Hiko Power Engineering

CUSTOMER INSTALLATION INSTRUCTIONS

Reliability by Design.

IN0048 (R5) Universal Tank Mount LV Frames
Installation Instructions

04 July 2024

1 Purpose

The purpose of this document is to provide installation instructions for the Hiko Power Engineering range of pre-assembled Universal Tank Mount LV Frames.

In addition to these instructions, installation must comply with any other relevant general or site specific: regulations, standards, and environmental and safety requirements, including safe work practices, as specified in local and/or national work instructions or codes.

2 Scope

The range of LV Frames and Transformers covered by these instructions includes:

- All Universal Tank Mount LV Frames
- ETEL Minipad Transformers
- Hitachi Minisub Transformers (formerly ABB)
- Tyree Mini Sub Transformers

LV Frame components supplied consist of:

- Complete Frame Assembly with Mounting Tabs loosely attached.
- Transformer Tank Mount Horizontal Rail Brackets (x2), length to suit Frame size.
- Vertical Bracket Hitachi (ABB) for Tank Mount, length to suit Frame size.
    - Required for Hitachi (ABB) Tx only
- Spacer for Hitachi Tx 750kVA and above
- Tank Mount Mounting Bolts and Washers Kit. Includes M10 bolts and washers.
- Cables (supplied if requested)

This instruction assumes all installation work will be undertaken by appropriately trained and qualified installers of the LV Frame product.

3 Important Safety Information

- Wear appropriate personal protective equipment.
- Ensure all electrical components are isolated before making connections. Do not work on an energised system.
- Complete a risk assessment prior to commencing site work.
- Adhere to this work instruction for the installation of the Tank Mount LV Frame.

Customer Installation Instructions

4 LV Frame Technical Information

Tabulated below is dimensional, approximate weight and bracket length for the LV Frame. For Hiko accessory parts, see last page.

LV Frame		Approx. Frame External Dimensions (mm)			Tank Mount Horizontal Bracket Length (mm)	
Size Spec	Approximate Weight*	Depth incl. Bracket	Width	Height w Feet	Length	Hole Ctrs
LV800	85 kg	405	880	920-1000	960	600
LV900	95 kg	405	980	920-1000	1100	600

* *Fully populated*

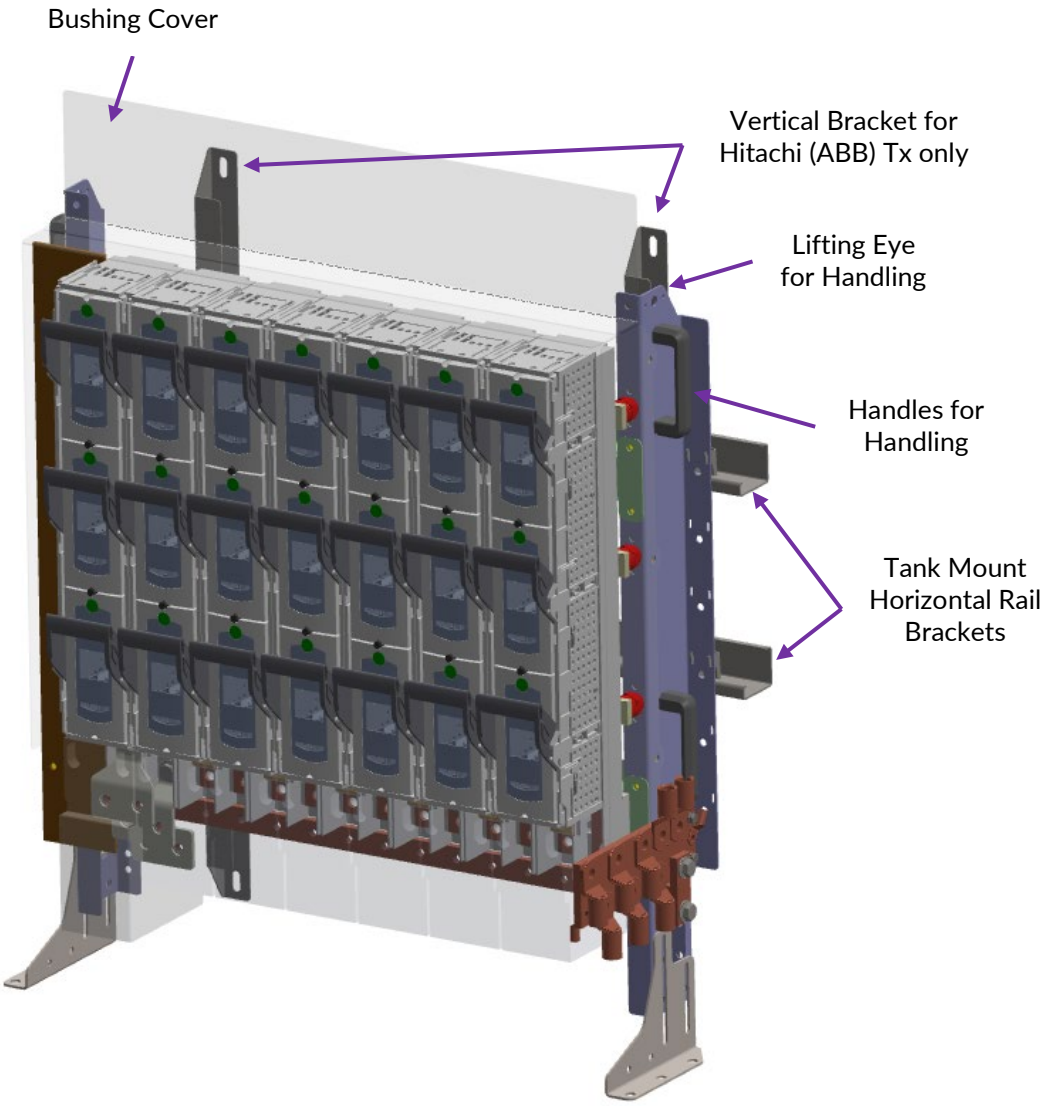


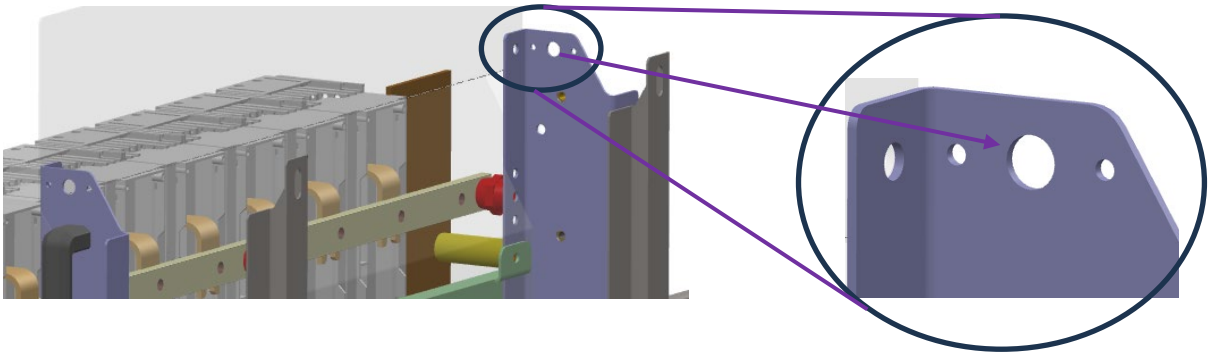
Figure 1: Universal Tank Mount Assembly for ABB - For Reference Only

5 LV Information for Handling

Upon unboxing, inspect product for damage prior to installation. The LV frame includes lifting eye and handles for ease of handling and transport. Note that the LV frame may be unstable when unbolted from the pallet.

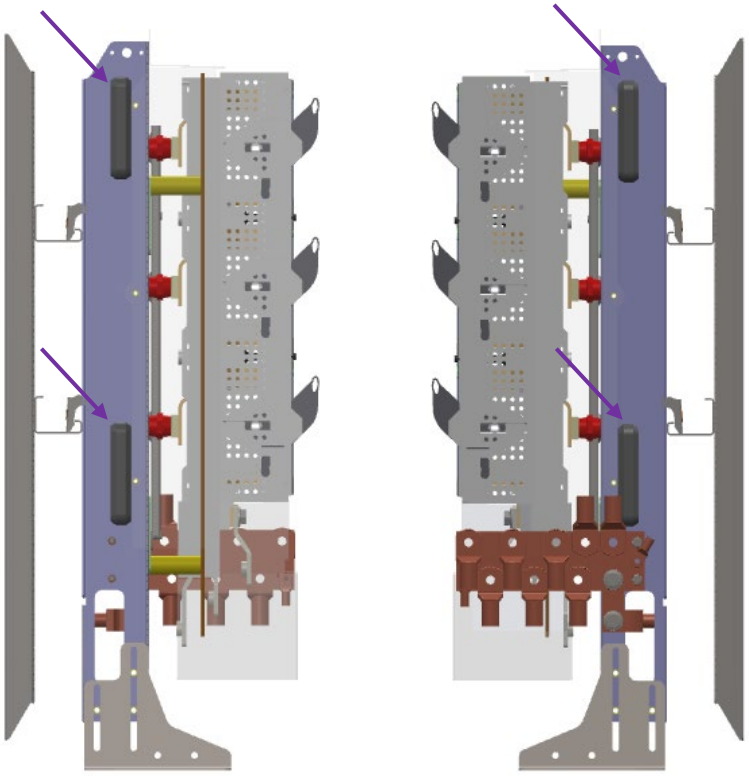
Lifting Eye

A 13mm hole located on top of each leg intended to be used in conjunction with up to a 12mm D-shackle. The D-shackles must have a minimum working load limit of 200kg (0.22 Tonnes). It is required to use a spreader bar to safely lift the LV frame for transport.



Carrying Handles

Each LV frame is fitted with two carrying handles on either side of the frames for ease of handling.



6 LV Frame Installation

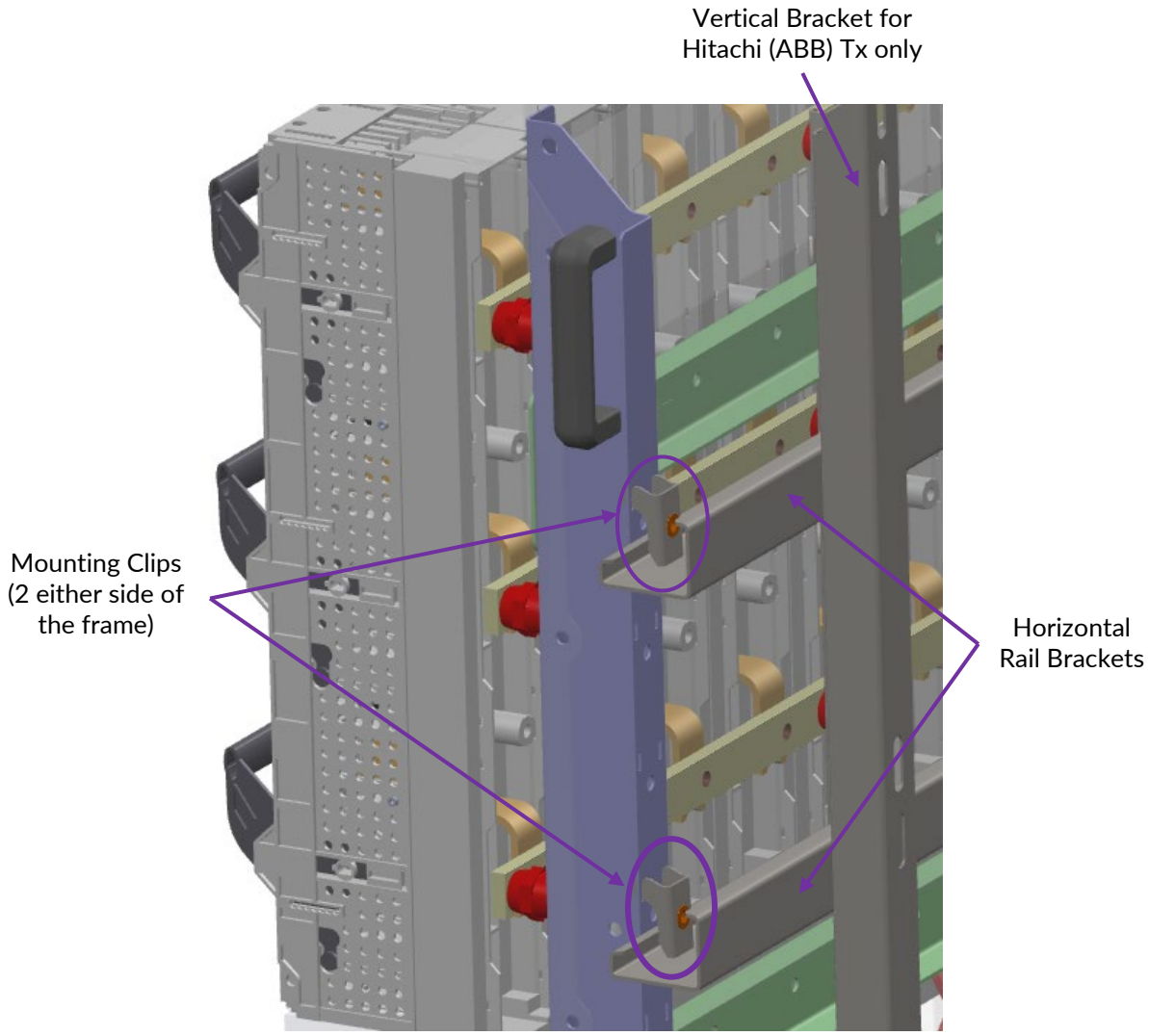


Figure 2: Tank Mount Frame showing Bracket Assembly

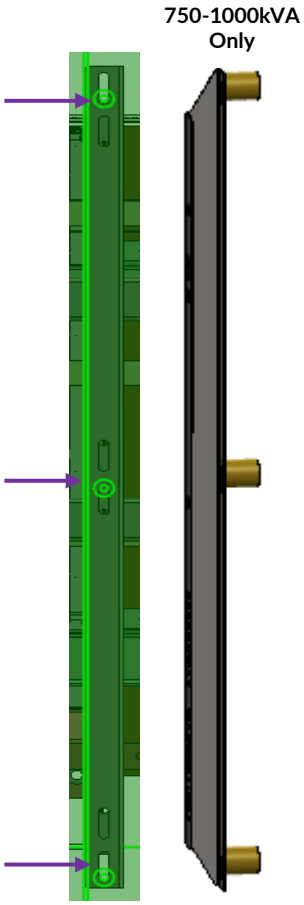
1. To install the frame into the appropriate transformer
    a. For Hitachi (ABB) Transformers, proceed to Step 2
    b. For Etel or Tyree Transformers, proceed to Step 3

Socket Sizes for Bolts Used

M8 Bolt	M10 Bolt	M12 Bolt
13mm socket	17mm socket	19mm socket

2. For Hitachi (ABB) Transformers, align the Vertical Bracket on the Transformer cubicle mounting holes and install by bolting the bracket onto the transformer with the M10x16 bolts, spring and flat washers provided.

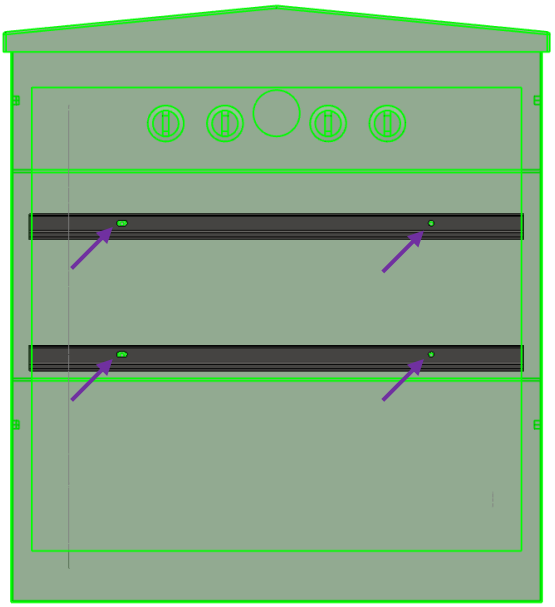
   Additional Note for 750kVA and above:
   Place the spacer behind the Vertical Bracket to ensure it clears the cubicle gusset and install using the M10x60 bolt, spring washer and flat washer provided.



   Mount the Horizontal Bracket to the installed Vertical Bracket using the M10x20 bolt, spring washer and flat washer provided.

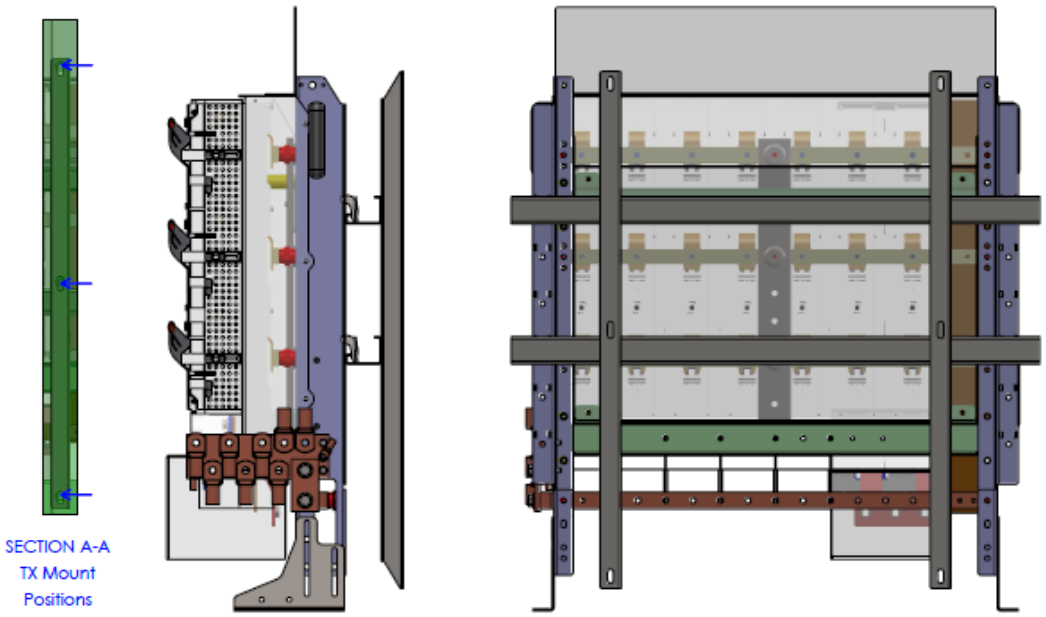
   See next page for mounting reference.

3. For Etel or Tyree Transformers, bolt the Horizontal Bracket to the Transformer using an M10x16 bolt, spring washer and flat washer provided in a bag and hand tight for secure installation. See page 7 for mounting reference.

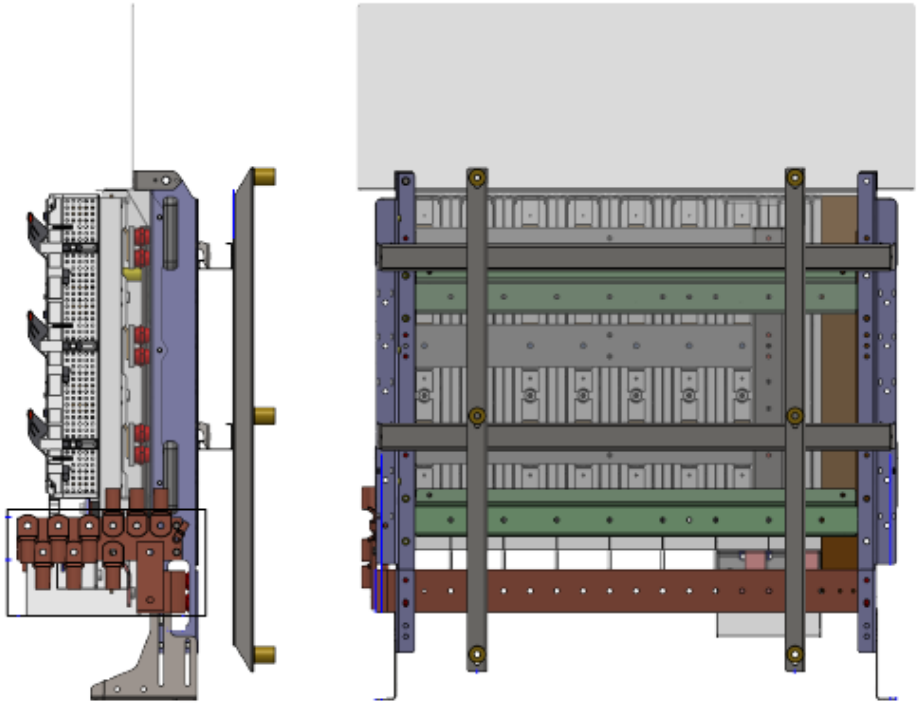


Hitachi (ABB) Transformers

200-500kVA Mini Sub

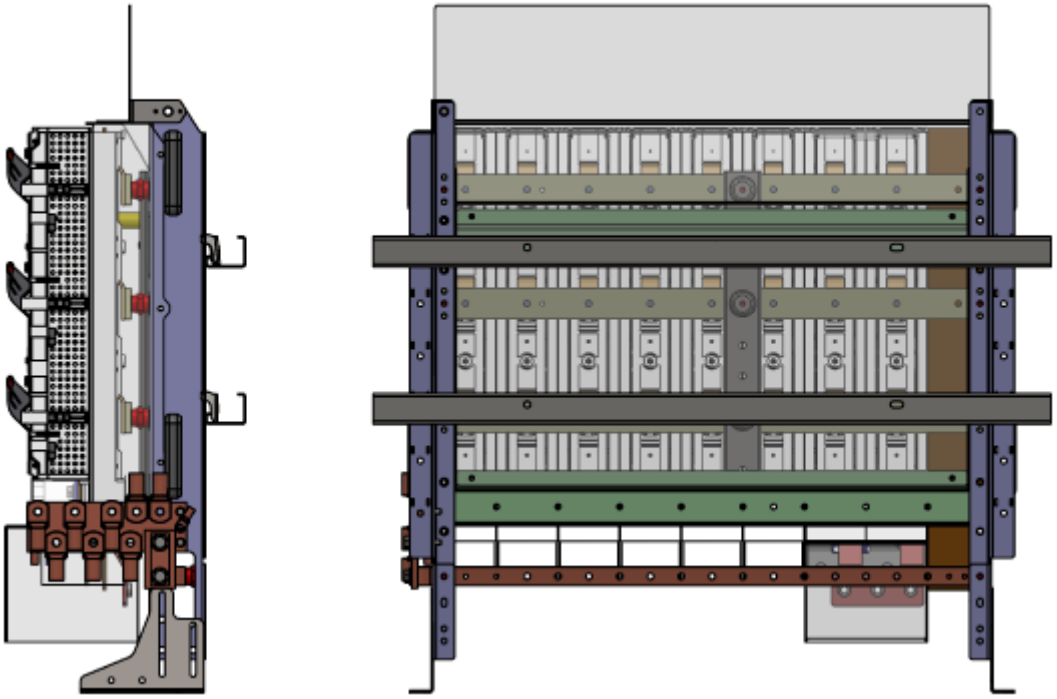


750-1000kVA Mini Sub

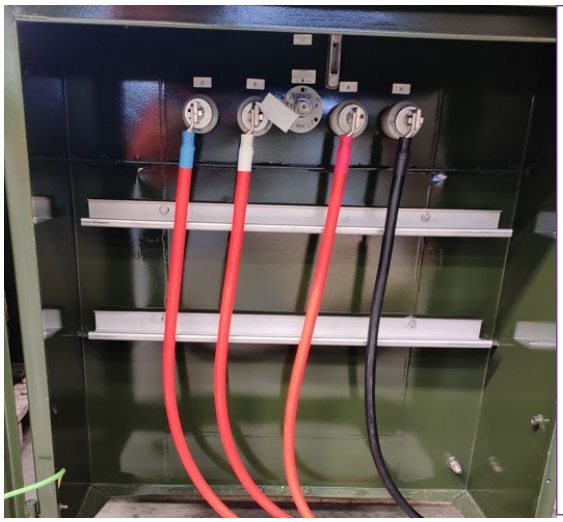


ETEL or Tyree Transformers

200-750VA Minipad

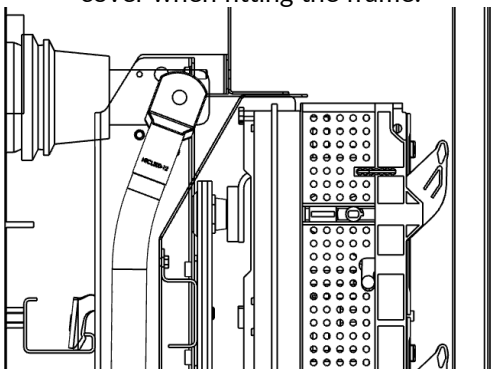


4. Connect the cables to the bushings.



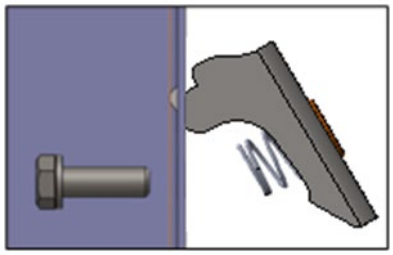
For 500 kVA ETEL Transformers only

The cable lug must be angled slightly towards the bushings otherwise it will hit the rear cover when fitting the frame.



5. The Mounting Clip should be in the correct location for the Transformer height, but if a different height is desired, the Clips can be moved up or down as shown below.

   a. Remove the M8 bolt and rotate the Clip until it is free of the Leg slot.

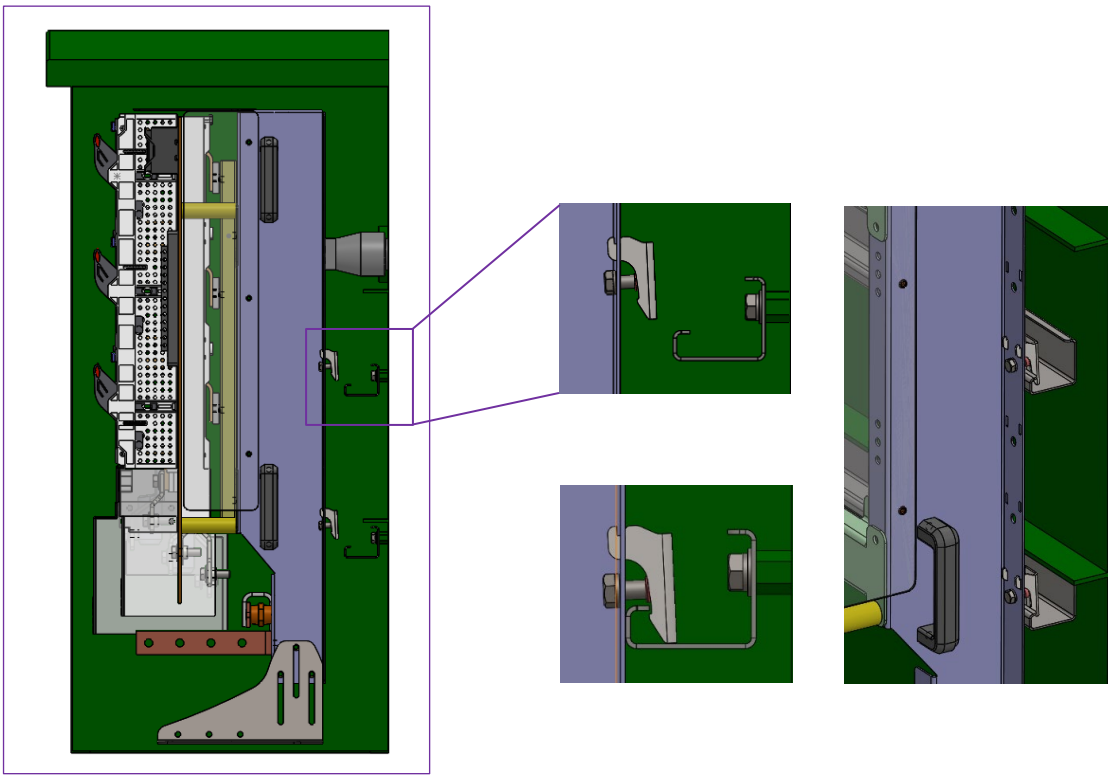


Note: *there's a spring that goes onto the clip to support latching onto the leg. The clip will still latch onto the rail if the spring is accidentally removed.*

   b. Move the Clips up or down to the required position and place back in the slot, in the reverse order of the removal procedure.

   Note: Ensure there is two gap spaces between the two mounting clips to match the Bracket spacing which is nominally 255mm.

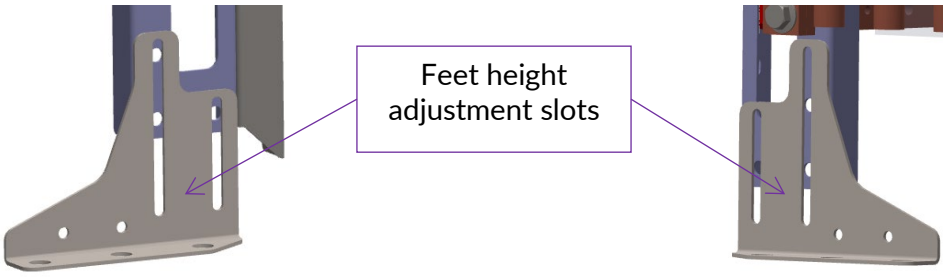
6. Lift the Frame into place and hook onto the Tank Bracket as shown below.



7. Once the four Mounting Clips are mounted onto the horizontal bracket, the M8 Stainless bolts can be tightened. The maximum torque of **10Nm** should not be exceeded.

   It is recommended to avoid using impact driver as it could exceed the 10Nm maximum torque.

8. The LV Frame is now securely installed to the tank. The feet can either be removed or the height of the feet can be adjusted and bolted down if required.

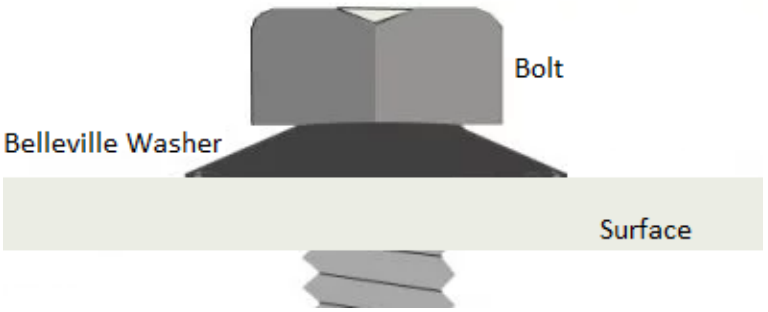


9. Install the earth cables as required

7 LV Disconnect Installation Summary

1. Disconnect bolts are required to be torqued in two key locations:
   a. Disconnect bolts fastening to the busbar
   b. Outgoing terminal bolts of the disconnect with cable fitted. If no cable is fitted onto the outgoing terminal bolt, only finger tight is required.

Note: Ensure the Belleville washers are right way around when re-fastening the bolts.

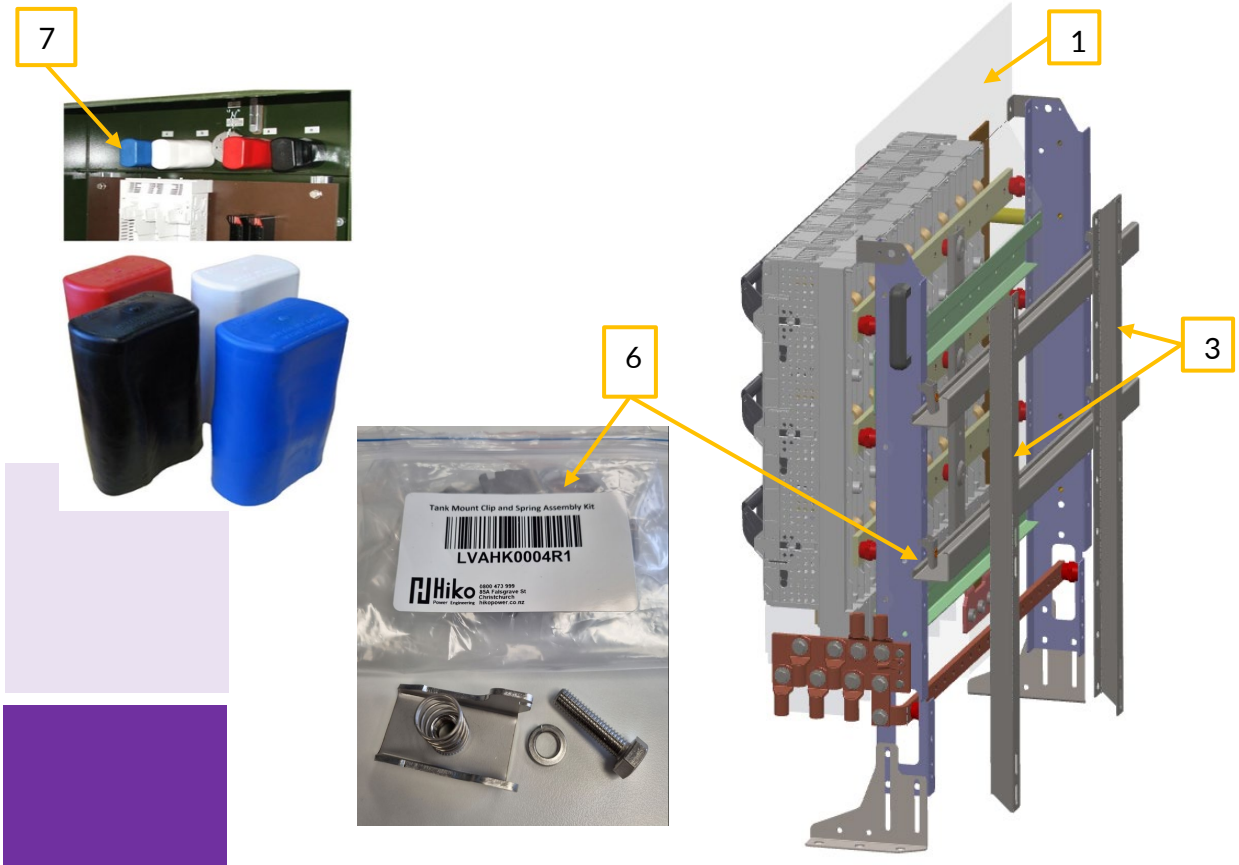


2. Depending on the size of the disconnect and/or bolts, follow the torque requirements below.

Torque Requirement for Disconnect Bolts on the Busbar		
DIN Size	Bolts Size	Torque (Nm)
DIN 2, 3	M12	40
DIN 00	M8	12

Torque Requirement for Outgoing Terminal Bolts of the Disconnect with Cable Fitted		
DIN Size	Bolts Size	Torque (Nm)
DIN 2, 3	M12	40
DIN 00	M8	12

3. Spare way cover in place of a disconnect, shall be installed with a nylon bolt M12 x 30 mm.

8 LV Tank Mount Frame Spare Parts List

Item #	Part Description	Part No.	Qty per Frame	Applicable To
1	LV800 Bushing Cover - Common Tank Mount Leg	PC272	1	All LV800 Wide Frames
2	LV900 Bushing Cover - Common Tank Mount Leg	PC273	1	All LV900 Wide Frames
3	940mm Vertical Bracket for 300kVA Hitachi Tx Assembly Kit	LVAHK0006	1	200-300kVA ABB/Hitachi Tx
4	820mm Vertical Bracket for 500kVA Hitachi Tx Assembly Kit	LVAHK0007	1	500kVA ABB/Hitachi Tx
5	950mm Vertical Bracket for 750-1000kVA Hitachi Tx Assembly Kit	LVAHK0008	1	750-1000kVA Hitachi Tx
6	Tank Mount Clip and Spring Assembly Kit (Kit of 4)	LVAHK0004	1	All
7	Low Voltage Boot Caps	HL0004	1	All
8	Tank Mount Mounting Bolts and Washers Kit (Kit of 6)	LVAHK0005	1	All