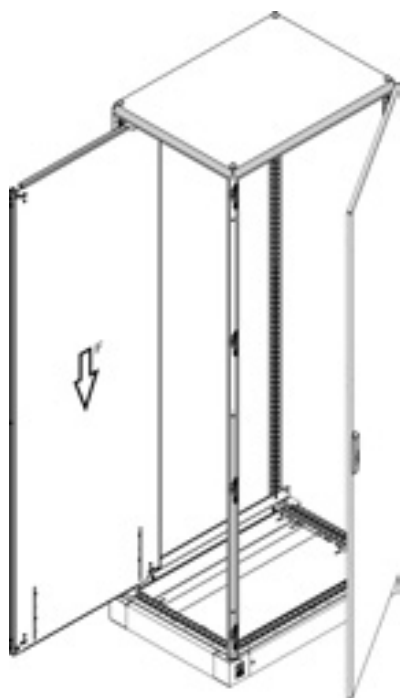
4.1 Enclosure panels

Mounting plate (VX25, VX SE)
Installation kit for back-to-back mounting plates 8617.360
F = 2500 N per mounting plate



Mounting plate (VX25)
Slide rail for sliding the mounting plate in from the side.
For mounting in a set-forward position.

For enclosure width mm	F [N]	Model No.
600	5000	8617.400
800	5000	8617.401
1000	5000	8617.403
1200	5000	8617.402



Enclosure systems VX25, VX SE

Installation variants

4.1 Enclosure panels

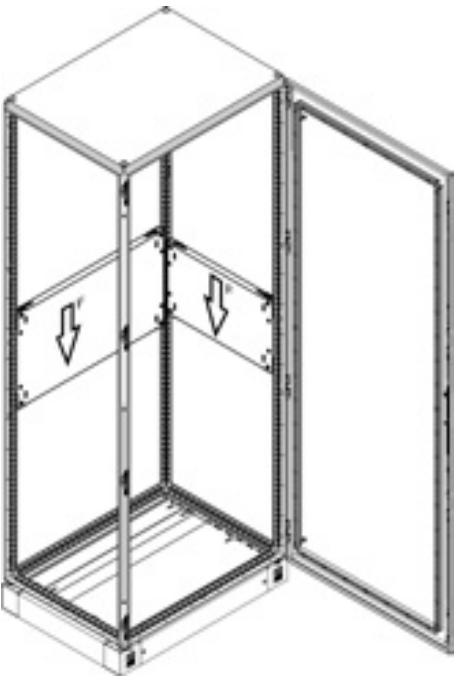
Partial mounting plate (VX25, VX SE)

The load information for partial mounting plates refers solely to mounting directly on the frame section using the Rittal assembly components provided especially for this purpose.

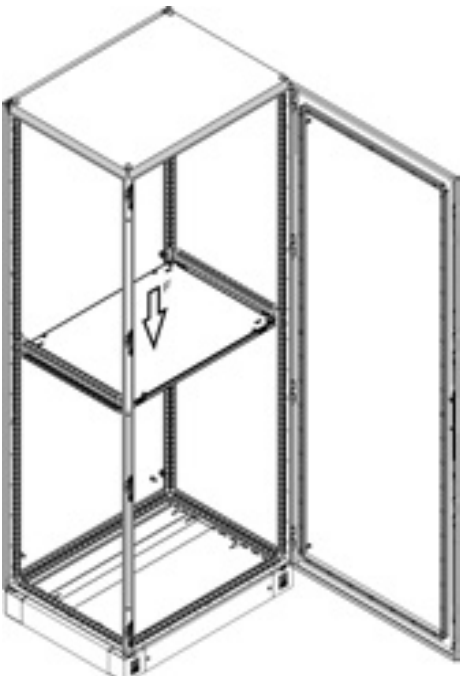
Note:

- For VX SE in conjunction with adaptor rail VX

Vertical installation
Load value F: See table



Horizontal installation
in conjunction with punched sections without mounting flanges
23 x 64 mm
Load value F = 1250 N



For installation in									Dimensions mm	F [N]	Model No.
Enclosure width mm					Enclosure depth (side) mm						
400	600	800	1000	1200	400	500	600	800			
■	■				■		■		500 x 300	1500	8617.510
	■					■	■		500 x 400	1700	8617.520
	■						■		500 x 500	1700	8617.530
	■	■					■	■	500 x 700	1700	8617.540
	■						■		500 x 775	1700	8617.550
■		■			■			■	700 x 300	1200	8617.560
		■				■		■	700 x 400	1500	8617.570
		■						■	700 x 700	1700	8617.580
■			■		■				900 x 300	700	8617.590
			■			■			900 x 400	900	8617.600
	■		■				■		900 x 500	1500	8617.610
■				■	■				1100 x 300	700	8617.620
				■		■			1100 x 400	900	8617.630
	■			■			■		1100 x 500	1200	8617.640

4.1 Enclosure panels

Partial mounting plate (VX25, VX SE)

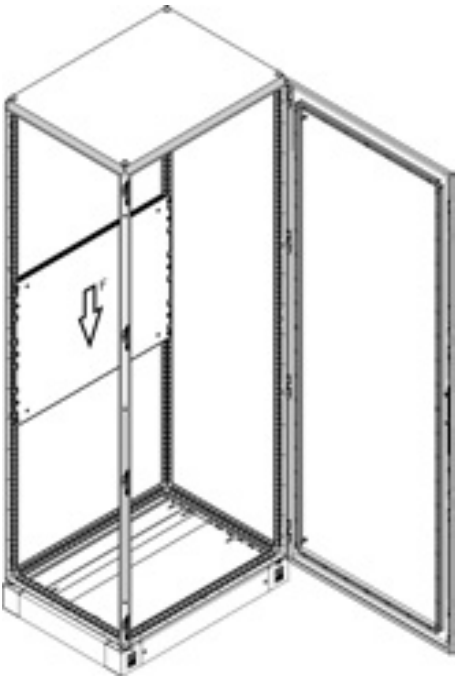
Partial assembly plates are used to accommodate additional components inside the enclosure and are extremely flexible to use. For optional installation either upright as a vertical mounting surface, or lying flat as a horizontal base. Attached either directly to the enclosure section or another partial assembly plate.

Note:

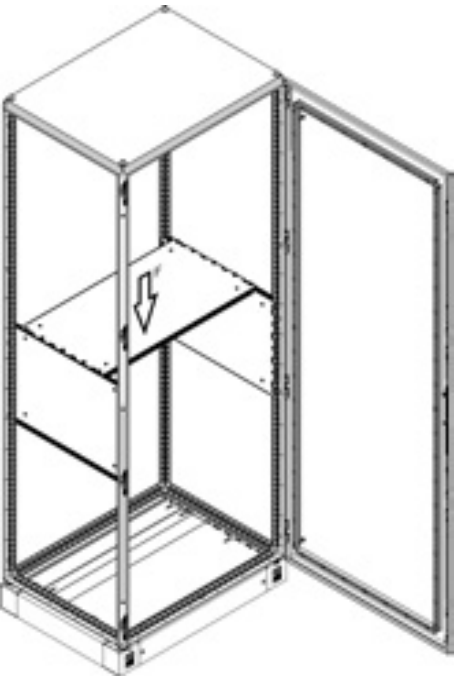
For VX SE in conjunction with adaptor rail VX

Dimensions mm	Model No.
500 x 400	8617.660
500 x 600	8617.661
600 x 400	8617.662
600 x 600	8617.663
800 x 400	8617.664
800 x 600	8617.665

Vertical installation
Load value F = 1700 N



Horizontal installation
Load value F = 600 N



Enclosure systems VX25, VX SE

Installation variants

4.2 482.6 mm (19") installation system

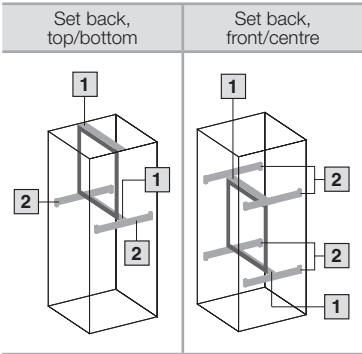
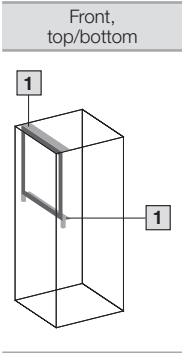
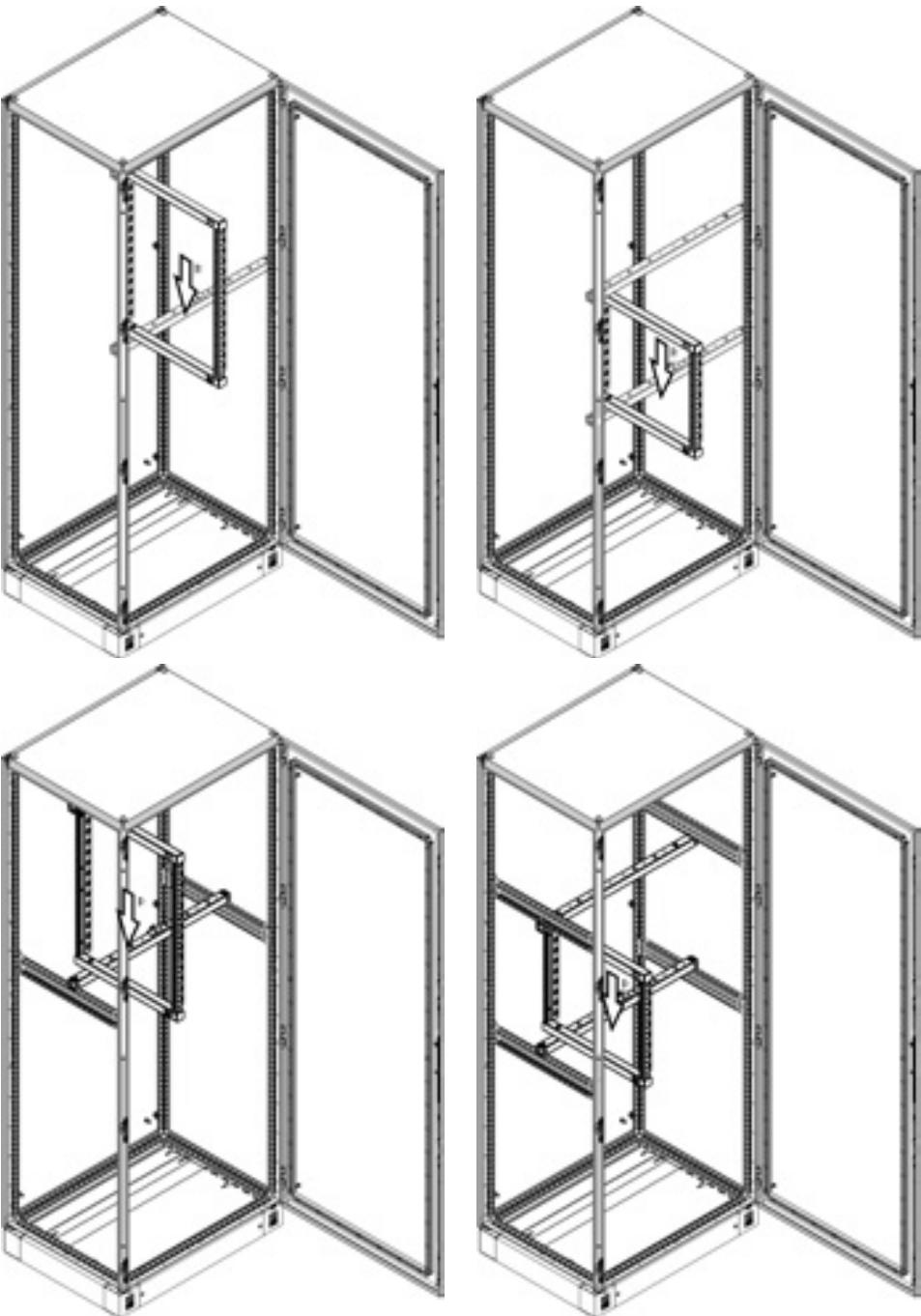
Swing frame, small (VX25, VX SE)

Provided the Rittal assembly components offer adequate protection against tipping over, the following maximum static loads apply to enclosures: See table

Note:

- For VX SE in conjunction with adaptor rail VX

For enclosure width mm	F [N]	U	Model No.
600	150	3	8619.500
	300	6	8619.510
	450	9	8619.520
	500	12	8619.530
	500	15	8619.540
	500	18	8619.550
800	150	3	8619.500
	300	6	8619.510
	450	9	8619.520
	500	12	8619.530
	500	15	8619.540
	500	18	8619.550



		1 pc(s).	For enclosure width mm	
			600	800
1 Installation kit			8619.600	8619.610
2 Punched section with mounting flange 23 x 64 mm, 2 or 4 pc(s) required	For enclosure depth mm			
	400	4 pc(s).	8617.110	
	500	4 pc(s).	8617.120	
	600	4 pc(s).	8617.130	
	800	4 pc(s).	8617.140	

4.2 482.6 mm (19") installation system

Swing frame, large (VX25, VX SE)

The enclosure must be adequately secured to ensure its stability. With the large swing frame, the maximum overall load is determined by the installation kits used.

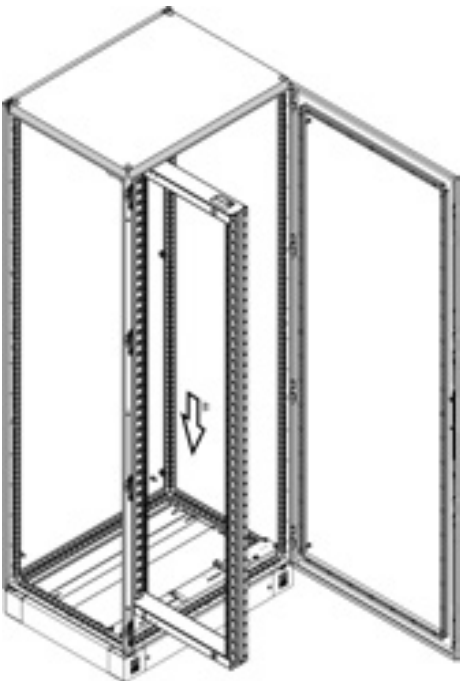
Note:

- When using the 180° hinge (Model No. 8619.051), a maximum load of 1500 N is supported.

Installation kit

For enclosure width mm	F [N]	Model No.
600	3500	8619.040
800	3500	8619.041
1200	1500 ¹⁾	8619.042

¹⁾ For two installed swing frames, hinged on the outside, a max. overall load of 1000 N per swing frame applies.



Enclosure systems VX25, VX SE

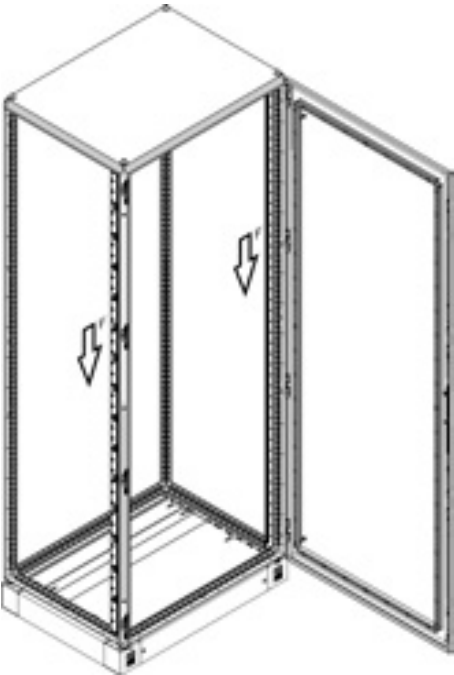
Installation variants

4.2 482.6 mm (19") installation system

Adaptor section, 482.6 mm (19") (VX25, VX SE)

For mounting electronic components, subracks and other 482.6 mm (19") equipment. Adaptor sections may be shortened for partial assemblies.

The load value with two fitted 482.6 mm (19") adaptor sections is $F = 460\text{ N}$.



For enclosure height mm	U	Model No.
1600	33	8619.300
1800	38	8619.310
2000	42	8619.320

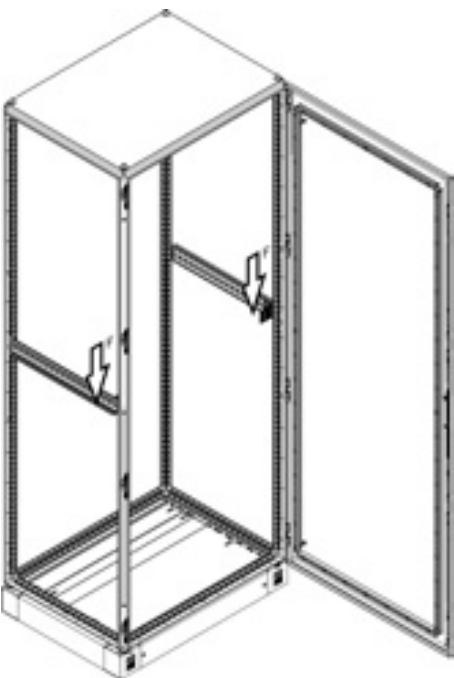
Note:

- For VX SE in conjunction with adaptor rail VX

Adaptor piece, 482.6 mm (19") (VX25, VX SE)

For mounting electronic components, subracks and other 482.6 mm (19") equipment.

The load value with two fitted 482.6 mm (19") adaptor pieces is $F = 300\text{ N}$.



U	Model No.
1	8619.330

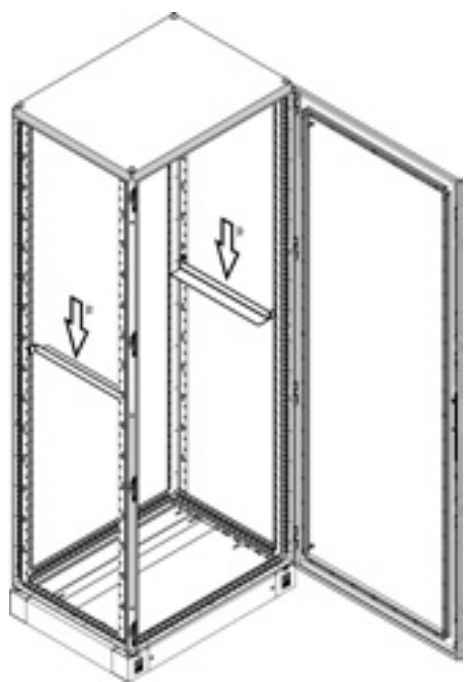
Note:

- For VX SE in conjunction with adaptor rail VX

4.2 482.6 mm (19") installation system

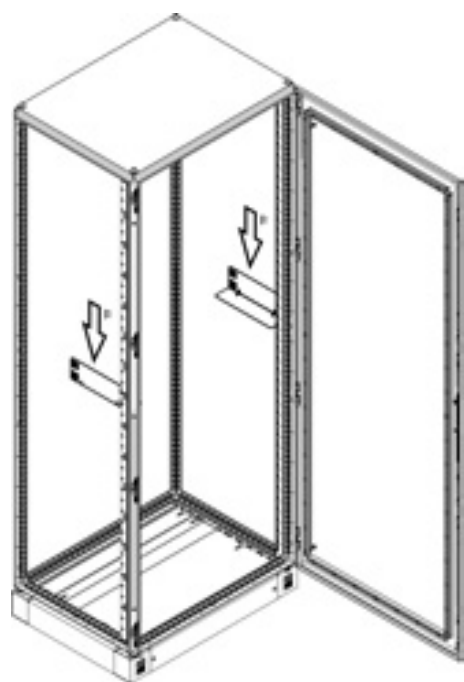
Slide rail VX for adaptor section 482.6 mm (19")
with attachment on both sides

For enclosure depth mm	F [N] per slide rail	Model No.
500	110	8613.151
600	110	8613.161
800	130	8613.181



Slide rail VX for adaptor section 482.6 mm (19")
with attachment on one side

Length mm	F [N] per slide rail	Model No.
270	230	4531.001



Enclosure systems VX25, VX SE

Installation variants

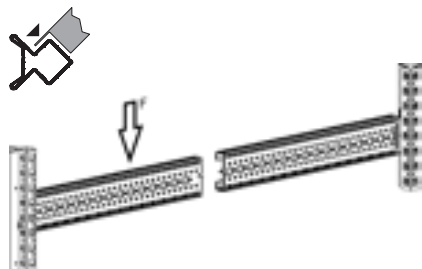
4.3 Rail systems, vertical installation

Punched sections with mounting flanges, 18 x 64 mm, 23 x 64 mm, 23 x 89 mm and punched sections without mounting flanges, 23 x 64 mm

Variable, with rows of holes for universal interior installation or partial assembly. Simply locate into punchings and screw-fasten.

Note:

- For VX SE in conjunction with adaptor rail VX

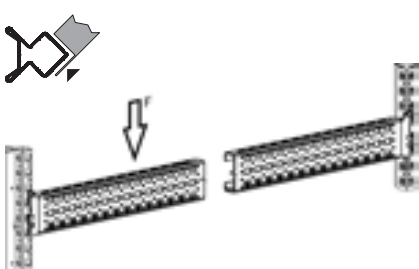


Punched section with mounting flange, 18 x 64 mm (VX25)

for the outer mounting level

For enclosure width/height/depth mm	F [N] ¹⁾	Model No.
300	2400	8617.000
400	2400	8617.010
500	2400	8617.020
600	2400	8617.030
800	1800	8617.040
1000	1400	8617.050
1200	1200	8617.060

¹⁾ The maximum admissible overall load capacity of the enclosure must not be exceeded. Force data only applies to a symmetrical arrangement.

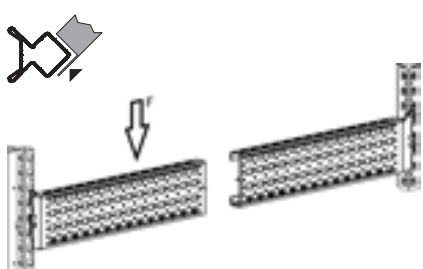


Punched section with mounting flange, 23 x 64 mm (VX25, VX SE)

for the inner mounting level

For enclosure width/height/depth mm	F [N] ¹⁾	Model No.
300	2400	8617.100
400	2400	8617.110
500	2400	8617.120
600	2400	8617.130
800	1800	8617.140
1000	1400	8617.150
1200	1200	8617.160
1400	800	8617.170
1600	800	8617.180
1800	800	8617.190
2000	700	8617.200
2200	650	8617.210

¹⁾ The maximum admissible overall load capacity of the enclosure must not be exceeded. Force data only applies to a symmetrical arrangement.

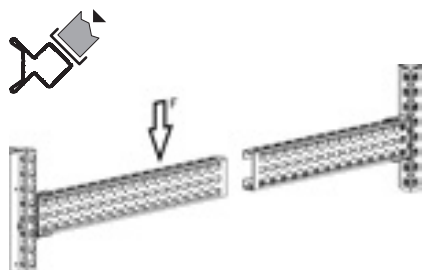


Punched section with mounting flange, 23 x 89 mm, stainless steel (VX25, VX SE)

for the inner mounting level

For enclosure width/height/depth mm	F [N] ¹⁾	Model No.
400	2400	8100.730
500	2400	8100.731
600	2400	8100.732
800	1800	8100.733

¹⁾ The maximum admissible overall load capacity of the enclosure must not be exceeded. Force data only applies to a symmetrical arrangement.



Punched section without mounting flange, 23 x 64 mm (VX25, VX SE)

For enclosure width/height/depth mm	F [N] ¹⁾	Model No.
400	1125	8100.740
500	1125	8100.741
600	1125	8100.742
800	750	8100.743
1200	635	8100.745

¹⁾ The maximum admissible overall load capacity of the enclosure must not be exceeded. Force data only applies to a symmetrical arrangement.

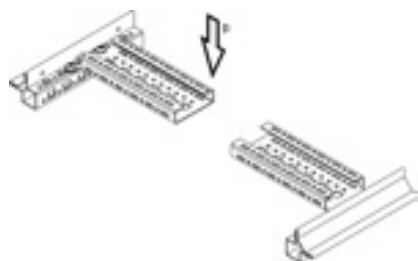
4.3 Rail systems, horizontal installation

Punched sections with mounting flanges, 18 x 64 mm, 23 x 64 mm, 23 x 89 mm and punched sections without mounting flanges, 23 x 64 mm

Variable, with rows of holes for universal interior installation or partial assembly. Simply locate into punchings and screw-fasten.

Note:

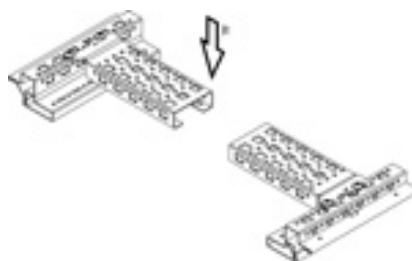
- For VX SE in conjunction with adaptor rail VX



Punched section with mounting flange, 18 x 64 mm (VX25)
for the outer mounting level

For enclosure width/height/depth mm	F [N] ¹⁾	Model No.
300	600	8617.000
400	600	8617.010
500	600	8617.020
600	600	8617.030
800	380	8617.040
1000	240	8617.050
1200	140	8617.060

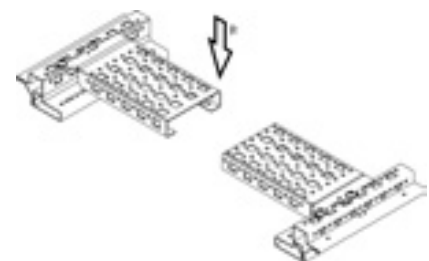
¹⁾ The maximum admissible overall load capacity of the enclosure must not be exceeded. Force data only applies to a symmetrical arrangement.



Punched section with mounting flange, 23 x 64 mm (VX25, VX SE)
for the inner mounting level

For enclosure width/height/depth mm	F [N] ¹⁾	Model No.
300	800	8617.100
400	800	8617.110
500	800	8617.120
600	800	8617.130
800	550	8617.140
1000	340	8617.150
1200	170	8617.160

¹⁾ The maximum admissible overall load capacity of the enclosure must not be exceeded. Force data only applies to a symmetrical arrangement.



Punched section with mounting flange, 23 x 89 mm, stainless steel (VX25, VX SE)
for the inner mounting level

For enclosure width/height/depth mm	F [N] ¹⁾	Model No.
400	420	8100.730
500	420	8100.731
600	420	8100.732
800	275	8100.733

¹⁾ The maximum admissible overall load capacity of the enclosure must not be exceeded. Force data only applies to a symmetrical arrangement.



Punched section without mounting flange, 23 x 64 mm (VX25, VX SE)

For enclosure width/height/depth mm	F [N] ¹⁾	Model No.
400	1000	8100.740
500	1000	8100.741
600	1000	8100.742
800	400	8100.743
1200	170	8100.745

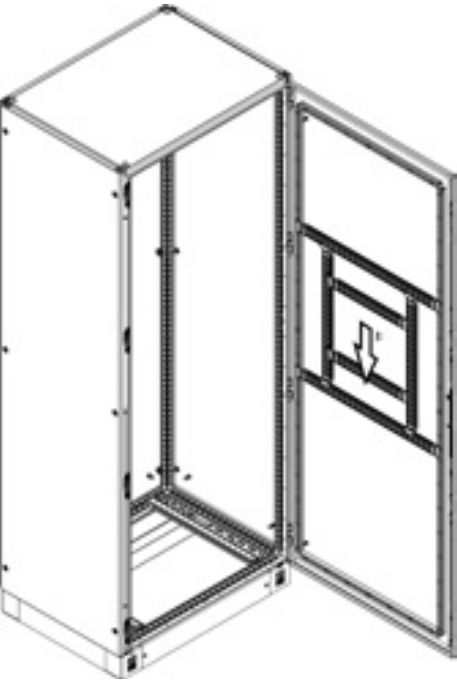
¹⁾ The maximum admissible overall load capacity of the enclosure must not be exceeded. Force data only applies to a symmetrical arrangement.

Enclosure systems VX25, VX SE

Installation variants

4.3 Rail systems

Punched section with mounting flange, 14 x 39 mm (VX25, VX SE)
For mounting on the tubular door frame.



For door width mm	F [N]	Model No.
400	500	8619.700
500	500	8619.710
600	500	8619.720
800	260	8619.730
1000	130	8619.750

Punched rail 18 x 39 mm (VX25, VX SE)

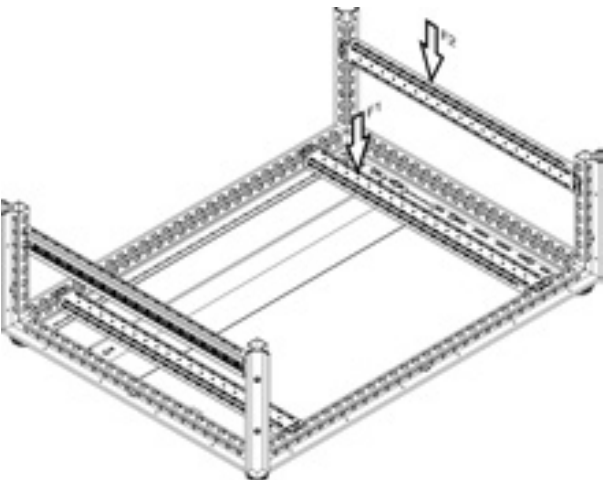
For variable, individual interior installation on the enclosure frame on the inner mounting level, may also be used in conjunction with other punched sections. Prepared at the rear to accommodate cable clamps for optimum cable routing inside the enclosure.

Note:

- For VX SE in conjunction with adaptor rail VX

For enclosure width/depth mm	F1 [N] ¹⁾	F2 [N] ¹⁾	Model No.
400	600	1500	8617.700
500	600	1500	8617.710
600	600	1500	8617.720
800	600	1100	8617.730

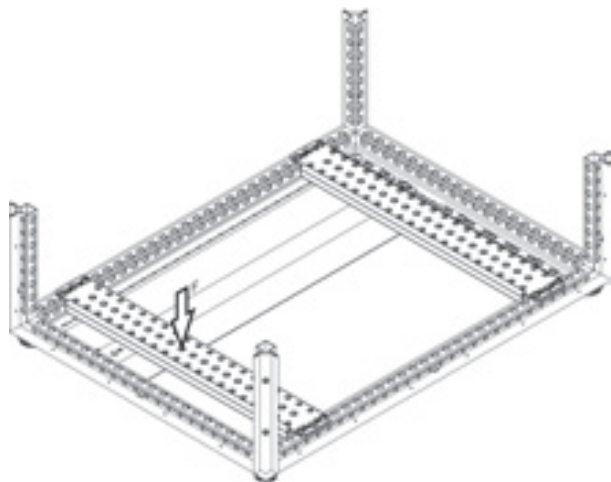
¹⁾ The max. static load applied to the free-standing base assembly via the support rails must not exceed 10,000 N in total. The maximum admissible overall load capacity of the enclosure (15,000 N) must not be exceeded. Force data only applies to an evenly distributed load.



4.3 Rail systems

Support rail 75 x 20 mm (VX25, VX SE)

For heavy installed equipment, with mounting holes. Particularly suitable for the installation of base isolators.

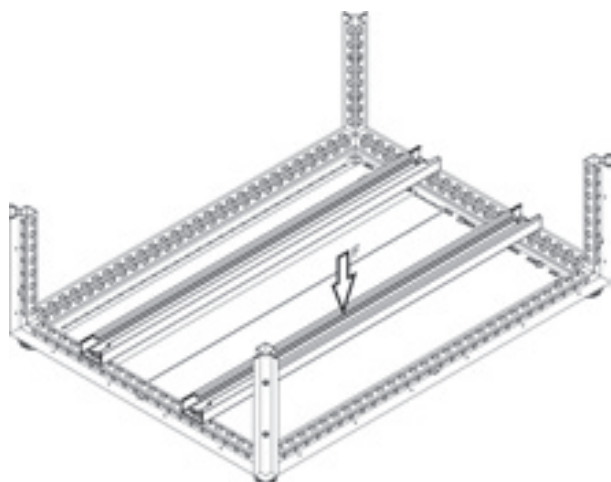


For enclosure width/depth mm	F [N] ¹⁾	Model No.	
		slotted	unslotted
400	2600	4394.000	–
500	2100	4395.000	–
600	1750	4396.000	4396.500
800	1300	4398.000	4398.500

¹⁾ The max. static load applied to the free-standing base assembly via the support rails must not exceed 10,000 N in total. The maximum admissible overall load capacity of the enclosure (15,000 N) must not be exceeded. Force data only applies to an evenly distributed load.

Support rail 48 x 26 mm (VX25, VX SE)

For heavy installed equipment such as transformers.

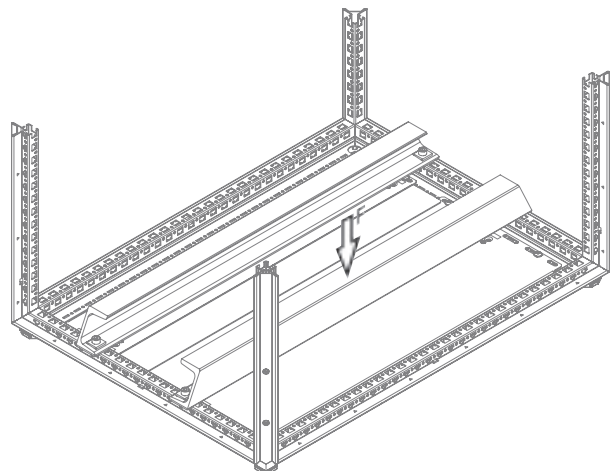


For enclosure width mm	F [N] ¹⁾	Model No.
600	3000	8617.800
800	2250	8617.810
1000	1800	8617.820
1200	1500	8617.830

¹⁾ The max. static load applied to the free-standing base assembly via the support rails must not exceed 10,000 N in total. The maximum admissible overall load capacity of the enclosure (15,000 N) must not be exceeded. Force data only applies to an evenly distributed load.

Support rail 65 x 42 mm (VX25, VX SE)

For heavy installed equipment such as base isolators or transformers.



For enclosure width mm	F [N] ¹⁾	Model No.
600	8600	8612.960
800	8600	8612.980

¹⁾ The max. static load applied to the free-standing base assembly via the support rails must not exceed 10,000 N in total. The maximum admissible overall load capacity of the enclosure (15,000 N) must not be exceeded. Force data only applies to an evenly distributed load.

Enclosure systems VX25, VX SE

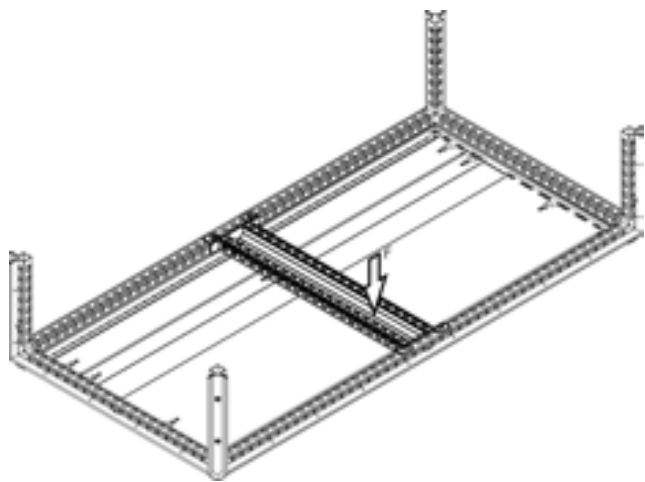
Installation variants

4.3 Rail systems

System divider (VX25, VX SE)

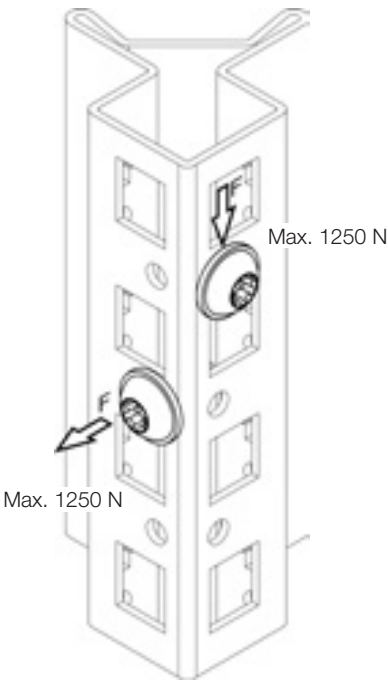
Divides the enclosure width into two zones. For example, this allows mounting plates, cable clamp rails or swing frames from 600 mm wide enclosures to be fitted in 1200 mm wide enclosures.

Depth mm	F [N]	Model No.
600	3600	8620.901



Screw load (VX25, VX SE)

Torx screw	M _A [Nm]	Model No.
BZ 5.5 x 13	5	2486.600



F [N]	Thread	Model No.
max. 1500	M6	VX 4164.500
	M8	VX 4165.500
	M5	VX 4166.500

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