

**B2.1**

# ACB (TOP) MODULE ASSEMBLY

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KYT-070  
11/2021

Update Notes

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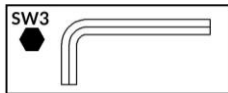
 Tools Symbol Guide



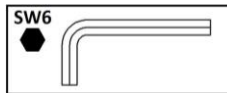
Cross



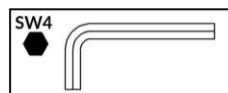
Slot



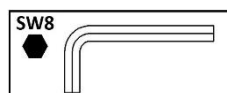
M4 Allen Key



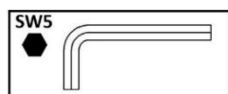
M8 Allen Key



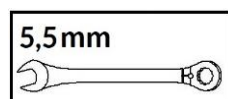
M5 Allen Key



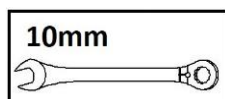
M10 Allen Key



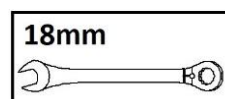
M6 Allen Key



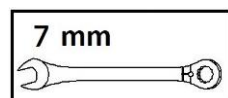
M3 Spanner



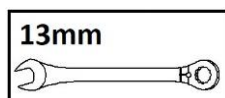
M6 Spanner



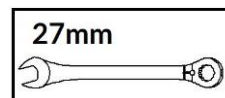
M12 Spanner



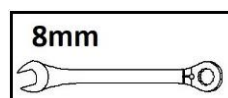
M4 Spanner



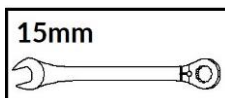
M8 Spanner



M18 Spanner



M5 Spanner



M10 Spanner

**Caution:** For safety precaution ; Protective gloves and equipments must be used while assembly.

As additional tools for assembly;

- Torque wrench features:
  - ✓ Tightening torque : 75 N.m
  - ✓ It has a reduced thickness, can be easily used to access non accessible joints/fishplates and between busbars.
- Torque wrench an accessories:
  - ✓ Wrench shaft - mandatory
  - ✓ Extra-thin pawl adapter - mandatory
  - ✓ Pawl for ordinary sockets
- Extra-thin sockets for pawl + shaft:
  - ✓ 13 mm extra-thin low socket
  - ✓ 13 mm extra-thin high socket
  - ✓ 15 mm extra-thin low socket
  - ✓ 15 mm extra-thin high socket
  - ✓ 18 mm extra-thin low socket
  - ✓ 18 mm extra-thin high socket



## ■ Torque Table for Screw/Bolt

| Recommended tightening torque for mechanical and electrical links<br>8.8-class screws (with nut + washers) |                         |
|------------------------------------------------------------------------------------------------------------|-------------------------|
| Diameter of Screw                                                                                          | Tightening Torque (N.m) |
| M3                                                                                                         | 1.5                     |
| M4                                                                                                         | 3.5                     |
| M5                                                                                                         | 7                       |
| M6                                                                                                         | 13                      |
| M8                                                                                                         | 28                      |
| M10                                                                                                        | 50                      |
| M12                                                                                                        | 75                      |

Tightening torque for electrical links on the devices and for their fixing:

### Marking varnish:

After tightening each electrical connection to the appropriate torque, apply some varnish:

- ✓ Between the nut and the screw or
- ✓ Between the screw head and the copper bar or
- ✓ Between the device for tightening on a threaded part

Varnish should not block the screw:

- ✓ It allows operator inspection, to verify if the bolts/ nut are tightened or not.
- ✓ It facilitates the identification of any loose nuts during the switchboard's lifetime.

Varnish features:

- ✓ Coloured acrylic varnish, indelible and able to resist a 150° C temperature.
- ✓ PDS recommends a red varnish as a standard to identify the panelbuilder's work.
- ✓ Other colours can be used by the contractor or any operators entitled to work on the switchboard after its commissioning.

■ Screw/Bolt/Special Parts for Assembly

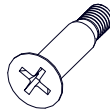
Philips Pan  
Head Screw



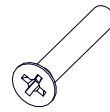
M6x23 Philips Flat  
Head Screw (Teos)



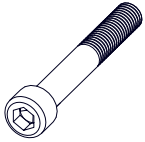
M5x20 Philips Flat  
Head Screw (Teos)



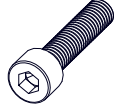
Philips Flat Head  
Screw



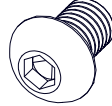
Hexagon Socket Head  
Bolt (Half Thread)



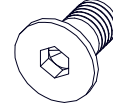
Hexagon Socket  
Head Bolt



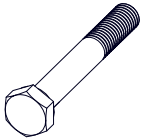
Hexagon Socket  
Button Head Bolt



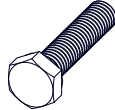
Hexagon Socket  
Flat Head Bolt



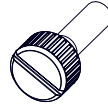
Hexagon Head Bolt  
(Half Tread)



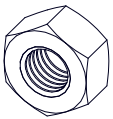
Hexagon Head  
Bolt



Internal Door  
Knob Bolt



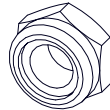
Regular Nut



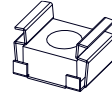
Flange Nut



Previling Torque  
Nut



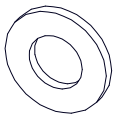
Cage Nut



Plastic Cage  
Nut



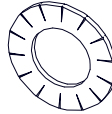
Flat Washer



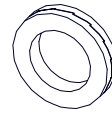
Spring Lock  
Washer



Toothed Lock  
Washer

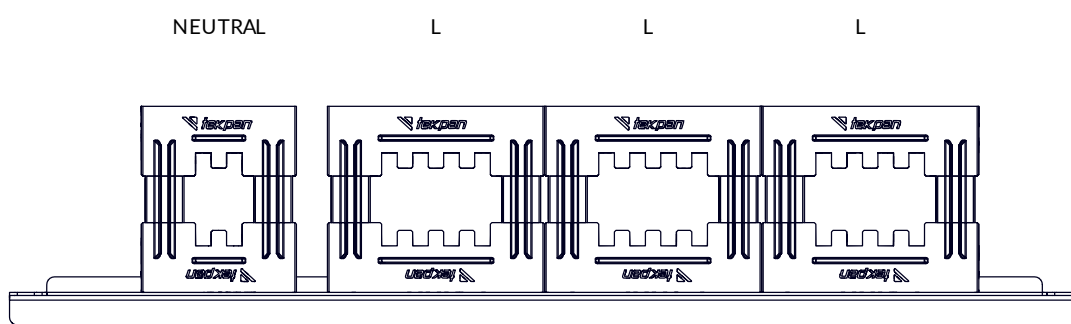
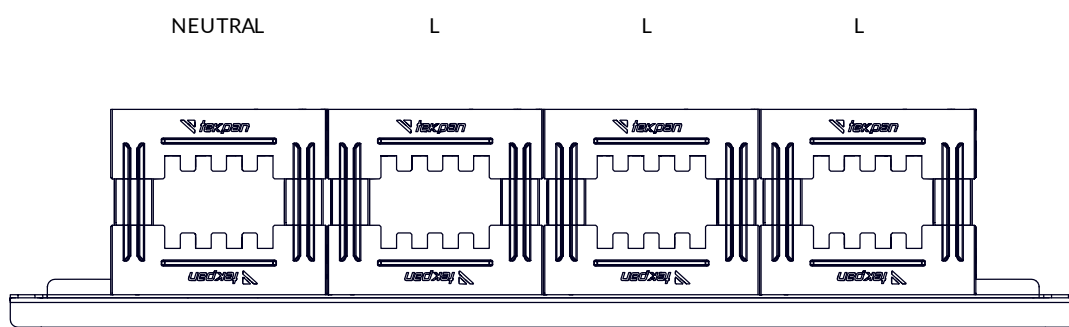
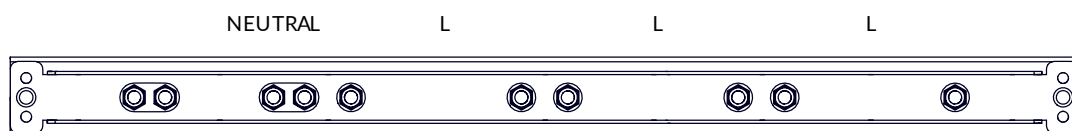
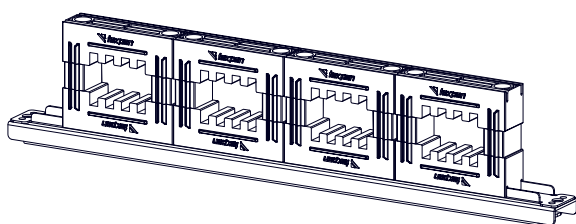


Wedge Lock  
Washer



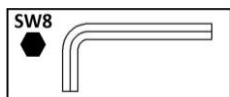
## 1. BUSBAR ASSEMBLY

### 1.1 FOUR (4) FLAT BAR ASSEMBLY

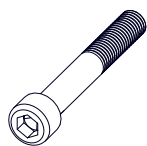


| Neutral Section | Rated Current (In) | Flat Copper Size (mm) xQty |            |
|-----------------|--------------------|----------------------------|------------|
|                 |                    | L1/L2/L3                   | Neutral(N) |
| 1/2 N           | 2500A              | 40/10x4                    | 40/10x2    |
| 1/1 N           | 2500A              | 40/10x4                    | 40/10x4    |
| 1/2 N           | 3000A              | 50/10x4                    | 50/10x2    |
| 1/1 N           | 3000A              | 50/10x4                    | 50/10x4    |
| 1/2 N           | 3400A              | 60/10x4                    | 60/10x2    |
| 1/1 N           | 3400A              | 60/10x4                    | 60/10x4    |
| 1/2 N           | 4000A              | 80/10x4                    | 80/10x2    |
| 1/1 N           | 4000A              | 80/10x4                    | 80/10x4    |

1.1 FOUR (4) FLAT BAR ASSEMBLY



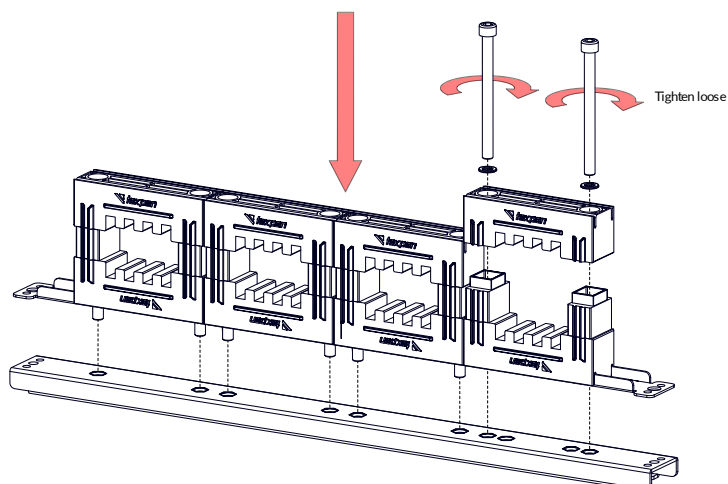
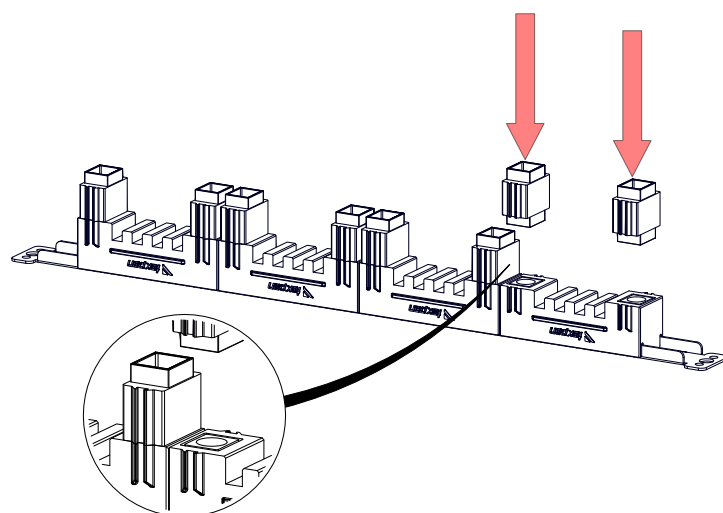
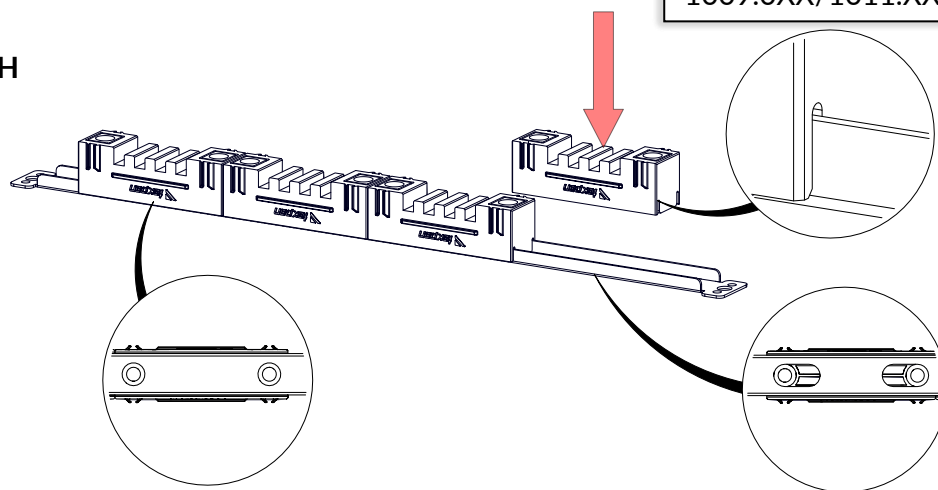
Required Packages:  
1010.18X  
1009.0XX/1011.XXX



M10x H

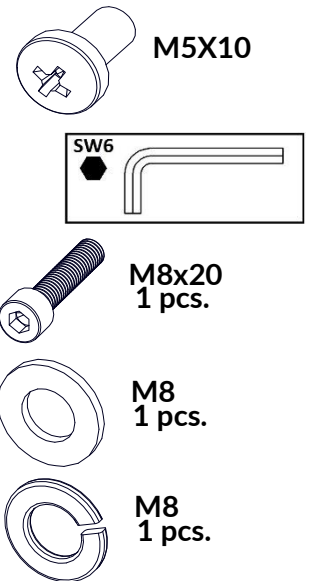
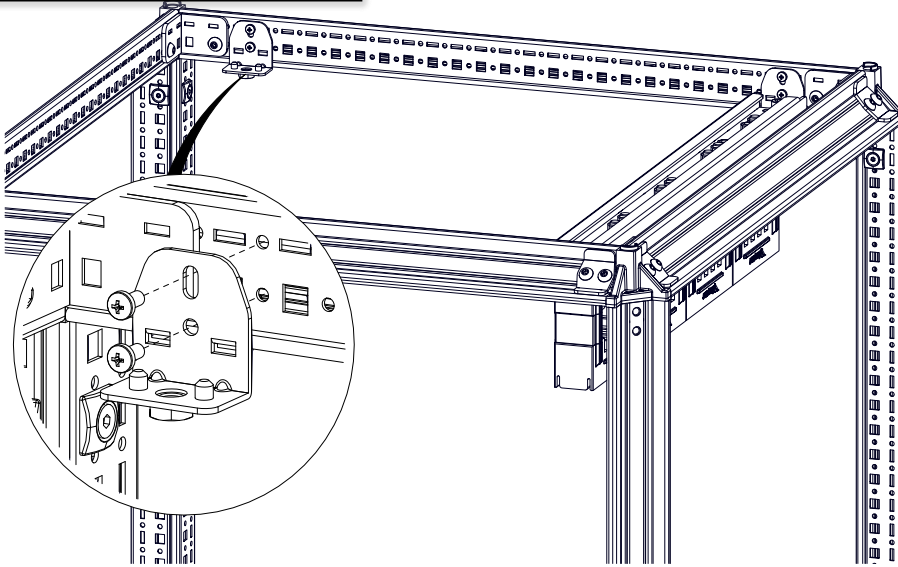


M10

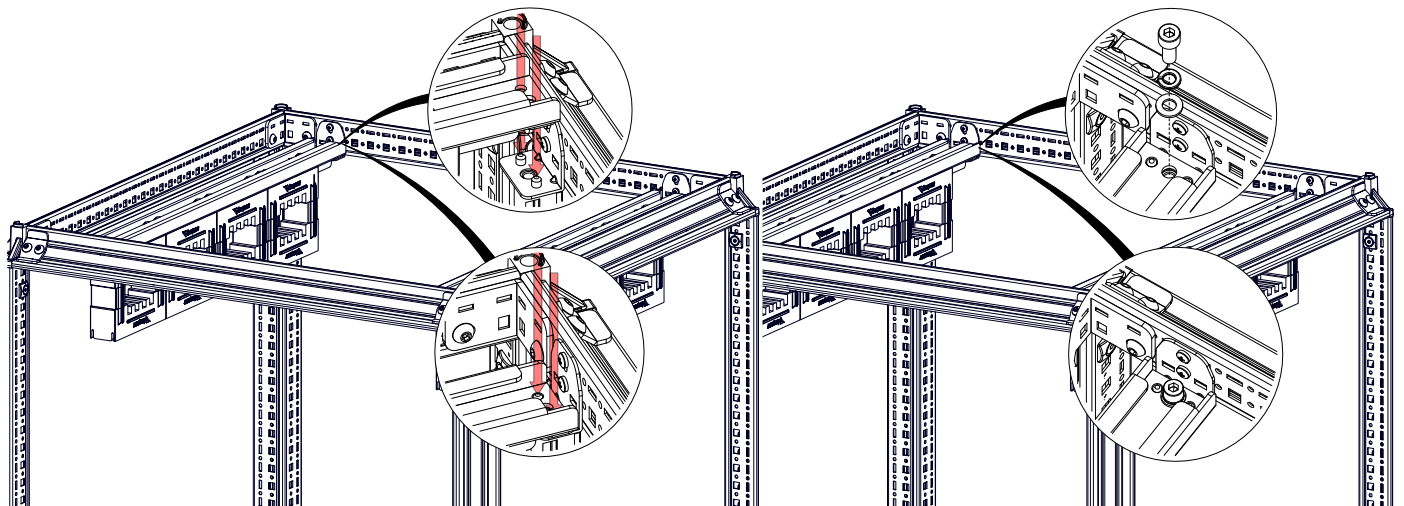
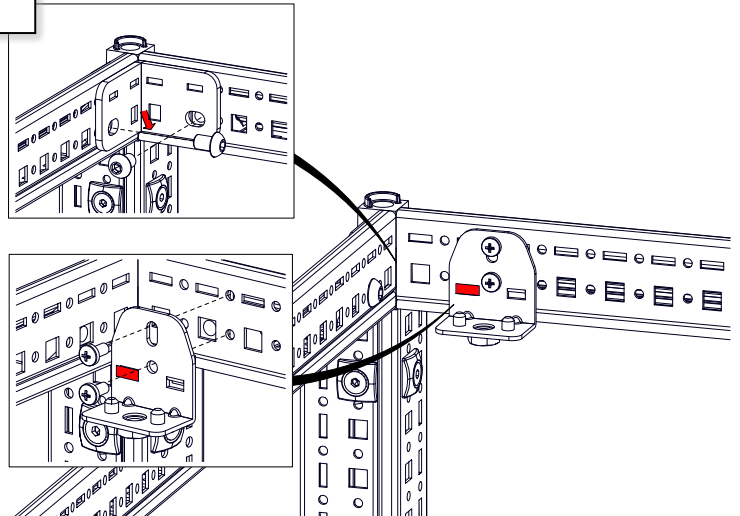
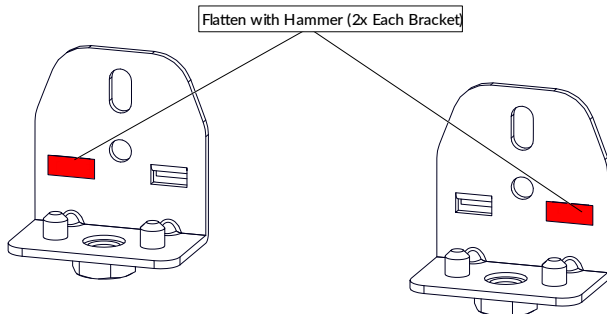


## 1.1 FOUR (4) FLAT BAR ASSEMBLY

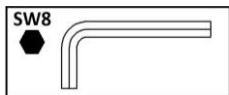
**Required Packages:**  
1010.18X  
1009.0XX/1011.XXX



For 85kA ACB Module assemblies are using bottom steps with both sides, if ACB Copper Connections do not fit.



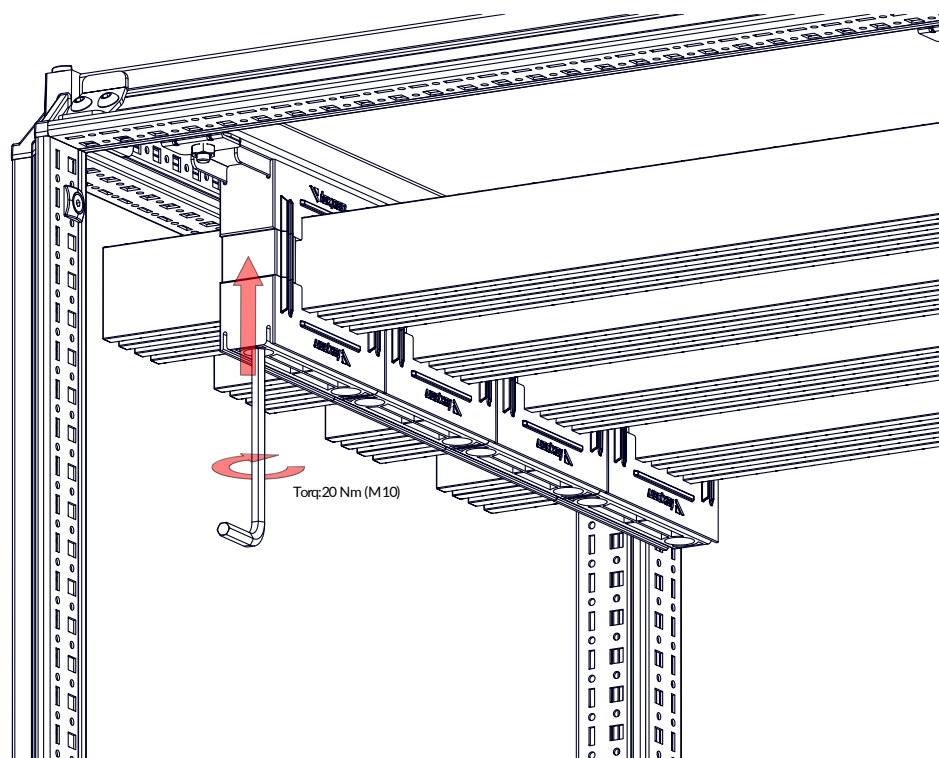
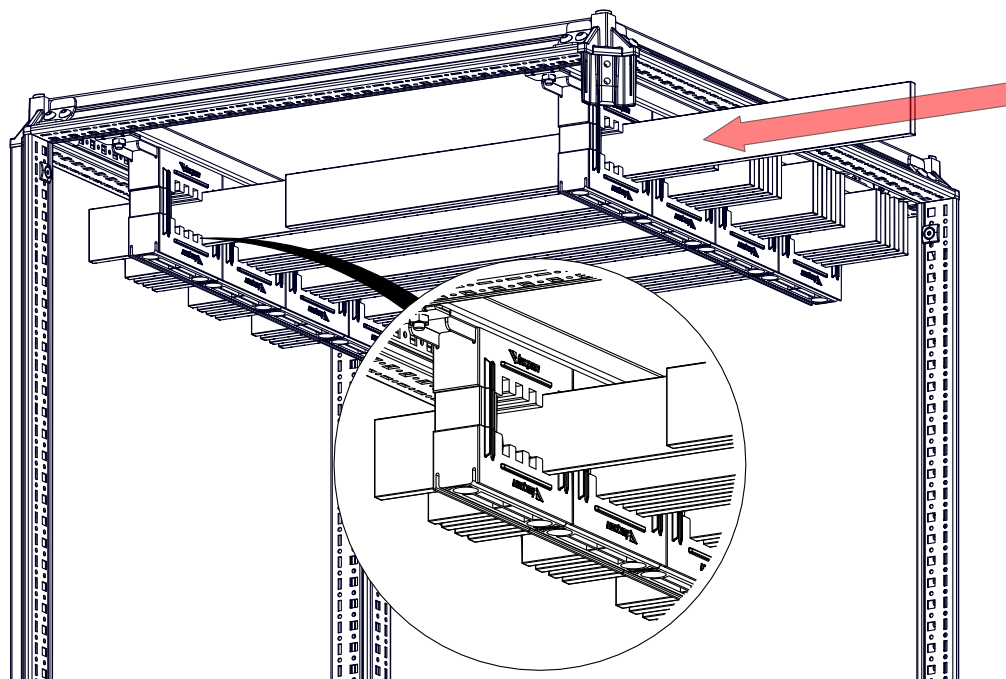
## ■ 1.1 FOUR (4) FLAT BAR ASSEMBLY



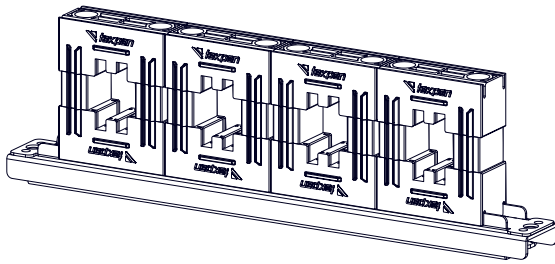
For 65kA and 85kA assemblies are using same steps.

65 kA safety distance between busbar holders Max. 550mm

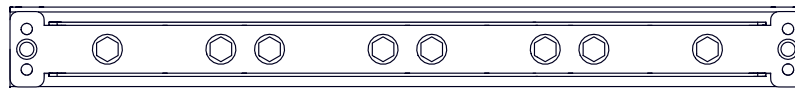
85 kA safety distance between busbar holders Max. 400mm for ACB Modules



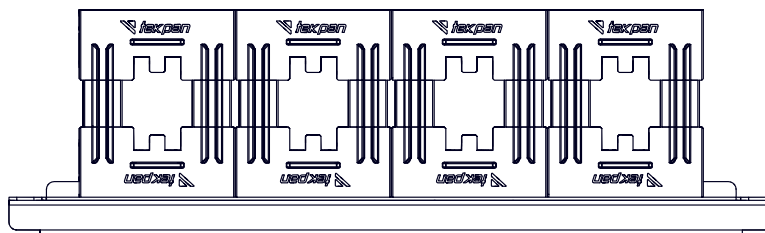
## 1.2 TWO (2) FLAT BAR ASSEMBLY



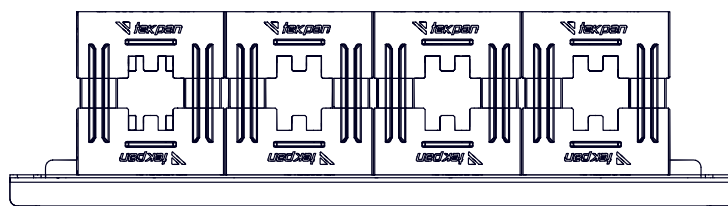
NEUTRAL      L      L      L



NEUTRAL      L      L      L

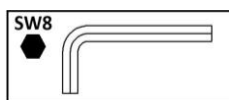


NEUTRAL      L      L      L



| Neutral Section | Rated Current (In) | Flat Copper Size (mm) xQty |            |
|-----------------|--------------------|----------------------------|------------|
|                 |                    | L1/L2/L3                   | Neutral(N) |
| 1/2 N           | 1350A              | 40/10x2                    | 40/5x2     |
| 1/1 N           | 1350A              | 40/10x2                    | 40/10x2    |
| 1/2 N           | 1620A              | 50/10x2                    | 50/5x2     |
| 1/1 N           | 1620A              | 50/10x2                    | 50/10x2    |
| 1/2 N           | 1860A              | 60/10x2                    | 60/5x2     |
| 1/1 N           | 1860A              | 60/10x2                    | 60/10x2    |
| 1/2 N           | 2300A              | 80/10x2                    | 40/10x2    |
| 1/1 N           | 2300A              | 80/10x2                    | 80/10x2    |

## 1.2 TWO (2) FLAT BAR ASSEMBLY



M10x H

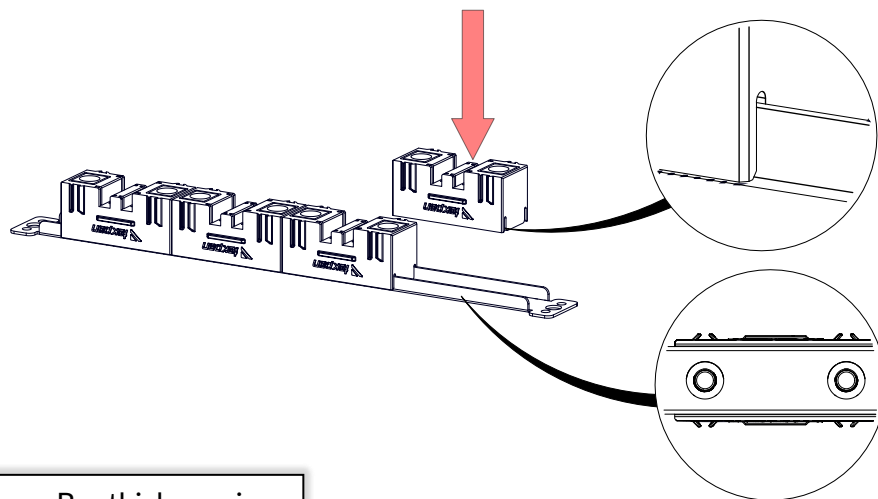


M10

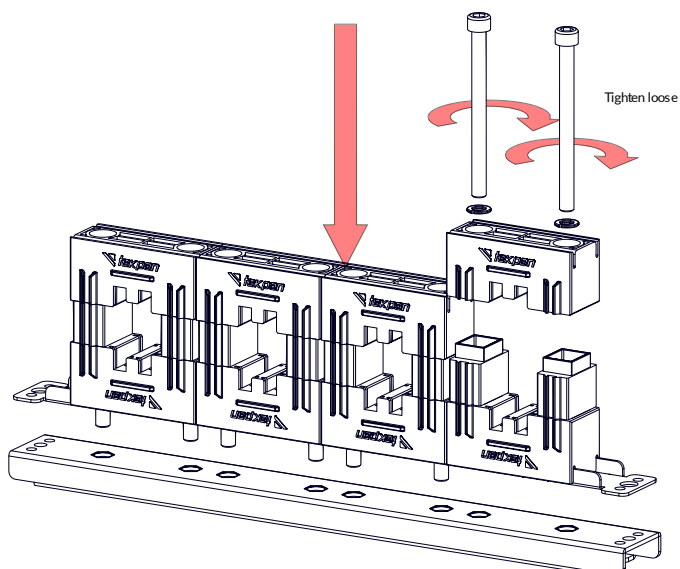
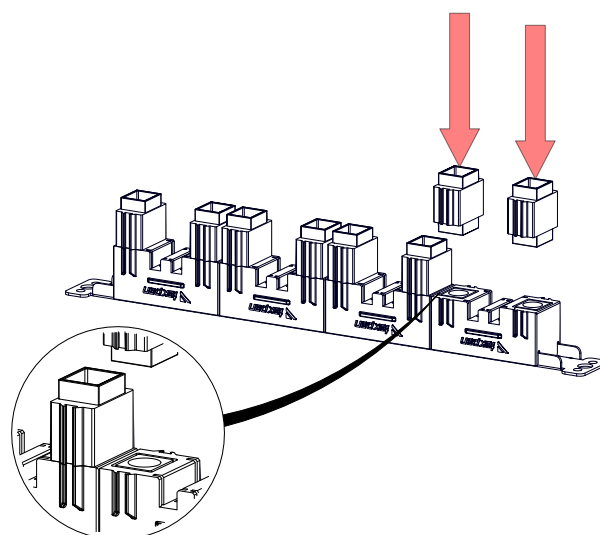
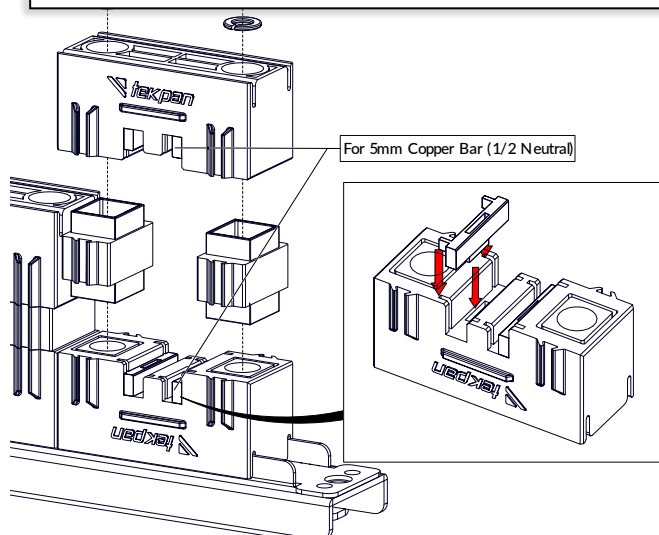
Required Packages:

1010.16X

1009.0XX/1011.XXX/1019.0XX



If 1/2 Section Neutral Copper Bar thickness is 5mm, Adapter must be used.



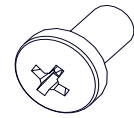
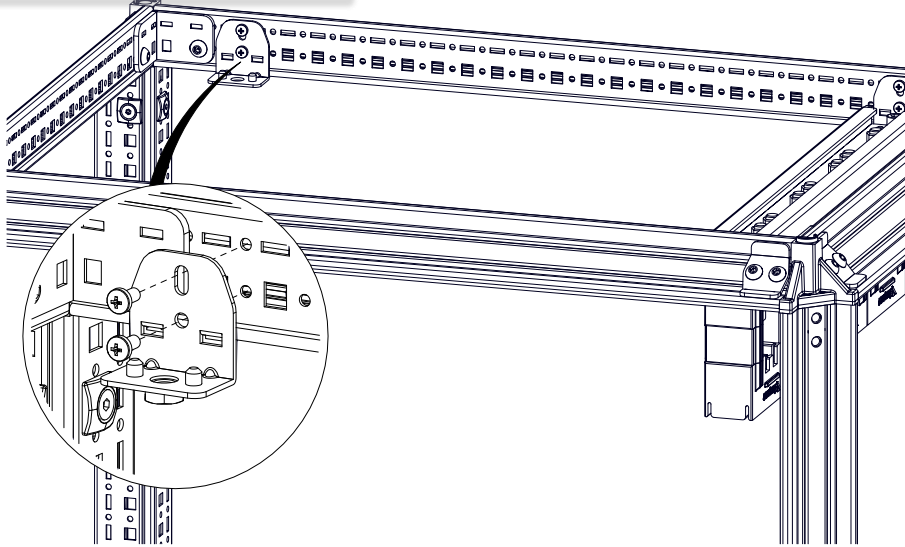


## 1.2 TWO (2) FLAT BAR ASSEMBLY

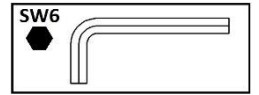
### Required Packages:

1010.16X

1009.0XX/1011.XXX/1019.0XX

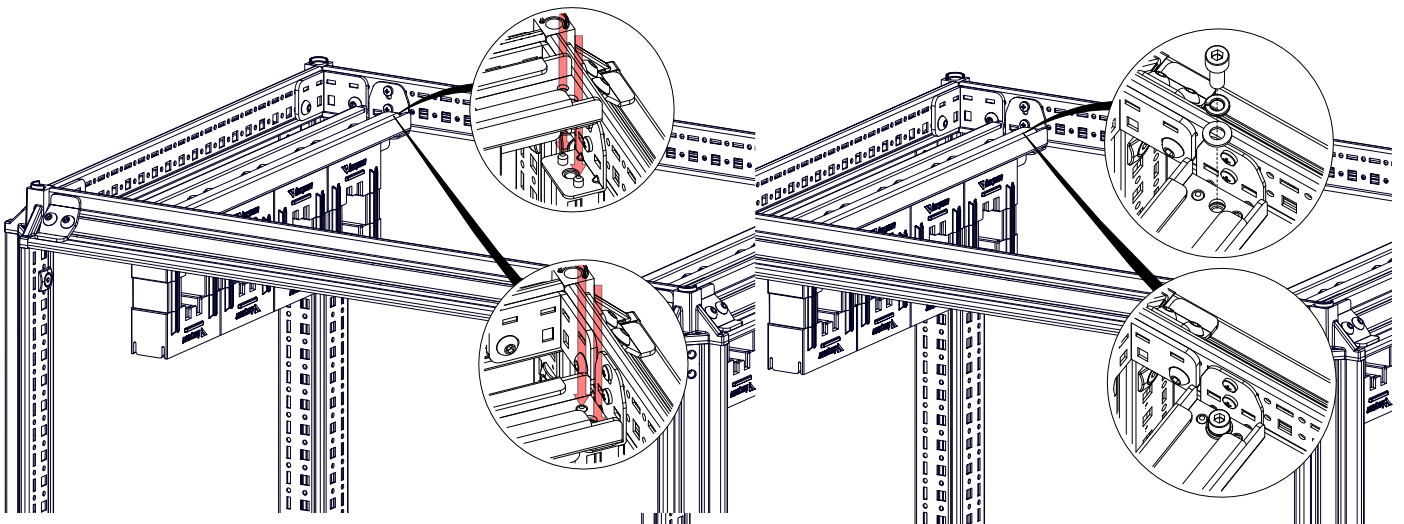
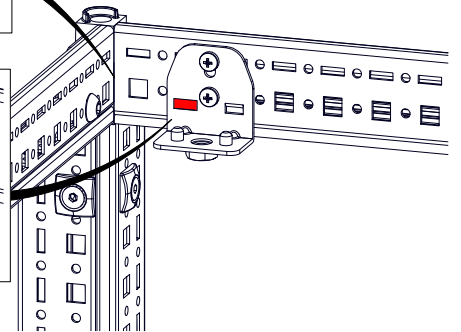
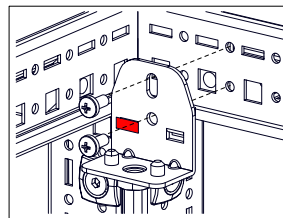
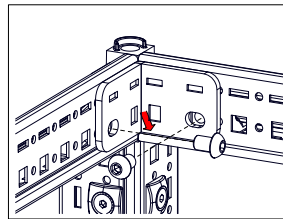
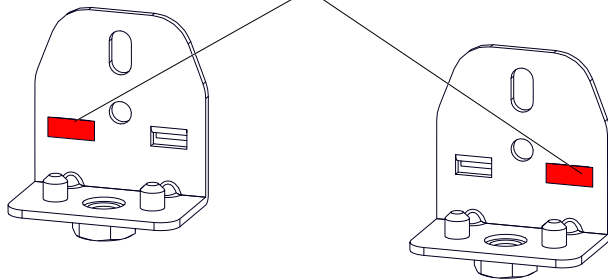


M5X10

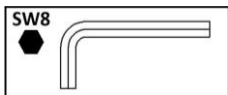
M8x20  
1 pcs.M8  
1 pcs.M8  
1 pcs.

For 85kA ACB Module assemblies are using bottom steps if ACB Copper Connections do not fit.

Flatten with Hammer (2x Each Bracket)



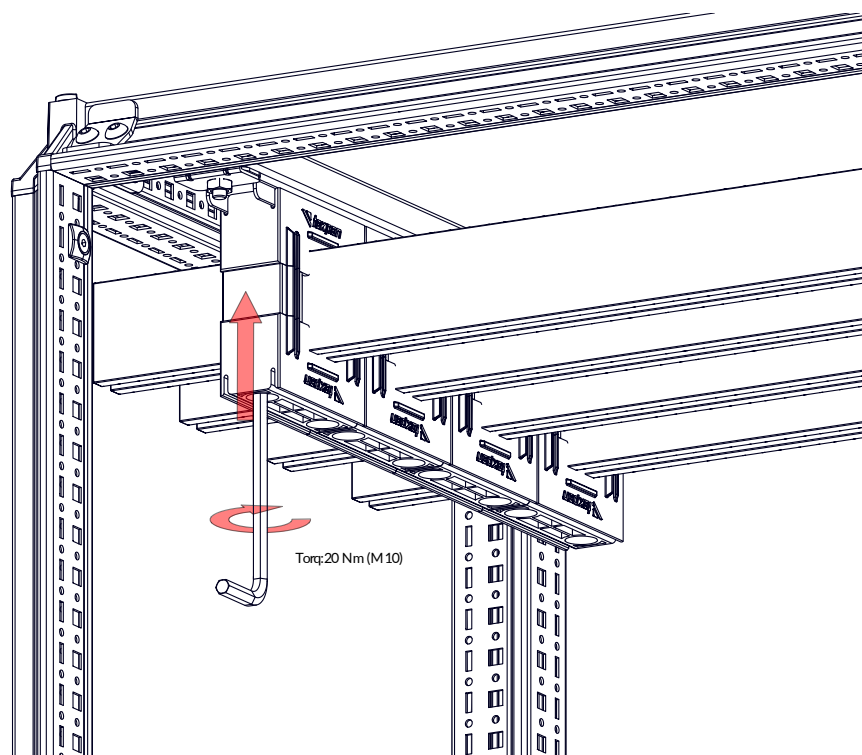
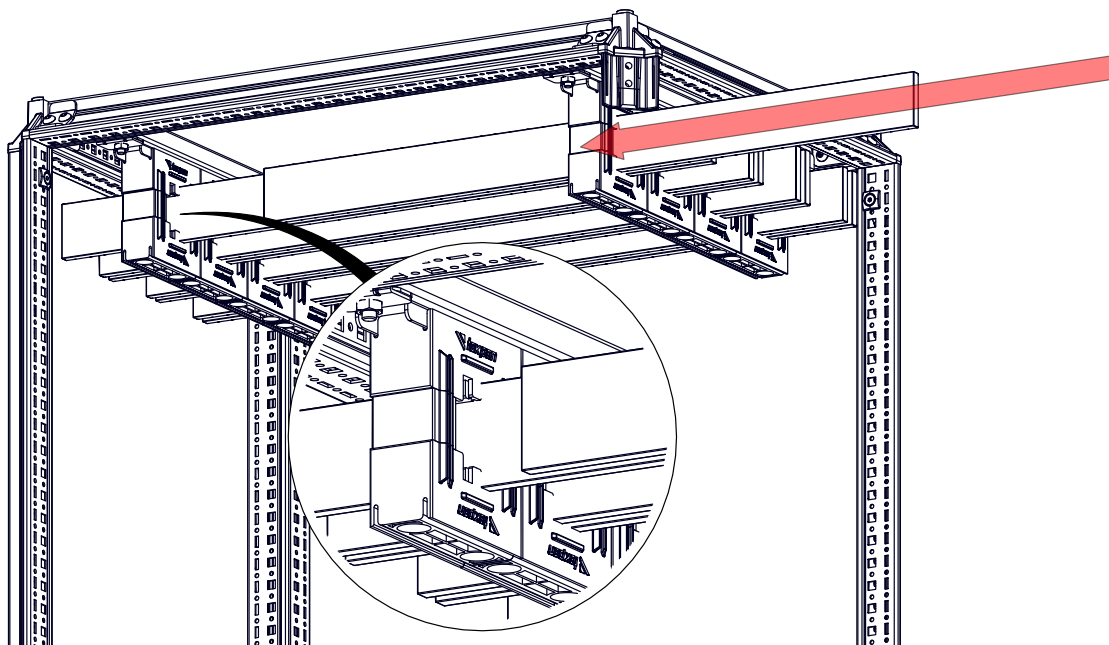
## ■ 1.2 TWO (2) FLAT BAR ASSEMBLY



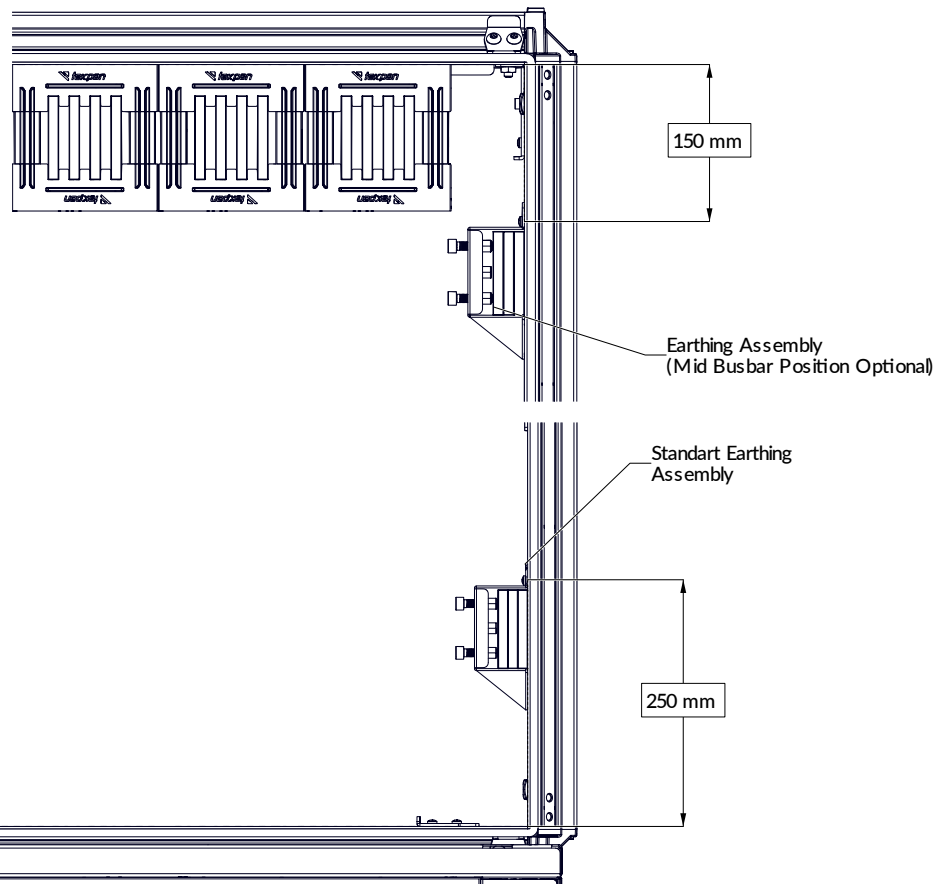
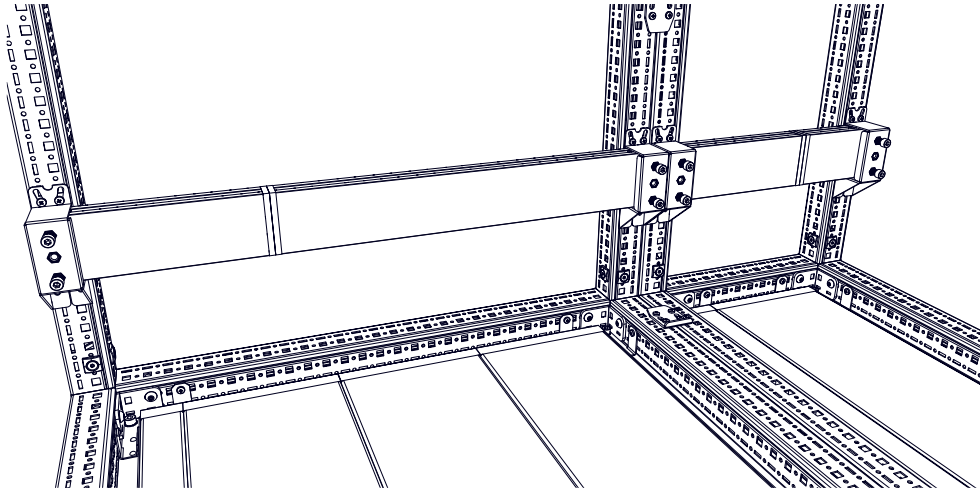
For 65kA and 85kA assemblies are using same steps.

65 kA safety distance between busbar holders Max. 550mm

85 kA safety distance between busbar holders Max. 400mm for ACB Modules



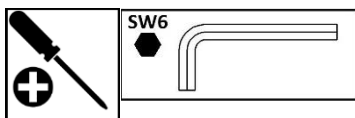
## 2. EARTHING BAR ASSEMBLY



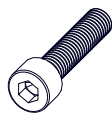
| Neutral<br>Section | Rated Current<br>(In) | Flat Copper Size (mm) xQty |
|--------------------|-----------------------|----------------------------|
|                    |                       | PE                         |
| 1/2 N              | 1350A                 | 20/5x2                     |
| 1/1 N              | 1350A                 | 40/5x2                     |
| 1/2 N              | 1620A                 | 25/5x2                     |
| 1/1 N              | 1620A                 | 50/5x2                     |
| 1/2 N              | 1860A                 | 30/5x2                     |
| 1/1 N              | 1860A                 | 60/5x2                     |
| 1/2 N              | 2300A                 | 40/5x2                     |
| 1/1 N              | 2300A                 | 40/10x2                    |

| Neutral<br>Section | Rated Current<br>(In) | Flat Copper Size (mm) xQty |
|--------------------|-----------------------|----------------------------|
|                    |                       | PE                         |
| 1/2 N              | 2500A                 | 40/5x2                     |
| 1/1 N              | 2500A                 | 40/10x2                    |
| 1/2 N              | 3000A                 | 50/5x2                     |
| 1/1 N              | 3000A                 | 50/10x2                    |
| 1/2 N              | 3400A                 | 60/5x2                     |
| 1/1 N              | 3400A                 | 60/10x2                    |
| 1/2 N              | 4000A                 | 40/10x2                    |
| 1/1 N              | 4000A                 | 80/10x2                    |

2. EARTHING BAR ASSEMBLY



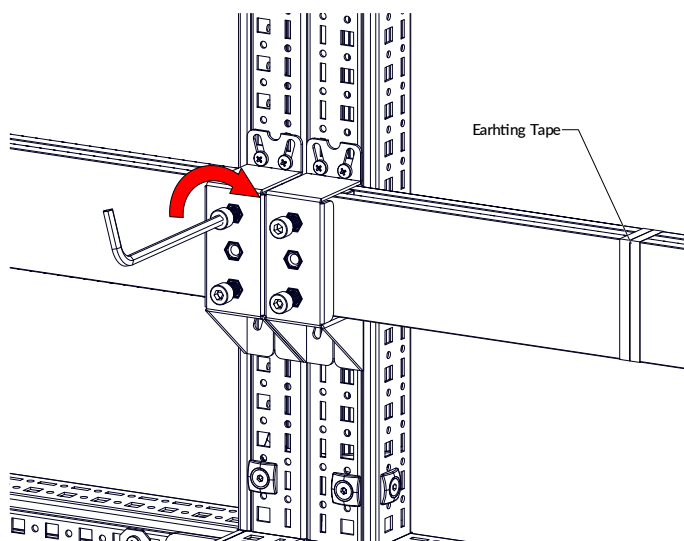
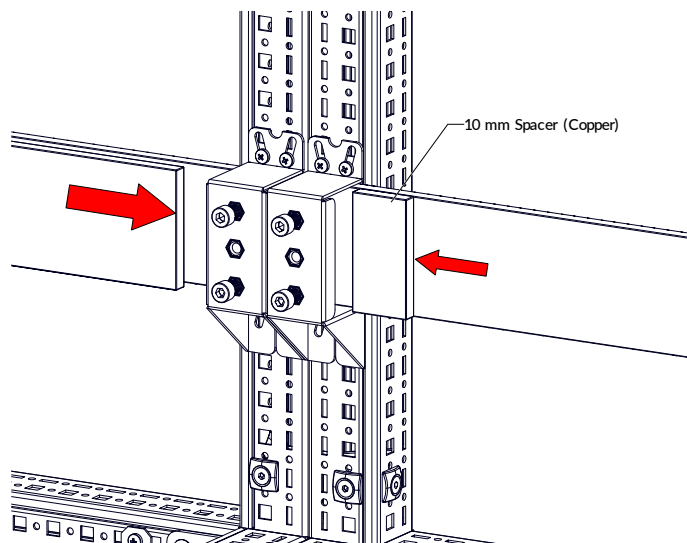
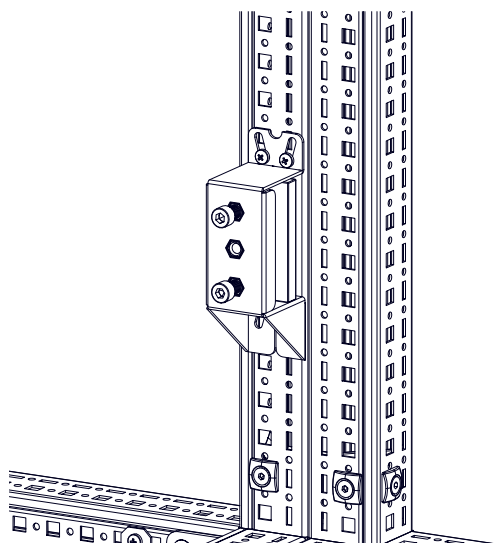
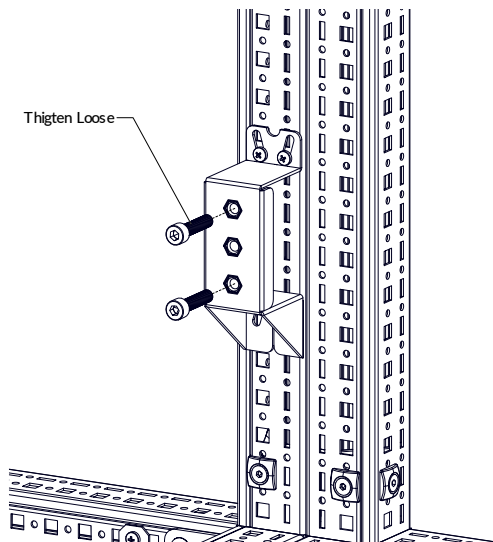
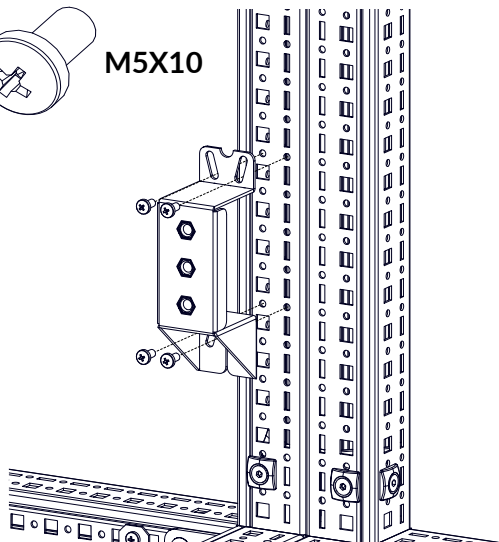
Required Packages:  
1012.0XX



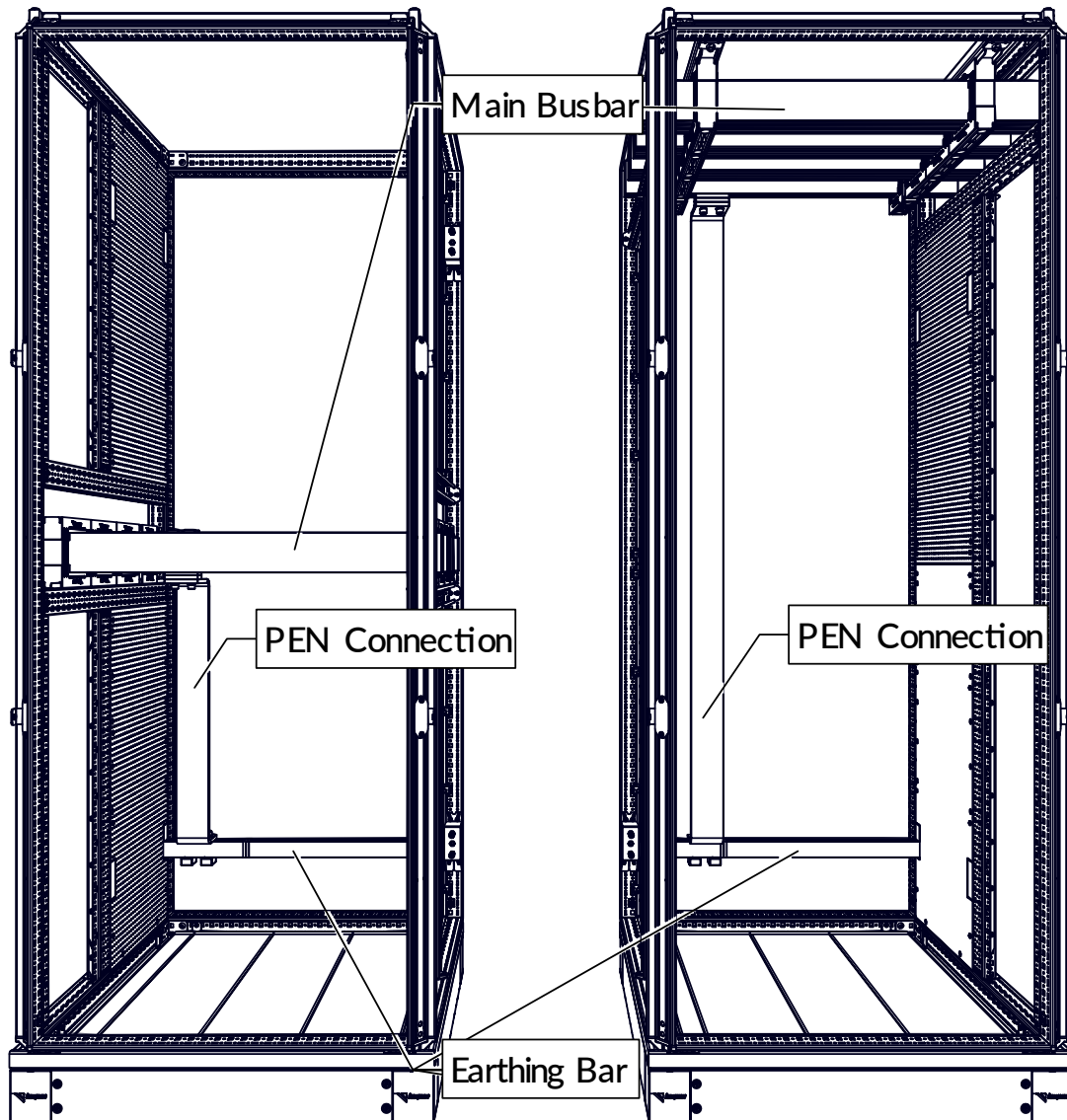
M8x25/35



M5X10

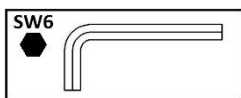


### 3. PEN BAR ASSEMBLY



| Neutral Section | Rated Current (In) | Flat Copper Size (mm) xQty |        |
|-----------------|--------------------|----------------------------|--------|
|                 |                    | Neutral(N)                 | PE     |
| 1/2 N           | 1350A              | 40/5x2                     | 20/5x2 |
| 1/2 N           | 1620A              | 50/5x2                     | 25/5x2 |
| 1/2 N           | 1860A              | 60/5x2                     | 30/5x2 |
| 1/2 N           | 2300A              | 40/10x2                    | 40/5x2 |

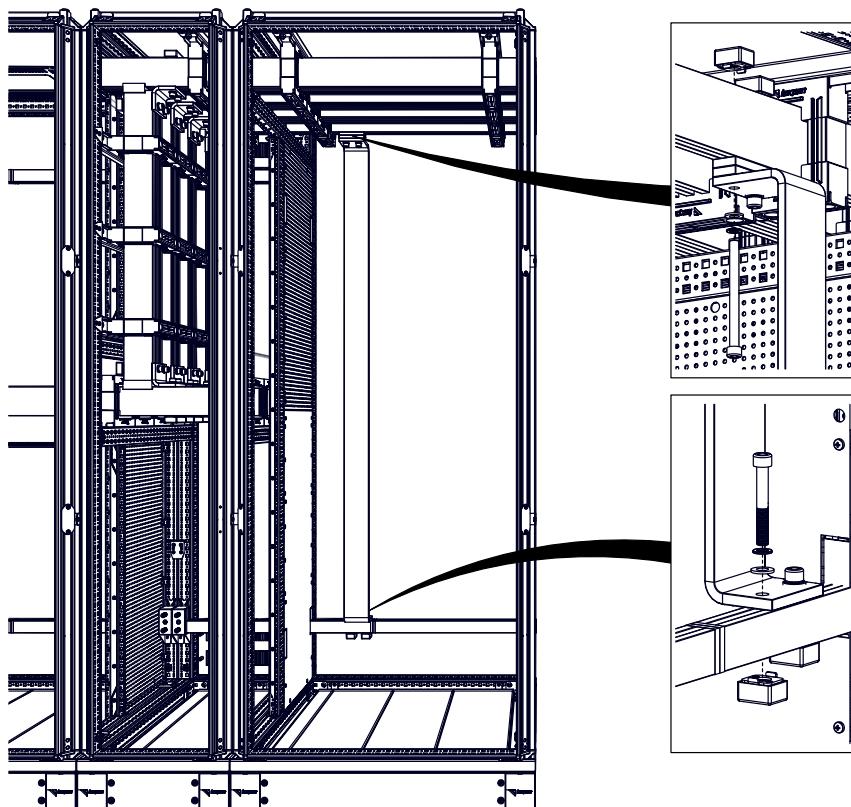
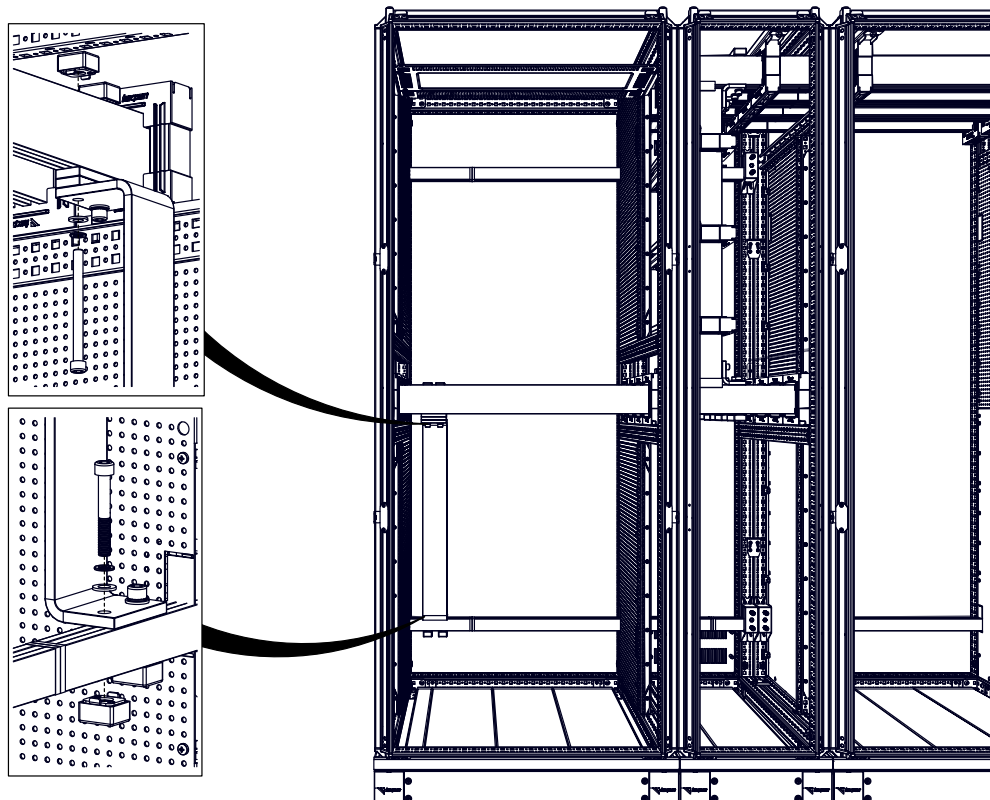
| Neutral Section | Rated Current (In) | Flat Copper Size (mm) xQty |         |
|-----------------|--------------------|----------------------------|---------|
|                 |                    | L1/L2/L3                   | PE      |
| 1/2 N           | 2500A              | 40/10x4                    | 40/5x2  |
| 1/2 N           | 3000A              | 50/10x4                    | 50/5x2  |
| 1/2 N           | 3400A              | 60/10x4                    | 60/5x2  |
| 1/2 N           | 4000A              | 80/10x4                    | 40/10x2 |

**3. PEN BAR ASSEMBLY**

Required Packages:  
1066.XXX



M8xH

**TOP BUSBAR-PEN CONNECTION****MID BUSBAR-PEN CONNECTION**



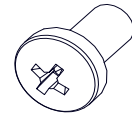
#### 4. SCISSILE RAIL ASSEMBLY

**Required Packages:**

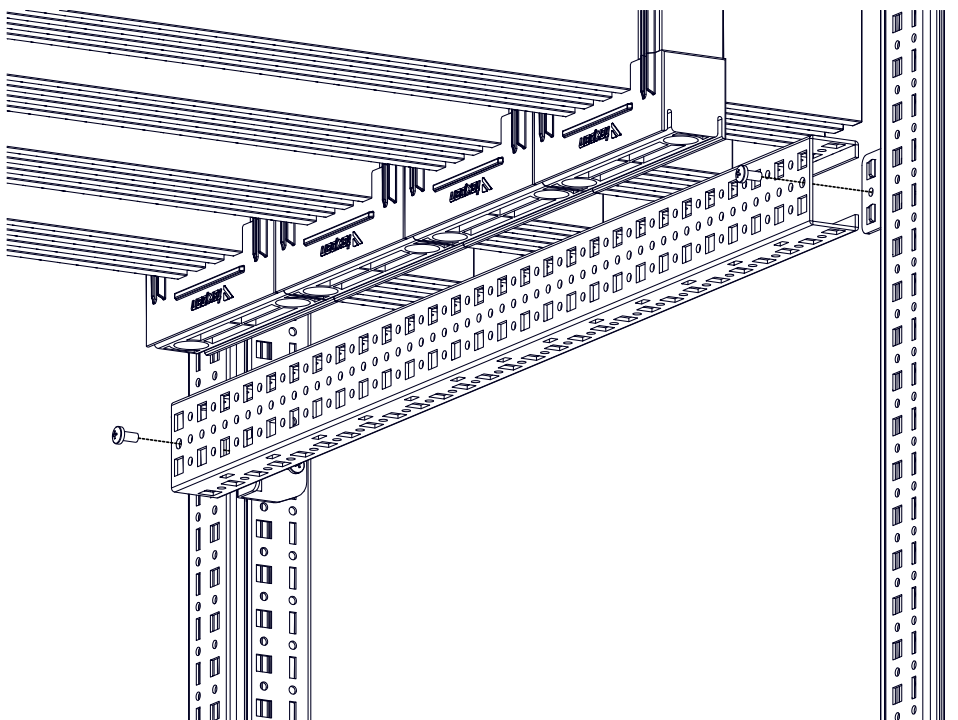
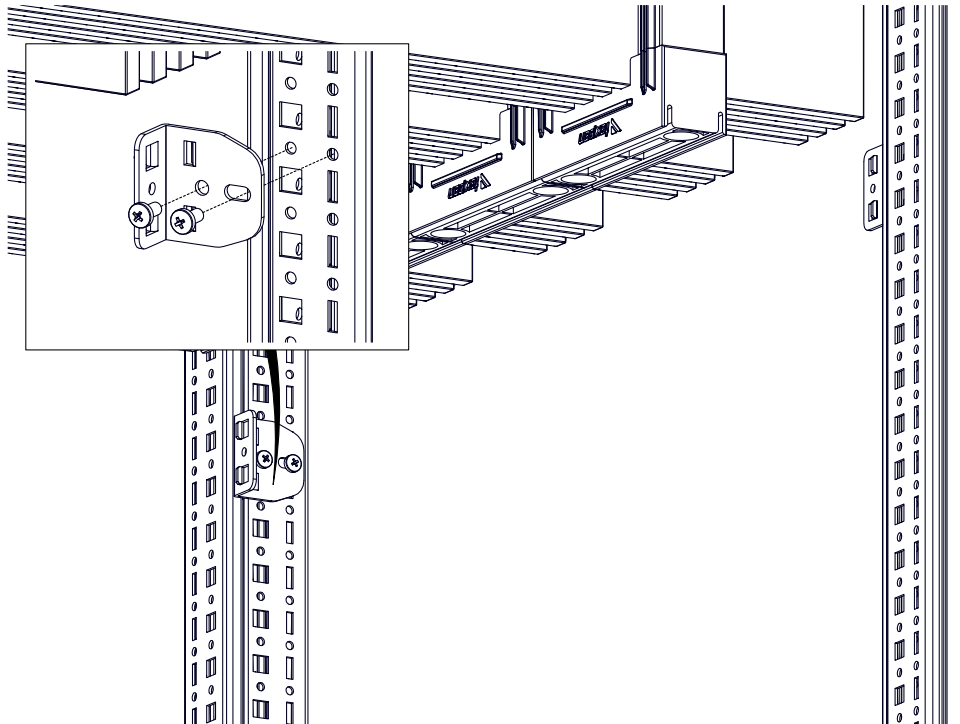
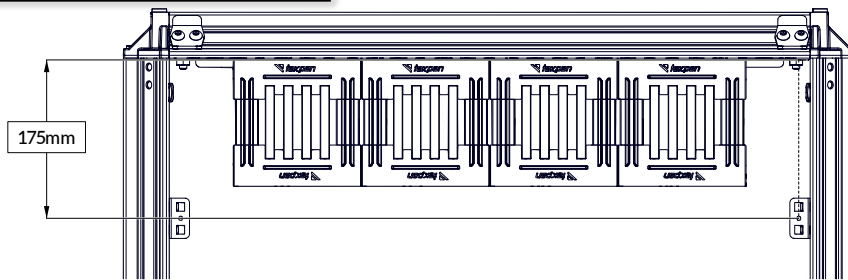
600D:944.424

800D:944.425

Brackets:944.42X



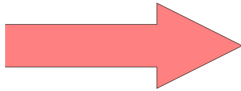
M5X10



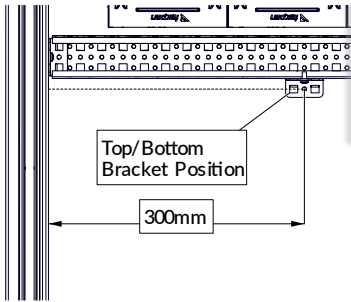
4. SCISSILE RAIL ASSEMBLY



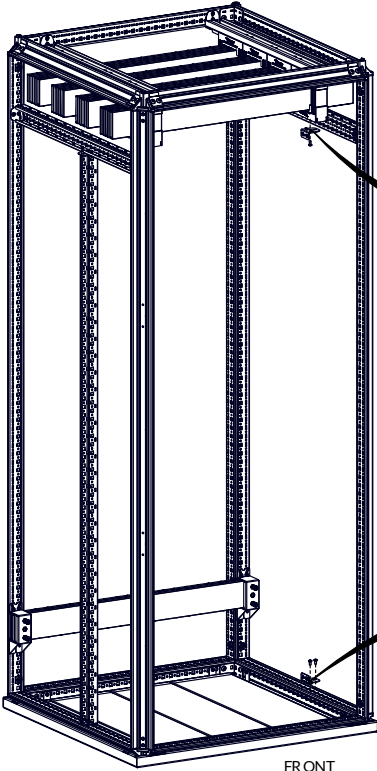
M5X10



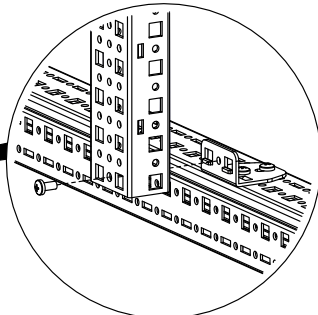
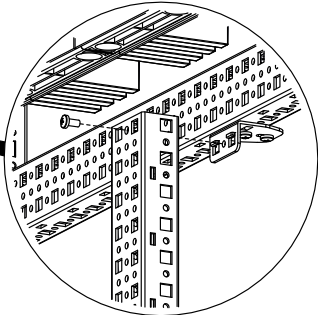
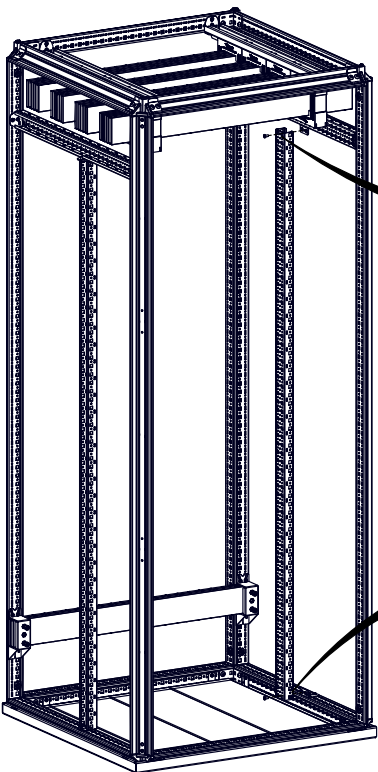
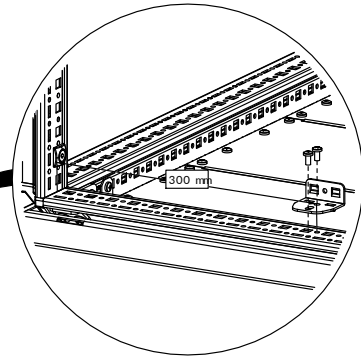
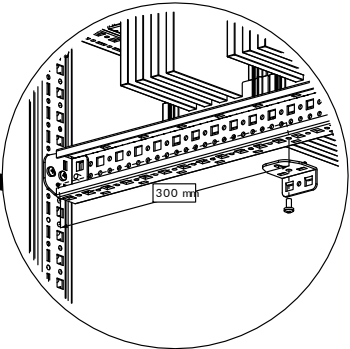
FRONT



Required Packages:  
Height:944.429  
Brackets:944.42X



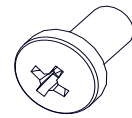
FRONT



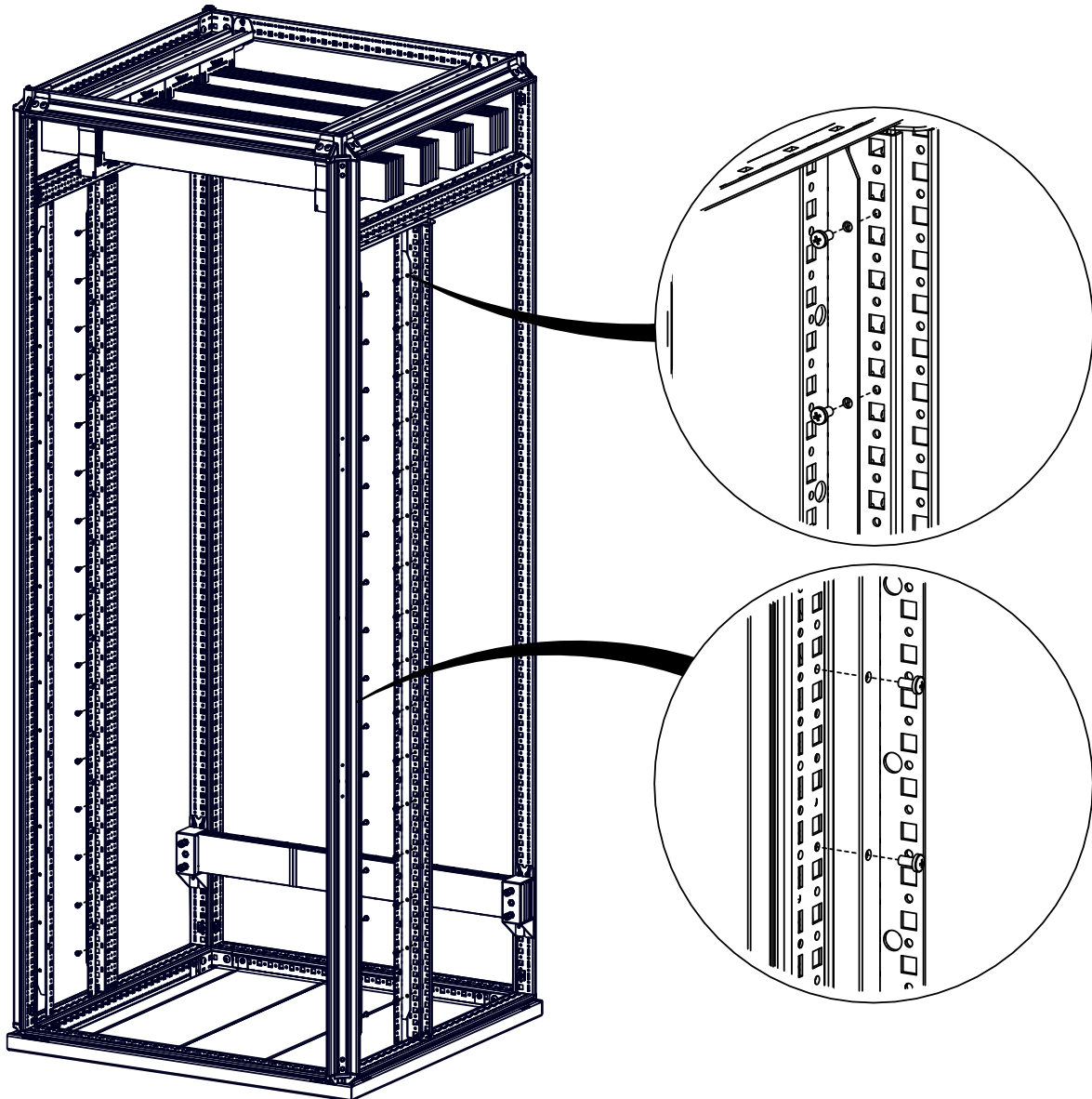


**5. SYSTEM-2 PROFILE ASSEMBLY**

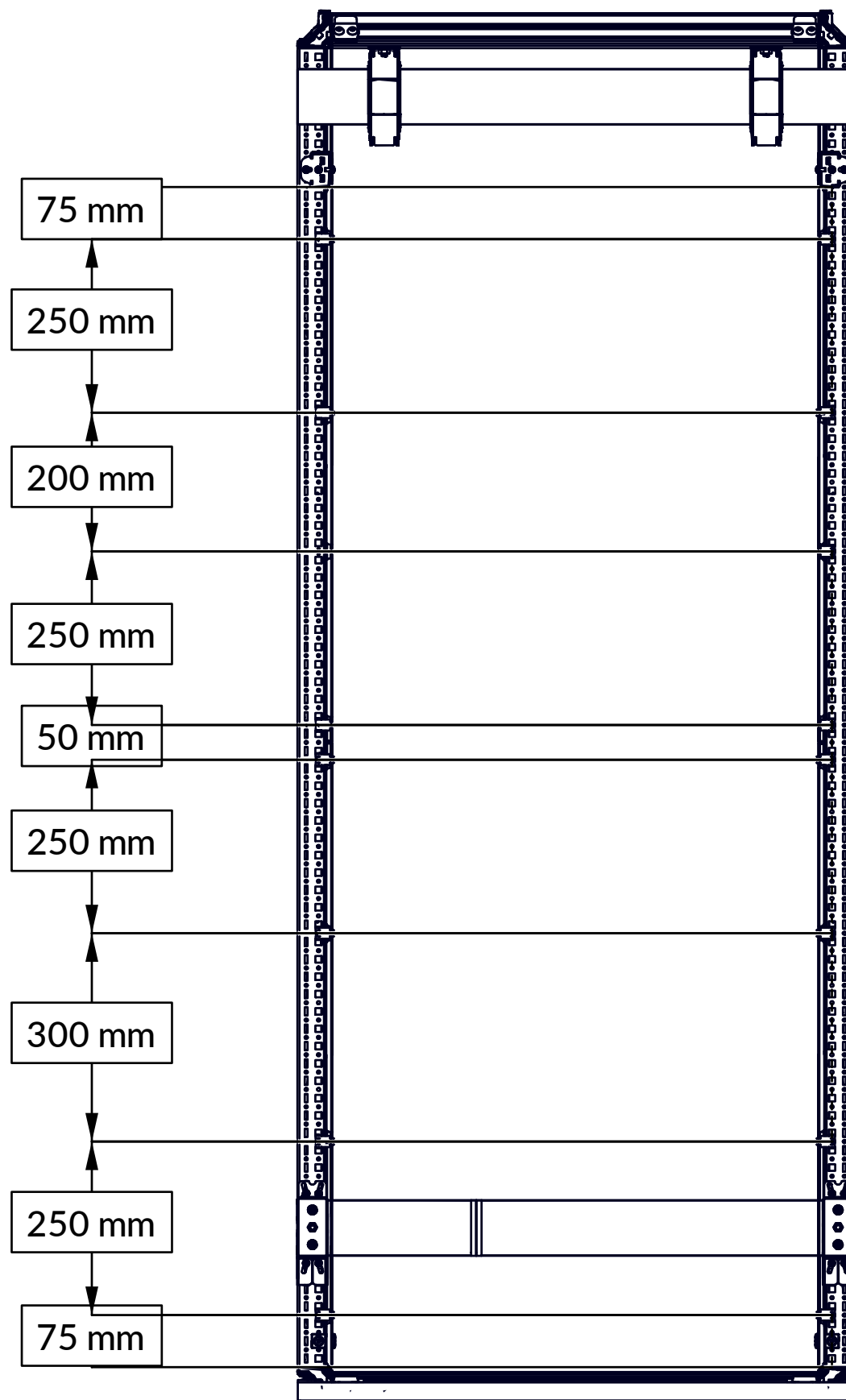
Required Packages:  
1006.X18



M5X10



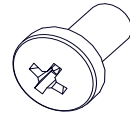
## 6. SYSTEM-2 REAR SEPARATION COVER ASSEMBLY



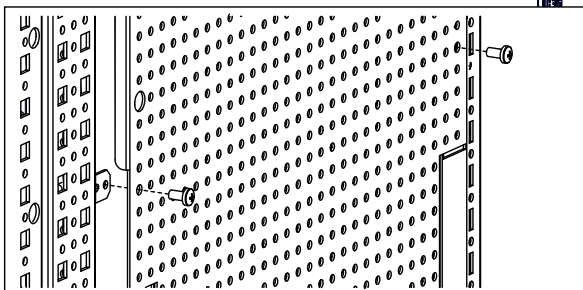
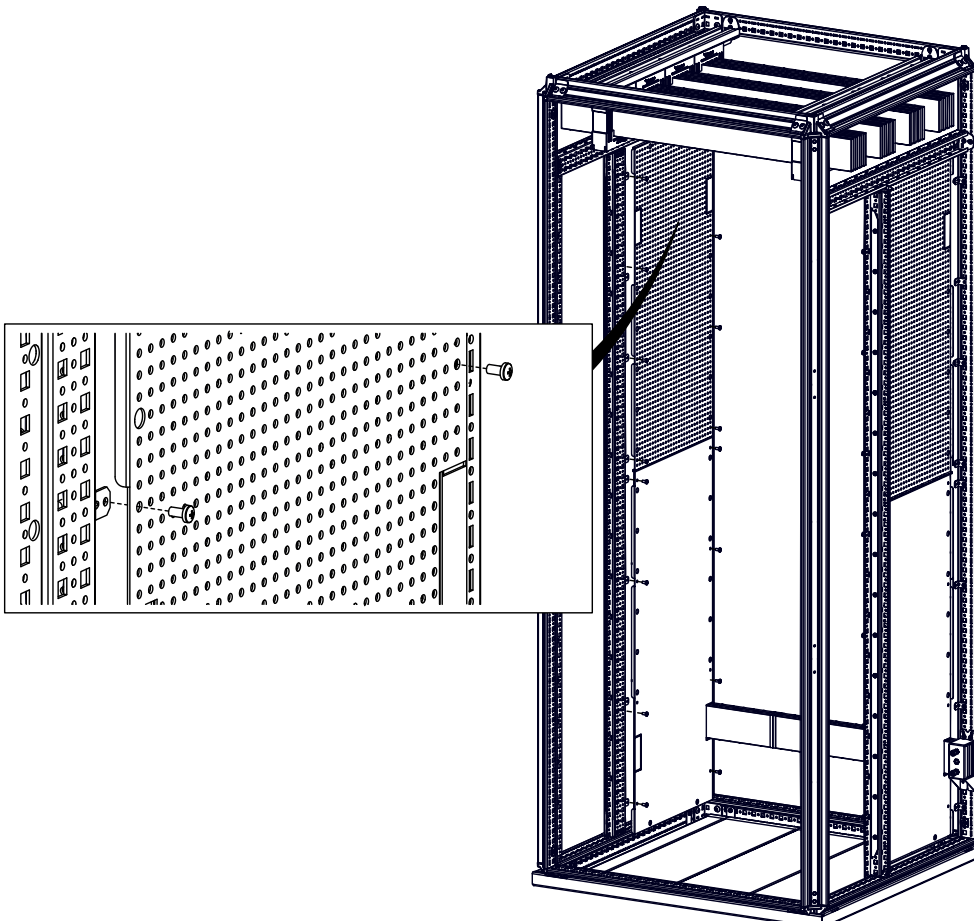
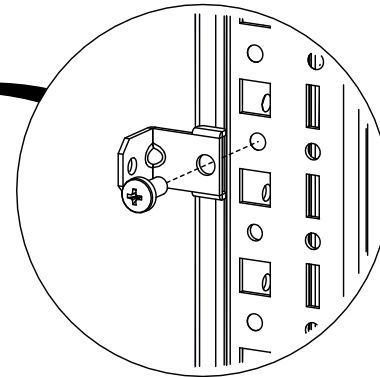
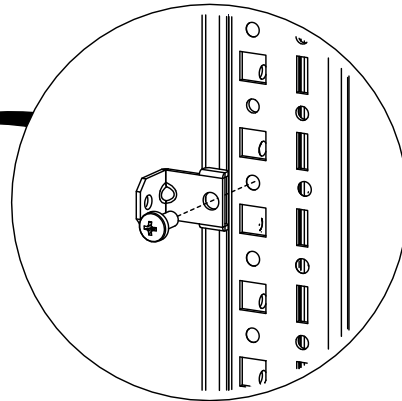
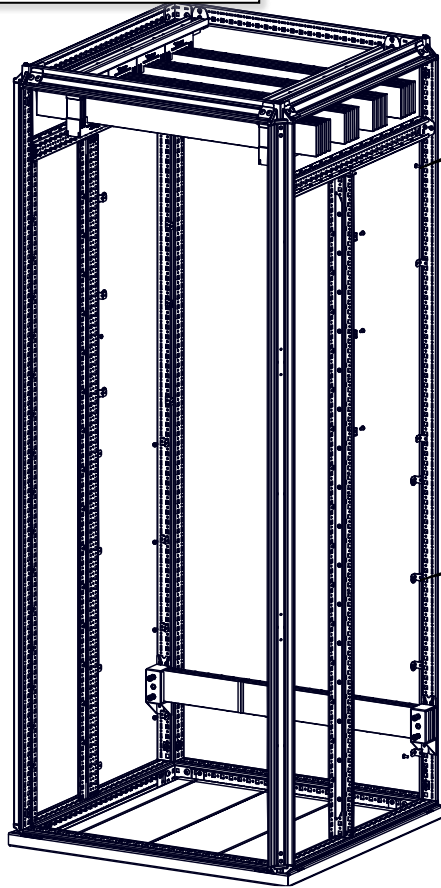
**6. SYSTEM-2 REAR SEPARATION COVER ASSEMBLY****Required Packages:**

600D:1014.685/1014.690

800D:1014.885/1014.890



M5X10

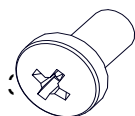


## 7. BUSBAR SEPARATION SHELF-FRONT COVER ASSEMBLY

### 7.1 BUSBAR SEPARATION SHELF ASSEMBLY



**Warning:** This assembly step must be apply after cassette assembly (internal part assembly).

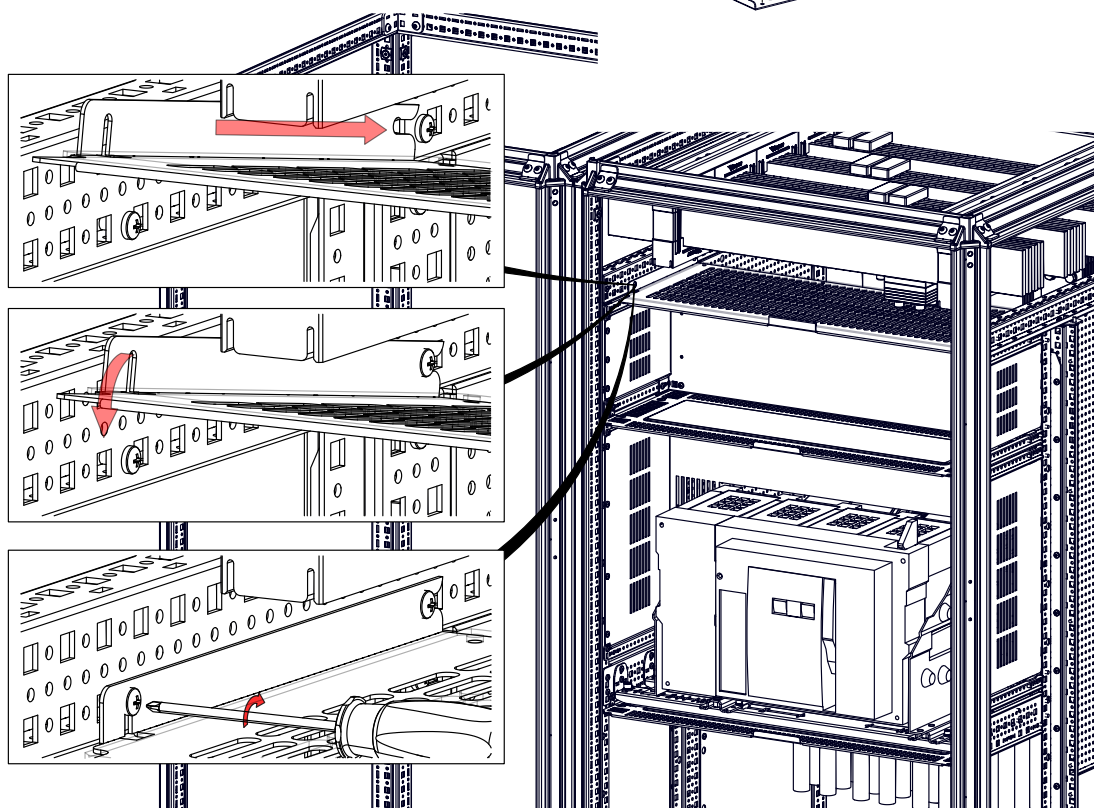
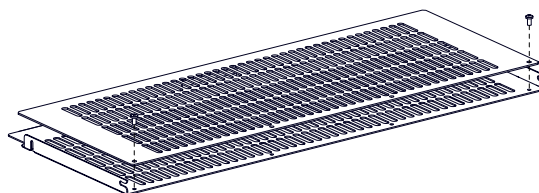
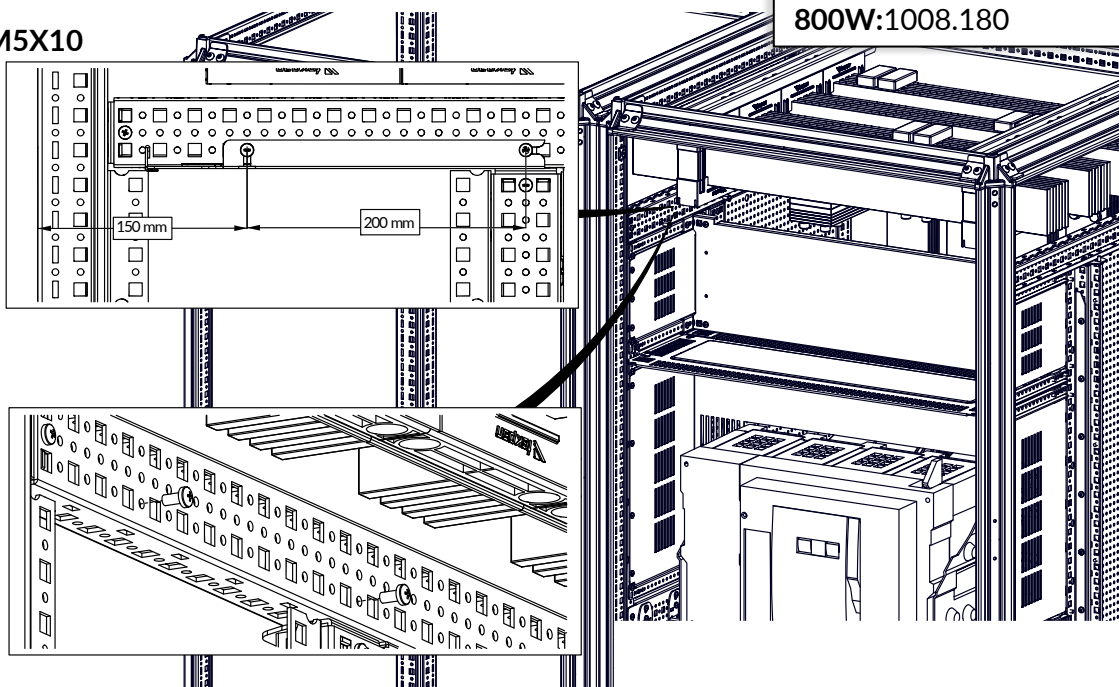


M5X10

Required Packages:

600W:1008.160

800W:1008.180

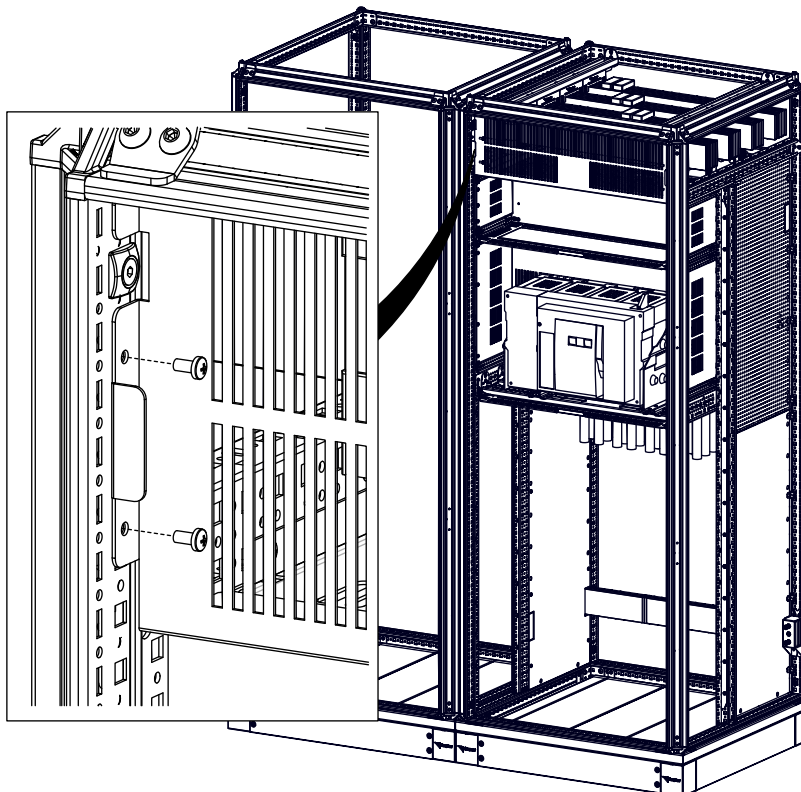
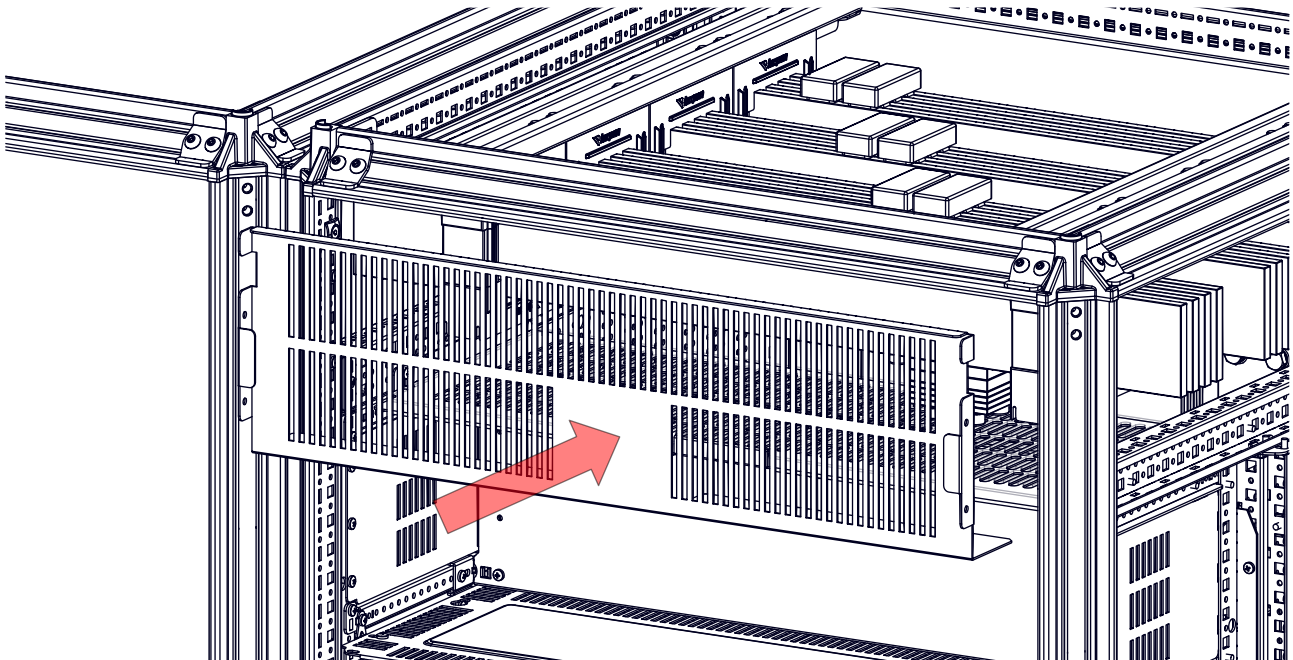


## 7.2 BUSBAR SEPARATION COVER ASSEMBLY

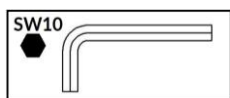
## Required Packages:

600W:1013.060

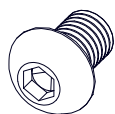
800W:1013.080

M5X10  
4 pcs.

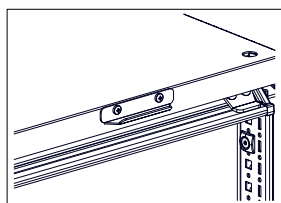


**8. TOP COVER ASSEMBLY**

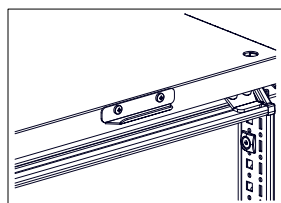
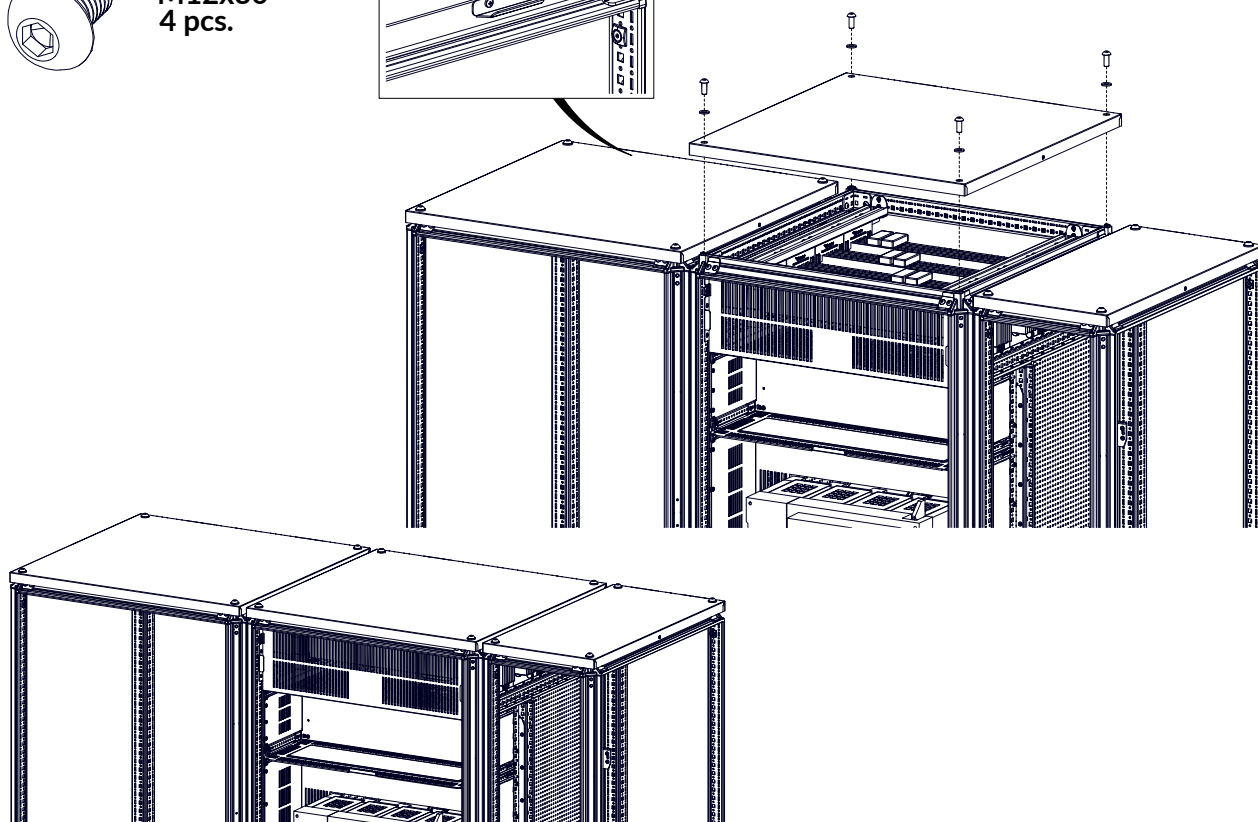
**Warning:** This assembly step must be applied after cassette assembly (internal part assembly).



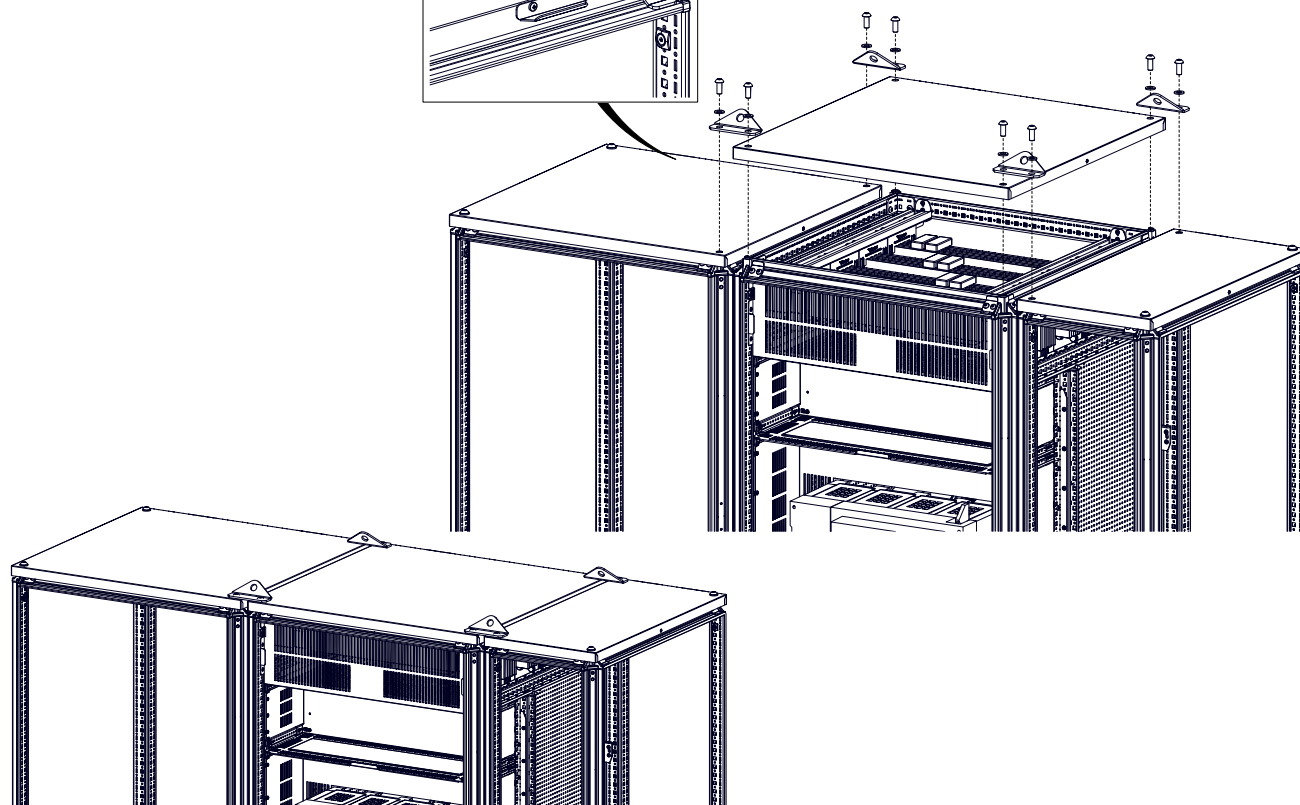
M12x30  
4 pcs.



Without Baying Kit



With Baying Kit



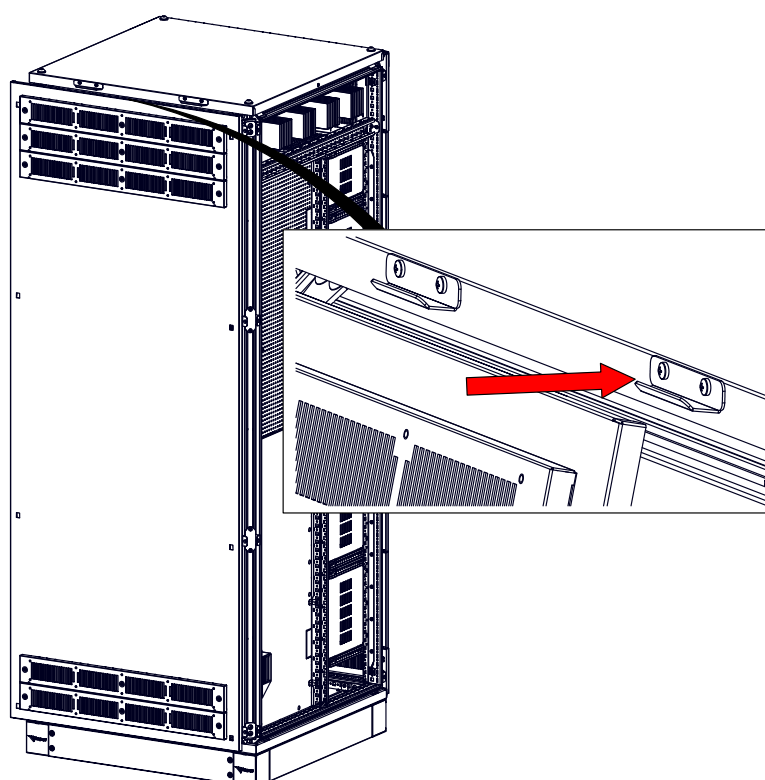
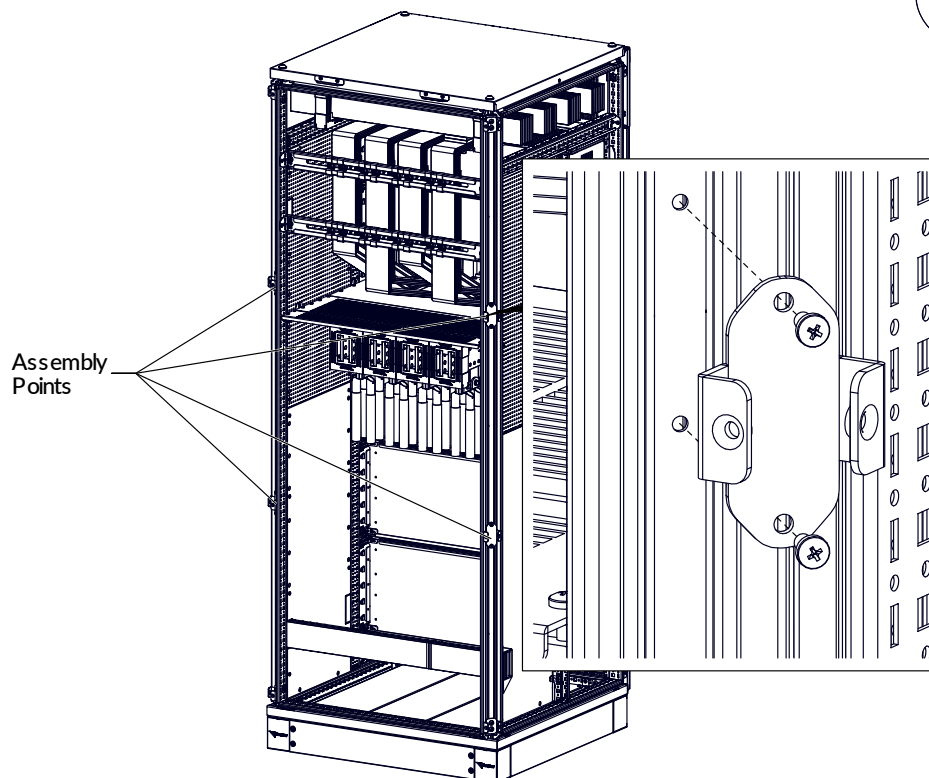
**9. REAR PANEL ASSEMBLY**

**Warning:** This assembly step must be applied after cassette assembly (internal part assembly).

Required Packages:  
1003.X20



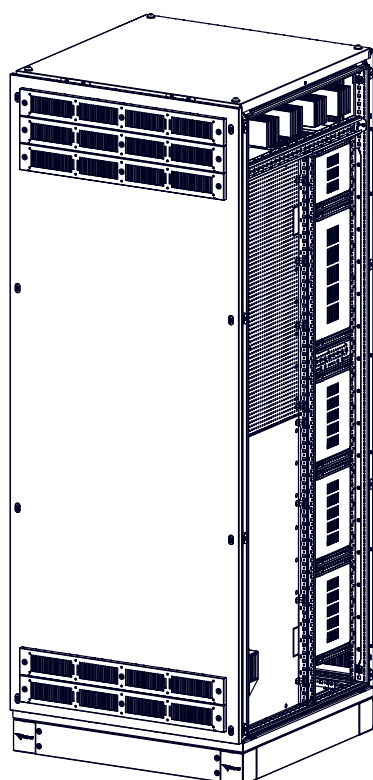
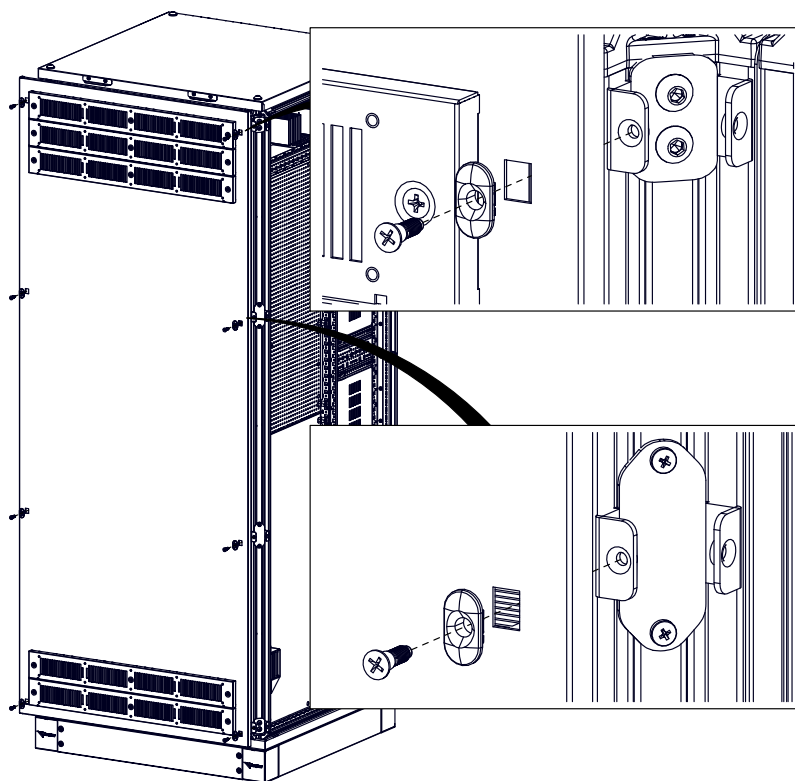
M5X10



**9. REAR PANEL ASSEMBLY**

M6x23  
8 pcs.

Required Packages:  
1003.X20



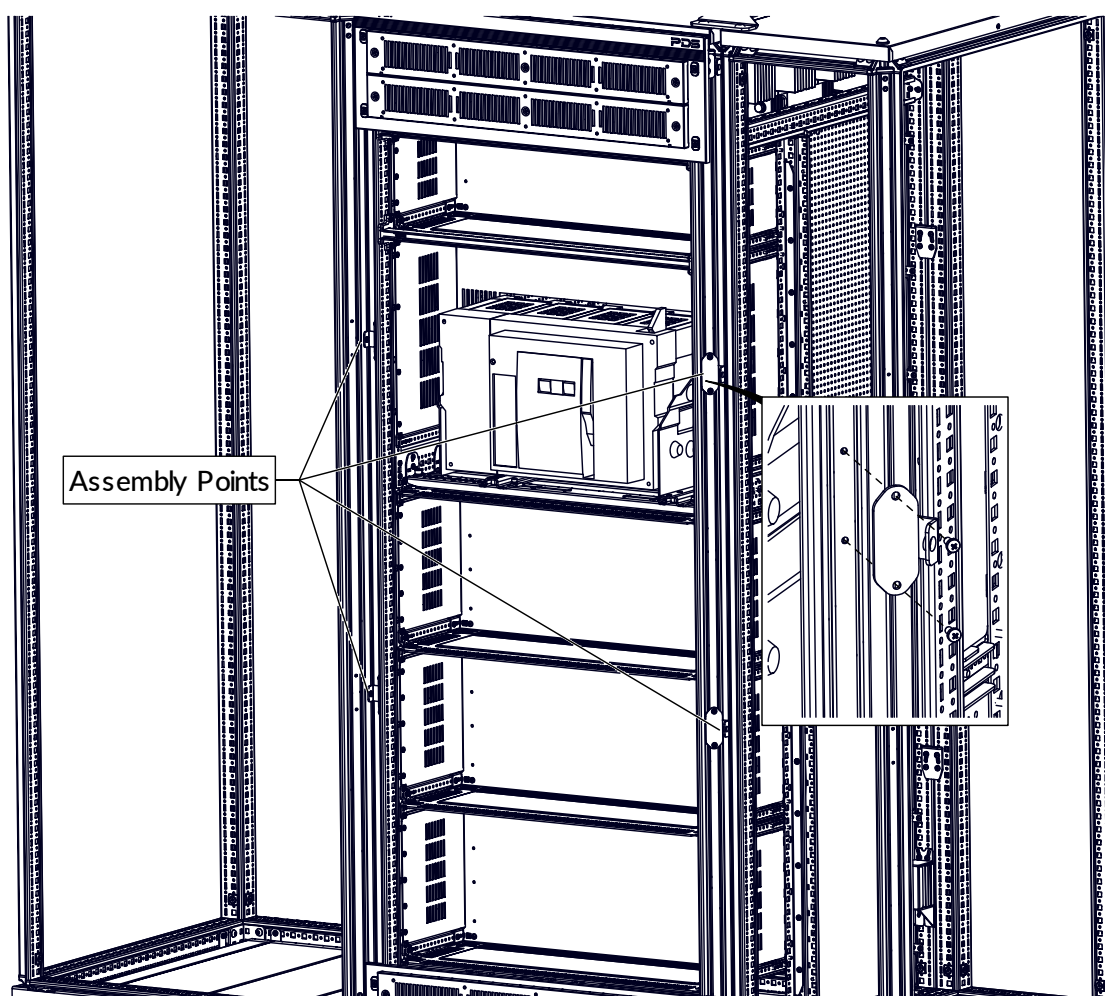


**10. EXTERNAL PARTIAL DOOR ASSEMBLY****10.1 PARTIAL DOOR BRACKET ASSEMBLY**

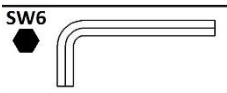
Required Packages:  
1003.001



M5X10  
8 pcs.

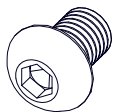


## 10.2 FIXED TOP PARTIAL COVER ASSEMBLY



**Warning:** This assembly step must apply after cassette assembly (internal part assembly).

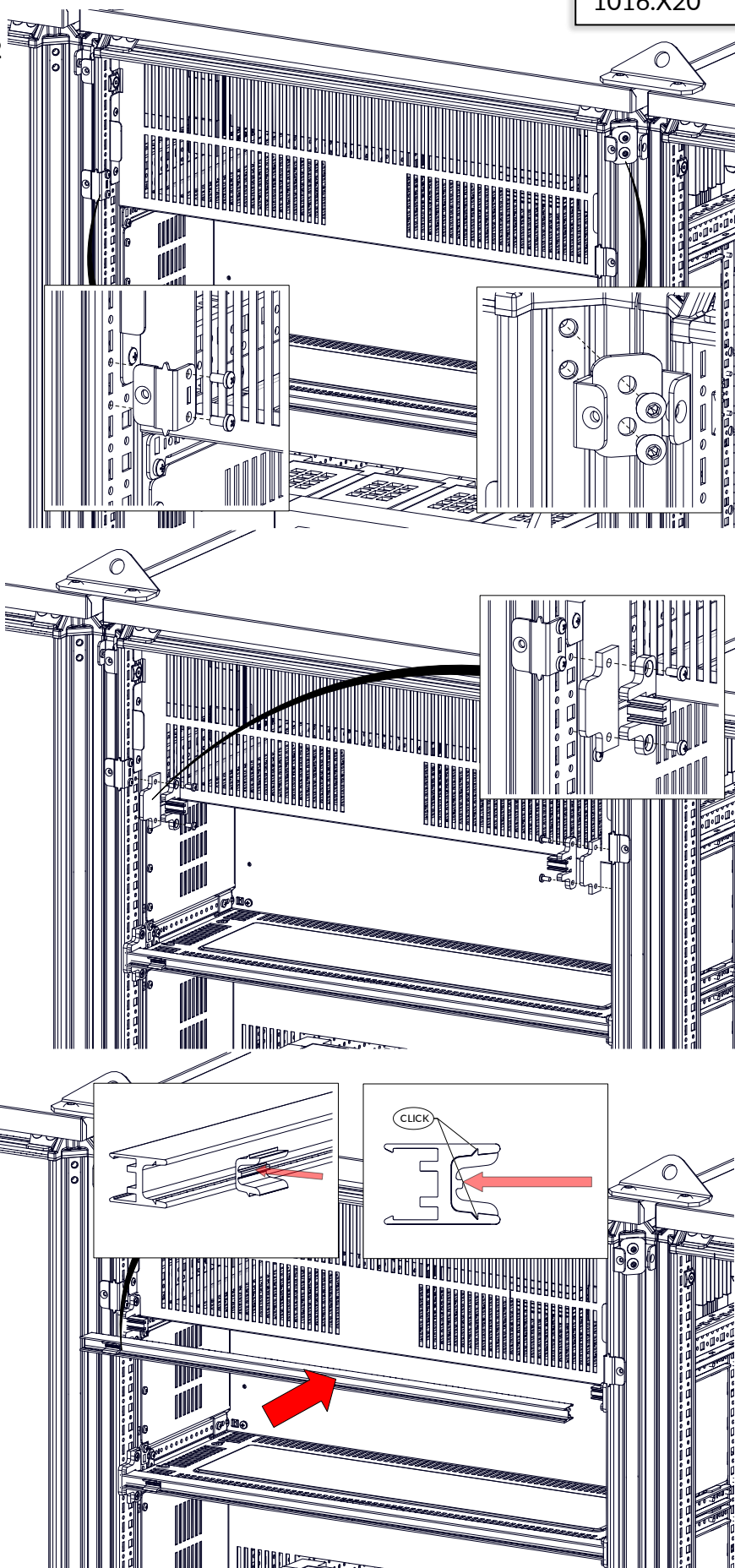
Required Packages:  
1016.X20



M8x12  
4 pcs.

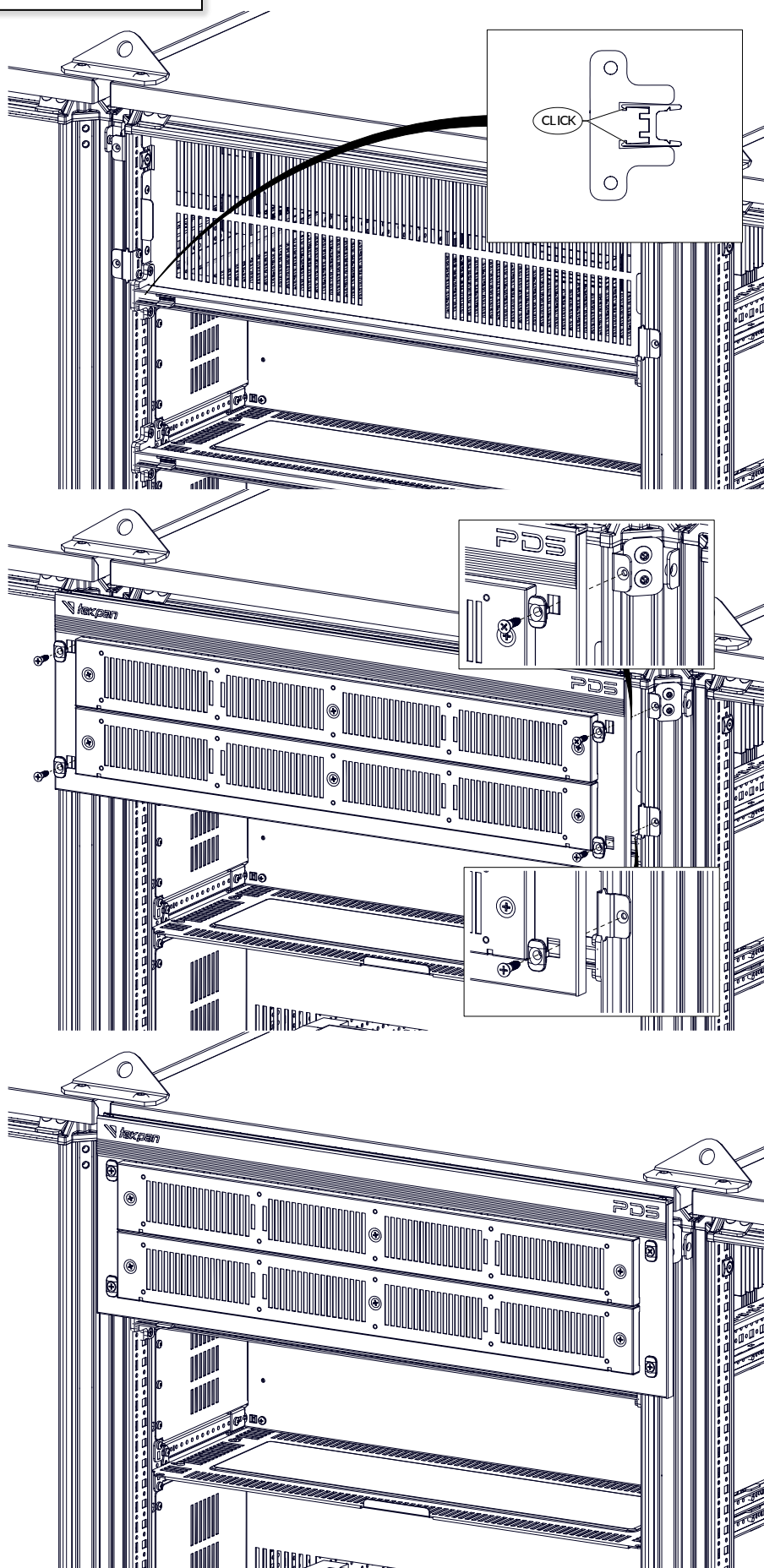


M5X10  
4 pcs.



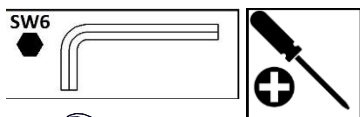
## 10.2 FIXED TOP PARTIAL COVER ASSEMBLY

Required Packages:  
1016.X20



M6x23  
4 pcs.

10.3 FIXED BOTTOM PARTIAL COVER ASSEMBLY

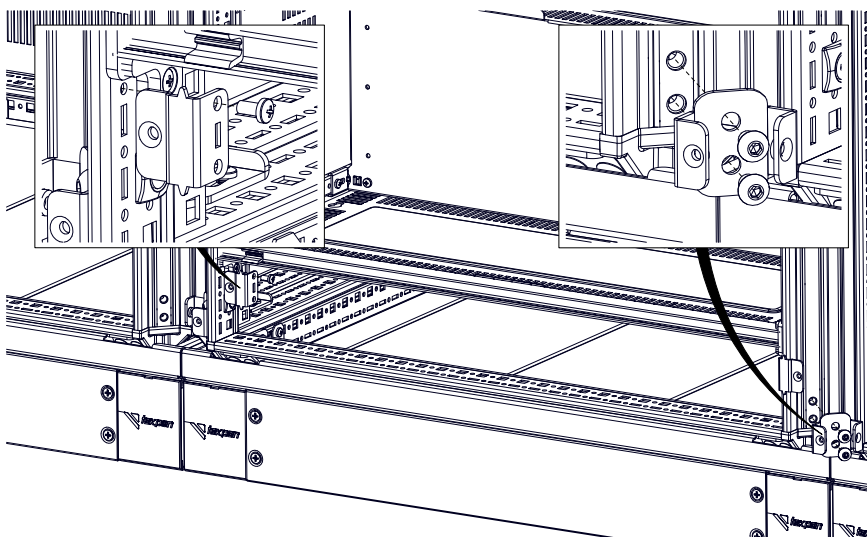


**Warning:** This assembly step must be apply after cassette assembly (internal part assembly).

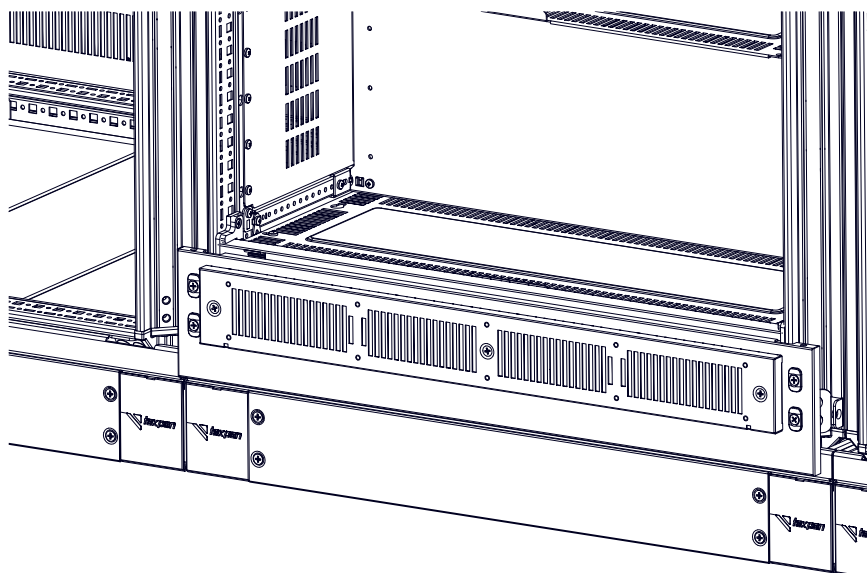
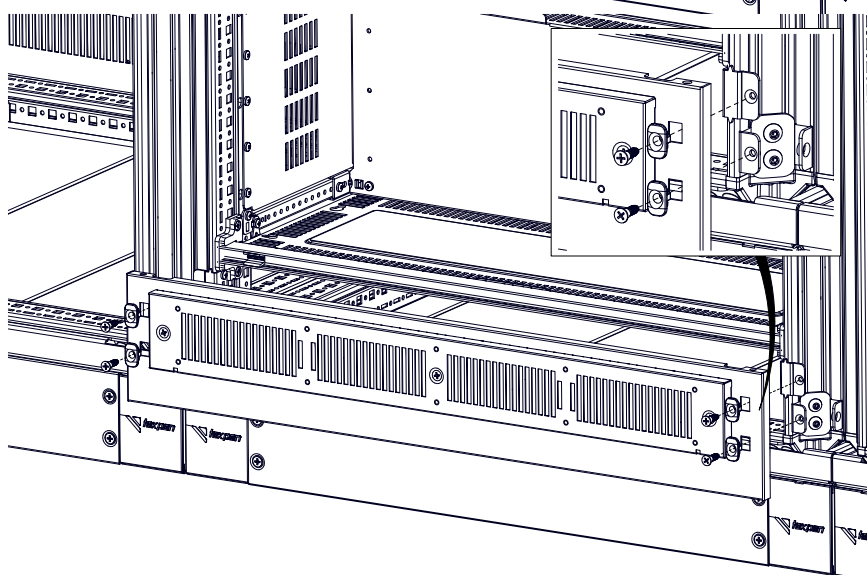
Required Packages:  
1018.XXX

M8x12  
4 pcs.

M5X10  
4 pcs.



M6x23  
4 pcs.





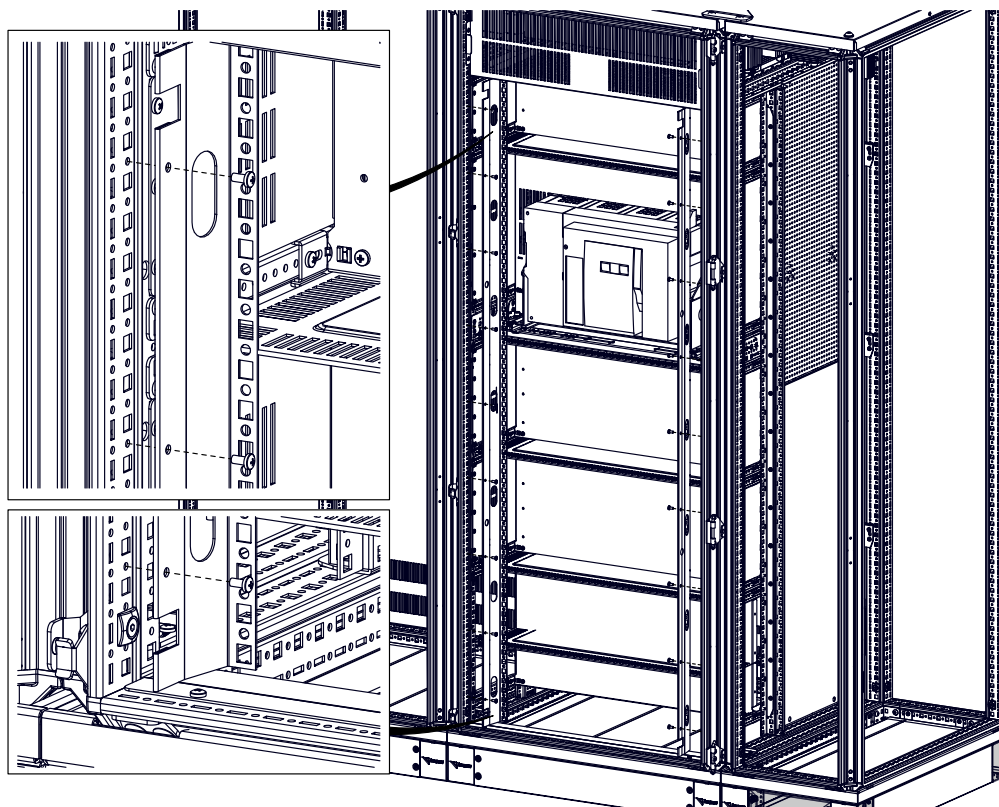
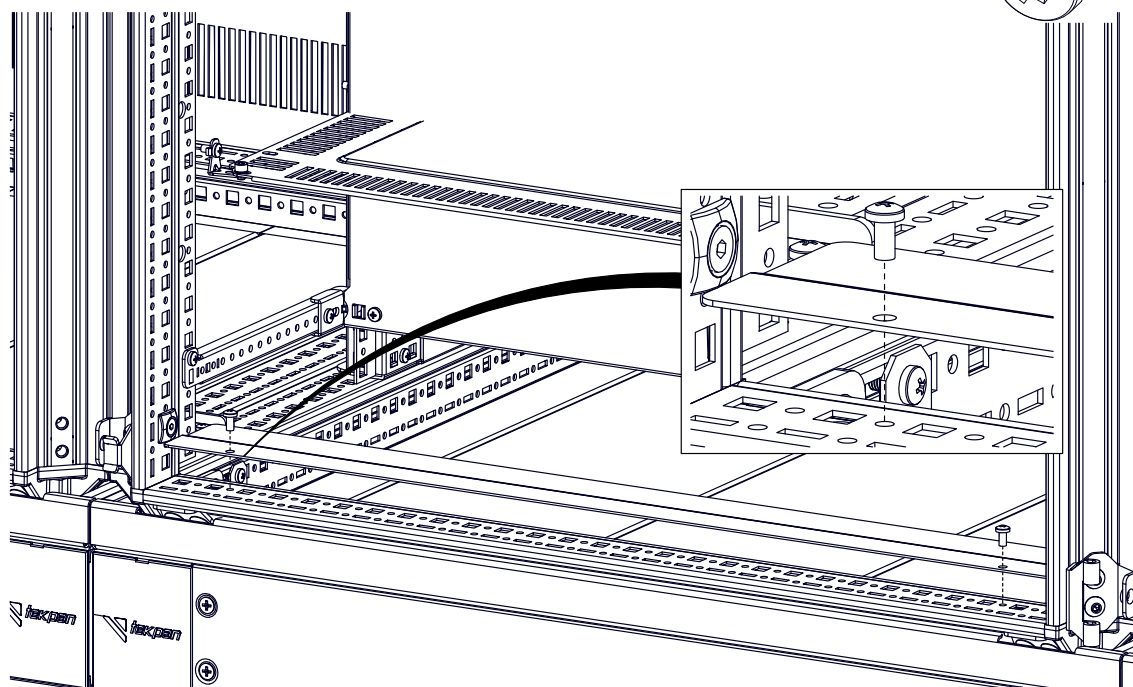
## 11. INTERNAL PANEL FRAME ASSEMBLY

**Warning:** This assembly step must be applied after cassette assembly (internal part assembly).

Required Packages:  
1007.X18



M5X10

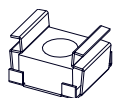
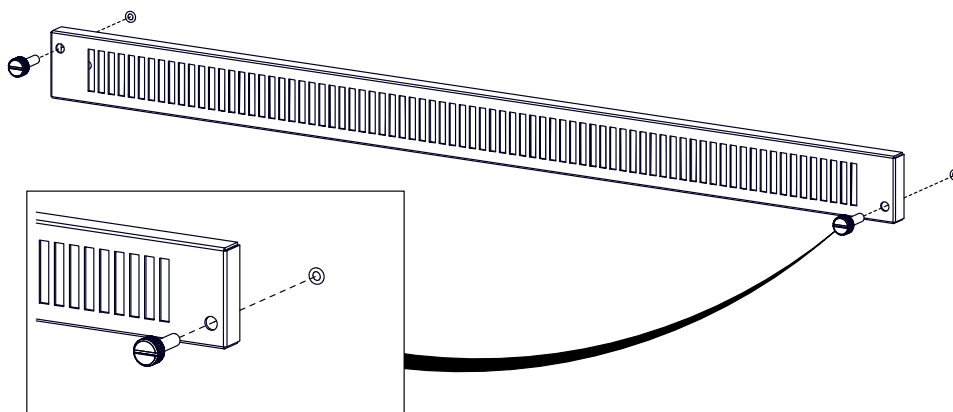


**11. INTERNAL PANEL FRAME ASSEMBLY**

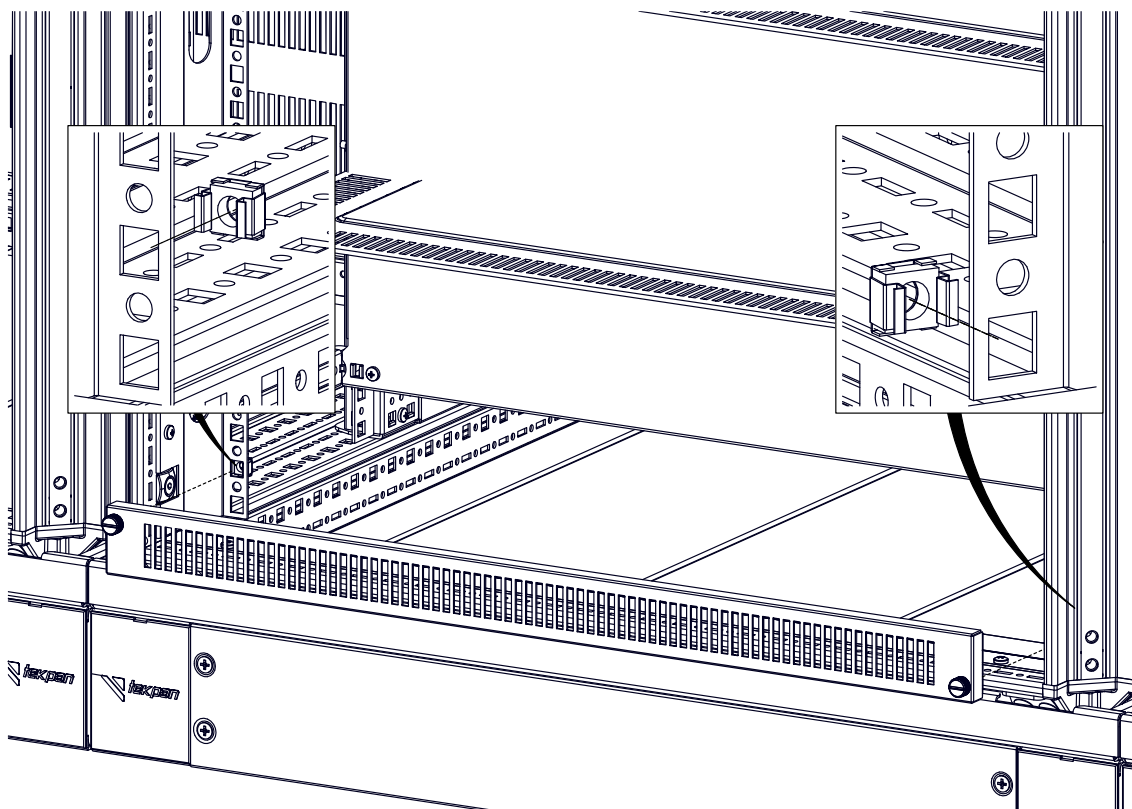
Required Packages:  
1007.X18



M6 Knob Bolt



M6 Cage Nut

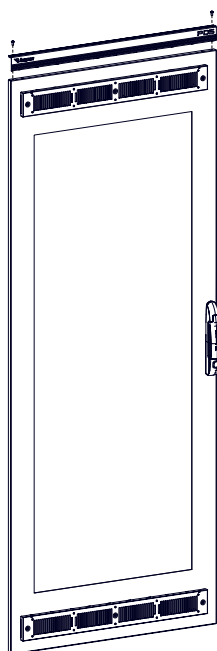
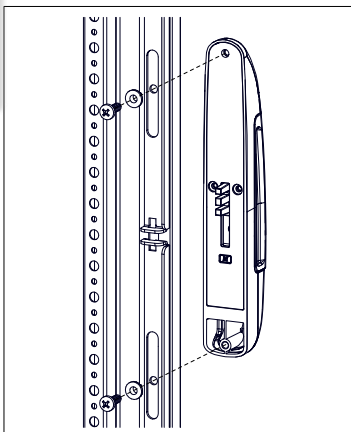


**12. SOLID/GLAZED DOOR ASSEMBLY**

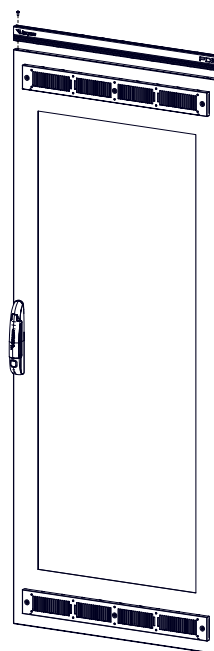
Required Packages:

Solid:1002.X20

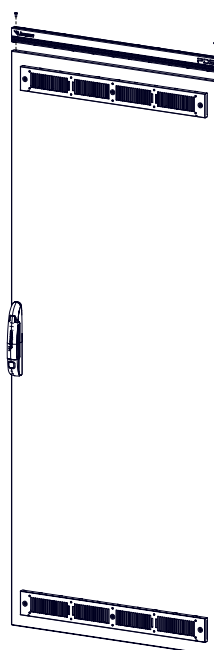
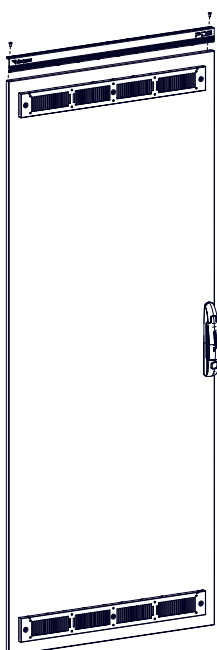
Glazed:1002.X21



Glazed Door

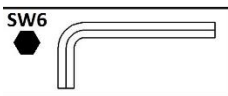


Solid Door





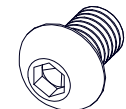
12. SOLID/GLAZED DOOR ASSEMBLY



Required Packages:

Solid:1002.X20

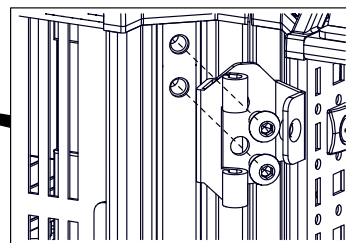
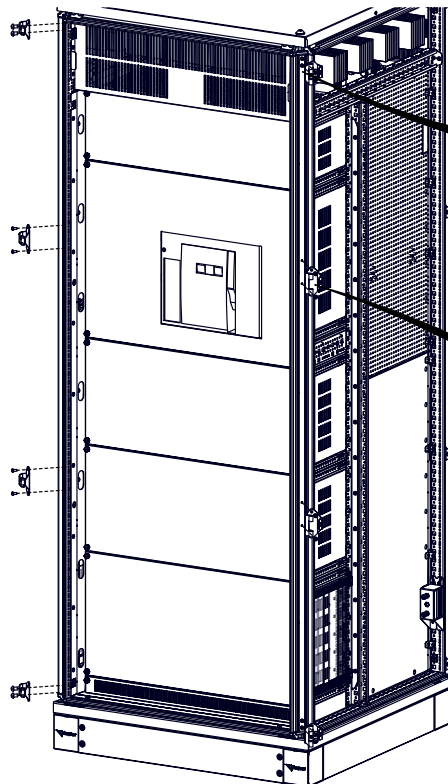
Glazed:1002.X21



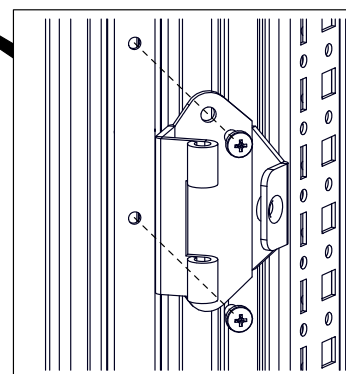
M8x12  
4 pcs.



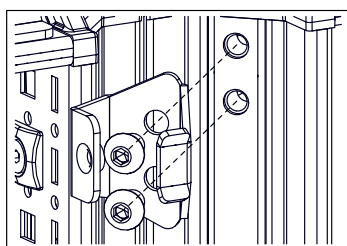
M5X10  
4 pcs.



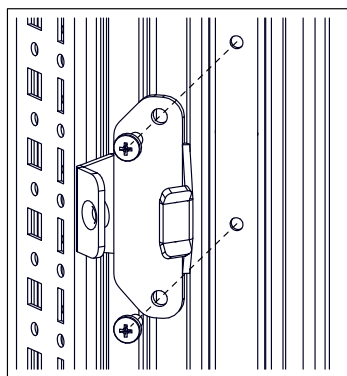
Top-Bottom Hinge Bracket



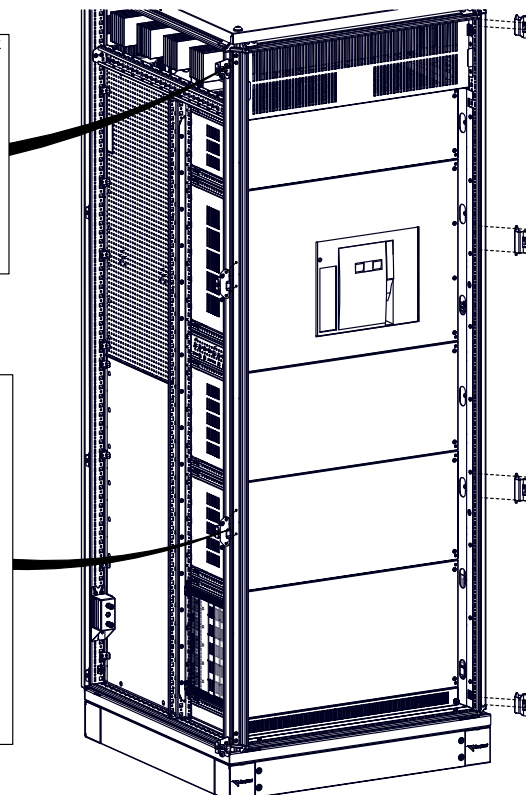
Mid Hinge Bracket

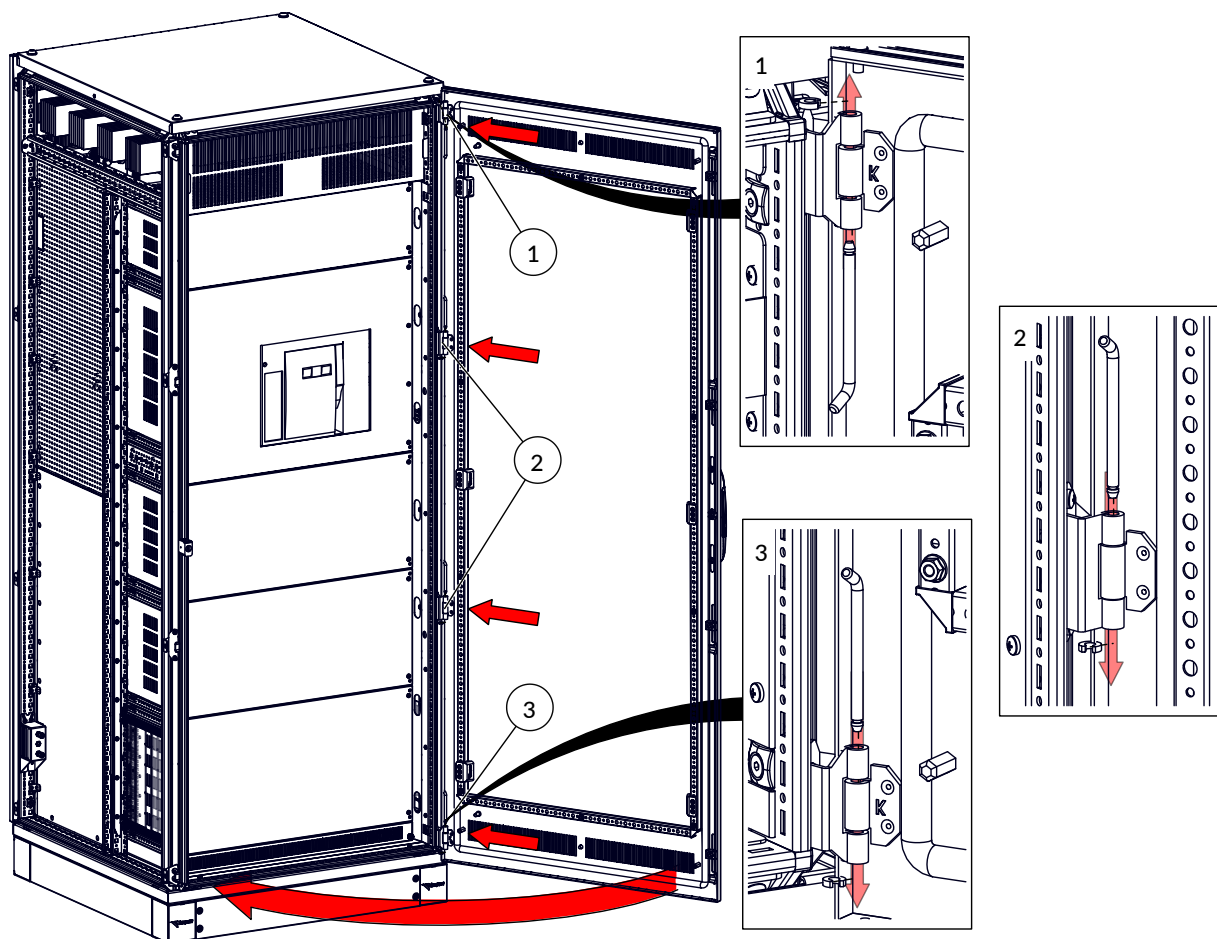


Top-Bottom Lock Bracket

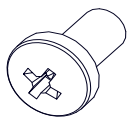


Mid Lock Bracket



**12. SOLID/GLAZED DOOR ASSEMBLY****Required Packages:****Solid:**1002.X20**Glazed:**1002.X21

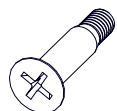
## 13. SIDE PANEL ASSEMBLY



M5X10  
4 pcs.



M6x23  
8 pcs.



M5x25  
1 pcs.

M5X25 Only For 800 Depth!!!

Required Packages:  
Side Panel:706.2XX  
Busbar Protection:1023.1XX

