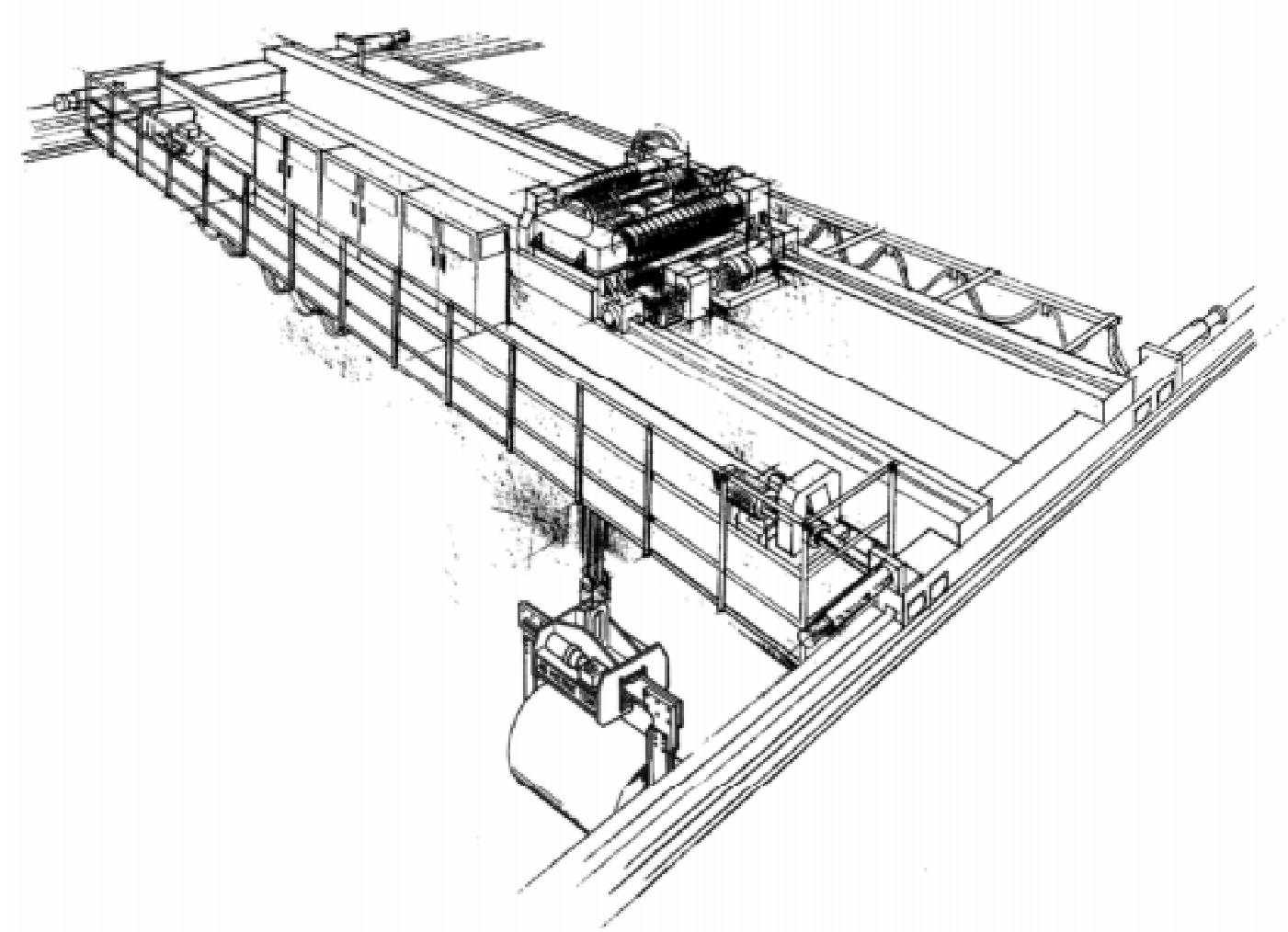


Electrobar Elite

Conductor Bar System

Instruction Manual

MAGNETEK
UNCOMMON POWER

Electromotive Systems

ELITE-03A May 1, 2003
Part Number: 005-1054

DANGER, *WARNING*, *CAUTION*, and *NOTE* Statements

DANGER, WARNING, CAUTION, and *Note* statements are used throughout this manual to emphasize important and critical information. You must read these statements to help ensure safety and to prevent product damage. The statements are defined below.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

WARNING

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

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTE: A NOTE statement is used to notify people of installation, operation, programming, or maintenance information that is important, but not hazard-related.

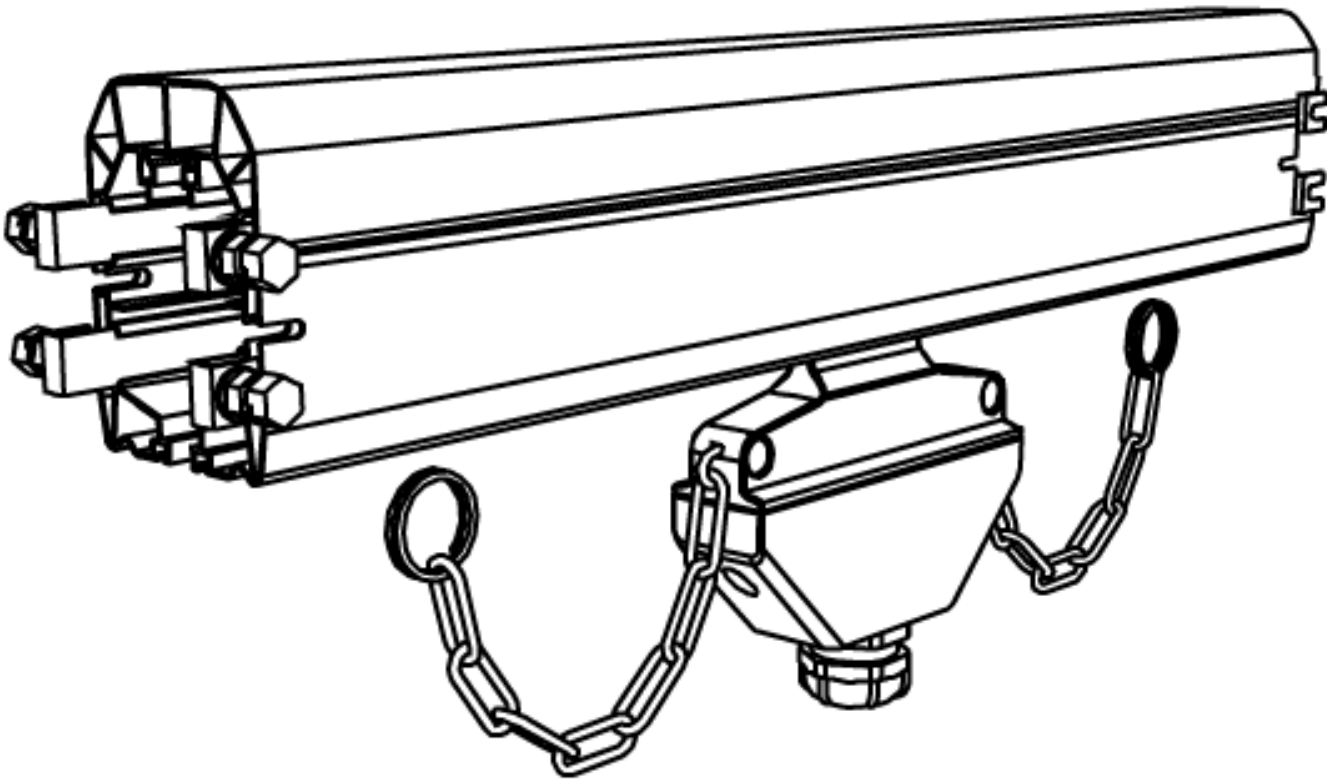
Disclaimer of Warranty

Magnetek hereafter referred to as Company, assumes no responsibility for improper use of supplied product by untrained personnel. Product should only be installed or repaired by a trained technician who has read and understands the contents of this manual. Improper installation or service can lead to unexpected, undesirable, or unsafe operation or performance. This may result in damage to equipment or personal injury. Company shall not be liable for economic loss, property damage, or other consequential damages or physical injury sustained by the purchaser or by any third party as a result of such operation or service. Company neither assumes nor authorizes any other person to assume for Company any other liability in connection with the sale or use of this product.

WARNING

Many tests and procedures outlined in this manual involve exposure to components that operate at potentially lethal voltage levels. To eliminate this hazard, service personnel must ensure that the incoming three-phase AC power has been disconnected, locked out and tagged.

Electrobar Elite Assembly Instructions



As we are continually striving to improve our products, we reserve the right to make any modifications without prior warning.

Layout of Line Elements

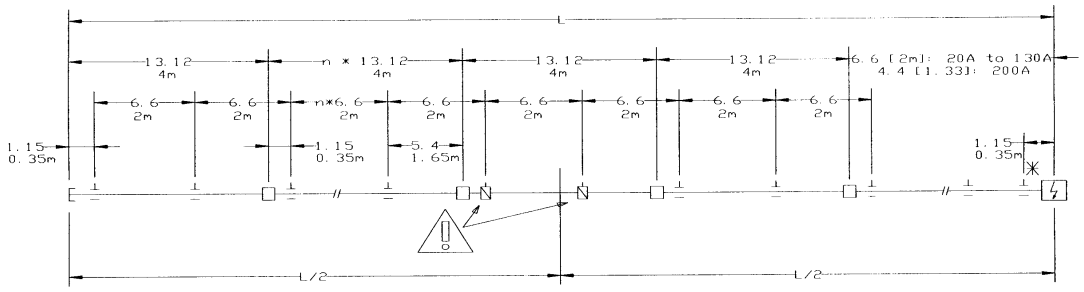


Figure 1: Line without expansion joint

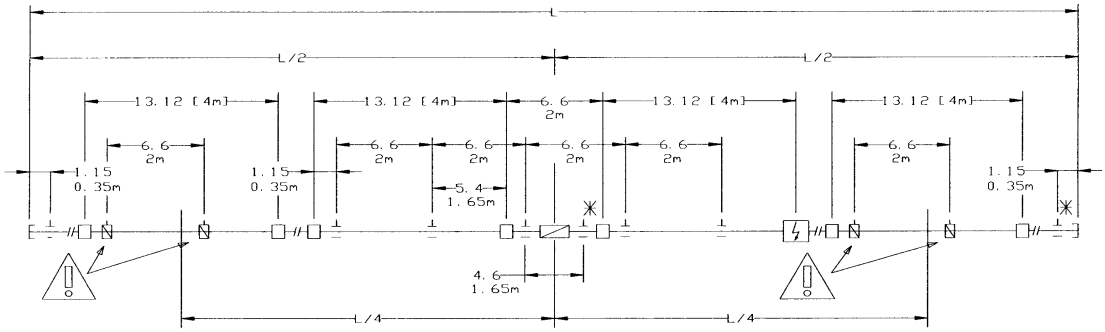


Figure 2: Line with expansion joint

Key:

- Fixed Hanger
- Sliding Hanger
- Covering Flange
- Feed Box
- Expansion Joint
- End-cap
- Additional Sliding Hanger

NOTE: The position of the feed boxes shown here is only an example. This position is determined by the calculation of the voltage drop and the running conditions.

Assembly of the different elements

1. Bracket

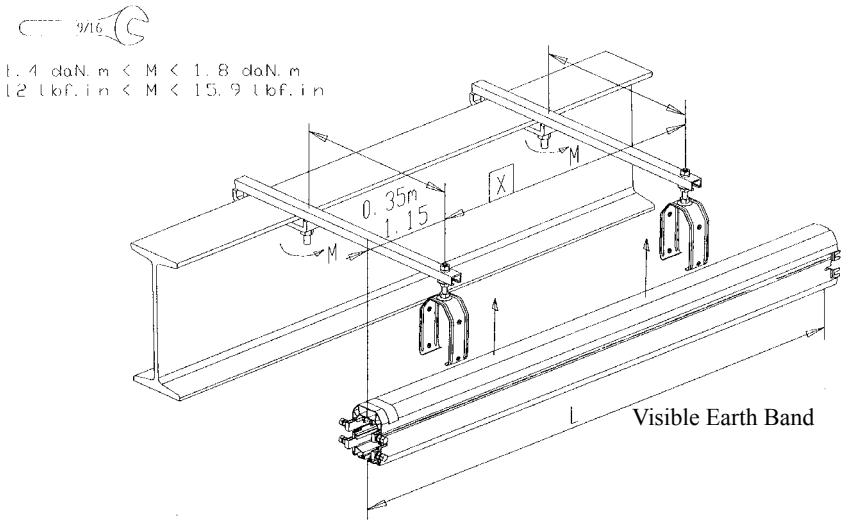
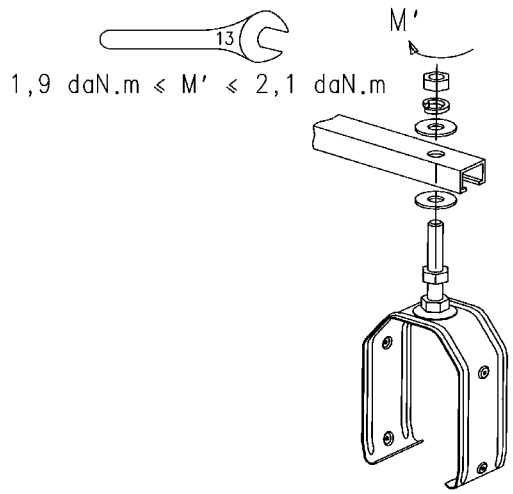


Figure 3: Bracket

Determining the number of hangers and hanger placement:

	20A–130A		200A		
(L) Length [m]	L < 1.5	1.5 < L < 4	L < 1.3	1.3 < L < 2.6	2.6 < L < 4
(L) Length (ft.)	L < 4.9	4.9 < L < 13.12	L < 4.3	L < 4.3 < L < 8.5	8.5 < L < 13.12
# of Hangers	1	2	1	2	3
Distance	N/A	L/2	N/A	L/2	L/3

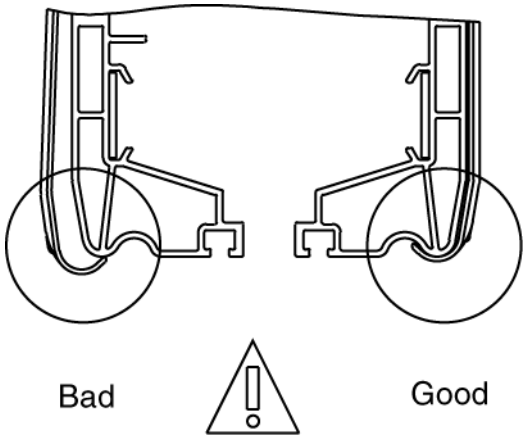
2. Sliding Hanger



NOTE: One sliding hanger must be added 350 mm (13.75") from the end of line.

Figure 4: Sliding Hanger

3. Line Element



Be sure hangers are snapped completely under the line element.

Figure 5: Line Element

4. Expansion Joint

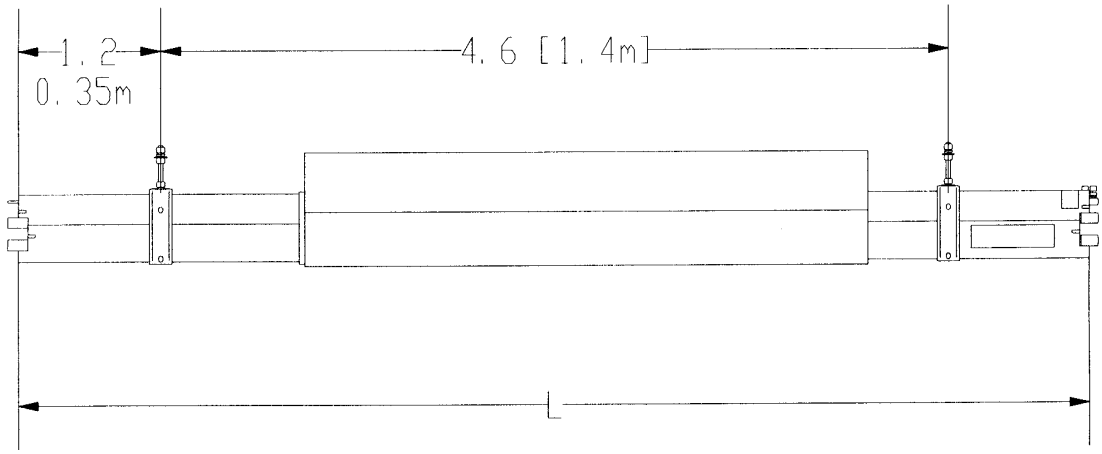
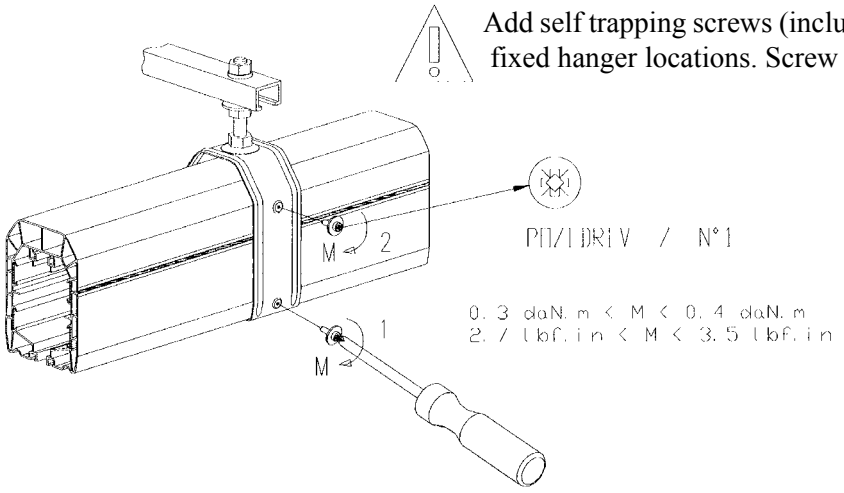


Figure 6: Expansion Joint

Draw out line element to dimension "L" at time of assembly based on the ambient temperature during normal operating conditions. Refer to chart below.

Temperature		Length	
°C	**°F**	**mm**	**in**
-20	-4	2005	78.93
-10	14	200	78.73
0	82	1995	78.54
10	50	1990	78.34
20	68	1985	78.15
30	86	1980	77.95
40	104	1975	77.76
50	122	1970	77.56
60	140	1965	77.36

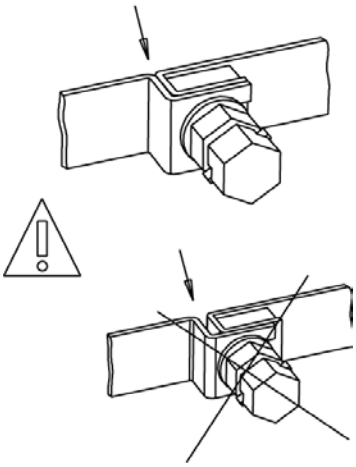
5. Fixed Hanger



Add self trapping screws (included with fixed hangers) at fixed hanger locations. Screw into line element cover.

Figure 7: Fixed Hanger

20A → 130A :

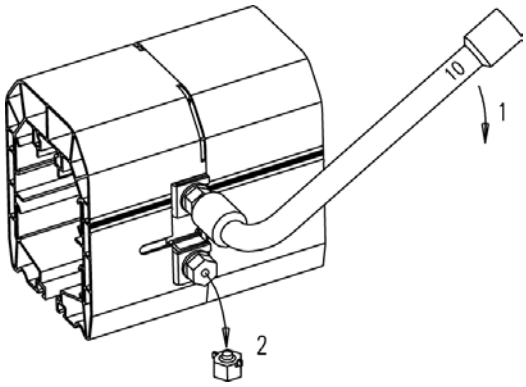


6. Connection of Conductors

Make sure line element conductors are together while tightening self-torquing bolt.

Be sure there is no gap present at the conductor joint prior to snapping of self-torquing bolt.

Figure 8: Eliminate conductor gaps



With even pressure, tighten upper bolt head until it snaps off.

*Be sure socket wrench does not overlap upper bolt head while tightening. Over torquing of conductor bar could occur.

NOTE:If all upper bolt heads are not snapped off. Joint cover will not fit over the line element.

Figure 9: Bolt Heads

200 Amp systems do not have self torquing bolts at conductor joints. 200 amp collector joints include 3mm socket screws

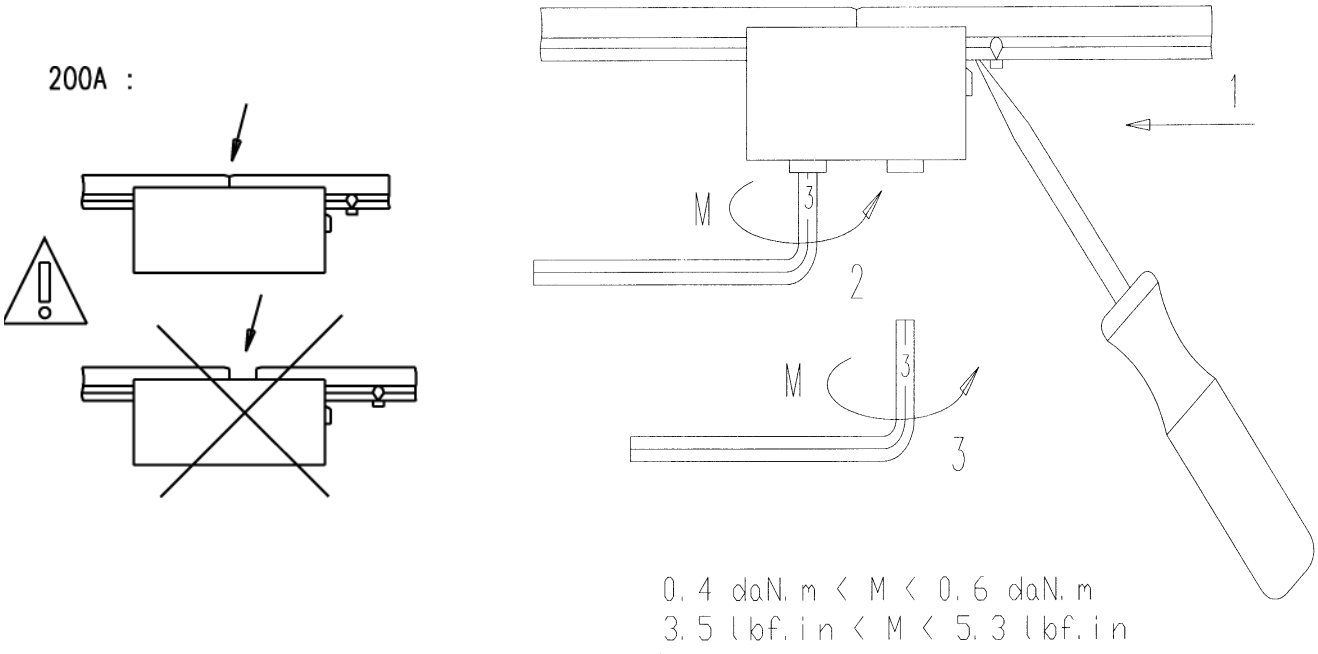


Figure 10: 200 Amp connections

A screw driver may be used to hold conductors together while tightening joint connector.

7. Joint Cover

1. Open joint cover completely. Place joint cover guide flanges into alignment grooves in line element cover.
2. Rotate lower flanges of joint cover firmly under line element until each side snaps under the line element cover.
3. Rotate the (4) four joint cover locking tabs down until they snap into position.

   NOTE: Cover will not fit over joint if conductor joint cover hardware is not properly assembled.

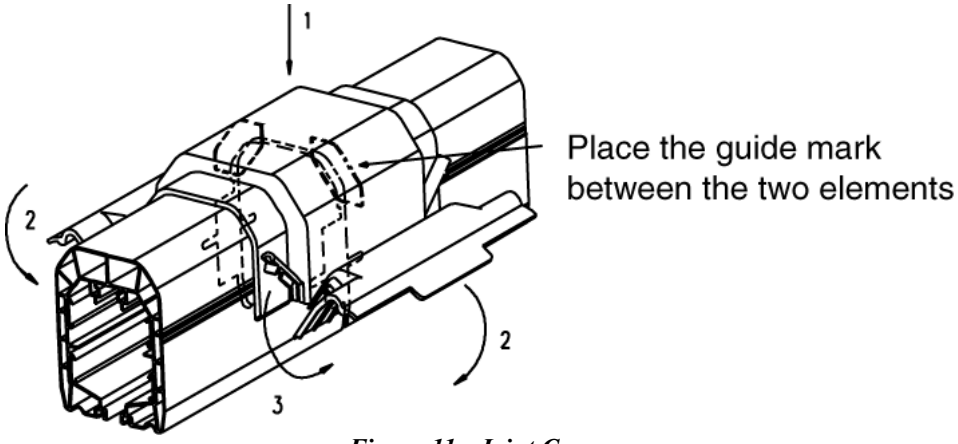


Figure 11: Joint Cover

8. Trolley

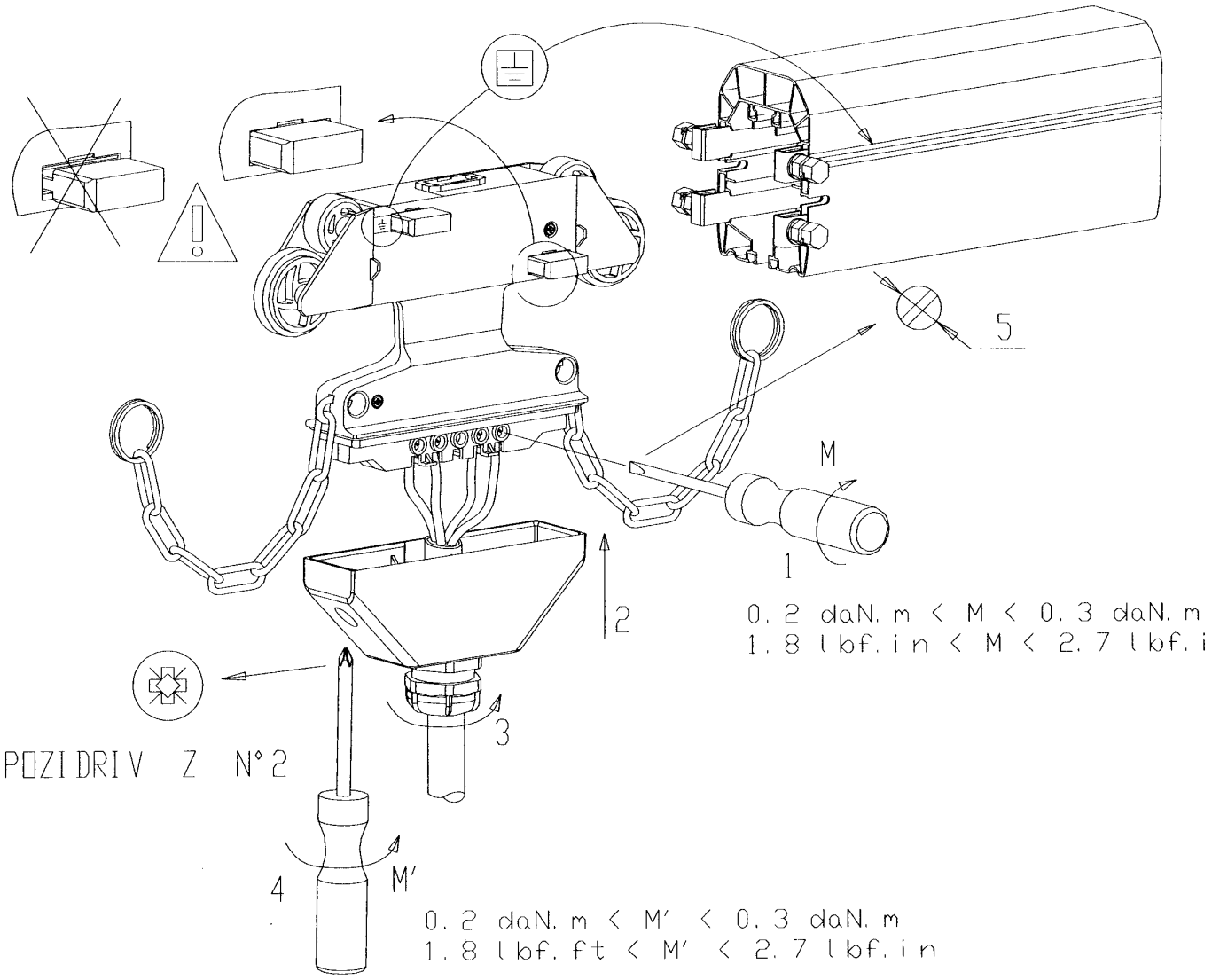


Figure 12: Trolley

1. See page 10 for cable trim guidelines.
2. Feed cable through cord grip on trolley cover.
3. Wire cable to trolley, check for secure terminal connection.
4. Slide trolley cover and assemble to trolley.
5. Tighten cord grip.

Slide trolley into end of line element and be sure ground brush on the trolley is in line with the ground conductor in the line element. The ground conductor in the line element is directly under the green and yellow line on the line element cover.

Lightly hold in brushes on the trolley as it is inserted into the line element.

NOTE: Trolley's can only be inserted into the line element in one direction. Trolley's have flanges to prevent improper assembly. If trolley does not slide into line element, check direction of trolley as it relates to the line element.

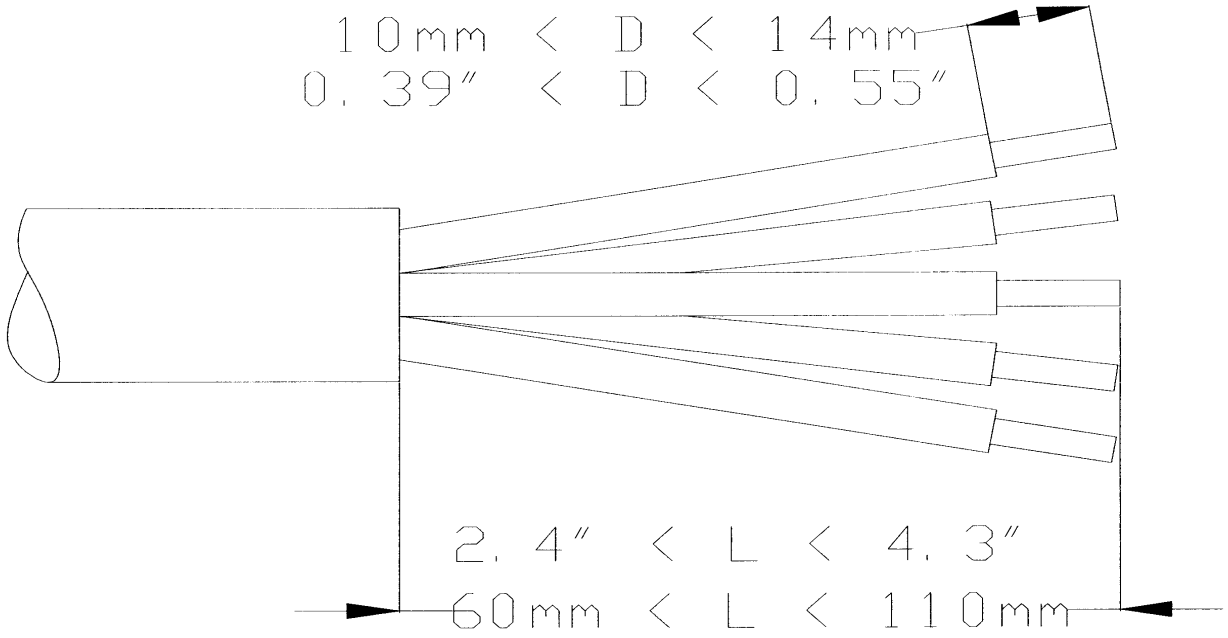
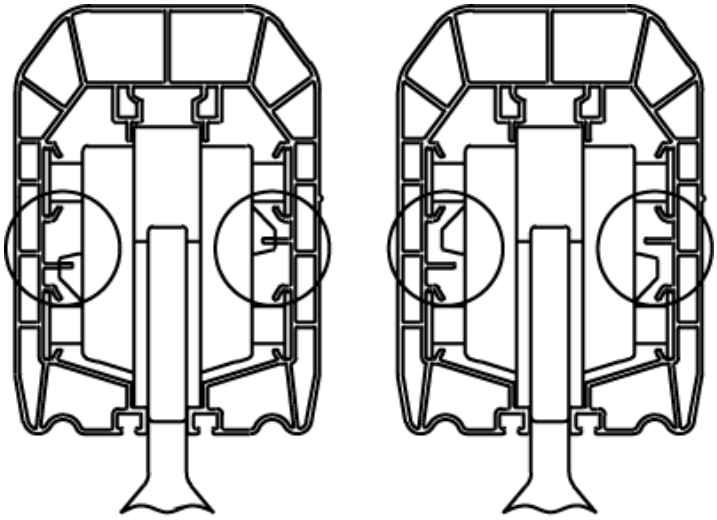


Figure 13: Trolley cable trim guidelines

Trolley may not be inserted. Trolley flanges prevent improper assembly.



Trolley flanges are clear. Trolley may be inserted into line element.

Figure 14: Trolley Flanges

DO NOT REMOVE TROLLEY FLANGES!!

CAUTION

Connecting: flexible cable ≤ 4 mm² recommended, 6 mm² maximum. Collectors must be installed at one end of the line.

9. In-Line Feed Box

Use for attaching
cable when using In-Line
feed boxes

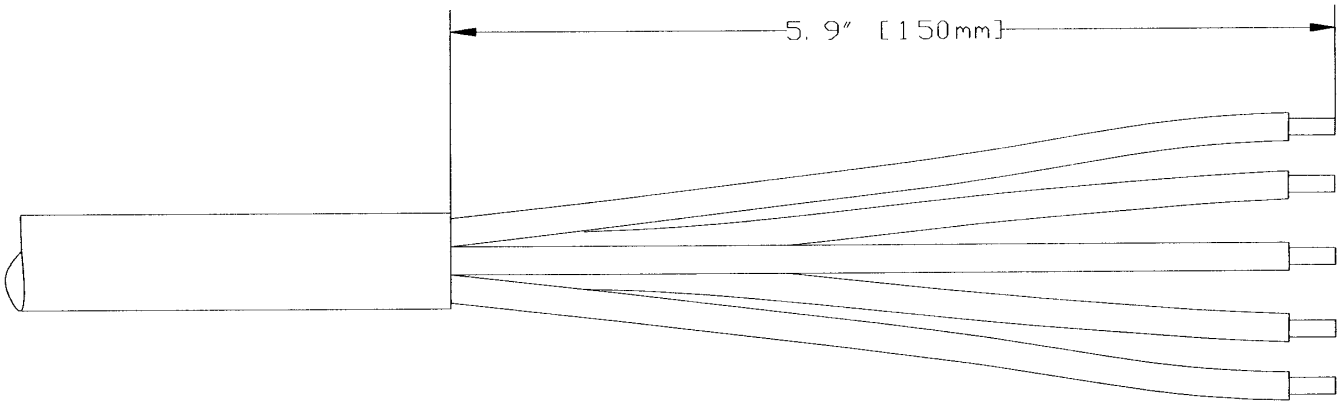


Figure 15: Power Feed cable Trim guide

NOTE: Attach appropriate flat wire terminal connector to power feed cable conductor ends. Feed cable through cord grip prior to attaching flat wire terminals.

To Open Covers

1. Un-snap the (4) four locking tabs with small flat screwdriver.
2. Rotate locking tabs clear from lower half of cover.
3. Rotate lower half of cover open.

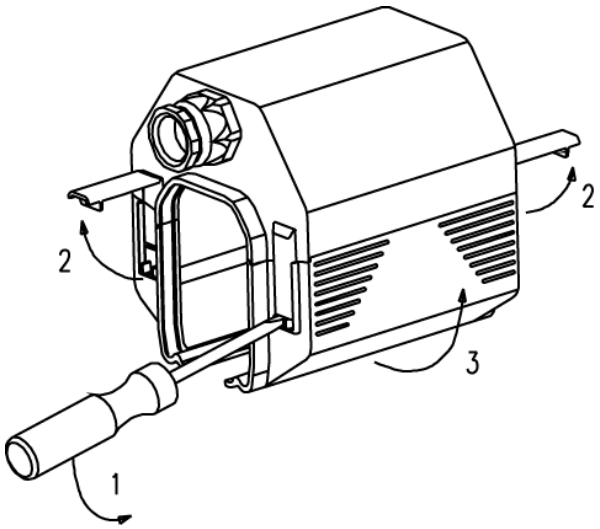


Figure 16: Feed Box Cover

Power Feed Connection

Feed power feed cable through cord grip in cover and attach flat terminal connectors. Attach power feed cable terminals under joint connection bolts. Tighten self-torquing bolts until upper head snaps off.

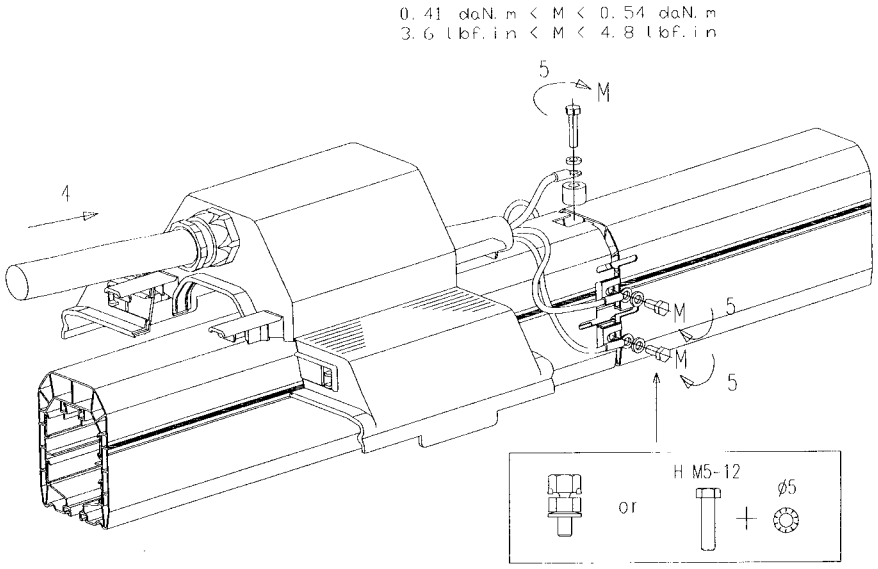


Figure 17: Power Feed Connection

Slide power feed cover over center of joint. Lower cover onto line element. Place cover centering tabs into line element cover slots. Rotate and Snap lower half of power feed cover under the line element cover. Rotate and snap the (4) four locking tabs on the side of the power feed cover into position.

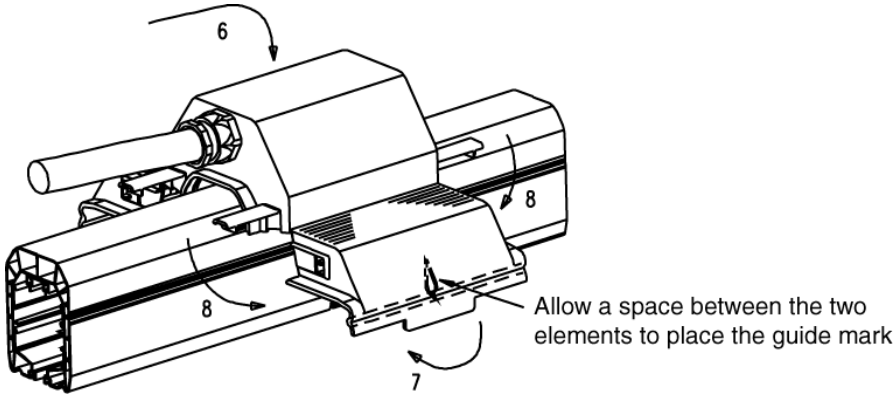
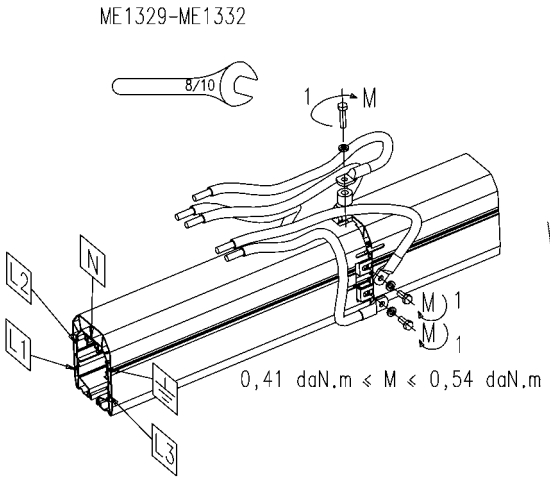


Figure 18: In Line Power Feed assembly

In-line Power Feed with Junction Box



Install power feed cable to joint connection.

Figure 19: Installing power feed cables

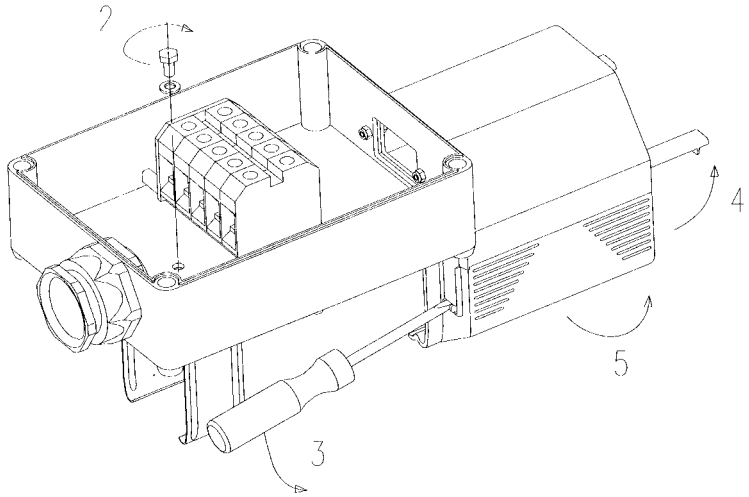


Figure 20: Opening Power Feed Cover

Open Power Feed Cover

1. With small flat screwdriver pry open and rotate the (4) four locking tabs clear of the lower half of the cover.
2. Rotate open the lower half of the power feed cover.
3. Assemble sliding hanger to junction box. DO NOT TIGHTEN AT THIS TIME.

Feed power feed cables into junction box from under power feed cover. Center cover over joint and rotate assembly and hanger over line element cover.

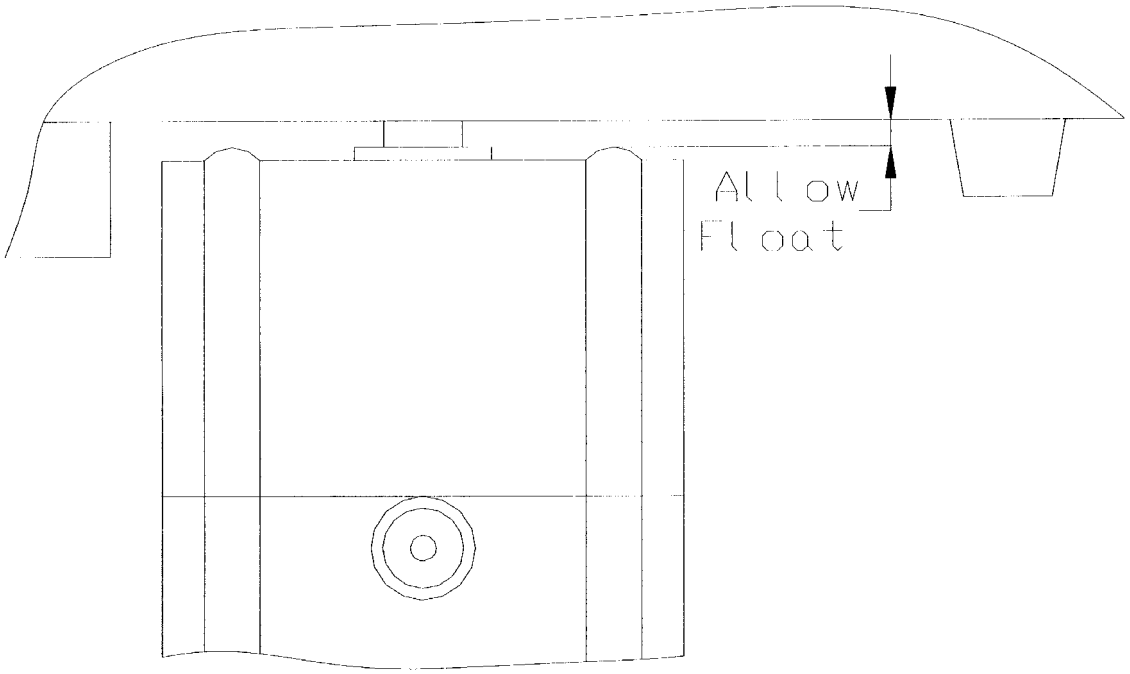


Figure 21: Placing Power Feed cover

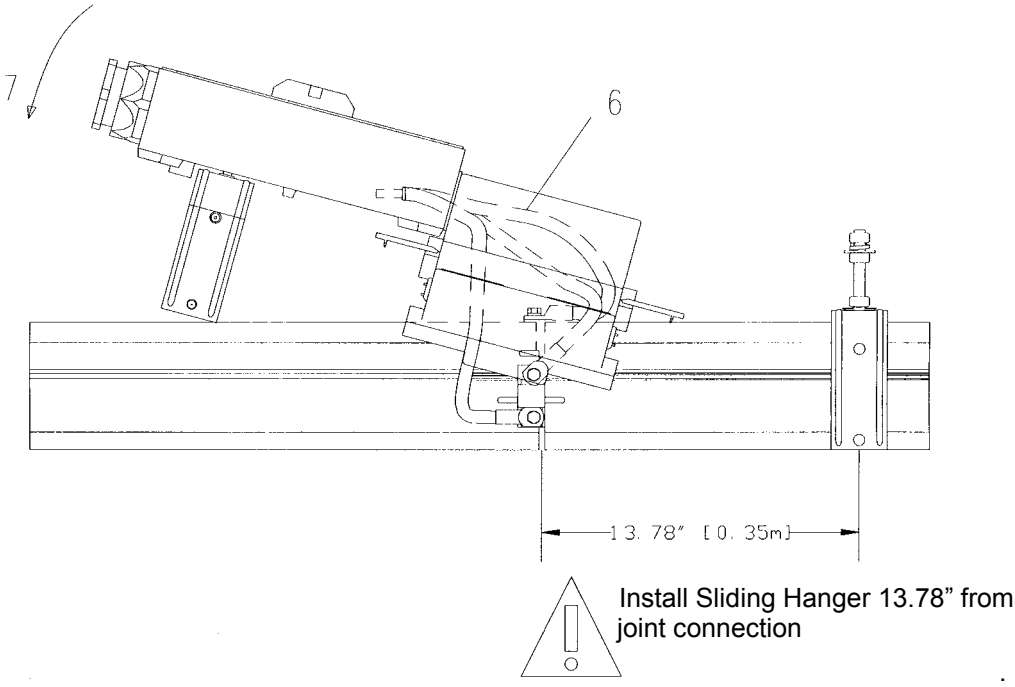
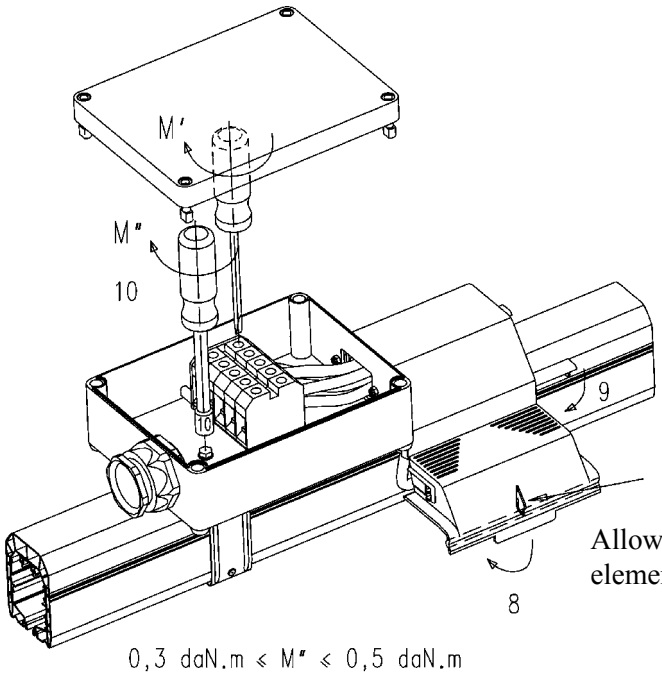


Figure 22: In Line Power Feed with Junction Box assembly

Rotate and snap lower half of power feed cover under joint of line element. Rotate locking tabs down and snap into position. Install wires to terminals. Tighten hanger with bolt in junction box.

Insert power cable through cord grip. Install power feed cable to junction box terminals. Tighten cord grip, install junction box cover.



Allow a space between the two elements to place the guide mark.

Figure 23: Placing the Power Feed cover

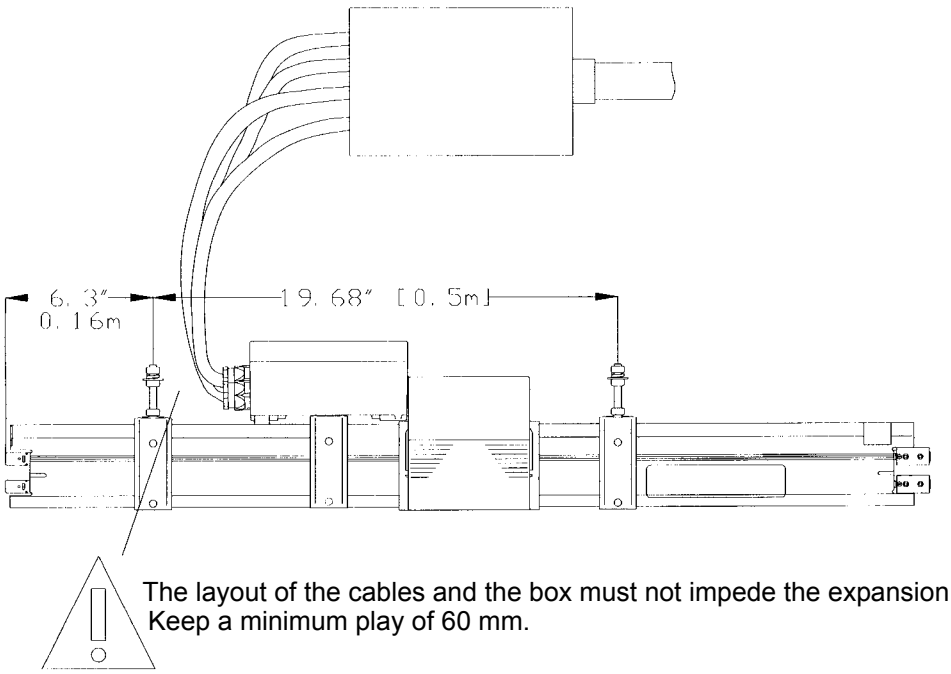
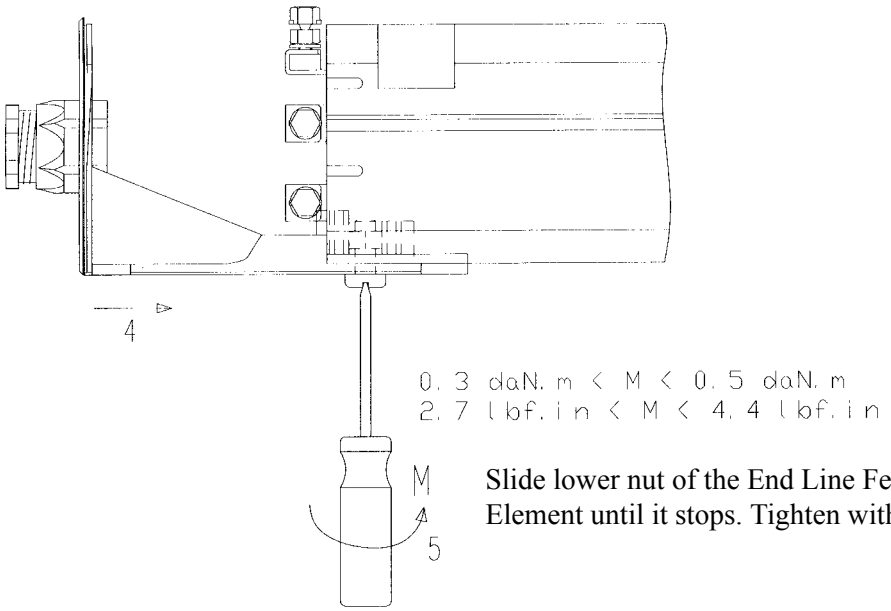


Figure 24: In Line Power Feed with Junction Box placement

10. End-line feed box



Slide lower nut of the End Line Feed Box into the Line Element until it stops. Tighten with a flat screwdriver.

Figure 25: End Line Feed Box

Insert power feed cable through cord grip and attach flat terminal connectors. Assemble cable to conductor connection bolts. Tighten the cord grip.

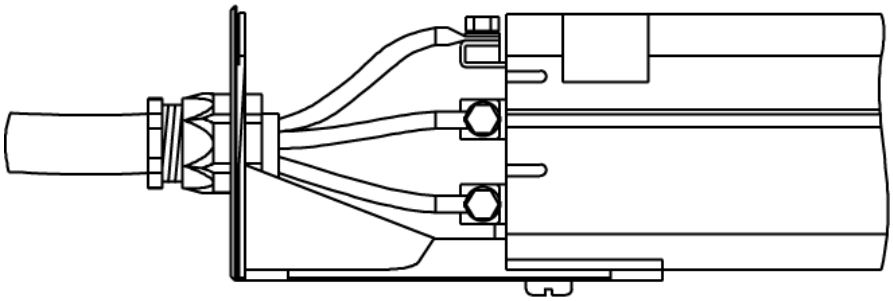
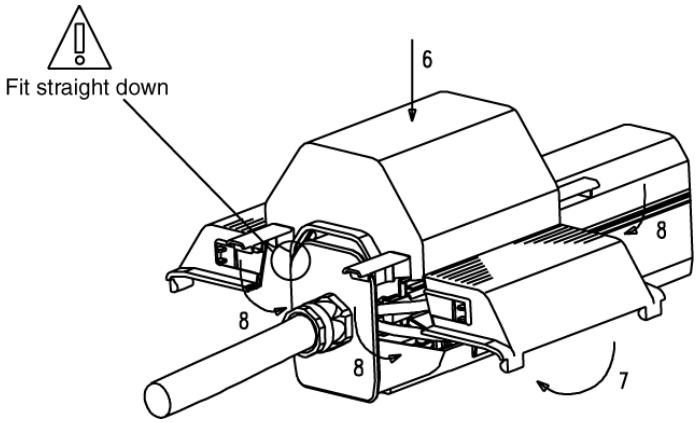


Figure 26: End Line Feed cable connections



Lower power feed cover straight down over end of line element and feed cover base. Snap lower cover halves to base and under line element. Rotate the (4) four locking tabs and snap into position.

Figure 27: End Line Feed

11. End-cap

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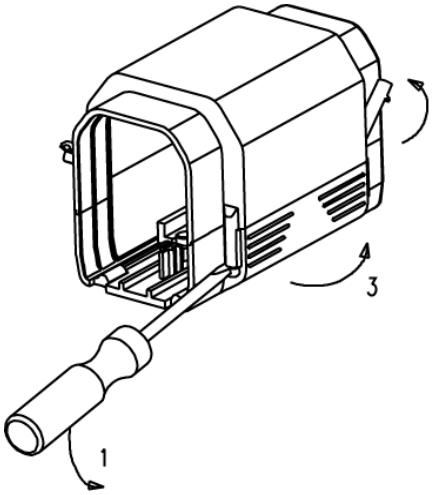

Open end cap cover. Pry the (4) four locking tabs open with small flat screwdrivers. Rotate clear of lower half of cover. Rotate lower halves of end cover open.

Figure 28: End Cap cover

Slide lower nut of the end cap into line element slot until it stops. Tighten with flat screwdriver.

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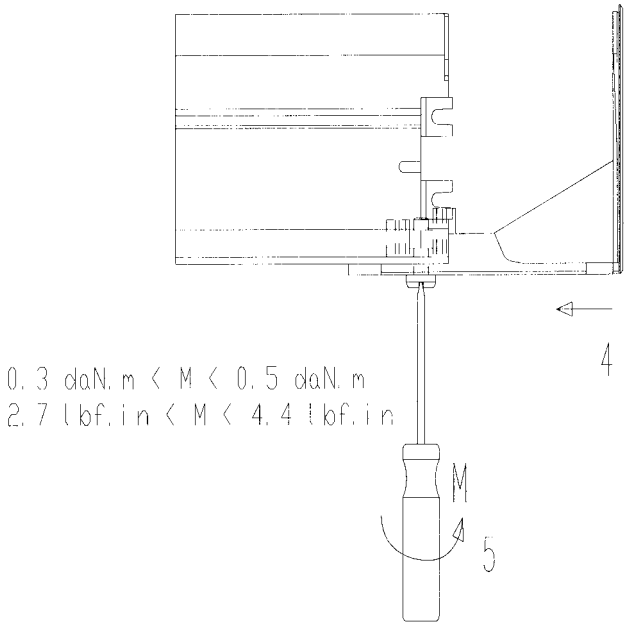
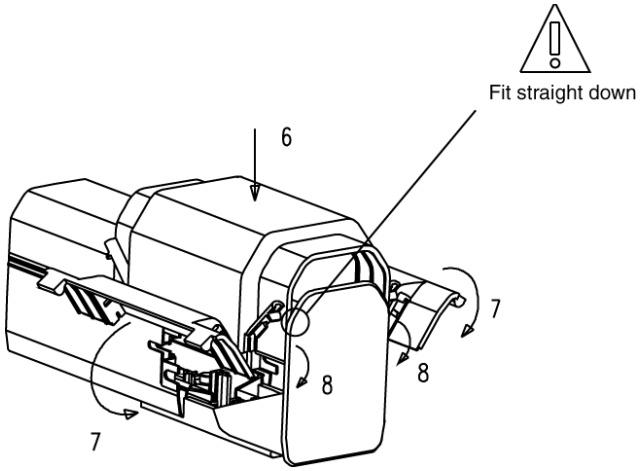


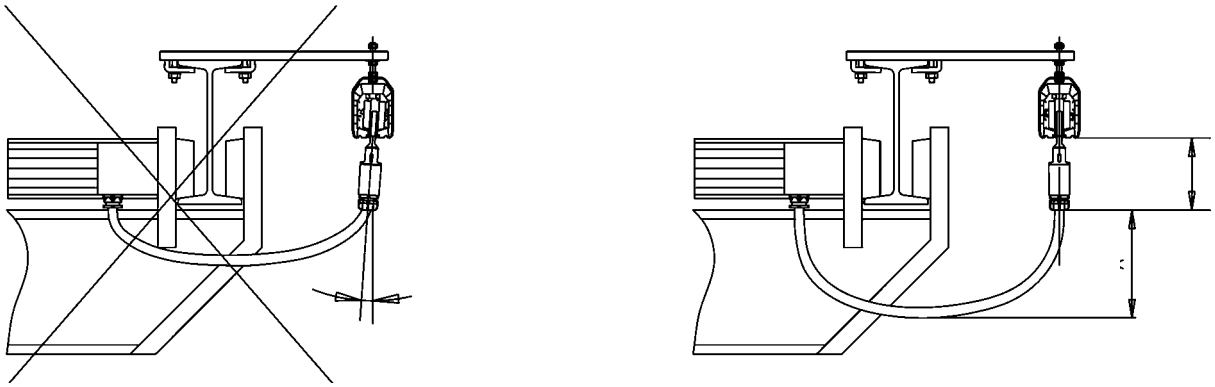
Figure 29: End Cap placement



Lower End-cap cover straight down over end of line element and the end-cap base. Rotate lower half of the end cap cover and snap into position. Rotate down and snap the (4) four locking tabs into position.

Figure 30: End Cap final assembly

12. Connecting The Trolley



Do not allow trolley cable to pull the trolley to the side. Premature trolley wheel and brush wear can occur.

Cable is to hang straight down from trolley

Figure 31: Trolley connections

13. Tow Brackets

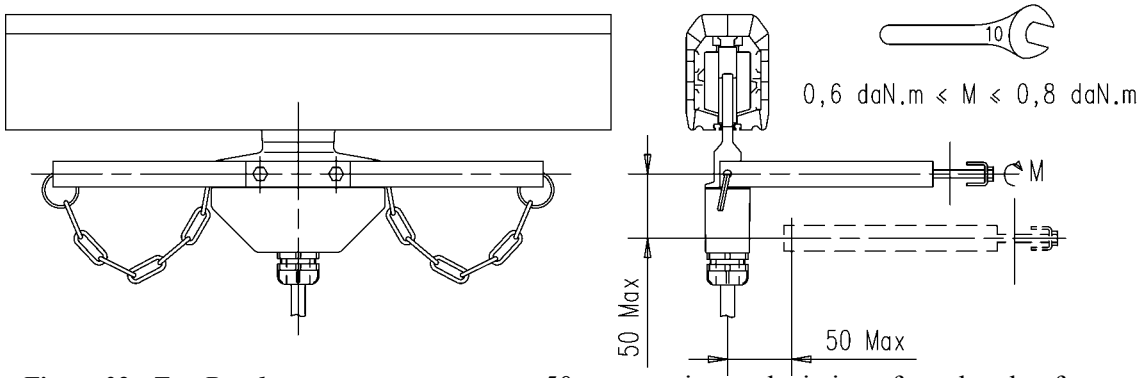


Figure 32: Tow Brackets

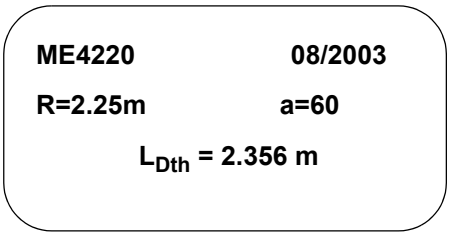
50 mm maximum deviation of tow bracket from trolley at any point over the length of the system.

Curved Applications

Before Assembly:

Important! *Do not un-tighten curves before assembly on site. Do not try to take off the grey pieces.*

All curves have an identification label:



Expansion Placement

If an expansion joint is planed between two curves, it is imperative that it be placed at equal distance between the curves.

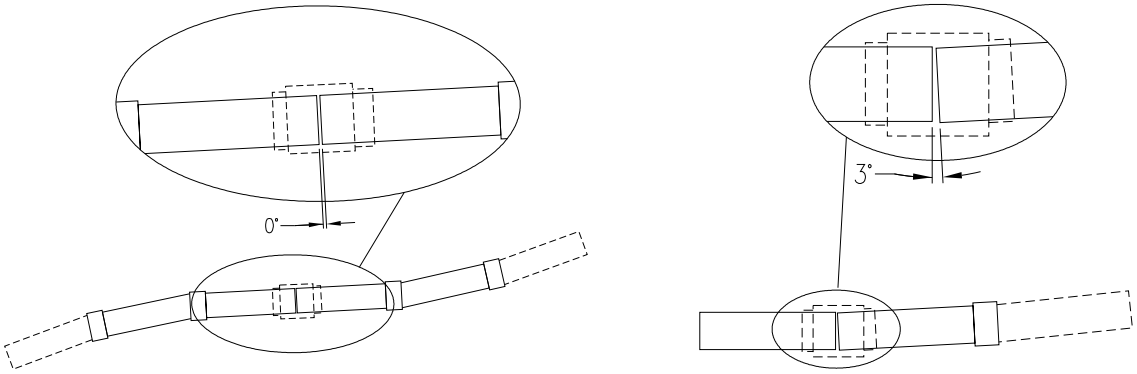
Fixed Hanger Placement

Important! *Always place fixed hanger on all curves. There is a risk of unhooking due to expansion.*

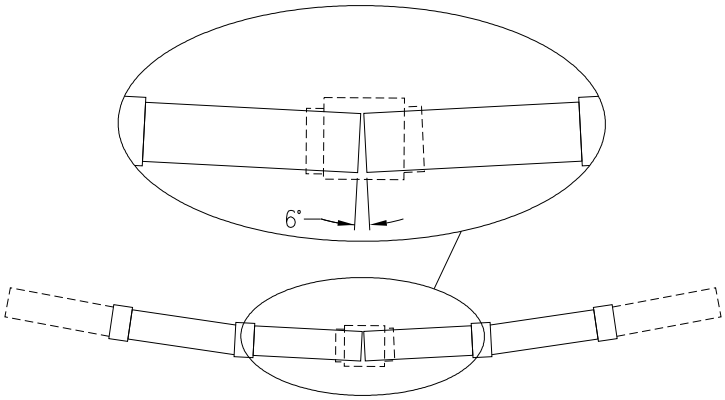
Fixed Hanger Requirements	
If Length of arc < 0.8 meters (2.62 feet)	1 fixed hanger
If Length of arc ≤ 3 meters (9.84 feet)	2 fixed hangers
If Length of arc > 3 meters (9.84 feet)	3 fixed hangers

Connecting Curved Elements

The last section, at the end of each curve, makes a 3 degree angle with the next element.



Covering flange FM-1000 or Feed Box FM-1300 or FM-1330



Covering flange FM-1000-CO or Feed Box FM-1300-CO or FM-1330-CO

Figure 33: Curved Line Element placement

Assembly Procedure:

1. Put the fixed hangers on the mounting brackets (refer to section 5 on page 7).
2. Put the curve in the fixed hangers without fixing anchoring screws. (Warning: at rest the radius of the curve is greater than the nominal radius due to flexibility in the element.)
3. Assemble connection on one side, conductors abutting each other.
4. Place the next element in the hangers, then close a little bit of the curve to place the remaining curve connections.
5. Install the joint covers (refer to section 7 on page 8). Use FM-1000 for straight sections and FM-1000-CO for curves.
6. Tighten the fixed hanger screws.
7. Special Articulated trolleys (single/double/triple) are required on all installations with a curve.

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