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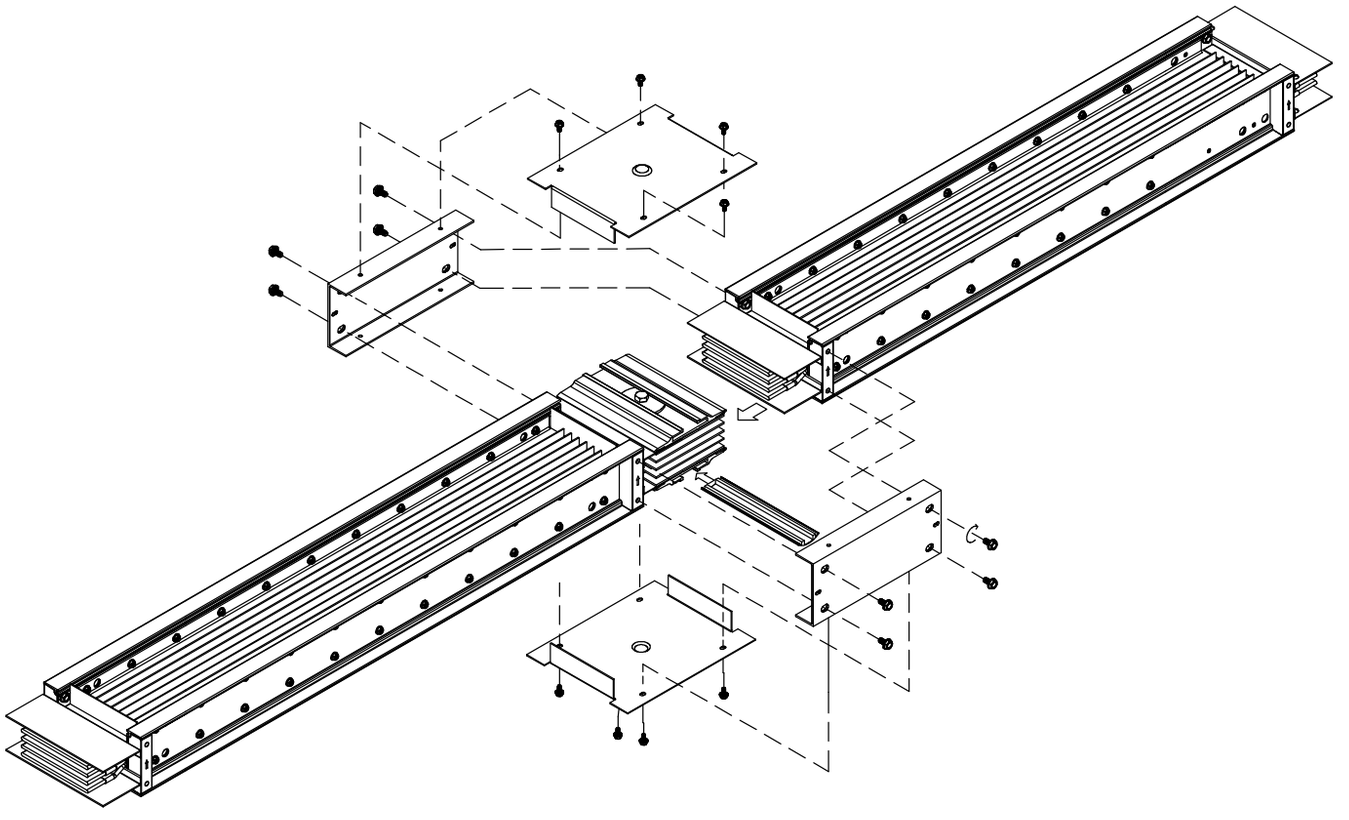
RST

POWERDUCT

SERIES BUSWAY



Installation Manual

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER
DANGER indicates an imminently hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING
WARNING indicates a potentially hazardous situation which, if not avoided, **can result in** death or serious injury.

⚠ CAUTION
CAUTION indicates a potentially hazardous situation which, if not avoided, **can result in** minor or moderate injury.

NOTICE
NOTICE is used to address practices not related to physical injury. The safety alert symbol is not used with this signal word.

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Power Plug Busduct for any consequences arising out of the use of this material.

Introduction

This publication is a guide of practical information containing instructions for handling, installation, operation and maintenance of Powerduct busway and some busway accessories. These recommendations and guidelines will be valuable to electrical engineers, electrical contractors, electricians, maintenance engineers and others person who responsible for the handling, installation, operation and maintenance of Powerduct. This manual will be updated to reflect certain relevant developments in Powerduct.

General Information

Please read the following warning very carefully before proceeding with any installation, operation and maintenance of Powerduct busway.

Warning:

Please take extreme caution when working in or around electrical equipment as there is a hazard of electrical shock can cause severe injury.

1. It is important to have good communications with air-conditioning, plumbing and heating contractors and other site personnel for proper planning and coordination ,which will result in good busway layout.
2. The successful operation of Powerduct will depend to a large degree on proper handling, installation, operation and maintenance as per stated in this manual .Failure to follow fundamental installation and maintenance requirements could lead to personal injury and subsequent damage to the busway (or even loss of the busway) and other property.

Handling (Including Unpacking)

These guidelines are provided to help reduce the risk of personal injury and equipment damage during handling.

1. Always take good care while unpacking.
2. Use nail pullers for unpacking wooden crates to void damage.
3. Take good care when handling busway. Do not subject busway to twisting, denting impact and from of rough handling which can result in damage to internal components and the housing or its finish.
4. Never use bus bar ends for lifting busway sections fittings. Apart from running the risk of dropping the busduct. This method of lifting busway can also cause injury. If a crane (overhead or other) is used for busway installation , use nylon straps to balance the weight of each lift. Open up busway packaging sufficiently to check it for concealed damage as well as to make sure shipment is complete and correct.

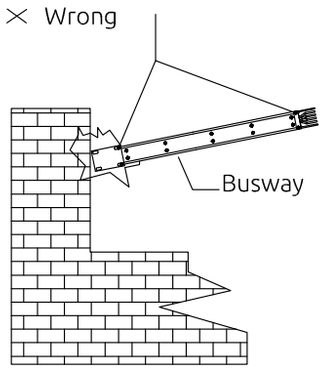


Figure 1.1 Void rough handling

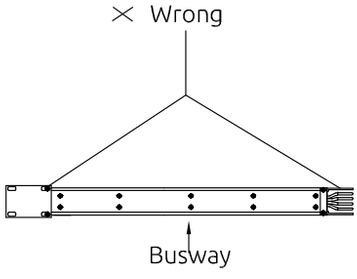


Figure 1.2 Do not use busbar ends for lifting

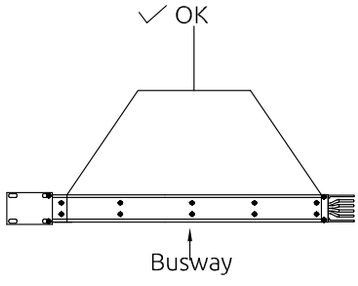


Figure 1.3 Use a balanced set up for lifting busbar section

5. Open up busway packaging sufficiently to check it for concealed damage as well as to make sure shipment is complete and correct.
6. If the busway are not required for immediate installation and need to be stored for some time restore the packaging for protection.
7. Know the capacity of the moving means (overhead crane, hoists block & tackle etc.) available to handle the weight of the busway sections and fitting. Refer to Powerduct Catalogue to check the weight of straight lengths.
8. Forklift trucks can be used to effectively handle busway. With a forklift, busway can be hoisted between floors with ease. Power operated lifts or elevators can be used to effectively move busway between elevations.
9. Do not drag the busway across the floor this can damage the housing and finish (paintwork).

Storage Precautions

Before storing, unpack thoroughly to make a check of the Busway for possible concealed damage and notify the shipper immediately for any damage reported. If the Busway is free of damage, restore the packing until ready for installation. Store indoors in a clean, dry area, preferably close to the installation points. Protect the busway from mechanical damage and any contact with or exposure to corrosive fumes, liquids, salts, or concrete. Failure to store and protect the busway properly can cause serious damage and will ***void the warranty.***

1. Always store busway in clean and dry place having a uniform temperature to prevent condensation. Ensure that the busway are protected from dirt, fumes, water and physical damage.
2. Do not store busway in a outdoor environment. If busway must be stored outdoor, make sure that the busway are securely covered to provide maximum protection from weather (mainly rain) and dirt (see Figure 2).
3. Out door busway (weather proof) and indoor busway should be treated the same until they are fully installed.
4. For vertical rise, it is good practice to store busway on the floor above where they will be installed, so that they can be easily lowered into position.

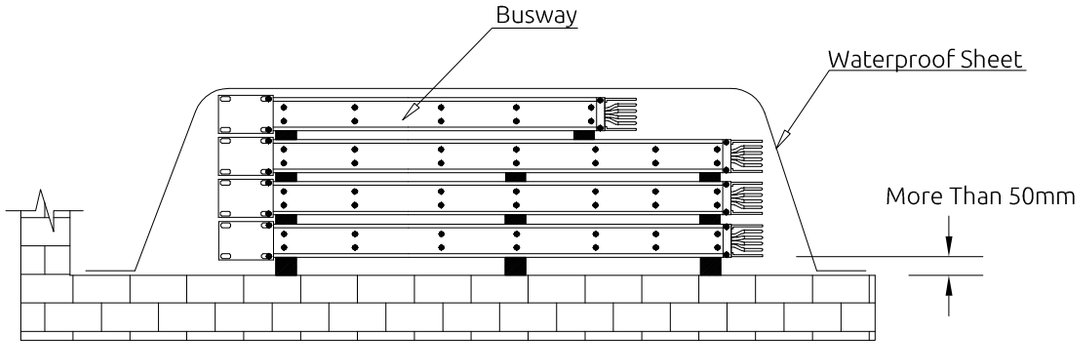


Figure 2. Outdoor storage method

Hold Element Busway Measuring

Hold element is the busway part which is the dimension is not confirm in the early stage of the design.

The customer will later measure the busway length for final fitting

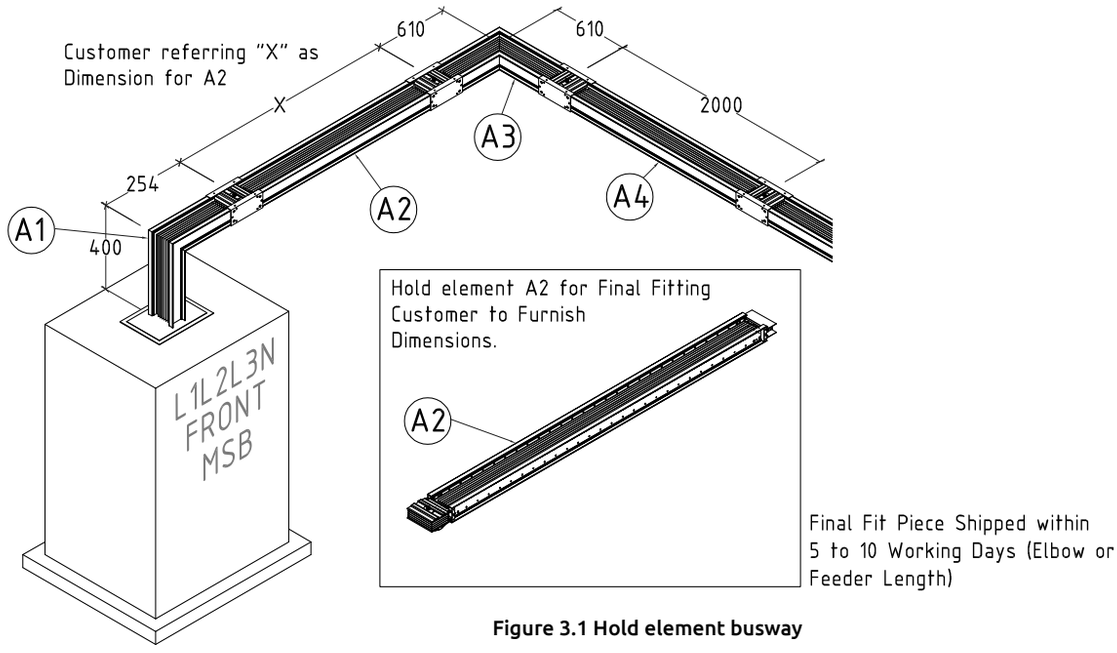
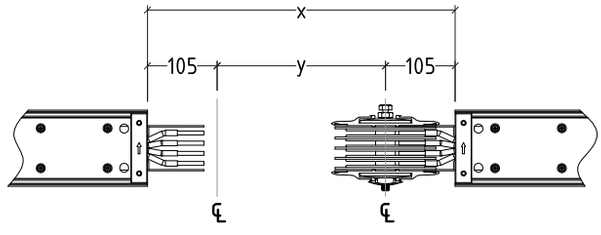


Figure 3.1 Hold element busway

How to measure the busway length

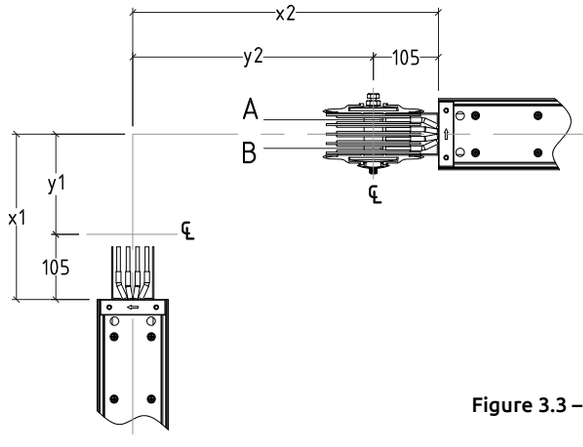
3.1 Straight Feeder Unit (FST)



The nominal dimension "y" of the feeder unit is subtracting 210mm from the dimension "x" measured.
Example dim. x = 1523 - 210 = 1313mm dim "y".

Figure 3.2 – Straight Feeder Unit (FST)

3.2 Edgewise Elbow (EDW)

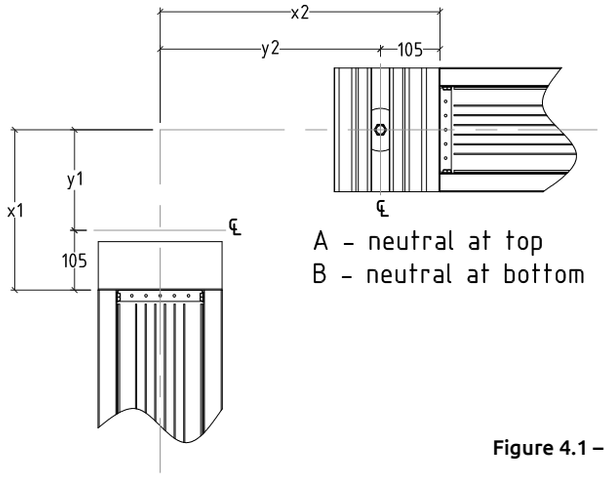


The nominal dimension "y1" and "y2" of the elbow unit is obtained by subtracting 210mm from the dimension "x1" and "x2" measured.

Neutral position should be indicated
(A or B)

Figure 3.3 – Edgewise Elbow (EDW)

3.3 Flatwise Elbow (FLW))

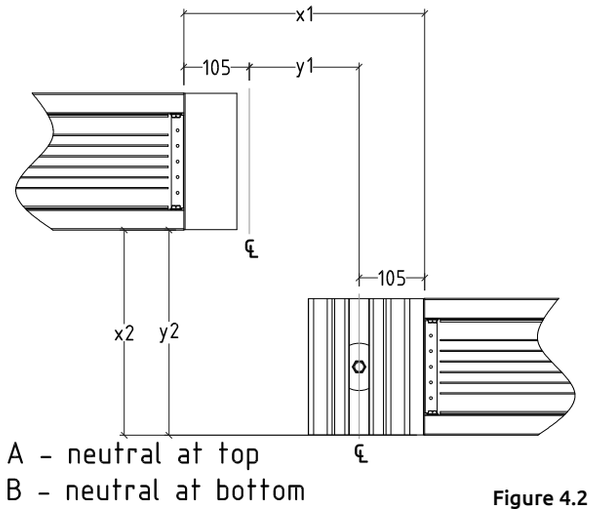


The nominal dimension "y1" and "y2" of the elbow unit is obtained by subtracting 210mm from the dimension "x1" and "x2" measured.

Neutral position should be indicated (A or B)

Figure 4.1 – Flatwise Elbow (FLW)

3.4 Flatwise Offset (FO)

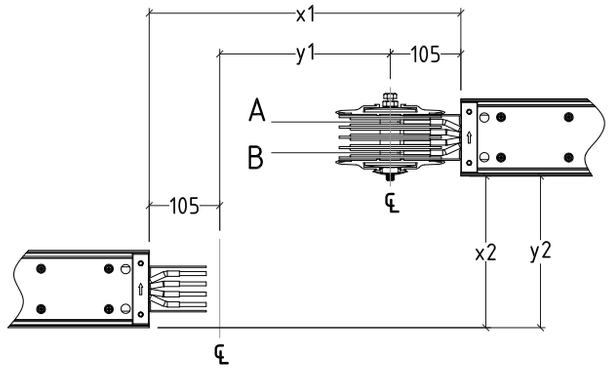


The nominal dimension "y1" of the elbow unit to be ordered is obtained by subtracting 210mm from the dimension "x1" measured.
The "x2" is the nominal dimension.

Neutral position should be indicated (A or B)

Figure 4.2 – Flatwise Offset (FO)

3.5 Edgewise Offset (EO)



The nominal dimension "y1" of the elbow unit to be ordered is obtained by subtracting 210mm from the dimension "x1" measured.
The "x2" is the nominal dimension.

Neutral position should be indicated (A or B)

Figure 4.3 – Edgewise Offset (EO)

Pre-Installation Procedure

If possible, please deliver the busway to its installation location before unpacking. Large labels on each shipping carton or crate designate the items contained. Additionally, each Busway piece is identified with an serial number label. Inspect each Busway piece for possible damage or contamination. Contact surfaces must be clean. However, do not attempt to polish tarnished contact surfaces. Check to ensure that joint insulators are not damaged or cracked and are firmly in place. ***Mega ohm test each piece with 1000Vdc before installation.***

Busway Installation

Establish the bus bar phase sequence (Arrow on the end block) to determine how the Busway is to be installed, so that correct phasing is maintained throughout the system. Note that phase transposition lengths, when furnished, may relocate the Arrow to the opposite direction of a Busway run. Each Busway section has a “bar end” and a “joint end”, as illustrated in Figure 5. Normally the busway is oriented end with bar ends pointing away from the source. In vertical risers installations, it is easier to lower the busway into place than it is to raise it.

If installation drawings have been furnished, information regarding the orientation of the Busway end for end, and direction of the Arrow, as well as other pertinent data, will be furnished. These drawings should be followed carefully to ensure a proper Busway system.

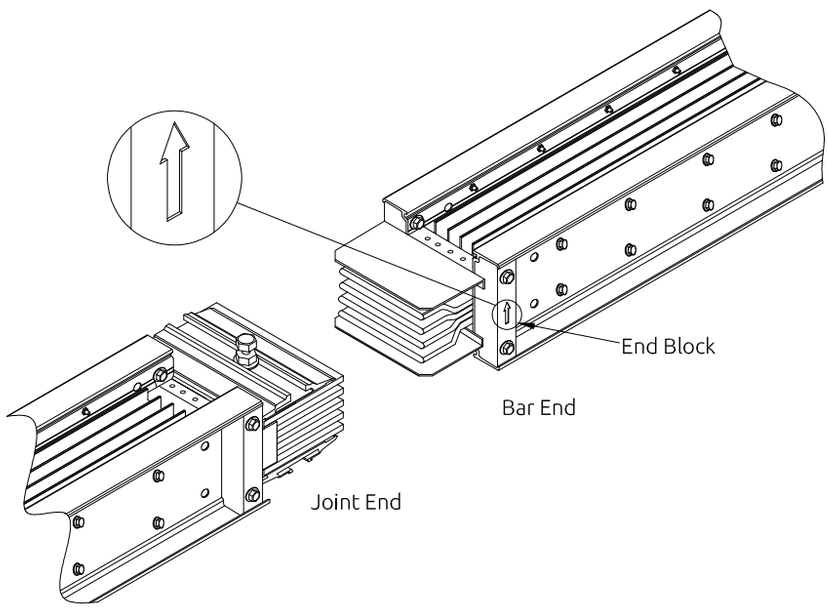


Figure 5. The bar end and joint end of the busway

Jointing Busway Procedure

1. Remove both joint cover, shown in Figure 6.1, retain the bolts.
2. Aligned the busway to be joined by matching up arrow. If necessary, loosen the joint bolt.

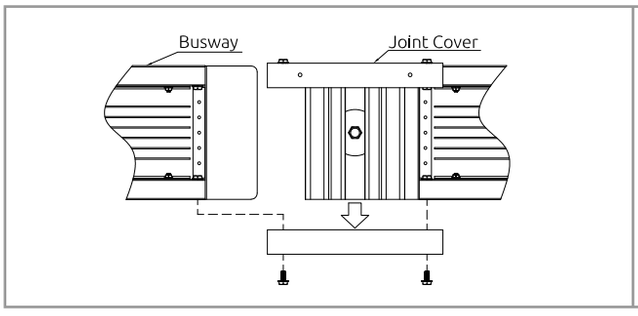


Figure 6.1. Top view

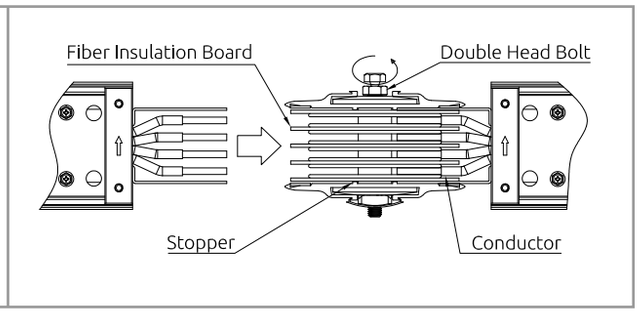


Figure 6.2. Front View

3. Pull the steel rod as per arrow direction using installation tool kit shown in Figure 6.3

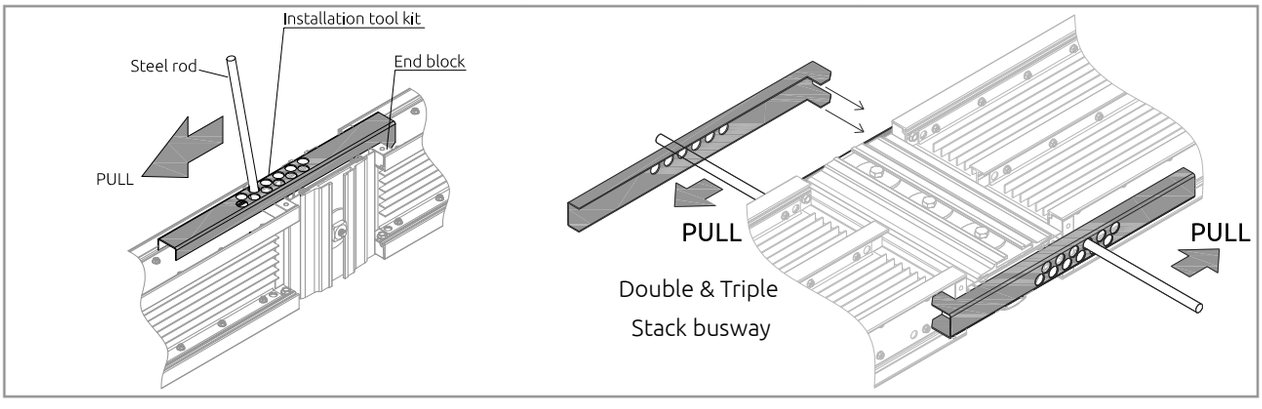
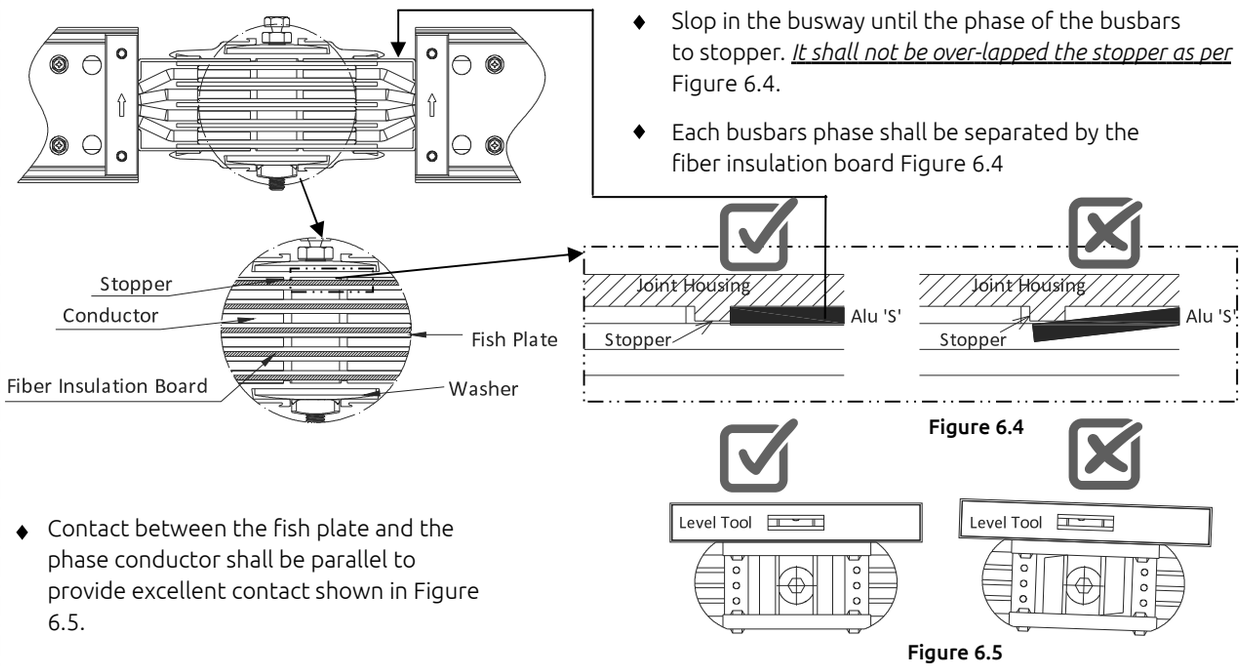


Figure 6.3

CHECK!!



- Slop in the busway until the phase of the busbars to stopper. *It shall not be over-lapped the stopper as per* Figure 6.4.
- Each busbars phase shall be separated by the fiber insulation board Figure 6.4

Figure 6.4

- Contact between the fish plate and the phase conductor shall be parallel to provide excellent contact shown in Figure 6.5.

Figure 6.5

4. Tighten the screw until the screw cap is broken and the tag fall (Figure 7.1 & 7.2) means the torque is applied. If necessary, use the torque wrench for double checking the tighten of the bolt. ***Make sure the minimum torque is 50 lb-ft or 68N-m.***

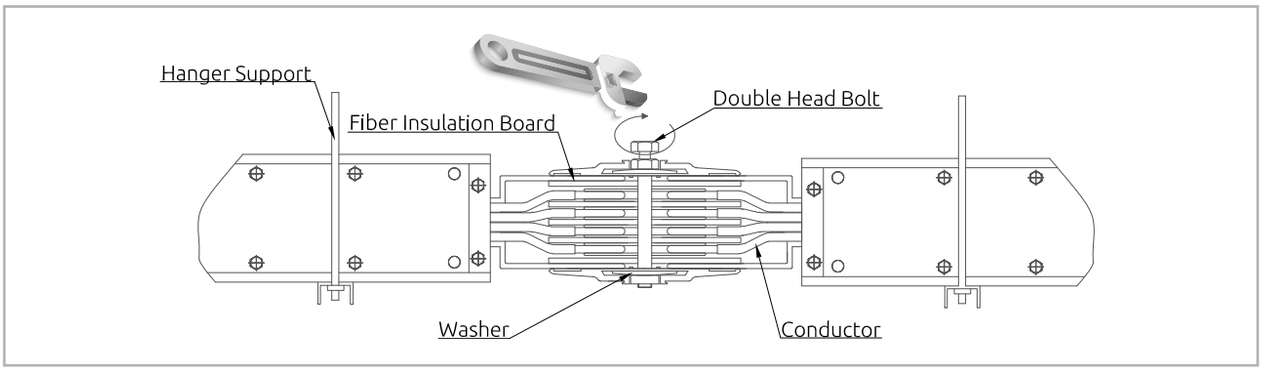


Figure 7.1

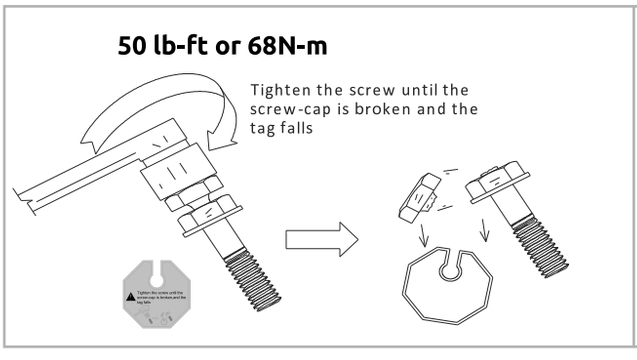


Figure 7.2

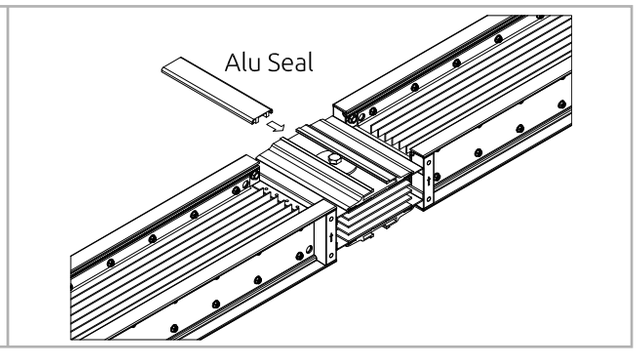


Figure 7.3

5. Install the alu seal as shown in Figure 7.3.

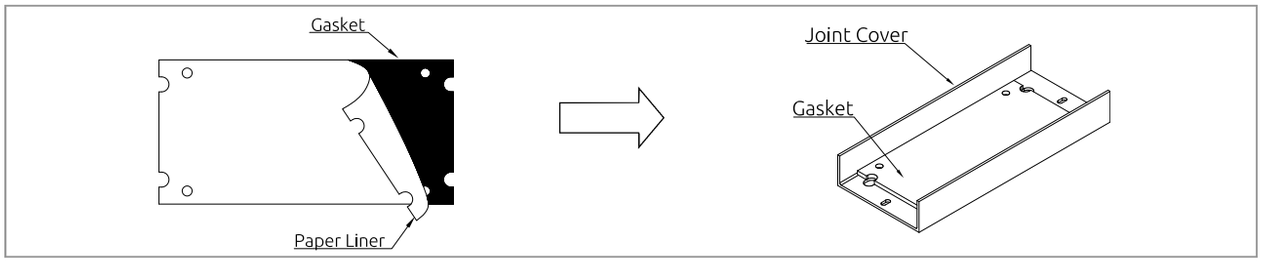


Figure 7.4

6. Paste the gasket to joint cover as shown in Figure 7.4.
7. Install back the joint cover as shown in Figure 7.5. Complete installations.

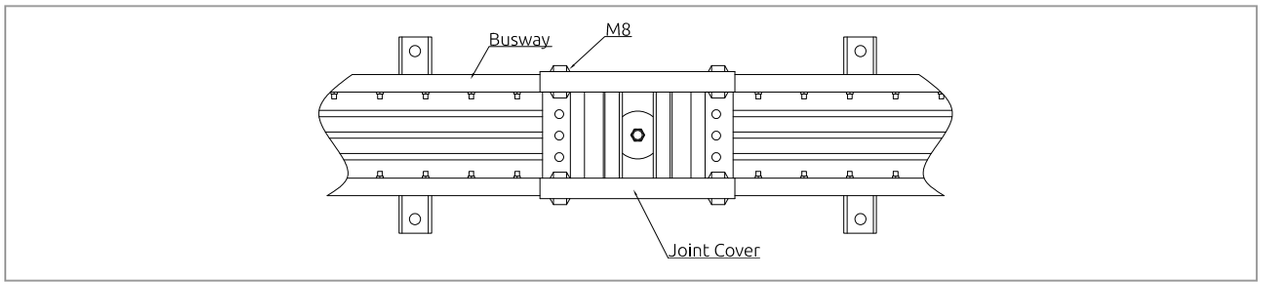


Figure 7.5

Installation Procedure

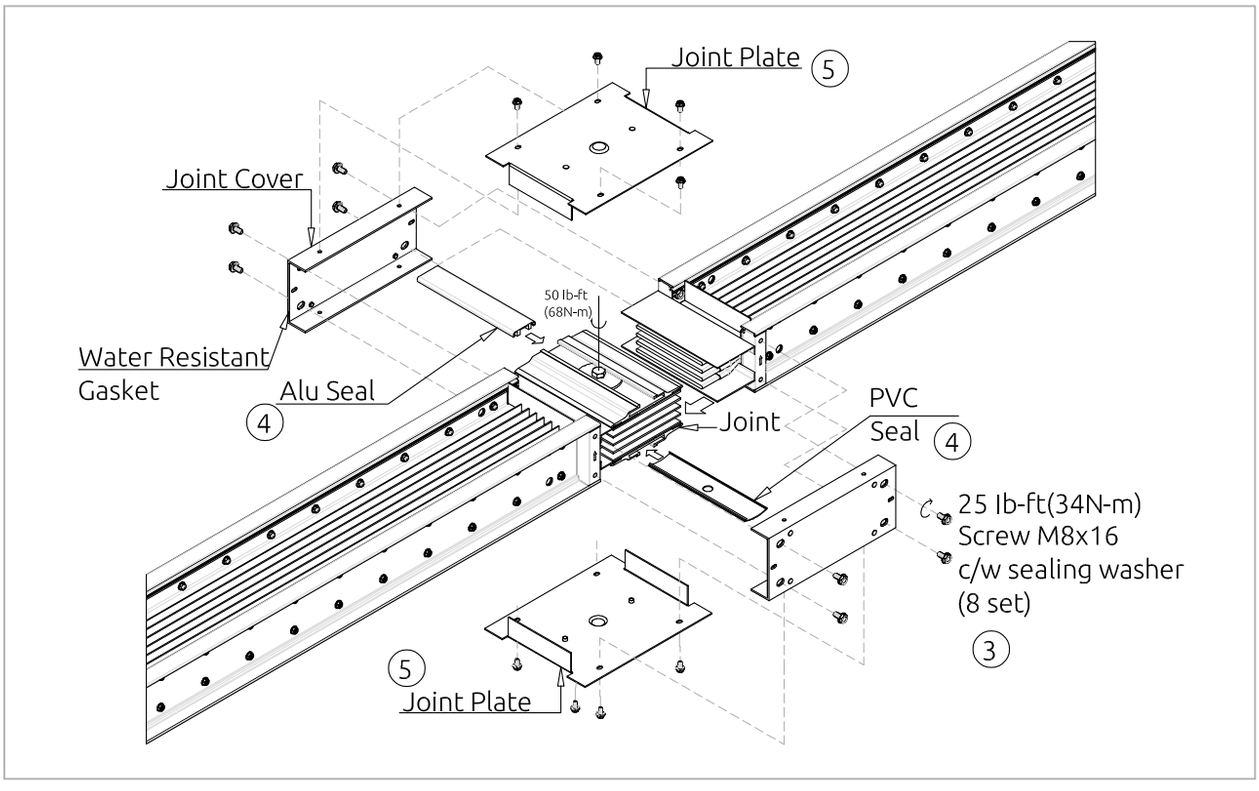


Figure 8.1 Assembly of outdoor busway joint. Correct way to assembly of joint shields is illustrated.

Steps in installing outdoor busway system:

1. Gasket will be provided as shown in Figure 8.2
2. Paste it on inner part of joint covers.
3. Joint two feeder together, and eventually attach joint cover on both sides of the joint with flange bolt and sealing washer as shown in Figure 8.1
4. Attach Alu seal and PVC seal on the top & bottom of joint as shown in Figure 8.1
5. Assemble the joint plate as shown in Figure 8.3
6. Apply sealant to enhance gasket areas as shown in figure 8.3 at both side of the joint plates.

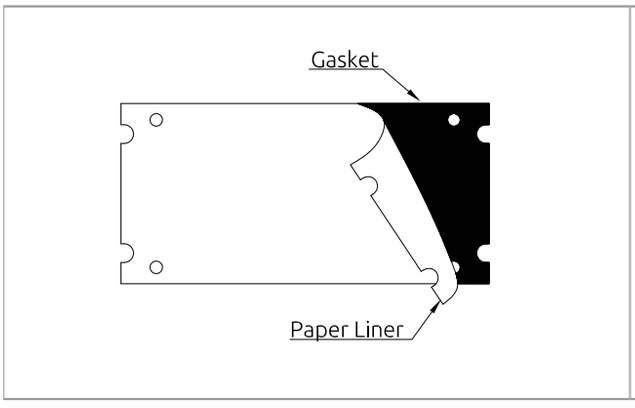


Figure 8.2. Water resistant gasket

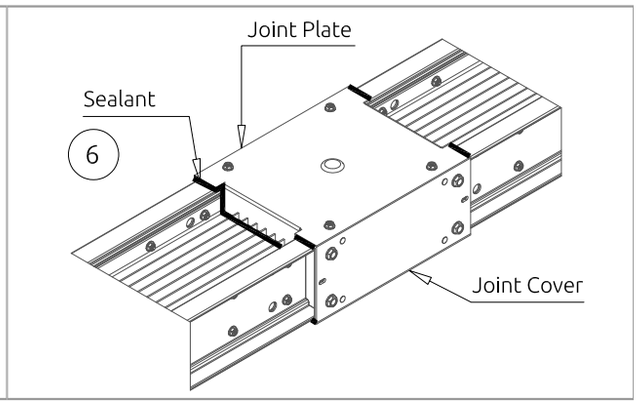


Figure 8.3 Water resistant / Outdoor joint

IP Gel Preparation

1. Shake well both compound A & B before pour into container.
2. Pour compound A & B into container.
3. Mixed the compound together. Compound A and B ratio is 1:1. Mixing one time per set and avoid mixing in a big batch to prevent hardening before pouring into busway.



Horizontal Position (I)

1. Joint two feeder together, and install alu seal and pvc seal as shown in Figure 9.1
2. Remove all hole plug from end block and alu 'S', apply sealant around all the hole (See Figure 9.2)
3. Plug the hole plug as per Figure 9.2 into inner side of busway joint.
4. Install the joint cover at the bottom of the busway as shown in Figure 9.3
5. Prepare the IP Gel.
6. Pour the mixed compound into the area until full and **countercheck it in full condition after 30min** as shown in Figure 9.4. Complete cure time is in 8-12 hours@ 25˚C or 1 hours 80 ˚C.
7. Installed back the top joint cover as shown in Figure 9.5
8. Complete Installation.

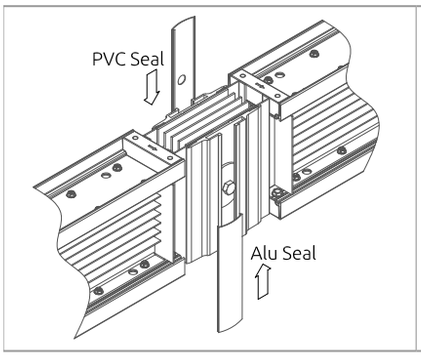


Figure 9.1

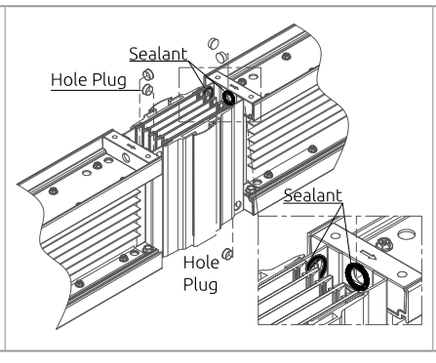


Figure 9.2

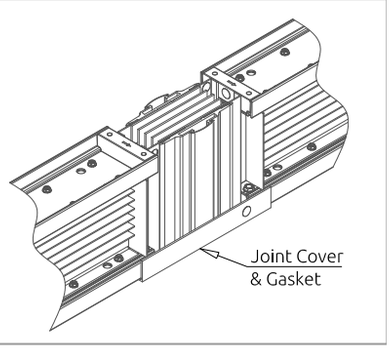


Figure 9.3

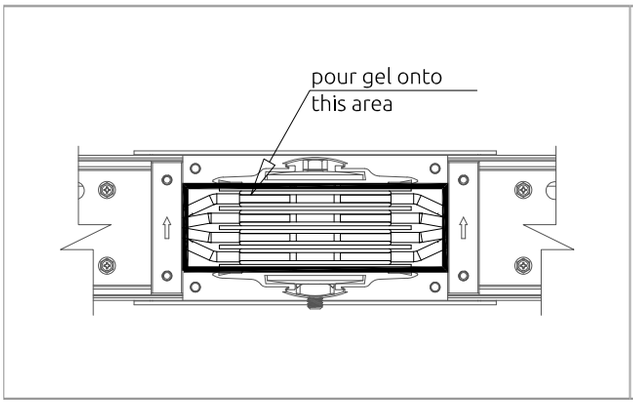


Figure 9.4

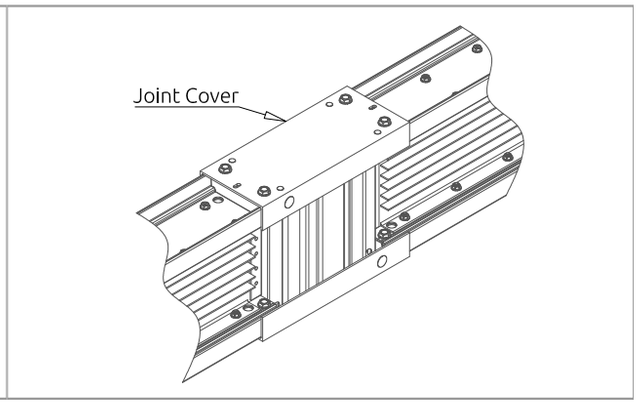


Figure 9.5

Horizontal Position (II)

1. Joint two feeder together, and installed alu seal and pvc seal as shown in Figure 10.1
2. Remove all hole plug from end block and alu 'S', apply sealant around (inner side of busway joint) all the hole except top side of alu 'S' (See Figure 10.2)
3. Plug the hole plug for all end block and bottom alu 'S' as per Figure 10.2 into inner side of busway joint.
4. Installed the joint cover for both side of the busway and remove the hole plug (2pcs) as shown in Figure10.3.
5. Prepare the IP Gel.
6. Concurrently pour the mixed compound into both holes using liquid funnel until full and **countercheck it in full condition after 30min** as shown in Figure 10.4. Complete cure time is in 8-12 hours @ 25°C or 1 hour @ 80°C.
7. Placed back all the top side hole plug which removed earlier as shown in Figure 10.5
8. Complete Installation.

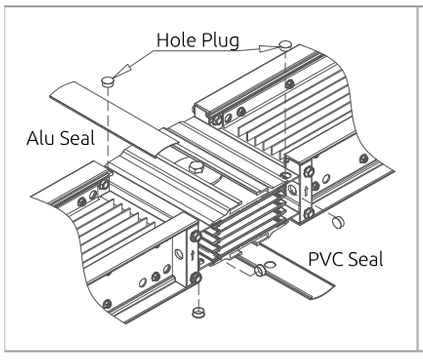


Figure 10.1

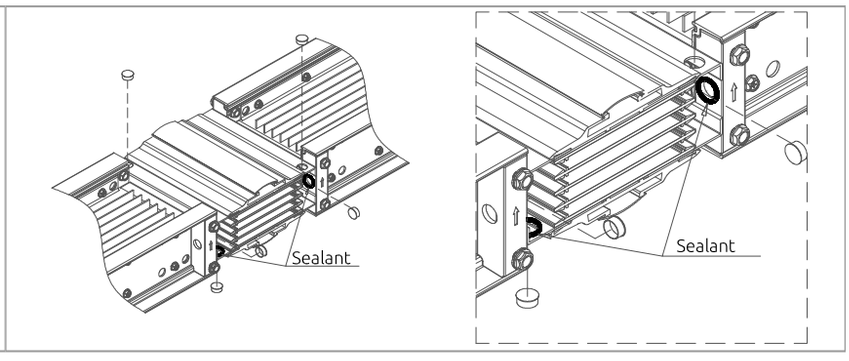


Figure 10.2

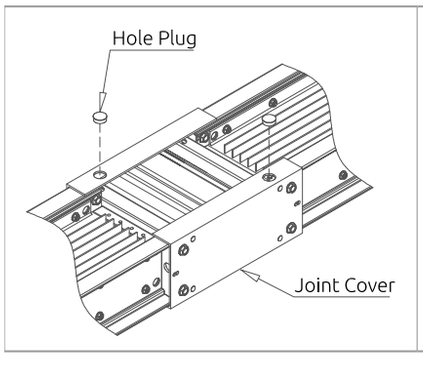


Figure 10.3

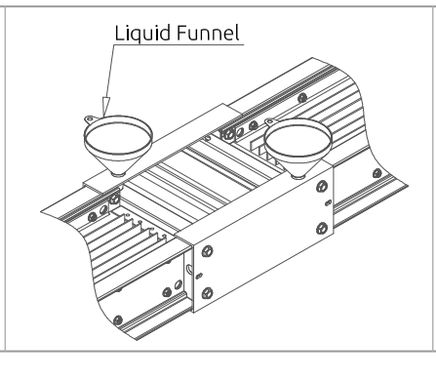


Figure 10.4

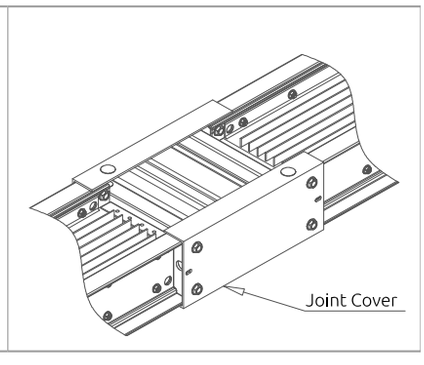


Figure 10.5

Vertical Position

1. Joint two feeder together, and install alu seal and pvc seal as shown in Figure 11.1.
2. Remove all hole plug from end block and alu 'S', apply sealant around all the hole (See Figure 11.2)
3. Plug the hole plug as per Figure 11.2 into inner side of busway joint except the top side of end block.
4. Install the both joint cover. (Figure 11.3)
5. Prepare the IP Gel.
6. Place the liquid funnel into the hole as shown in Figure 11.4
7. Pour the mixed compound onto the area until full and **countercheck it in full condition after 30min** as shown in Figure 11.4. Complete cure time is in 8-12 hours @ 25°C or 1 hour @ 80°C.
8. Complete installations.

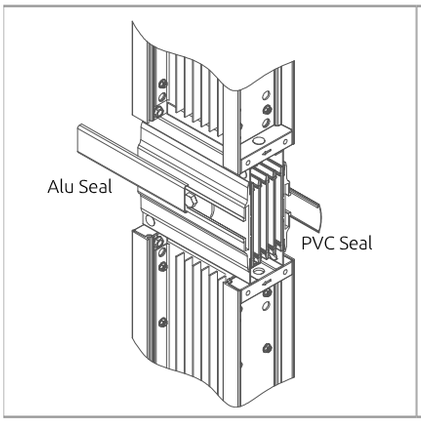


Figure 11.1

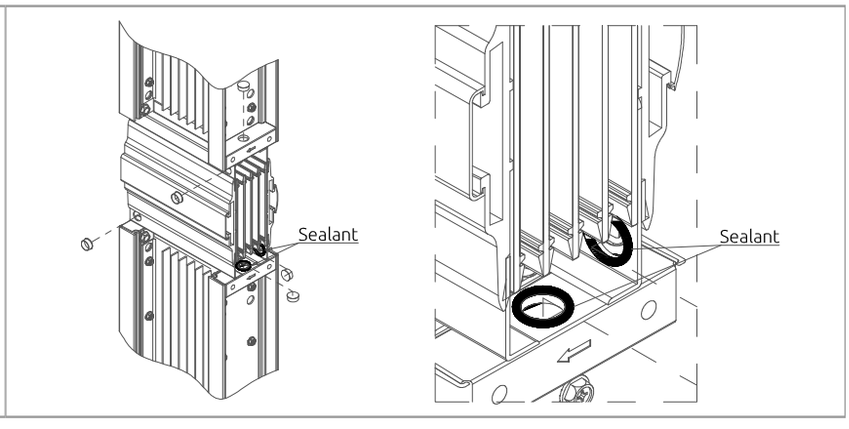


Figure 11.2

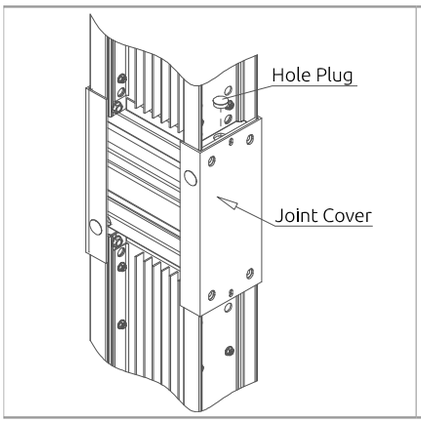


Figure 11.3

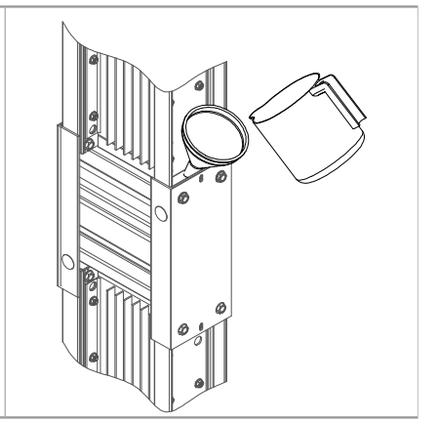


Figure 11.4

Horizontal Mounting

Overhead Support

For overhead-supported busway, ½ inch drop rods are recommended with a maximum 2.5meter spacing. Drop rods and other hardware must be furnished by the installer. Figure 12.1 illustrates mounting dimensions for typical installations:

- Maintain good alignment of the drop rods along the busway run.
- Do not support busway at the joints.
- After the busway is secured in the hangers, adjust the hangers on the rods for the correct elevation.
- Sway braces (furnished by the installer) may be required to keep the run straight or to prevent rotation.
- Manufacturer recommended each 1 meter busway adjacent must have busway cleat supported. Please check with manufacturer if cleat quantity provided is insufficient.

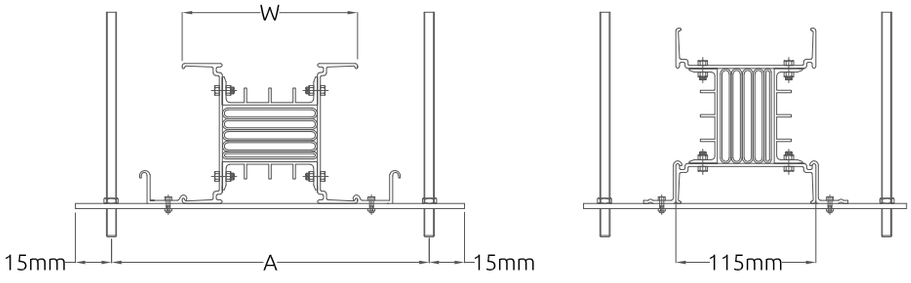
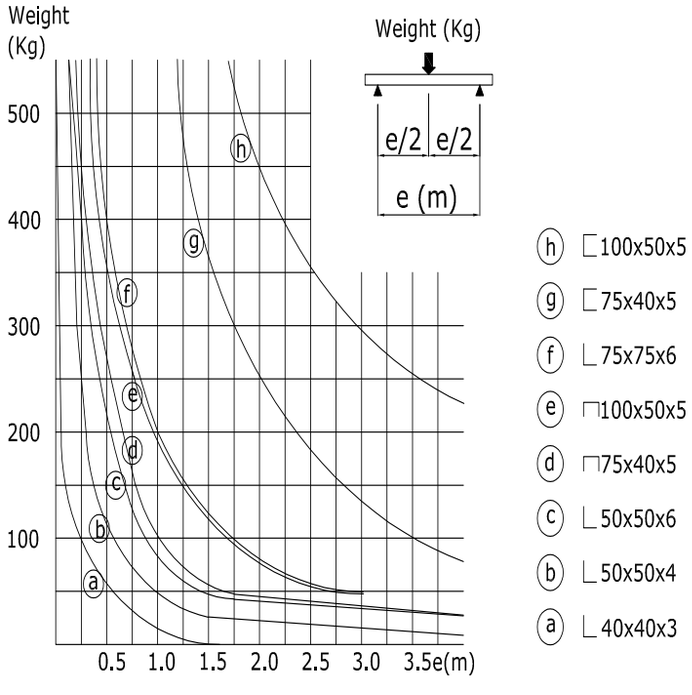


Figure 12.1 Dimension between drop rods for dual-hanger installations.

Bars Per Phase	Copper		Dim (mm)
	Ampere Rating	Busway (W)	Hanger (A)
1	400	89	219
	600	99	229
	800	114	244
	1000	129	259
	1200	144	274
	1350	159	289
	1600	179	309
	2000	219	349
	2500	254	384
2	3200	295	425
	4000	375	505
	5000	475	605
3	6300	681	811

Bars Per Phase	Aluminium		Dim (mm)
	Ampere Rating	Busway (W)	Hanger (A)
1	400	109	239
	600	109	239
	800	124	254
	1000	139	269
	1200	169	299
	1350	194	324
	1600	214	344
	2000	269	399
2	2500	325	455
	3200	405	535
	4000	475	605
3	5000	681	811

Table 12.2 Busway and hanger mounting dimensions, as illustrated in Figure 12.1



Material use for busway support channel.

Suggest to use 12mm or 1/2 inch of steel rod.

It is suggest to use 40mm x 3mm support channel for 2000A or below busway model while 50mm x 6mm for 2500A or above busway. Please refer to below data during busway installation.

Vertical Mounting

Support busway on maximum 4.8 meter centers. Use Table 14.2 to determine the number of springs required based on busway weight. After placing the length of busway through the floor, follow this procedure to assemble hangers to the busway, as illustrated in Figure 13.1. For convenience in assembly, step 8 may be completed before the hangers are attached to the busway.

1. Loosen the **hanger bolt** , shown in Figure 13.1.
2. Assembly the hangers to each side of the busway.
3. Position the hangers on the busway so that the base channel rests on the floor or other support. A floor flange may be placed under the hanger, but it will not support the busway weight.
4. Fit the hanger clamps to the busway housing and hand tighten the hanger bolts .
5. Anchor the base channels to their supports.
6. Tighten the hanger bolts. **(User need to tighten the bolt to ensure the support is hold the busway load)**
7. Install the next length and make the joint assembly.
8. If springs are furnished, they must be adjusted as shown in Figure 13.1. Determine the required dimension H of the hanger springs, found on the layout drawing or by using the formula;

$$\boldsymbol{H = 114.5mm - \frac{W}{2.46}}$$

$$\boldsymbol{W = \frac{Busway\ weight\ (kg/meter)\ x\ Height\ (meter\ /floor)\ +\ Devices\ on\ the\ floor\ (kg)}{Total\ no\ of\ spring}}$$

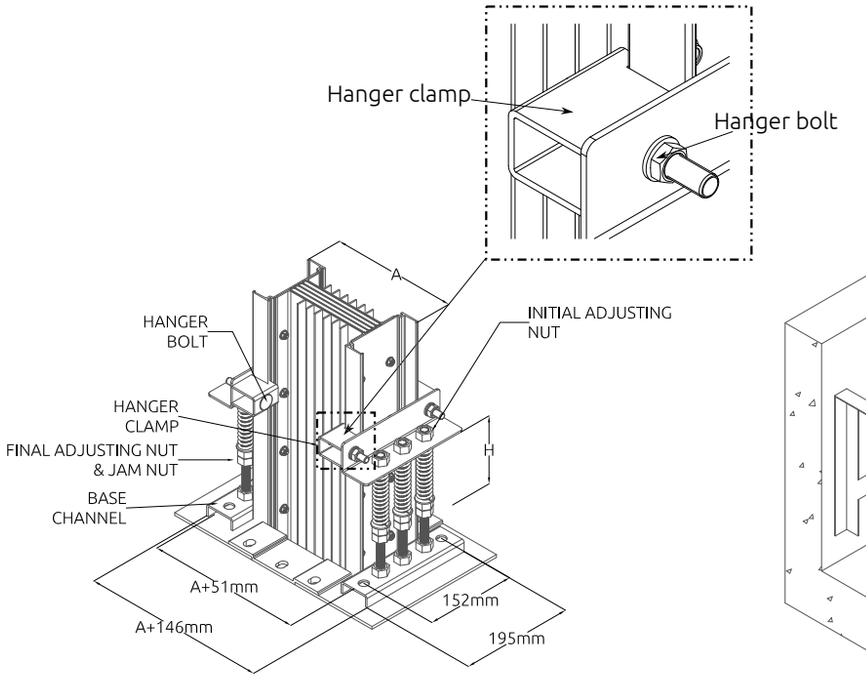


Figure 13.1 Rigid and spring hanger installation

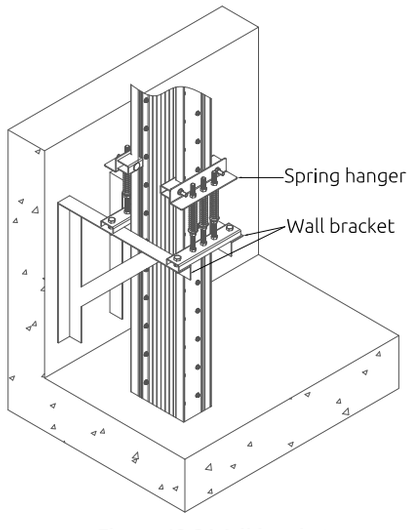


Figure 13.2 Wall bracket and spring hanger installation

Using the final adjustment nuts, set the springs on the hangers to the dimension. With the springs adjusted, hold nut in position and tighten jam nut against nut to retain the spring setting. Tighten all jam nuts using this procedure.

Note that when you are calculating the dimension for the bottom floor of a riser with an elbow and busway directly below the floor, the following must be included in the meter calculation:

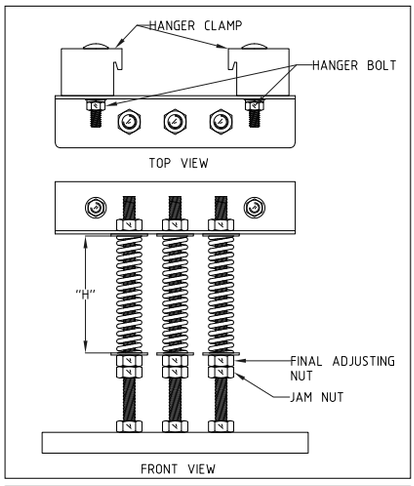
- Busway below the floor to the elbow
- The elbow
- 2.5 meter of horizontal busway

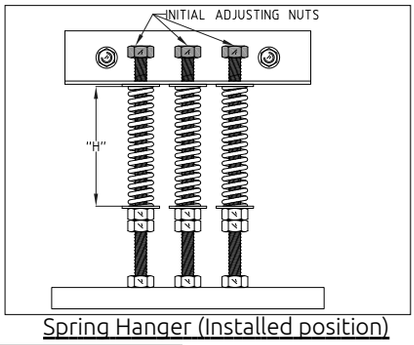
For the riser to function as a free end, the last horizontal hanger must be 2.4 meter from the bottom elbow.

After the busway run is installed, starting at the top hanger raise the initial adjusting nuts of all hangers to the top of the spring studs. The studs are crimped to hold the nuts in the uppermost position.

<u>TIP:</u> The Following may indicate adjustment required.

- *** Fully compressed springs**
- *** Bolt heads not touching floor brackets**
- *** Distortion of run**





Spring Hanger (Installed position)

Ampere Rating	Approximate weight (kg/Meter)					
	TP only	TP w/ground bar	TP & 100%N	TP & 100%N w/ground bar	TP& 200%N	TP & 200%N w/ground bar
COPPER						
400	8.0	8.7	9.3	10.0	10.3	11.0
600	9.7	10.7	11.7	12.7	13.3	14.0
800	12.3	13.7	15.0	16.0	17.3	18.7
1000	13.7	15.3	16.7	18.3	19.7	21.0
1200	15.3	18.0	22.7	24.7	26.7	28.7
1350	18.7	21.0	26.0	28.7	30.7	33.7
1600	21.7	24.7	31.0	34.3	37.0	40.0
2000	32.7	36.7	41.0	45.3	49.0	53.3
2500	39.7	44.7	50.0	55.3	62.7	68.3
3200	47.0	53.3	59.3	65.7	74.3	81.0
4000	62.7	71.0	79.7	88.0	96.0	104.3
5000	83.3	94.3	106.0	117.0	127.7	138.7
6300	123.7	140.0	157.7	174.3	190.7	207.0
ALUMINIUM						
400	6.4	6.8	7.1	7.5	7.9	8.2
600	6.4	6.8	7.1	7.5	7.9	8.2
800	7.7	8.2	8.7	9.2	9.7	10.2
1000	8.7	9.4	10.0	10.7	11.3	12.0
1200	11.1	12.0	12.9	13.8	14.8	15.7
1350	12.8	14.0	15.1	16.3	17.5	18.6
1600	14.7	16.0	17.4	18.7	20.1	21.5
2000	19.3	21.0	22.7	24.3	26.0	28.0
2500	24.0	26.4	28.7	31.0	33.4	35.7
3200	29.0	32.0	35.0	38.0	41.0	44.0
4000	36.3	39.7	43.0	46.3	46.7	50.3
5000	58.0	68.0	73.0	78.0	83.0	89.0

Table 14.1 Busway Weights.

Table 1 - Spring Adjustment		
"H" DIM (MM)	Spring Quantity	Weight (KG) supported by hanger
105	6	148
103	6	177
100	6	221
98	6	251
95	6	295
93	6	325
90	6	369
88	6	399
85	6	443
83	6	472
80	6	517
78	6	546
87	6	413
85	6	443
83	6	472
82	6	487
80	6	517
78	6	546
77	6	561
75	6	590
73	6	620
72	6	635
71	6	649

MCCB AMPERES	Plug In Unit Weight, kg/1 pc
15A ~ 100A	16kg
125A ~ 250A	18kg
275A ~ 400A	26kg
500A ~ 630A	62kg
800A	75kg

Table 14.1 Plug-In Unit Weights.

Expansion Fittings

Expansion lengths compensate for thermal expansion of a long busway run or for differential expansion between two buildings spanned by a busway run. One end wall of the expansion box is free to move, but only after the ***shipping screws*** are removed. Install the expansion length and the remaining busway run, as shown in Figure 15. all but the farthest busway supports beyond the box's free end must be non-rigid, such as spring hangers for riser (vertical) busway or drop rod assemblies on a horizontal run. Before energizing the run, remove the ***shipping screws***, two on each side of the box.

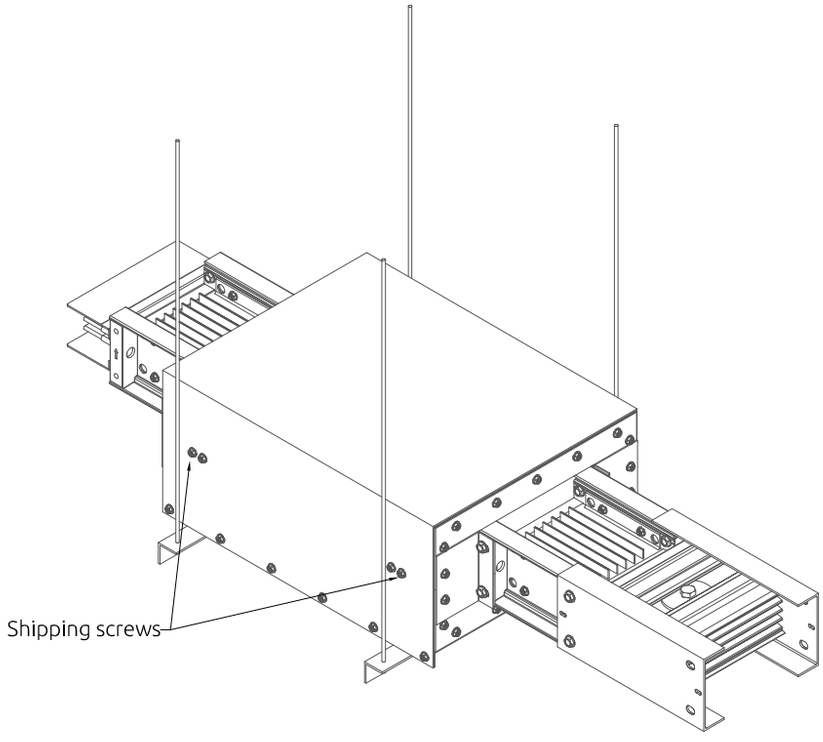


Figure 15. Expansion Joint

Shipping screws must be removed after installation complete.

Notice the following points concerning busway plugs:

- Inspect the plug in unit before installing on the busway.
  - A) The plug in unit ampere rating is correct
  - B) The **ON/OFF** is functioning
- Stab fingers have been **lubricated with conductive grease**, which should not be removed.
- An alignment pin polarizes and locates the plug in the correct position only.
- Plugs are interlocked, permitting engagement and disengagement with the busway only when in the **OFF** position.

Installing tap-off unit

Use the following procedure, as illustrated in Figure 16.1, 16.2 and 16.3

1. Make sure the plug-in unit (PIU) switch in "**OFF**" position.

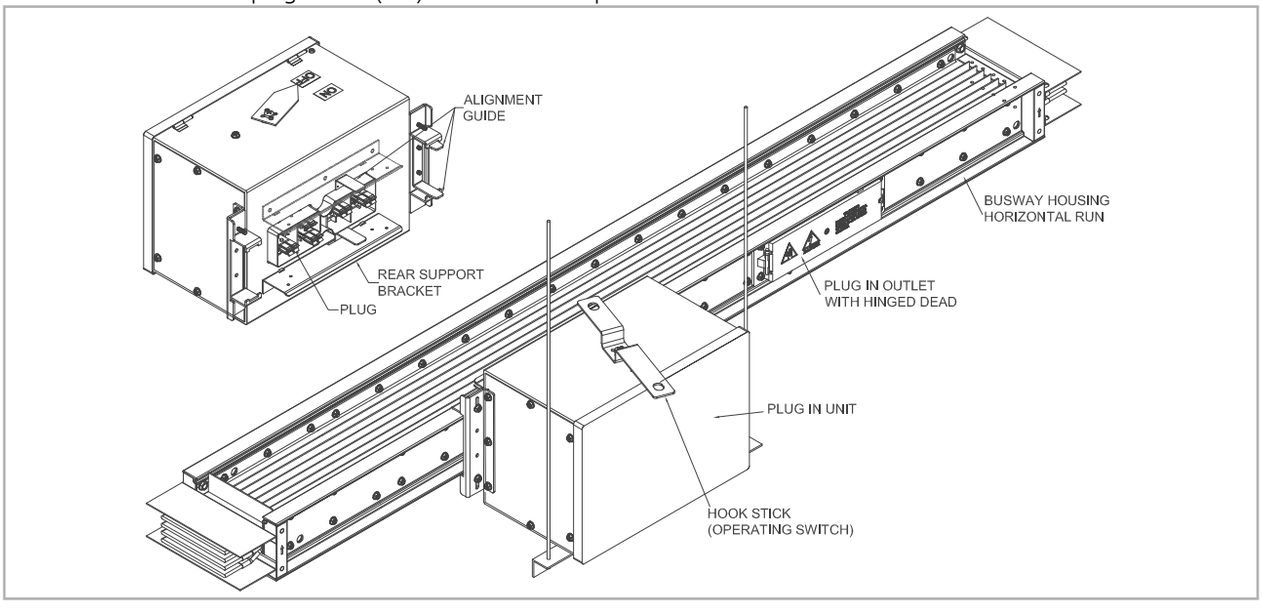


Figure 16.1

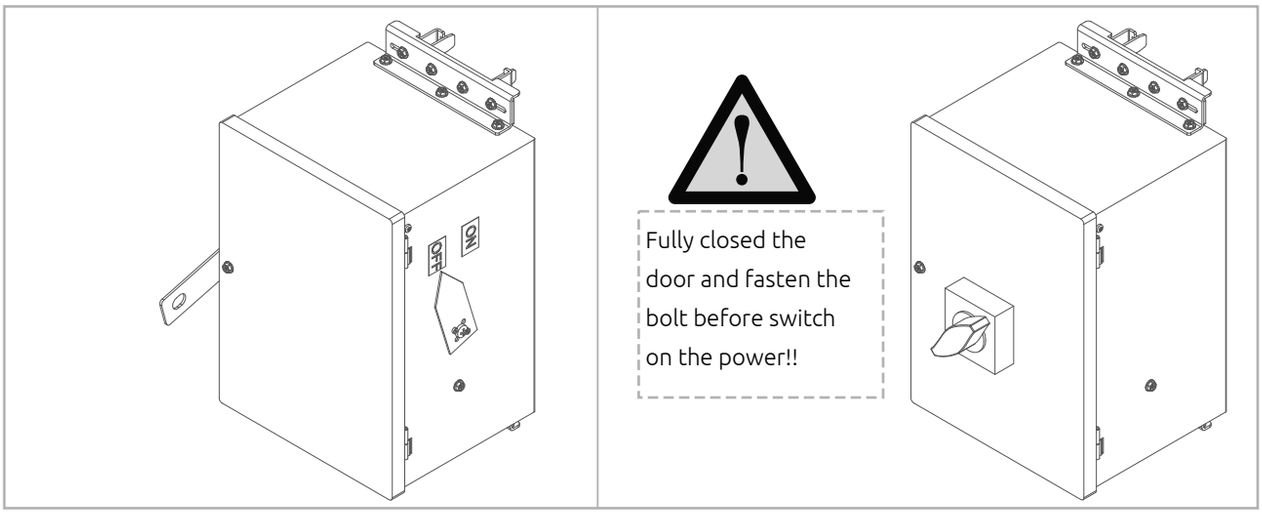


Figure 16.2: Stick hook type

Figure 16.3: Rotary handle type

Installing tap-off unit

2. Open the plug In outlet and remove the cover by removing the Philip screw. (See Figure 17.1)

3. The alignment pin will be inserted into the alignment slot for the installing process.
   (See Figure 17.2)

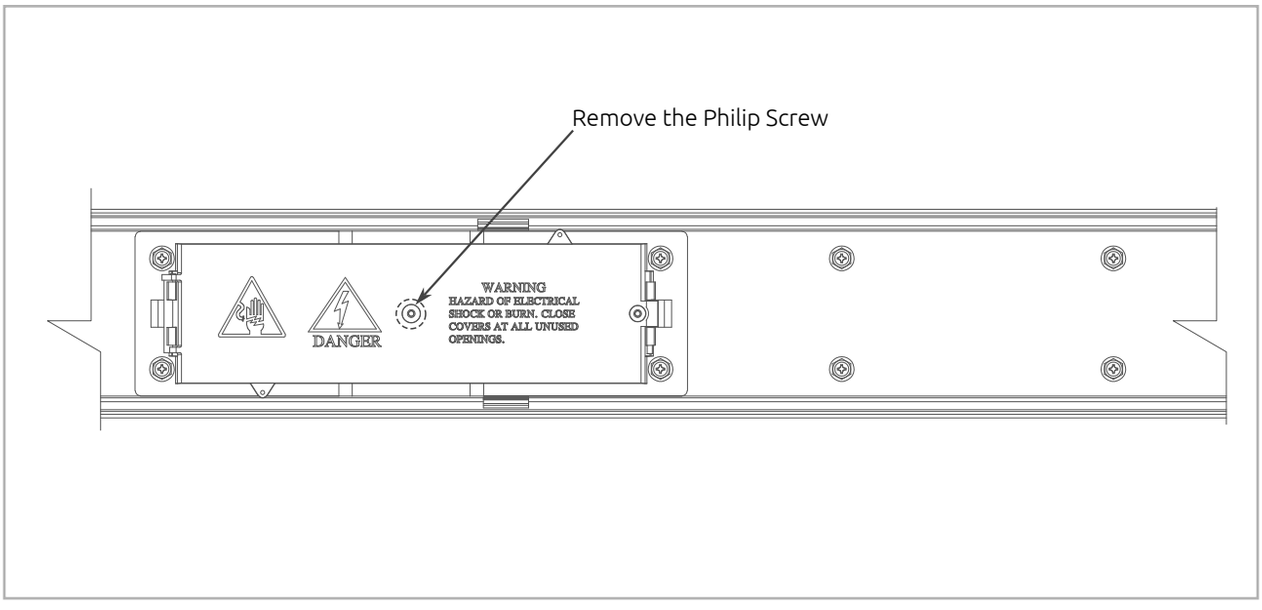


Figure 17.1

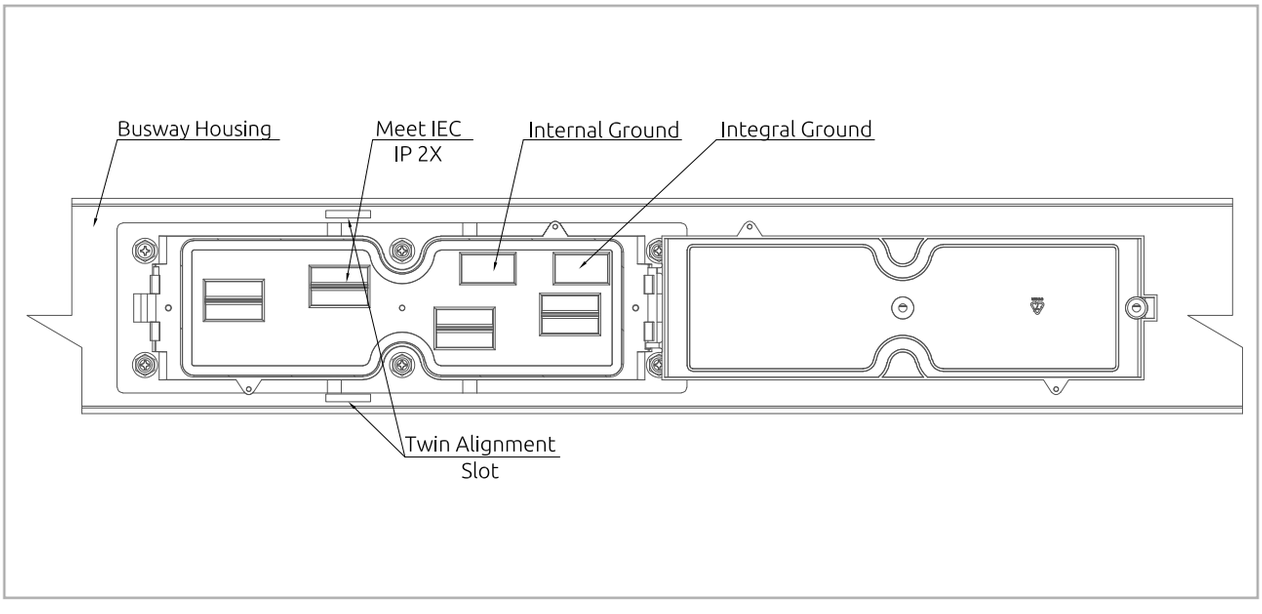


Figure 17.2

Installing tap-off unit

4. PIU's handle in "OFF" position. Insert guide pin into busway housing. (Figure 18.1)

5. Push PIU onto busway. (Figure 18.2)

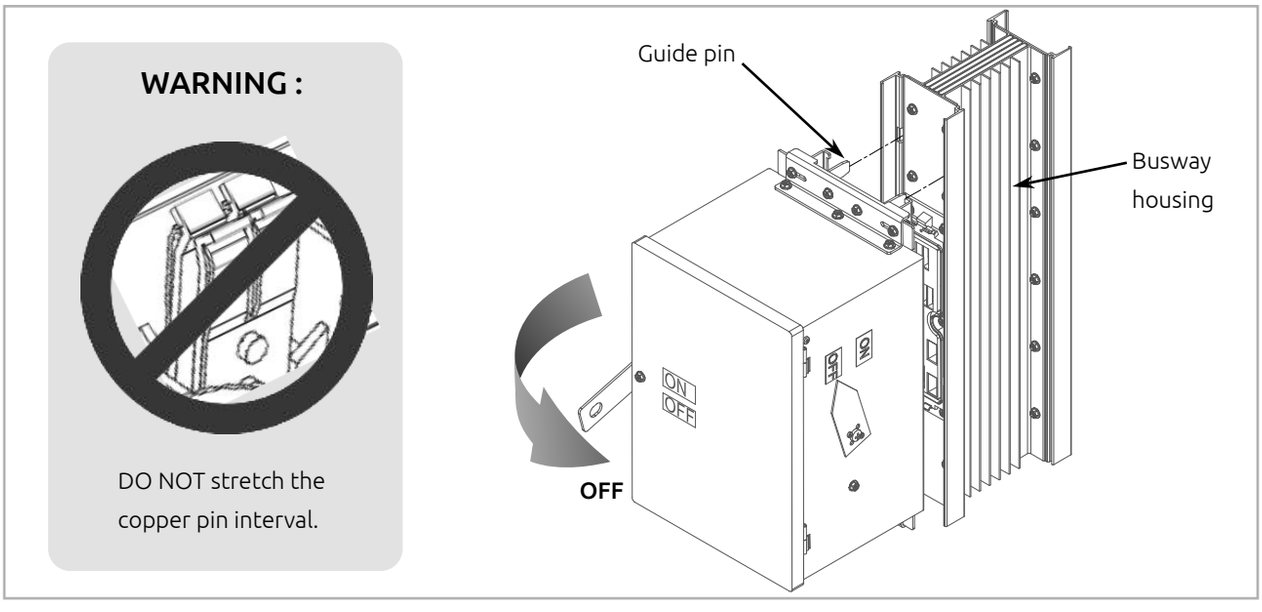


Figure 18.1

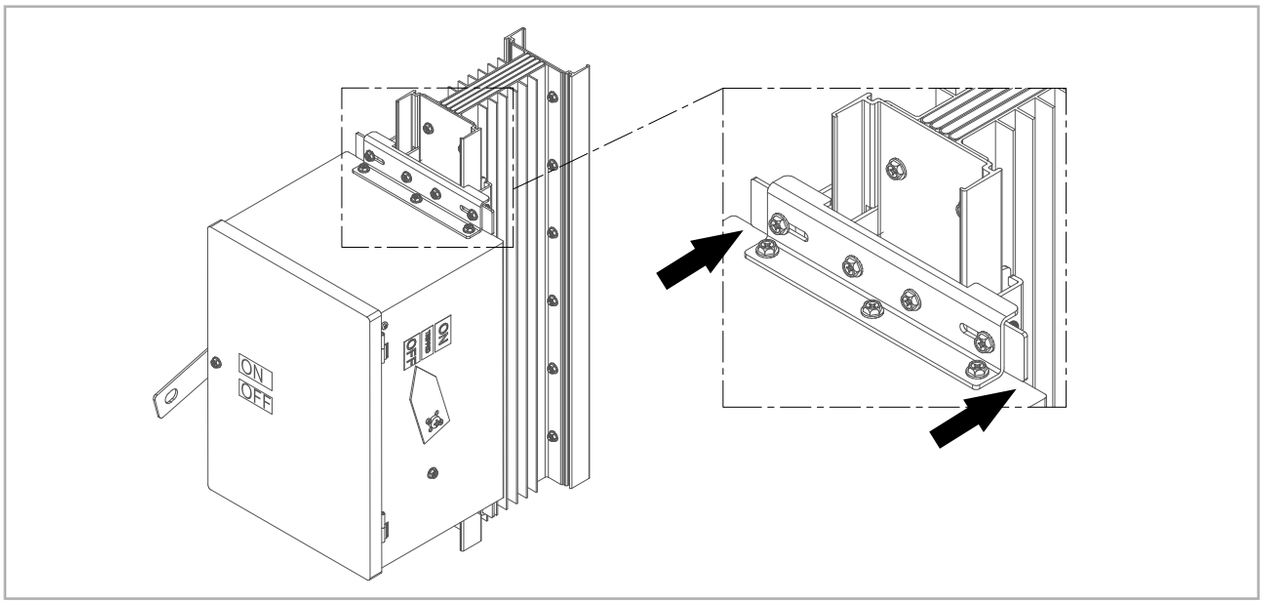
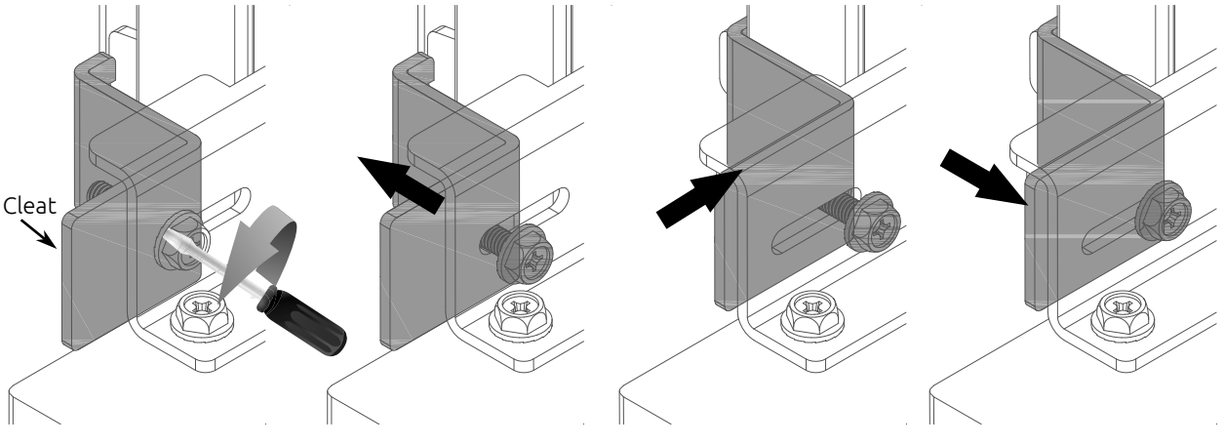


Figure 18.2

Installing tap-off unit

6. Loose the bolt and move all the cleats onto the busway. Tighten all bolts by following sequences. Repeat the remaining bolts with same method. (Figure 19.1)

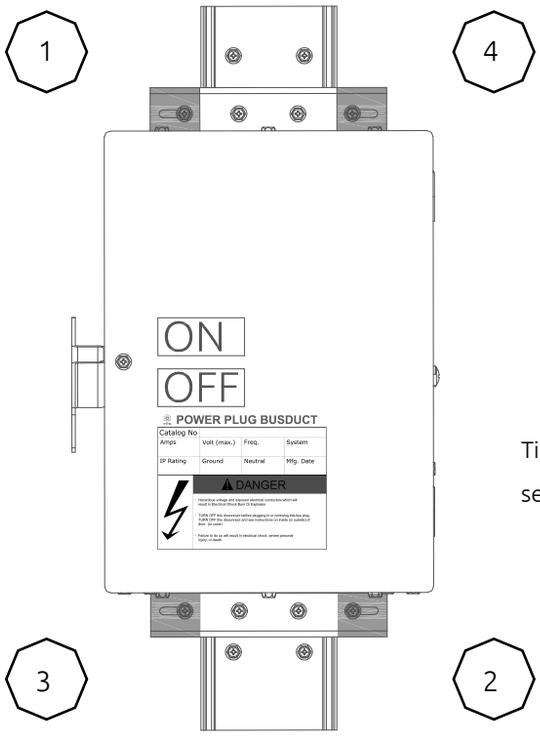


a.) Loose the bolt

b.) Move the cleat to front

c.)Move the cleat attached on busway

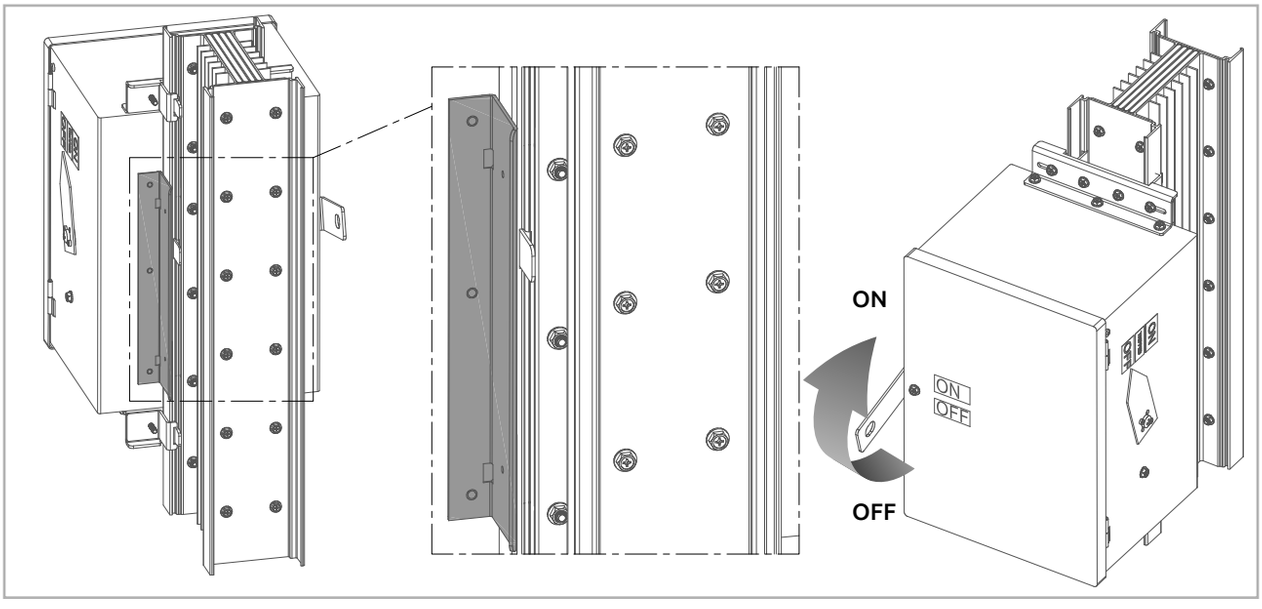
d.) Tighten the bolt



Tighten all bolts sequence.

Figure 19.1

7. Test “ON” and “OFF” to ensure mechanism interlock is in good condition. PIU complete installed.



Removing tap-off unit

First turn the plug in unit “**OFF**”. Then follow the appropriate procedure above in reverse order.

Horizontal Mounting

Adding the support on tap of unit for horizontal mounting as per Figure 20.1.

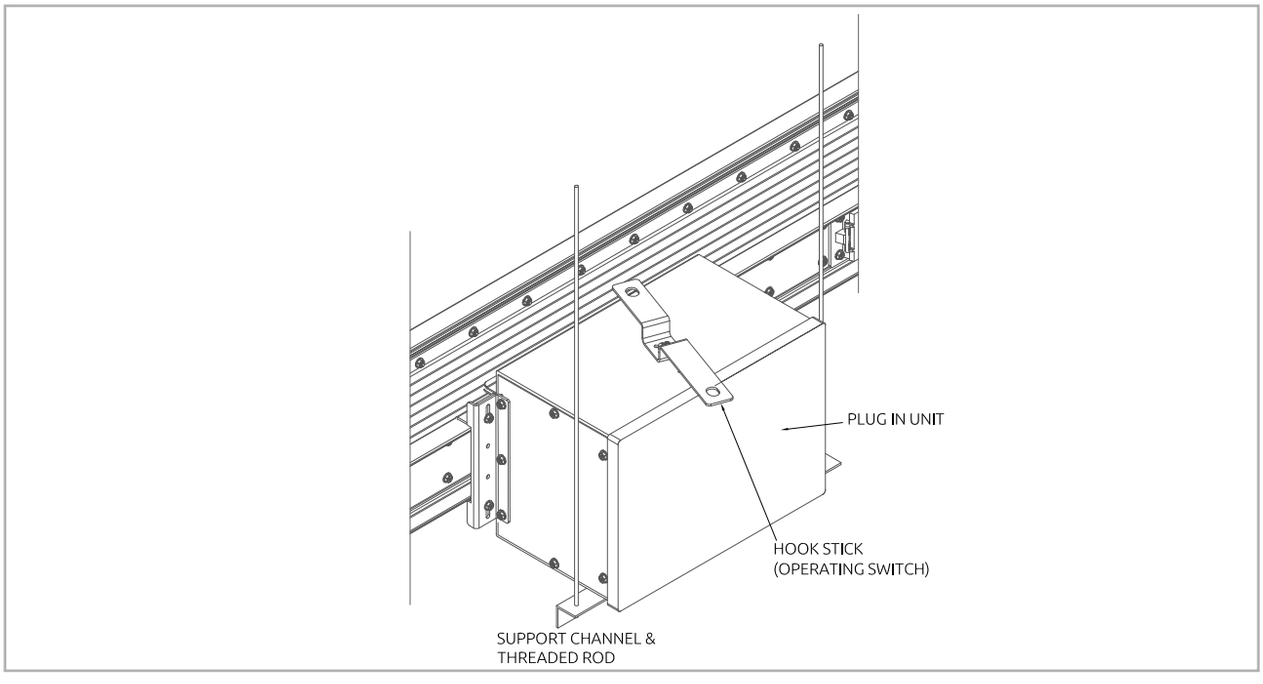


Figure 20.1

Maintenance Procedures

- Keep busway free of dust, dirt and/or foreign matter. Moisture from roof leaks or dripping pipes should be eliminated.
- Inspect the busway system periodically. An infrared thermometer may be used to thermally scan the run to identify potential hot spots.
- During initial installation, joint bolts are to be tightened until the outer bolt head shears off (approx. 55±5.0 lbs-ft) using the double-headed joint bolt.
- **Check torque after six months; tighten to 55±5.0 lbs-ft as required. Re-check torque at least annually thereafter.**

⚠ DANGER
HAZARD OF ELECTRICAL SHOCK OR BURN. TURN THE POWER TO THE BUSWAY OFF BEFORE INSTALLING, REMOVING, OR WORKING ON THIS EQUIPMENT.

⚠ WARNING
ONLY THOSE TRAINED AND QUALIFIED IN RECOGNIZED SAFETY PRACTICES SHOULD PERFORM MAINTENANCE ON THE BUSWAY.

Inspecting Current-Carrying Components

- Carefully inspect all visible electrical joints and terminations for tightness of bolts, nuts, and other fasteners.
- Check for signs of overheating at joints, terminations and fuse clips.
- Check for deterioration in insulating material or melting of sealing compound.
- Ensure that the condition that caused any overheating has been eliminated.
- Check for missing or broken parts, proper spring tension, free movement, rust or corrosion, dirt, excessive wear, arc spatter, sooty deposits, and tracking. Clean or replace parts as required.

⚠ WARNING
FOR THE FOLLOWING PROCEDURES, THE BUSWAY MUST BE SHUT OFF AND DE-ENERGIZED.

⚠ WARNING
FAILURE TO FOLLOW SAFETY PROCEDURES MAY CAUSE PROPERTY DAMAGE, SERIOUS PERSONAL INJURY AND DEATH.

Don't energize the busway before performing any of the following operations.

- If there are signs of overheating, visually check for deterioration or contamination of insulation and contact surfaces. Check tightness of nuts, bolts, etc.
- Check for missing or broken parts, corrosion, wear, dirt or signs of arcing. Clean or replace parts as required.
- After any repair or rework, isolate the busway and conduct an insulation resistance test with an insulation resistance tester rated 1000 Vdc to ensure that the system is free from short circuits and grounds (phase-to ground, phase-to neutral, and phase-to-phase). Record and maintain records of the testing results. Turn the test results over to the general contractor or owner at completion of the project. It should be noted that readings vary inversely with the length of run and width or number of bars per phase. Readings will vary with humidity. If readings of less than 1 megohm for a 100-foot run (MEGOHMS = 100 / length of busway in feet) are obtained, contact the manufacturer.

  Minimum readings should be no less than:

Mega ohms (MΩ) = 100 / length of run in feet

Mega ohms (MΩ) = 30.5 / length of run in meters.

Sustainable Disposal

At the end of product life, busducts can be responsibly managed to minimize environmental impact and maximize material recovery. Here are ways to address the treatment of busducts at the end of life:

Disassembly for Safe Disposal

At the end of product life, busducts can be responsibly managed to minimize environmental impact and maximize material recovery. Here are ways to address the treatment of busducts at the end of life:

Recycling and Material Recovery

a. Metal Components: Our busducts contain valuable metals, such as copper and aluminum, which can be extracted, sorted, and recycled to reduce resource extraction and support circular material use.
b. Non-metal components: Specialized recycling processes; can separate, process insulation material and other non-metallic components in an environmentally safe manner.

Please ensure compliance with local regulations and environmental standards when disposing of all of busduct components.

1. Was there any shipping damage? Report any minor damage or missing parts to the factory. Make sure to include the item number.	No	
2. Proper storage before actual installation		
A) Were the busway components kept clean and dry?	Yes	
B) Were busway components exposed to corrosive fumes, liquids, salts or concrete materials?	No	
3. Have you read this installation instruction book?	Yes	
4. Busway exposure during installation.		
A) Were busway components kept clean and dry?	Yes	
B) Were busway components exposed to corrosive fumes, liquids, salts or concrete materials?	No	
C) Was there any mechanical damage due to handling?	No	
5. Did each piece of busway get a pre-installation mega ohm test? (Individual pieces should mega ohm test as infinite resistance. Consult the factory if you experience a lower reading.)	Yes	
6. Mounting and support		
A) Is each 3 meter busway run supported, including any vertical sections? (Closer supporting may be required, based on job specifications.)	Yes	
B) Does any support interfere with busway joint?	No	
C) Are there any busway terminations to other equipment used as support? (Busway weight should not bear on equipment, such as switchgear, switch boards, or transformers.)	No	
7. Is the busway installed level and plumb?	Yes	
8. Was a periodic mega ohm test performed as this run was installed? (After every two or three items or as critical items are installed. Joints should be tightened for all mega ohm testing.)	Yes	
9. Has the busway been inspected for proper phasing?	Yes	
10. Are all joint bolts properly tightened to 50lb-ft (68 N-m) torque?	Yes	
11. On vertically mounted busway using spring hangers, were the correct settings verified? (See Figure 7 In the installation instructions.)	Yes	
12. Did you check for proper clearances for the busway at floors, walls, ceilings, other busway, and trades? (Never use cement to seal between the busway and floors or walls.)	Yes	
13. Have shipping screws been removed from expansion lengths? (Refer to Figure 15. Expansion Joint)	Yes	
14. Have no rigid hangers been used beyond the free end of expansion lengths (except at the farthest end) to allow the busway to expand toward the expansion box?	Yes	
15. Was all foreign material removes from the installed busway?	Yes	
16. Was a final mega ohm test performed when all busway was installed? (Record readings on the separate sheet provided.)	Yes	

17. Verify the orientation of weep holes. Are all open weep holes in joint caps, elbows and shields facing downward? (Do not remove shield plugs or weep-hole plugs in top or side positions.) Yes ☐
18. Are all drain holes clear in both busway and joint caps? (all construction debris removed.) Yes ☐
19. Were joints assembles within the width of the housing ground plates? Yes ☐
20. Are joint cap bolts properly tightened to 25 lb-ft (34 N-m)? Yes ☐
21. Were shields aligned at the edges of housing ground plates and all springs seated properly? Yes ☐
22. Were isolation joints screwed in place before and boxes (when present) were installed? Yes ☐

Notes and comments

Note: This checklist is intended to insure a sound installation of Powerduct Busway. It is not intended to cover all items related to the installation, successful startup, and long-term use of the product and in no way relieves the contractor of his obligation to meet all specification and code requirement.

Installation Contractor

Signature ***Date***

Pre-Energizing Mega Ohm readings

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Pre-Energizing Mega Ohm readings

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Date	
Run ID	
L1-G	
L2-G	
L3-G	
N-G	
L1-L2	
L1-L3	
L2-L3	
L1-N	
L2-N	
L3-N	

Note

Note

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