



**Seismic Cabinet  
Model BTDA-Kit Bellcore 2**



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- 1a.** KIT Bellcore 2 characteristics
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# 1. BTDA cabinet characteristics

## **Structure**

Profile and rails are made up of a unique closed profile manufactured from 1.5 mm sheet steel, fully welded and with rounded edges. The frame corners are manufactured with orthogonal joints die-cast of zinc alloys.

## **Paint finish**

BOSCO standard epoxy polyester powder coating.  
Structure, door and rear panel Ral 7035 textured finish.  
Bottom Ral 7035 textured finish.

**Other colors on demand availables.**

## **Assembled cabinet**

Supply includes:

- structure
- door manufactured from 2mm sheet steel with stiffening frame, complete with  $\varnothing$  3mm double bar locking system
- rear panel manufactured from 1.5mm sheet steel
- removable roof manufactured from 1.5mm sheet steel
- bottom with adjustable cable entry manufactured from 1.5 mm sheet steel.

## **Protection degree**

- IP 55 complying with EN50298; EN60529
- type 12 complying with UL508A; UL50
- impact resistance IK10 complying with EN500298; EN50102.



# 1a. KIT Bellcore 2 characteristics

## **Structure reinforcement**

On both the two sides are mounted three fixing brackets from 3mm sheet steel:

one on the top, one in the middle and one in the bottom.

## **Base**

Special base constructed with two folded sheet (from 3 sheet steel) welded.

## **Mounting plate**

Special mounting plate manufactured with 2.5mm thick sheet steel fixed with three fixing brackets 3mm thick sheet steel.

Two additional reinforcements are mounted for weights higher than 100kg.



# 1b. Test Specifications

## Requirements Specification

### Earthquake Criteria (Zone 2)

**R 4-68** All equipment shall be constructed to sustain the waveform testing of **GR-63-CORE Section 5.4.1** without permanent structural or mechanical damage

**R 4-69** Frame level equipment shall be constructed so that during the waveform testing of **GR-63-CORE Section 5.4.1**, the maximum single-amplitude deflection at the top of the framework, relative to the base, does not exceed 75mm.

**R 4-70** Frame level equipment shall have a natural mechanical frequency greater than 2.0 Hz as determined by the swept sine survey of **GR-63-CORE Section 5.4.1**

**R 4-72** All equipment shall be constructed to meet applicable functionality requirements immediately before and after each axis of waveform testing of Section 5.4.1. The equipment shall sustain operation without replacement of components, manual rebooting, or human intervention.

## Framework and Anchor Criteria

**O4-74** Framework should be of welded construction.

**R4-75** Framework shall be constructed for base mounting to the floor without auxiliary support or bracing from the building walls or ceilings.

**O4-76** For framework used in earthquake risk zones, the static pull testing procedures of Section 5.4.1.4 should be followed, meeting these objectives:

- The maximum single amplitude deflection at the top of the framework should not exceed 75mm (3 in).
- The top of the framework should return to its original position, within 6mm (0.24 In) when the load is removed.
- The framework should sustain no permanent structural damage during static framework testing.

**R4-77** Concrete expansion anchors used to base mount framework to the floor shall meet the following requirements:

- Maximum embedment depth of 90mm (3.5 in)
- Maximum bolt diameter of 13mm (0.5 in).

**O4-78** Concrete expansion anchors used to base mount the framework to the floor should be suitable for earthquake (dynamic) applications, as specified by the manufacturer.

**O4-79** Concrete expansion anchors should use steel construction to minimize creep.

Table 6.2.1 - Earthquake Test conditions

Environmental parameter	Test Severity		Duration	Method
Earthquake time-history	RRS	see Table 6.2.2	30 s	Time-history VERTEQII
	frequency range	1 – 50 Hz		
	axes	3		
	damping ratio	2 %		

Table 6.2.2 - Earthquake Required Response Spectrum for Zone 2 according to Telcordia Technologies GR-63-CORE Section 5.4.1

Coordinate Point	Frequency (Hz)	Values for Upper Floor Acceleration (g)
1	0.3	0.2
2	0.6	2.0
11	5.0	2.0
12	15.0	0.6
13	50.0	0.6

## 1c. Test Results

The measured resonance frequencies are:

Table 6.3: Results - Resonance Frequencies

Axis	Frequency [Hz]
X	7.4
Y	8,9
Z	29

### 6.4.2 Results Earthquake Test

In detail:

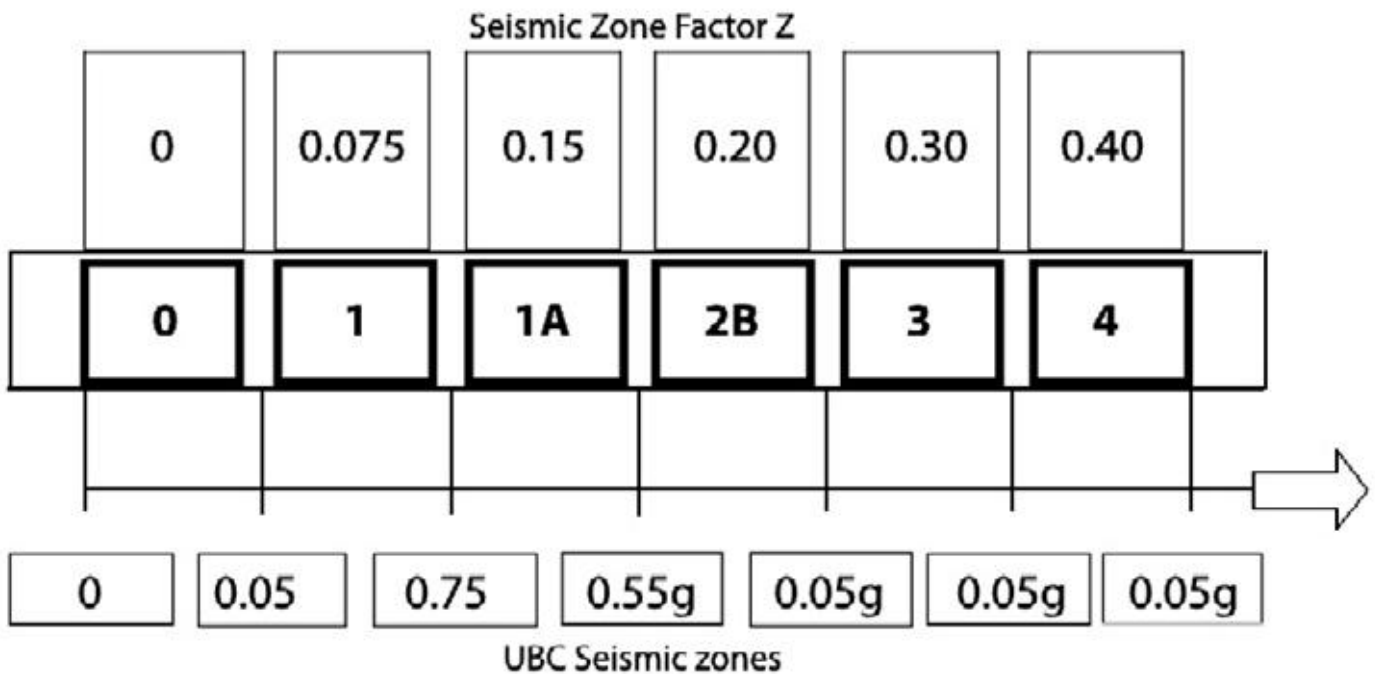
- R4-68 : No structural damages occurred
- R4-69 : The deflection on top was:  
X-axis: 12 mm  
Y-axis: 5,5 mm  
Z-axis: no LVDT-measurement was performed
- R4-70, O4-71: The lowest natural gross frequency was 7.4 Hz
- R4-72, O4-73: The EUT was completed with weight dummies, therefore no function are possible
- R4-74: Framework is not a welded construction.
- O4-75: Framework is constructed for base mounting.
- O4-76: Static pull test not performed, because Framework is synthesized waveform tested.
- R4-77: O4-78: The anchors are unknown and therefore omitted from the test configuration.  
O4-79

# 1d. Seismic Zones - Zona 2

Seismic hazards are those related to ground shaking. Landslides, ground cracks, rockfalls, tsunami - these are all seismic hazards. Generally, though, we think more in terms of damage to our structures and our possessions.

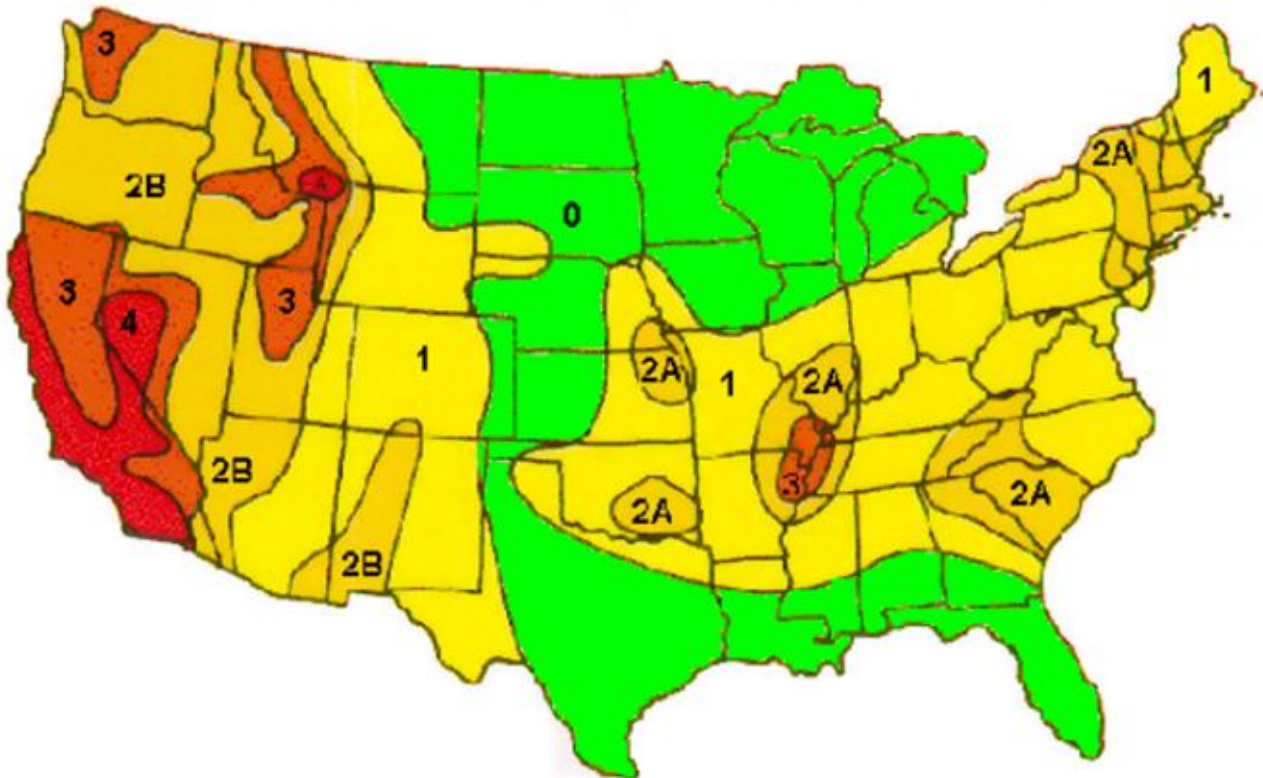
Engineers, seismologists, architects, and planners have carefully evaluated seismic hazards related to building construction. They have devised a system of classifying seismic hazards on the basis of the expected strength of ground shaking and the probability of the shaking actually occurring within a specified time. The results are included in the Uniform Building Code (UBC) seismic provisions.

The UBC seismic provisions contain six seismic zones, ranging from 0 (no chance of severe ground shaking) to 4 (10% chance of severe shaking in 50-year interval). The shaking is quantified in terms of g-force (familiar to race car drivers and astronauts), the earth's gravitational acceleration. The diagram below is a way of describing seismic zonation.





**Uniform Building Code seismic Zone Map of the Contiguous United States**



**Construction Standards Required to Meet Code**

	<b>4</b>	<b>Extreme</b>
	<b>3</b>	<b>High</b>
	<b>2A, 2B</b>	<b>Moderate</b>
	<b>1</b>	<b>Low</b>

**Seismic test enclosure**

Elettromeccanica Bosco doesn't provide his customers with system certified enclosures. The cabinets are tested for specific configurations under specific conditions and they achieve specific results certified in the documents enclosed.

Any different application of these products could represent a different operating condition and could prejudice the correct functioning of the devices installed.

These different enclosure employments might require additional seismic evaluation to ensure a correct and safe functioning of the equipments installed.

Elettromeccanica Bosco will work closely with the customer to meet the seismic technical requirements and it's also available to assist the customer during testing process.

For further informations please contact: [info@elettrobosco.com](mailto:info@elettrobosco.com)

## 2. BTDA cabinet with KIT Bellcore 4 measures

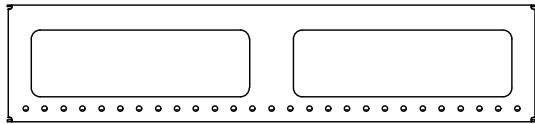




### 3. General Fixing

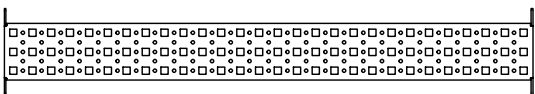
#### SIDE FIXING BRACKETS KIT

TOP FIXING



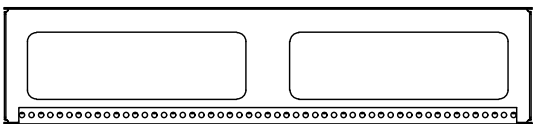
**N° 2 pcs**

MIDDLE FIXING



**N° 2 pcs**

BOTTOM FIXING



**N° 2 pcs**



NUT 6MA



N° 56 pcs  
SCREW 6MA LENGTH 16 mm

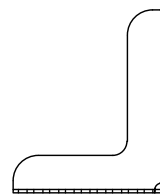
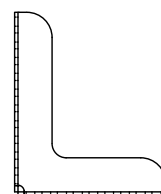
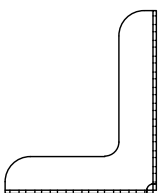
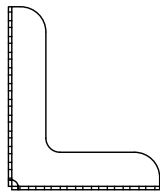
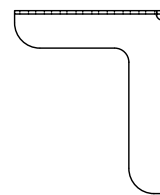
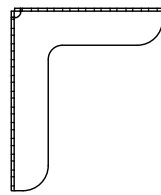
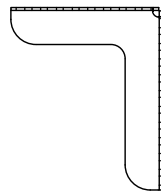
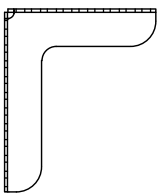


NUT 6MA



N° 12 pcs  
SCREW 6MA LENGTH 20 mm

#### ANGLE BRAKET FOR DOORS KIT



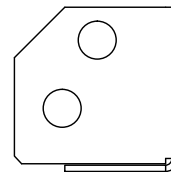
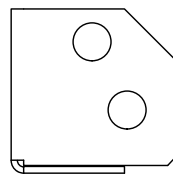
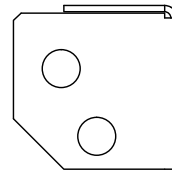
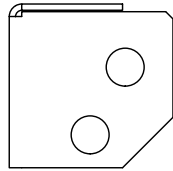
NUT 6MA



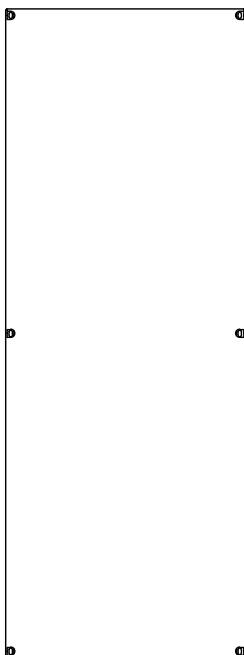
SCREW 6MA LENGTH 16mm

### 3. General Fixing

BASE



MOUNTING PLATE



NUT 8MA



N° 12 pcs

SCREW 6MA LENGTH 20 mm

# 4. Top Fixing

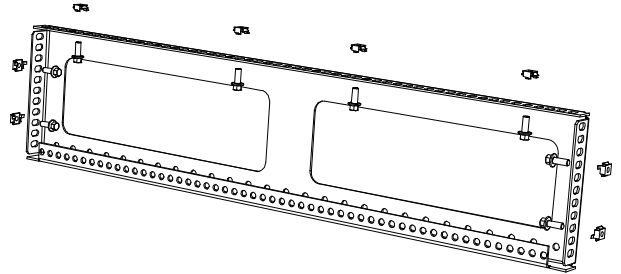


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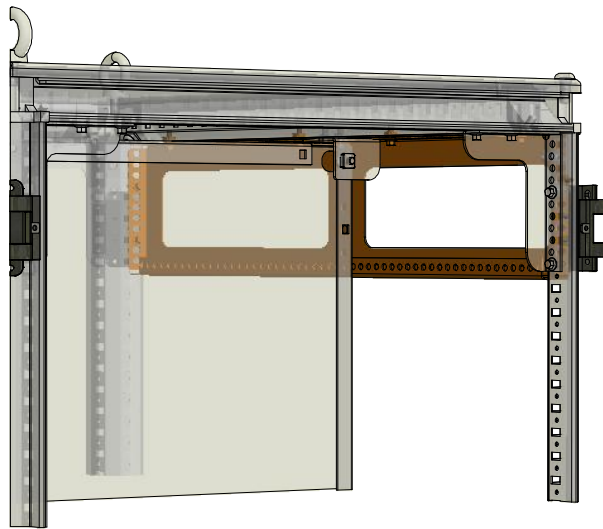
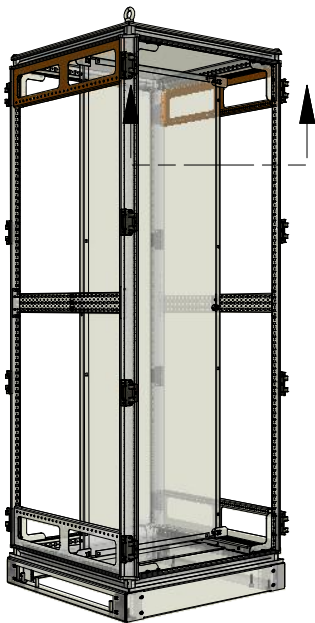


SCREW 6MA LENGTH 15 mm

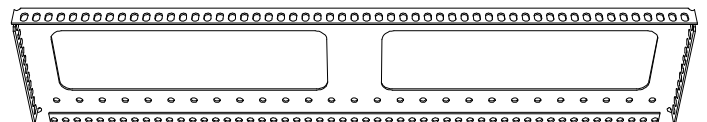
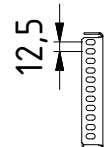
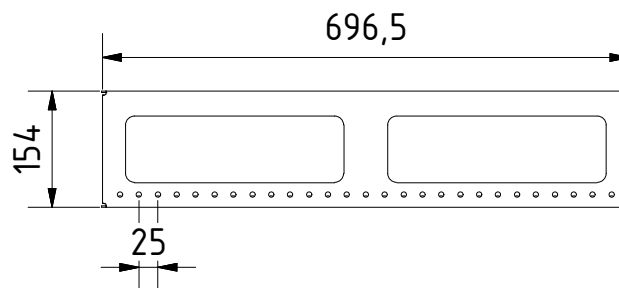
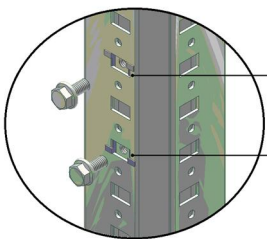
N° 8 pcs



2x: left side + right side



Pay attention when mounting vertically



**N.B. : Tutte le misure sono espresse in millimetri**

**Note : All dimensions are in millimeters**

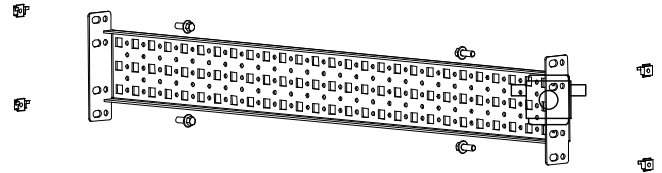
# 5. Middle Fixing



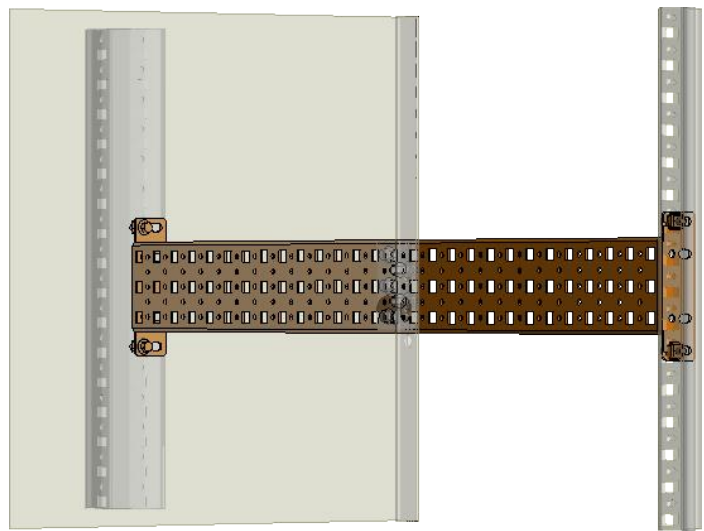
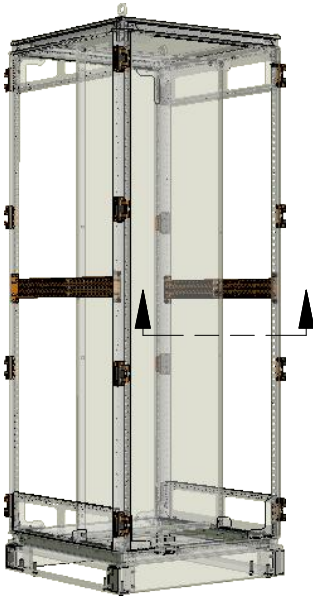
NUT 6MA



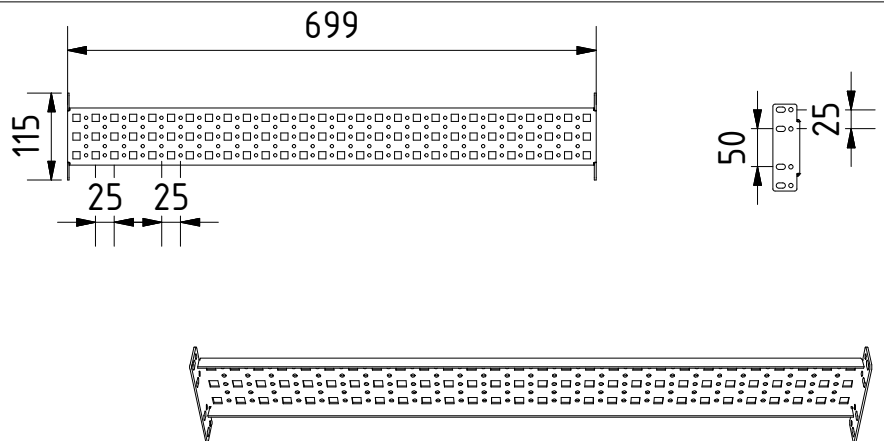
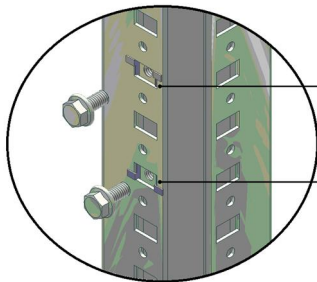
N° 4 pcs  
SCREW 6MA LENGTH 15 mm



2x: left side + right side



Pay attention when mounting vertically



**N.B. : Tutte le misure sono espresse in millimetri**

**Note : All dimensions are in millimeters**

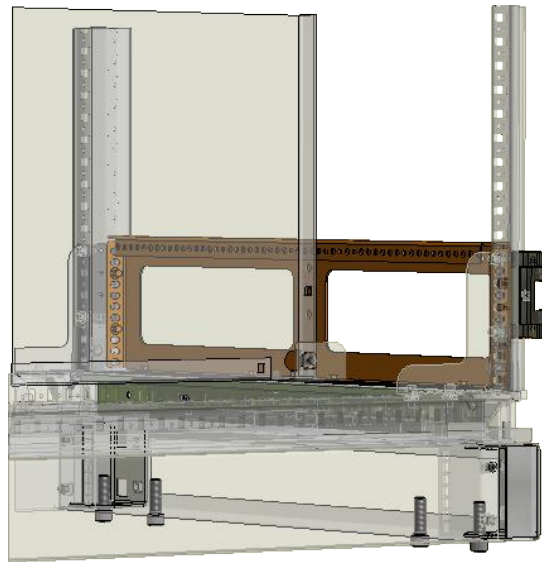
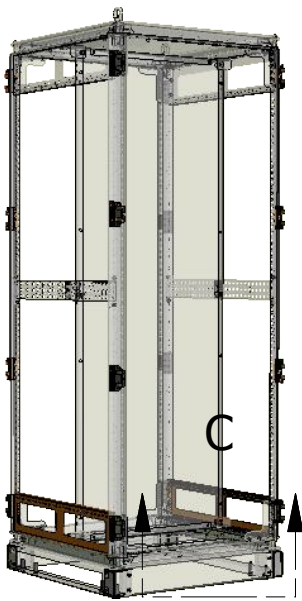
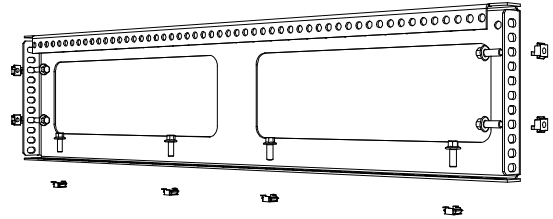
# 6. Bottom Fixing



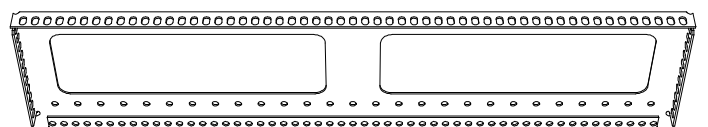
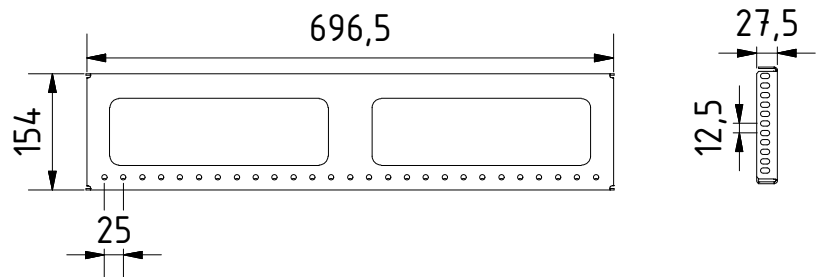
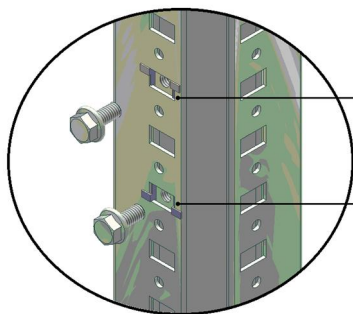
NUT 6MA



N° 8 pcs  
SCREW 6MA LENGTH 15 mm



Pay attention when mounting vertically



# 7. Mounting Plate Top

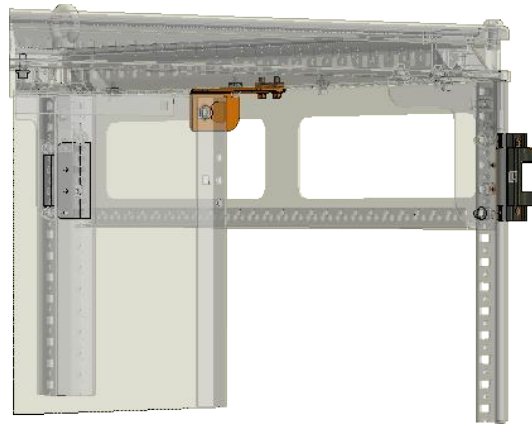
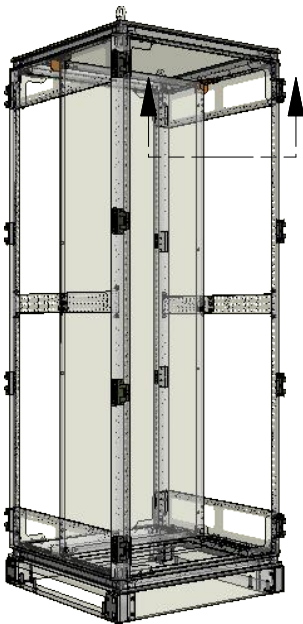
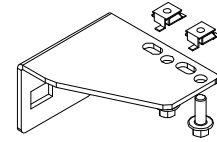


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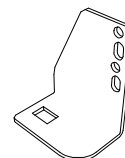
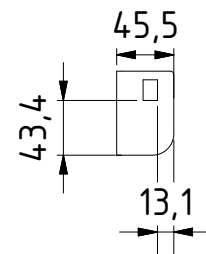
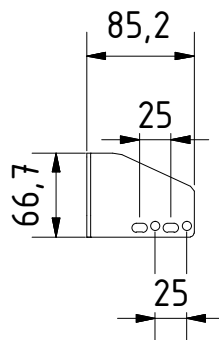
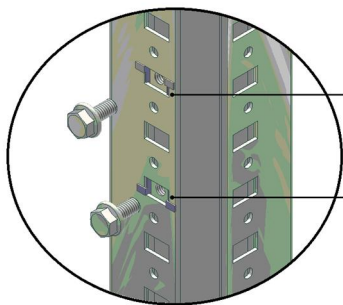


SCREW 6MA LENGTH 15 mm

N° 2 pcs



Pay attention when mounting vertically



# 8. Mounting Plate Middle

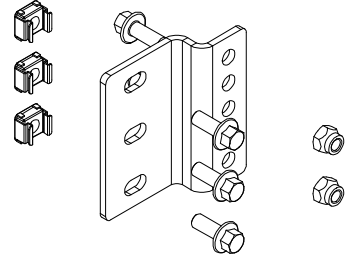


NUT 8MA



N° 3 pcs

SCREW 8MA LENGTH 20 mm

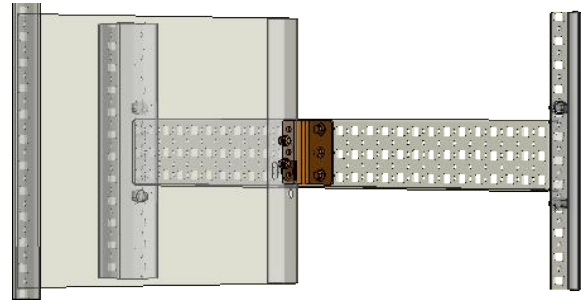
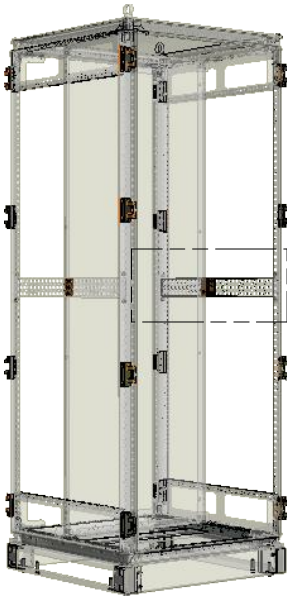


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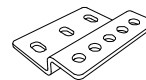
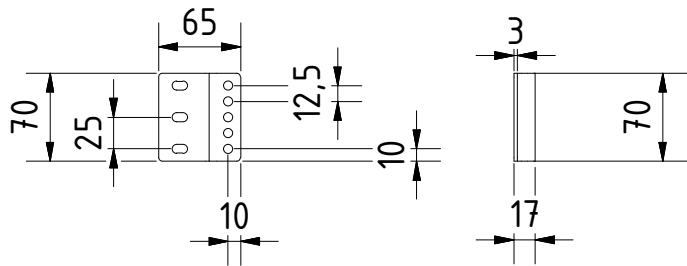
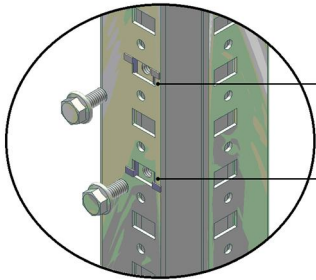


N° 3 pcs

SCREW 6MA LENGTH 20 mm



Pay attention when mounting vertically





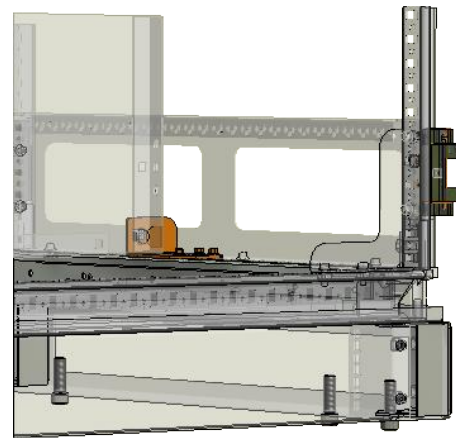
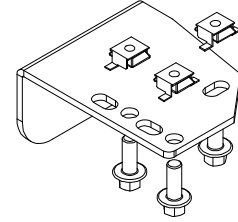
# 9. Mounting Plate Bottom



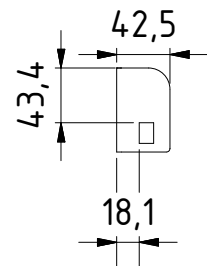
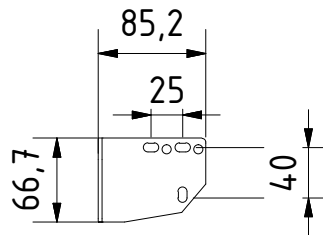
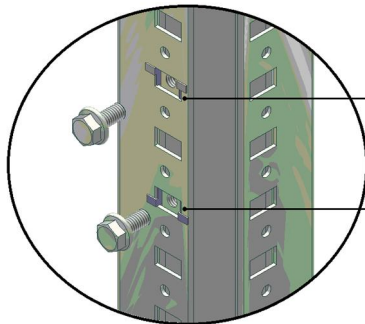
NUT 6MA



N° 3 pcs  
SCREW 6MA LENGTH 15 mm



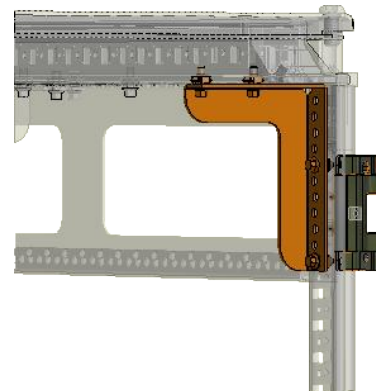
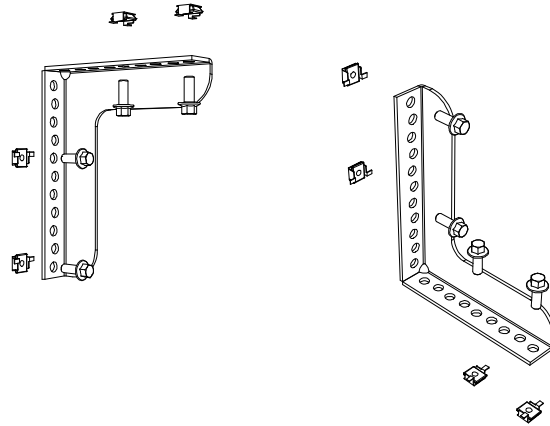
Pay attention when mounting vertically



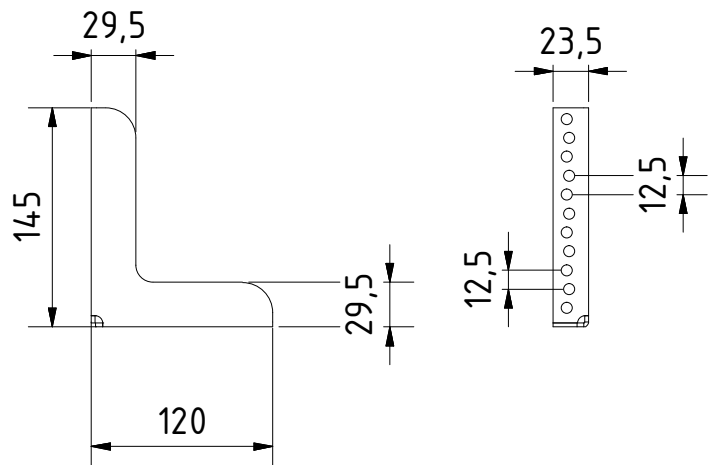
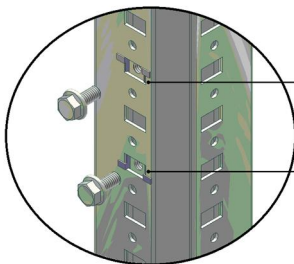
# 10. Angle Bracket

NUT 6MA

SCREW 6MA LENGTH 15 mm  
N° 3 pcs



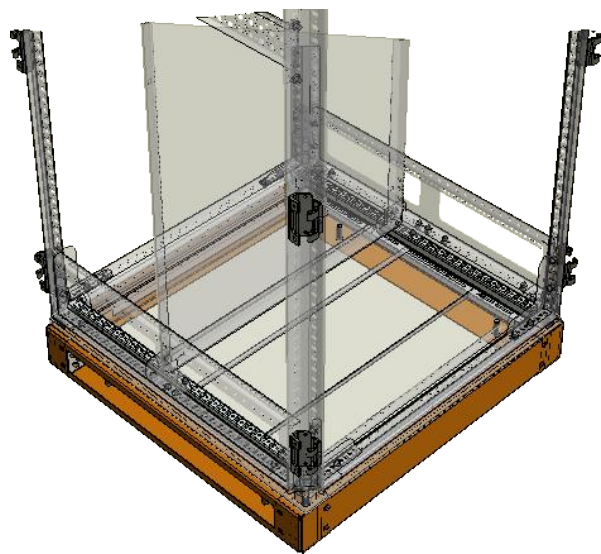
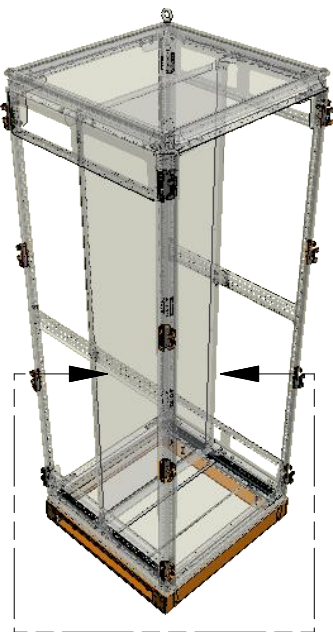
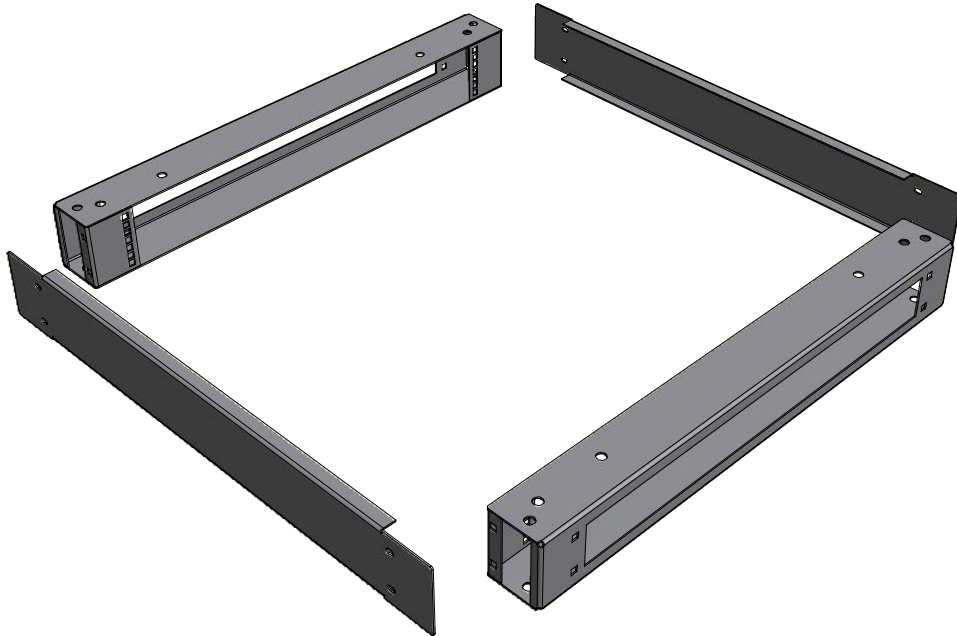
Pay attention when mounting vertically



**N.B. : Tutte le misure sono espresse in millimetri**

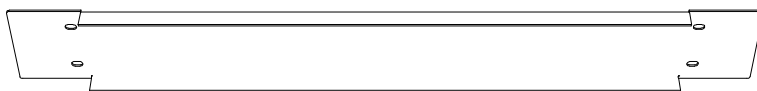
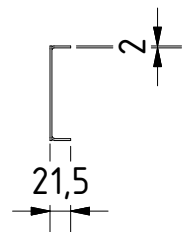
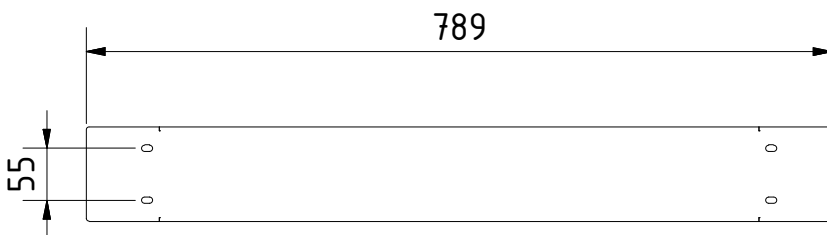
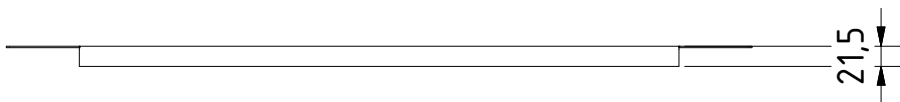
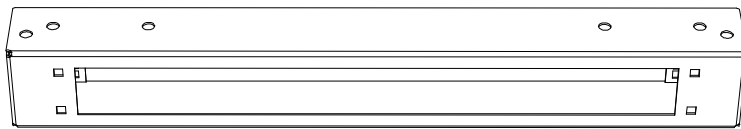
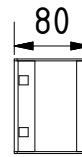
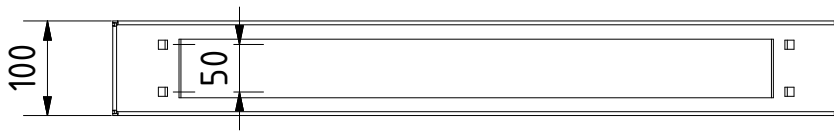
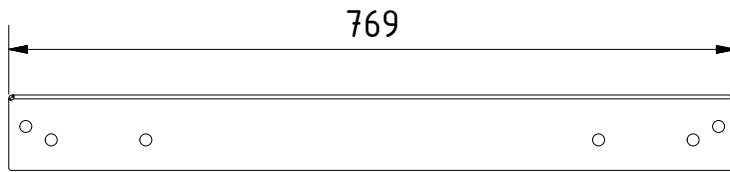
**Note : All dimensions are in millimeters**

# 11. Base

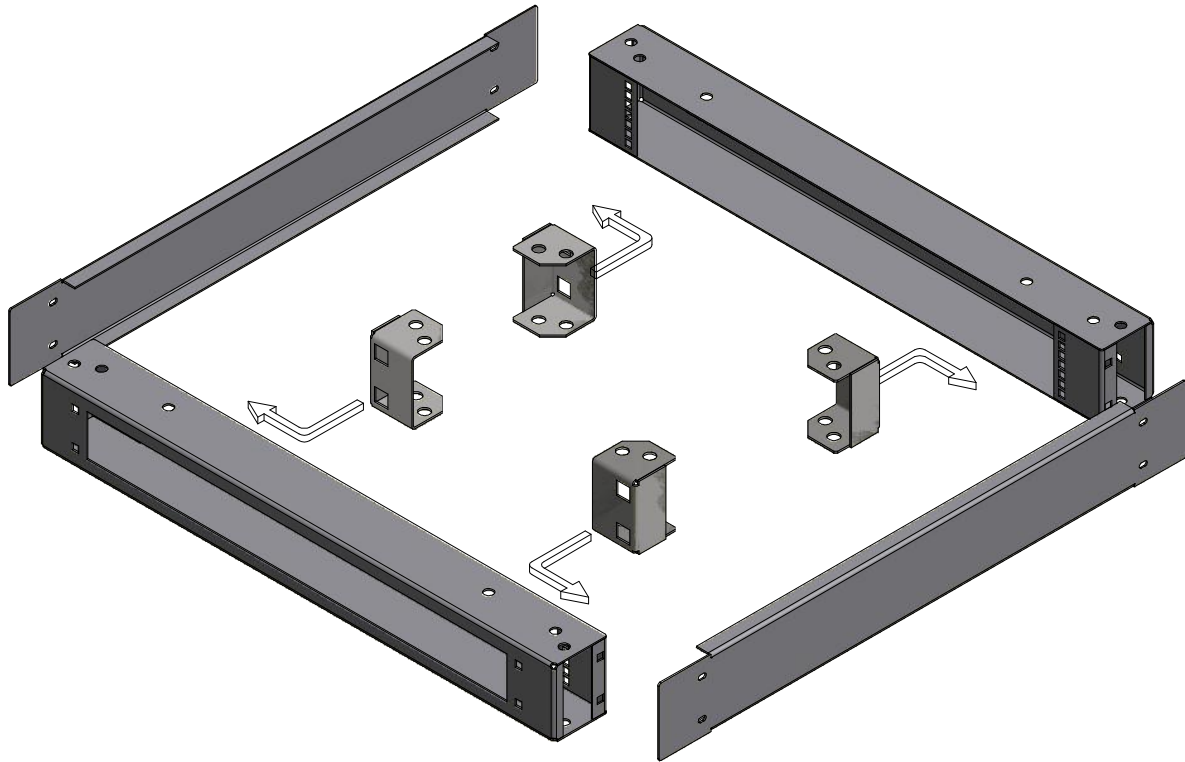
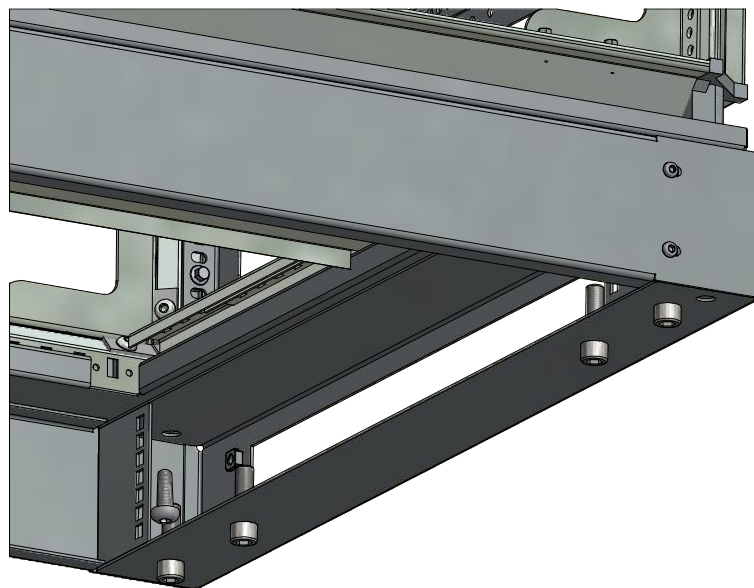


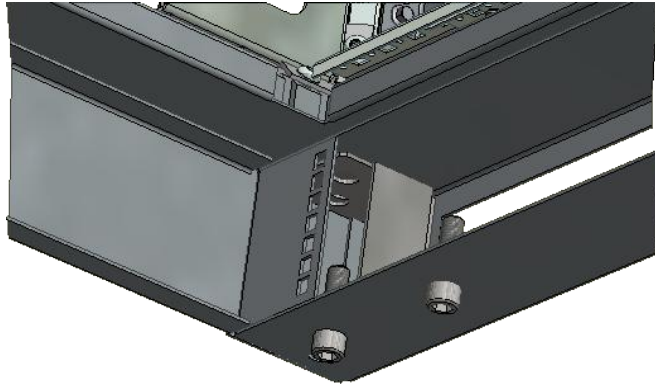
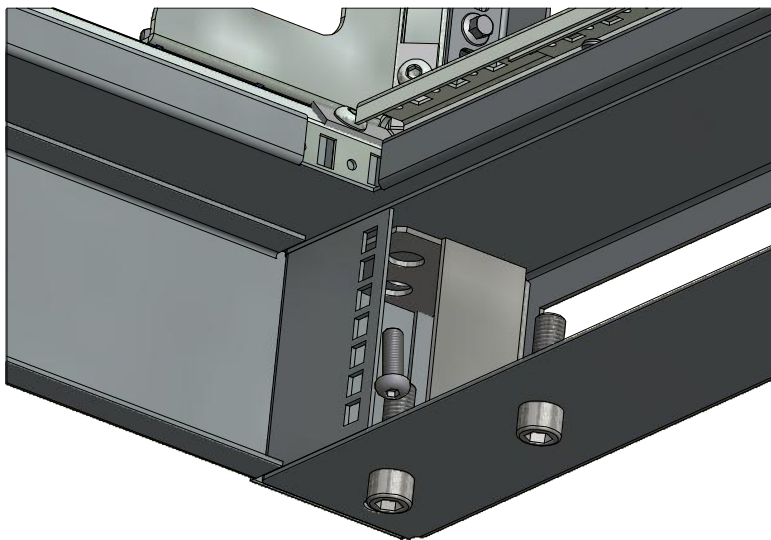
# 11. Base

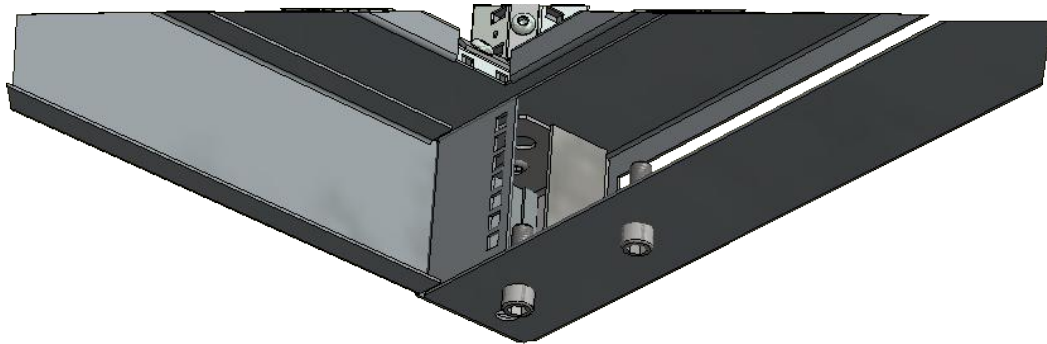
side base



## 12. Base assembly

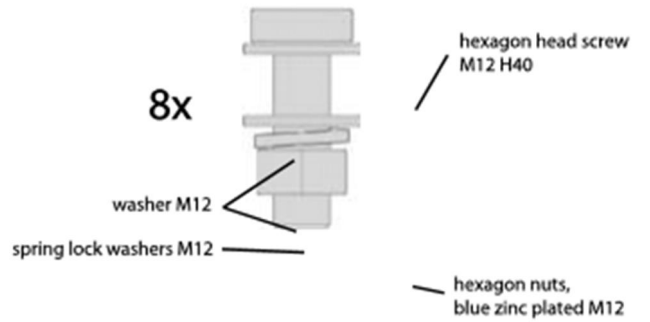
**1**

**2****3**

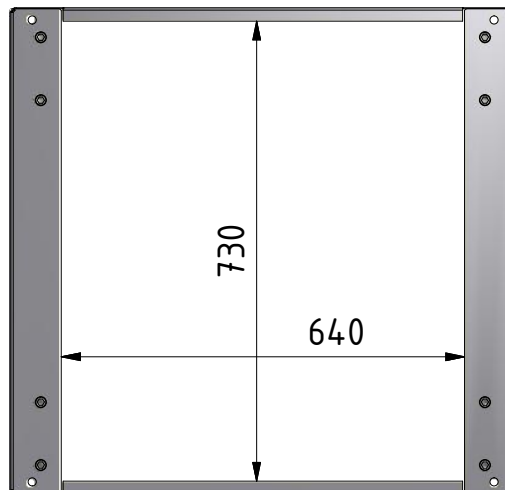
**4**



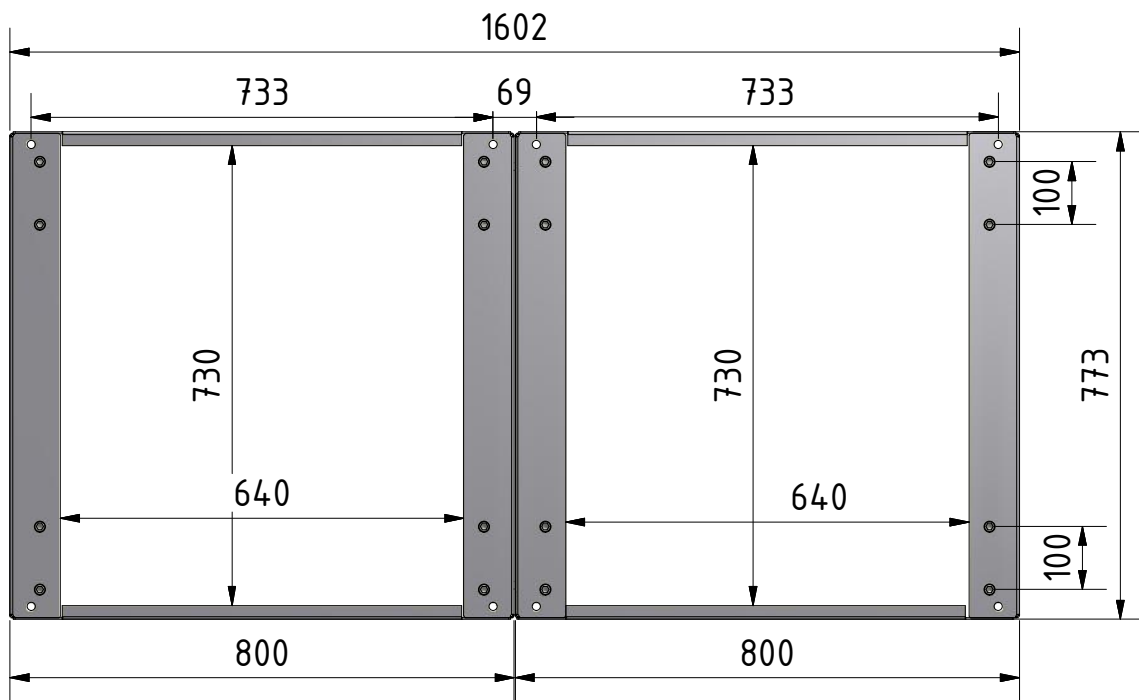
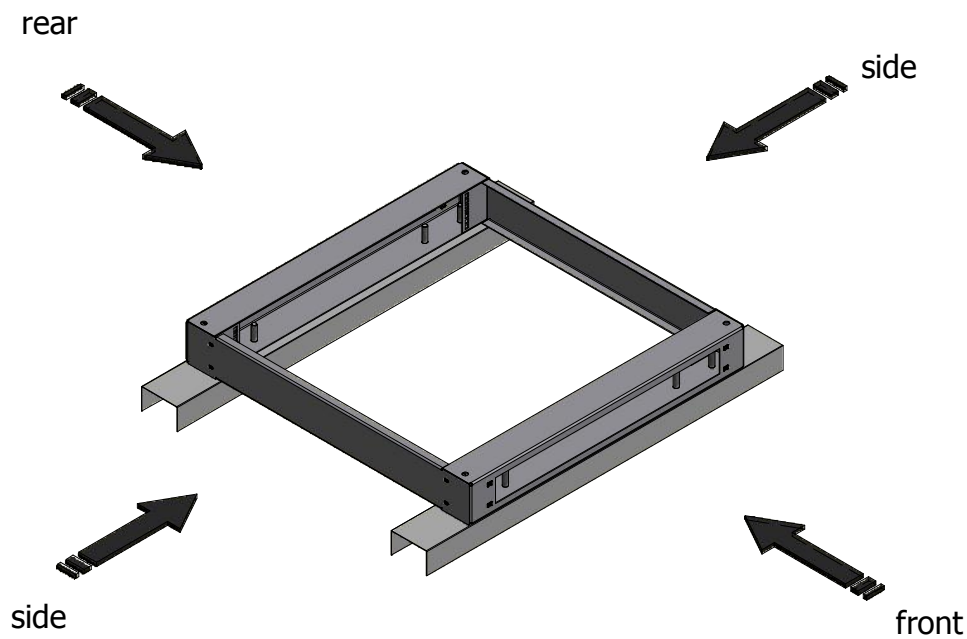
# 13. Base - Fixing on the Ground



**Tightening Strength: 100Nm**



# 13. Base - Fixing on the Ground



**N.B. : Tutte le misure sono espresse in millimetri**

**Note : All dimensions are in millimeters**