

MV distribution

RONEX

metalclad switchgear
withdrawable circuit-breaker
1 to 17.5 kV

Installation guide



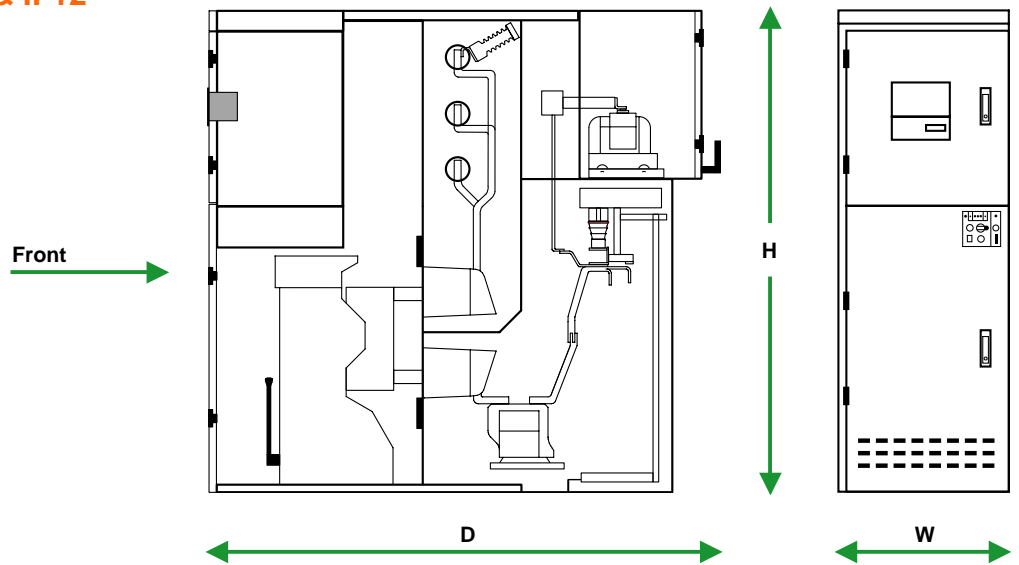
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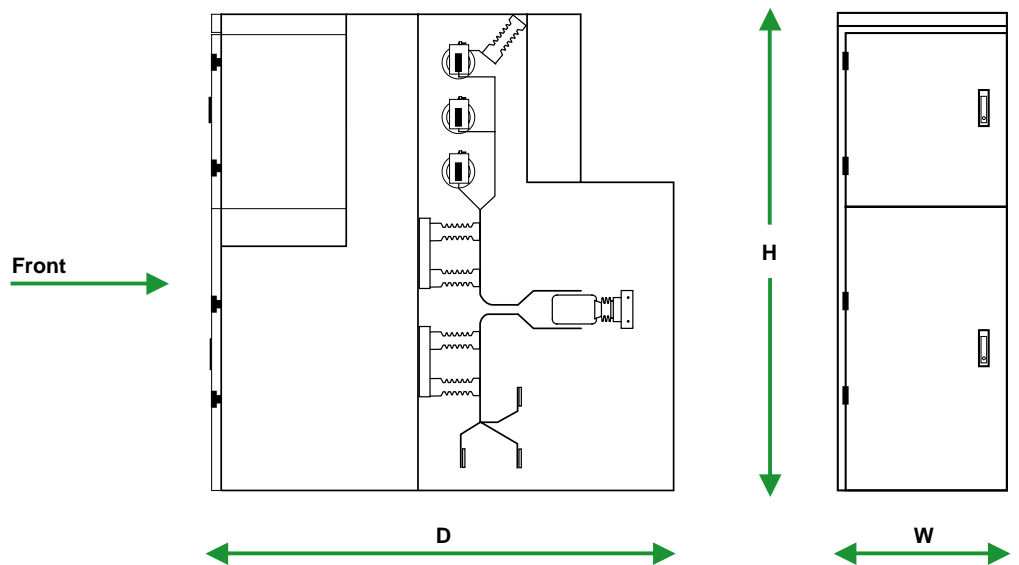
General description

Typical cubicles

Incomer & feeder IF11 & IF12



Riser R11 & R12



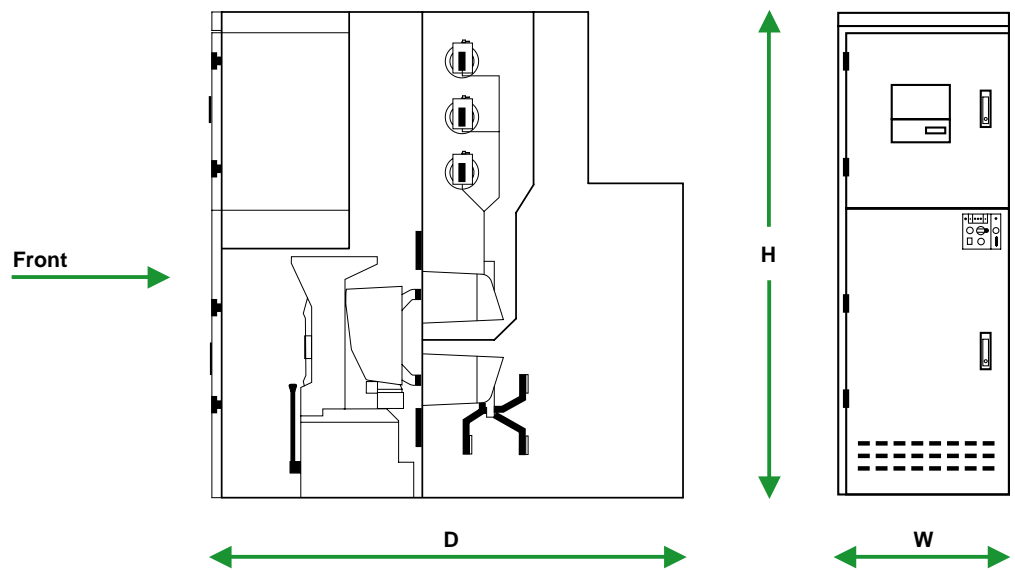
Switchgear type		IF11	IF12	R11	R12
Ratings		630 A - 1250 A	2500 A	1250 A	2500 A
Dimensions and weight					
height (H)	mm	2120	2120	2120	2120
width (W)	mm	750	950	750	950
depth (D)	mm	2044	2170	2044	2044
weight	kg	750	900	600	720

N.B.: the type of the current transformer could change according to the customer's requirement, however the overall dimensions are the same.

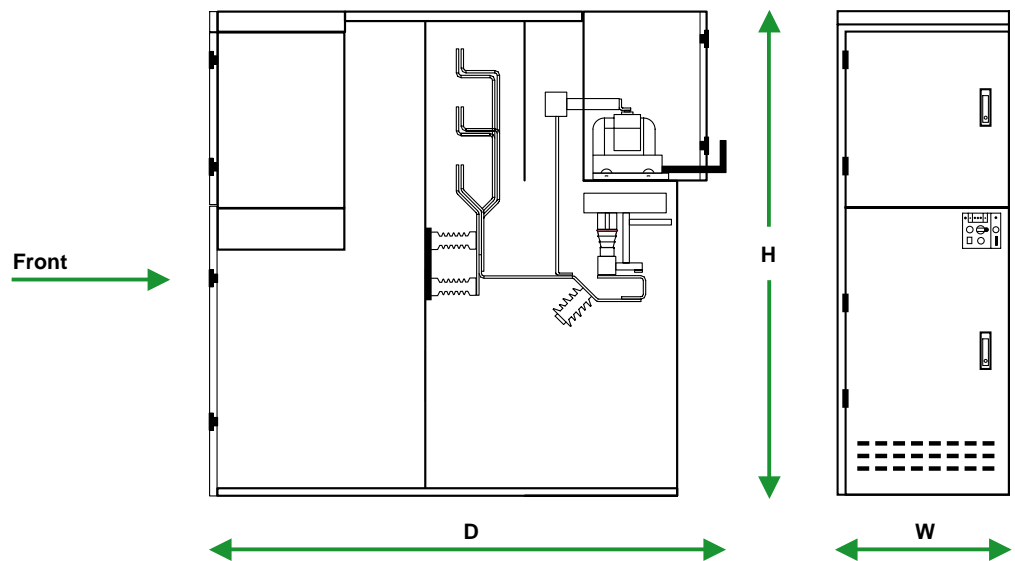
General description

Typical cubicles

Coupler C11 & C12



Metering MT11



Switchgear type		C11	C12	MT11
Ratings		1250 A	2500 A	630 A - 1250 A - 2500 A
Dimensions and weight				
height (H)	mm	2120	2120	2120
width (W)	mm	750	950	750
depth (D)	mm	2044	2044	2044
weight	kg	650	800	550

N.B.: the type of the current transformer could change according to the customer's requirement, however the overall dimensions are the same.

Instructions for receiving, handling & storing

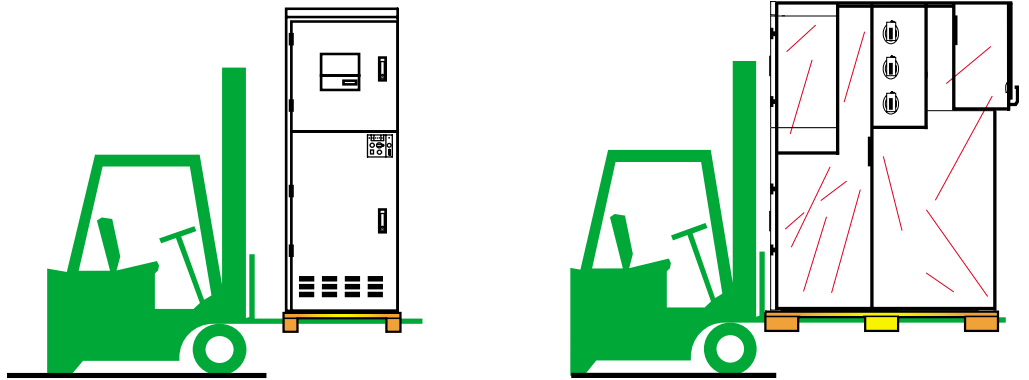
Handling

Type of handling

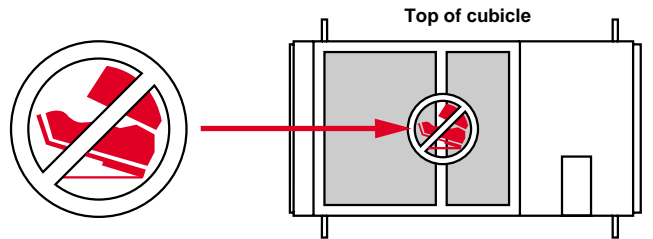
On fork-lift



Safety tip:
always move backward
if using a forklift to
handle the units.

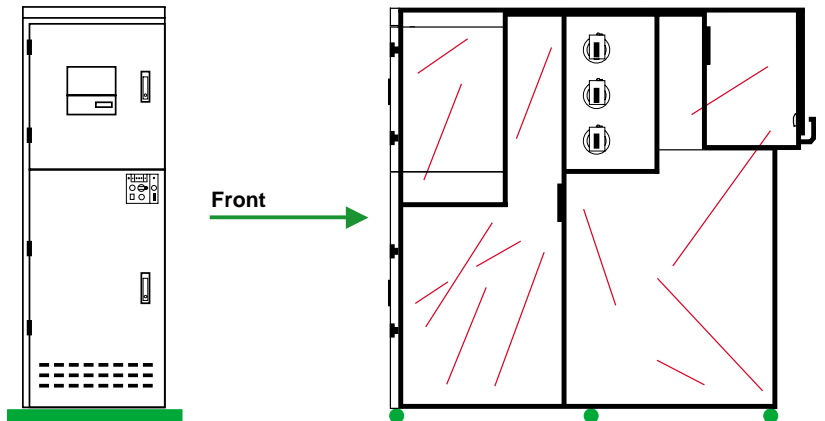


N.B.: do not walk on the top
of the packaged cubicles.

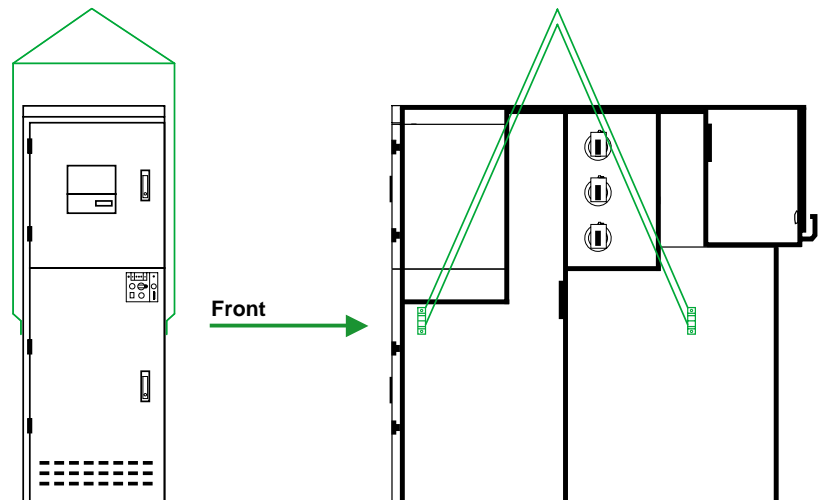


On rollers

N.B.: before placing the unit
on rollers, remove the pallet.



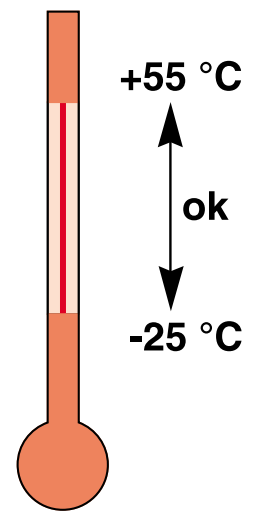
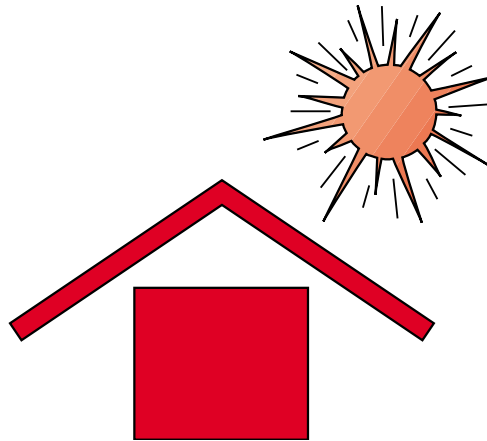
With lifting lugs (optional)



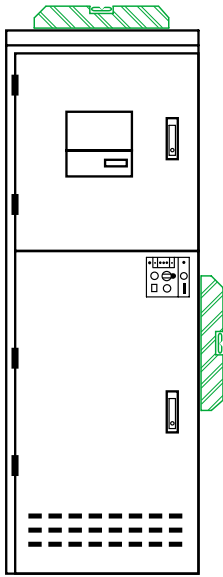
Instructions for receiving, handling & storing

Storage

- store the equipment in its original packaging, and indoor in a dry clean & ventilated place,
- thermal variations: if works are in progress, leave an adequate protection against dust, paints, ...etc.



Installation instructions



Unpacking the cubicles

- the cubicles should be unpacked close to the erection site,
- remove the plastic wrapping and the pallet,
- remove the lifting lugs.

Verify the correct alignment

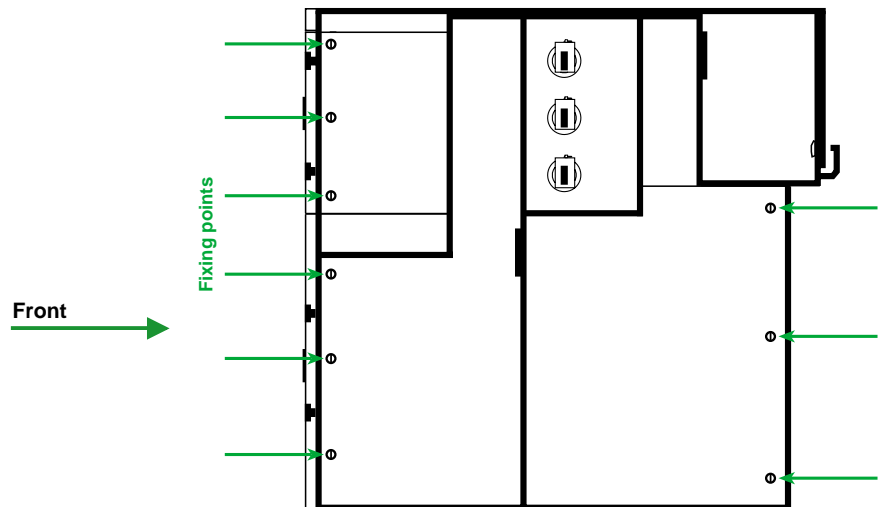
starting situation:

- circuit breaker and VT truck removed from the cubical,
- verify that the cubicle is level by means of a spirit level (refer to Civil engineering guide),
- insert CB and VT truck into the cubicle,
- check that all covers and doors can be closed and fitted correctly.

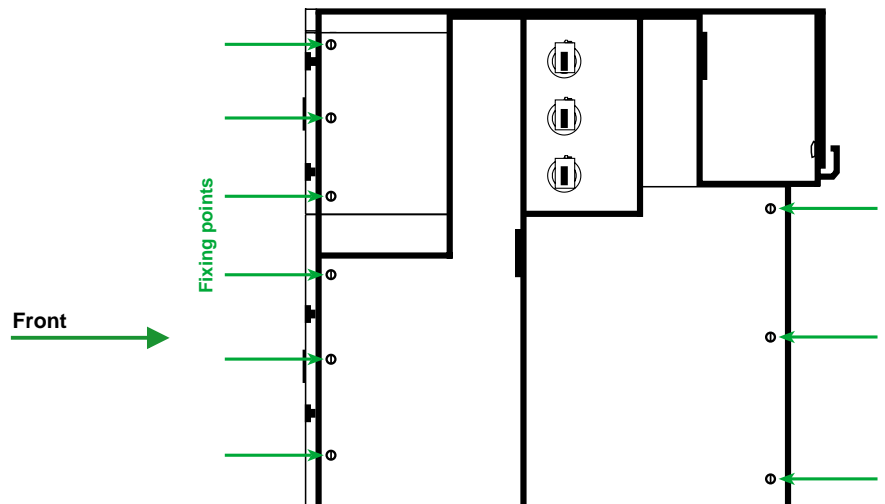
Inter-panel fixing

- drawout the circuit breaker,
- remove the rear cover,
- place the second cubicle alongside the first and follow the same procedure to verify the correct alignment,
- fasten the two cubicles together at the fixing points indicated,
- screws, nuts and washers are supplied as part of the loose equipment (9 screws M6x16, and 9 contact washers D6, per interconnection).

630 - 1250 A: IF11, C11, R11, MT11

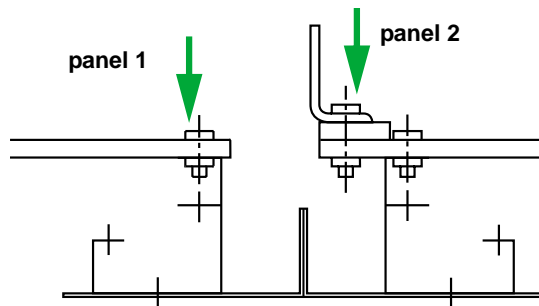
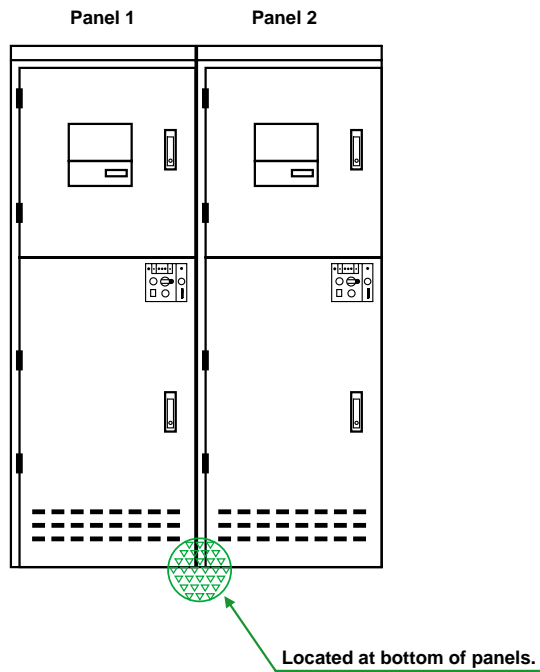


2500 A: IF12, C12, R12, MT11

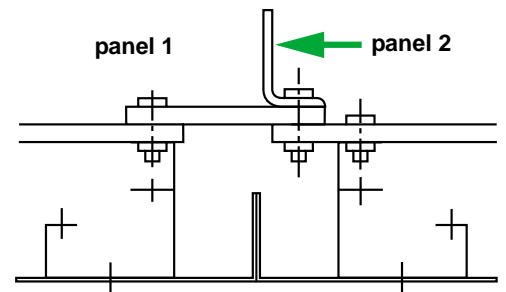


Installation instructions

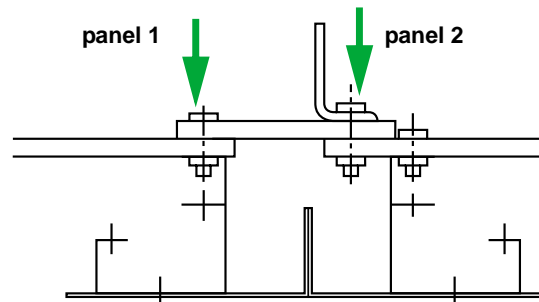
Connection of inter-panel earthbar



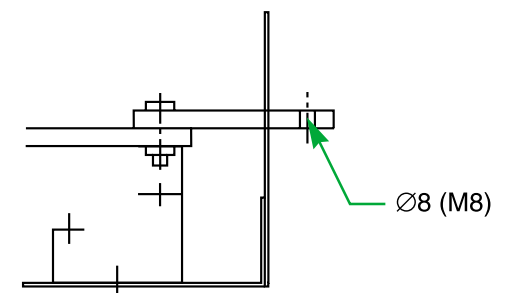
Remove the fixing where indicated on both panel 1 & 2.



Slide the fishplate from panel 1 side through to panel 2 and replace the fixings



Re-tighten the fixing on both panel 1 & 2 where indicated



Fit a fishplate at both right and left hand ends of the switchboard as shown

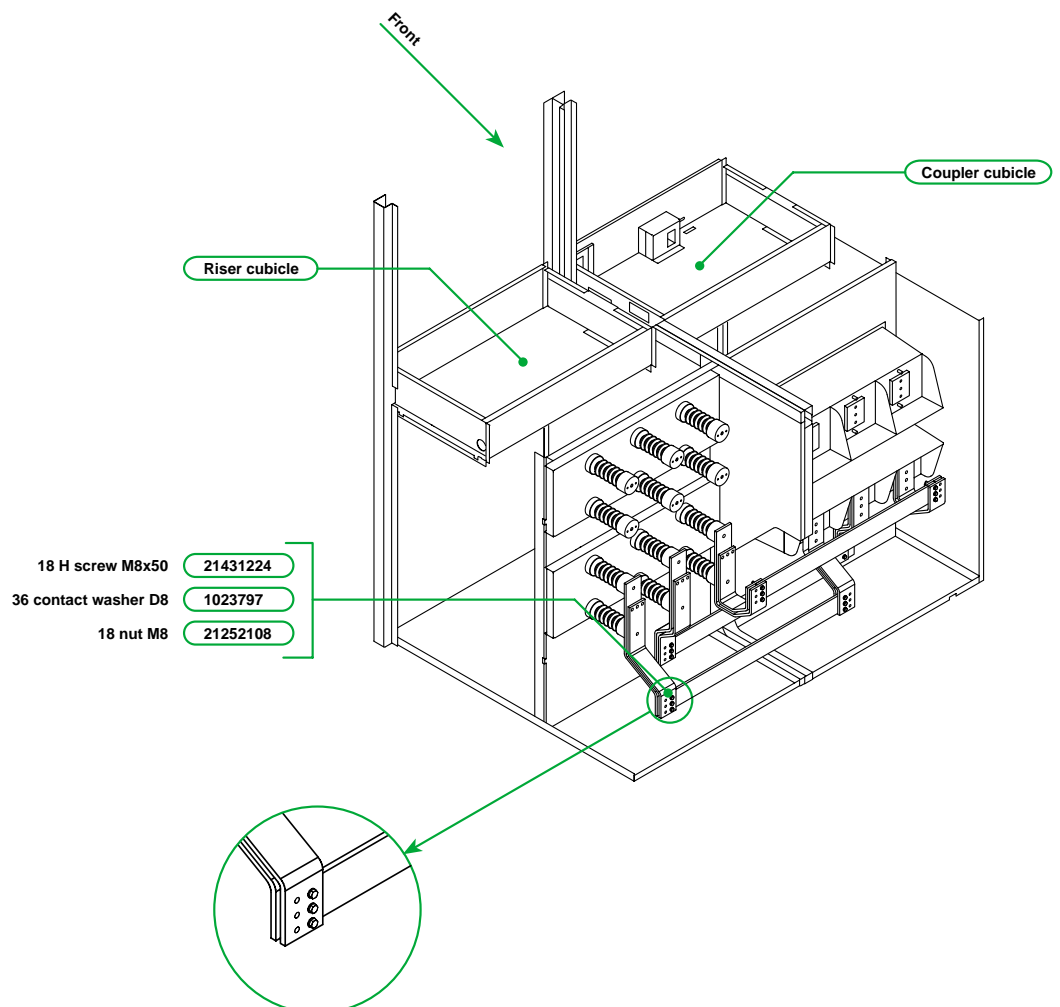
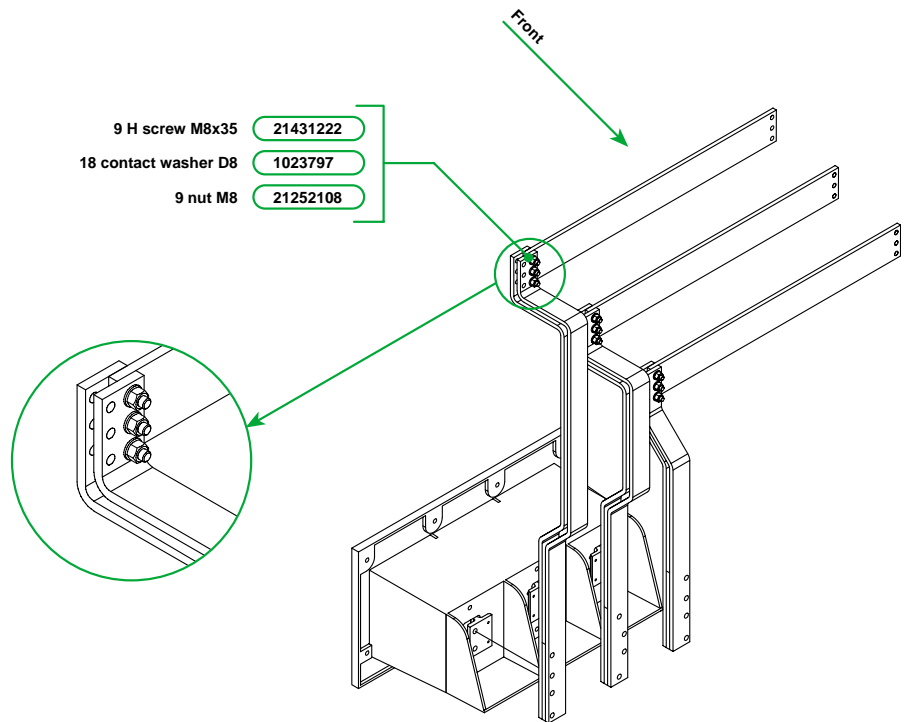
N.B.: tightening torque 30 Nm.

Installation instructions

Fitting the main busbars

- fit the main bus bars between the two cubicles,
- insert the bolts and tighten to 28 Nm,
- these procedures should be repeated for any cubicle added to the switchboard.

1250 A
IF11, C11, R11, MT11



N.B.:
refer to the operations manual for the different ways to access the busbar.

Installation instructions

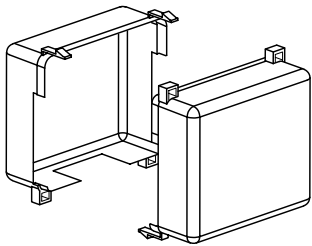
Fitting the main busbars

1250 A

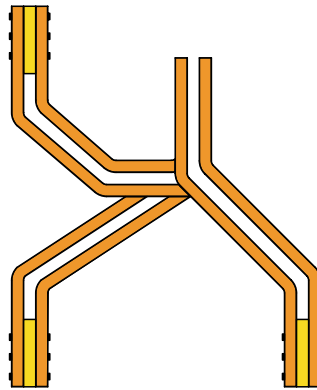
IF11, C11, R11, MT11

N. B.:

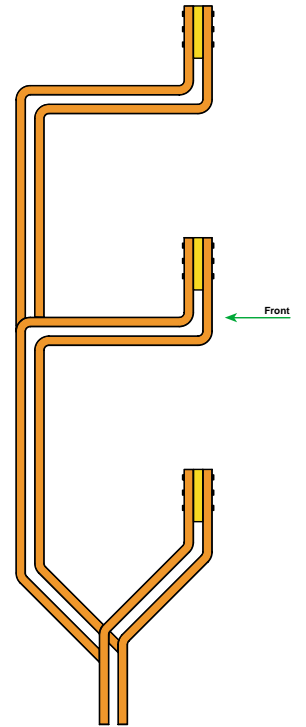
covers are assembled on the connections (for covers assembly, refer to Doc. AAG26930F0 & Doc. AAG36930F0)



Covers



Lower connections

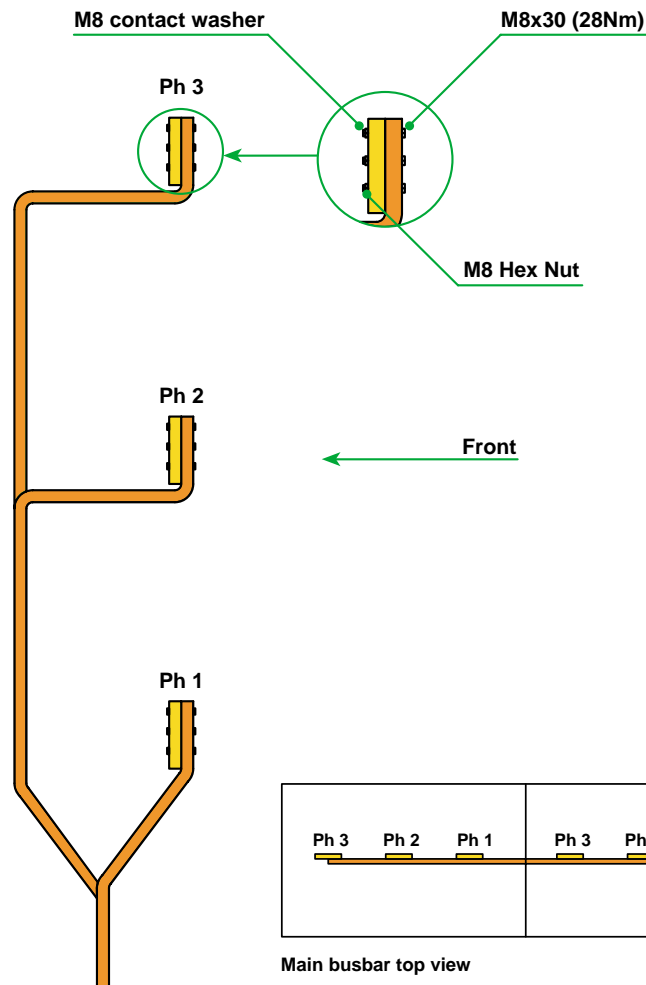


Upper connections

630 A main busbars-upper

630 A tee-connection

IF11, C11, R11, MT11



Installation instructions

Fitting the main busbars

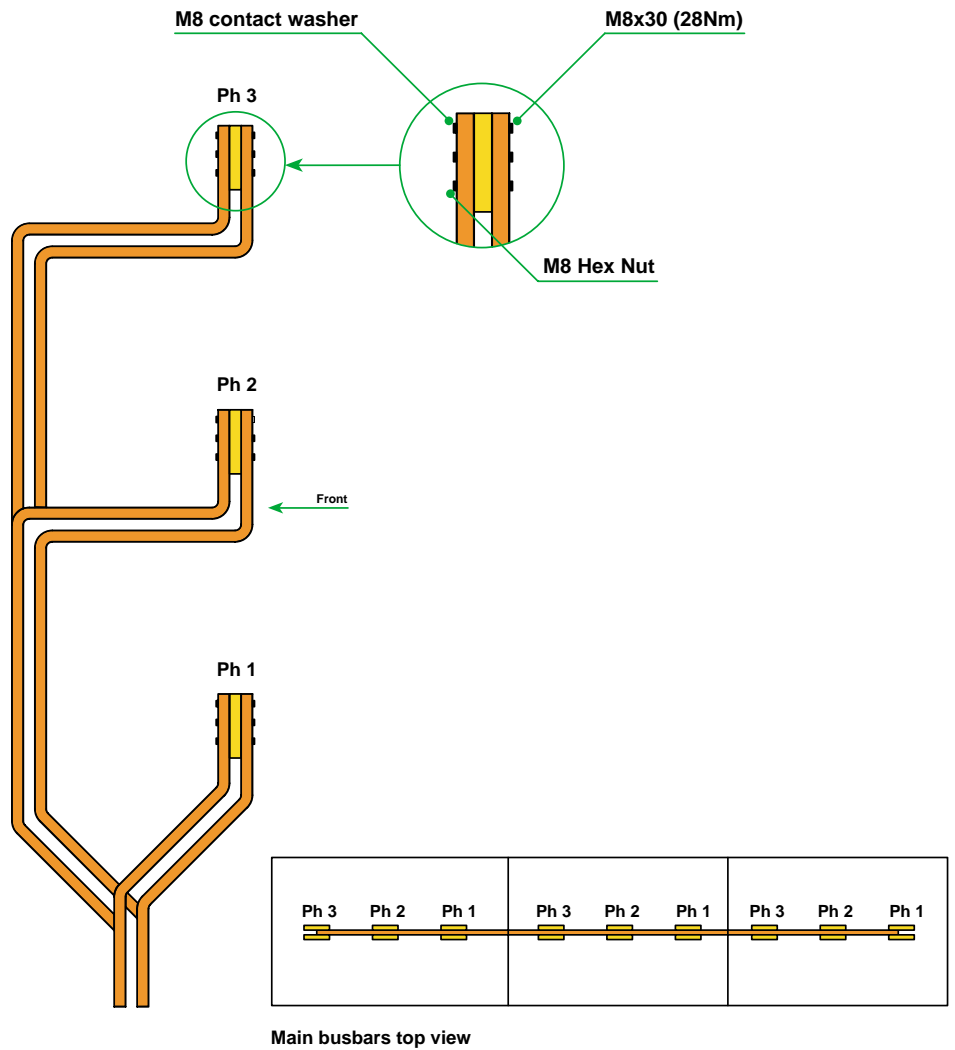
1250 A

IF11, C11, R11, MT11

1250 A main busbars-upper

1250 A tee-connection

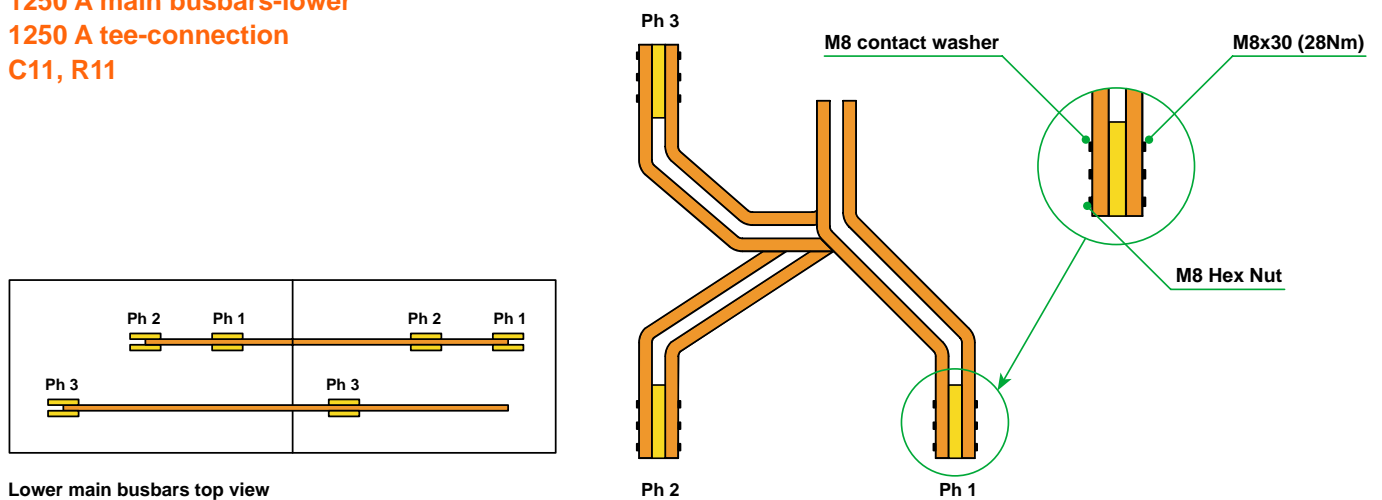
IF11, C11, R11, MT11



1250 A main busbars-lower

1250 A tee-connection

C11, R11

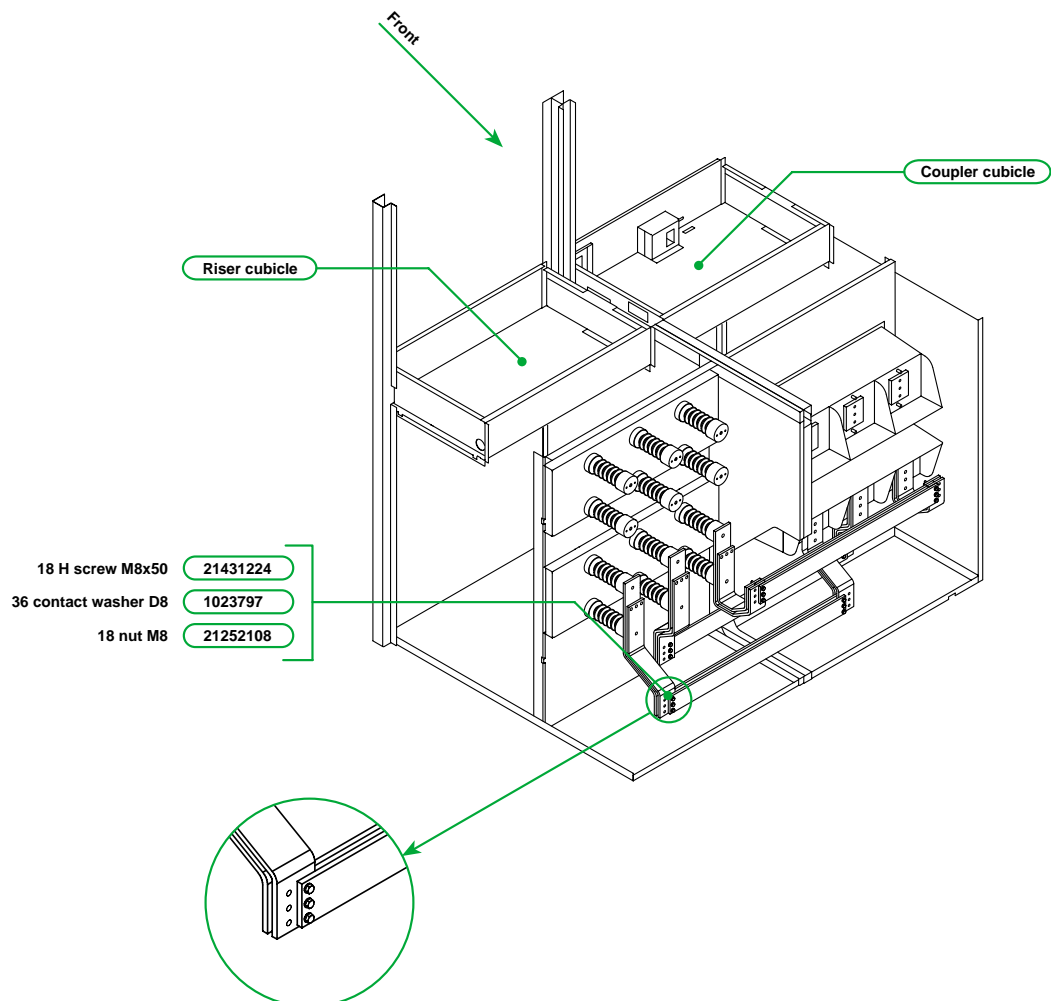
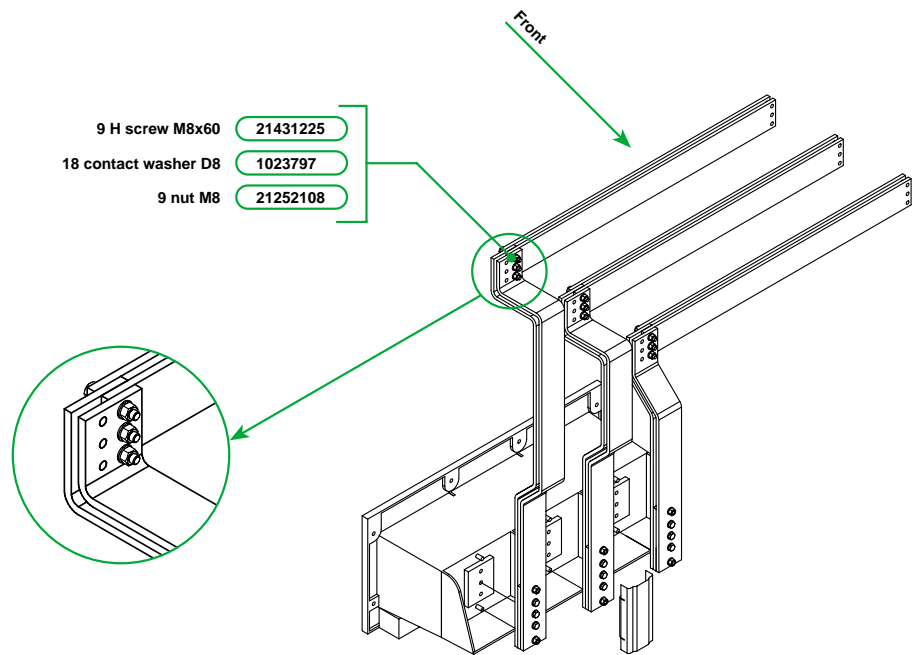


Installation instructions

Fitting the main busbars

2500 A

IF12, C12, R12, MT11

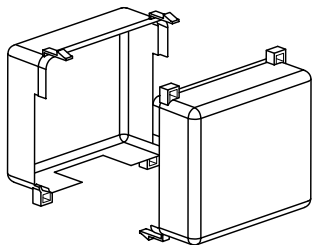


Installation instructions

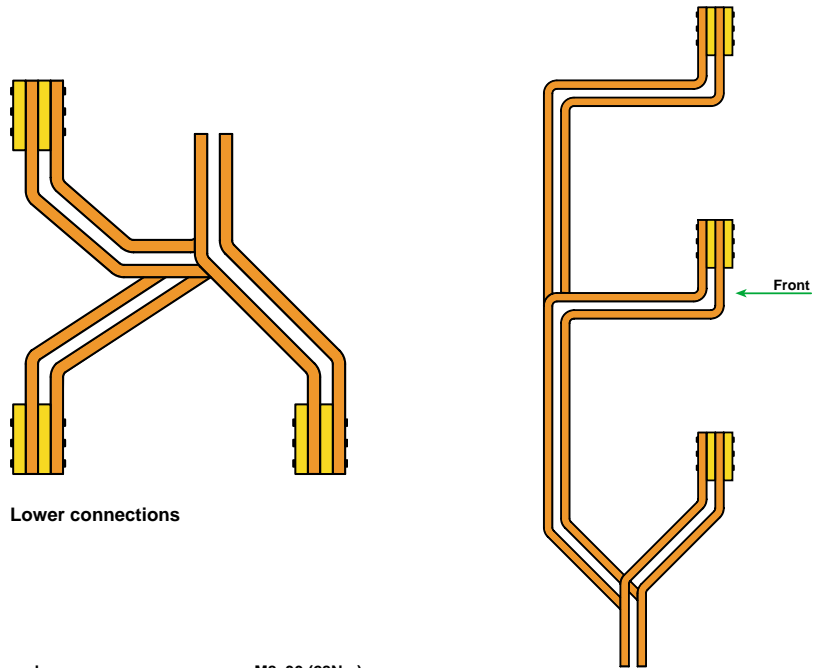
Fitting the main busbars

2500 A
IF12, C12, R12, MT11

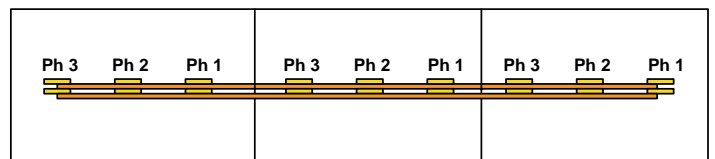
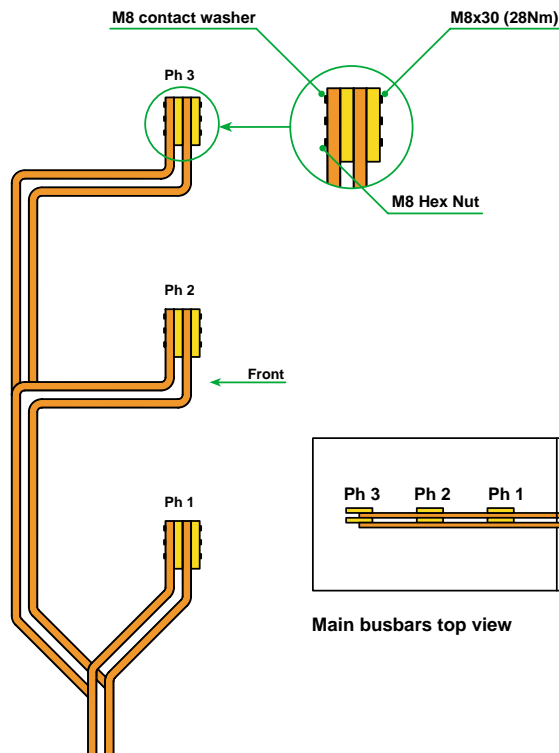
N. B.:
 covers are assembled on the connections (for covers assembly, refer to Doc. AAG26930F0 & Doc. AAG36930F0)



Covers

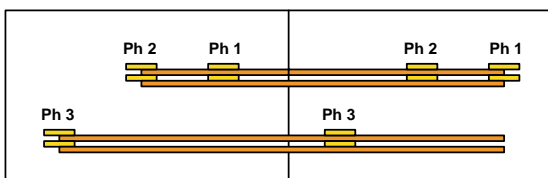


2500 A main busbars-upper
1250 A tee-connection
IF12, C12, R12, MT11

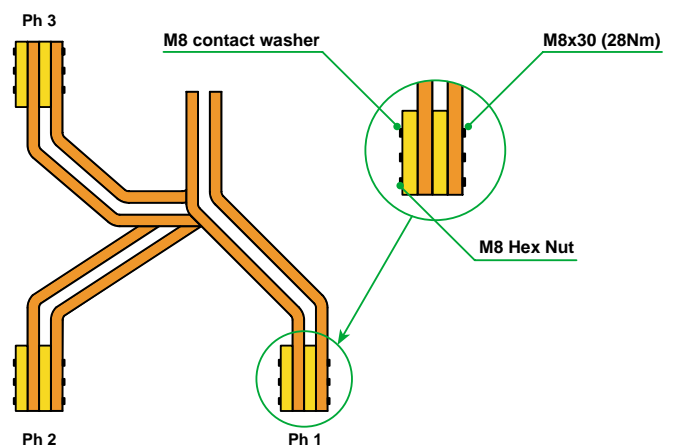


Main busbars top view

2500 A main busbars-lower
2500 A tee-connection
C12, R12



Lower main busbars top view

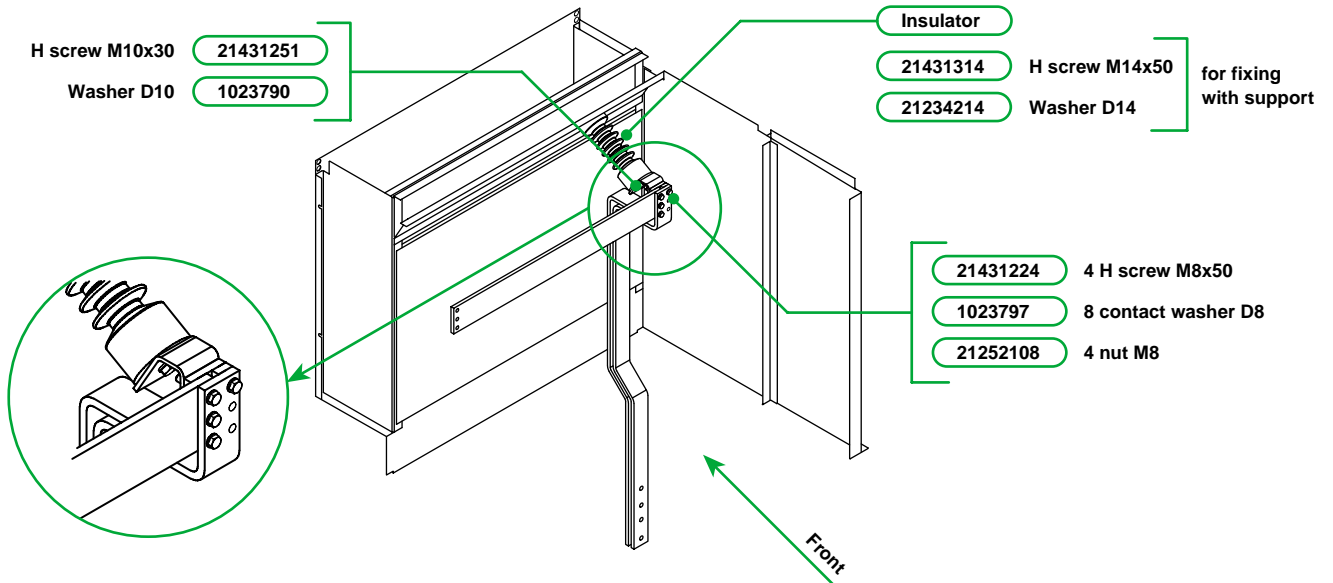


Installation instructions

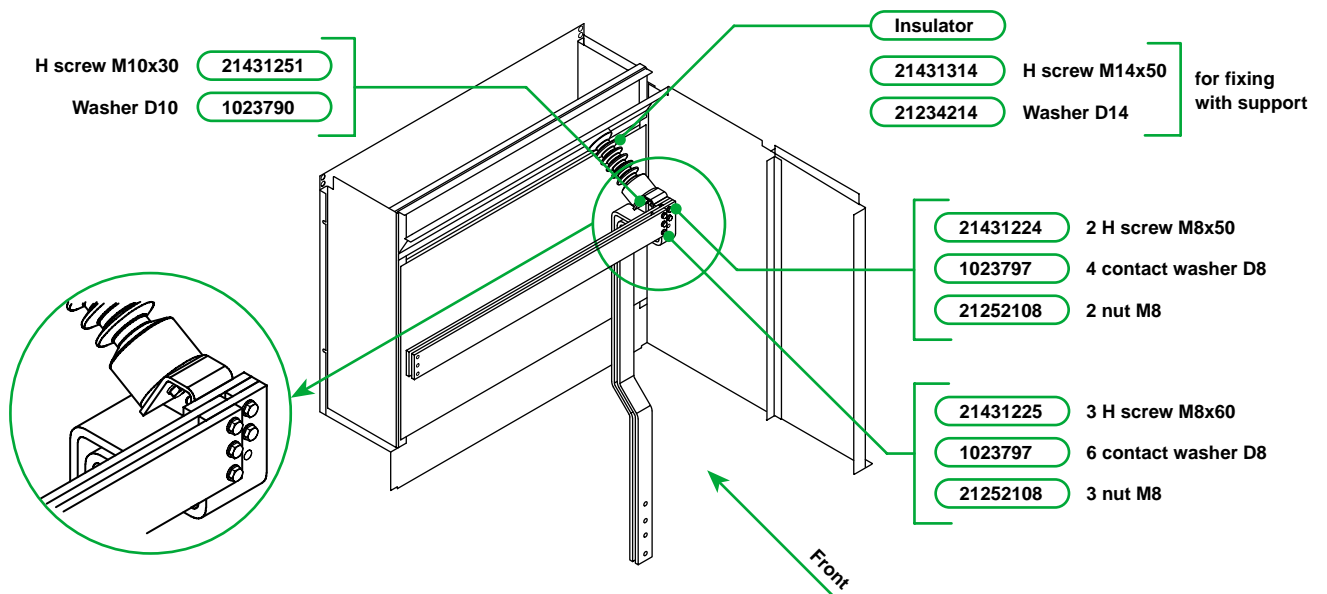
Fitting the left end insulator of the busbar

An insulator is used to support the busbar in the last cubicle on the left.

630, 1250 A

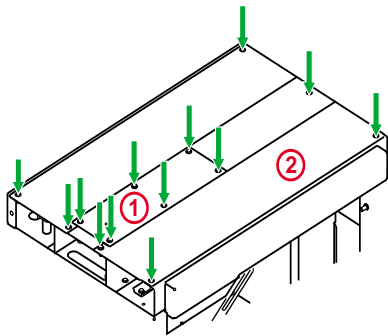


2500 A

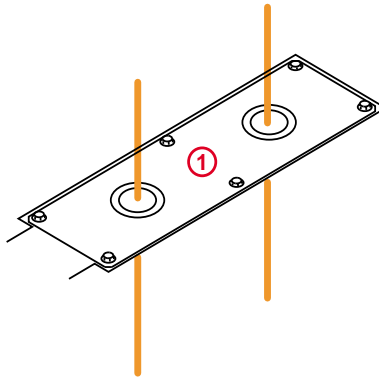


Installation instructions

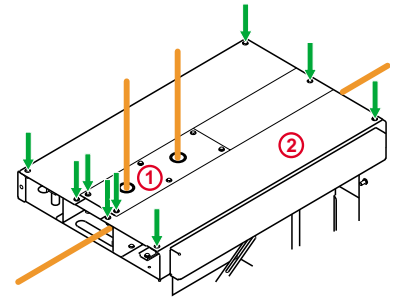
Entry of LV cables from the top



Remove the cable entry plate **1** situated on the LV cubicle and the roof plate **2**.

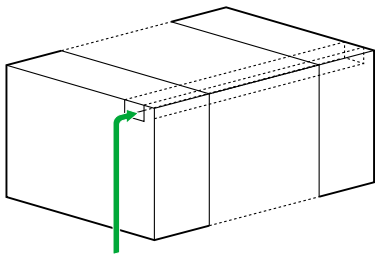


Drill the cable entry plate **1** to suit the roof cable glands, fit the glands and feed the cabling trough.

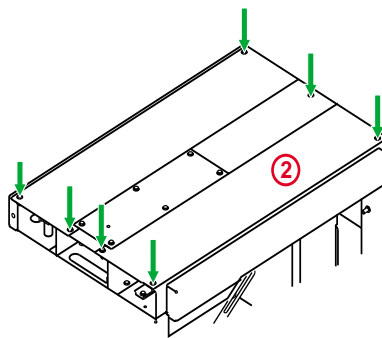


Re-assemble the cable entry plate **1** and terminate the wires. Re-assemble the roof **2**.

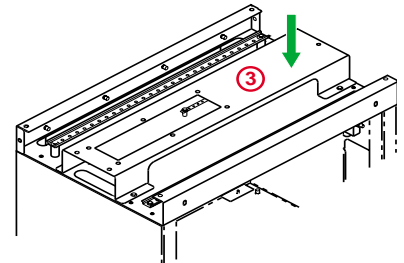
LV inter-connections cabling



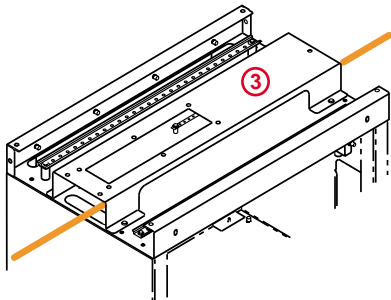
Entry at the end of the switchboard.



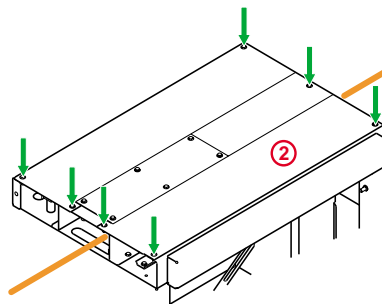
Remove the roof plate **2** from each cubicle.



Remove the cable trough **3**.



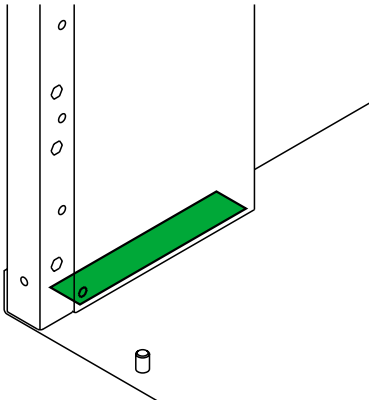
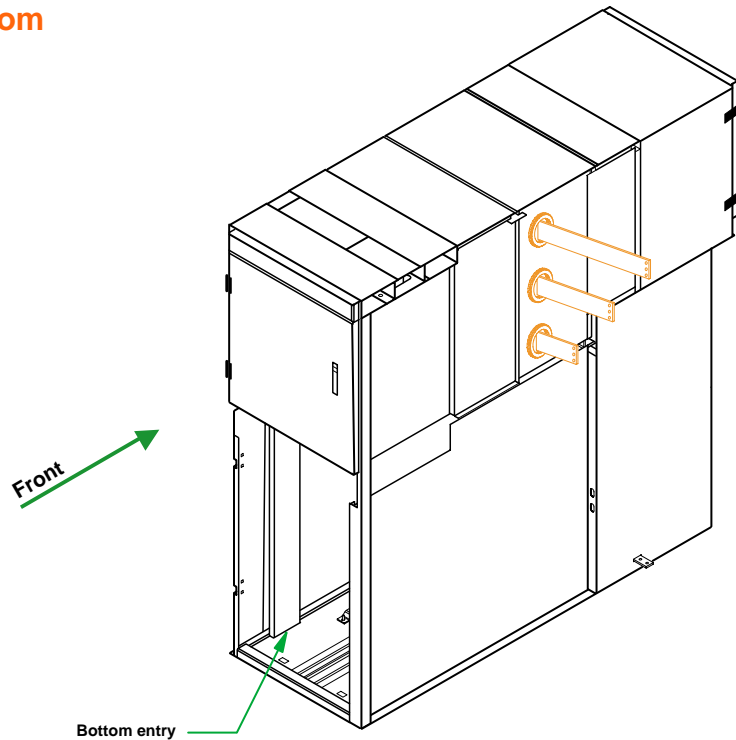
Install the cable power supply wiring. Replace the cable troughs **3**.



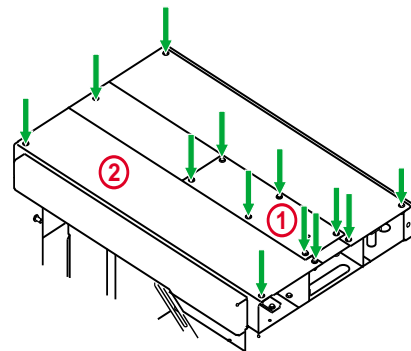
Working one cubicle at a time, feed the wires out through the hole in the cable trough. Make the cable connections to the terminal blocks and replace the roof plates **2**.

Installation instructions

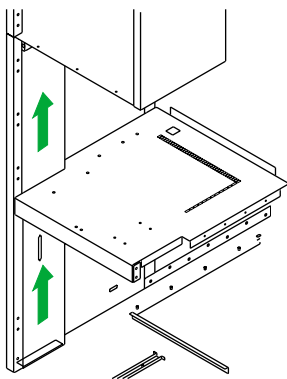
Entry of LV cables from the bottom



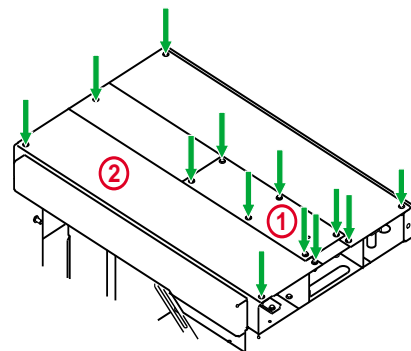
Cable entry is through the slot in the cubicle base plate.



Remove the roof plates **2** and cable entry plate **1** if necessary.



Feed the wires and the power supply cables up the cables to the roof of the LV cubicle. Cables can be cable-tied to the side walls of the cubicle for support at the points provided.

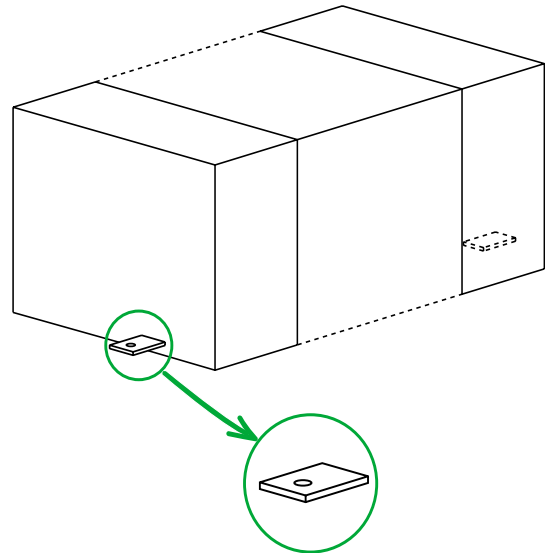


Feed the wires to the terminale and terminate. Re-assemble the roof plates **2** and **1**.

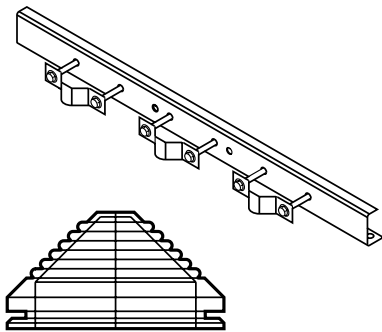
Installation instructions

Connecting the switchboard earth to the station earth

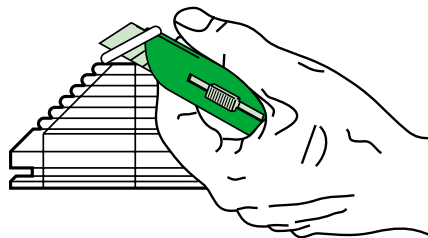
Connect the earthbar of the switchboard to the substation earth using the pre-drilled earthbar supplied with the loose equipment.



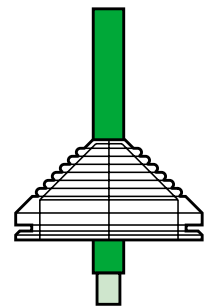
Connecting the MV cables



Remove the cable clamps, gland plates and grommets from the cubicle.



Cut the cable grommet to suit the diameter of the cables.



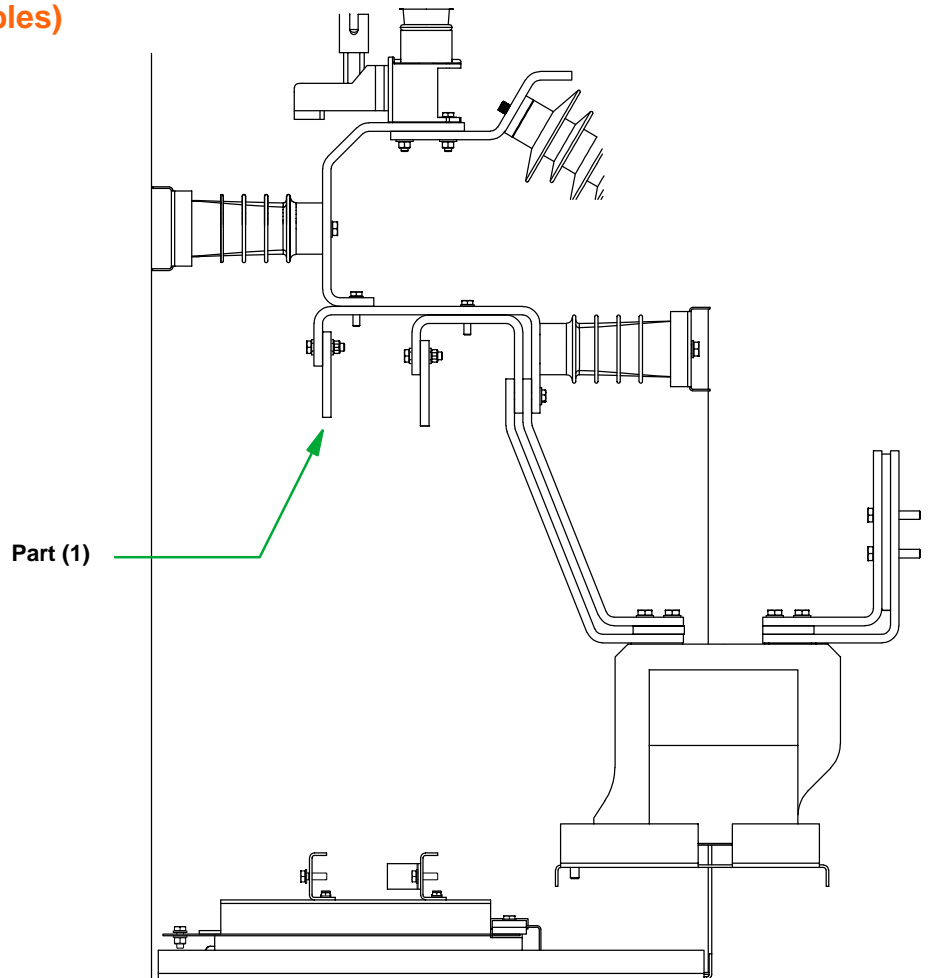
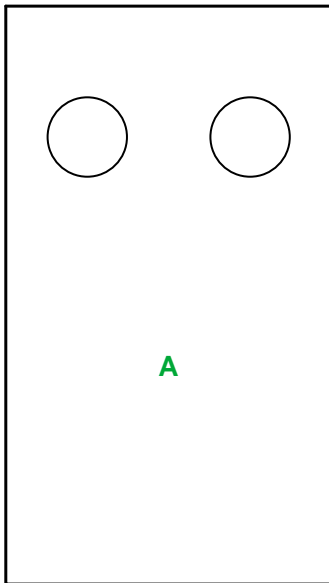
Mount them over the cables. Refer to the cable manufactures guide for terminating the cable ends.

Switchgear type	IF11	IF11	IF12	IF12
Ratings	630 A - 1250 A	630 A - 1250 A	2500 A	2500 A
MV cables type	Single core	Tri core	Single core	Tri core
maximum number of cables	2 per phase	2	3 per phase	3
maximum X-section of cables (mm ²)	630	300	630	300

Installation instructions

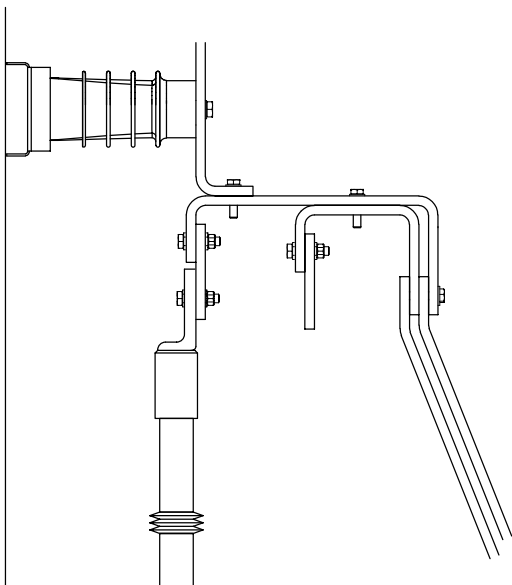
Connecting the MV cables to the cubicles (single-core or three core cables)

1250 A

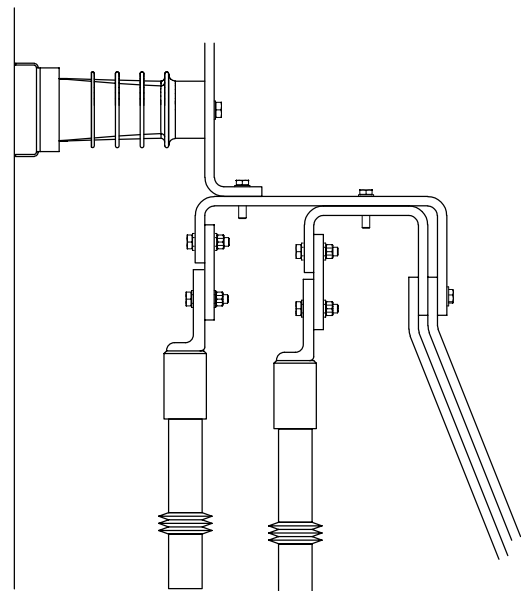


Remove copper part (1) and drill a hole in pads (A) according to the cable head to be connected.

For 1 cable



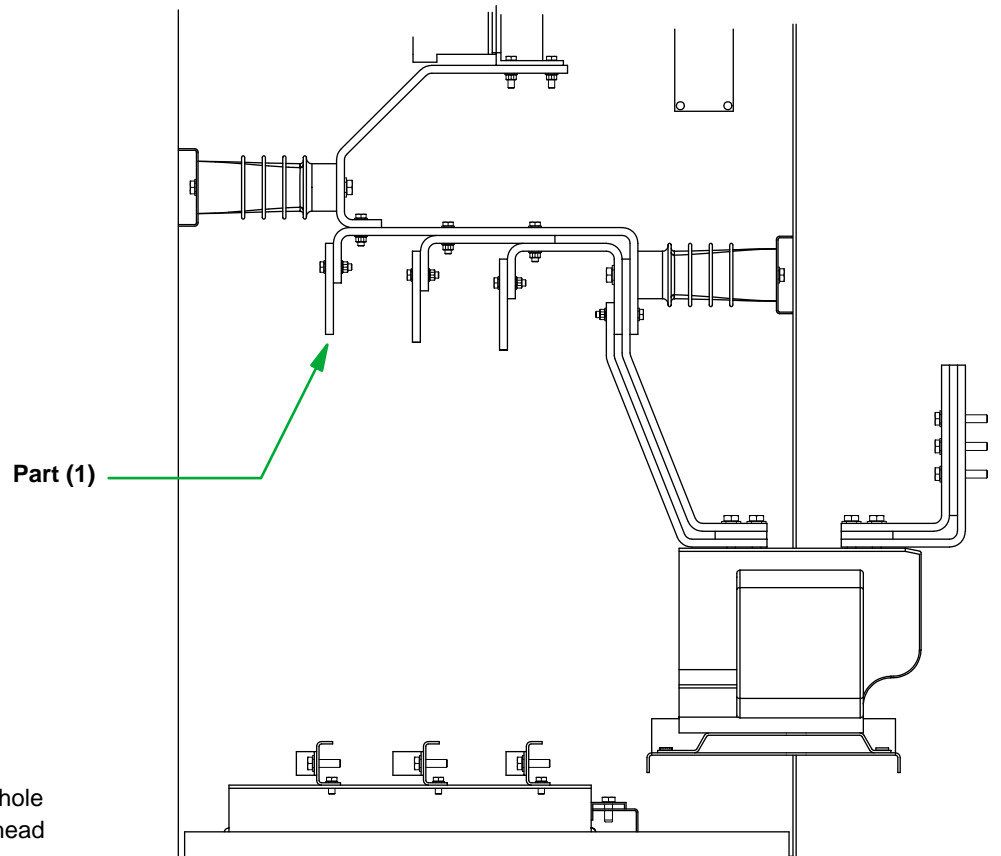
For 2 cables



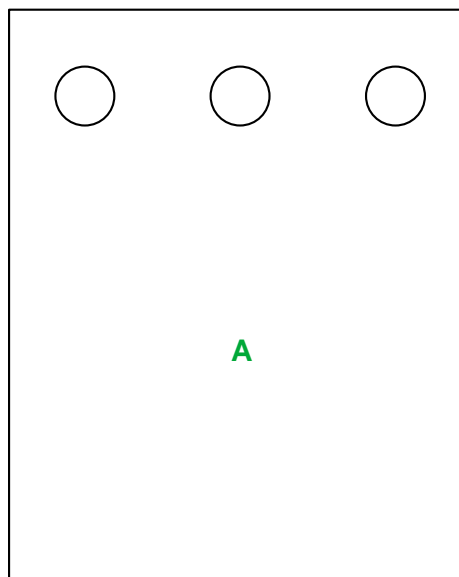
Installation instructions

Connecting the MV cables to the cubicles (single-core or three core cables)

2500 A



Remove copper part (1) and drill a hole in pads (A) according to the cable head to be connected.

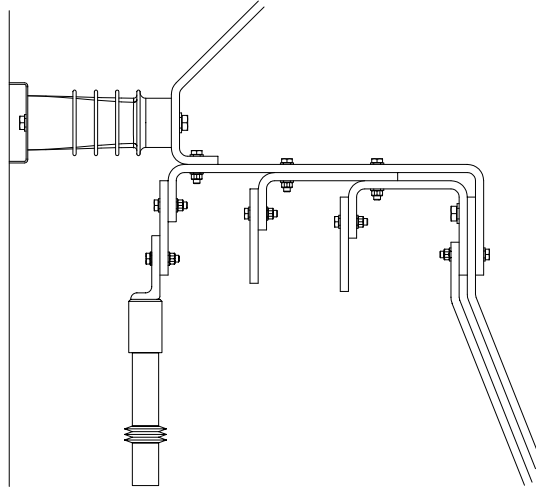


Installation instructions

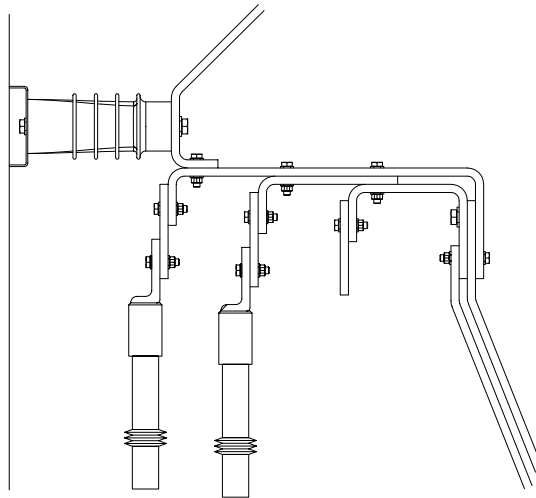
Connecting the MV cables to the cubicles (single-core or three core cables)

2500 A

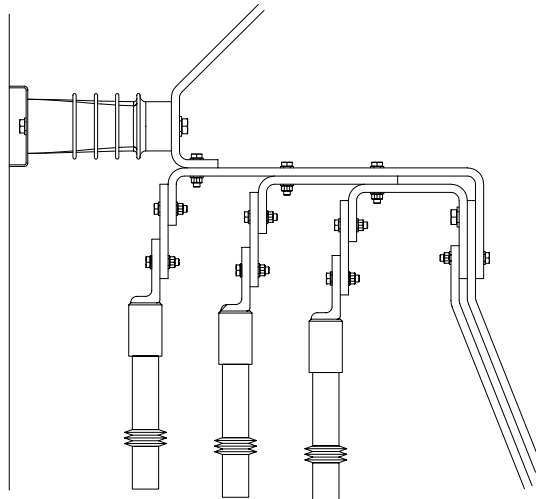
For 1 cable



For 2 cables



For 3 cables

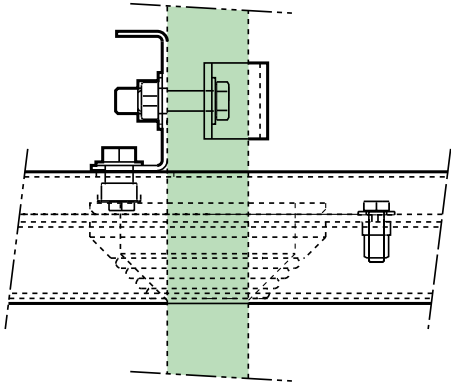


Installation instructions

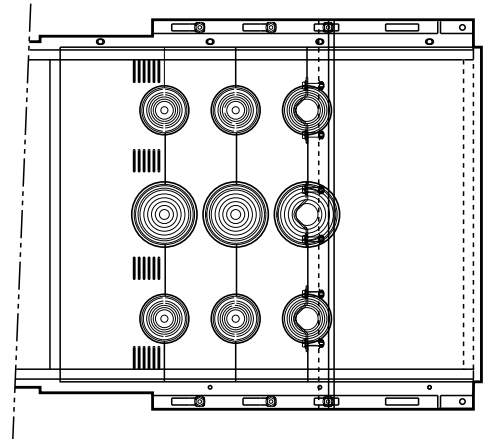
Supporting the cables

After installing a row of cables, mount the following in succession:

- 1- The cable clamp support,
- 2- The cable clamps,
- 3- The gland plates.

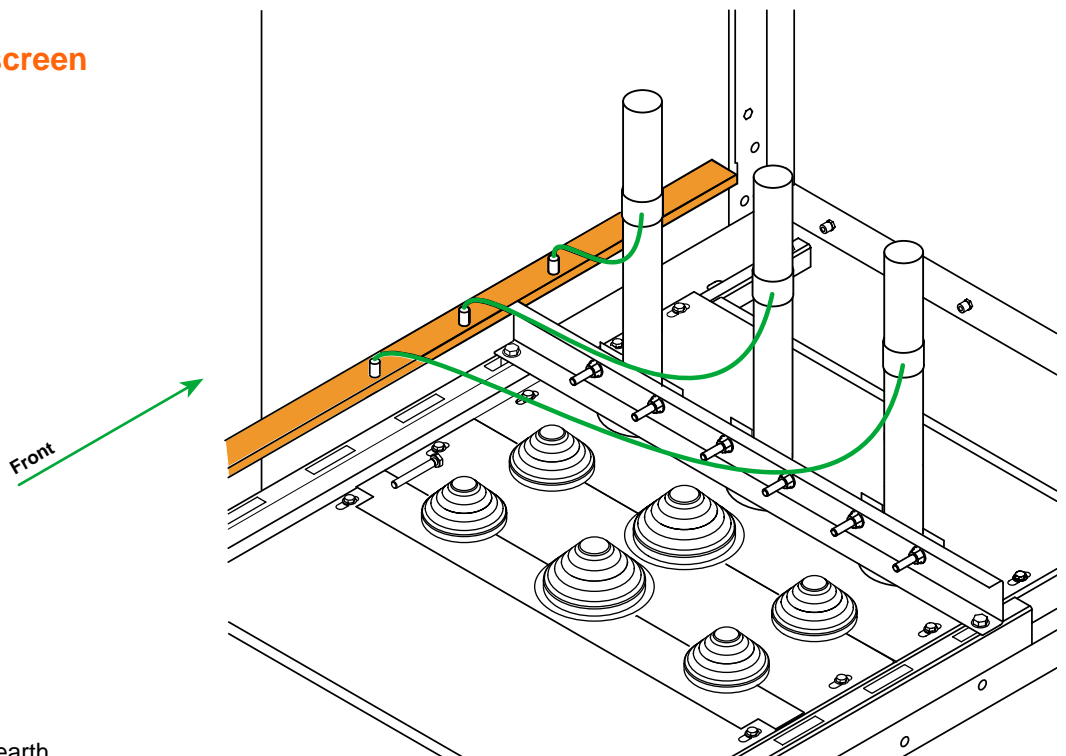


Fix the cable clamp support bar on top of the gland plate angles. Lock the cables using the half cable clamps.



Replace the gland plates. Fill any unused openings with uncut cable grommets.

Earthing the cable screen



Example:

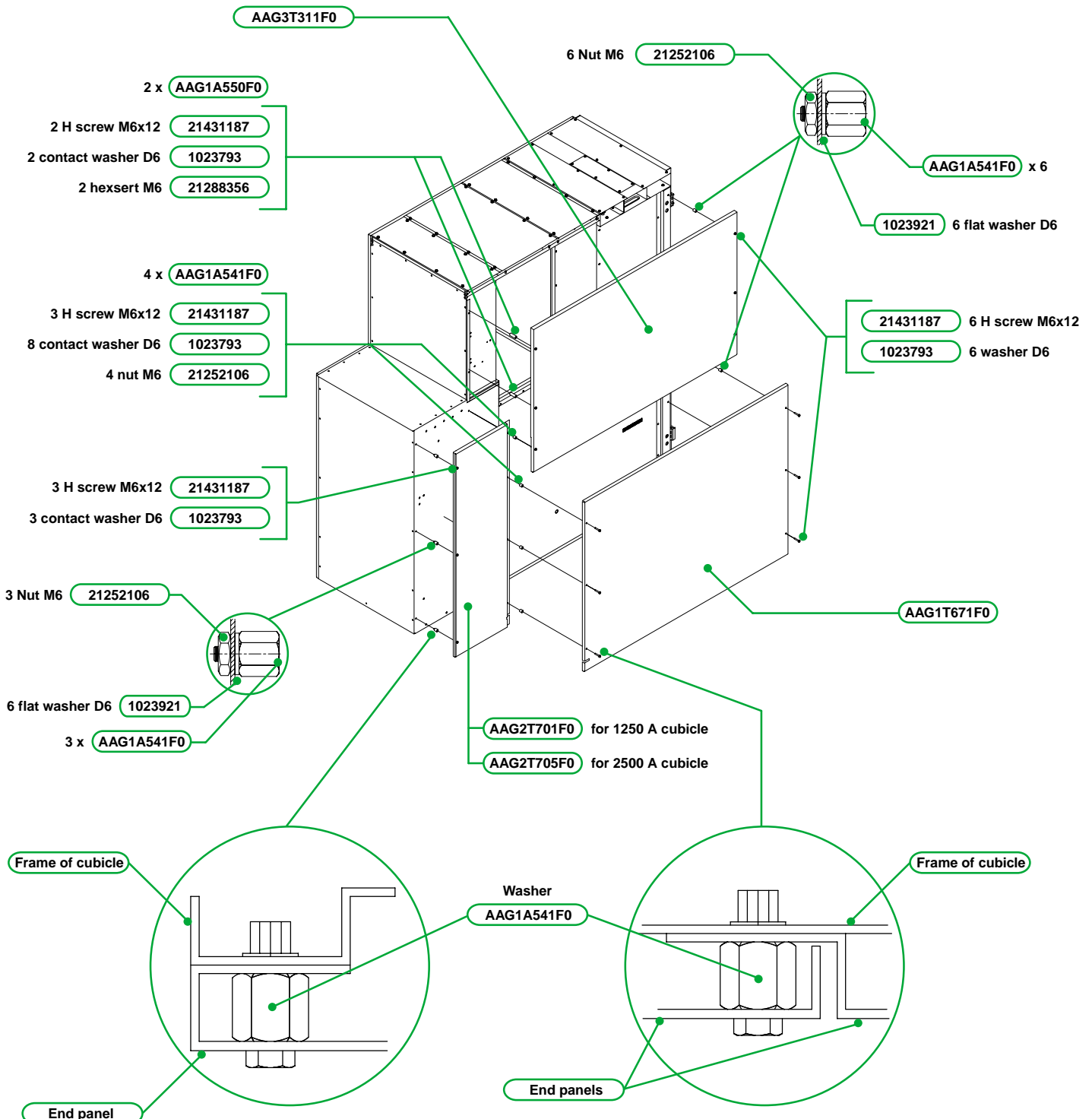
One cable per phase,
3 braids to be connected to earth.

Installation instructions

Installing the end covers

- fit the M6 crimp nuts to the side of the right hand end panel,
- the left hand end panel should be factory fitted with M8 hexagonal inserts,
- fit the M6 crimp nuts to the left and right rear covers.

The end covers of the last cubicle on the left

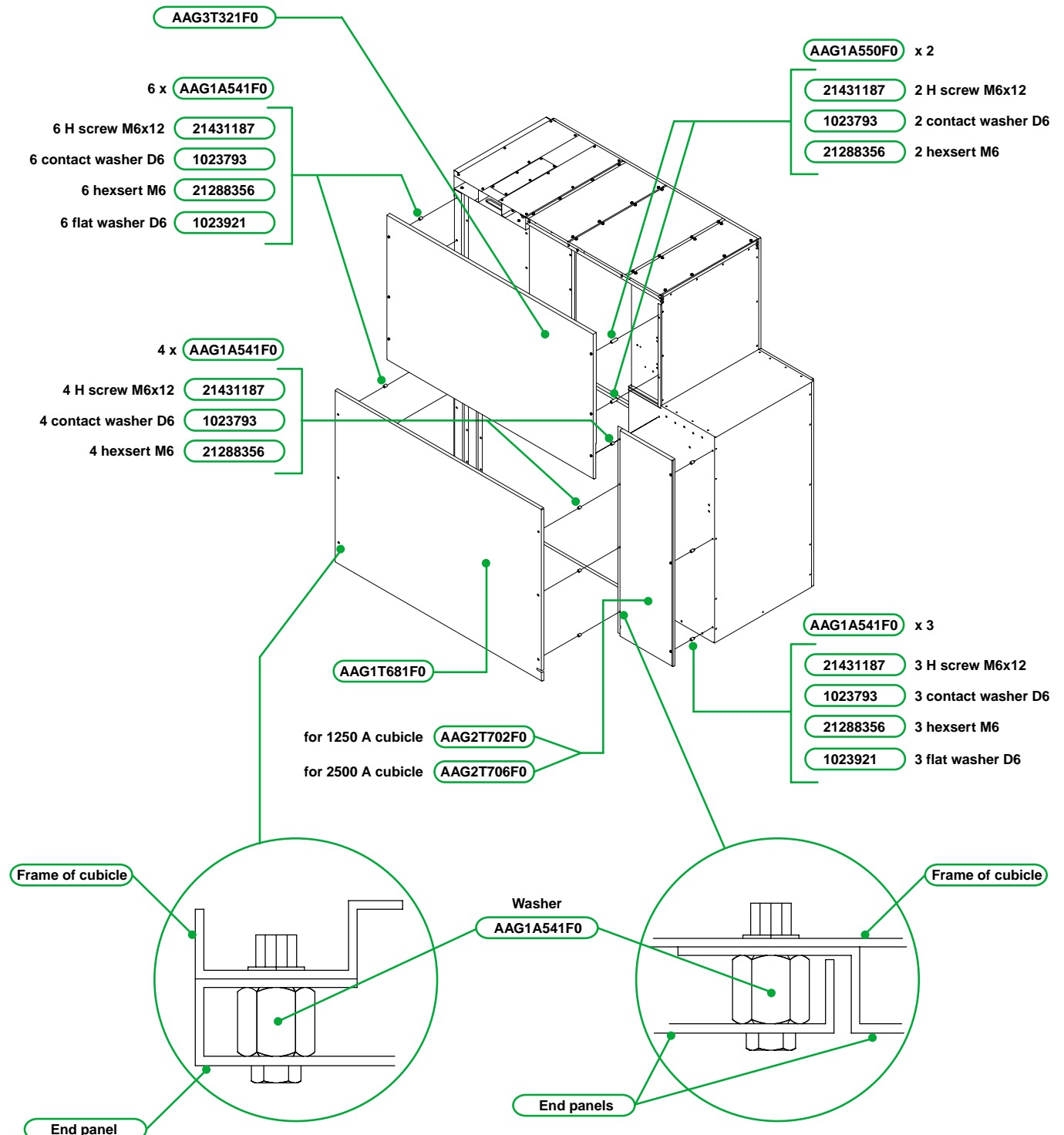


Installation instructions

Installing the end covers

- fit the M6 crimp nuts to the side of the right hand end panel,
- the left hand end panel should be factory fitted with M8 hexagonal inserts,
- fit the M6 crimp nuts to the left and right rear covers.

The end covers of the last cubicle on the right





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