



v3 Rack-Busbar interface

J

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2. Scope

This document defines the technical specifications for the Busbar assembly to Rack interface for the Open Compute Project v3 Rack and Power Enclosure, to ensure the interface remains the standard across all platforms for all variants of Busbars.

Overview

The technical requirements for the Busbar are still contained within the Open Rack Standard. This specification defines the interface of the Busbar assembly to the OCP v3 Rack, in order to consistently achieve the requirements laid down in the Open Rack Standard across 12V/48V busbars. This enables Busbars to be retro fitted; ensuring a robust supply chain where products are interchangeable across Vendors platforms and orderable as a recognized SKU throughout the community.

3. Busbar definition

To clarify busbar specification a generic part numbering system is applied and defined as follows:

Bv3OCP-48-AAA-BBBB

Busbar part number format

Sections are broken down as follows:

Bv3OCP: Bus bar for OCP v3 (All Bus bars are full height at this stage)

48: identifies the required Voltage, i.e. 48V.

AAA: identifies the required power rating per Busbar, i.e. 18.0 for 18.0kw etc.

BBBB: identifies rack frame interface, from base to canopy i.e. 2141 is 2141mm between base face (B1) to Canopy face (C1), see figures 3 & 6.

So from above **Bv3OCP-48-18.0-2141**

Defines a 48V OCP v3 Busbar for 18kW, 42OU Full height

This part number must be displayed on the Busbar cage assembly.

Assumptions:

OU starts from the base of the rack

4. Physical Specifications

4.1 Rack interface Bottom.

The lower interface feature in the rack should be as defined in Figure 1,2 & 3. Dimension 818.93 is controlled from the equipment latching surface, Datum A as defined in the ORS v3 Figure xxx.

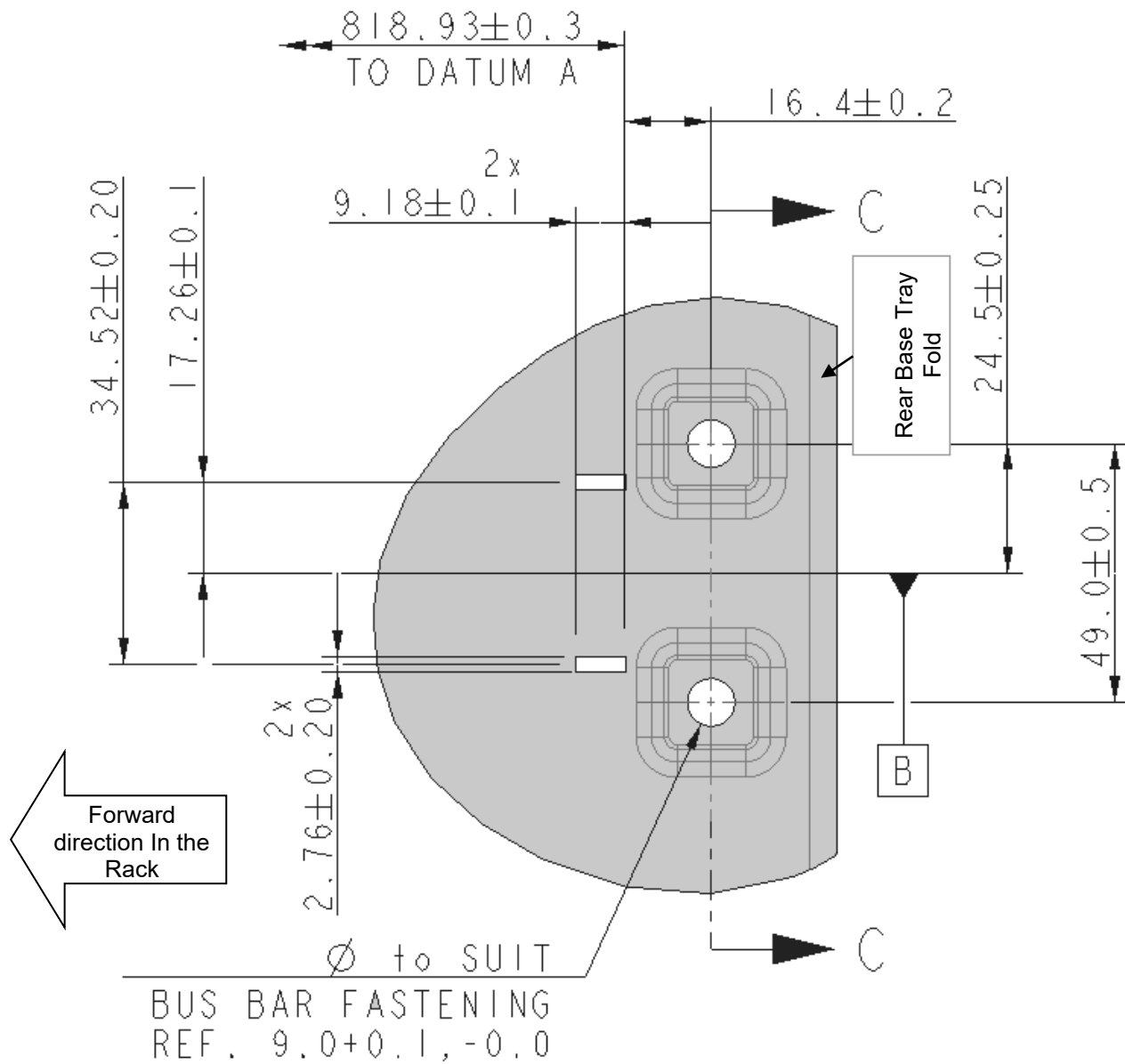


Figure 1: Partial Plan view on base tray rear of Busbar interface

All dimensions are typical across features and features are typical for each busbar interface.
Paint is included, influencing the dimensions (typically 120μ per paint layer)

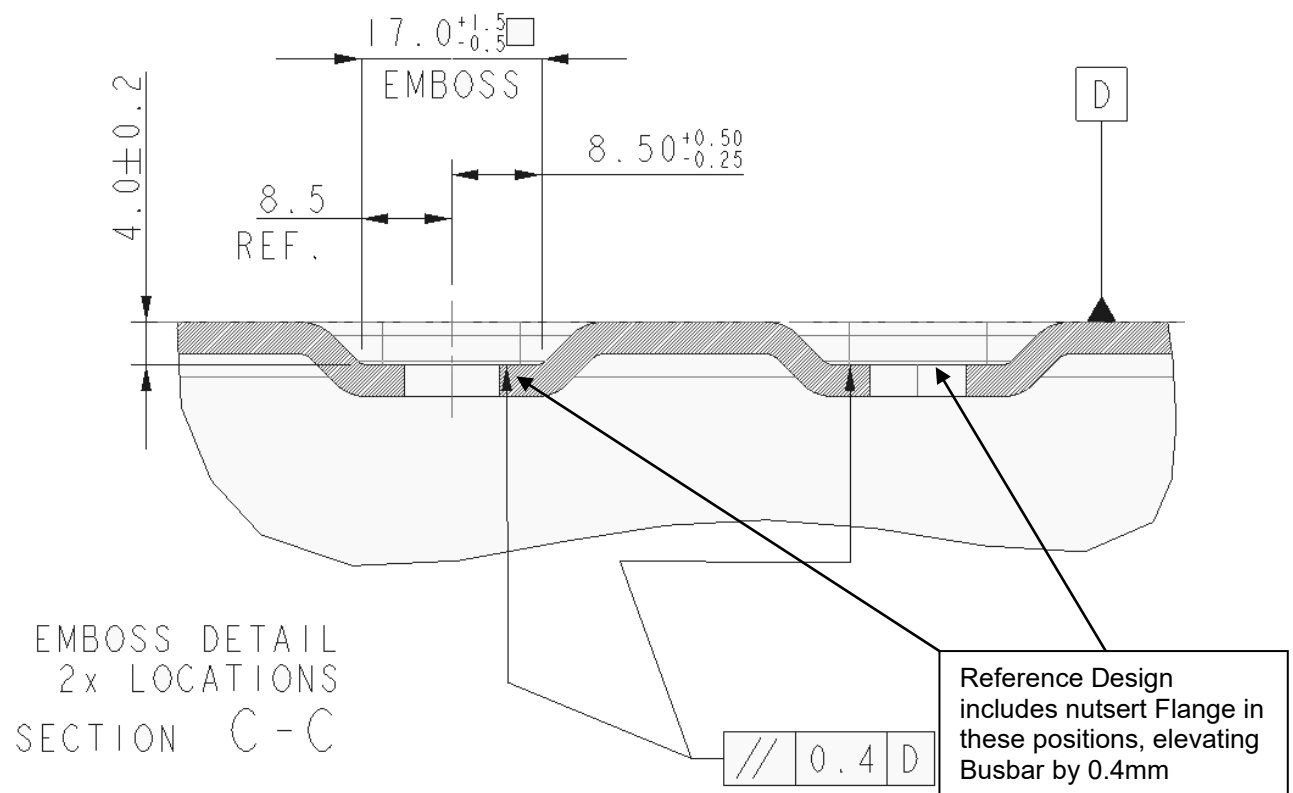


Figure 2: Section through embosses on Figure 1.

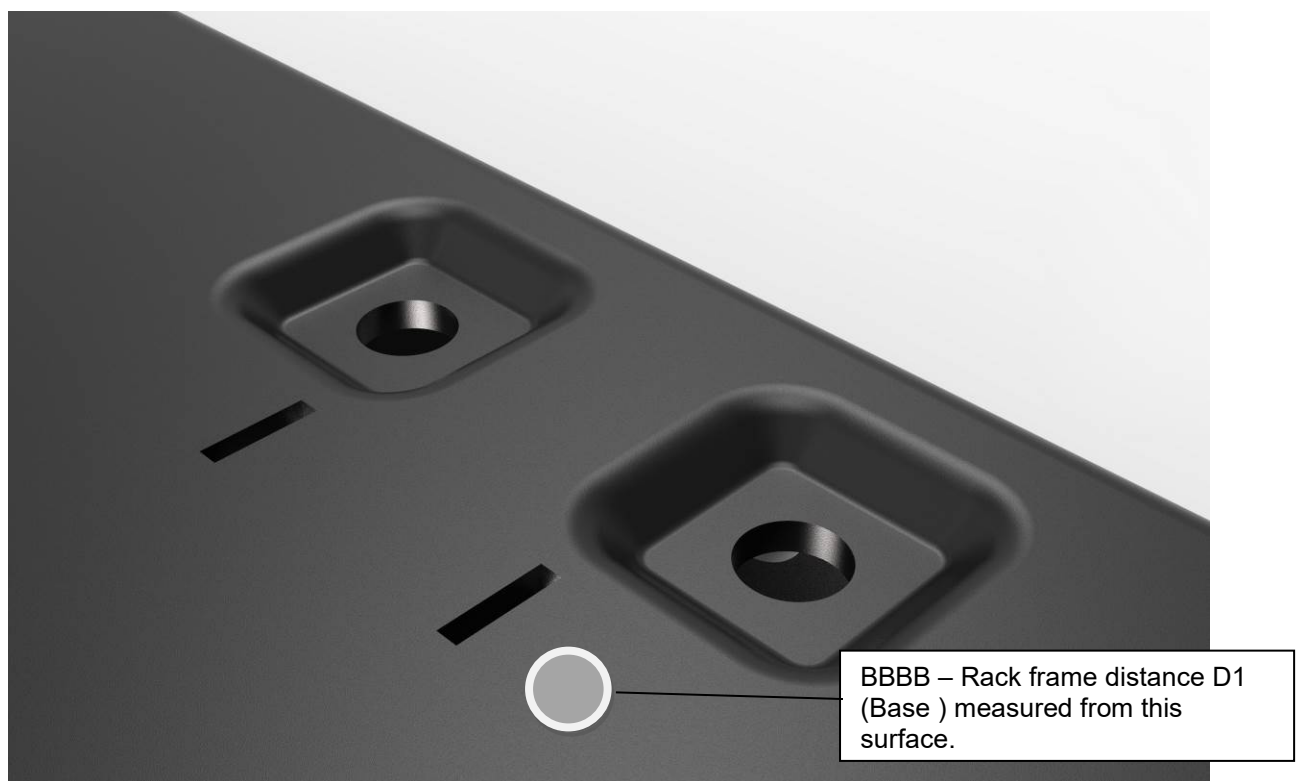


Figure 3: Image of Rack lower interfaces for clarity.

4.2 Rack interface Top.

The upper interface feature in the rack should be defined as follows in Figures 4, 5 & 6.

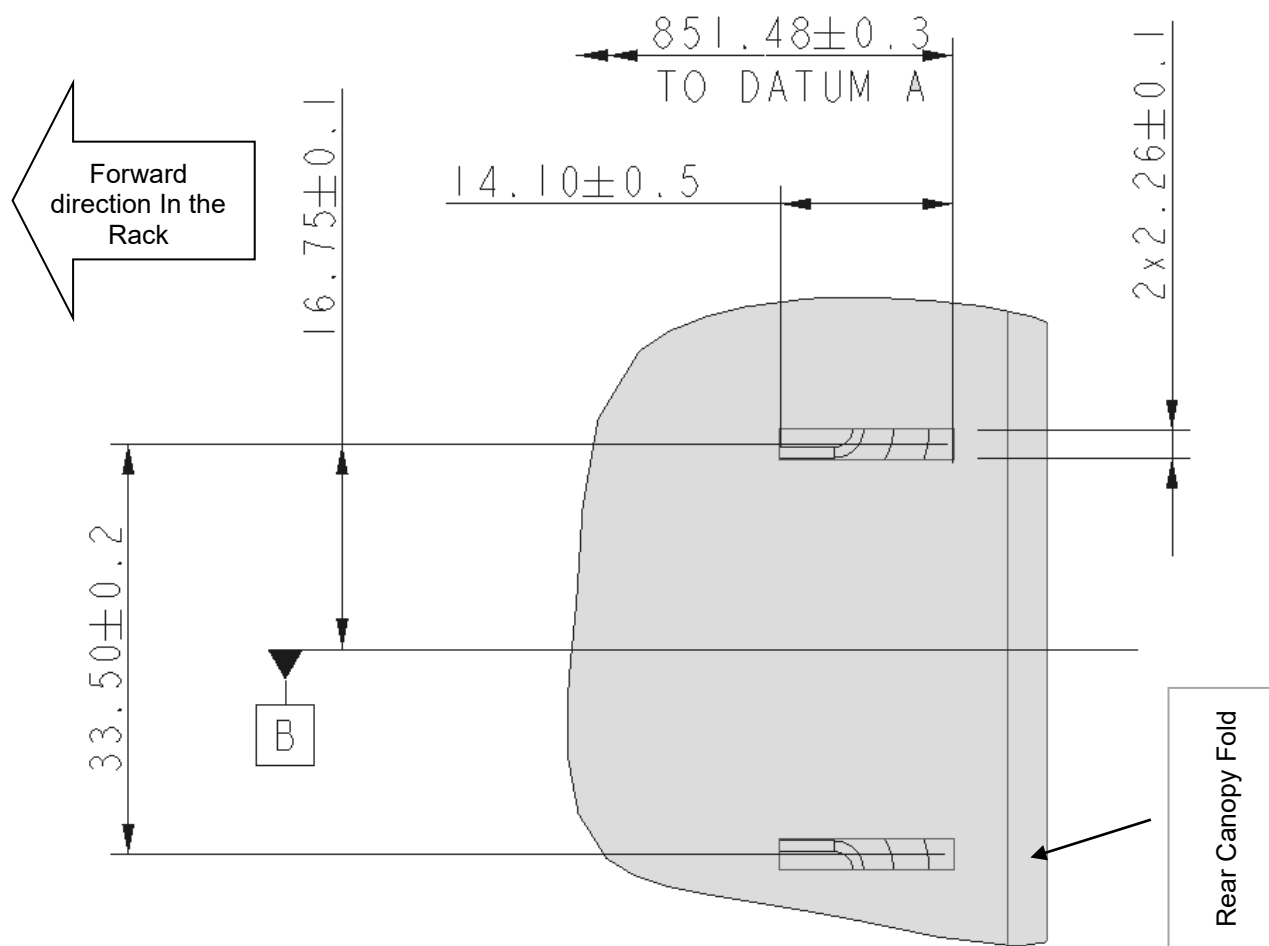


Figure 4: Plan view, Canopy – Rear Detail

Paint is included, influencing the dimensions (typically 120 μ per paint layer)

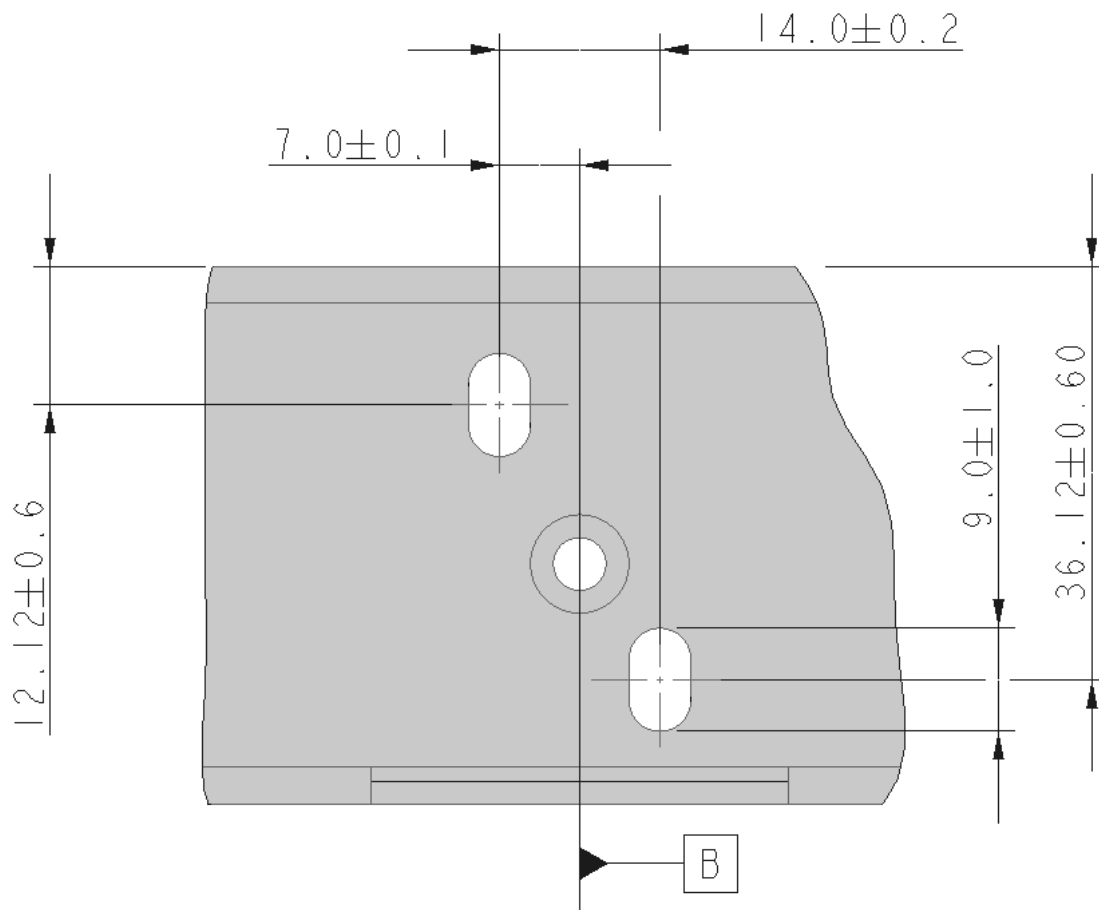


Figure 5: Rear side view of canopy, Details around Mid-plane B of rack

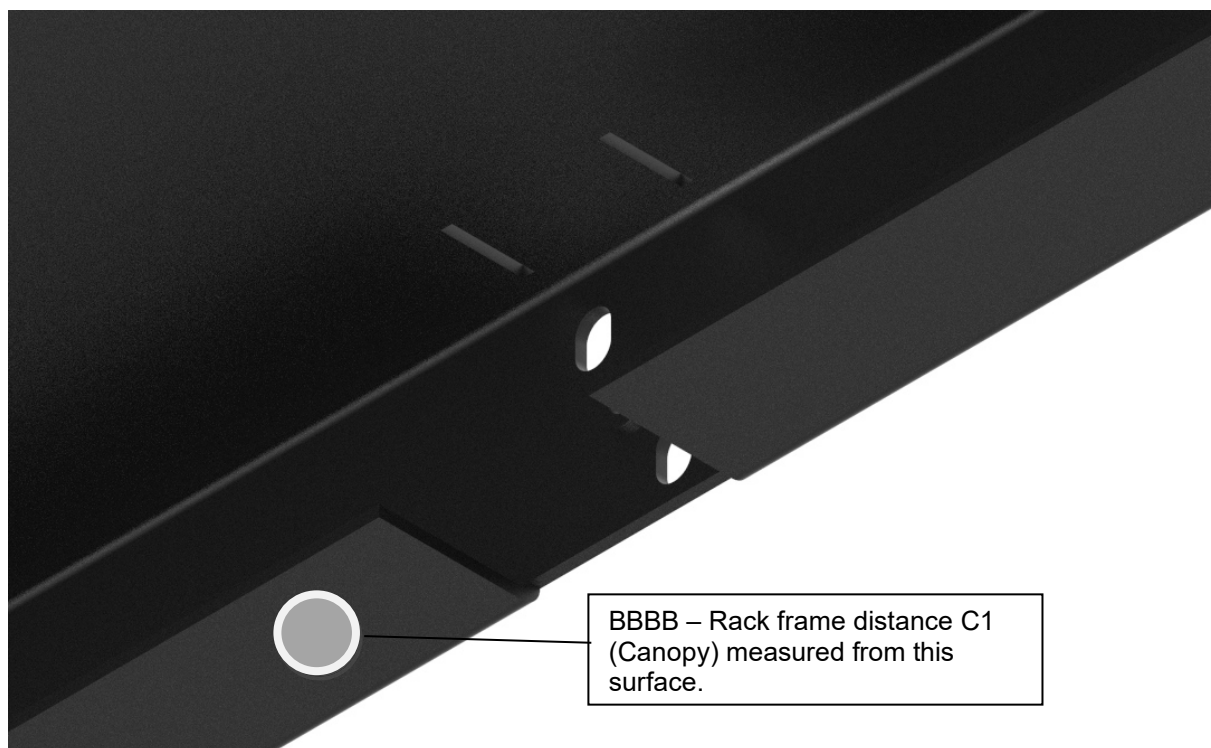


Figure 6: Image of Rack upper interface for clarity. (Underside of Canopy)

4.3 Busbar interface - Side

The features in the side of the Busbar cage assembly that interface with the Rack lower and upper interfaces are defined as follows in Figure 7.

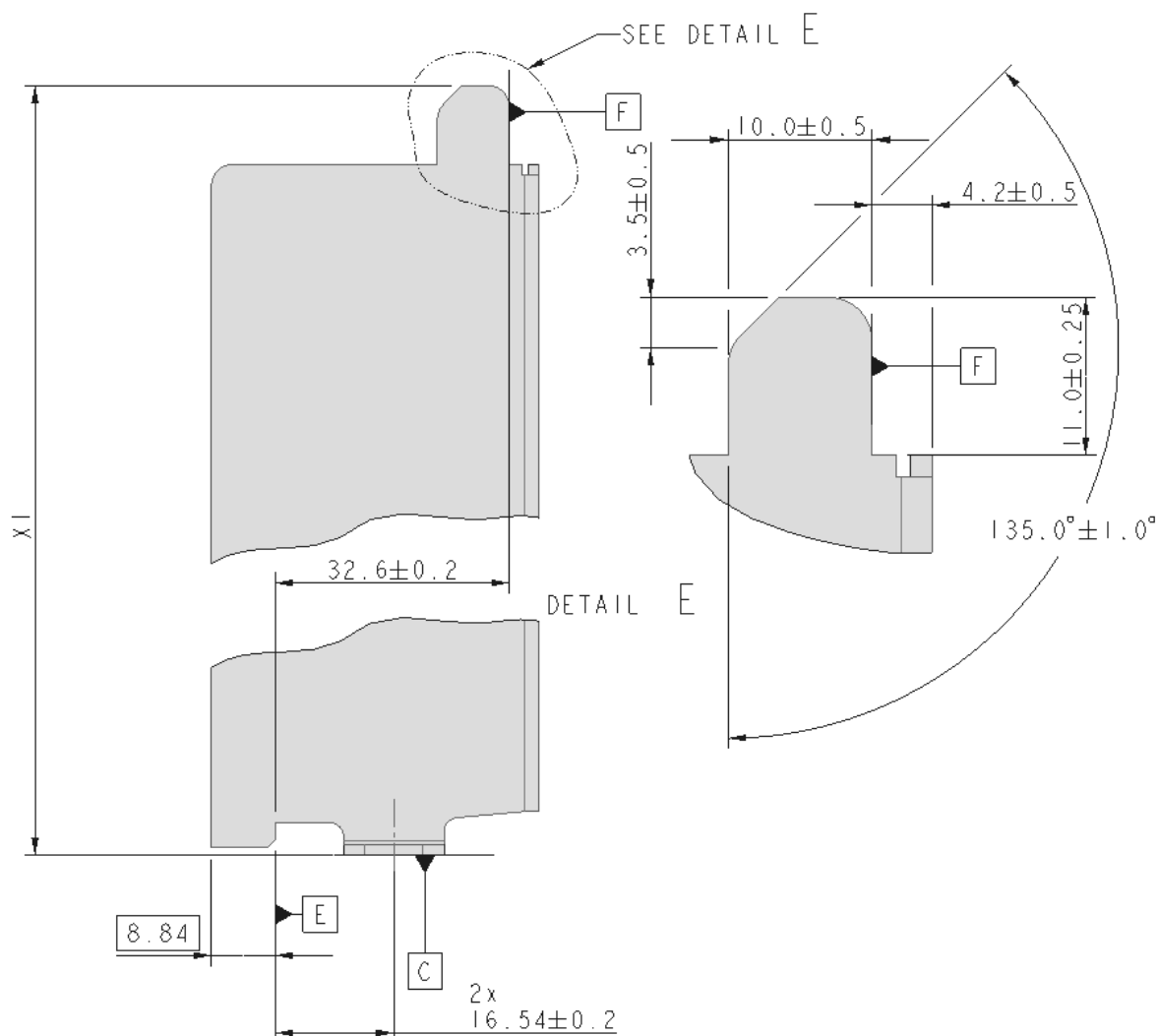


Figure 7: Busbar lower and upper interface – Side view

4.4 Busbar interface - Bottom

The features in the bottom of the Busbar cage assembly that interface with the Rack bottom interfaces are defined as follows in Figure 8.

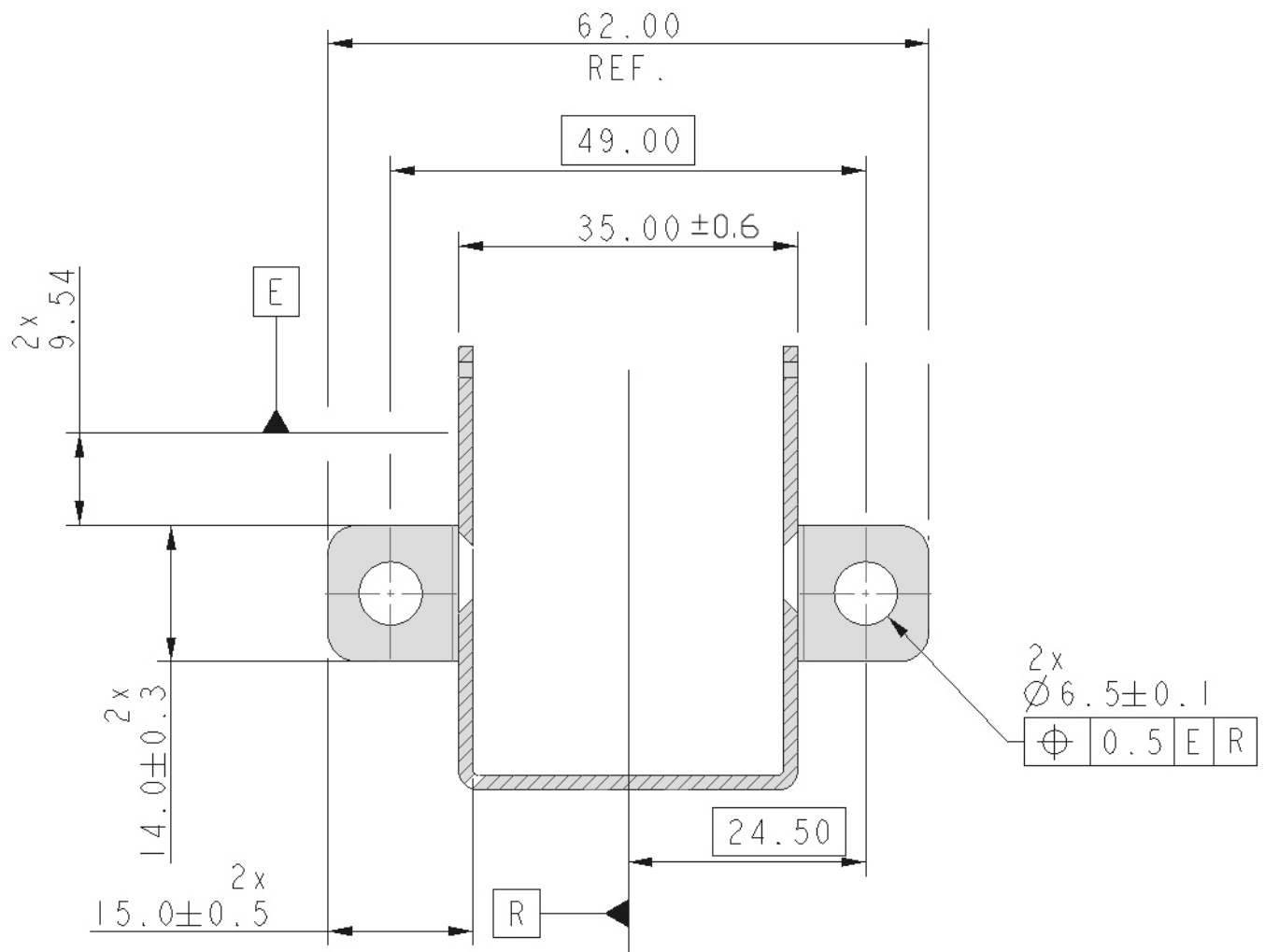


Figure 8: Busbar lower interface – Plan sectional view

4.5 Busbar interface - Top

The additional features in the Busbar cage assembly that interface with the Rack upper interface are defined as follows in Figure 9

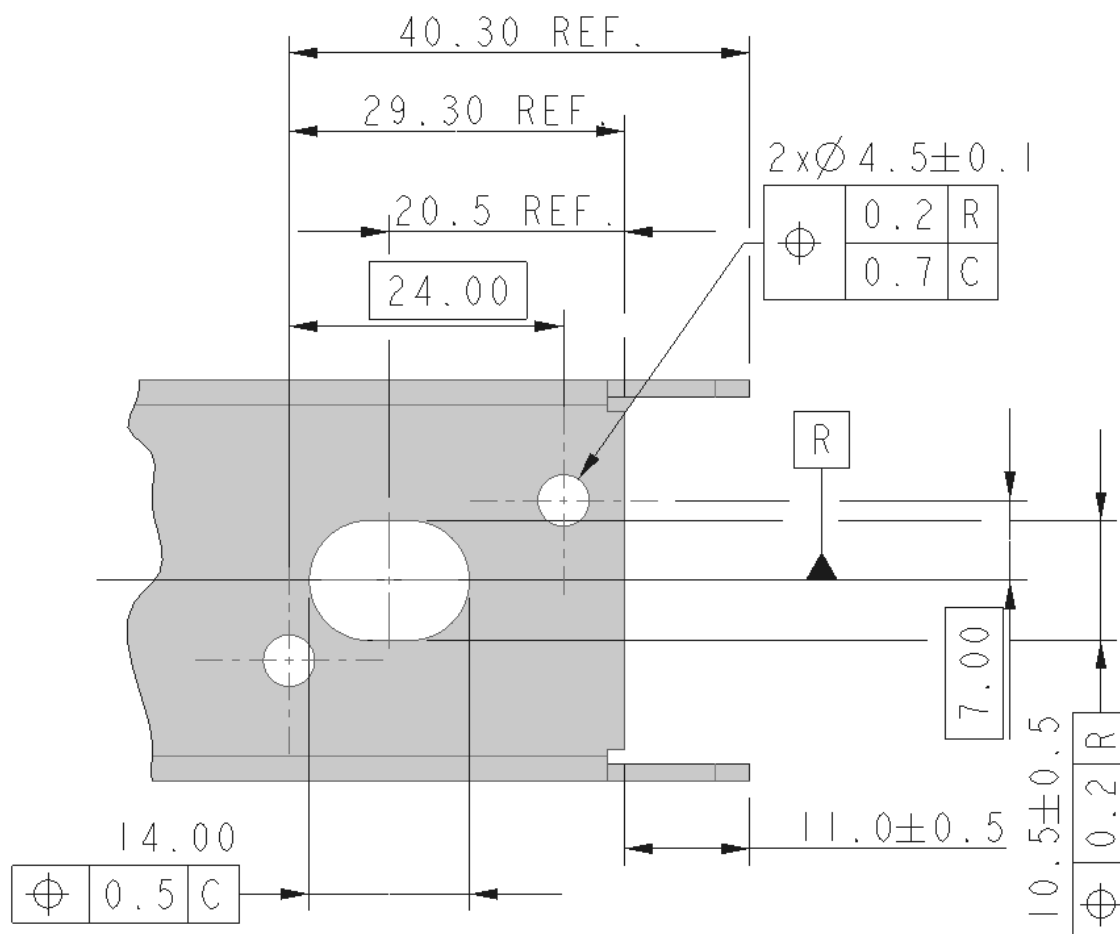


Figure 9: Busbar upper Rear interface fixing points.(Viewed from Bus bar rear, as assembled in the rack)

4.6 Busbar overall height

A full height Busbar will fit between the upper canopy and the lower base tray of the rack (C1 to B1), with the distance between the upper and lower fixing points as defined in Figures 10.

$$X1 = \text{BBBB} + 55.0\text{mm} \pm 0.5$$

Subsequent increase/decrease in height to be in full OU's

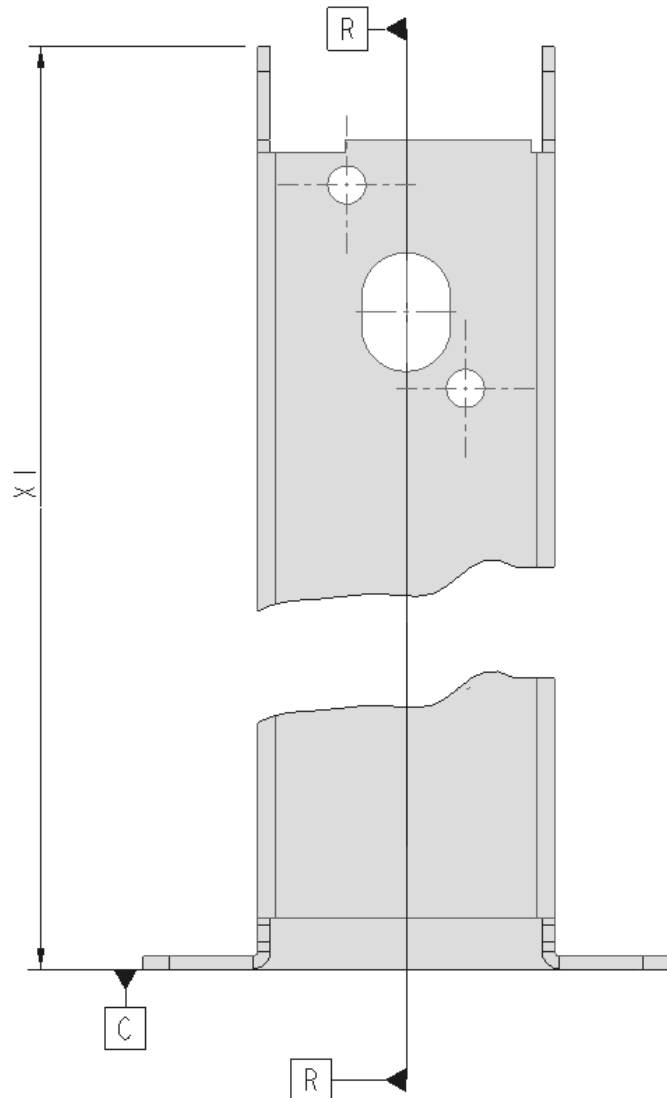


Figure 10: Rear broken view of Busbar fabricated cage detailing overall height between interfaces.

5. Mechanical fixing, Busbar to rack.

5.1 Upper positions

The busbar assembly is fixed to the rack framework with two M5 thread forming (DIN 7500) Pan Head screws including two Shake proof washers (DIN 6797 type A).

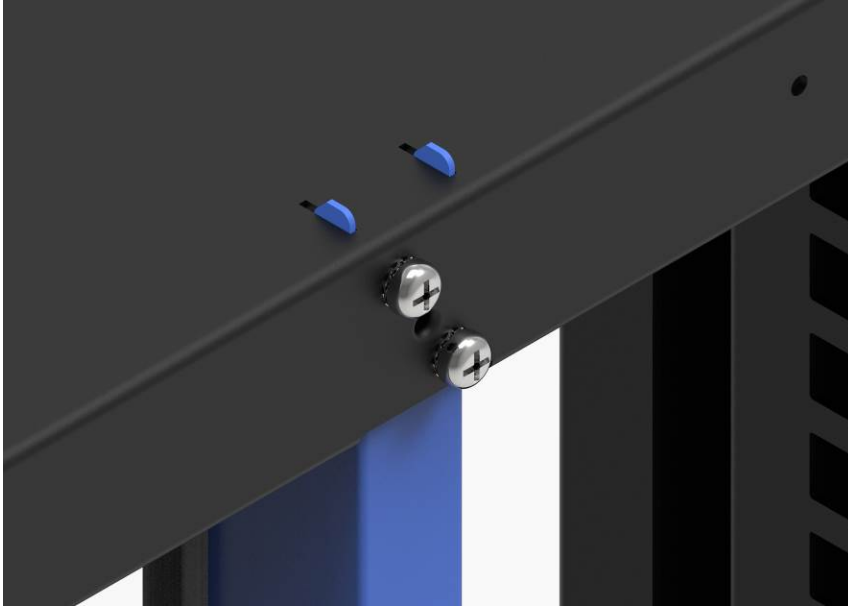


Figure 11 - Upper Bus bar Fastening (Blue bus bar shown for positional Clarity ONLY)

5.2 Lower positions

The busbar assembly is fixed to the rack framework with two M6 Ultra Low Head screws with Std Threads including two Shake proof washers (DIN 6797 type A).

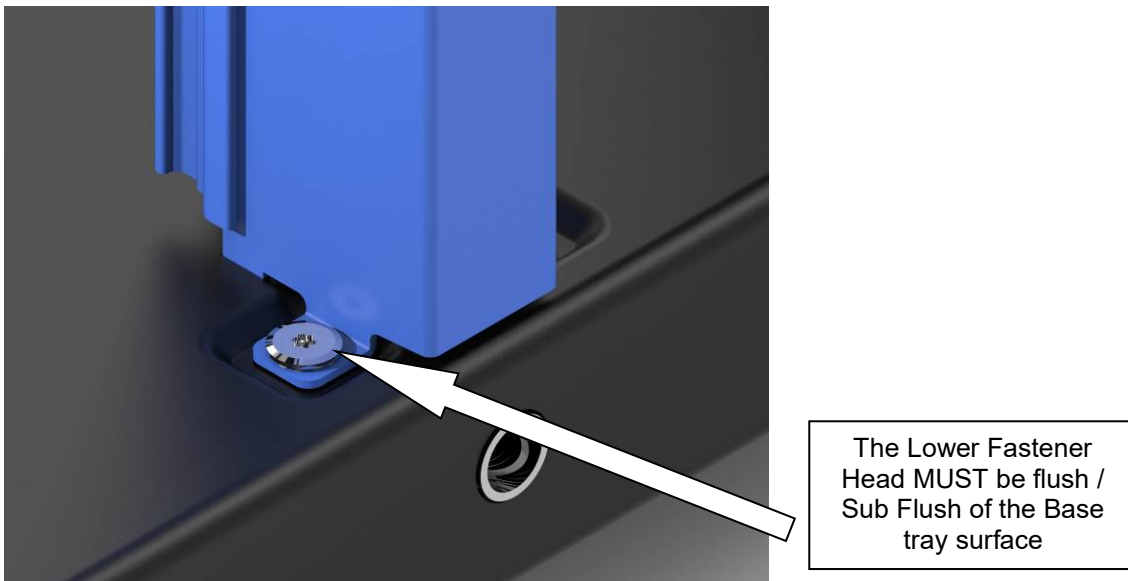


Figure 12 - Lower Bus bar Fastening (Blue bus bar shown for positional Clarity ONLY)

All fixings are to be secured with a torque of 5Nm.

6. Bus Bar Example

The images below show a typical example of the Busbar

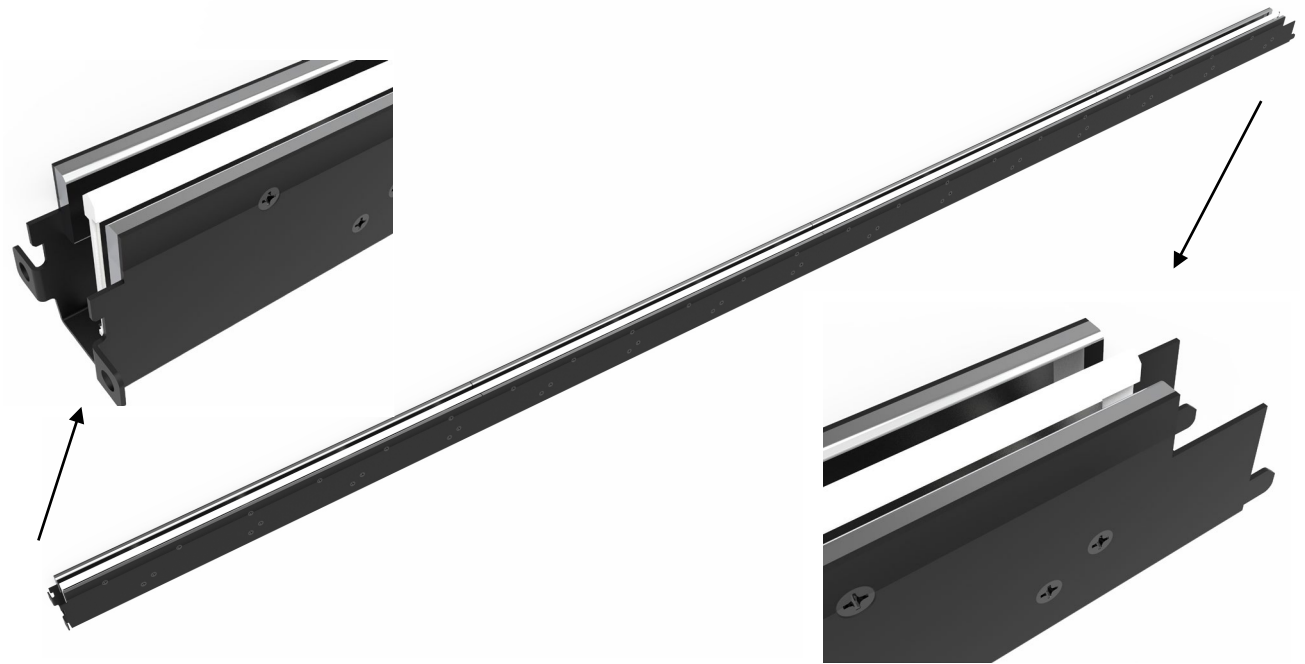


Figure 13 – Bus bar example – Isometric views

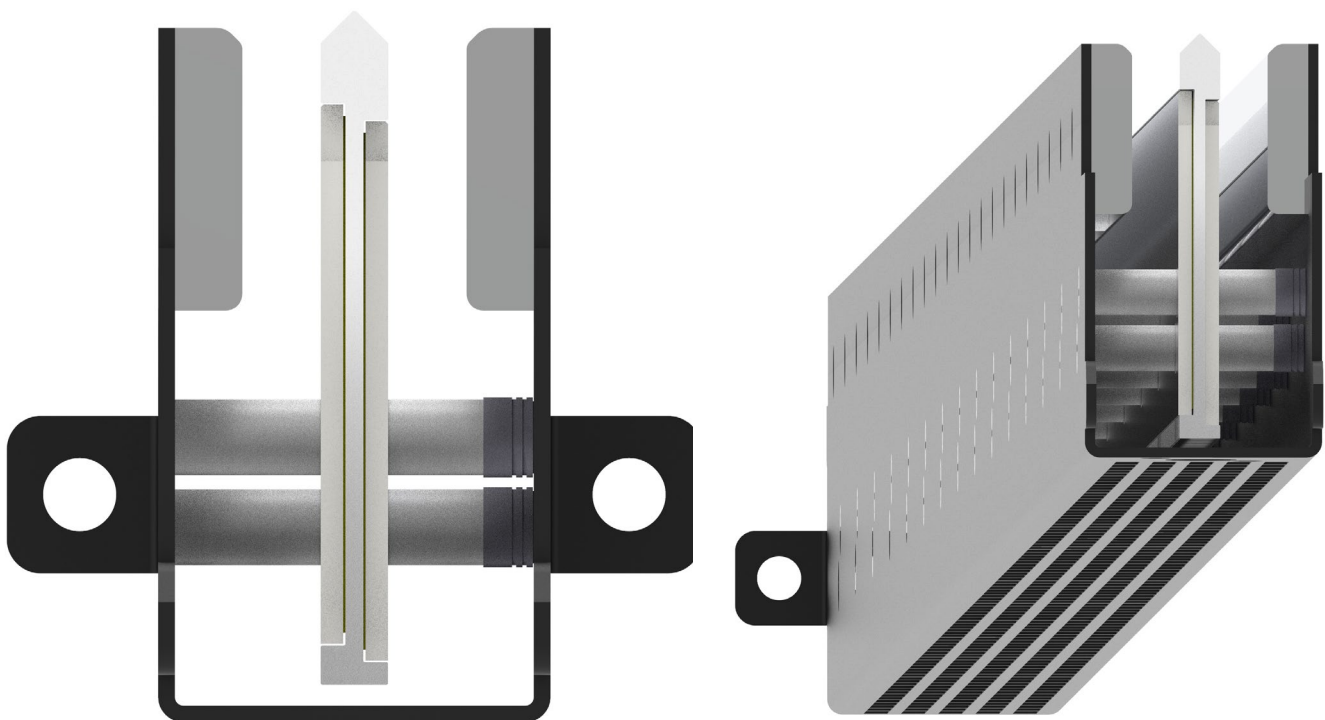


Figure 14 – Bus bar example – Plan view (Top) and Non Standard view