

# E-LINE TROLLEY BUSBAR

Trolley Busbar Systems

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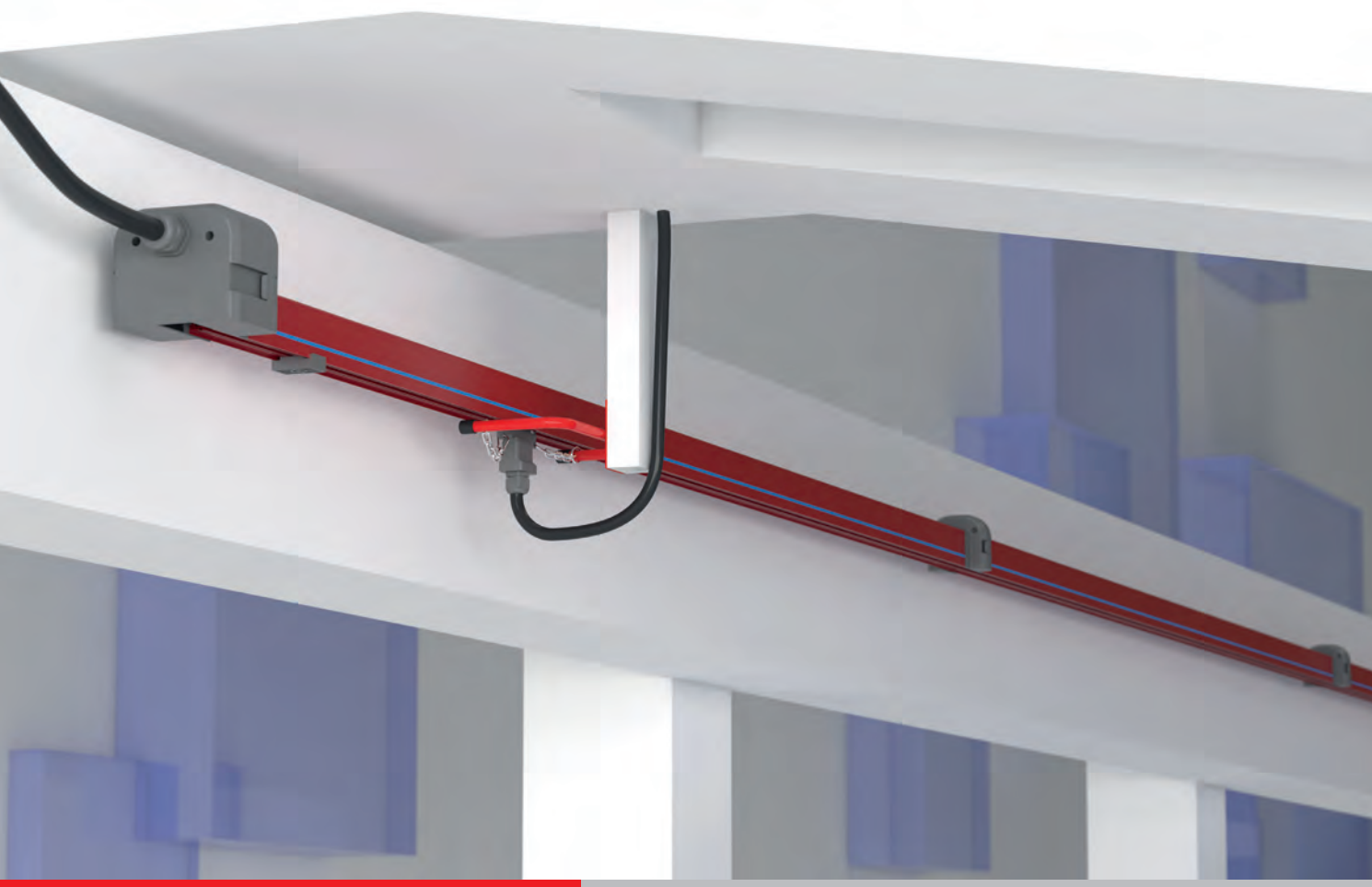
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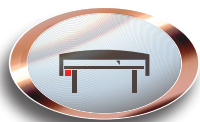
# E-LINE TBX-E



• Bridge/Overhead Cranes



• Monorail Systems



• Textile Cutting and Spreading Tables



• AS/RS Storage Systems



• Moving Ceiling and Door Systems



• Assembly and Test Lines



## E-LINE TBX-E

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Trolley Busbar Systems .....	2
Order Code System .....	3
TBX-E Trolley Busbar .....	4
TBX-E Feeder Unit .....	5
TBX-E Repair Zone Module .....	6
TBX-E Current Collector .....	7-8
System Components .....	9
System ComVoltage Drop, Calculation Of Feeding Pointsponents .....	10
TBX-E Trolley Busbar Installation Manual .....	11

# E-LINE TBX-E

## Trolley Busbar Systems



- Bridge/Overhead Cranes
- Monorail Systems
- Textile Cutting and Spreading Tables
- AS/RS Storage Systems
- Moving Ceiling and Door Systems
- Assembly and Test Lines

It consists of copper conductors and current collectors in the C-PVC body. The uninterrupted energy supply and movement of the system is provided by current collectors connected to the system mechanically.

The eliminates the possibilities such as accident, malfunction in energy distribution with suspended and reel cable in conventional systems. Conductors are enclosed in C-PVC housing and personnel safety is maximized.

There is no fixed connection between the conductor housings and the conductors and between the C-PVC housing and the sliding hangers, the necessary expansion opportunity is provided, therefore the expansion element is unrequired.

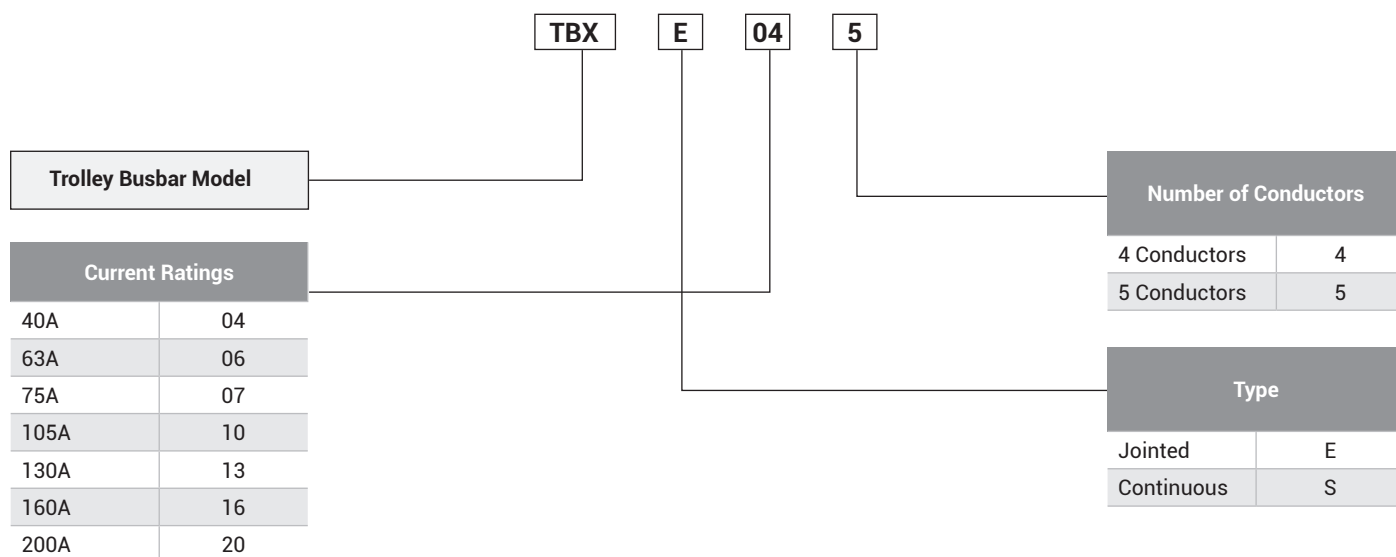
### Cautions:

If it is used in external environments exposed to rain, it is recommended to protect it with a cover such as a canopy.



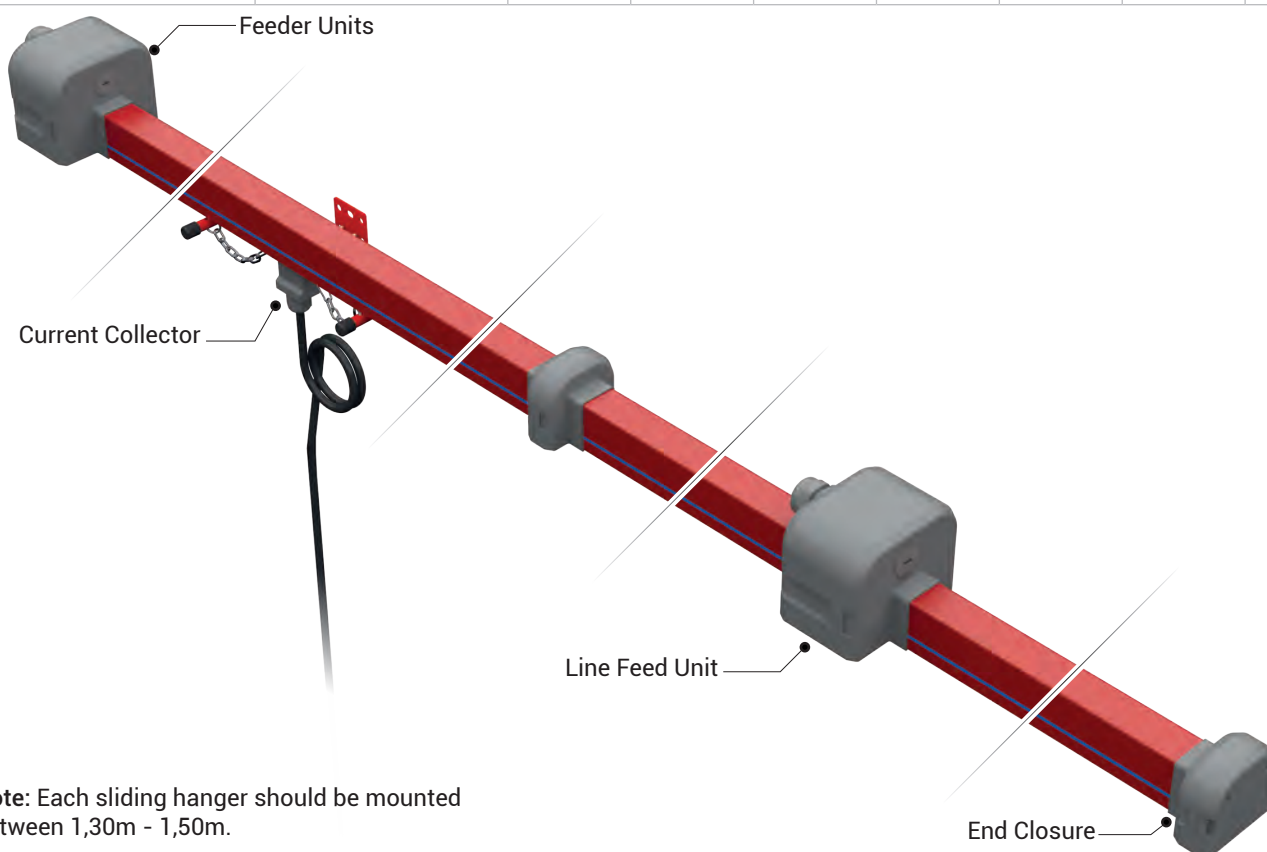
# E-LINE TBX-E

## Order Code System



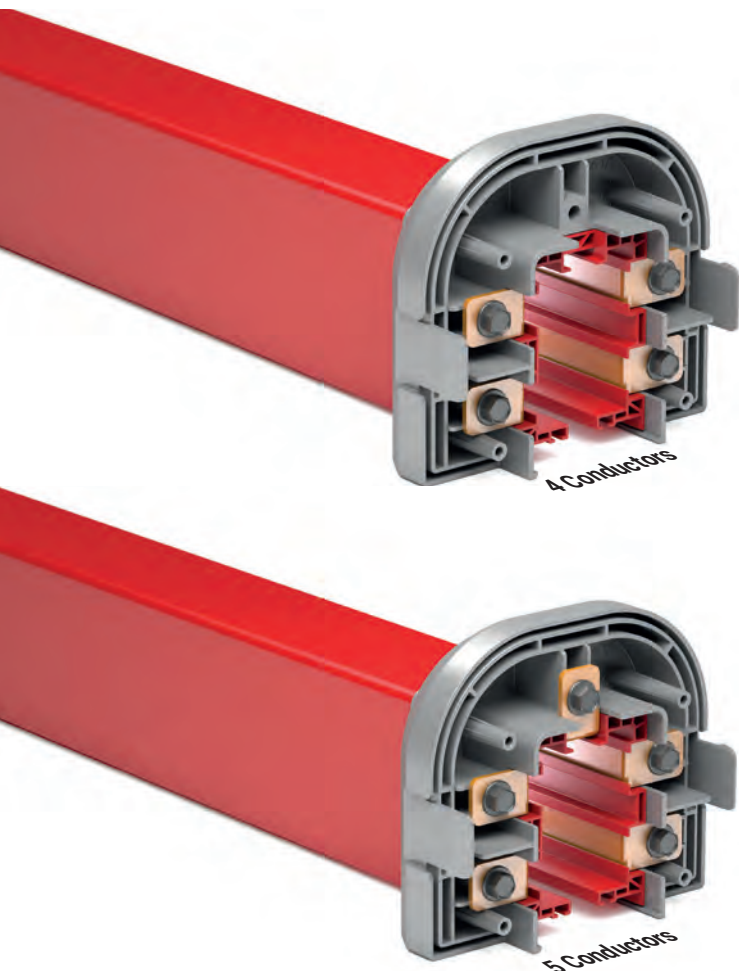
## Technical Features

Rated Current	(A)	40	63	75	105	130	160	200
Conductor Quantities	(pcs)	4-5	4-5	4-5	4-5	4-5	4-5	4-5
Rated Voltage	(AC) (V)	690	690	690	690	690	690	690
Dielectric Properties	(kV/mm)	30	30	30	30	30	30	30
Frequency	(Hz)	50/60	50/60	50/60	50/60	50/60	50/60	50/60
Resistance (20°C)	R20 (mΩ/m)	1,440	1,240	1,150	0,780	0,600	0,450	0,400
Resistance (35°C)	R35 (mΩ/m)	1,580	1,425	1,340	0,910	0,700	0,530	0,510
Reactance	X (mΩ/m)	0,120	0,130	0,110	0,130	0,130	0,110	0,140
Impedance	Z (mΩ/m)	1,585	1,431	1,350	0,919	0,712	0,541	0,530
Standard Length	(m)	4	4	4	4	4	4	4



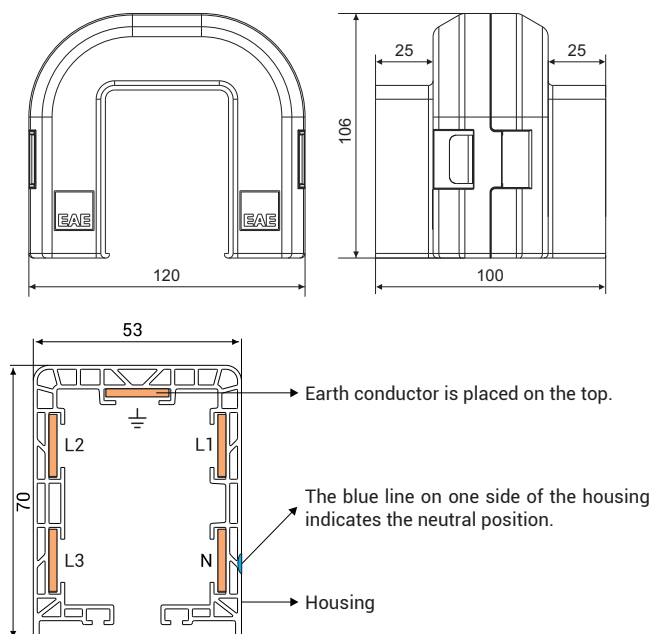
**Note:** Each sliding hanger should be mounted between 1,30m - 1,50m.

## TBX-E Trolley Busbar



Description	Weight (gr/m)	Order Code
TBX-E Trolley Busbar Housing	820	2061764

The housing has a structure that can use maximum 5 conductors. There is safety system that prevents the current collector to be fixed inversely.



- **Number of Conductors:** 4 or 5 conductors
- **Colour:** Red.
- **Temperature range:** -40°C , +55°C.
- **Standard housing length:** 4 meters.
- **Protection:** Standard IP24, Gasket IP44
- **Non-Flammable Characteristics:** UL 94 V0
- Housing is made of C-PVC and plastic accessories are made of PA6 raw material.
- There is a neutral line on the housing the neutral conductor.
- Light and durable with double layer structure, TBX provides ease of installation.

### Standard 4 Meters

Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm²)	Order Code
TBX-E 044	4P - 40A	1500	4x11,20	3135783
TBX-E 064	4P - 63A	1550	4x12,80	3179772
TBX-E 074	4P - 75A	1650	4x16,00	3135787
TBX-E 104	4P - 105A	1900	4x24,00	3135791
TBX-E 134	4P - 130A	2200	4x32,00	3135795
TBX-E 164	4P - 160A	2500	4x40,00	3136708
TBX-E 204	4P - 200A	2650	4x45,00	3292921
TBX-E 045	5P - 40A	1650	5x11,20	3135785
TBX-E 065	5P - 63A	1700	5x12,80	3179773
TBX-E 075	5P - 75A	1800	5x16,00	3135789
TBX-E 105	5P - 105A	2100	5x24,00	3135793
TBX-E 135	5P - 130A	2500	5x32,00	3135797
TBX-E 165	5P - 160A	2800	5x40,00	3136710
TBX-E 205	5P - 200A	3000	5x45,00	3292922

### Special Length 1 or 2, 3 Meters

Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm²)	Order Code
TBX-E 044	4P - 40A	1500	4x11,20	3135782
TBX-E 064	4P - 63A	1550	4x12,80	3179776
TBX-E 074	4P - 75A	1650	4x16,00	3135786
TBX-E 104	4P - 105A	1900	4x24,00	3135790
TBX-E 134	4P - 130A	2200	4x32,00	3135794
TBX-E 164	4P - 160A	2500	4x40,00	3136707
TBX-E 204	4P - 200A	2650	4x45,00	3292919
TBX-E 045	5P - 40A	1650	5x11,20	3135784
TBX-E 065	5P - 63A	1700	5x12,80	3179777
TBX-E 075	5P - 75A	1800	5x16,00	3135788
TBX-E 105	5P - 105A	2100	5x24,00	3135792
TBX-E 135	5P - 130A	2500	5x32,00	3135796
TBX-E 165	5P - 160A	2800	5x40,00	3136709
TBX-E 205	5P - 200A	3000	5x45,00	3292920

Joint plastics are not included in the weight values.  
Total weight of the joint plastics and bolts is 0.28 Kg.

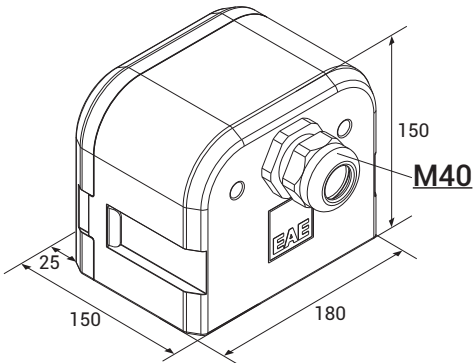


# E-LINE TBX-E



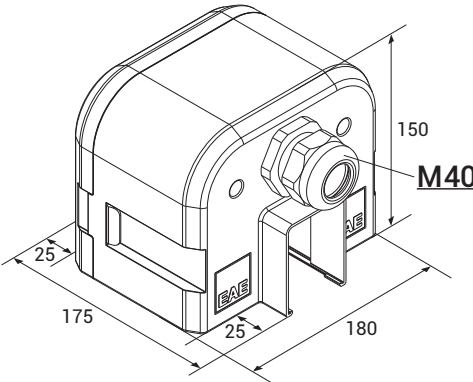
TBX-E

## TBX-E Feeder Box



Description	Weight (gr/m)	Order Code
TBX Feeder Box	750	3135798

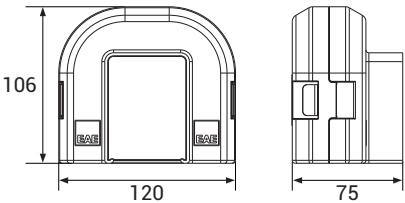
## TBX-E Line Feed Box



Description	Weight (gr/m)	Order Code
TBX Line Feed Box	750	3135799

Type of the feeding element is selected by calculating the voltage drop and the location of the power supply that shall provide power to the system.

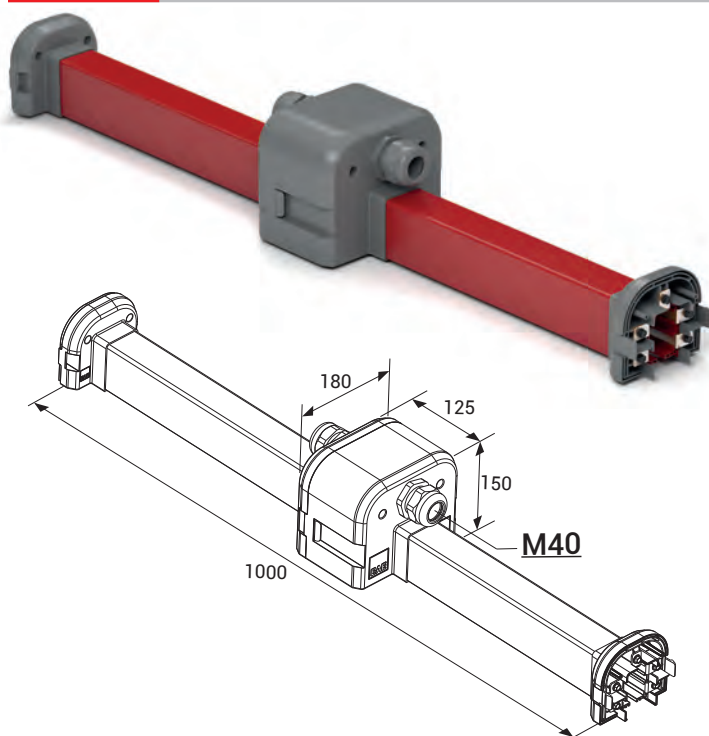
## TBX-E End Closure



Description	Weight (gr/m)	Order Code
TBX-E End Closure	300	3197966

The end closure placed on the end of the busbar line prevents the exposure of the conductors, and protects the system.

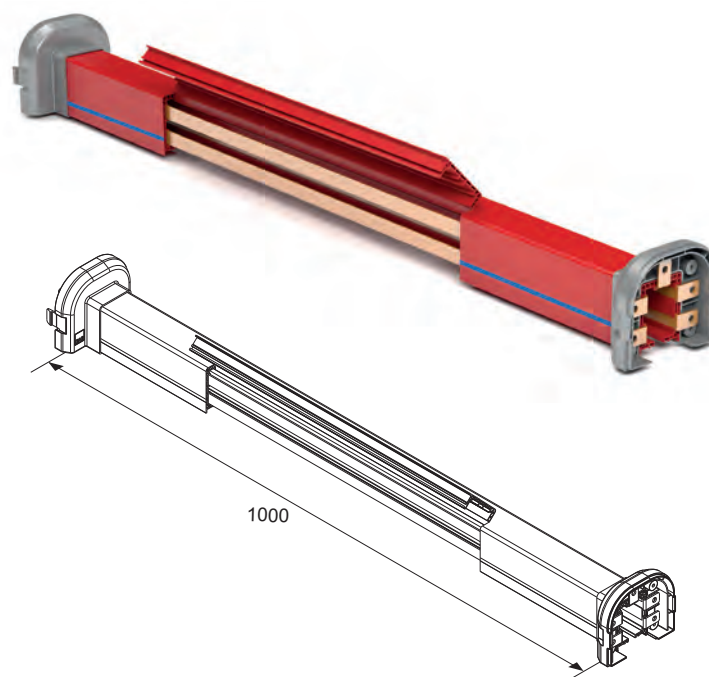
## TBX-E Repair Zone Unit



Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm <sup>2</sup> )	Order Code
TBX-E 044	4P - 40A	2450	4x11,20	<b>3135819</b>
TBX-E 064	4P - 63A	2500	4x12,80	<b>3179782</b>
TBX-E 074	4P - 75A	2550	4x16,00	<b>3135821</b>
TBX-E 104	4P - 105A	2850	4x24,00	<b>3135823</b>
TBX-E 134	4P - 130A	3150	4x32,00	<b>3135826</b>
TBX-E 164	4P - 160A	3400	4x40,00	<b>3136711</b>
TBX-E 204	4P - 200A	3550	4x45,00	<b>3292917</b>
TBX-E 045	5P - 40A	2550	5x11,20	<b>3135820</b>
TBX-E 065	5P - 63A	2600	5x12,80	<b>3179783</b>
TBX-E 075	5P - 75A	2700	5x16,00	<b>3135822</b>
TBX-E 105	5P - 105A	3050	5x24,00	<b>3135824</b>
TBX-E 135	5P - 130A	3400	5x32,00	<b>3135827</b>
TBX-E 165	5P - 160A	3750	5x40,00	<b>3136712</b>
TBX-E 205	5P - 200A	3950	5x45,00	<b>3292918</b>

Current supply shall be cut off when a machine working on the line shall be maintained or repaired. Repair zone module is used to create a currentless area on the busbar so that the other machines operating on the same line may continue to work.

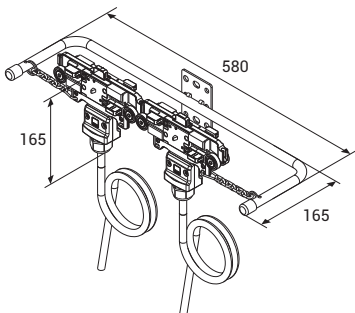
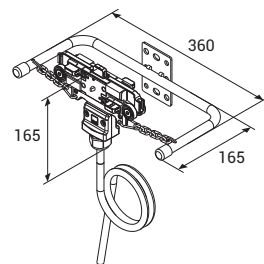
## TBX-E Current Collector Replacement Module



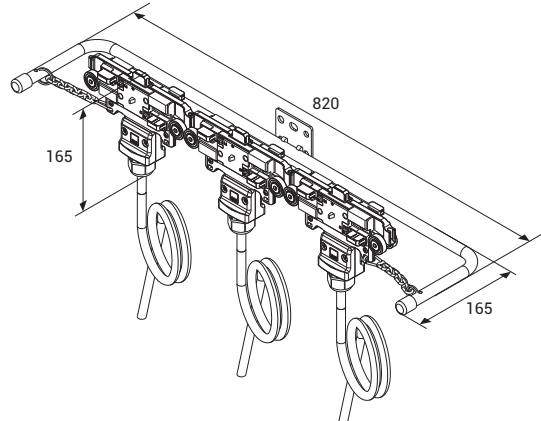
Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm <sup>2</sup> )	Order Code
TBX-E 044	4P - 40A	1700	4x11,20	<b>3233909</b>
TBX-E 064	4P - 63A	1750	4x12,80	<b>3233910</b>
TBX-E 074	4P - 75A	1800	4x16,00	<b>3233911</b>
TBX-E 104	4P - 105A	2100	4x24,00	<b>3233912</b>
TBX-E 134	4P - 130A	2400	4x32,00	<b>3233913</b>
TBX-E 164	4P - 160A	2700	4x40,00	<b>3233914</b>
TBX-E 204	4P - 200A	2850	4x45,00	<b>3292915</b>
TBX-E 045	5P - 40A	1800	5x11,20	<b>3233915</b>
TBX-E 065	5P - 63A	1850	5x12,80	<b>3233916</b>
TBX-E 075	5P - 75A	1950	5x16,00	<b>3233917</b>
TBX-E 105	5P - 105A	2300	5x24,00	<b>3233918</b>
TBX-E 135	5P - 130A	2700	5x32,00	<b>3233919</b>
TBX-E 165	5P - 160A	3000	5x40,00	<b>3233920</b>
TBX-E 205	5P - 200A	3200	5x45,00	<b>3292916</b>

This unit is used to remove an existing current collector or to add extra trolleys. The unit is obtained by cutting a 50 cm section from the PVC housing.

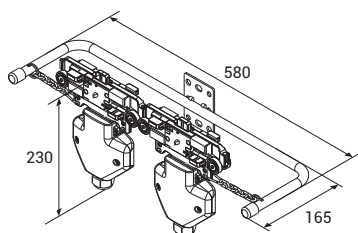
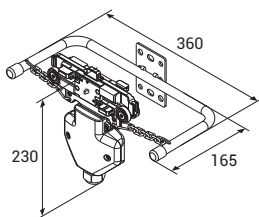
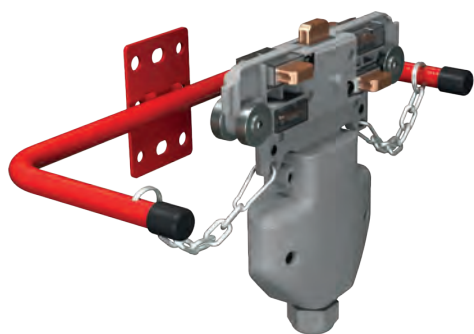
## TB5 Current Collectors With Cable



Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB5	4P - 35A (Single)	1700	3024385
	4P - 70A (Double)	2950	3024386
	4P - 105A (Triple)	4450	3024387
	5P - 35A (Single)	1900	3024376
	5P - 70A (Double)	3250	3024377
	5P - 105A (Triple)	4700	3024378



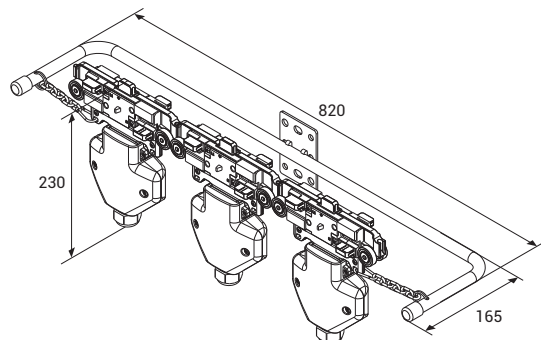
## TB5 Current Collectors With Clip



Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB5	4P - 60A (Single)	2000	3203193
	4P - 120A (Double)	3550	3269558
	5P - 60A (Single)	2200	3203194
	5P - 120A (Double)	3850	3269559

Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB5	4P - 35A (Single)	1350	3024388
	4P - 70A (Double)	2050	3024389
	4P - 105A (Triple)	3050	3024390
	5P - 35A (Single)	1350	3024379
	5P - 70A (Double)	2250	3024380
	5P - 105A (Triple)	3200	3024381

• Produced with standard M40 cable gland and 4mm<sup>2</sup> clip.



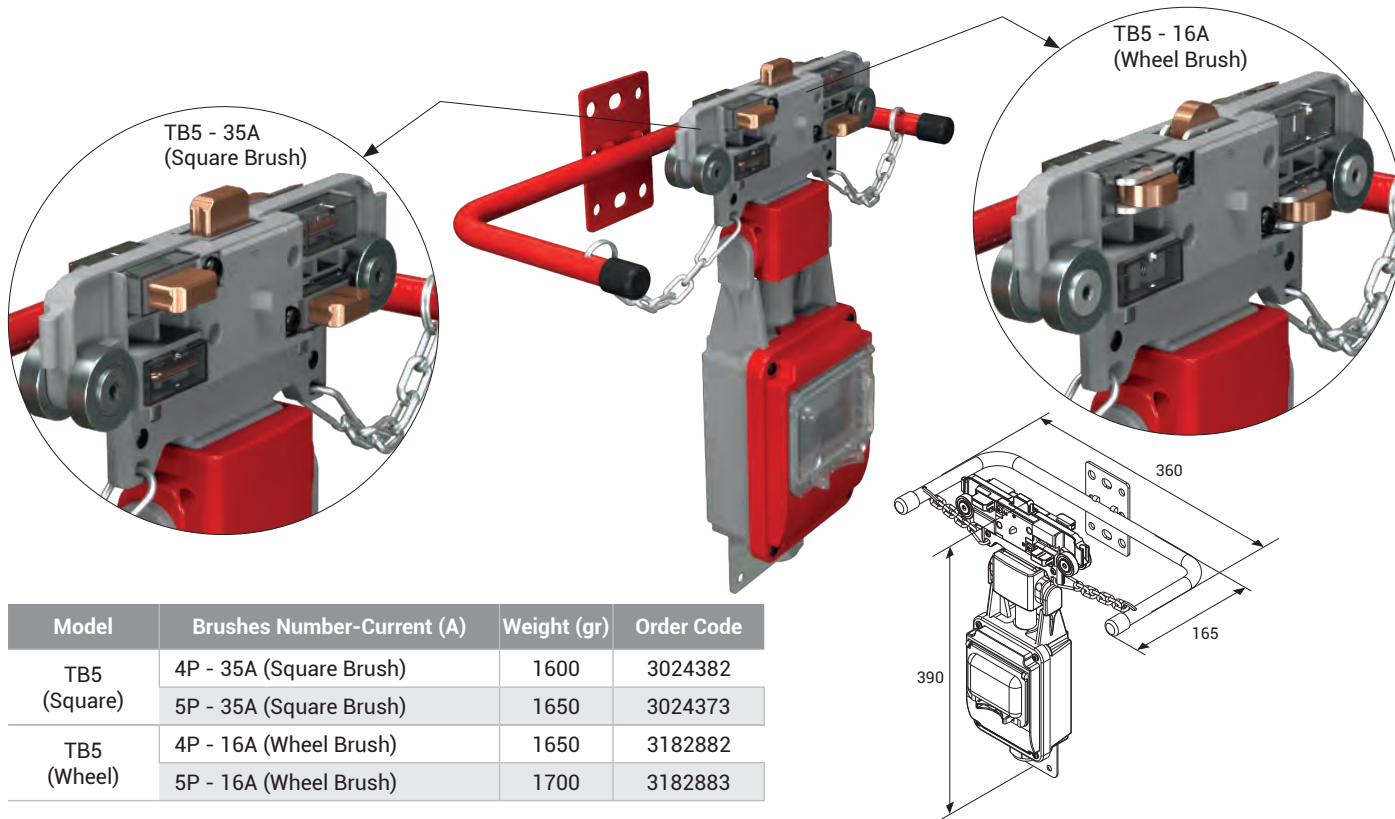
Current collector with clips allow the customers to perform cabling as they desire with the clips they include.

Current collector are the moving elements of the trolley busbar systems. Current collector brushes rub against the conductors and draw continuous current while they move through the busbar line. They adapt to shaky and vibrant conditions thanks to the moving brushes. As current collecting and transfer systems are included in the C-PVC housing, they are protected against human contact.

# E-LINE TBX-E



## TB5 Current Collector With Fuse Box



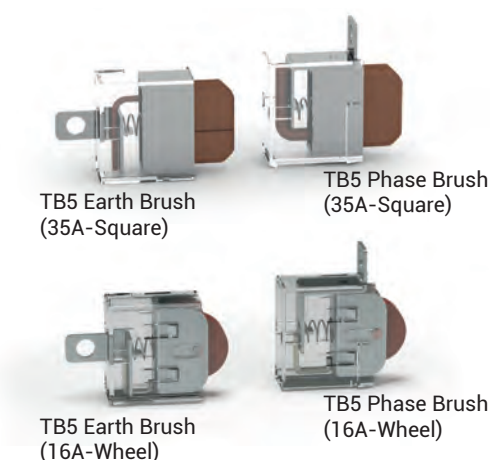
Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB5 (Square)	4P - 35A (Square Brush)	1600	3024382
	5P - 35A (Square Brush)	1650	3024373
TB5 (Wheel)	4P - 16A (Wheel Brush)	1650	3182882
	5P - 16A (Wheel Brush)	1700	3182883

Fuse boxed with both staff and current receiving area carts current machine's safety can be raised to a higher level. In addition, when it is desired to cut the power of one of the machines on a line, the current is cut off through the fuse, other machines on the line can continue to operate.

Current collector with Wheel Brush simplify the movement of the current collectors inside the busbar by reducing the time at the installation tables when movement is provided by the personnel.

TB5 Current collector models operating speed is max. 100m/min.

## TB5 Current Collector Brushes



Description	Weight (gr)	Order Code
TB5 Phase Brush (35A-Square)	40	3024371
TB5 Earth Brush (35A-Square)	40	3024372
TB5 Phase Brush (16A-Wheel)	40	3165078
TB5 Earth Brush (16A-Wheel)	40	3165080

## TBX Trolley Transfer Tool



Description	Weight (gr)	Order Code
TBX Trolley Transfer Tool	250	3179529

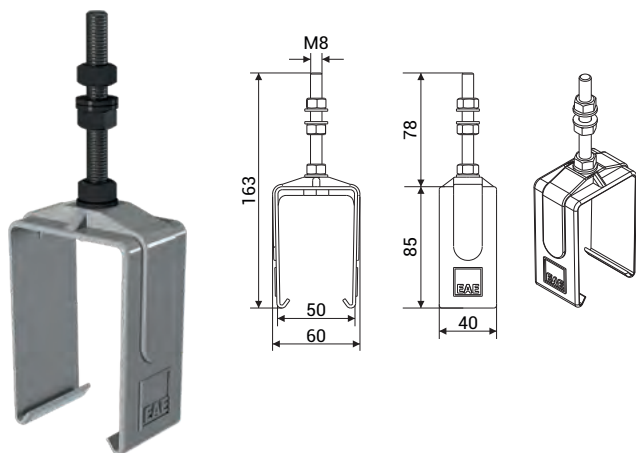


# E-LINE TBX-E

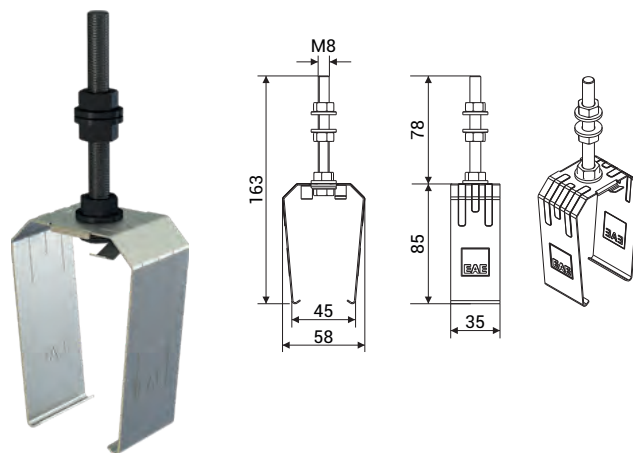


TBX-E

## TB5 Plastic Sliding Hanger



## TB5 Steel Sliding Hanger

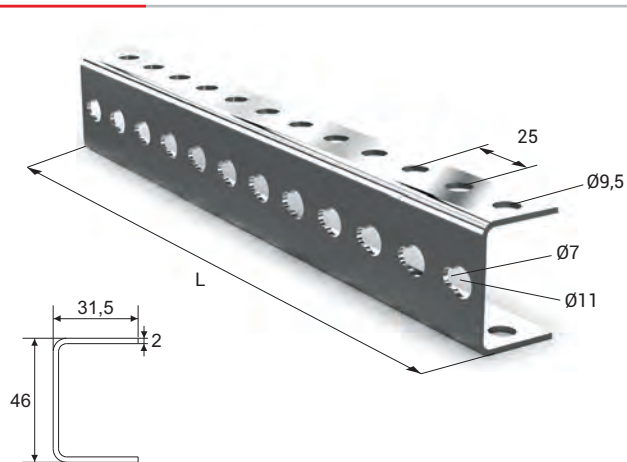


Trolley busbar should be mounted with sliding hangers and each hangers should be between 1,30m - 1,50m. Distance between sliding hanger and other units (joint unit, feeder etc.) should be minimum 300mm.

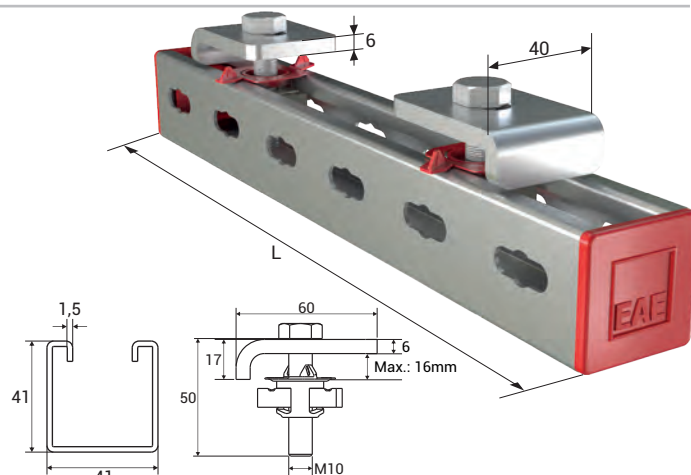
Description	Weight (gr)	Order Code
TB5 Plastic Sliding Hanger	85	1003664

Description	Weight (gr)	Order Code
TB5 Steel Sliding Hanger	100	1005954

## TB Hanger Bracket

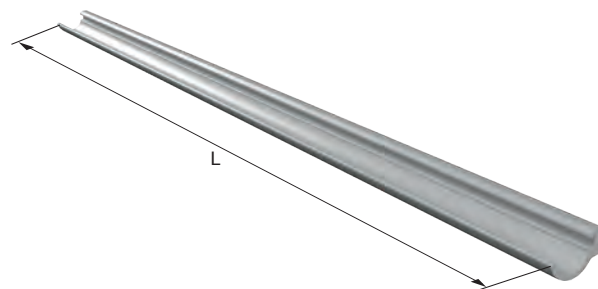


Description	L (mm)	Weight (gr)	Order Code
TB Hanger Bracket	250	350	3025153
URC-C/S Hanger Bracket	500	700	3034560
URC-A Hanger Bracket	750	1050	3025382



Description	L (mm)	Weight (gr)	Order Code
TB BR Hanger Bracket Set	300	800	3178916
URC-C/S BR Hanger Bracket Set	600	1250	3178917
URC-A BR Hanger Bracket Set	800	1550	3178918

## TBX Gasket



- Continuous length is maximum 300 meters.
- Gasket should be ordered twice the line length.

Description	Weight (gr)	Order Code
TBX Gasket Roll (m)	30	1037761

Description	L (mm)	Weight (gr)	Order Code
TBX Gasket Straight Length (Pcs.)	4000	120	1037762

## Voltage Drop

The voltage drop in the busbar lines shall be inspected as per the busbar type selected according to the total current calculated based on the ambient temperature and operating period of the system. Maximum acceptable value for voltage drop is 3%.

### For Direct Current

$$\Delta U = 2 \cdot L_t \cdot I_G \cdot R$$

$$\Delta U = \text{Voltage Drop [V]}$$

### For Mono-Phase Alternative Current

$$\Delta U = 2 \cdot L_t \cdot I_G \cdot Z$$

$$I_G = \text{Total current [A]}$$

$$R = \text{Resistance of the busbar } [\Omega/\text{m}]$$

### For Three-Phase Alternative Current

$$\Delta U = \sqrt{3} \cdot L_t \cdot I_G \cdot Z$$

$$Z = \text{Impedance of the busbar } [\Omega/\text{m}]$$

$$L_t = \text{Calculated Hole Length [m]}$$

**Note :** Calculation of the current drawn during first start in various motor types;

$I_A$  = Total current drawn in the first start of the motors [A]

For the starting current; Three-phase asynchronous drive in direct start

Slip ring rotor motor

Frequency converter

$$I_A = I_G \times \text{calculated as 5 to 6}$$

$$I_A = I_G \times \text{calculated as 2 to 3}$$

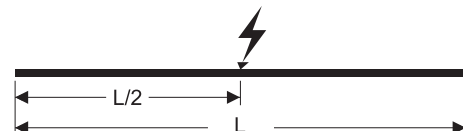
$$I_A = I_G \times 1,20 \text{ to } 1,50 \text{ calculated between.}$$

## Calculation Of Feeding Points

When we take  $L_t$  as the length of the line, feeding points may be selected as shown in the diagrams below to keep the  $L$  voltage drop at minimum and it may be used as the hole length for the calculation of  $L_t$  voltage drop.



1 feeding point from the start,  $L_t = L$



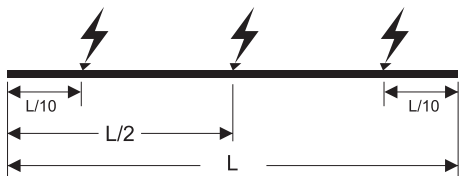
1 feeding point from the center,  $L_t = L/2$



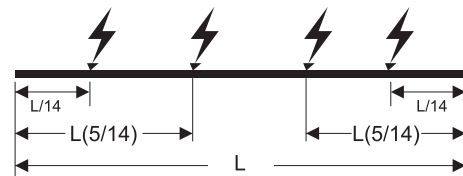
2 feeding points from the start points,  $L_t = L/4$



2 feeding points,  $L_t = L/6$



3 feeding points,  $L_t = L/10$

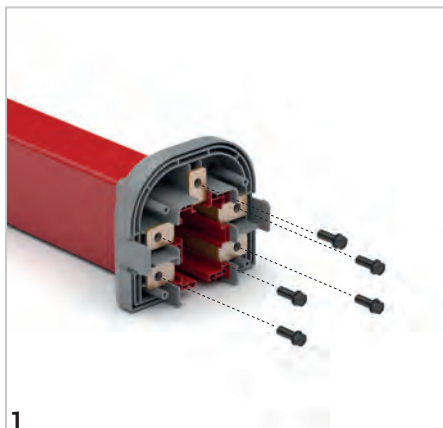


4 feeding points,  $L_t = L/14$

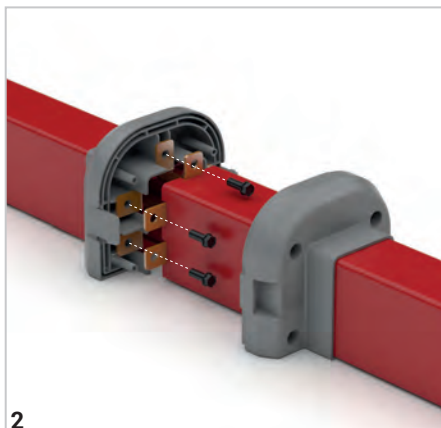
# E-LINE TBX-E

## Installation Manual

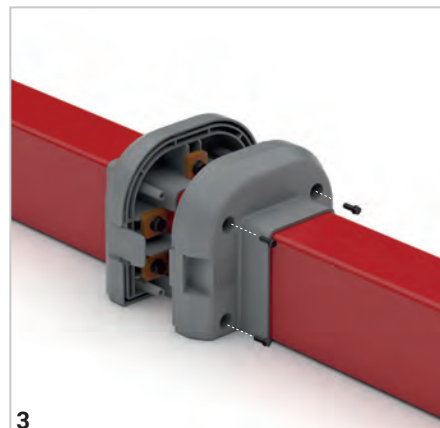
### TBX-E - Installation Of Joint Unit



1  
Remove the screws on the end of the busbar.

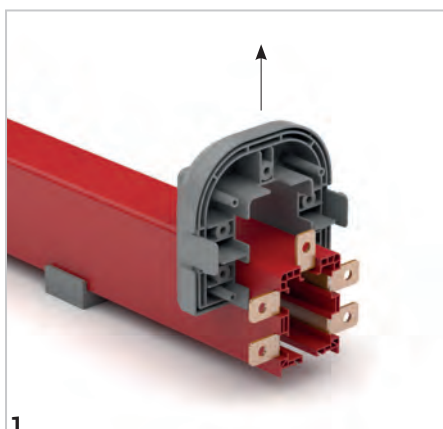


2  
Join it with the other busbar and screw it.

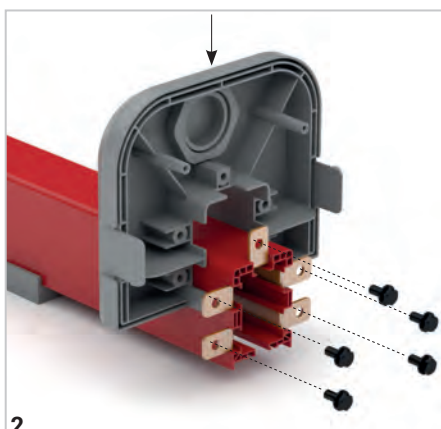


3  
Close the joint cover and screw it.

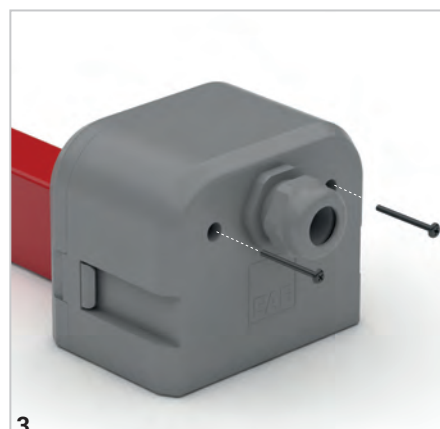
### TBX-E - Feeder Unit



1  
Joint unit cover is removed.

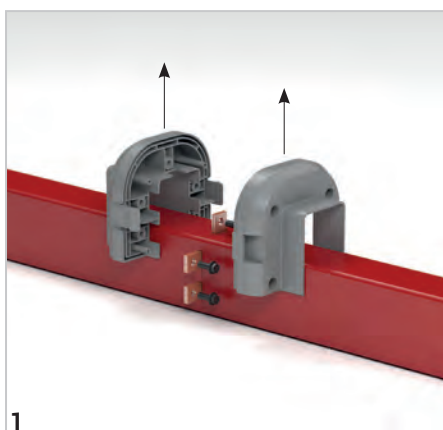


2  
The small part of the feed box is inserted into the busbar from the top and the conductor are screwed.

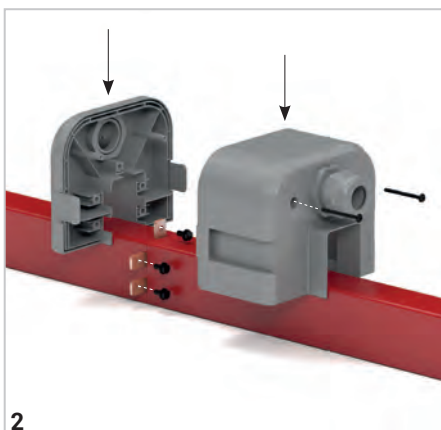


3  
Close the module cover and screw it. It is inserted with a cable from the M40 cable gland and it is feed.

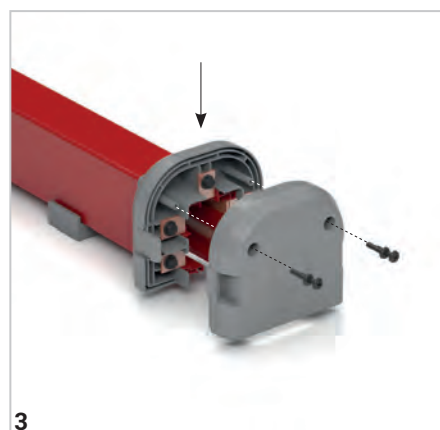
### TBX-E - Line Feed Unit



1  
Joint unit is removed it upwards.



2  
The feeder box is placed in the busbar from the top. The supply cable are connected to the conductors through the cable gland. The cover is closed and screwed.



3  
Install the end closure to the end of the housing and screw it.

### TBX-E - End Closure

# E-LINE TBX-E

## Offer Request Form



Date :

Project Name	:	
Company	:	
Name Surname	:	
Tel	:	
E-Mail	:	
Address	:	

### General Data

Track Length	:	
Number of Cranes on Track	:	
Crane Travel Speed	:	

### Environmental Data

Operating Environment	:	<input type="checkbox"/> Indoor	<input type="checkbox"/> Outdoor
Ambient Temperature	:	<input type="text"/> °C min.	<input type="text"/> °C max.
Other Operating Conditions (Humidity, Dust, Chemical Influence, etc.)	:		

### Electrical Data

Operating Voltage	:	<input type="text"/> Volts	<input type="checkbox"/> AC	<input type="checkbox"/> DC			
	:	<input type="text"/> Phases	<input type="checkbox"/> N	<input type="checkbox"/> PE			
Position and Number of Feeder	:	<input type="text"/> from End	<input type="text"/> from Middle				
Duty Cycle (%)	:	<input type="checkbox"/> 50%	<input type="checkbox"/> 60%	<input type="checkbox"/> 70%	<input type="checkbox"/> 80%	<input type="checkbox"/> 90%	<input type="checkbox"/> 100%

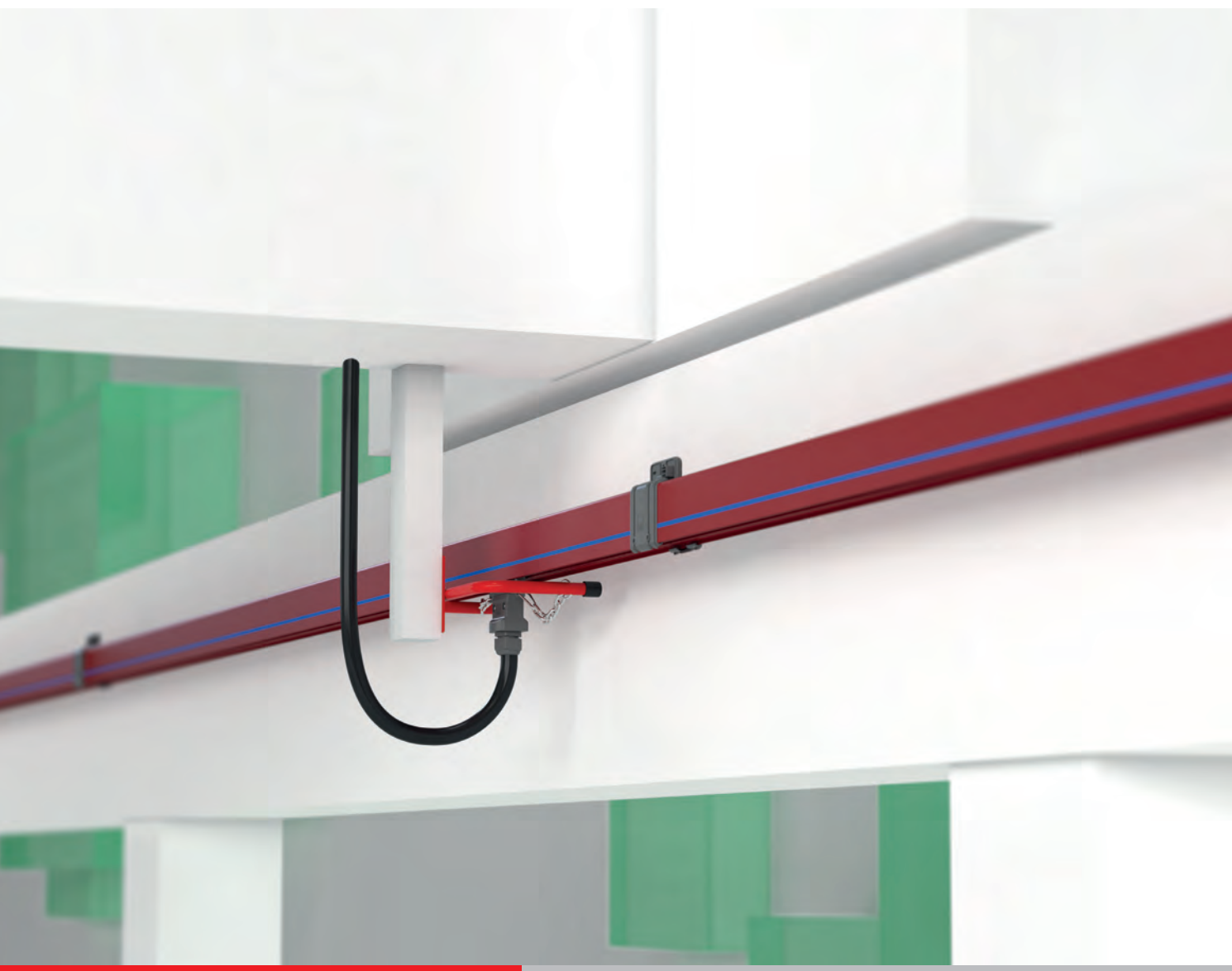
Motor Specifications	Crane - 1		Crane - 2		Crane - 3	
	Power (kW)	Current (A)	Power (kW)	Current (A)	Power (kW)	Current (A)
Hoist motors						
Auxiliary motor						
Long travel						
Cross travel						

### Options

Brackets Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Repair Zone Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Collector Replacement Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Descriptions	:		

Please duplicate this page for your own use.





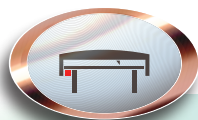
# E-LINE TBX-S



• Bridge Cranes



• Monorail Systems



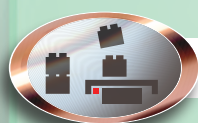
• Textile Cutting and Spreading Tables



• AS/RS Storage Systems



• Moving Ceiling and Door Systems



• Assembly and Test Lines

## E-LINE TBX-S

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Trolley Busbar Systems .....	2
Order Code System .....	3
TBX-S Trolley Busbar .....	4
TBX-S Feeder Unit .....	5-6
TBX-S Repair Zone Module .....	7
TBX-S Current Collector .....	8-9
System Components .....	10-11
Voltage Drop, Calculation Of Feeding Points .....	12
TBX-S Trolley Busbar Installation Manual .....	13-14

# E-LINE TBX-S

## Trolley Busbar Systems



- Bridge Cranes
- Monorail Systems
- Textile Cutting and Spreading Tables
- AS/RS Storage Systems
- Moving Ceiling and Door Systems
- Assembly and Test Lines

It consists of copper conductors and current collectors in the C-PVC body. The uninterrupted energy supply and movement of the system is provided by current collectors connected to the system mechanically.

The eliminates the possibilities such as accident, malfunction in energy distribution with suspended and reel cable in conventional systems. Conductors are enclosed in C-PVC housing and personnel safety is maximized.

There is no fixed connection between the conductor housings and the conductors and between the C-PVC housing and the sliding hangers, the necessary expansion opportunity is provided, therefore the expansion element is unrequired.

### Cautions:

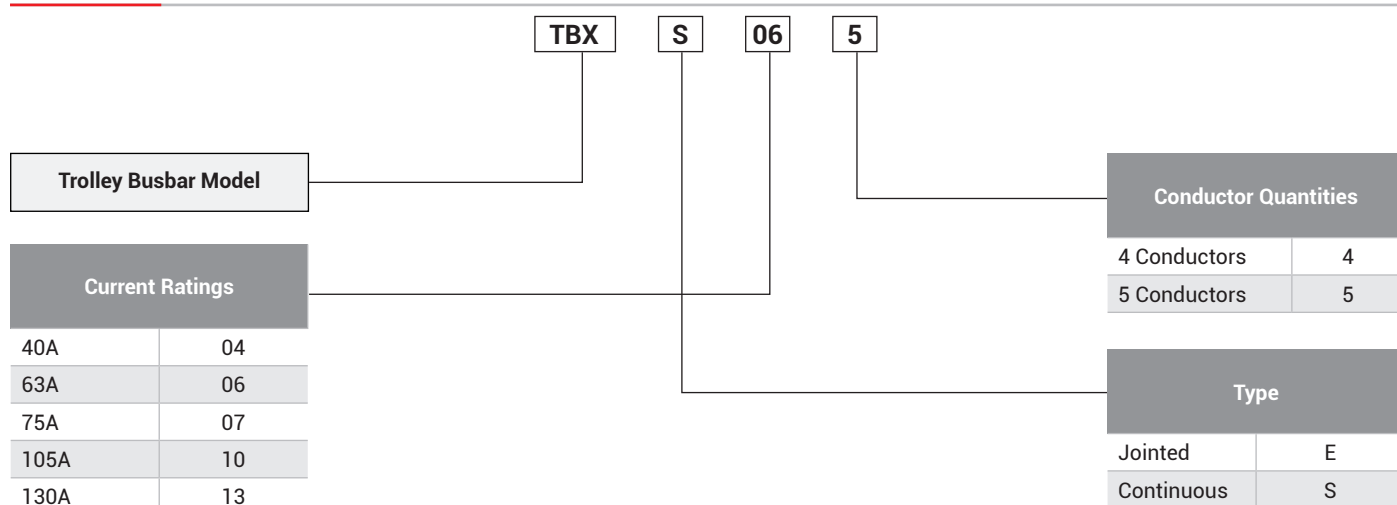
If it is used in external environments exposed to rain, it is recommended to protect it with a cover such as a canopy.





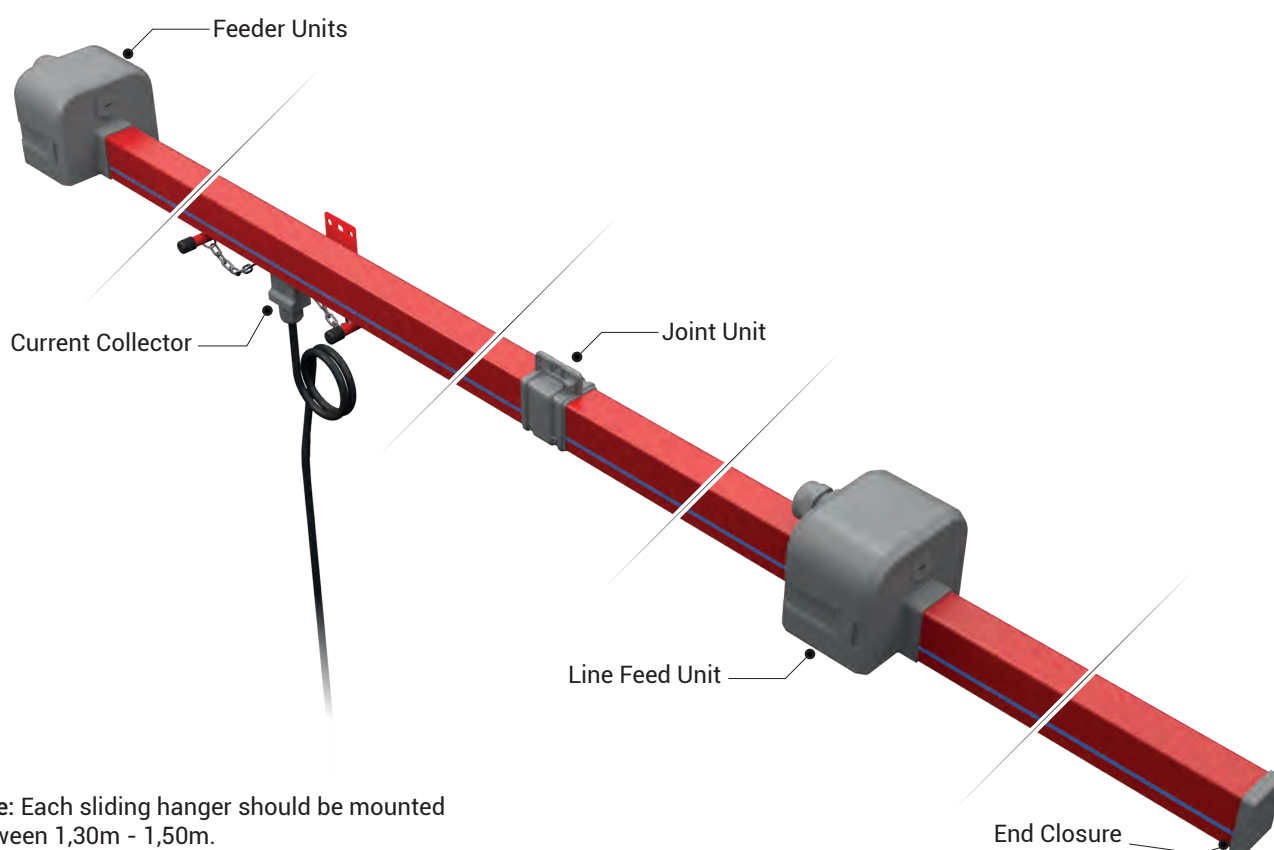
# E-LINE TBX-S

## Order Code System



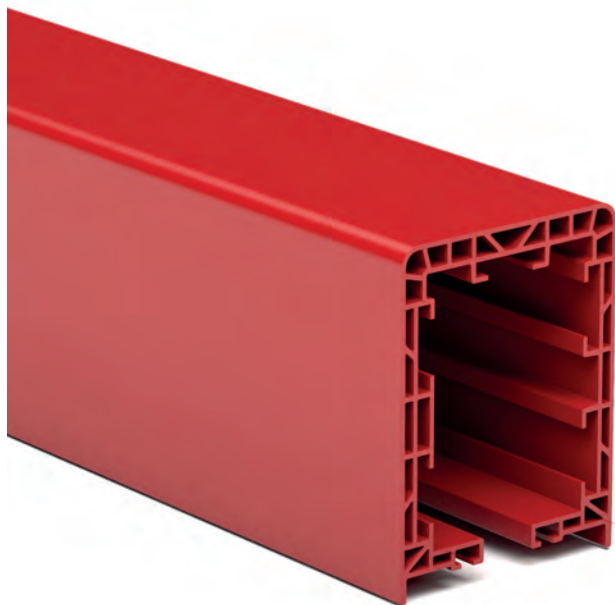
## Technical Features

Rated Current	(A)	40	63	75	105	130
Conductor Quantities	(pcs)	4-5	4-5	4-5	4-5	4-5
Rated Voltage	(AC) (V)	690	690	690	690	690
Dielectric Properties	(kV/mm)	30	30	30	30	30
Frequency	(Hz)	50/60	50/60	50/60	50/60	50/60
Resistance (20°C)	R20 (mΩ/m)	1,300	1,018	1,280	0,800	0,570
Resistance (35°C)	R35 (mΩ/m)	1,420	1,176	1,460	0,920	0,660
Reactance	X (mΩ/m)	0,160	0,447	0,140	0,060	0,250
Impedance	Z (mΩ/m)	1,429	1,258	1,467	0,922	0,706
Standard Length	(m)	4	4	4	4	4



**Note:** Each sliding hanger should be mounted between 1,30m - 1,50m.

## TBX-S Trolley Busbar



Description	Weight (gr/m)	Order Code
TBX-S Trolley Busbar Housing	820	2067393

The housing has a structure that can use maximum 5 conductors. There is safety system that prevents the current collector to be fixed inversely.

### Continuous Copper Conductors

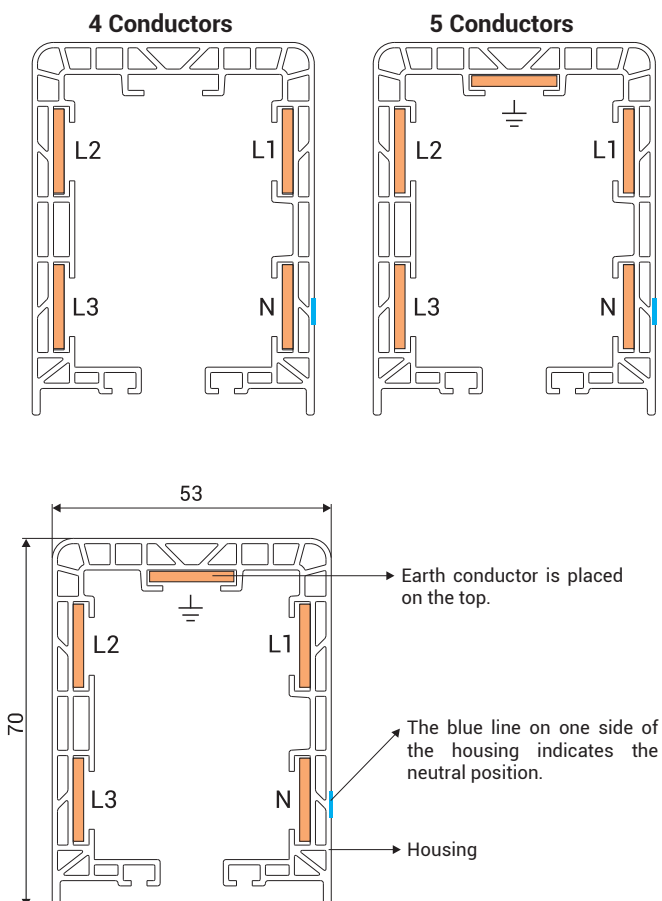
Electrolytic copper conductors can be applied without interruption at a maximum length of 150m.

- **Number of Conductors:** 4 or 5 conductors
- **Colour:** Red.
- **Temperature range:** -40°C and +55°C.
- **Standard housing length:** 4 meters.
- **Protection:** Standard IP24, Gasket, IP44.
- **Non-Flammable Characteristics:** UL 94 V0
- Housing is made of C-PVC and plastic accessories are made of PA6 raw material.
- There is a neutral line on the housing the neutral conductor.
- Light and durable with double layer structure, TBX provides ease of installation.

### Standard 4 Meters

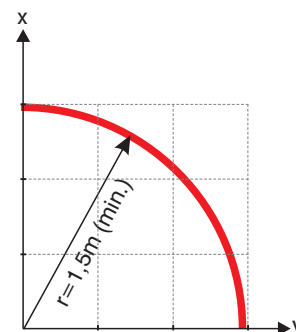
Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm <sup>2</sup> )	Order Code
TBX-S 044	4P - 40A	1250	4x11,20	3233922
TBX-S 064	4P - 63A	1300	4x12,80	3135807
TBX-S 074	4P - 75A	1400	4x16,00	3135809
TBX-S 104	4P - 105A	1650	4x24,00	3135811
TBX-S 134	4P - 130A	1950	4x32,00	3135813
TBX-S 045	5P - 40A	1350	5x11,20	3233923
TBX-S 065	5P - 63A	1400	5x12,80	3135808
TBX-S 075	5P - 75A	1500	5x16,00	3135810
TBX-S 105	5P - 105A	1900	5x24,00	3135812
TBX-S 135	5P - 130A	2250	5x32,00	3135814

Joint plastics are not included in the weight values.  
Total weight of the joint plastics and bolts is 100 kg.

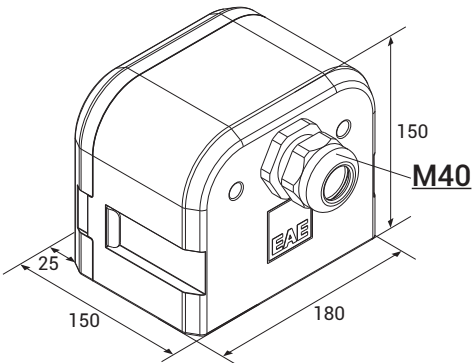


### Radius Trolley Busbar

It has minimum 1,5m radius Trolley Busbar available in vertical axes. Radius Trolley Lines can be applied with maximum 4 conductors.



TBX Feeder Box

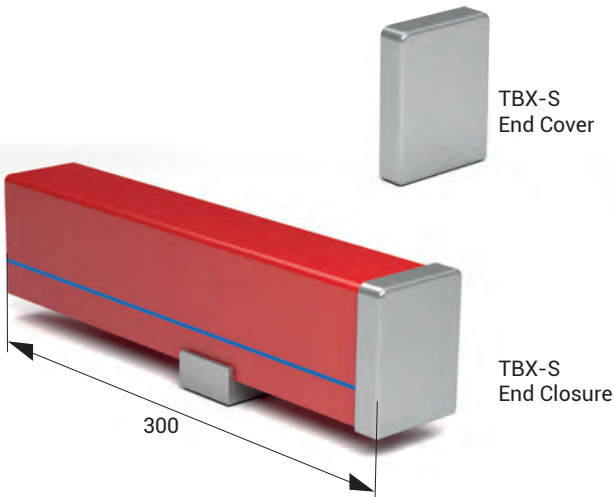


TBX-S

Description	Weight (gr)	Order Code
TBX Feeder Box	750	3135798

Type of the feeding element is selected by calculating the voltage drop and the location of the power supply that shall provide power to the system.

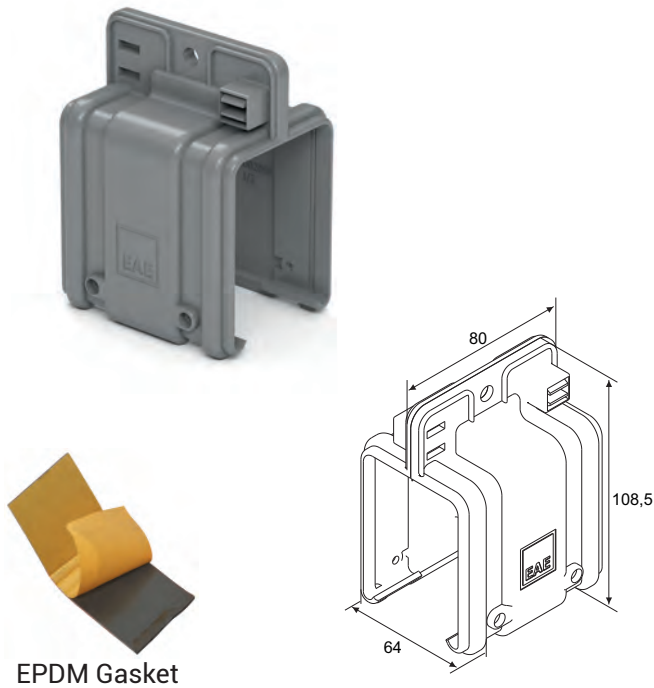
TBX-S End Closure



The end closure placed on the end of the busbar line prevents the exposure of the conductors, protects the system, and prevents the current collector from moving out of the housing.

Description	Weight (gr)	Order Code
TBX-S End Closure	450	3135816
TBX-S End Cover	25	1022212

TBS Joint Unit

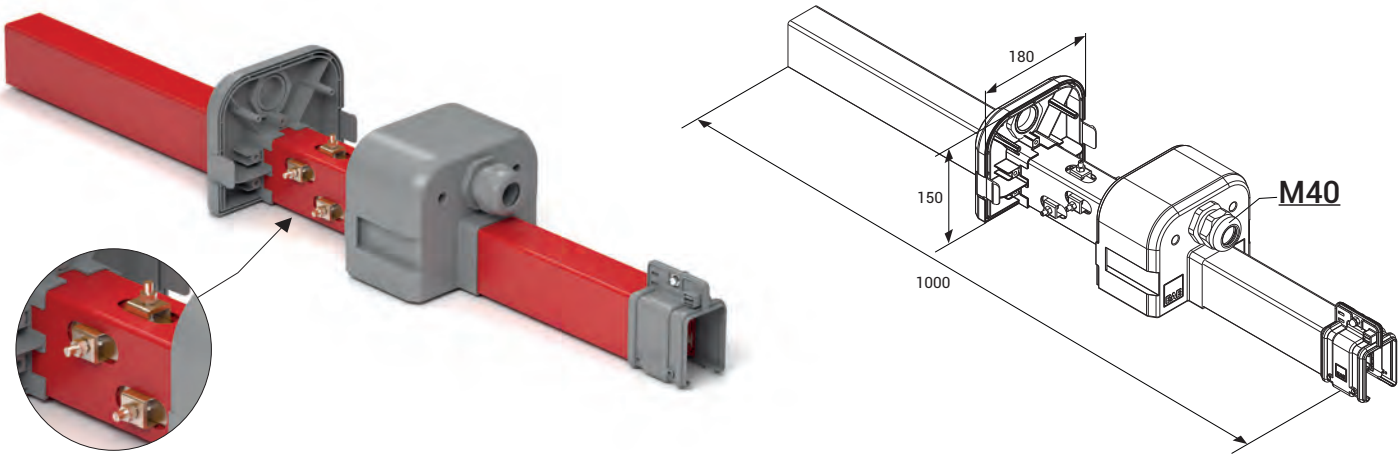


Description	Weight (gr)	Order Code
TBS Joint Unit	90	1003663

# E-LINE TBX-S



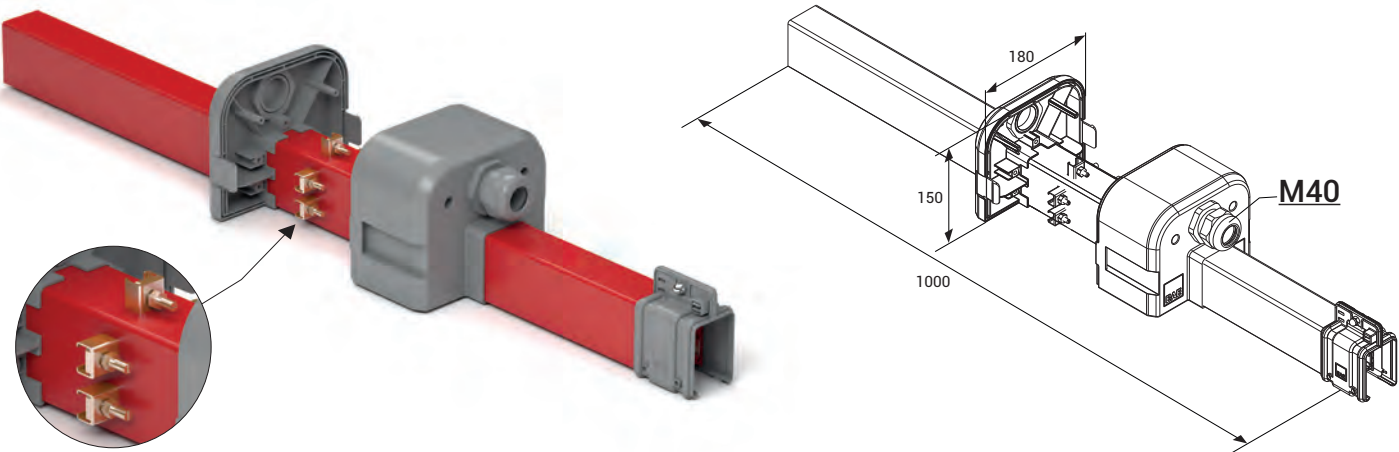
## TBX-S Line Feed Unit - Continuous Type



Description	Weight (gr)	Order Code
TBX-S Line Feed Unit - Continuous Type	1650	3136706

Type of the feeding element is selected by calculating the voltage drop and the location of the power supply that shall provide power to the system.

## TBX-S Line Feed Unit - Jointed Type

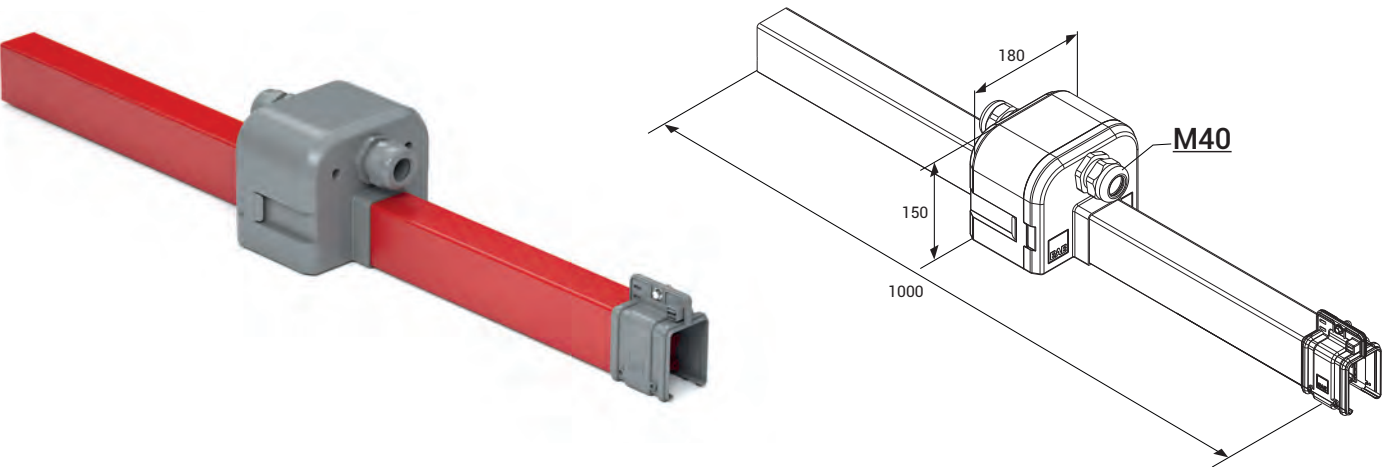


Description	Weight (gr)	Order Code
TBX-S Line Feed Unit - Jointed Type	1650	3135818

Type of the feeding element is selected by calculating the voltage drop and the location of the power supply that shall provide power to the system.



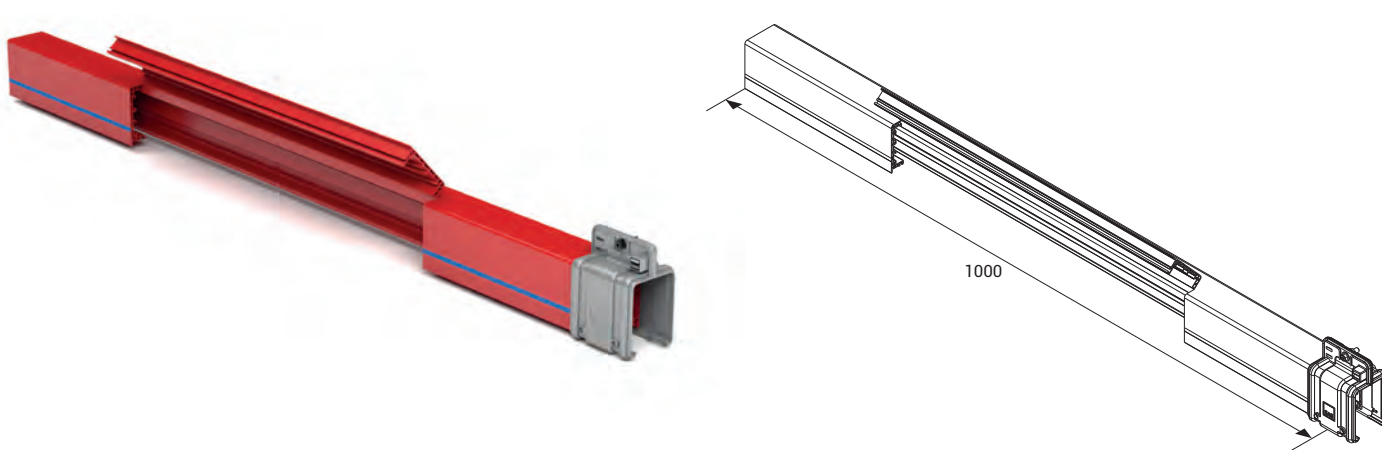
TBX-S Repair Zone Unit



Description	Weight (gr)	Order Code
TBX-S Repair Zone Module	2050	3135817

Current supply shall be cut off when a machine working on the line shall be maintained or repaired. Repair zone module is used to create a currentless area on the busbar so that the other machines operating on the same line may continue to work.

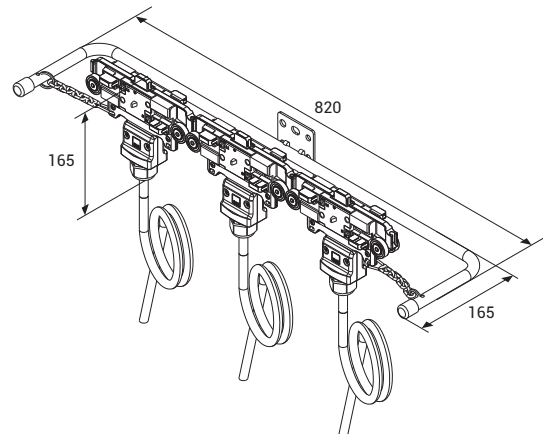
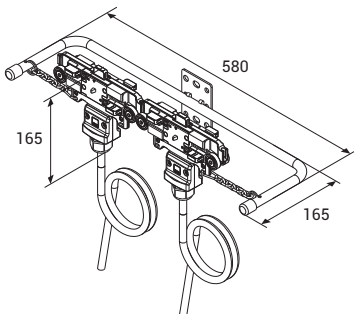
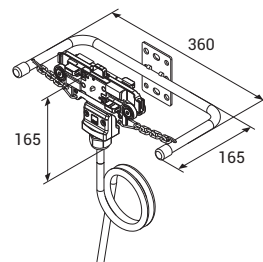
TBX-S Current Collector Replacement Module



Description	Weight (gr)	Order Code
TBX-S Current Collector Replacement Module	1100	3233921

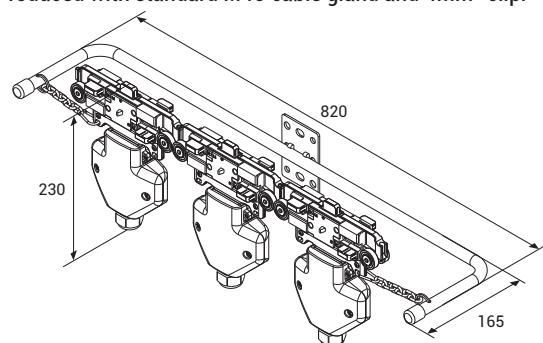
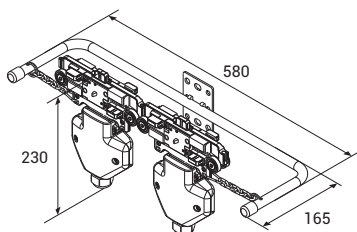
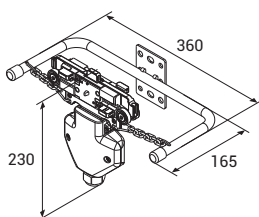
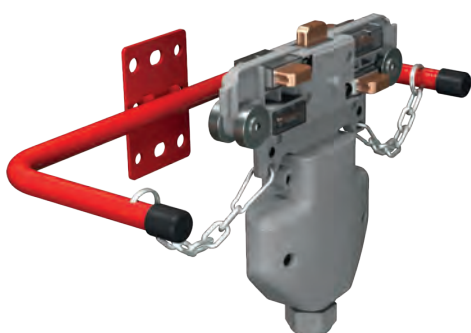
This unit is used to remove an existing current collector or to add extra trolleys. The unit is obtained by cutting a 50cm section from the PVC housing.

## TB5 Current Collectors With Cable



Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB5	4P - 35A (Single)	1700	3024385
	4P - 70A (Double)	2950	3024386
	4P - 105A (Triple)	4450	3024387
	5P - 35A (Single)	1900	3024376
	5P - 70A (Double)	3250	3024377
	5P - 105A (Triple)	4700	3024378

## TB5 Current Collectors With Clip



Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB5	4P - 35A (Single)	1350	3024388
	4P - 70A (Double)	2050	3024389
	4P - 105A (Triple)	3050	3024390
	5P - 35A (Single)	1350	3024379
	5P - 70A (Double)	2250	3024380
	5P - 105A (Triple)	3200	3024381

\*Produced with standard M40 cable gland and 4mm<sup>2</sup> clip.

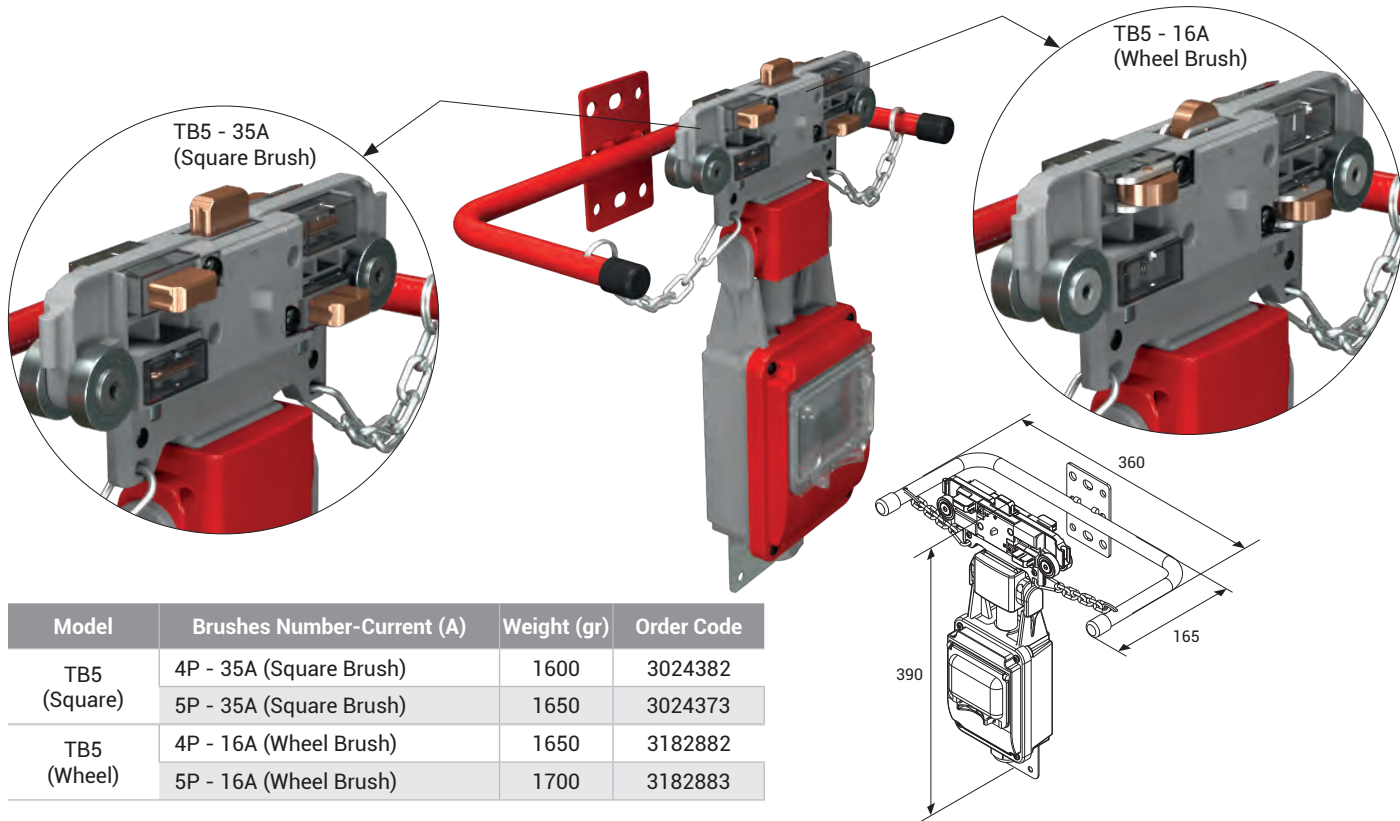
Current collector with clips allow the customers to perform cabling as they desire with the clips they include.

Current collector are the moving elements of the trolley busbar systems. Current collector brushes rub against the conductors and draw continuous current while they move through the busbar line. They adapt to shaky and vibrant conditions thanks to the moving brushes. As current collecting and transfer systems are included in the C-PVC housing, they are protected against human contact.

# E-LINE TBX-S



## TB5 Current Collector With Fuse Box



TBX-S

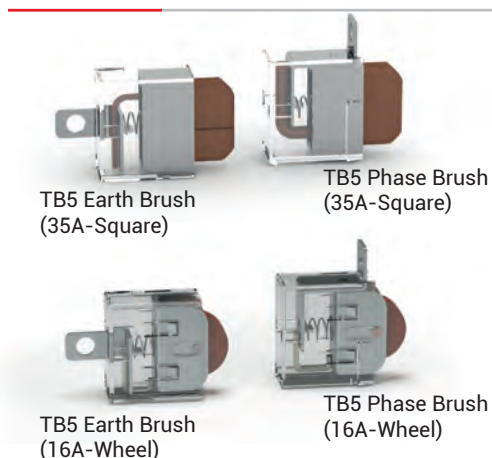
Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB5 (Square)	4P - 35A (Square Brush)	1600	3024382
	5P - 35A (Square Brush)	1650	3024373
TB5 (Wheel)	4P - 16A (Wheel Brush)	1650	3182882
	5P - 16A (Wheel Brush)	1700	3182883

Fuse boxed with both staff and current receiving area carts current machine's safety can be raised to a higher level. In addition, when it is desired to cut the power of one of the machines on a line, the current is cut off through the fuse, other machines on the line can continue to operate.

Current collector with Wheel Brush simplify the movement of the current collectors inside the busbar by reducing the time at the installation tables when movement is provided by the personnel.

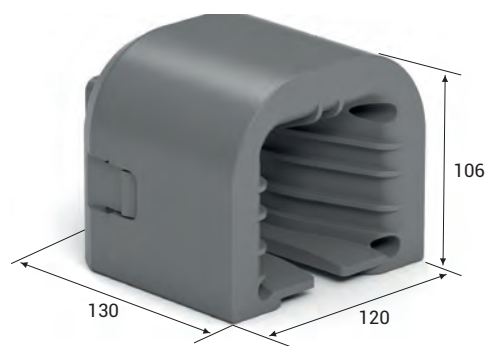
TB5 Current collector models operating speed is max. 100m/min.

## TB5 Current Collector Brushes



Description	Weight (gr)	Order Code
TB5 Phase Brush (35A-Square)	40	3024371
TB5 Earth Brush (35A-Square)	40	3024372
TB5 Phase Brush (16A-Wheel)	40	3165078
TB5 Earth Brush (16A-Wheel)	40	3165080

## TBX Trolley Transfer Tool

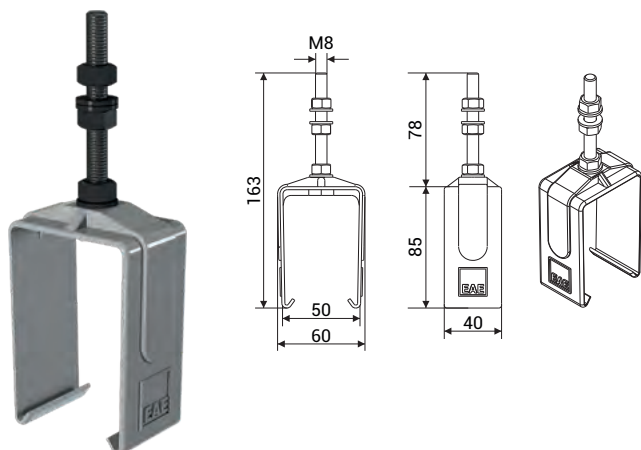


Description	Weight (gr)	Order Code
TBX Trolley Transfer Tool	250	3179529

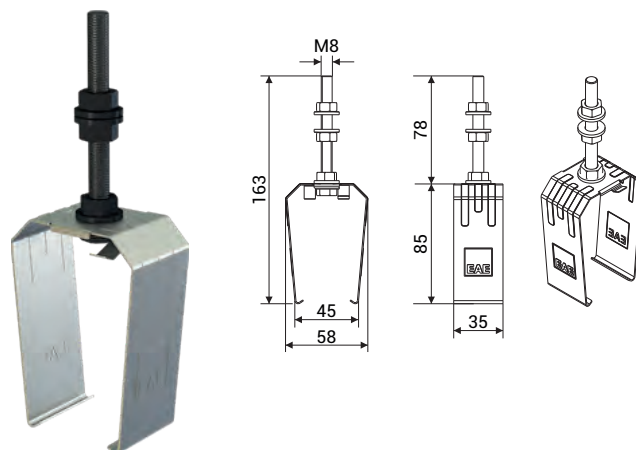
# E-LINE TBX-S



## TB5 Plastic Sliding Hanger



## TB5 Steel Sliding Hanger

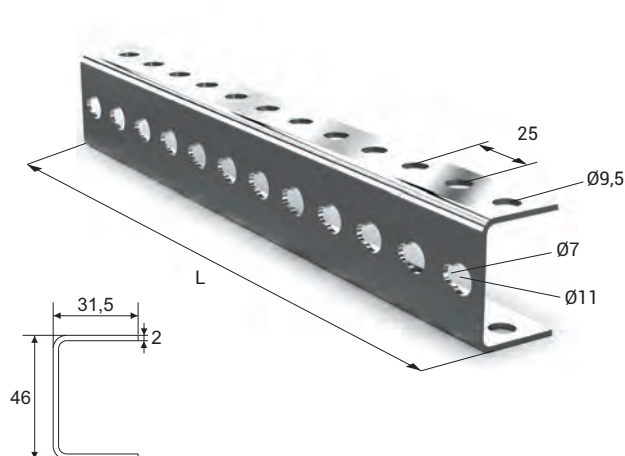


Trolley busbar should be mounted with sliding hangers and each hangers should be between 1,30m - 1,50m. Distance between sliding hanger and other units (joint unit, feeder etc.) should be minimum 300mm.

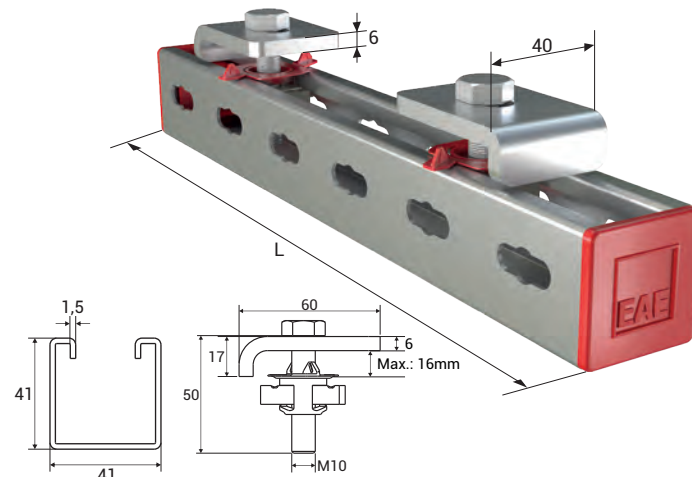
Description	Weight (gr)	Order Code
TB5 Plastic Sliding Hanger	85	1003664

Description	Weight (gr)	Order Code
TB5 Steel Sliding Hanger	100	1005954

## TB5 Hanger Bracket

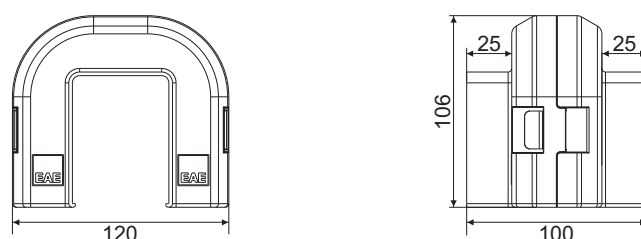


Description	L (mm)	Weight (gr)	Order Code
TB Hanger Bracket	250	350	3025153
URC-C/S Hanger Bracket	500	700	3034560
URC-A Hanger Bracket	750	1050	3025382



Description	L (mm)	Weight (gr)	Order Code
TB BR Hanger Bracket Set	300	800	3178916
URC-C/S BR Hanger Bracket Set	600	1250	3178917
URC-A BR Hanger Bracket Set	800	1550	3178918

## TBX Extension Element



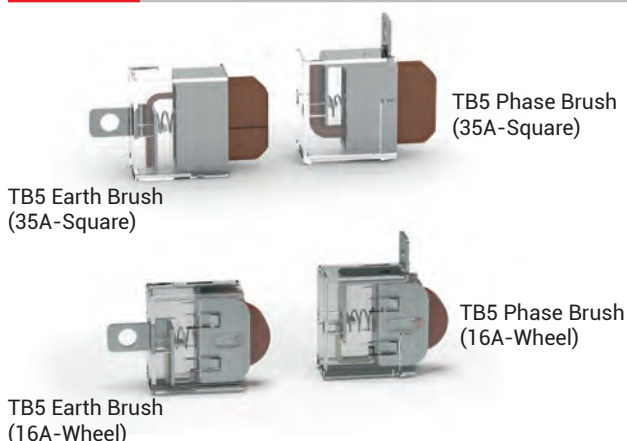
When the busbar line needs to be extended, you may remove the End Closure and install the joint unit to extend.

Description	Weight (gr)	Order Code
TBX Extension Element	280	3136703



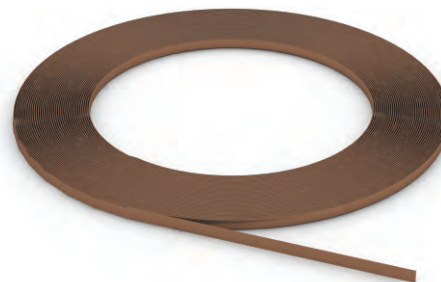
# E-LINE TBX-S

## TB5 Current Collector Brushes



Description	Weight (gr)	Order Code
TB5 Phase Brush (35A-Square)	40	3024371
TB5 Earth Brush (35A-Square)	40	3024372
TB5 Phase Brush (16A-Wheel)	40	3165078
TB5 Earth Brush (16A-Wheel)	40	3165080

## TB5 Copper Conductors



Description (mm x mm)	Order Code
TB5 0.80x16,00 (TB5 Copper)	1003097
TB5 1.00x16,00 (TB5 Copper - 75A)	1002254
TB5 1.50x16,00 (TB5 Copper - 105A)	1002275
TB5 2.00x16,00 (TB5 Copper - 130A)	1003094

## TB Conductor Cassette



Conductor cassette shall be used to prevent damage to the conductors while the copper conductors are installed on the busbar.

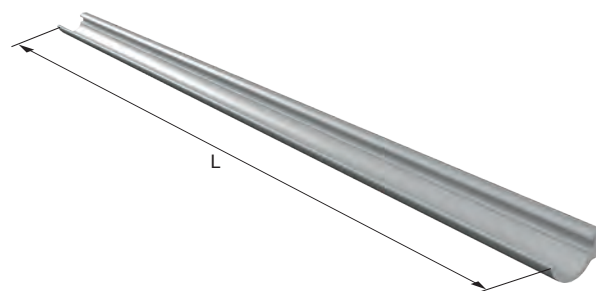
Description	Weight (gr)	Order Code
TB Conductor Cassette	6800	3025151

## TB5 Conductor Mounting Tool



Description	Weight (gr)	Order Code
TB5 Conductor Mounting Tool	215	3024456

## TBX Gasket



- Continuous length is maximum 300 meters.
- Gasket should be ordered twice the line length.

Description	Weight (gr/m)	Order Code
TBX Gasket Roll (m)	30	1037761

Description	L (mm)	Weight (gr)	Order Code
TBX Gasket Straight Length (Pcs.)	4000	120	1037762

## Voltage Drop

The voltage drop in the busbar lines shall be inspected as per the busbar type selected according to the total current calculated based on the ambient temperature and operating period of the system. Maximum acceptable value for voltage drop is 3%.

### For Direct Current

$$\Delta U = 2 \cdot L_t \cdot I_G \cdot R$$

$\Delta U$  = Voltage Drop [V]

### For Mono-Phase Alternative Current

$$\Delta U = 2 \cdot L_t \cdot I_G \cdot Z$$

$I_G$  = Total current [A]

$R$  = Resistance of the busbar [ $\Omega/m$ ]

### For Three-Phase Alternative Current

$$\Delta U = \sqrt{3} \cdot L_t \cdot I_G \cdot Z$$

$Z$  = Impedance of the busbar [ $\Omega/m$ ]

$L_t$  = Calculated Hole Length [m]

**Note :** Calculation of the current drawn during first start in various motor types;

$I_A$  = Total current drawn in the first start of the motors [A]

For the starting current; Three-phase asynchronous drive in direct start

Slip ring rotor motor

Frequency converter

$I_A$  =  $I_G$  x calculated as 5 to 6

$I_A$  =  $I_G$  x calculated as 2 to 3

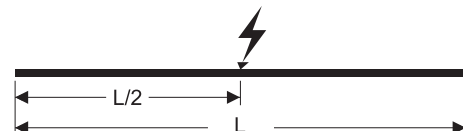
$I_A$  =  $I_G$  x 1,20 to 1,50 calculated between.

## Calculation Of Feeding Points

When we take  $L_t$  as the length of the line, feeding points may be selected as shown in the diagrams below to keep the  $L$  voltage drop at minimum and it may be used as the hole length for the calculation of  $L_t$  voltage drop.



1 feeding point from the start,  $L_t = L$



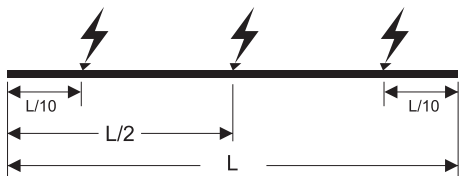
1 feeding point from the center,  $L_t = L/2$



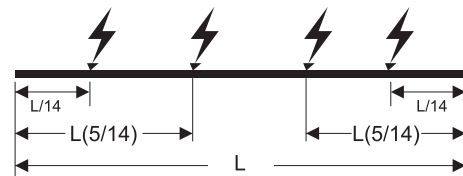
2 feeding points from the start points,  $L_t = L/4$



2 feeding points,  $L_t = L/6$



3 feeding points,  $L_t = L/10$

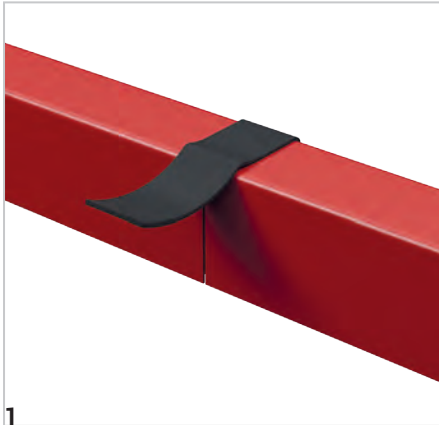


4 feeding points,  $L_t = L/14$

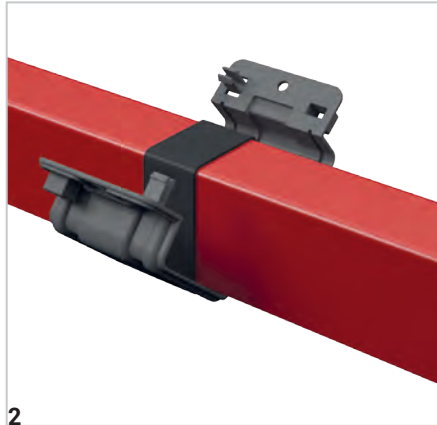
# E-LINE TBX-S

## Installation Manual

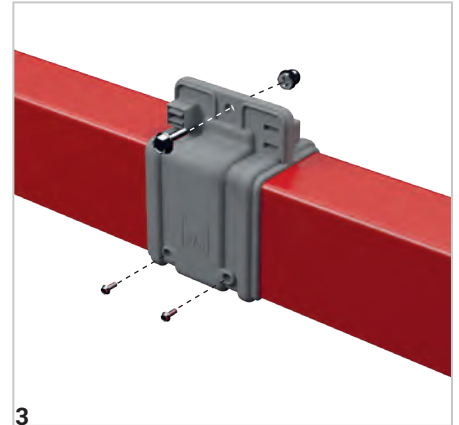
### TBX-S - Installation Of Joint Unit



1 The joint point is covered using a self-adhesive EPDM gasket.

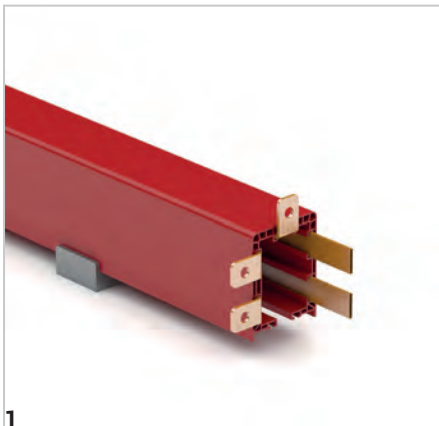


2 Engage the joint unit to the bottom of the busbar and close it.

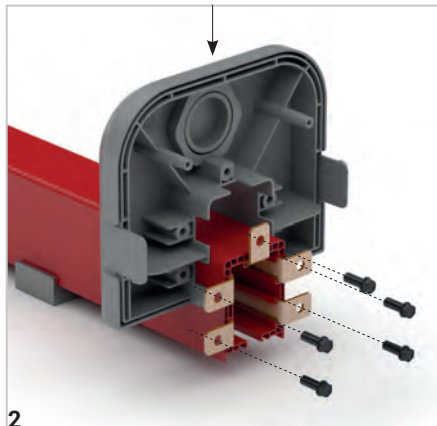


3 Secure it to the housing with screws.

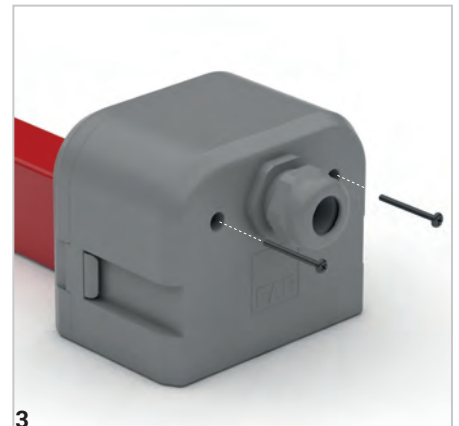
### TBX-S - Feeder Unit



1 Conductors are bend 90° and pushed into the housing.

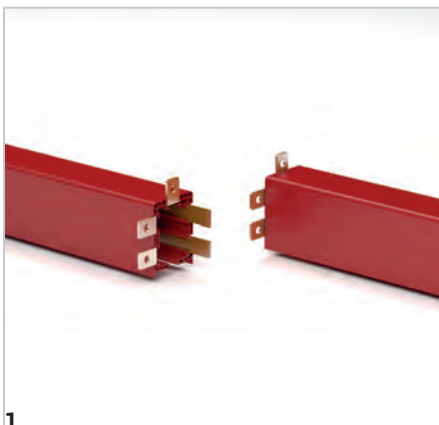


2 Housing and screw them to the feeding module.

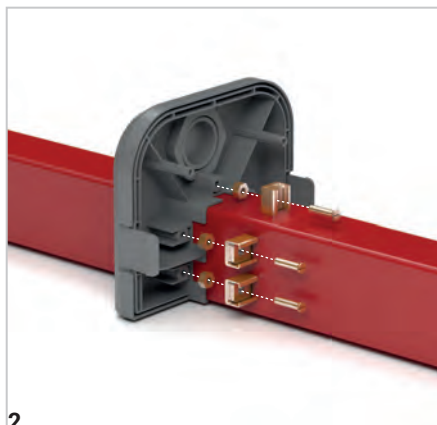


3 Close the module cover and screw it.

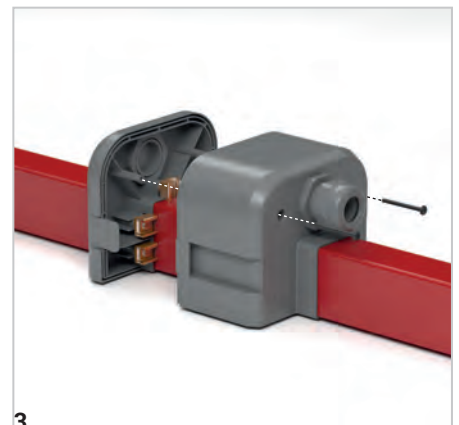
### TBX-S - Line Feed Unit - 2 (Jointed Type)



1 Conductors are bend 90 ° and pushed into the housing. The two housing are combined in such a way that the bent conductors remain in the notched area.



2 Conductors are brought back to back and combined with clips. Supply cables are connected to clips.

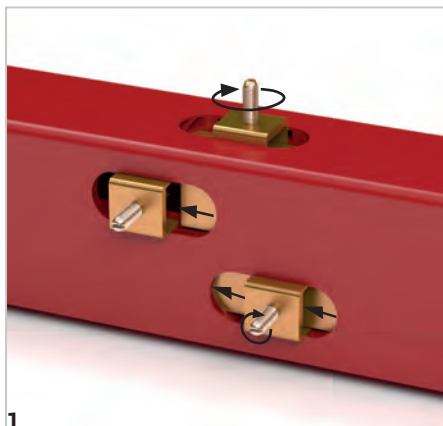


3 Close the module cover and screw it.

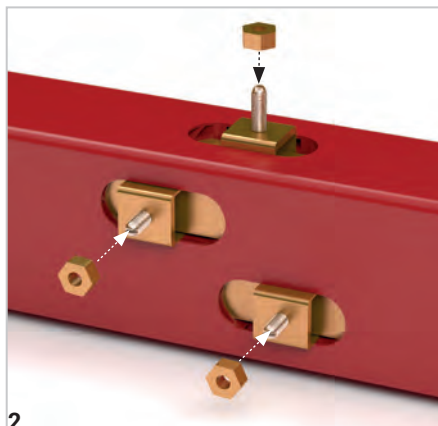
# E-LINE TBX-S

## Installation Manual

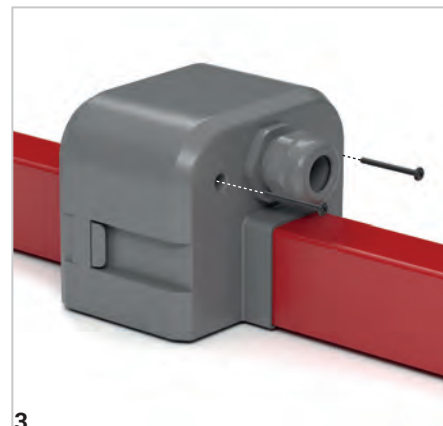
### TBX-S - Line Feed Unit - 1 (Continuous Type)



1 Put the conductors through the clips and screw them.

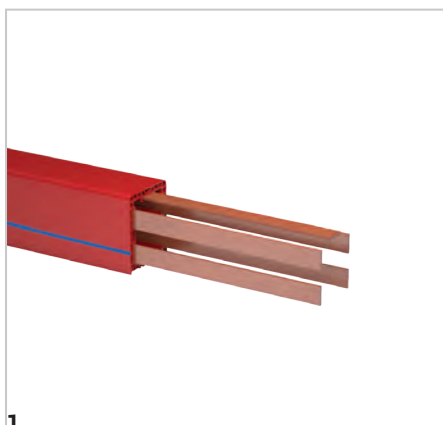


2 Connect the feeding cables to the clips with nuts.

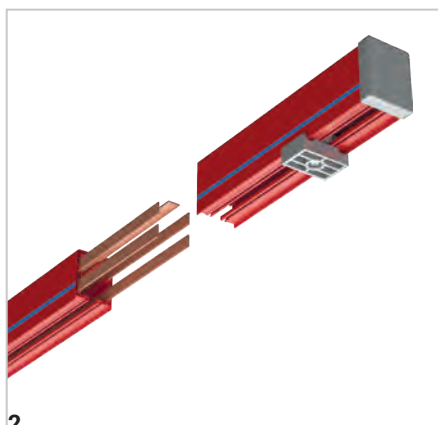


3 Close the module cover and screw it.

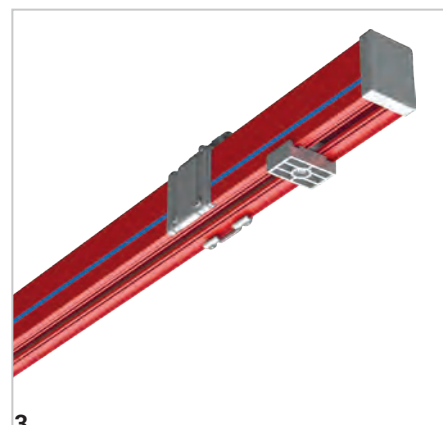
### TBX-S - End Closure



1 Cut the coppers at the end of the line by leaving a extra length of 15 cm.

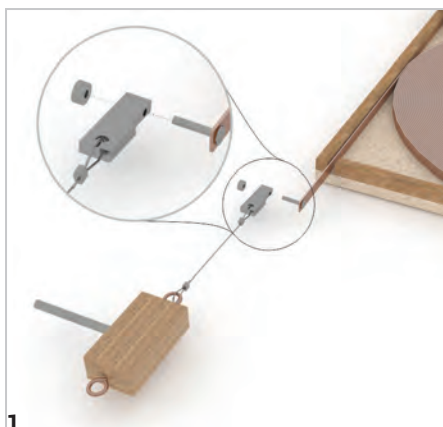


2 After placing the current collector to the system, place the End Closure so that it shall house the coppers.

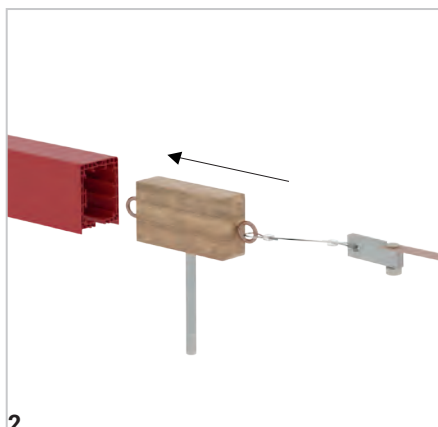


3 Install it on the system as you do while installing the extension.

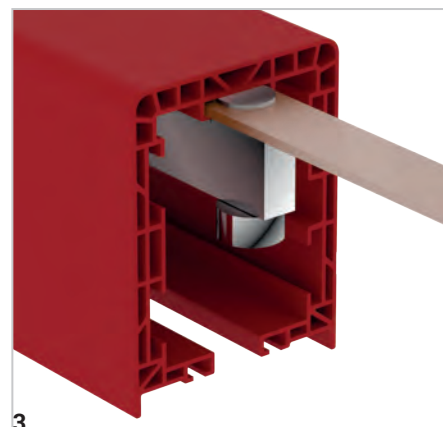
### TBX-S - Conductor Mounting Tool



1 Screw the conductor to the conductor mounting tool.

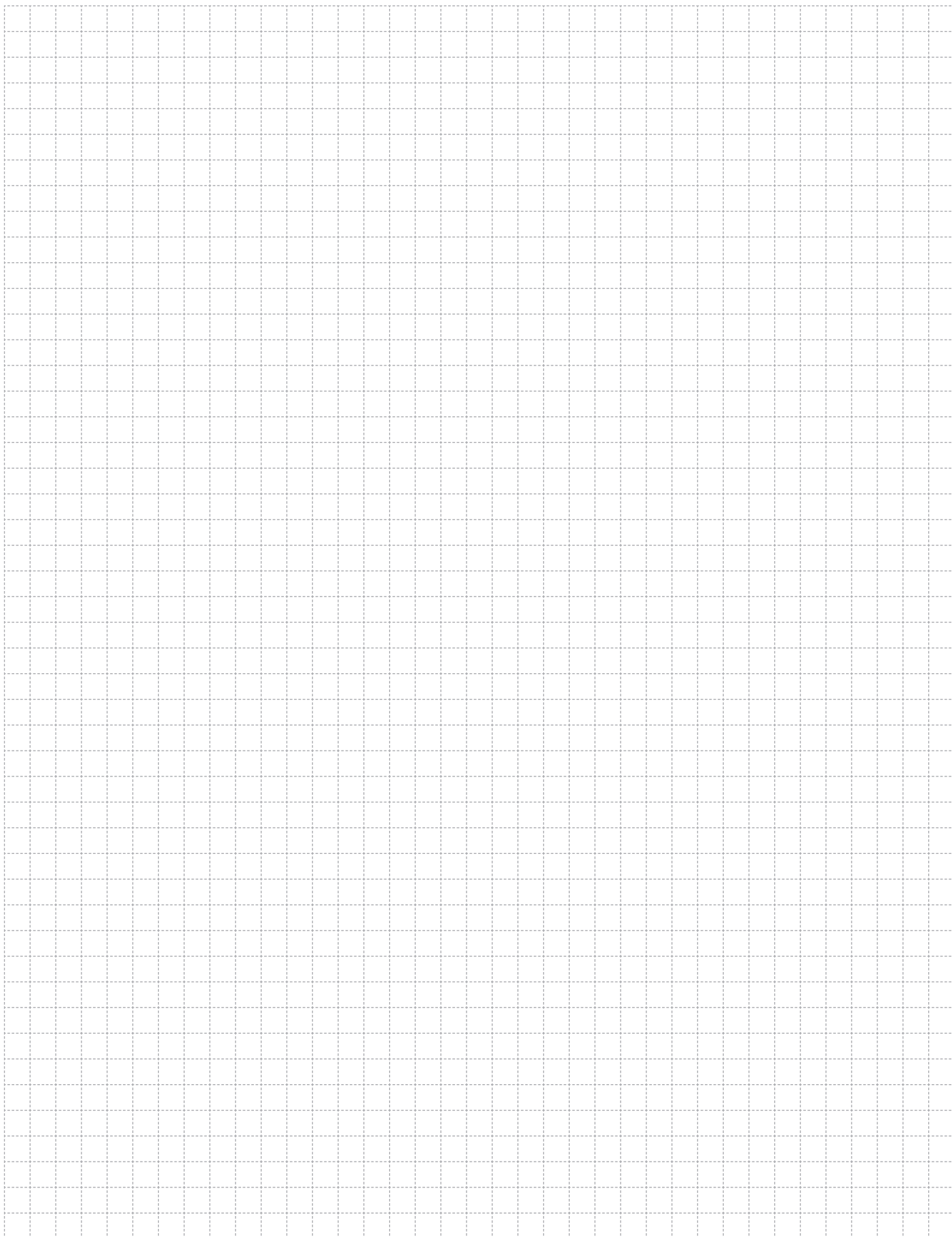


2 Drive the conductor mounting tool along the line.



3 Ensure that the conductor is seated.



A large rectangular area filled with a fine grid of dashed lines, intended for taking notes or drawing diagrams.

# E-LINE TBX-S

## Offer Request Form



Date :

Project Name	:	<input type="text"/>
Company	:	<input type="text"/>
Name Surname	:	<input type="text"/>
Tel	:	<input type="text"/>
E-Mail	:	<input type="text"/>
Address	:	<input type="text"/>

### General Data

Track Length	:	<input type="text"/>
Number of Cranes on Track	:	<input type="text"/>
Crane Travel Speed	:	<input type="text"/>

### Environmental Data

Operating Environment	:	<input type="checkbox"/> Indoor	<input type="checkbox"/> Outdoor
Ambient Temperature	:	<input type="text"/> °C min.	<input type="text"/> °C max.
Other Operating Conditions (Humidity, Dust, Chemical Influence, etc.)	:	<input type="text"/>	

### Electrical Data

Operating Voltage	:	<input type="text"/> Volts	<input type="checkbox"/> AC	<input type="checkbox"/> DC			
	:	<input type="text"/> Phases	<input type="checkbox"/> N	<input type="checkbox"/> PE			
Position and Number of Feeder	:	<input type="text"/> from End	<input type="text"/> from Middle				
Duty Cycle (%)	:	<input type="checkbox"/> 50%	<input type="checkbox"/> 60%	<input type="checkbox"/> 70%	<input type="checkbox"/> 80%	<input type="checkbox"/> 90%	<input type="checkbox"/> 100%

Motor Specifications	Crane - 1		Crane - 2		Crane - 3	
	Power (kW)	Current (A)	Power (kW)	Current (A)	Power (kW)	Current (A)
Hoist motors	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Auxiliary motor	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Long travel	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Cross travel	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

### Options

Brackets Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Repair Zone Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Collector Replacement Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Descriptions	:	<input type="text"/>	

Please duplicate this page for your own use.



TBE

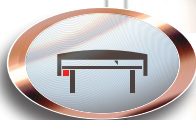
# E-LINE TBE



• Bridge Cranes



• Monorail Systems



• Textile Cutting and Spreading Tables



• AS/RS Storage Systems



• Moving Ceiling and Door Systems



• Assembly and Test Lines



## E-LINE TBE

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Trolley Busbar Systems .....	2
Order Code System .....	3
TBE PVC Housing.....	4
TBE Feeder Unit .....	5-6
TBE Current Collector .....	7-8
System Components .....	9
Voltage Drop, Calculation Of Feeding Points .....	10
TBE Trolley Busbar Installation Manual .....	11

# E-LINE TBE

## Trolley Busbar Systems



- Bridge Cranes
- Monorail Systems
- Textile Cutting and Spreading Tables
- AS/RS Storage Systems
- Moving Ceiling and Door Systems
- Assembly and Test Lines

It consists of copper conductors and current collectors in the C-PVC body. The uninterrupted energy supply and movement of the system is provided by current collectors connected to the system mechanically.

The eliminates the possibilities such as accident, malfunction in energy distribution with suspended and reel cable in conventional systems. Conductors are enclosed in C-PVC housing and personnel safety is maximized.

There is no fixed connection between the conductor housings and the conductors and between the C-PVC housing and the sliding hangers, the necessary expansion opportunity is provided, therefore the expansion element is unrequired.

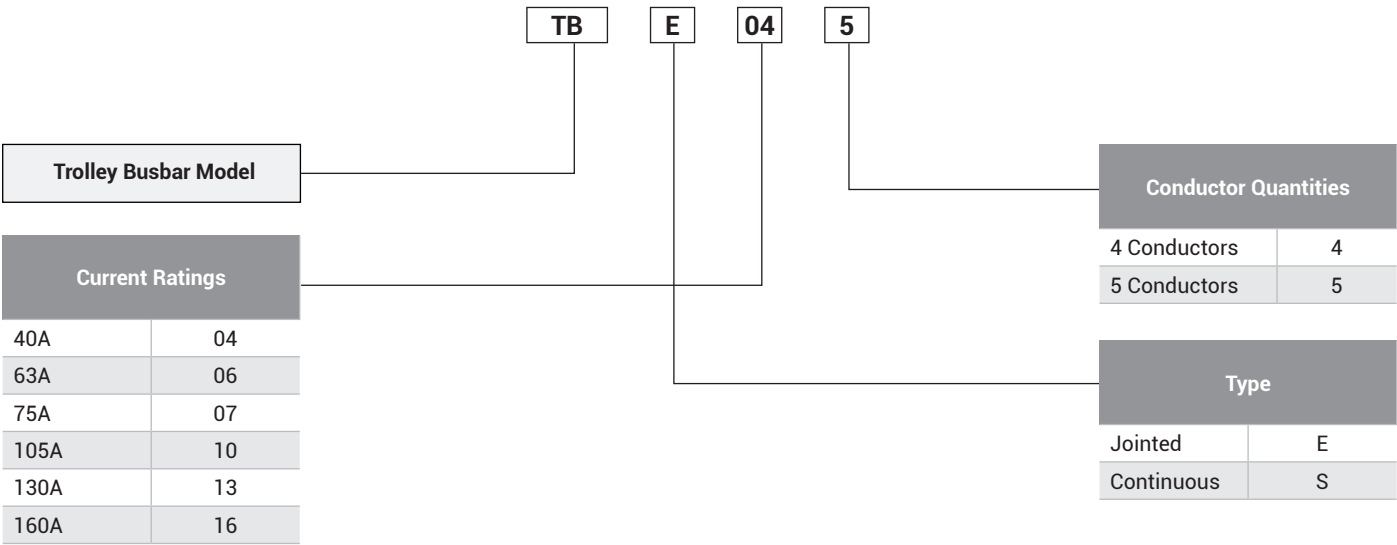
### Cautions:

If it is used in external environments exposed to rain, it is recommended to protect it with a cover such as a canopy.



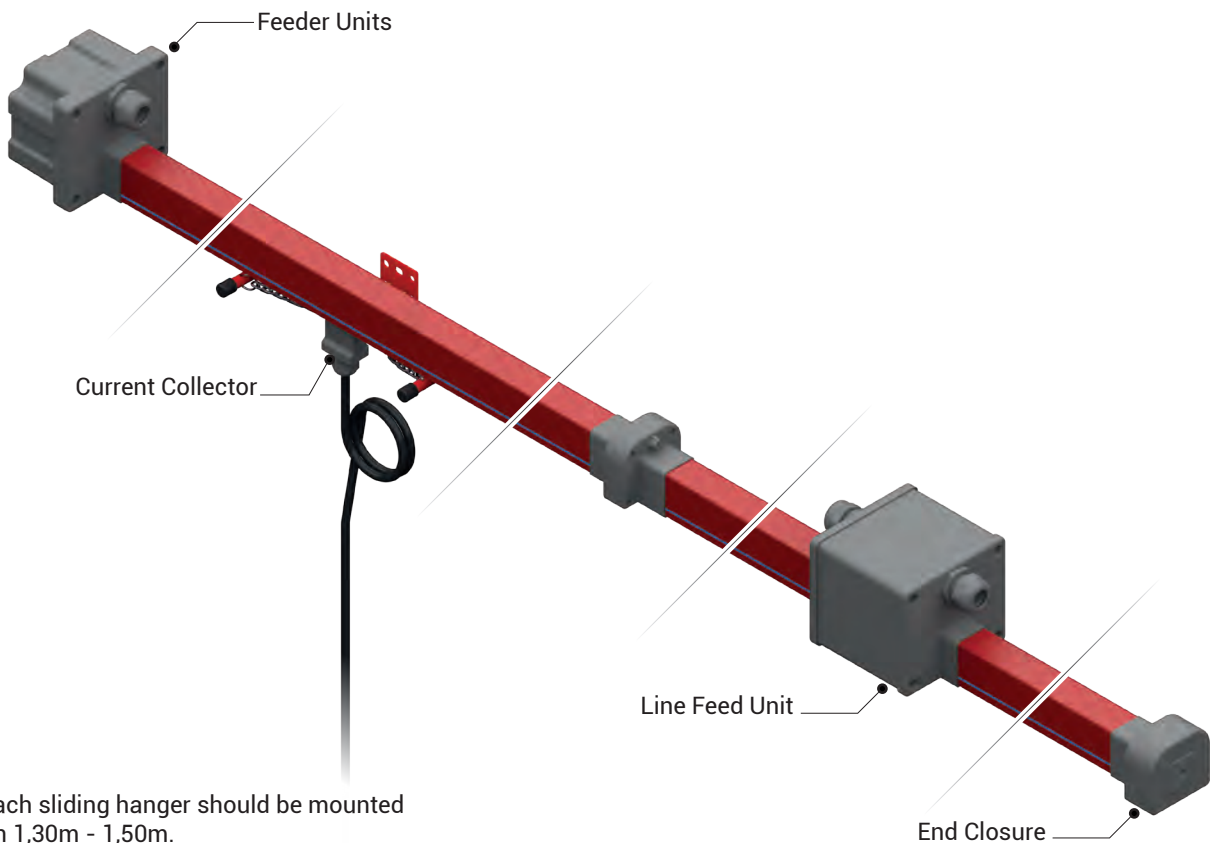
# E-LINE TBE

## Order Code System



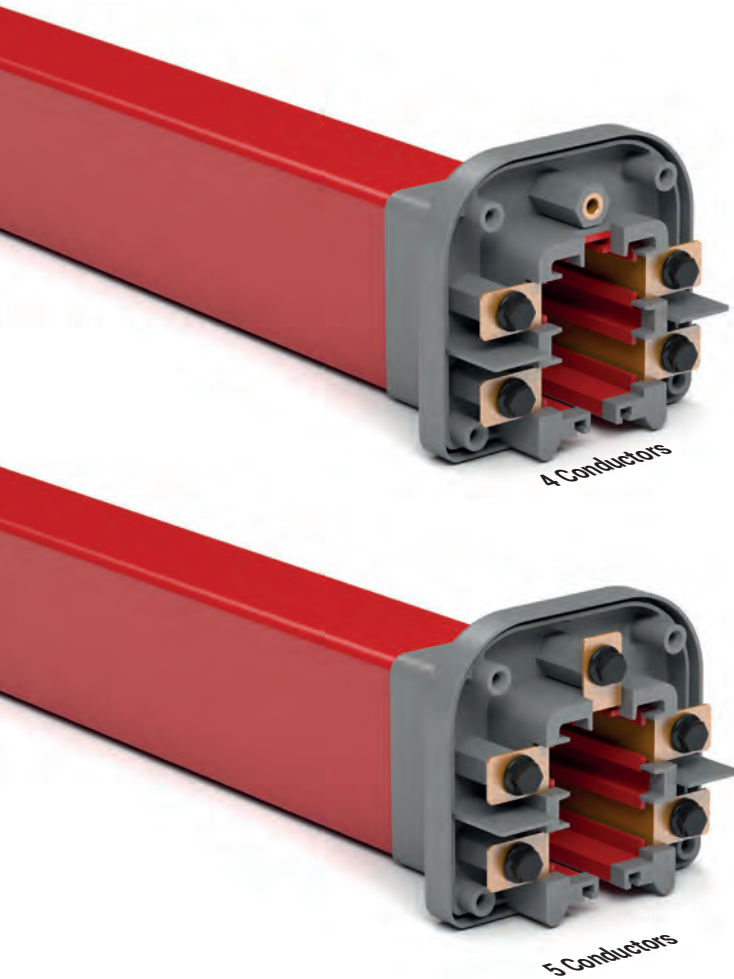
### Technical Features

Rated Current	(A)	40	63	75	105	130	160
Conductor Quantities	(pcs)	4-5	4-5	4-5	4-5	4-5	4-5
Rated Voltage	(AC) (V)	690	690	690	690	690	690
Dielectric Properties	(kV/mm)	30	30	30	30	30	30
Frequency	(Hz)	50/60	50/60	50/60	50/60	50/60	50/60
Resistance (20°C)	R20 (mΩ/m)	1,300	1,240	1,150	0,780	0,600	0,450
Resistance (35°C)	R35 (mΩ/m)	1,420	1,425	1,340	0,910	0,700	0,530
Reactance	X (mΩ/m)	0,160	0,130	0,110	0,130	0,130	0,110
Impedance	Z (mΩ/m)	1,429	1,431	1,35	0,919	0,712	0,541
Standard Length	(m)	4	4	4	4	4	4



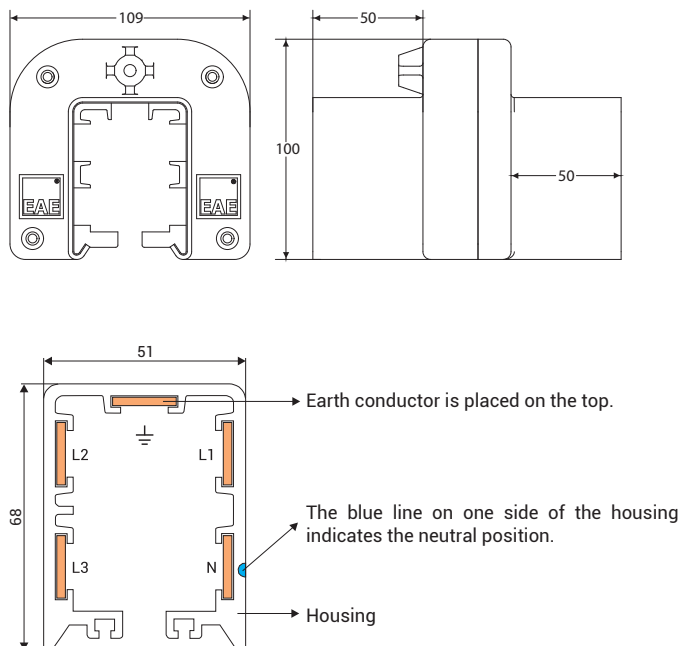
**Note:** Each sliding hanger should be mounted between 1,30m - 1,50m.

## TBE Trolley Busbar



Description	Weight (gr/m)	Order Code
TB5 Trolley Busbar	1250	2037290

The housing has a structure that can use maximum 5 conductors. There is safety system that prevents the current collector to be fixed inversely.



- **Number of Conductors:** 4 or 5 conductors
- **Colour:** Red.
- **Temperature range:** -40°C , +55°C.
- **Standard housing length:** 4 meters.
- **Protection:** IP24
- **Non-Flammable Characteristics:** UL 94 V0
- Housing is made of C-PVC and plastic accessories are made of PA6 raw material.
- There is a neutral line on the housing the neutral conductor.

### Standard 4 Meters

Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm <sup>2</sup> )	Order Code
TBE 044	4P - 40A	1950	4x11,20	3024446
TBE 064	4P - 63A	2000	4x12,80	3179770
TBE 074	4P - 75A	2100	4x16,00	3024449
TBE 104	4P - 105A	2250	4x24,00	3024447
TBE 134	4P - 130A	2650	4x32,00	3024448
TBE 164	4P - 160A	2900	4x40,00	3158671
TBE 045	5P - 40A	2100	5x11,20	3024435
TBE 065	5P - 63A	2150	5x12,80	3179771
TBE 075	5P - 75A	2200	5x16,00	3024436
TBE 105	5P - 105A	2550	5x24,00	3024437
TBE 135	5P - 130A	2950	5x32,00	3024438
TBE 165	5P - 160A	3250	5x40,00	3164949

### Special Length 1 or 2, 3 Meters

Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm <sup>2</sup> )	Order Code
TBE 044	4P - 40A	1950	4x11,20	3024473
TBE 064	4P - 63A	2000	4x12,80	3179774
TBE 074	4P - 75A	2100	4x16,00	3024475
TBE 104	4P - 105A	2250	4x24,00	3024477
TBE 134	4P - 130A	2650	4x32,00	3024479
TBE 164	4P - 160A	2900	4x40,00	3158668
TBE 045	5P - 40A	2100	5x11,20	3024474
TBE 065	5P - 63A	2150	5x12,80	3179775
TBE 075	5P - 75A	2200	5x16,00	3024476
TBE 105	5P - 105A	2550	5x24,00	3024478
TBE 135	5P - 130A	2950	5x32,00	3024480
TBE 165	5P - 160A	3250	5x40,00	3164946

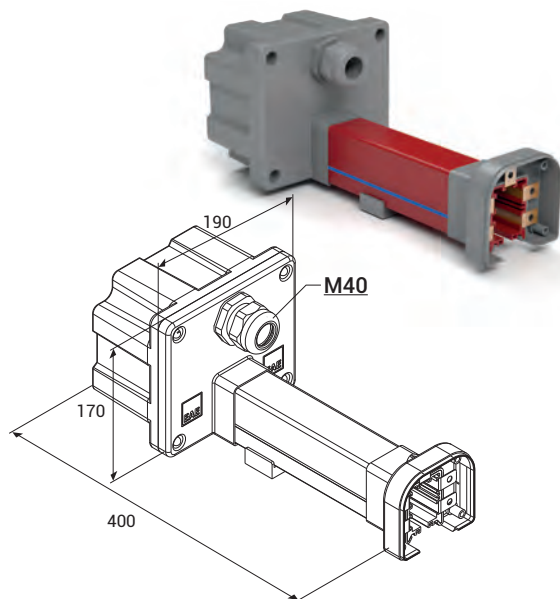
Joint plastics are not included in the weight values.  
Total weight of the joint plastics and bolts is 0.27 Kg.



# E-LINE TBE

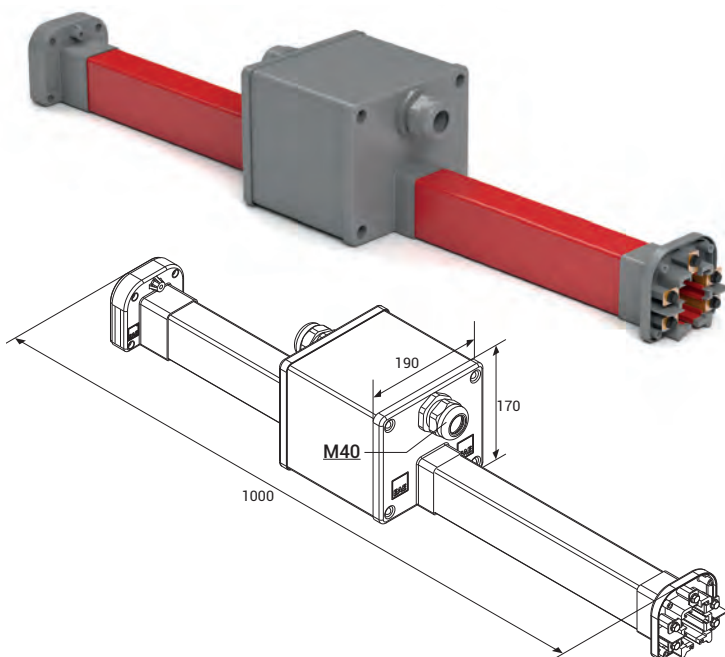


## TBE Feeder Units



Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm <sup>2</sup> )	Order Code
TBE 044	4P - 40A	1250	4x11,20	3024431
TBE 064	4P - 63A	1300	4x12,80	3179768
TBE 074	4P - 75A	1350	4x16,00	3024432
TBE 104	4P - 105A	1400	4x24,00	3024433
TBE 134	4P - 130A	1500	4x32,00	3024434
TBE 164	4P - 160A	1600	4x40,00	3158669
TBE 045	5P - 40A	1300	5x11,20	3024459
TBE 065	5P - 63A	1350	5x12,80	3179769
TBE 075	5P - 75A	1400	5x16,00	3024423
TBE 105	5P - 105A	1500	5x24,00	3024424
TBE 135	5P - 130A	1600	5x32,00	3024445
TBE 165	5P - 160A	1700	5x40,00	3164947

## TBE Line Feed Units



Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm <sup>2</sup> )	Order Code
TBE 044	4P - 40A	2750	4x11,20	3024439
TBE 064	4P - 63A	2800	4x12,80	3179778
TBE 074	4P - 75A	2900	4x16,00	3024440
TBE 104	4P - 105A	3200	4x24,00	3024441
TBE 134	4P - 130A	3450	4x32,00	3024442
TBE 164	4P - 160A	3750	4x40,00	3158670
TBE 045	5P - 40A	2850	5x11,20	3024460
TBE 065	5P - 63A	2900	5x12,80	3179779
TBE 075	5P - 75A	3000	5x16,00	3024425
TBE 105	5P - 105A	3350	5x24,00	3024426
TBE 135	5P - 130A	3750	5x32,00	3024427
TBE 165	5P - 160A	4100	5x40,00	3164948

Type of the feeding element is selected by calculating the voltage drop and the location of the power supply that shall provide power to the system.

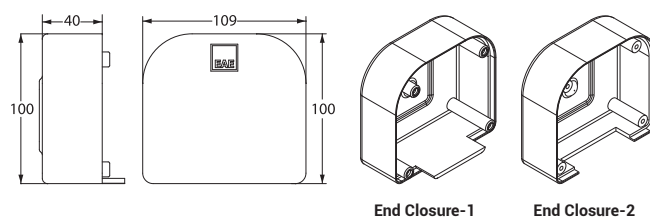
## TBE End Closure



End Closure-1



End Closure-2



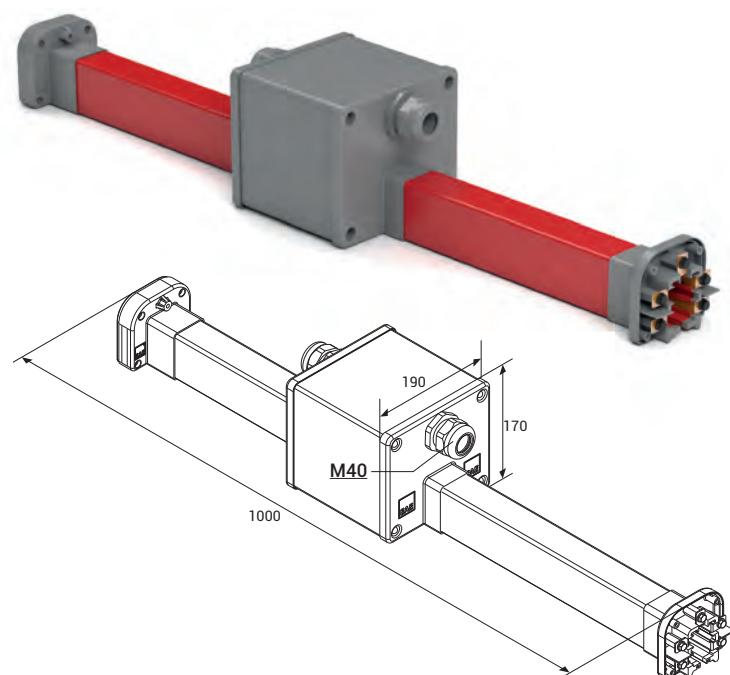
End Closure-1

End Closure-2

The end closure placed on the end of the busbar line prevents the exposure of the conductors, and protects the system.

Description	Weight (gr)	Order Code
TBE End Closure-1 (Female)	100	3024420
TBE End Closure-2 (Male)	100	3241448

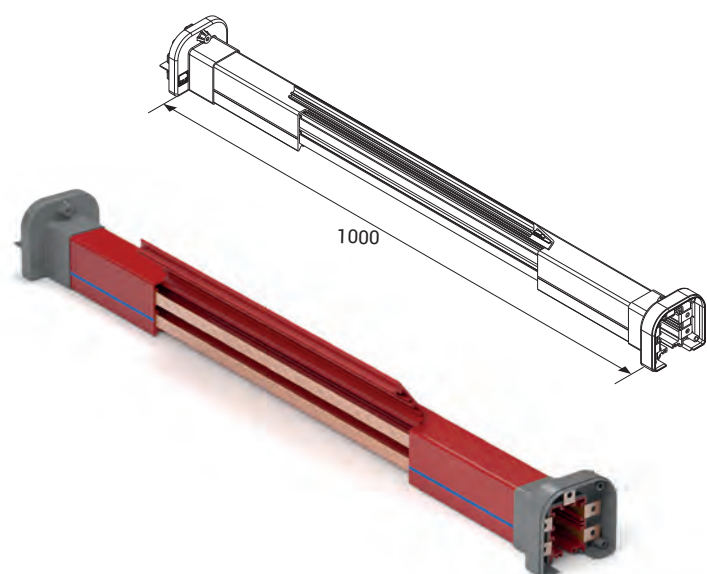
## TBE Repair Zone Unit



Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm <sup>2</sup> )	Order Code
TBE 044	4P - 40A	3500	4x11,20	3066688
TBE 064	4P - 63A	3550	4x12,80	3179780
TBE 074	4P - 75A	3600	4x16,00	3066689
TBE 104	4P - 105A	3900	4x24,00	3066690
TBE 134	4P - 130A	4200	4x32,00	3066691
TBE 164	4P - 160A	4450	4x40,00	3164950
TBE 045	5P - 40A	3600	5x11,20	3066692
TBE 065	5P - 63A	3650	5x12,80	3179781
TBE 075	5P - 75A	3750	5x16,00	3066693
TBE 105	5P - 105A	4100	5x24,00	3066694
TBE 135	5P - 130A	4500	5x32,00	3066695
TBE 165	5P - 160A	4800	5x40,00	3164952

Current supply shall be cut off when a machine working on the line shall be maintained or repaired. Repair zone module is used to create a currentless area on the busbar so that the other machines operating on the same line may continue to work.

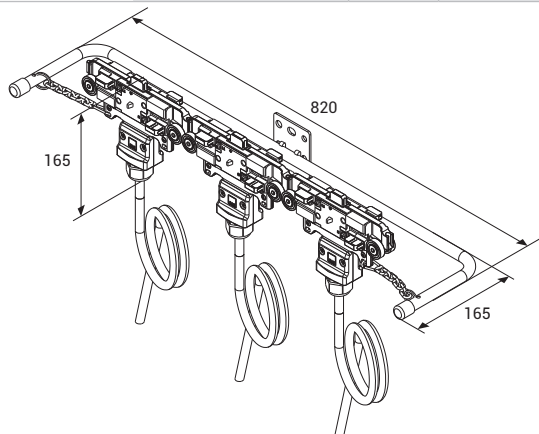
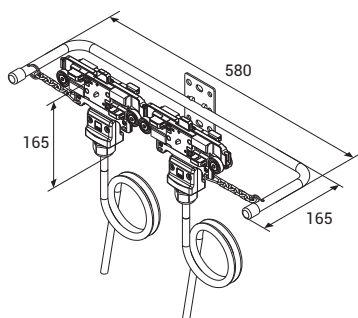
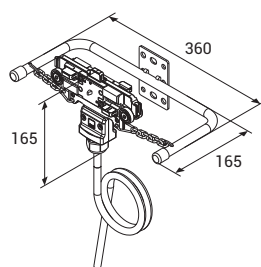
## TBE Current Collector Replacement Module



Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm <sup>2</sup> )	Order Code
TBE 044	4P - 40A	2000	4x11,20	3024558
TBE 064	4P - 63A	2050	4x12,80	3179784
TBE 074	4P - 75A	2100	4x16,00	3024897
TBE 104	4P - 105A	2400	4x24,00	3024898
TBE 134	4P - 130A	2700	4x32,00	3024899
TBE 164	4P - 160A	3000	4x40,00	3164951
TBE 045	5P - 40A	2100	5x11,20	3024421
TBE 065	5P - 63A	2150	5x12,80	3179785
TBE 075	5P - 75A	2250	5x16,00	3024428
TBE 105	5P - 105A	2600	5x24,00	3024429
TBE 135	5P - 130A	3000	5x32,00	3024430
TBE 165	5P - 160A	3350	5x40,00	3164953

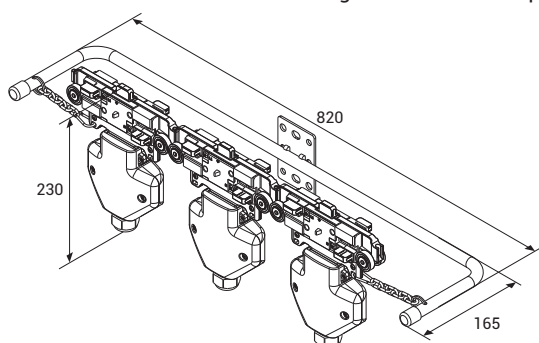
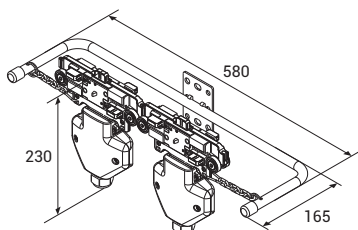
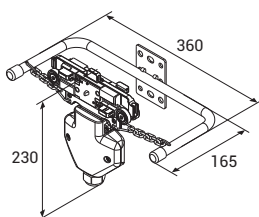
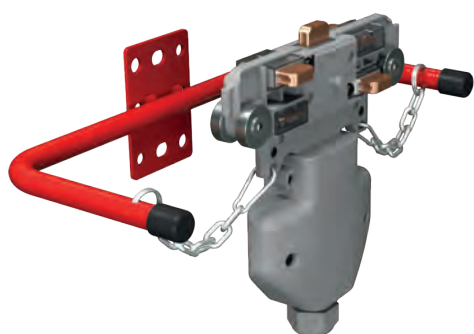
This unit is used to remove an existing current collector or to add extra trolleys. The unit is obtained by cutting a 50cm section from the PVC housing.

## TB5 Current Collectors With Cable



Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB5	4P - 35A (Single)	1700	3024385
	4P - 70A (Double)	2950	3024386
	4P - 105A (Triple)	4450	3024387
	5P - 35A (Single)	1900	3024376
	5P - 70A (Double)	3250	3024377
	5P - 105A (Triple)	4700	3024378

## TB5 Current Collectors With Clip



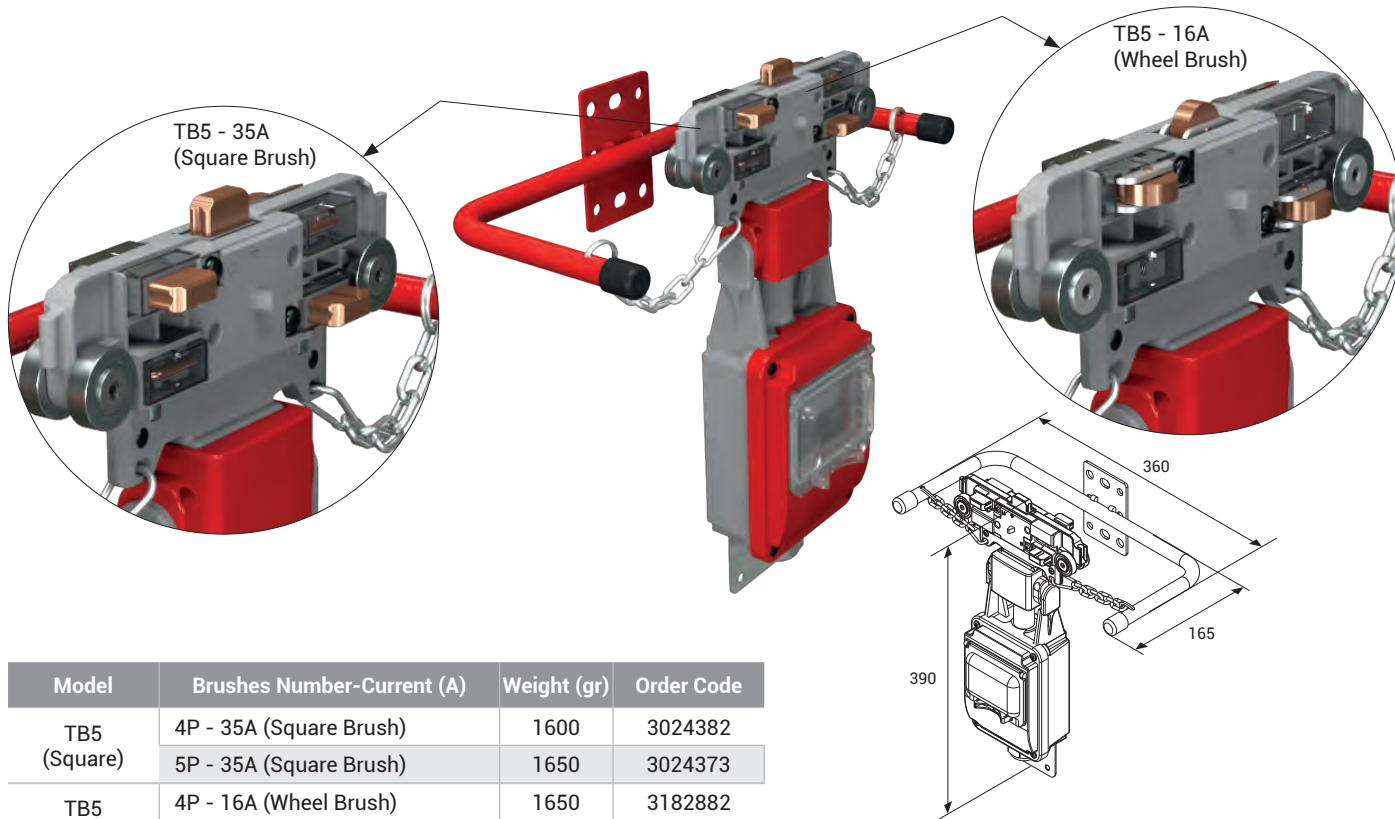
Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB5	4P - 35A (Single)	1350	3024388
	4P - 70A (Double)	2050	3024389
	4P - 105A (Triple)	3050	3024390
	5P - 35A (Single)	1350	3024379
	5P - 70A (Double)	2250	3024380
	5P - 105A (Triple)	3200	3024381

\*Produced with standard M40 cable gland and 4mm<sup>2</sup> clip.

Current collector with clips allow the customers to perform cabling as they desire with the clips they include.

Current collector are the moving elements of the trolley busbar systems. Current collector brushes rub against the conductors and draw continuous current while they move through the busbar line. They adapt to shaky and vibrant conditions thanks to the moving brushes. As current collecting and transfer systems are included in the C-PVC housing, they are protected against human contact.

## TB5 Current Collector With Fuse Box



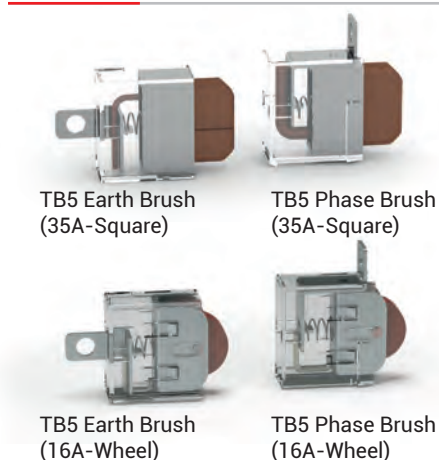
Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB5 (Square)	4P - 35A (Square Brush)	1600	3024382
	5P - 35A (Square Brush)	1650	3024373
TB5 (Wheel)	4P - 16A (Wheel Brush)	1650	3182882
	5P - 16A (Wheel Brush)	1700	3182883

Fuse boxed with both staff and current receiving area carts current machine's safety can be raised to a higher level. In addition, when it is desired to cut the power of one of the machines on a line, the current is cut off through the fuse, other machines on the line can continue to operate.

Current collector with Wheel Brush simplify the movement of the current collectors inside the busbar by reducing the time at the installation tables when movement is provided by the personnel.

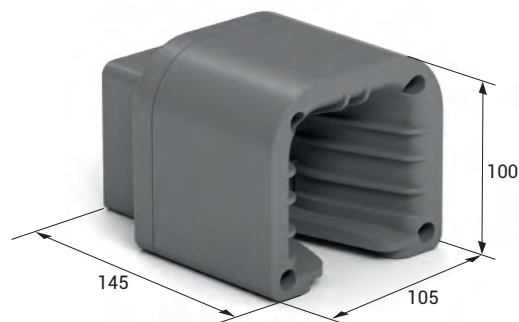
TB5 Current collector models operating speed is max. 100m/min.

## TBE Current Collector Brushes



Description	Weight (gr)	Order Code
TB5 Phase Brush (35A-Square)	40	3024371
TB5 Earth Brush (35A-Square)	40	3024372
TB5 Phase Brush (16A-Wheel)	40	3165078
TB5 Earth Brush (16A-Wheel)	40	3165080

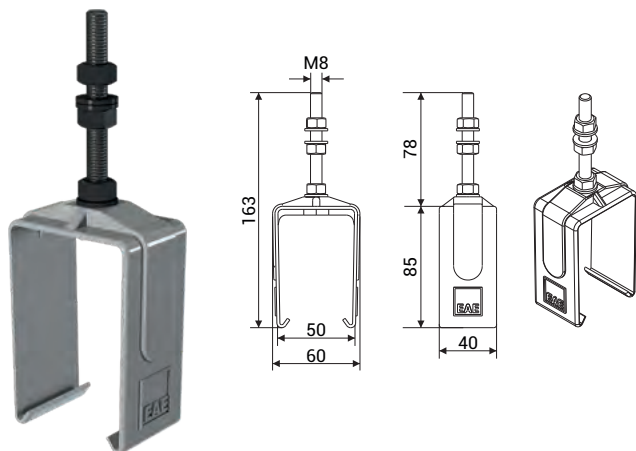
## TB5 Trolley Transfer Tool



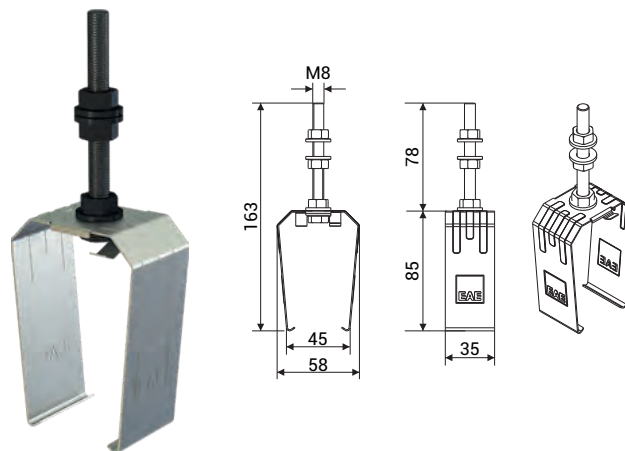
Description	Weight (gr)	Order Code
TB5 Trolley Transfer Tool	250	3179189



## TB5 Plastic Sliding Hanger



## TB5 Steel Sliding Hanger

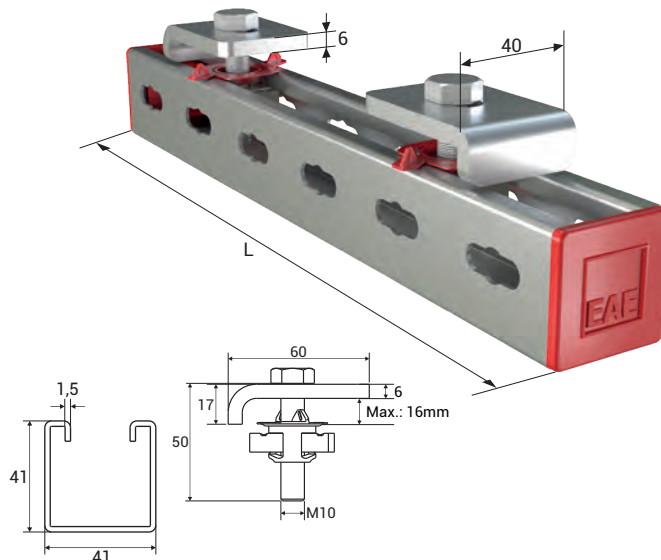
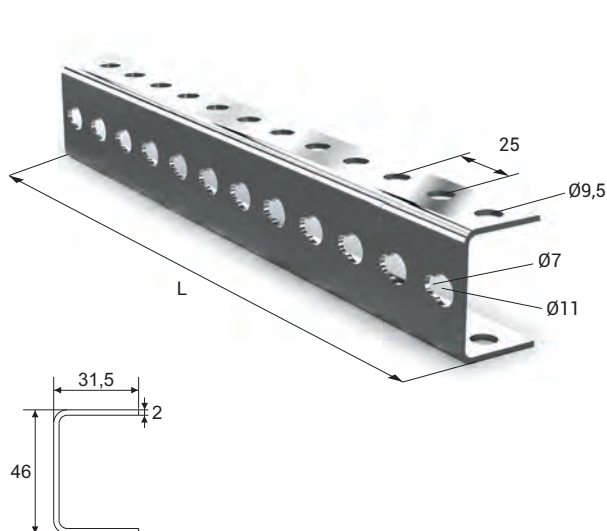


Trolley busbar should be mounted with sliding hangers and each hangers should be between 1,30m - 1,50m. Distance between sliding hanger and other units (joint unit, feeder etc.) should be minimum 300mm.

Description	Weight (gr)	Order Code
TB5 Plastic Sliding Hanger	85	1003664

Description	Weight (gr)	Order Code
TB5 Steel Sliding Hanger	100	1005954

## TB Hanger Bracket



Description	L (mm)	Weight (gr)	Order Code
TB Hanger Bracket	250	350	3025153
URC-C/S Hanger Bracket	500	700	3034560
URC-A Hanger Bracket	750	1050	3025382

Description	L (mm)	Weight (gr)	Order Code
TB BR Hanger Bracket Set	300	800	3178916
URC-C/S BR Hanger Bracket Set	600	1250	3178917
URC-A BR Hanger Bracket Set	800	1550	3178918

## Voltage Drop

The voltage drop in the busbar lines shall be inspected as per the busbar type selected according to the total current calculated based on the ambient temperature and operating period of the system. Maximum acceptable value for voltage drop is 3%.

### For Direct Current

$$\Delta U = 2 \cdot L_t \cdot I_G \cdot R$$

$$\Delta U = \text{Voltage Drop [V]}$$

### For Mono-Phase Alternative Current

$$\Delta U = 2 \cdot L_t \cdot I_G \cdot Z$$

$$I_G = \text{Total current [A]}$$

$$R = \text{Resistance of the busbar } [\Omega/\text{m}]$$

### For Three-Phase Alternative Current

$$\Delta U = \sqrt{3} \cdot L_t \cdot I_G \cdot Z$$

$$Z = \text{Impedance of the busbar } [\Omega/\text{m}]$$

$$L_t = \text{Calculated Hole Length [m]}$$

**Note :** Calculation of the current drawn during first start in various motor types;

$I_A$  = Total current drawn in the first start of the motors [A]

For the starting current; Three-phase asynchronous drive in direct start

Slip ring rotor motor

Frequency converter

$$I_A = I_G \times \text{calculated as 5 to 6}$$

$$I_A = I_G \times \text{calculated as 2 to 3}$$

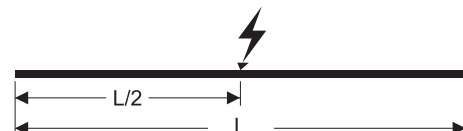
$$I_A = I_G \times 1,20 \text{ to } 1,50 \text{ calculated between.}$$

## Calculation Of Feeding Points

When we take  $L_t$  as the length of the line, feeding points may be selected as shown in the diagrams below to keep the L voltage drop at minimum and it may be used as the hole length for the calculation of  $L_t$  voltage drop.



1 feeding point from the start,  $L_t = L$



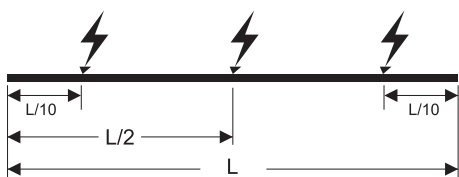
1 feeding point from the center,  $L_t = L/2$



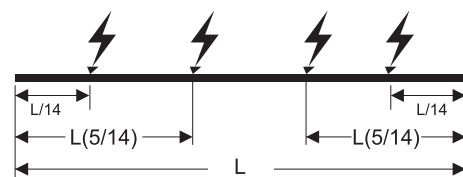
2 feeding points from the start points,  $L_t = L/4$



2 feeding points,  $L_t = L/6$



3 feeding points,  $L_t = L/10$

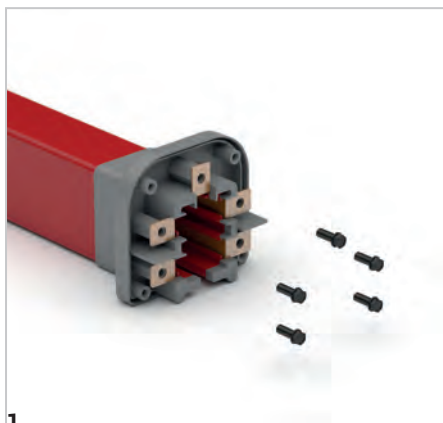


4 feeding points,  $L_t = L/14$

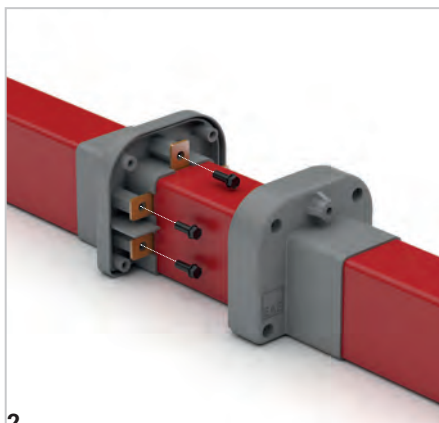
# E-LINE TBE

## Installation Manual

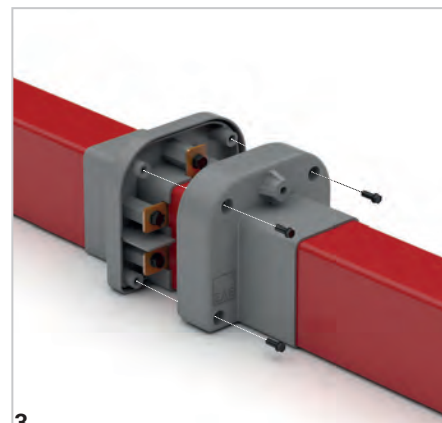
### TBE - Installation Of Joint Unit



1 Remove the screws on the end of the busbar.

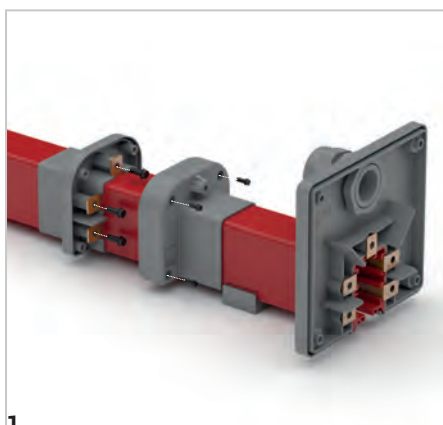


2 Join it with the other busbar and screw it.

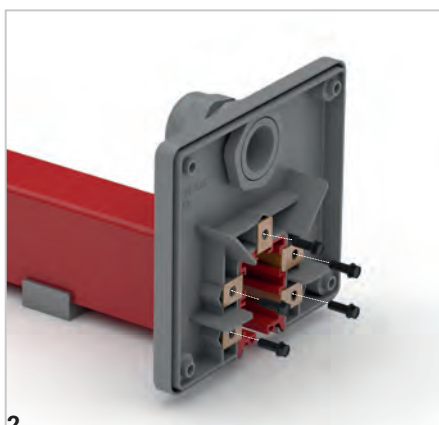


3 Close the joint cover and screw it.

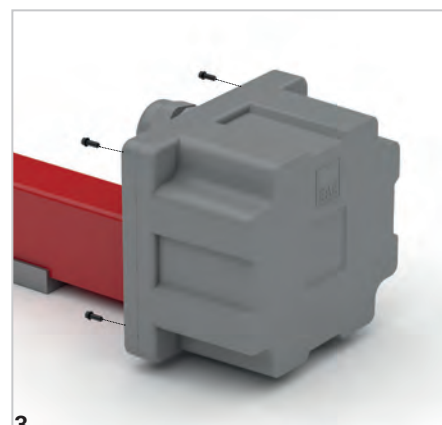
### TBE - Feeder Unit



1 Install it on the line as you do while installing the extension.

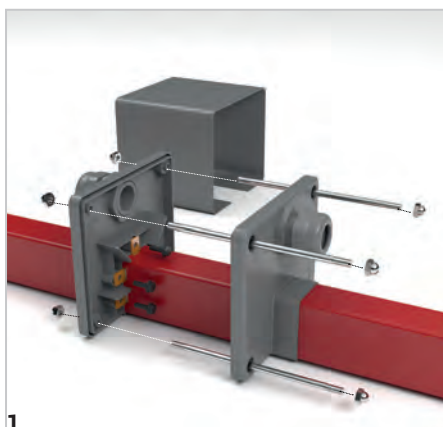


2 Put the feeding cables through the cable gland and connect them to the conductors.

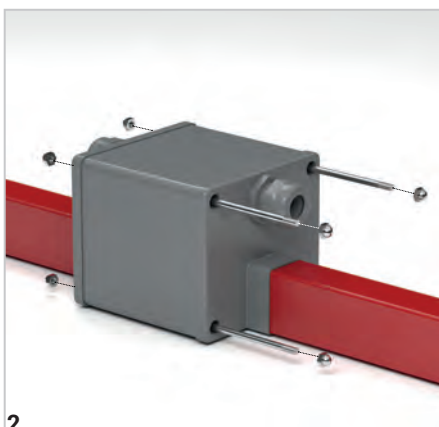


3 Place the cover part and screw it.

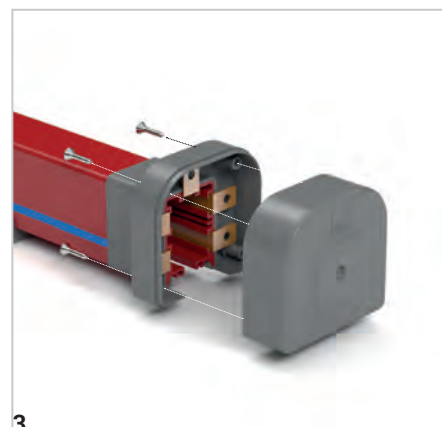
### TBE - Line Feeder Unit



1 Open the cover by removing the screws. Put the feeding cables through the cable gland connect them.



2 Put the feeding cables through the cable gland and connect them to the conductors.



3 Install the end closure to the end of the housing and screw it.

### TBE - End Closure

# E-LINE TBE

## Offer Request Form



Date :

Project Name	:	<input type="text"/>
Company	:	<input type="text"/>
Name Surname	:	<input type="text"/>
Tel	:	<input type="text"/>
E-Mail	:	<input type="text"/>
Address	:	<input type="text"/>

### General Data

Track Length	:	<input type="text"/>
Number of Cranes on Track	:	<input type="text"/>
Crane Travel Speed	:	<input type="text"/>

### Environmental Data

Operating Environment	:	<input type="checkbox"/> Indoor	<input type="checkbox"/> Outdoor
Ambient Temperature	:	<input type="text"/> °C min.	<input type="text"/> °C max.
Other Operating Conditions (Humidity, Dust, Chemical Influence, etc.)	:	<input type="text"/>	

### Electrical Data

Operating Voltage	:	<input type="text"/> Volts	<input type="checkbox"/> AC	<input type="checkbox"/> DC			
	:	<input type="text"/> Phases	<input type="checkbox"/> N	<input type="checkbox"/> PE			
Position and Number of Feeder	:	<input type="text"/> from End	<input type="text"/> from Middle				
Duty Cycle (%)	:	<input type="checkbox"/> 50%	<input type="checkbox"/> 60%	<input type="checkbox"/> 70%	<input type="checkbox"/> 80%	<input type="checkbox"/> 90%	<input type="checkbox"/> 100%

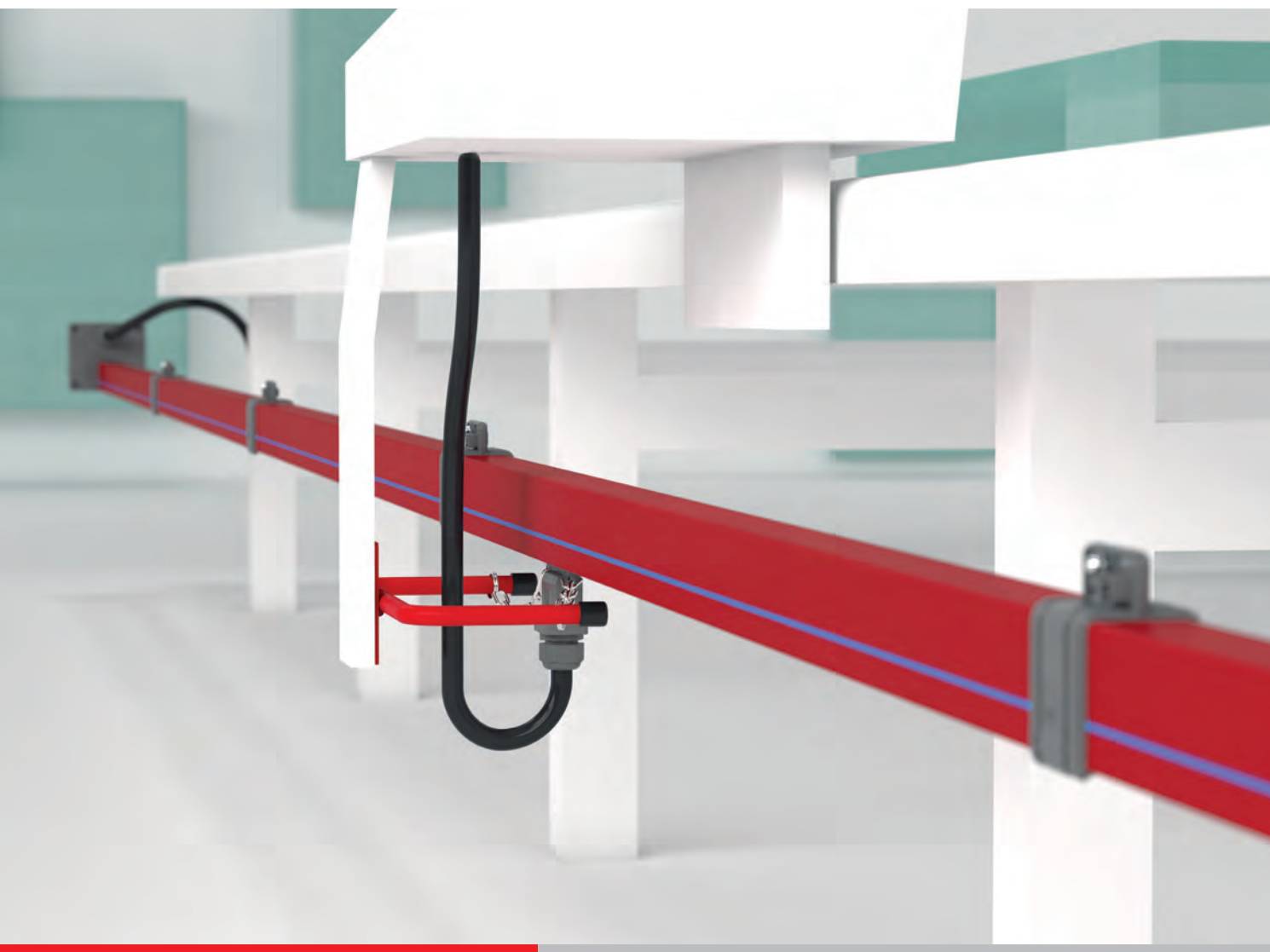
Motor Specifications	Crane - 1		Crane - 2		Crane - 3	
	Power (kW)	Current (A)	Power (kW)	Current (A)	Power (kW)	Current (A)
Hoist motors	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Auxiliary motor	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Long travel	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Cross travel	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

### Options

Brackets Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Repair Zone Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Collector Replacement Required:	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Descriptions	:	<input type="text"/>	

Please duplicate this page for your own use.





TBS

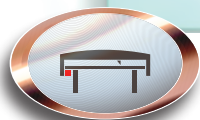
# E-LINE TBS



• Bridge Cranes



• Monorail Systems



• Textile Cutting and Spreading Tables



• AS/RS Storage Systems



• Moving Ceiling and Door Systems



• Assembly and Test Lines

## E-LINE TBS

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Trolley Busbar Systems .....	2
Order Code System .....	3
TBS PVC Housing.....	4
TBS Feeder Unit .....	5-6
TBS Repair Zone .....	7
TBS Current Collector .....	8-9
System Components .....	10-11
Voltage Drop, Calculation Of Feeding Points .....	12
TBS Trolley Busbar Installation Manual .....	13-14

# E-LINE TBS

## Trolley Busbar Systems



- Bridge Cranes
- Monorail Systems
- Textile Cutting and Spreading Tables
- AS/RS Storage Systems
- Moving Ceiling and Door Systems
- Assembly and Test Lines

It consists of copper conductors and current collectors in the C-PVC body. The uninterrupted energy supply and movement of the system is provided by current collectors connected to the system mechanically.

The eliminates the possibilities such as accident, malfunction in energy distribution with suspended and reel cable in conventional systems. Conductors are enclosed in C-PVC housing and personnel safety is maximized.

There is no fixed connection between the conductor housings and the conductors and between the C-PVC housing and the sliding hangers, the necessary expansion opportunity is provided, therefore the expansion element is unrequired.

### Cautions:

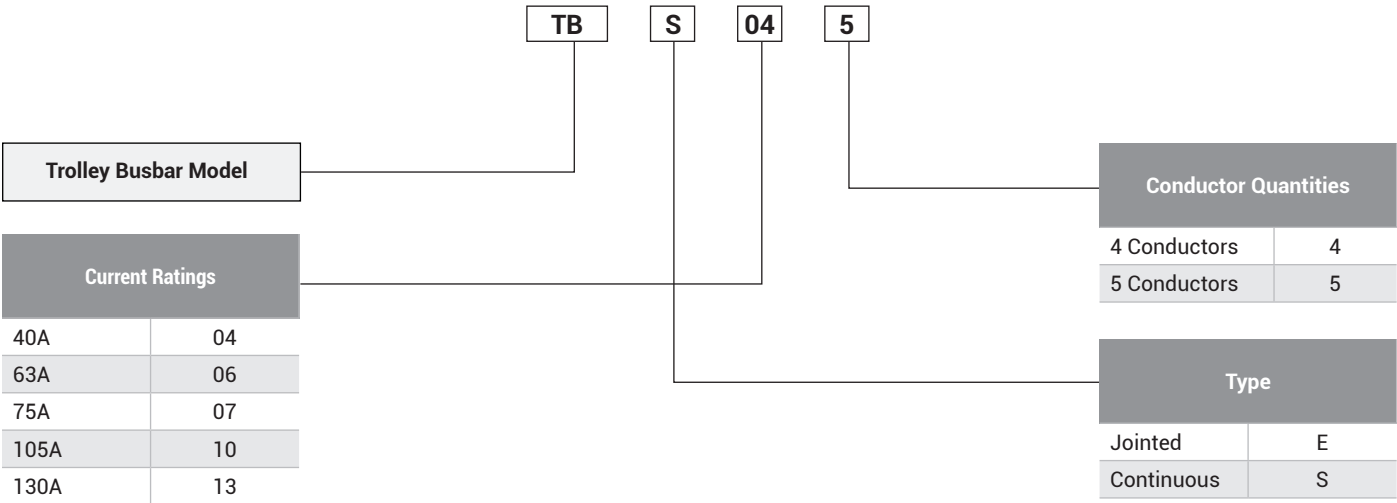
If it is used in external environments exposed to rain, it is recommended to protect it with a cover such as a canopy.





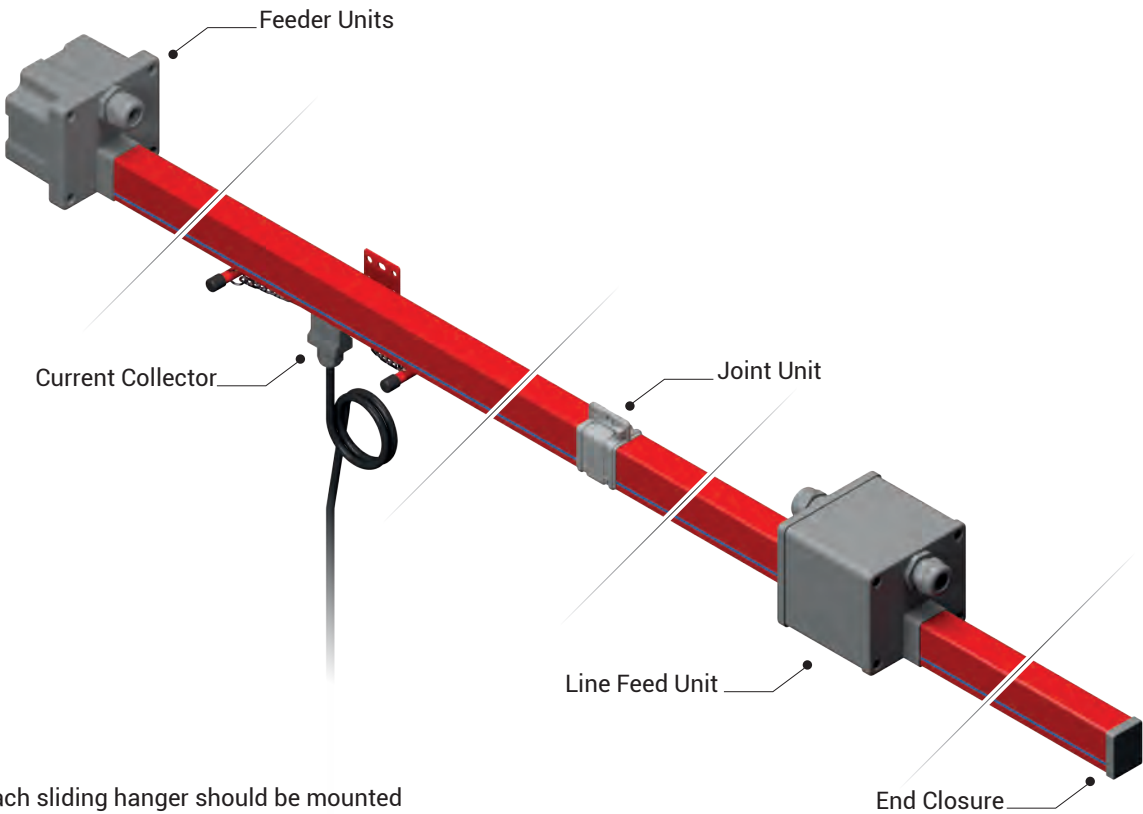
# E-LINE TBS

## Order Code System



### Technical Features

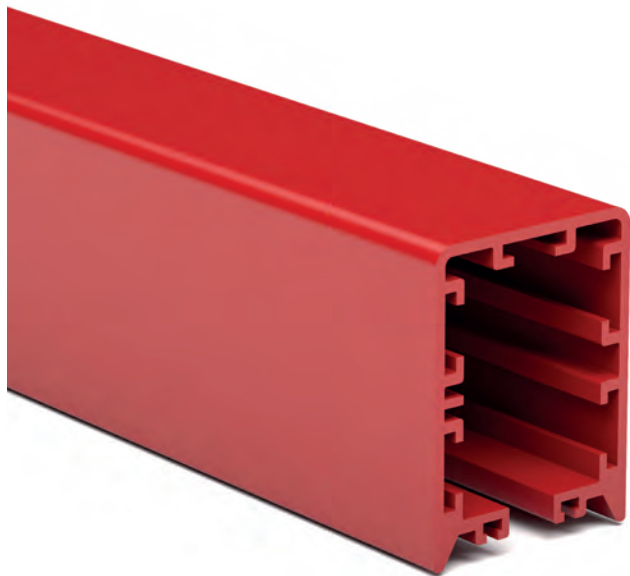
Rated Current	(A)	40	63	75	105	130
Conductor Quantities	(pcs)	4-5	4-5	4-5	4-5	4-5
Rated Voltage	(AC) (V)	690	690	690	690	690
Dielectric Properties	(kV/mm)	30	30	30	30	30
Frequency	(Hz)	50/60	50/60	50/60	50/60	50/60
Resistance (20°C)	R20 (mΩ/m)	1,300	1,018	1,280	0,800	0,570
Resistance (35°C)	R35 (mΩ/m)	1,420	1,176	1,460	0,920	0,660
Reactance	X (mΩ/m)	0,160	0,447	0,140	0,060	0,250
Impedance	Z (mΩ/m)	1,429	1,258	1,467	0,922	0,706
Standard Length	(m)	4	4	4	4	4



**Note:** Each sliding hanger should be mounted between 1,30m - 1,50m.



## TBS Trolley Busbar



Description	Weight (gr/m)	Order Code
TB5 Trolley Busbar Housing	1250	2037290

The housing has a structure that can use maximum 5 conductors. There is safety system that prevents the current collector to be fixed inversely.

### Continuous Copper Conductors

Electrolytic copper conductors can be applied without interruption at a maximum length of 150 m.

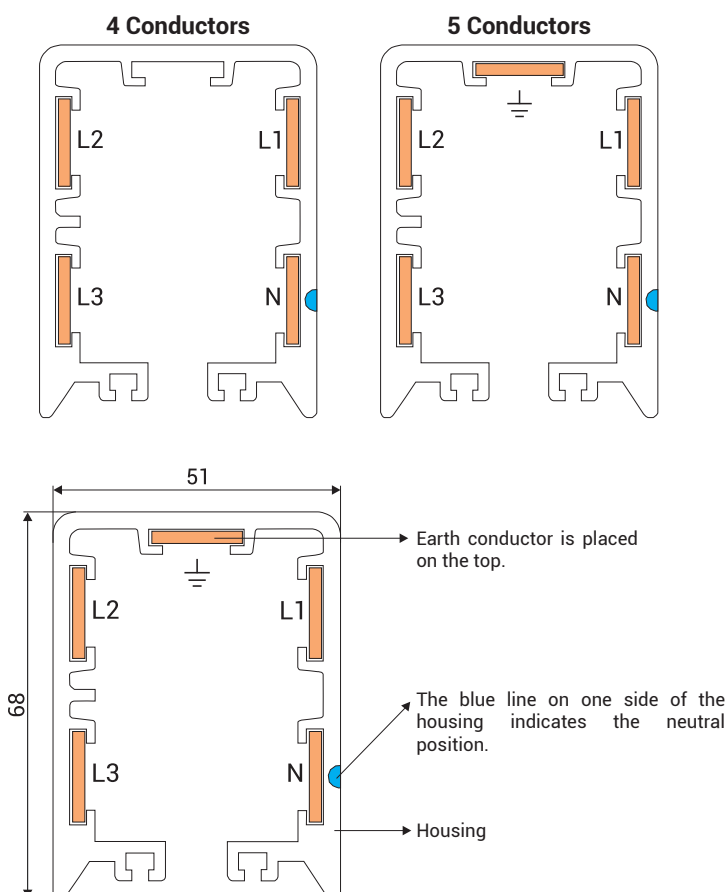
- **Number of Conductors:** 4 or 5 conductors
- **Colour:** Red.
- **Temperature range:** -40°C , +55°C.
- **Standard housing length:** 4 meters.
- **Protection:** Standard IP24, Gasket, IP44.
- **Non-Flammable Characteristics:** UL 94 V0
- Housing is made of C-PVC and plastic accessories are made of PA6 raw material.
- Conductors are protected against hand contact inside the insulating housing.
- There is a neutral line on the housing indicating the neutral conductor.

### Standard 4 Meters

Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm <sup>2</sup> )	Order Code
TBS 044	4P - 40A	1700	4x11,20	3024465
TBS 064	4P - 63A	1750	4x12,80	3182880
TBS 074	4P - 75A	1900	4x16,00	3024466
TBS 104	4P - 105A	2200	4x24,00	3024467
TBS 134	4P - 130A	2450	4x32,00	3024468
TBS 045	5P - 40A	1800	5x11,20	3024461
TBS 065	5P - 63A	1850	5x12,80	3182877
TBS 075	5P - 75A	2050	5x16,00	3024462
TBS 105	5P - 105A	2400	5x24,00	3024463
TBS 135	5P - 130A	2750	5x32,00	3024464

Joint plastics are not included in the weight values.

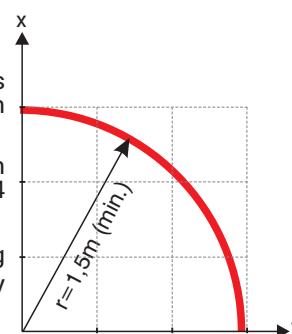
Total weight of the joint plastics and bolts is 100 gr..



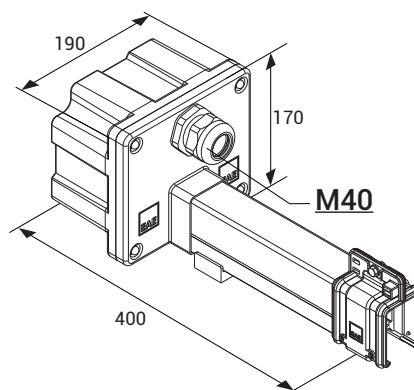
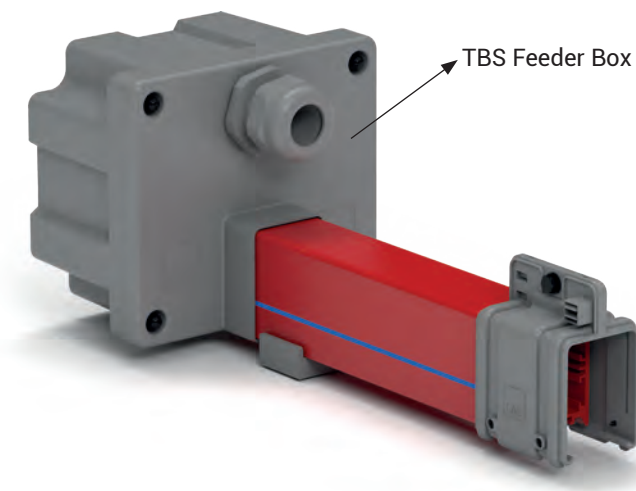
### Radius Trolley Busbar

It has minimum 1.5m radius Trolley Busbar available in vertical axes.

- Radius Trolley Lines can be applied with maximum 4 conductors.
- We recommend to use housing pins at joint units of radius trolley lines.



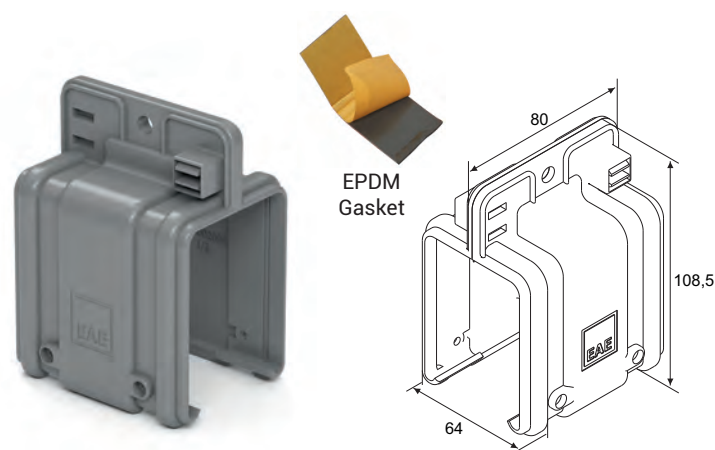
## TBS Feeder Units



Description	Weight (gr)	Order Code
TBS Feeder Units	1000	3024457
TBS Feeder Box	650	3179927

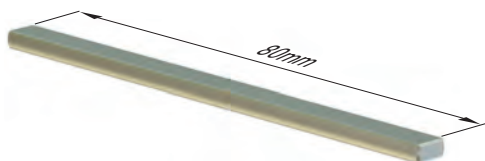
Type of the feeder box is selected by calculating the voltage drop and the location of the power supply that shall provide power to the system.

## TBS Joint Unit



Description	Weight (gr)	Order Code
TBS Joint Unit	90	1003663

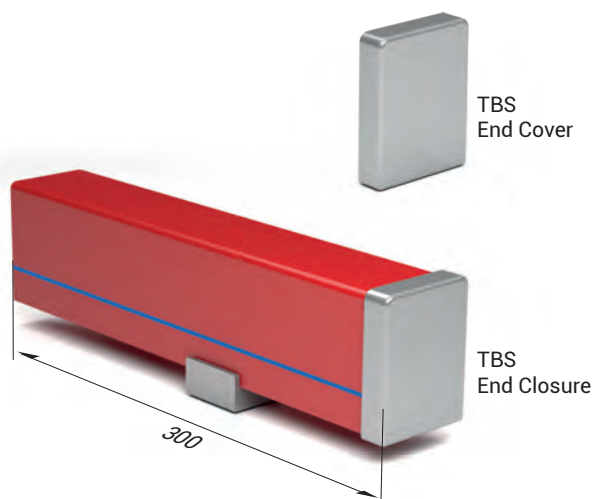
## TB Housing Pin



- Two pieces should be used with each joint unit

Description	Weight (gr)	Order Code
TB Housing Pin	8	1001025

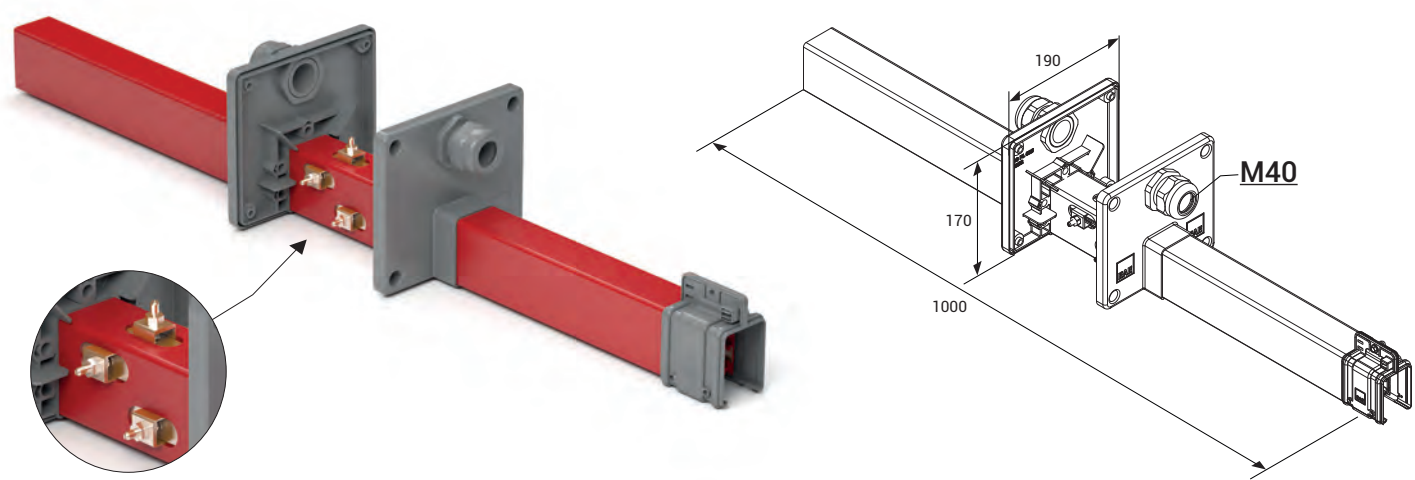
## TBS End Closure



The end closure placed on the end of the busbar line prevents the exposure of the conductors, protects the system, and prevents the current collector from moving out of the housing.

Description	Weight (gr)	Order Code
TBS End Closure	450	3024419
TBS End Cover	25	1003109

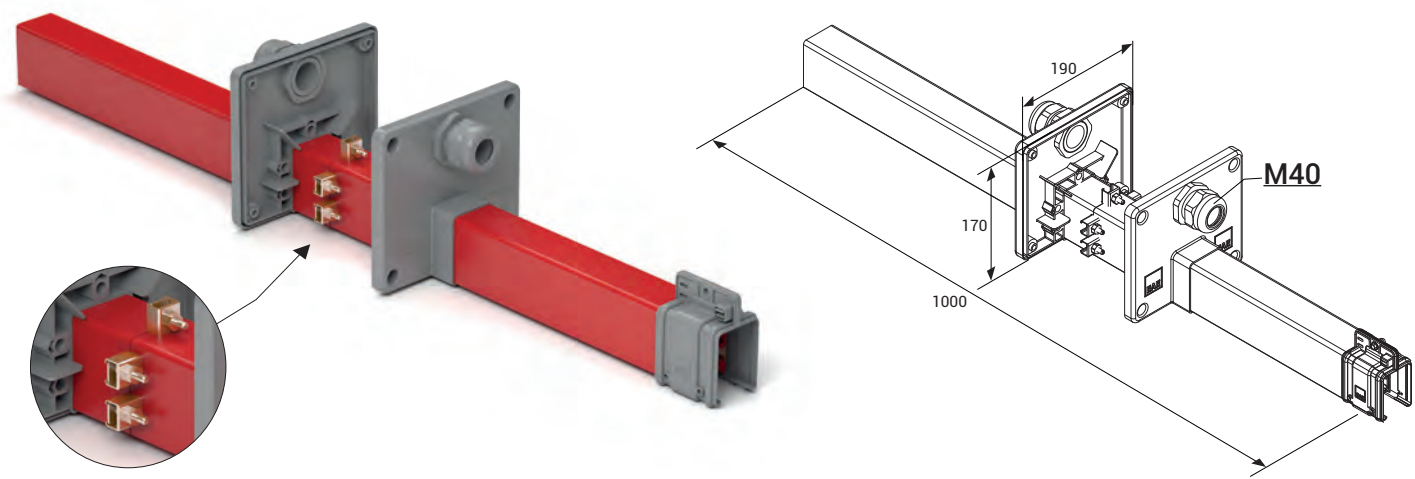
TBS Line Feed Units - Continuous Type



Description	Weight (gr)	Order Code
TBS Line Feed Unit - Continuous Type	2350	3024458

Type of the feeding element is selected by calculating the voltage drop and the location of the power supply that shall provide power to the system.

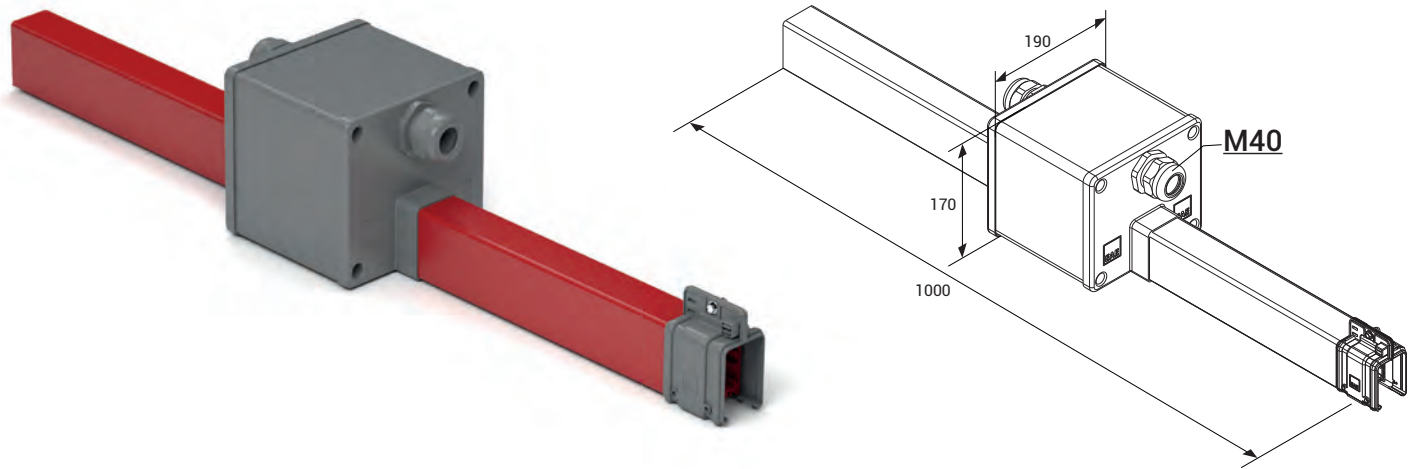
TBS Line Feed Units - Jointed Type



Description	Weight (gr)	Order Code
TBS Line Feed Unit - Jointed Type	2450	3024472

Type of the feeding element is selected by calculating the voltage drop and the location of the power supply that shall provide power to the system.

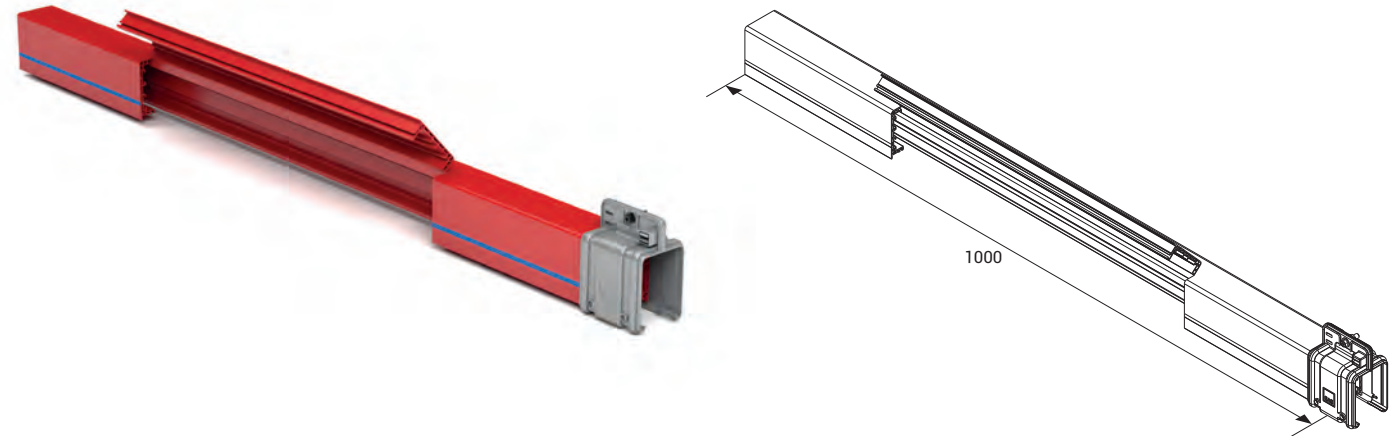
TBS Repair Zone Unit



Description	Weight (gr)	Order Code
TBS Repair Zone Module	2550	3066696

Current supply shall be cut off when a machine working on the line shall be maintained or repaired. Repair zone module is used to create a currentless area on the busbar so that the other machines operating on the same line may continue to work.

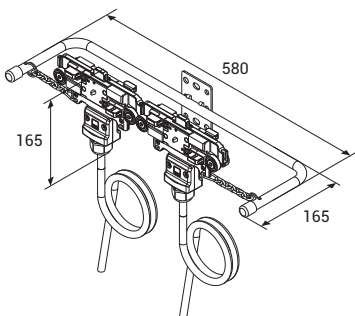
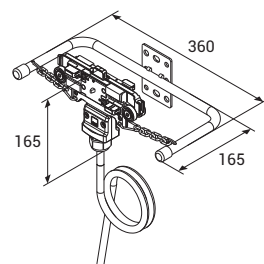
TBS Current Collector Replacement Module



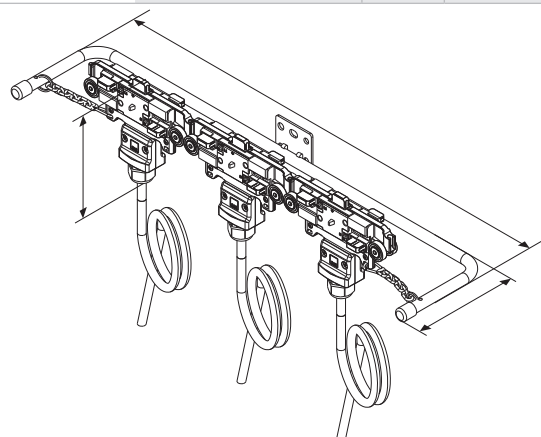
Description	Weight (gr)	Order Code
TBS Current Collector Replacement Module	1500	3024471

This unit is used to remove an existing current collector or to add extra trolleys. The unit is obtained by cutting a 50cm section from the PVC housing.

## TB5 Current Collectors With Cable

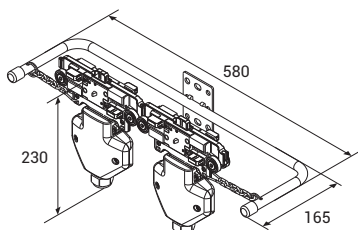
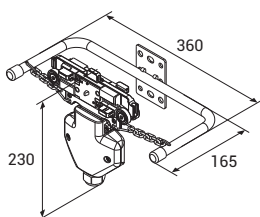
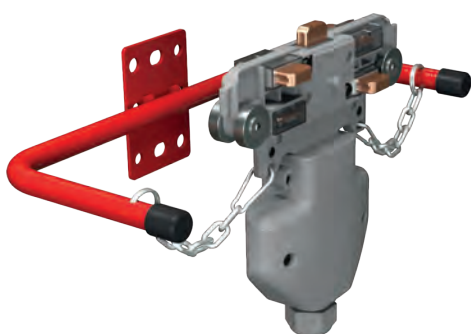


Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB5	4P - 35A (Single)	1700	3024385
	4P - 70A (Double)	2950	3024386
	4P - 105A (Triple)	4450	3024387
	5P - 35A (Single)	1900	3024376
	5P - 70A (Double)	3250	3024377
	5P - 105A (Triple)	4700	3024378



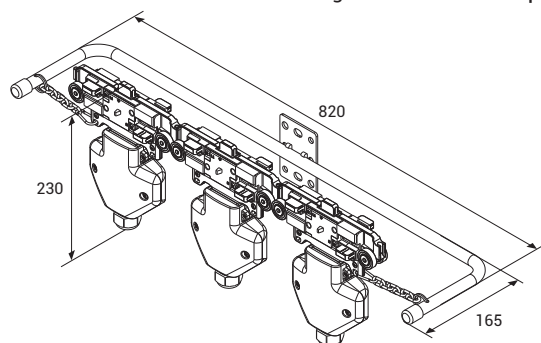
Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB5	4P - 60A (Single)	2000	3203193
	4P - 120A (Double)	3550	3269558
	5P - 60A (Single)	2200	3203194
	5P - 120A (Double)	3850	3269559

## TB5 Current Collectors With Clip



Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB5	4P - 35A (Single)	1350	3024388
	4P - 70A (Double)	2050	3024389
	4P - 105A (Triple)	3050	3024390
	5P - 35A (Single)	1350	3024379
	5P - 70A (Double)	2250	3024380
	5P - 105A (Triple)	3200	3024381

\*Produced with standard M40 cable gland and 4mm<sup>2</sup> clip.

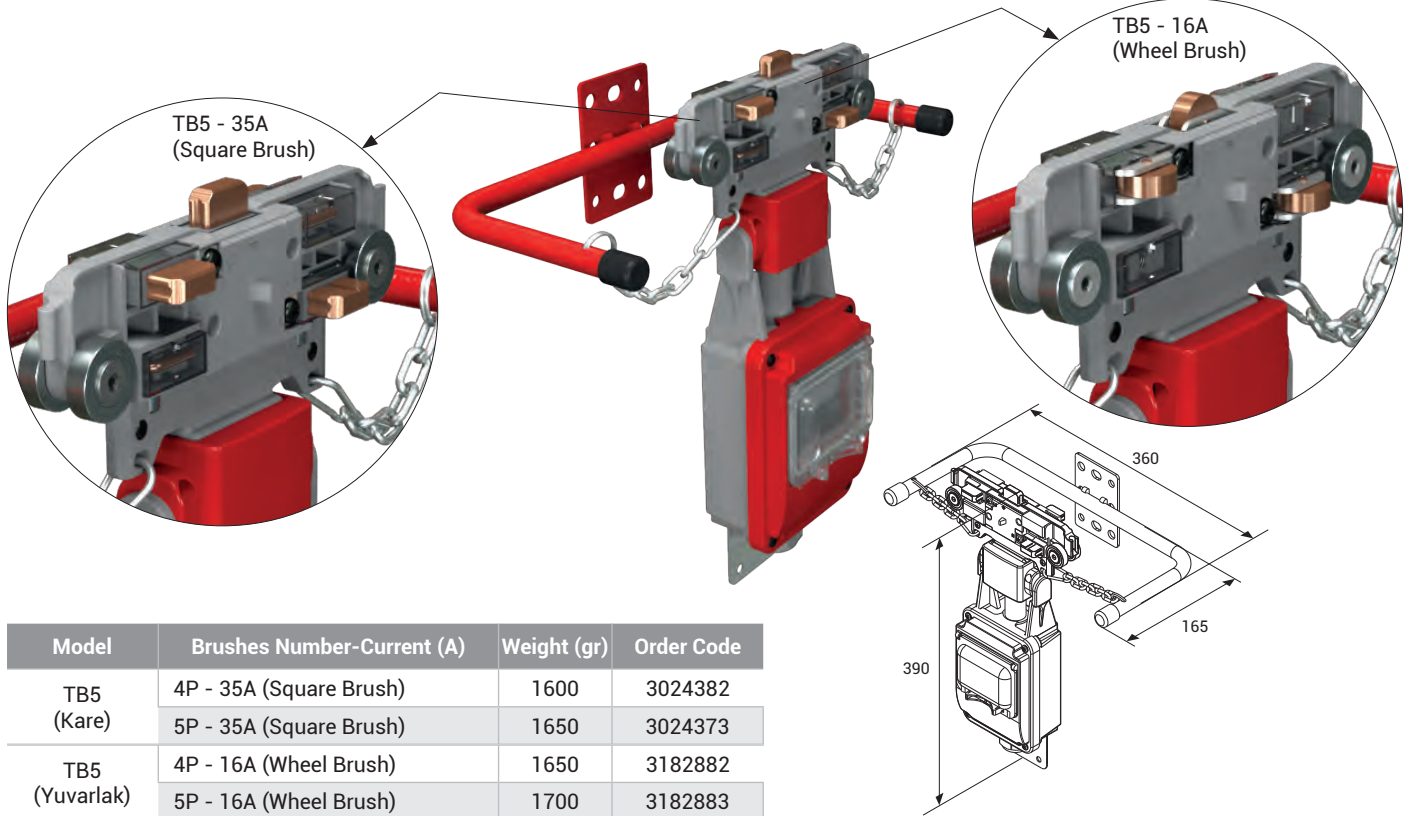


Current collector with clips allow the customers to perform cabling as they desire with the clips they include.

Current collector are the moving elements of the trolley busbar systems. Current collector brushes rub against the conductors and draw continuous current while they move through the busbar line. They adapt to shaky and vibrant conditions thanks to the moving brushes. As current collecting and transfer systems are included in the C-PVC housing, they are protected against human contact.



## TB5 Current Collector With Fuse Box



Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB5 (Kare)	4P - 35A (Square Brush)	1600	3024382
	5P - 35A (Square Brush)	1650	3024373
TB5 (Yuvarlak)	4P - 16A (Wheel Brush)	1650	3182882
	5P - 16A (Wheel Brush)	1700	3182883

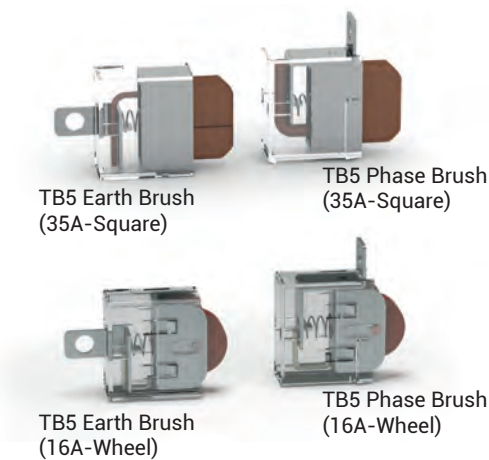
Fuse boxed with both staff and current receiving area carts current machine's safety can be raised to a higher level. In addition, when it is desired to cut the power of one of the machines on a line, the current is cut off through the fuse, other machines on the line can continue to operate.

Current collector with Wheel Brush simplify the movement of the current collectors inside the busbar by reducing the time at the installation tables when movement is provided by the personnel.

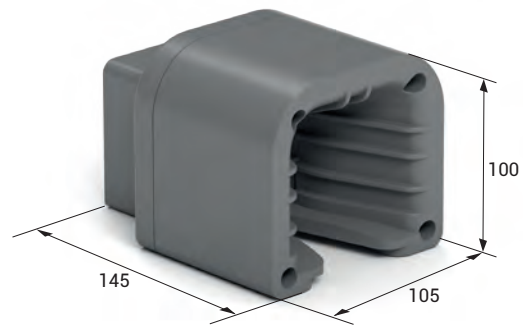
TB5 Current collector models operating speed is max. 100m/min.

## TB5 Current Collector Brushes

## TB5 Trolley Transfer Tool



Description	Weight (gr)	Order Code
TB5 Phase Brush (35A-Square)	40	3024371
TB5 Earth Brush (35A-Square)	40	3024372
TB5 Phase Brush (16A-Wheel)	40	3165078
TB5 Earth Brush (16A-Wheel)	40	3165080

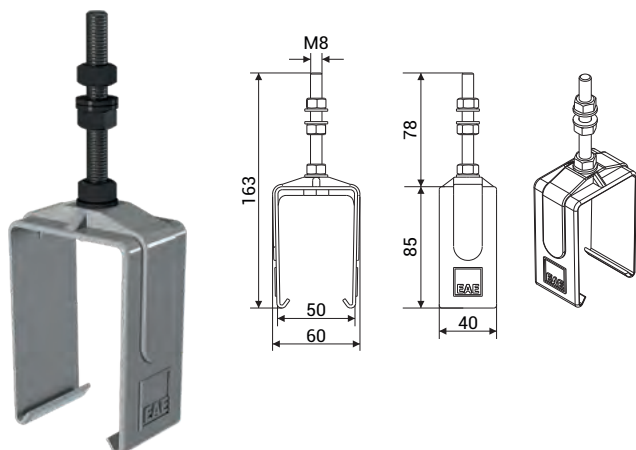


Description	Weight (gr)	Order Code
TB5 Trolley Transfer Tool	250	3179189

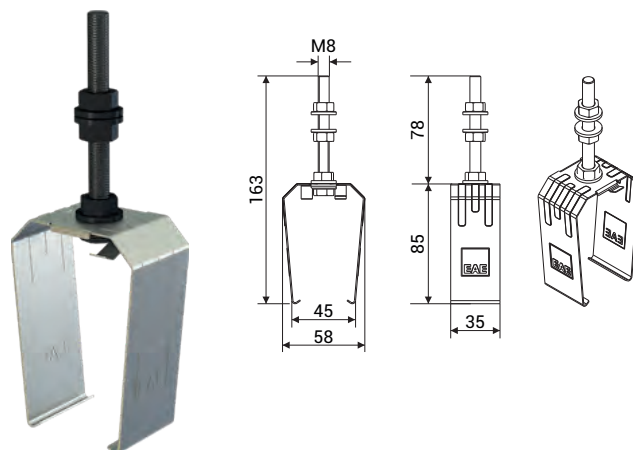
# E-LINE TBS



## TB5 Plastic Sliding Hanger



## TB5 Steel Sliding Hanger

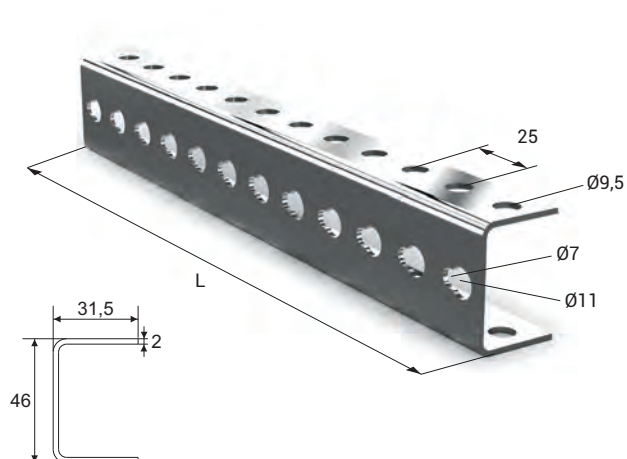


Trolley busbar should be mounted with sliding hangers and each hangers should be between 1,30m - 1,50m. Distance between sliding hanger and other units (joint unit, feeder etc.) should be minimum 300mm.

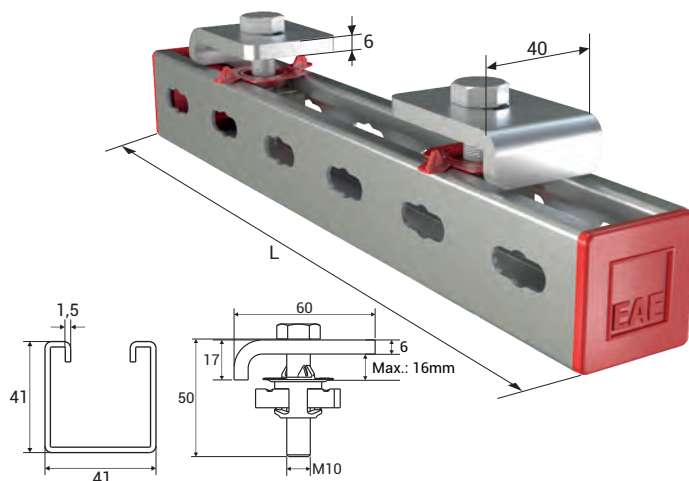
Description	Weight (gr)	Order Code
TB5 Plastic Sliding Hanger	85	1003664

Description	Weight (gr)	Order Code
TB5 Steel Sliding Hanger	100	1005954

## TB Hanger Bracket



Description	L (mm)	Weight (gr)	Order Code
TB Hanger Bracket	250	350	3025153
URC-C/S Hanger Bracket	500	700	3034560
URC-A Hanger Bracket	750	1050	3025382



Description	L (mm)	Weight (gr)	Order Code
TB BR Hanger Bracket Set	300	800	3178916
URC-C/S BR Hanger Bracket Set	600	1250	3178917
URC-A BR Hanger Bracket Set	800	1550	3178918

## TB5 Extension Element



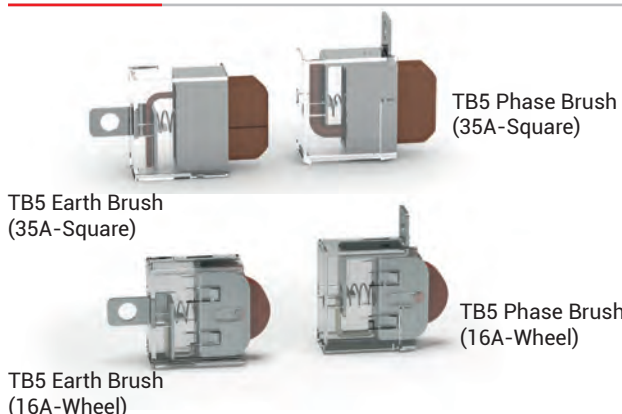
When the busbar line needs to be extended, you may remove the End Closure and install the joint unit to extend.

Description	Weight (gr)	Order Code
TB5 Extension Element	250	3141724

# E-LINE TBS



## TB5 Current Collector Brushes



Description	Weight (gr)	Order Code
TB5 Phase Brush (35A-Square)	40	3024371
TB5 Earth Brush (35A-Square)	40	3024372
TB5 Phase Brush (16A-Wheel)	40	3165078
TB5 Earth Brush (16A-Wheel)	40	3165080

## TB Conductor Casette



Conductor cassette shall be used to prevent damage to the conductors while the copper conductors are installed on the busbar.

Description	Weight (gr)	Order Code
TB Conductor Caset	6800	3025151

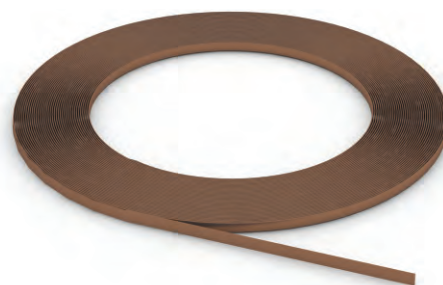
## TBS Gasket



• Continuous length is maximum 300 meters.

Description	Weight (gr/m)	Order Code
TBS Gasket Roll (m)	30	1037761

## TB5 Copper Conductors

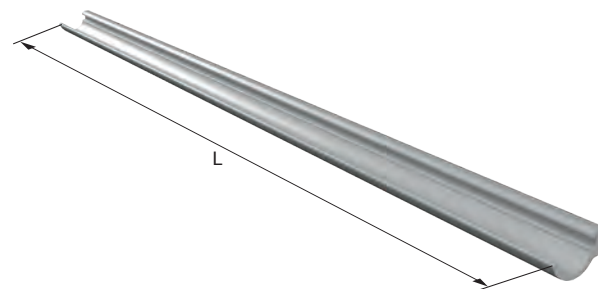


Description (mm x mm)	Order Code
TB5 0.80x16,00 (TB5 Copper)	1003097
TB5 1.00x16,00 (TB5 Copper - 75A)	1002254
TB5 1.50x16,00 (TB5 Copper - 105A)	1002275
TB5 2.00x16,00 (TB5 Copper - 130A)	1003094

## TB5 Conductor Mounting Tool



Description	Weight (gr)	Order Code
TB5 Conductor Mounting Tool	215	3024456



• Gasket should be ordered twice the line length.

Description	L (mm)	Weight (gr)	Order Code
TBS Gasket Straight Length (Pcs.)	4000	120	1037762

## Voltage Drop

The voltage drop in the busbar lines shall be inspected as per the busbar type selected according to the total current calculated based on the ambient temperature and operating period of the system. Maximum acceptable value for voltage drop is 3%.

### For Direct Current

$$\Delta U = 2 \cdot L_t \cdot I_G \cdot R$$

$\Delta U$  = Voltage Drop [V]

### For Mono-Phase Alternative Current

$$\Delta U = 2 \cdot L_t \cdot I_G \cdot Z$$

$I_G$  = Total current [A]

$R$  = Resistance of the busbar [ $\Omega$ /m]

### For Three-Phase Alternative Current

$$\Delta U = \sqrt{3} \cdot L_t \cdot I_G \cdot Z$$

$Z$  = Impedance of the busbar [ $\Omega$ /m]

$L_t$  = Calculated Hole Length [m]

**Note :** Calculation of the current drawn during first start in various motor types;

$I_A$  = Total current drawn in the first start of the motors [A]

For the starting current; Three-phase asynchronous drive in direct start

Slip ring rotor motor

Frequency converter

$I_A$  =  $I_G$  x calculated as 5 to 6

$I_A$  =  $I_G$  x calculated as 2 to 3

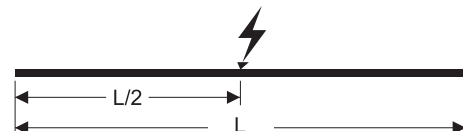
$I_A$  =  $I_G$  x 1,20 to 1,50 calculated between.

## Calculation Of Feeding Points

When we take  $L_t$  as the length of the line, feeding points may be selected as shown in the diagrams below to keep the  $L$  voltage drop at minimum and it may be used as the hole length for the calculation of  $L_t$  voltage drop.



1 feeding point from the start,  $L_t = L$



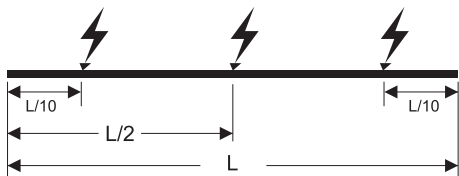
1 feeding point from the center,  $L_t = L/2$



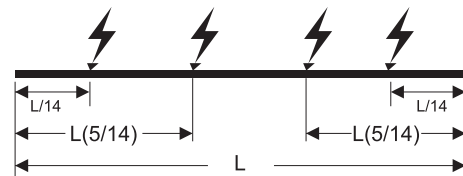
2 feeding points from the start points,  $L_t = L/4$



2 feeding points,  $L_t = L/6$



3 feeding points,  $L_t = L/10$

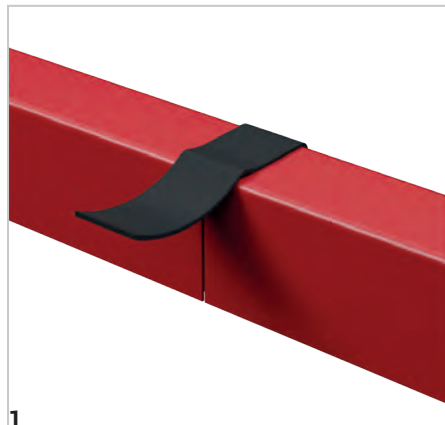


4 feeding points,  $L_t = L/14$

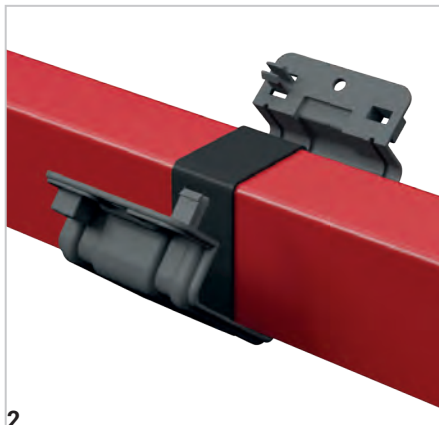
# E-LINE TBS

## Installation Manual

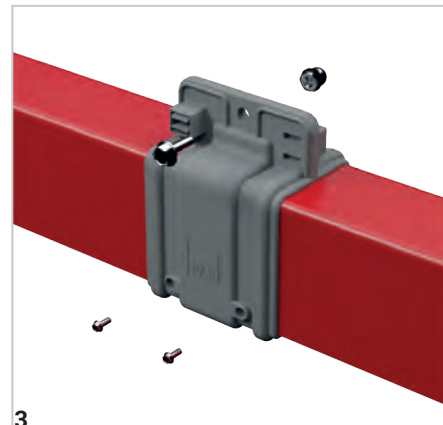
### TBS - Installation Of Joint Unit



1  
The joint point is covered using a self-adhesive EPDM gasket.

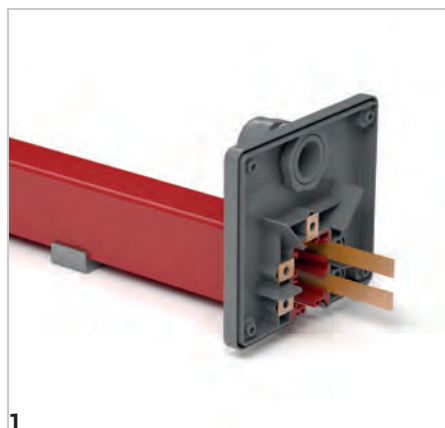


2  
Engage the joint unit to the bottom of the busbar and close it.

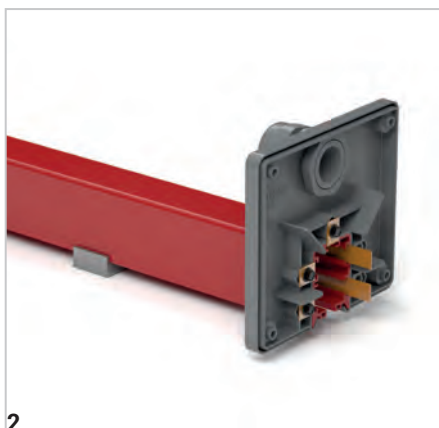


3  
Close the joint cover and screw it.

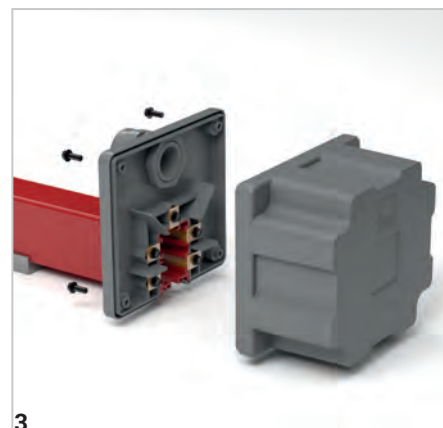
### TBS - Feeder Unit



1  
Conductors are bend 90° and pushed into the housing.



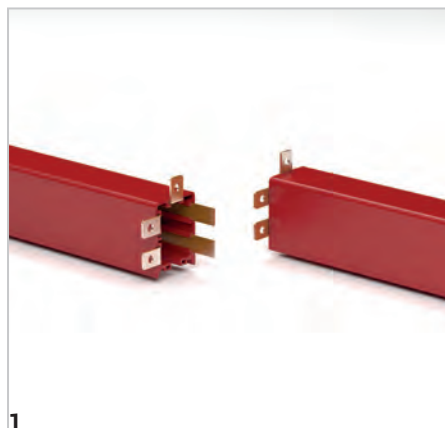
2  
Housing and screw them to the feeding module.



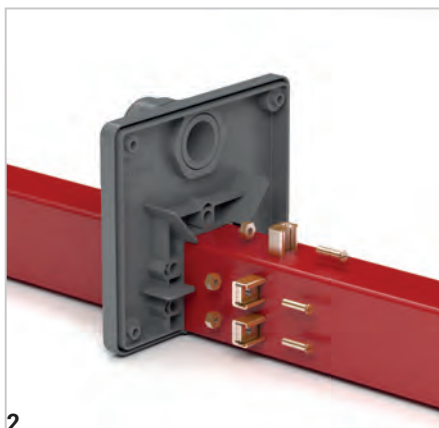
3  
Close the module cover and screw it.

TBS

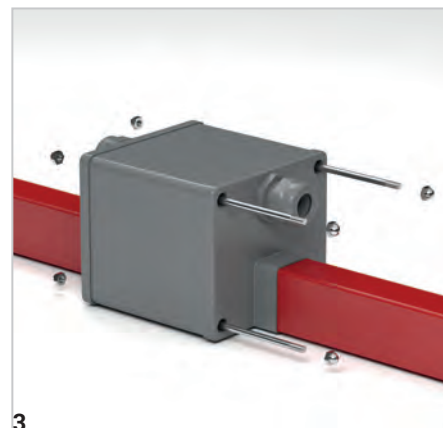
### TBS - Line Feed Unit - 2 (Jointed Type)



1  
Bend conductors for 90°, and push them inside the housing.



2  
Put conductors back-to-back and join them with clips. Connect the feeding cables to the clips.



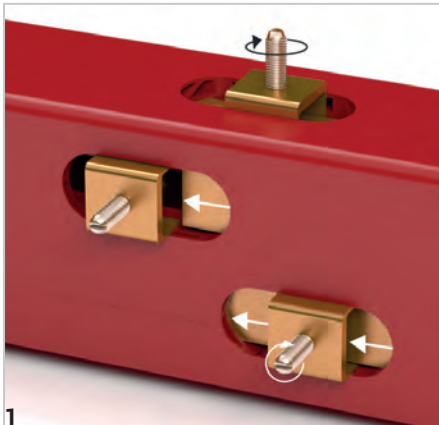
3  
Close the module cover and screw it.



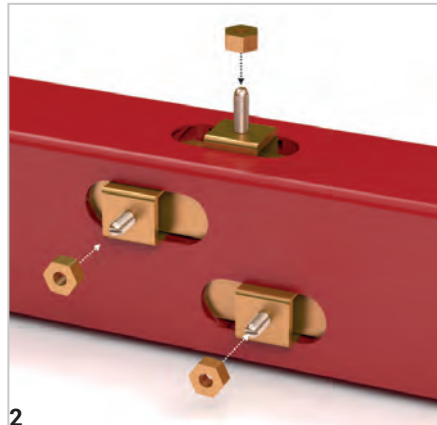
# E-LINE TBS

## Installation Manual

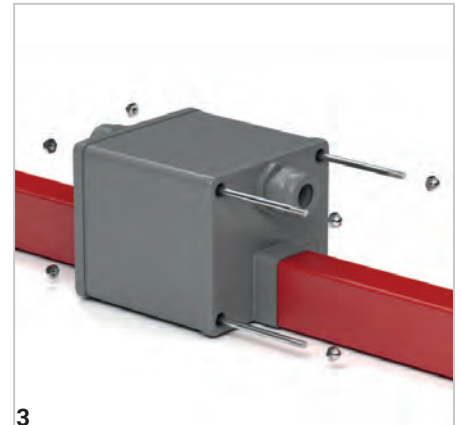
### TBS - Line Feed Unit - 1 (Continuous Type)



1 Put the conductors through the clips and screw them.

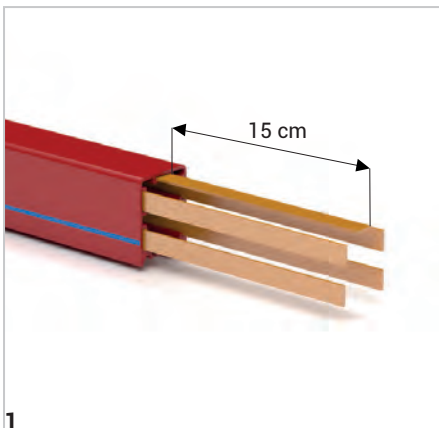


2 Connect the feeding cables to the clips with nuts.

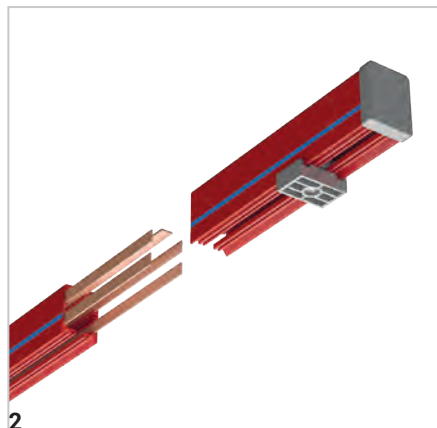


3 Close the module cover and screw it.

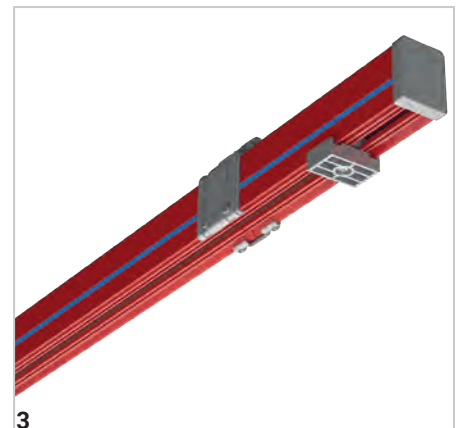
### TBS - End Closure



1 Cut the coppers at the end of the line by leaving a extra length of 15 cm.

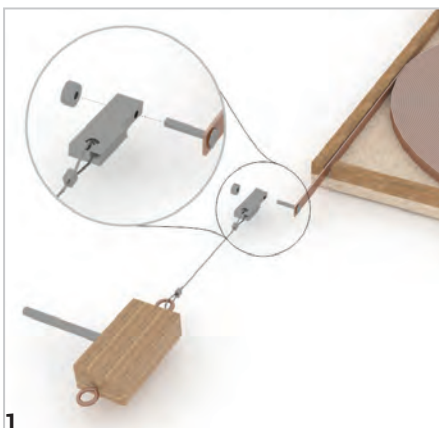


2 After placing the current collector to the system, place the End Closure so that it shall house the coppers.

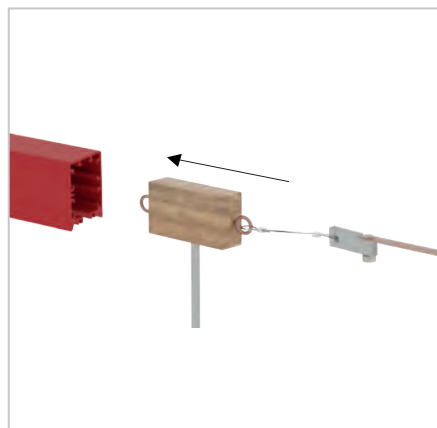


3 Install it on the system as you do while installing the extension.

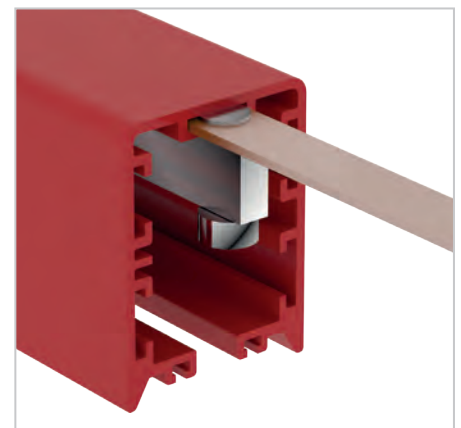
### TBS - Conductor Mounting Tool



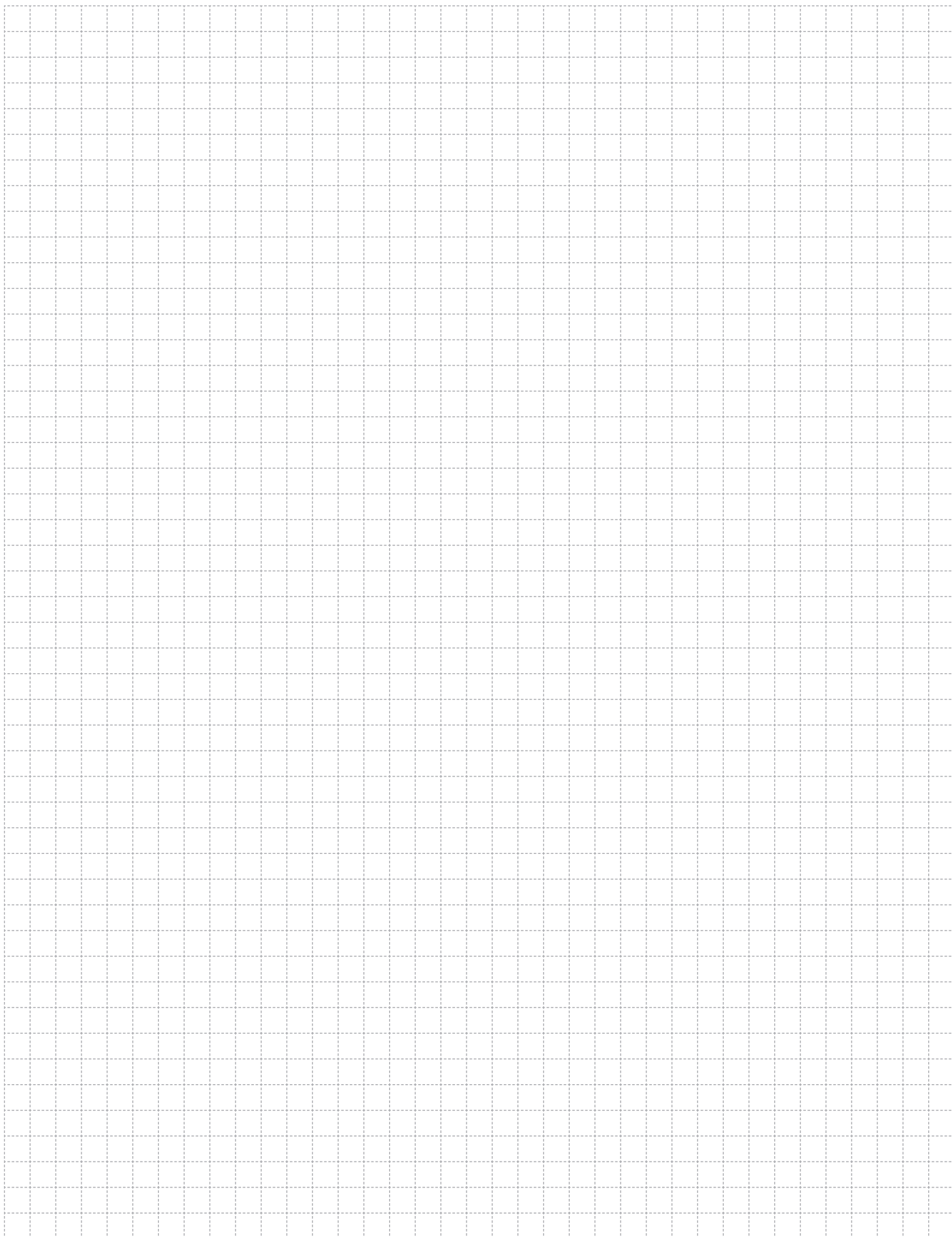
1 Screw the conductor to the conductor mounting tool.



Drive the conductor mounting tool along the line.



Ensure that the conductor is seated.

A large rectangular area filled with a light gray dashed grid, intended for handwritten notes or technical drawings.

# E-LINE TBS

## Offer Request Form



Date :

Project Name	:	<input type="text"/>
Company	:	<input type="text"/>
Name Surname	:	<input type="text"/>
Tel	:	<input type="text"/>
E-Mail	:	<input type="text"/>
Address	:	<input type="text"/>

### General Data

Track Length	:	<input type="text"/>
Number of Cranes on Track	:	<input type="text"/>
Crane Travel Speed	:	<input type="text"/>

### Environmental Data

Operating Environment	:	<input type="checkbox"/> Indoor	<input type="checkbox"/> Outdoor
Ambient Temperature	:	<input type="text"/> °C min.	<input type="text"/> °C max.
Other Operating Conditions (Humidity, Dust, Chemical Influence, etc.)	:	<input type="text"/>	

### Electrical Data

Operating Voltage	:	<input type="text"/> Volts	<input type="checkbox"/> AC	<input type="checkbox"/> DC			
	:	<input type="text"/> Phases	<input type="checkbox"/> N	<input type="checkbox"/> PE			
Position and Number of Feeder	:	<input type="text"/> from End	<input type="text"/> from Middle				
Duty Cycle (%)	:	<input type="checkbox"/> 50%	<input type="checkbox"/> 60%	<input type="checkbox"/> 70%	<input type="checkbox"/> 80%	<input type="checkbox"/> 90%	<input type="checkbox"/> 100%

Motor Specifications	Crane - 1		Crane - 2		Crane - 3	
	Power (kW)	Current (A)	Power (kW)	Current (A)	Power (kW)	Current (A)
Hoist motors	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Auxiliary motor	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Long travel	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Cross travel	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

### Options

Brackets Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Repair Zone Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Collector Replacement Required:	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Descriptions	:	<input type="text"/>	

Please duplicate this page for your own use.



TB

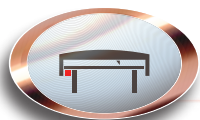
# E-LINE TB



• Bridge Cranes



• Monorail Systems



• Textile Cutting and Spreading Tables



• AS/RS Storage Systems



• Moving Ceiling and Door Systems



• Assembly and Test Lines



## E-LINE TB

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Trolley Busbar Systems .....	2
Order Code System .....	3
TB PVC Housing .....	4
TB Feeder Unit .....	5-6
TB Repair Zone .....	7
TB Current Collector .....	8-9
System Components .....	10-11
Voltage Drop, Calculation Of Feeding Points .....	12
TB Trolley Busbar Installation Manual .....	13-14

# E-LINE TB

## Trolley Busbar Systems



- Bridge Cranes
- Monorail Systems
- Textile Cutting and Spreading Tables
- AS/RS Storage Systems
- Moving Ceiling and Door Systems
- Assembly and Test Lines

It consists of copper conductors and current collectors in the C-PVC body. The uninterrupted energy supply and movement of the system is provided by current collectors connected to the system mechanically.

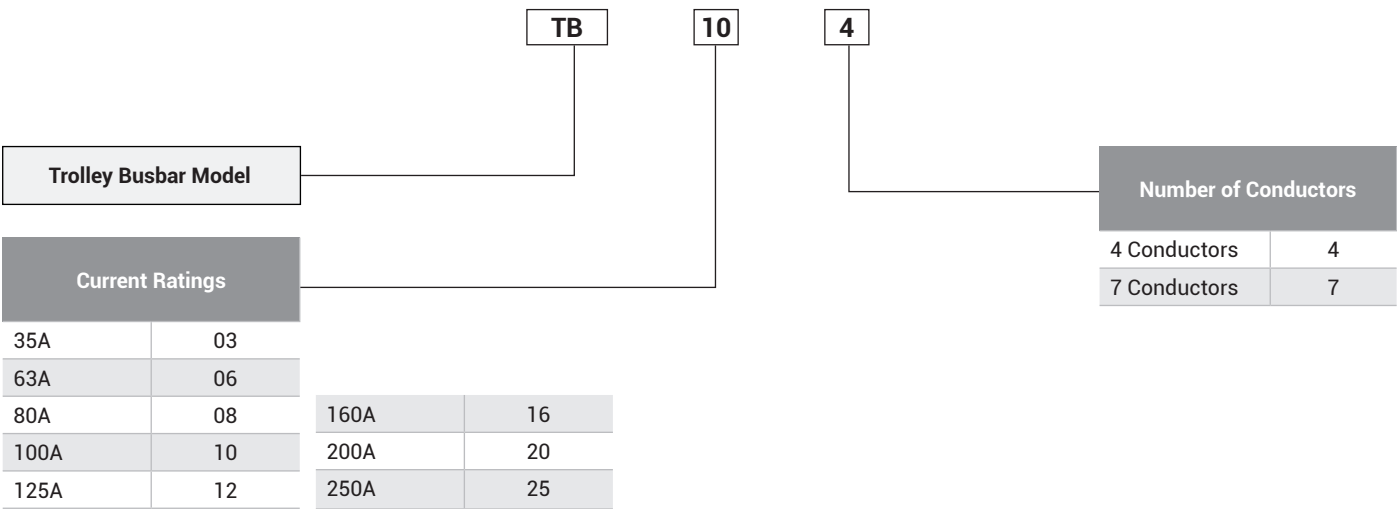
The eliminates the possibilities such as accident, malfunction in energy distribution with suspended and reel cable in conventional systems. Conductors are enclosed in C-PVC housing and personnel safety is maximized.

There is no fixed connection between the conductor housings and the conductors and between the C-PVC housing and the sliding hangers, the necessary expansion opportunity is provided, therefore the expansion element is unrequired.

### **Cautions:**

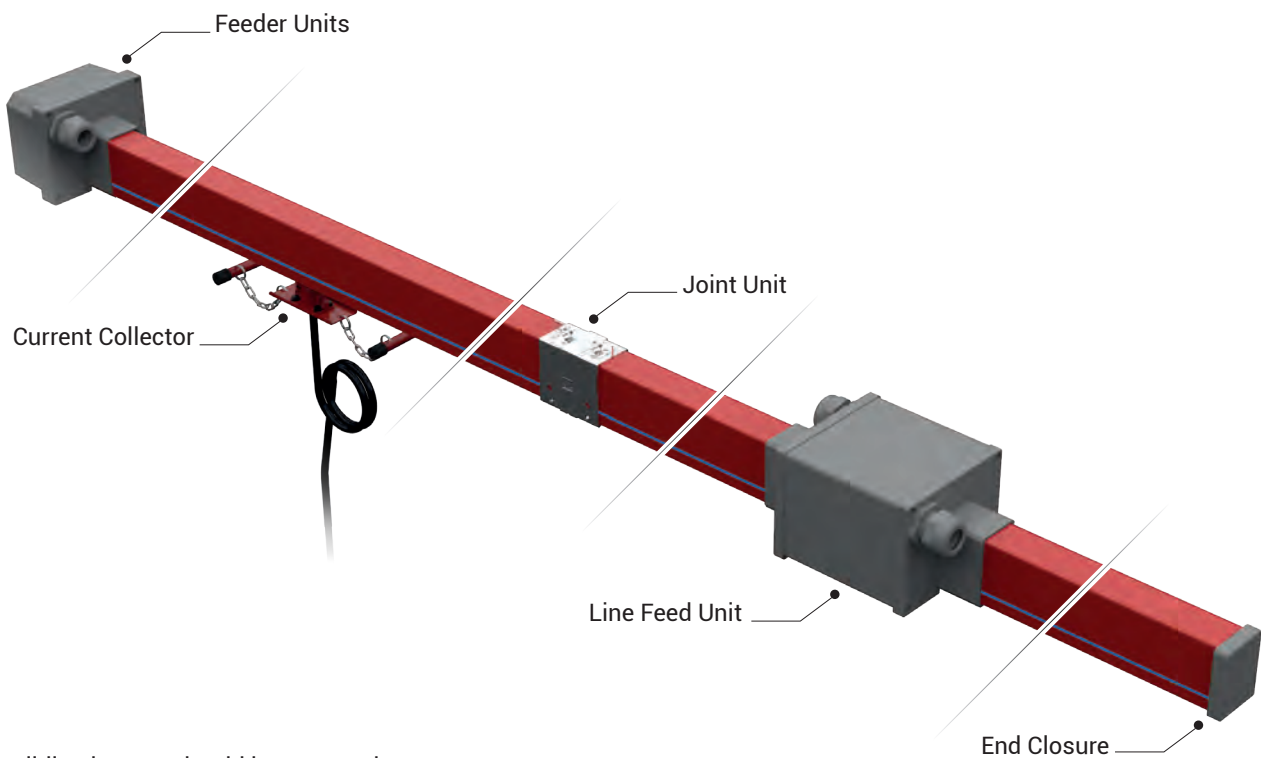
If it is used in external environments exposed to rain, it is recommended to protect it with a cover such as a canopy.





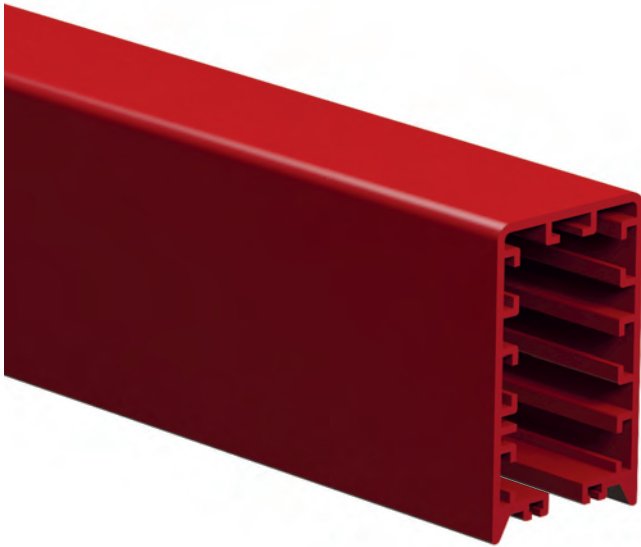
Technical Features

Table with 10 columns: Rated Current (A), Conductor Quantities (pcs), Rated Voltage (AC) (V), Dielectric Properties (kV/mm), Frequency (Hz), Resistance (20°C) R20 (mΩ/m), Resistance (35°C) R35 (mΩ/m), Reactance X (mΩ/m), Impedance Z (mΩ/m), and Standard Length (m). Rows include technical specifications for various current ratings from 35A to 250A.



Note: Each sliding hanger should be mounted between 1,30m - 1,50m.

## TB Trolley Busbar



Description	Weight (gr)	Order Code
TB Trolley Busbar Housing	1550	2037292

Multiple current combinations with standard C-PVC housing and different usage types can be created.

The housing has a structure that can use maximum 7 conductors. There is safety system that prevents the current collector to be fixed inversely.

### Continuous Copper Conductors

Electrolytic copper conductors can be applied without interruption at a maximum length of 150 m.

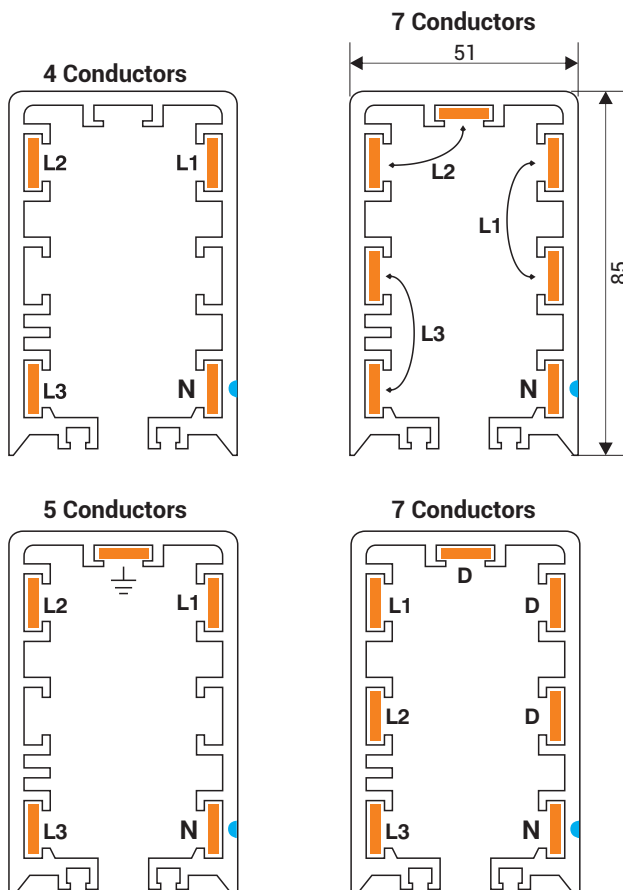
- **Number of Conductors:** 4, 7 Conductors
- **Colour:** Red.
- **Temperature range:** -40°C and +55°C.
- **Standard housing length:** 4 meters.
- **Protection:** Standard IP24, Gasket ile IP44.
- **Non-Flammable Characteristics:** UL 94 V0
- Housing is made of C-PVC and plastic accessories are made of PA6 raw material.
- There is a neutral line on the housing the neutral conductor.

### Standard 4 Meters

Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm <sup>2</sup> )	Order Code
TB 034	4P- 35A	1900	4x9,45	3025004
TB 064	4P- 63A	1950	4x10,80	3025005
TB 084	4P- 80A	2000	4x13,50	3025006
TB 104	4P-100A	2250	4x19,50	3025007
TB 124	4P-125A	2450	4x26,00	3025008
TB 167	7P-160A	2400	7x13,50	3025009
TB 207	7P-200A	2750	7x19,50	3025010
TB 257	7P-250A	3150	7x26,00	3025011

Joint plastics are not included in the weight values.

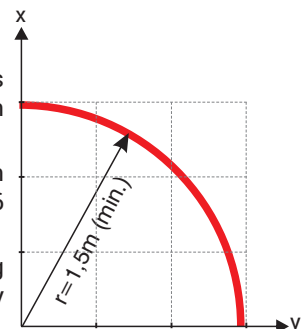
Total weight of the joint plastics and bolts is 0,28 kg.



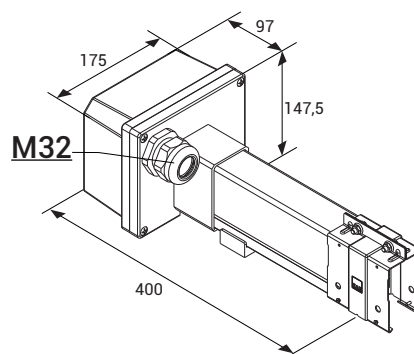
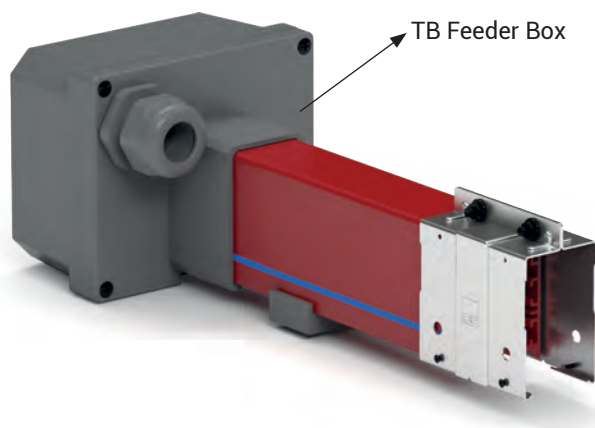
### Radius Trolley Busbar

It has minimum 1.5m radius Trolley Busbar available in vertical axes.

- Radius Trolley Lines can be applied with maximum 6 conductors.
- We recommend to use housing pins at joint units of radius trolley lines.



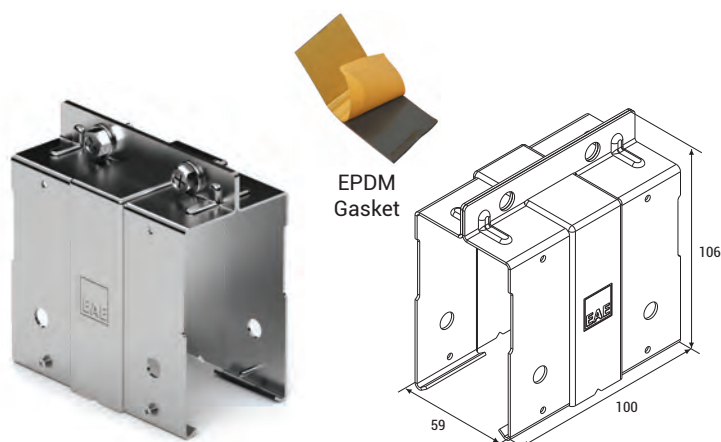
## TB Feeder Units



Description	Weight (gr)	Order Code
TB Feeder Units	1100	3025149
TB Feeder Box	650	3188028

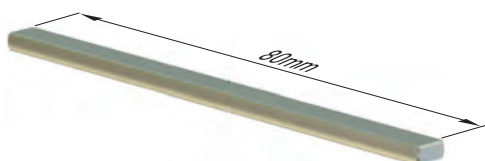
Type of the feeder box is selected by calculating the voltage drop and the location of the power supply that shall provide power to the system.

## TB Joint Unit



Description	Weight (gr)	Order Code
TB Joint Unit	270	1004256

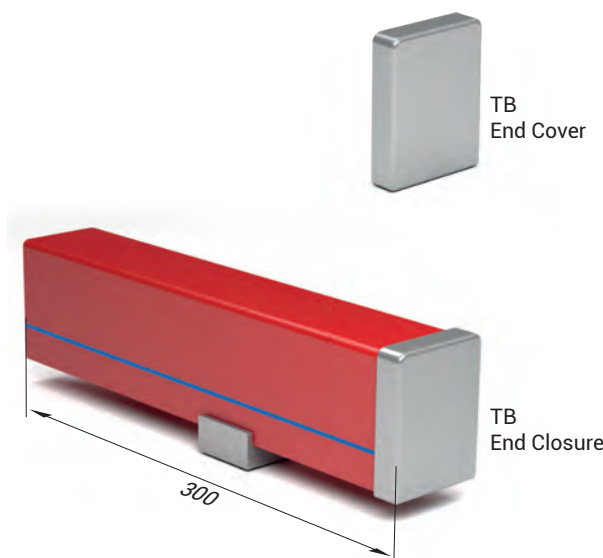
## TB Housing Pin



- Two pieces should be used with each joint unit

Description	Weight (gr)	Order Code
TB Housing Pin	8	1001025

## TB End Closure

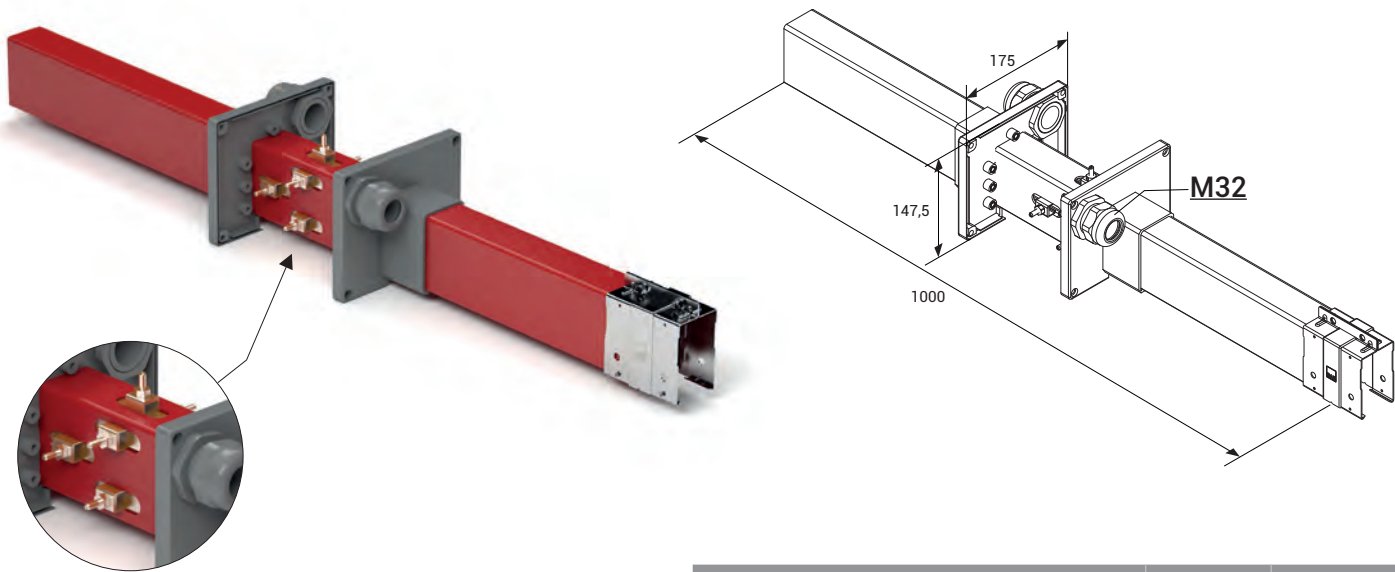


Description	Weight (gr)	Order Code
TB End Closure	550	3025147
TB End Cover	20	1001036

The end closure placed on the end of the busbar line prevents the exposure of the conductors, protects the system, and prevents the current collector from moving out of the housing.



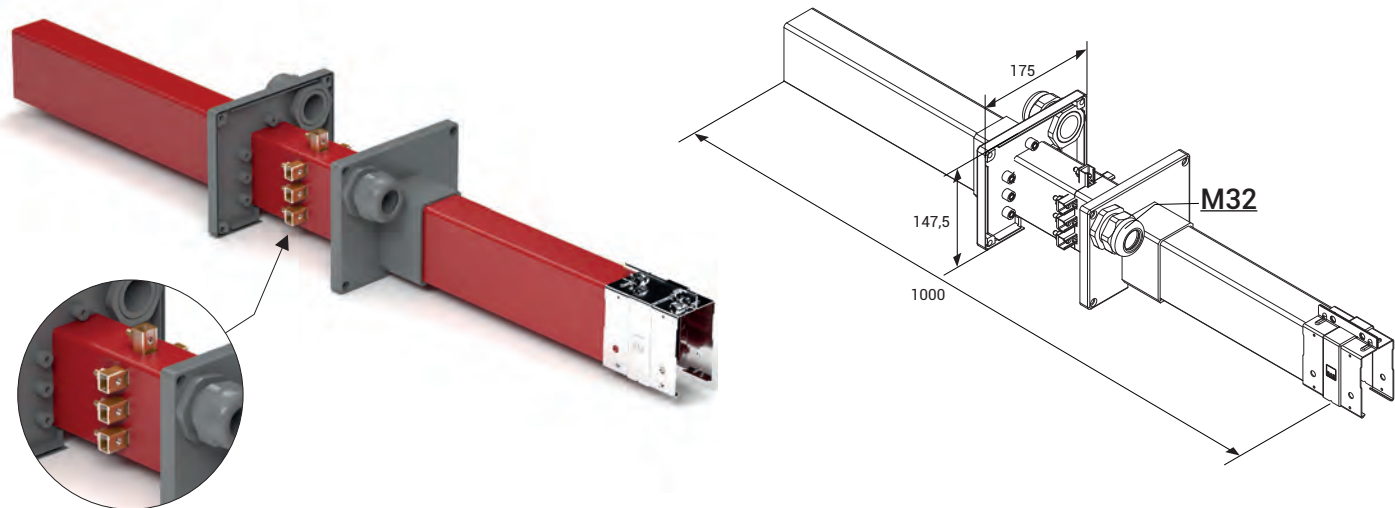
TB Line Feed Units - Continuous Type



Description	Weight (gr)	Order Code
TB Line Feed Unit - Continuous Type	2750	3025148

Type of the feeding element is selected by calculating the voltage drop and the location of the power supply that shall provide power to the system.

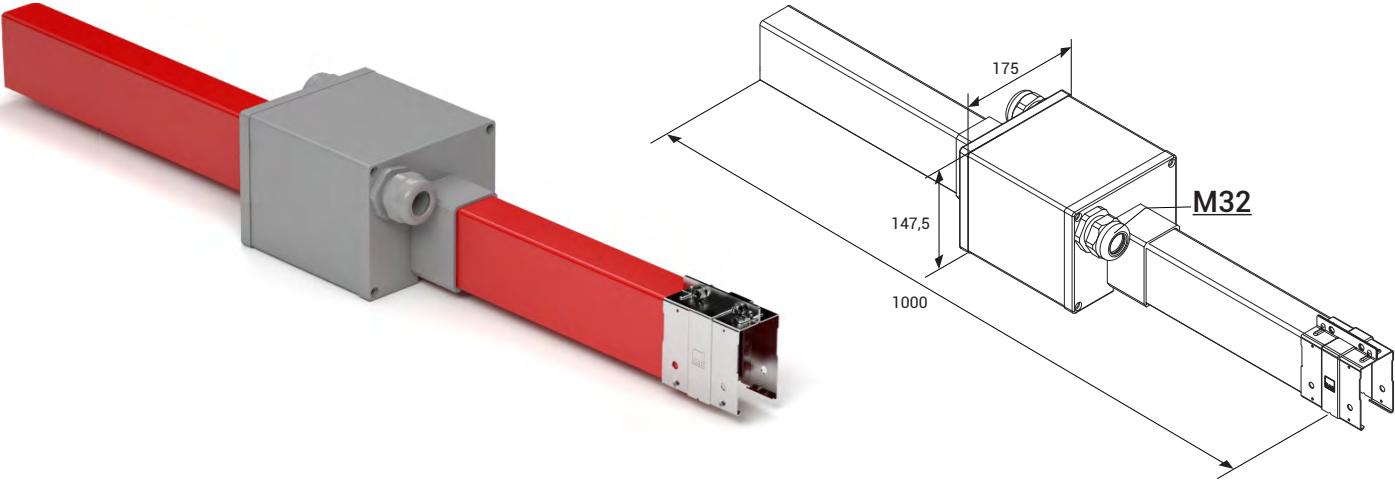
TB Line Feed Units - Jointed Type



Description	Weight (gr)	Order Code
TB Line Feed Unit - Jointed Type	2850	3025150

Type of the feeding element is selected by calculating the voltage drop and the location of the power supply that shall provide power to the system.

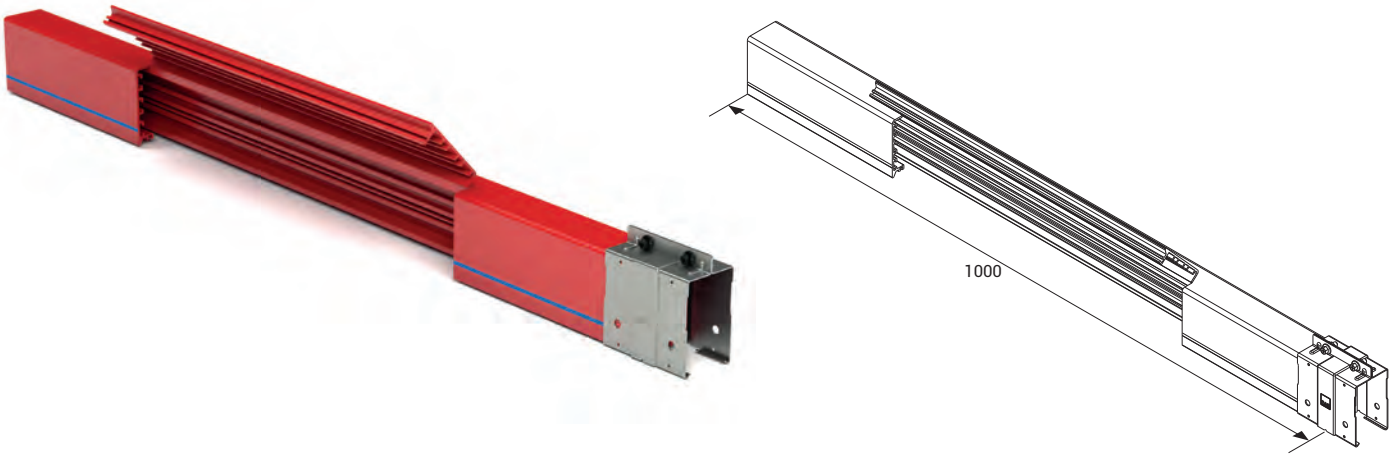
TB Repair Zone Unit



Description	Weight (gr)	Order Code
TB Repair Zone Module	2700	3025003

Current supply shall be cut off when a machine working on the line shall be maintained or repaired. Repair zone module is used to create a currentless area on the busbar so that the other machines operating on the same line may continue to work.

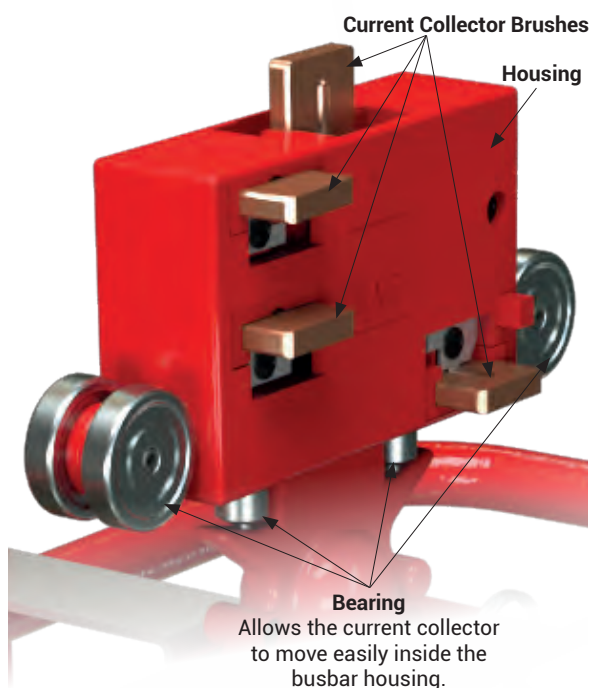
TB Current Collector Replacement Module



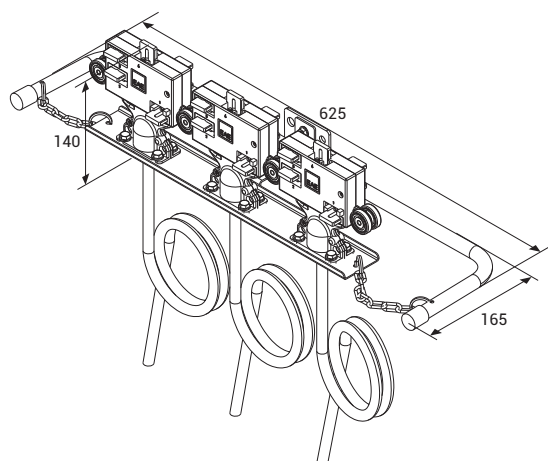
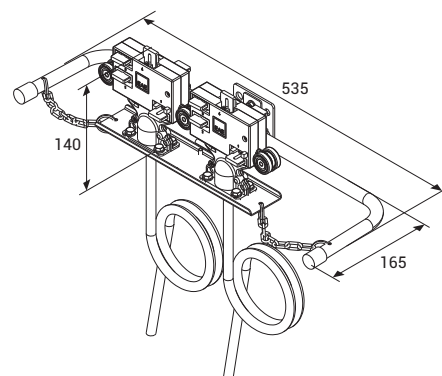
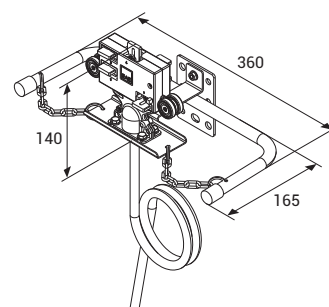
Description	Weight (gr)	Order Code
TB Current Collector Replacement Module	2250	3024593

This unit is used to remove an existing current collector or to add extra trolleys. The unit is obtained by cutting a 50cm section from the PVC housing.

## TB Current Collectors With Cable (4P/7P)



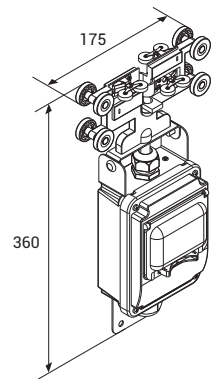
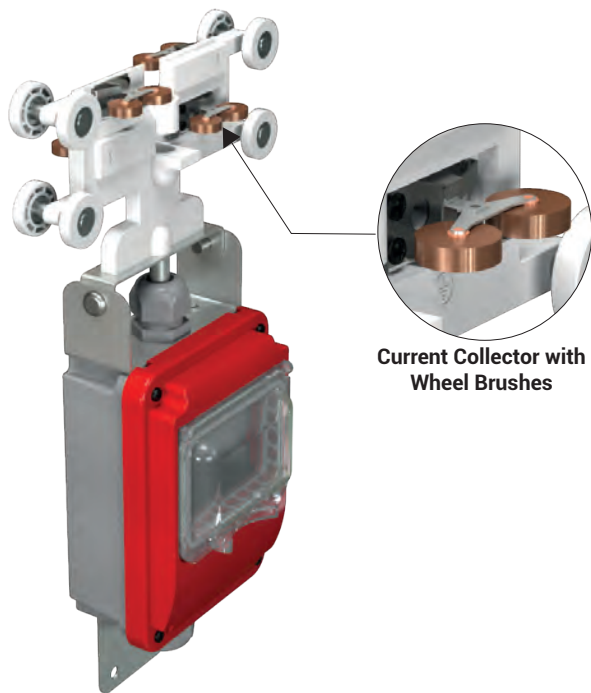
Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB	4P - 35A (Single)	1750	3025145
	4P - 70A (Double)	2900	3024947
	4P - 105A (Triple)	3950	3024945
	7P - 35A/70A (Single)	2200	3025144
	7P - 70A/140A (Double)	3900	3024946
	7P - 105A/210A (Triple)	5650	3024944



Current collector are the moving elements of the trolley busbar systems. Current collector brushes rub against the conductors and draw continuous current while they move through the busbar line. They adapt to shaky and vibrant conditions thanks to the moving brushes. As current collecting and transfer systems are included in the C-PVC housing, they are protected against human contact.

TB Current collector models operating speed is max. 100m/min.

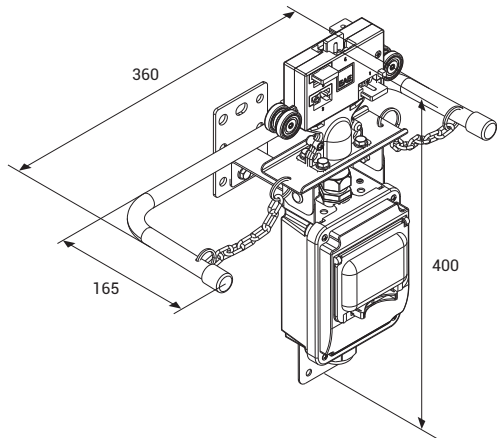
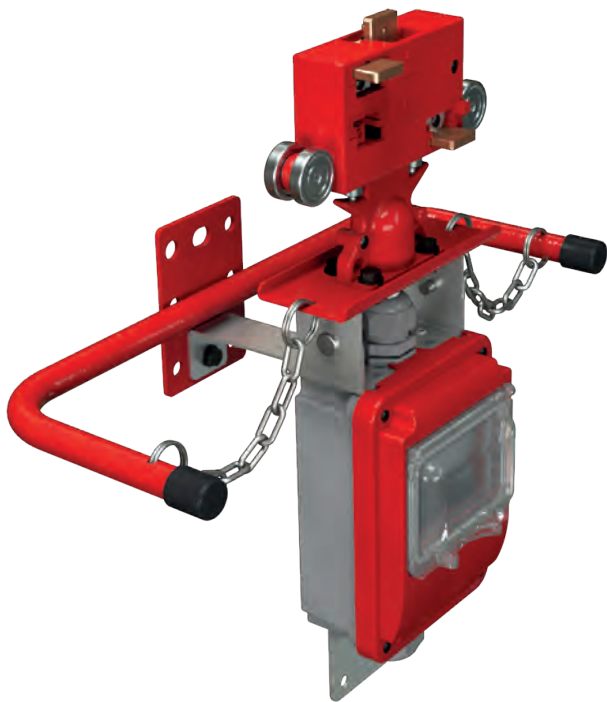
TB Current Collector With Wheel Brushes (4P)



Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB	4P - 16A	900	3024774

Current collector with Wheel Brush simplify the movement of the current collectors inside the busbar by reducing the time at the tables when movement is provided by the personnel.

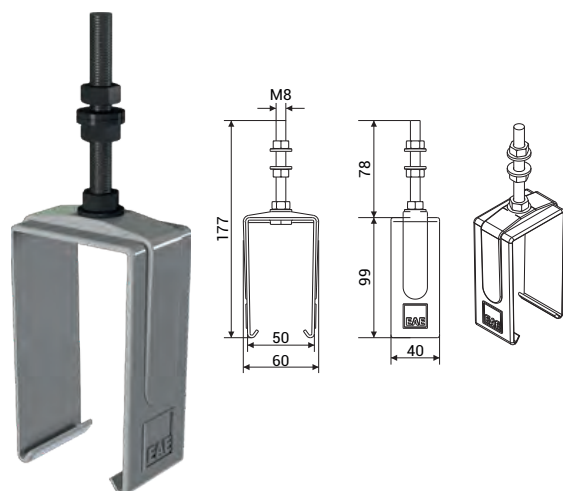
TB Current Collectors With Fuse Box (5P)



Model	Brushes Number-Current (A)	Weight (gr)	Order Code
TB	5P - 35A	1850	3024403

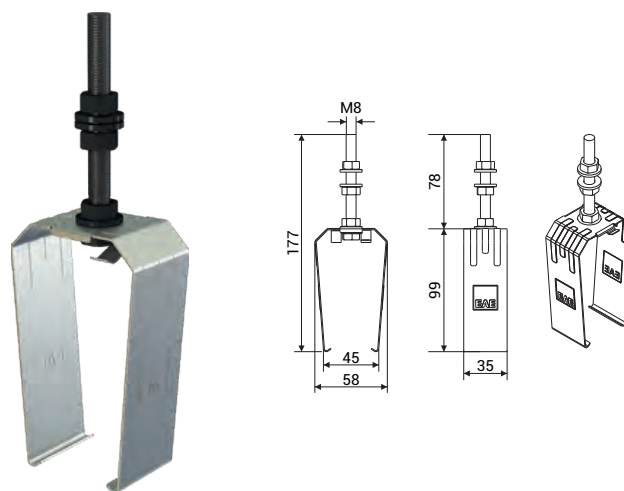
Fuse boxed with both staff and current receiving area carts current machine's safety can be raised to a higher level. In addition, when it is desired to cut the power of one of the machines on a line, the current is cut off through the fuse, other machines on the line can continue to operate.

## TB Plastic Sliding Hanger



Description	Weight (gr)	Order Code
TB Plastic Sliding Hanger	85	1004257

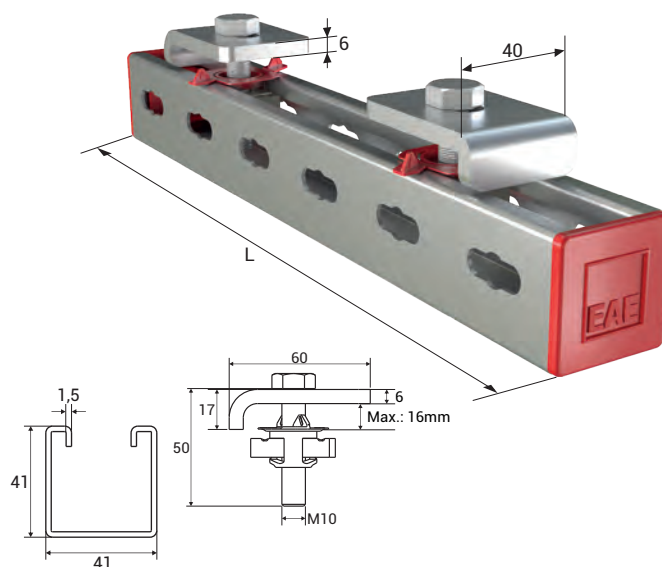
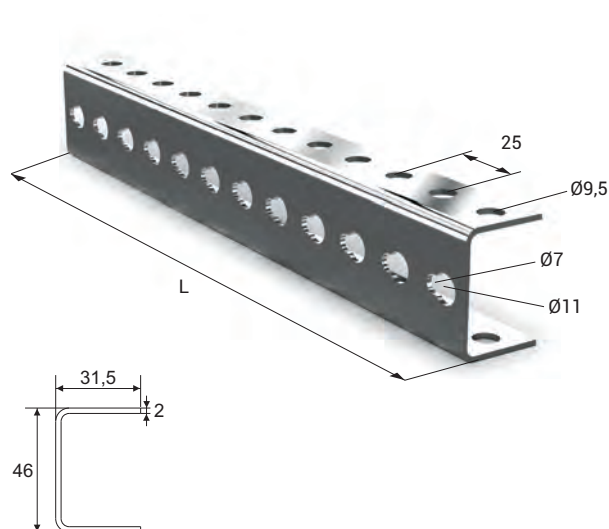
## TB Steel Sliding Hanger



Description	Weight (gr)	Order Code
TB Steel Sliding Hanger	100	1006055

Trolley busbar should be mounted with sliding hangers and each hangers should be between 1,30m - 1,50m. Distance between sliding hanger and other units (joint unit, feeder etc.) should be minimum 300mm.

## TB Hanger Bracket



Description	L (mm)	Weight (gr)	Order Code
TB Hanger Bracket	250	350	3025153
URC-C/S Hanger Bracket	500	700	3034560
URC-A Hanger Bracket	750	1050	3025382

Description	L (mm)	Weight (gr)	Order Code
TB BR Hanger Bracket Set	300	800	3178916
URC-C/S BR Hanger Bracket Set	600	1250	3178917
URC-A BR Hanger Bracket Set	800	1550	3178918



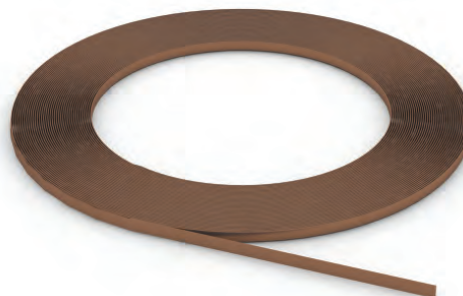
# E-LINE TB

## TB Current Collector Brushes



Description	Weight (gr)	Order Code
TB Current Collector Phase Brush	20	2011161

## TB Copper Conductors



Description	Order Code
TB 0,80x13,50 (TB Copper)	1004261
TB 1,00x13,50 (TB Copper - 80A)	1004260
TB 1,50x13,00 (TB Copper - 100A)	1004258
TB 2,00x13,00 (TB Copper - 125A)	1004259

## TB Conductor Cassette



Conductor cassette shall be used to prevent damage to the conductors while the copper conductors are installed on the busbar.

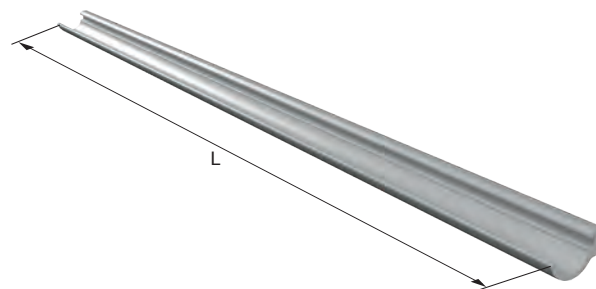
Description	Weight (gr)	Order Code
TB Conductor Cassette	6800	3025151

## TB Conductor Mounting Tool



Description	Weight (gr)	Order Code
TB Conductor Mounting Tool	250	3025143

## TB Gasket



• Continuous length is maximum 300 meters.

• Gasket should be ordered twice the line length.

Description	Weight (gr)	Order Code
TB Gasket Roll (m)	30	1037761

Description	L (mm)	Weight (gr)	Order Code
TB Gasket Straight Length (Pcs.)	4000	120	1037762

## Voltage Drop

The voltage drop in the busbar lines shall be inspected as per the busbar type selected according to the total current calculated based on the ambient temperature and operating period of the system. Maximum acceptable value for voltage drop is 3%.

### For Direct Current

$$\Delta U = 2 \cdot L_t \cdot I_G \cdot R$$

$\Delta U$  = Voltage Drop [V]

### For Mono-Phase Alternative Current

$$\Delta U = 2 \cdot L_t \cdot I_G \cdot Z$$

$I_G$  = Total current [A]

$R$  = Resistance of the busbar [ $\Omega$ /m]

### For Three-Phase Alternative Current

$$\Delta U = \sqrt{3} \cdot L_t \cdot I_G \cdot Z$$

$Z$  = Impedance of the busbar [ $\Omega$ /m]

$L_t$  = Calculated Hole Length [m]

**Note :** Calculation of the current drawn during first start in various motor types;

$I_A$  = Total current drawn in the first start of the motors [A]

For the starting current; Three-phase asynchronous drive in direct start

Slip ring rotor motor

Frequency converter

$I_A$  =  $I_G$  x calculated as 5 to 6

$I_A$  =  $I_G$  x calculated as 2 to 3

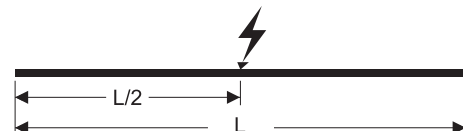
$I_A$  =  $I_G$  x 1,20 to 1,50 calculated between.

## Calculation Of Feeding Points

When we take  $L_t$  as the length of the line, feeding points may be selected as shown in the diagrams below to keep the L voltage drop at minimum and it may be used as the hole length for the calculation of  $L_t$  voltage drop.



1 feeding point from the start,  $L_t = L$



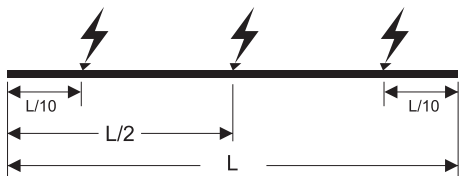
1 feeding point from the center,  $L_t = L/2$



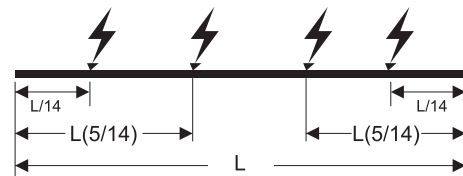
2 feeding points from the start points,  $L_t = L/4$



2 feeding points,  $L_t = L/6$



3 feeding points,  $L_t = L/10$



4 feeding points,  $L_t = L/14$

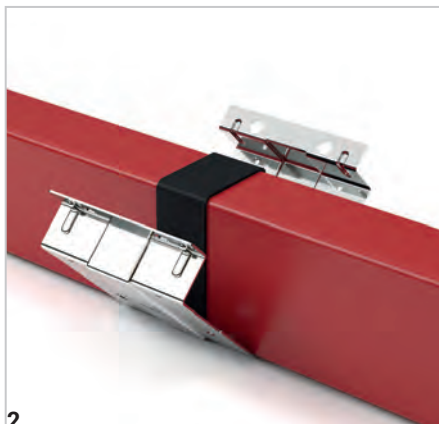
# E-LINE TB

## Installation Manual

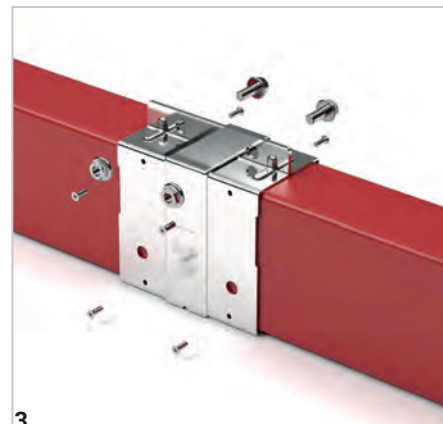
### TB - Installation Of Joint Unit



1  
The joint point is covered using a self adhesive EPDM gasket.

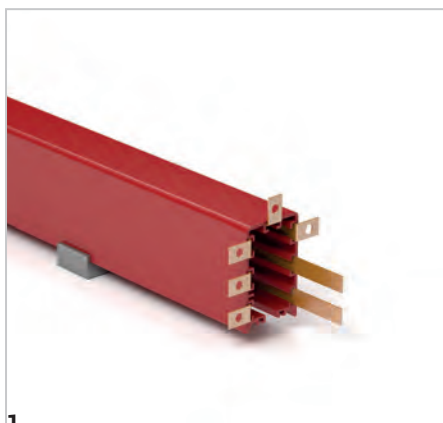


2  
Engage the joint unit to the bottom of the busbar and close it.

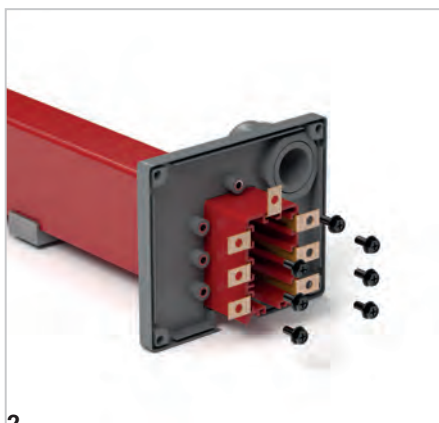


3  
Secure it to the housing with screws.

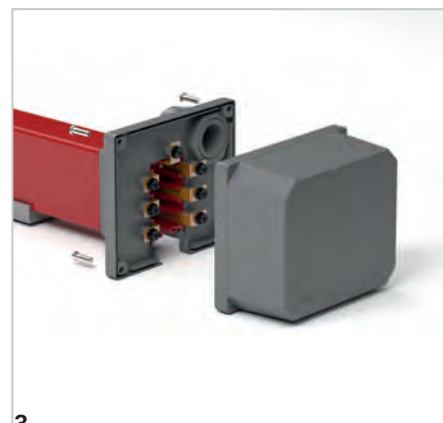
### TB - Feeder Unit



1  
Conductors are bend 90° and pushed into the housing.

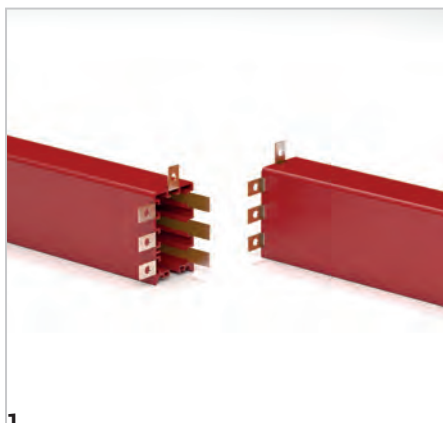


2  
Screw the conductors to the feeding module. Connect the feeding cables by putting them through the cable gland.

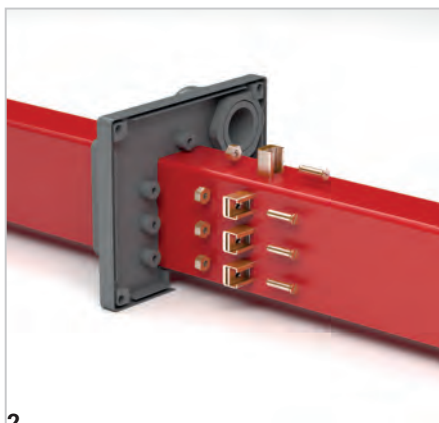


3  
Close the module cover and screw it.

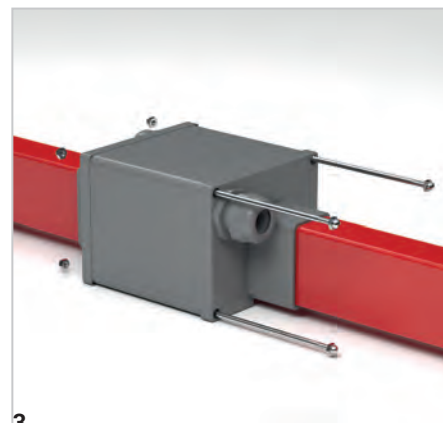
### TB - Line Feed Unit - 2 (Jointed Type)



1  
Conductors are bend 90° and pushed into the housing.



2  
Put conductors back-to-back and join them with clips. Connect the feeding cables to the clips.

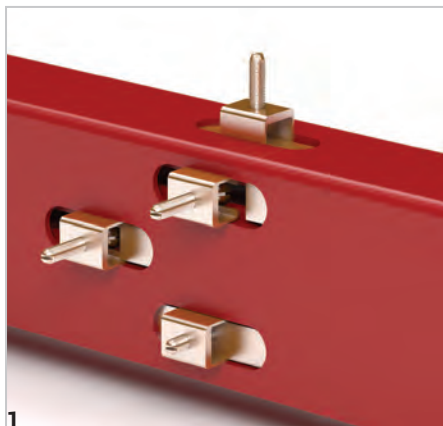


3  
Close the module cover and screw it.

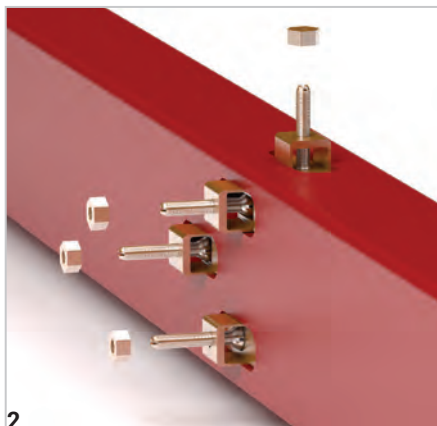
# E-LINE TB

## Installation Manual

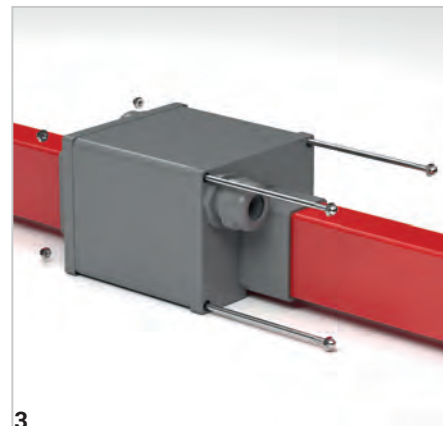
### TB - Line Feed Unit - 1 (Continuous Type)



1  
Put the conductors through the clips and screw them.

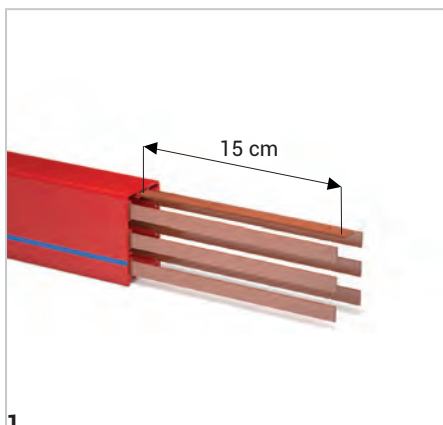


2  
Connect the feeding cables to the clips with nuts.

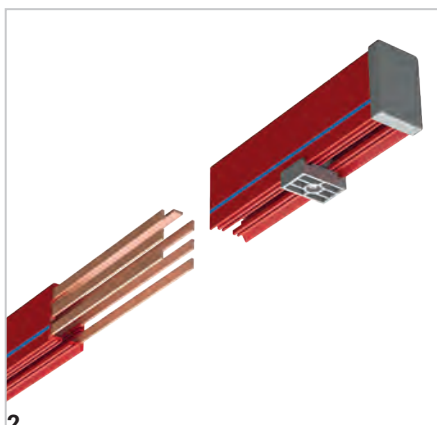


3  
Close the module cover and screw it.

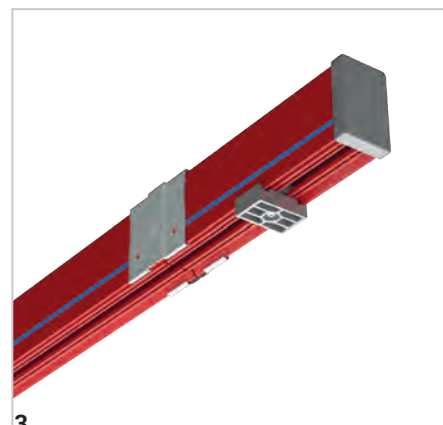
### TB - End Closure



1  
Cut the coppers at the end of the line by leaving a extra length of 15 cm.

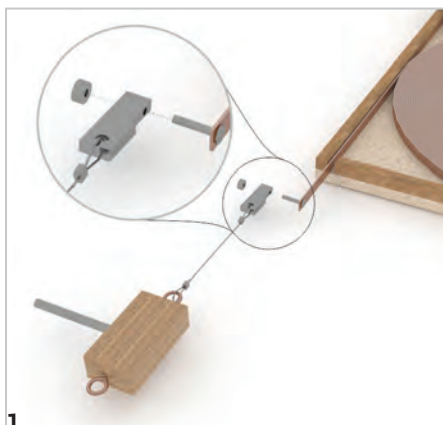


2  
After placing the current collector to the system, place the End Closure so that it shall house the coppers.

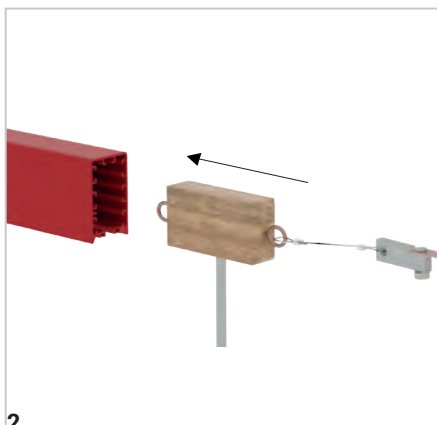


3  
Install it on the system as you do while installing the extension.

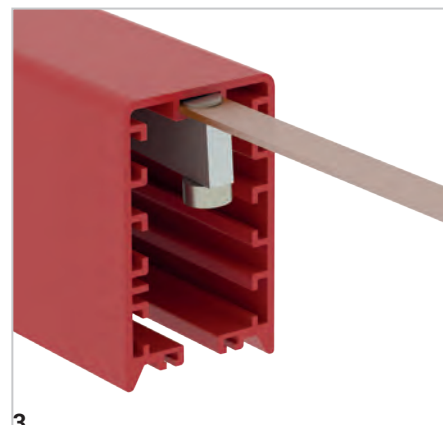
### TB - Conductor Mounting Tool



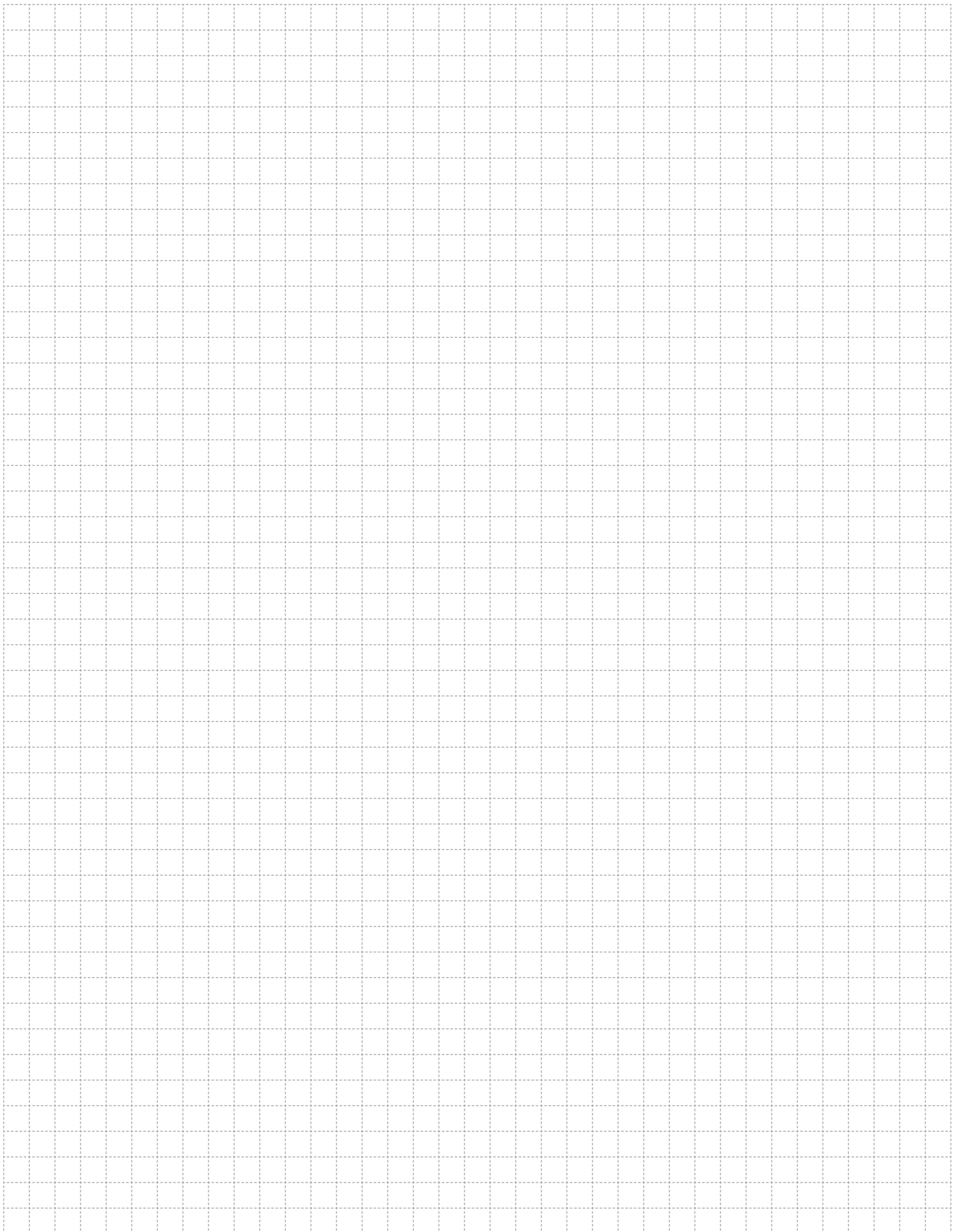
1  
Screw the conductor to the conductor mounting tool.



2  
Drive the conductor mounting tool along the line.



3  
Ensure that the conductor is seated.

A large rectangular area filled with a light gray dashed grid, intended for handwritten notes.



# E-LINE TB

## Offer Request Form



Date :

Project Name	:	
Company	:	
Name Surname	:	
Tel	:	
E-Mail	:	
Address	:	

### General Data

Track Length	:	
Number of Cranes on Track	:	
Crane Travel Speed	:	

### Environmental Data

Operating Environment	:	<input type="checkbox"/> Indoor	<input type="checkbox"/> Outdoor
Ambient Temperature	:	<input type="text"/> °C min.	<input type="text"/> °C max.
Other Operating Conditions (Humidity, Dust, Chemical Influence, etc.)	:		

### Electrical Data

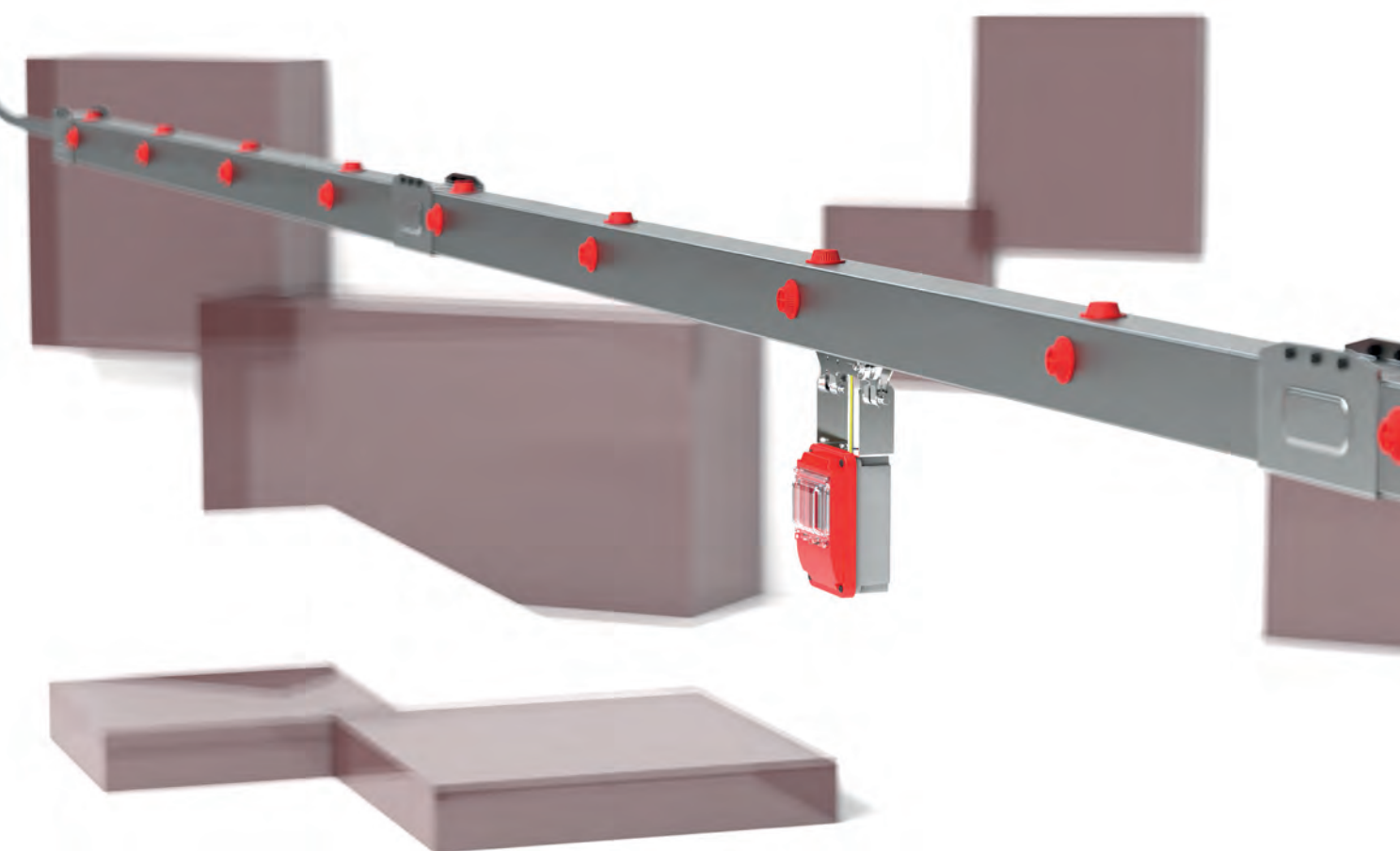
Operating Voltage	:	<input type="text"/> Volts	<input type="checkbox"/> AC	<input type="checkbox"/> DC			
	:	<input type="text"/> Phases	<input type="checkbox"/> N	<input type="checkbox"/> PE			
Position and Number of Feeder	:	<input type="text"/> from End	<input type="text"/> from Middle				
Duty Cycle (%)	:	<input type="checkbox"/> 50%	<input type="checkbox"/> 60%	<input type="checkbox"/> 70%	<input type="checkbox"/> 80%	<input type="checkbox"/> 90%	<input type="checkbox"/> 100%

Motor Specifications	Crane - 1		Crane - 2		Crane - 3	
	Power (kW)	Current (A)	Power (kW)	Current (A)	Power (kW)	Current (A)
Hoist motors	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Auxiliary motor	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Long travel	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Cross travel	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

### Options

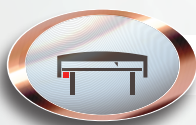
Brackets Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Repair Zone Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Collector Replacement Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Descriptions	:		

Please duplicate this page for your own use.



# E-LINE KT

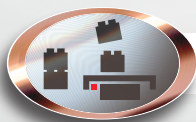
KT



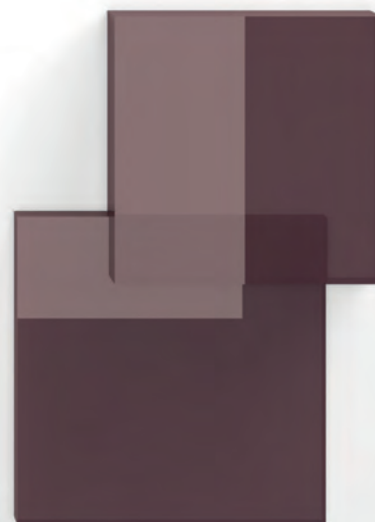
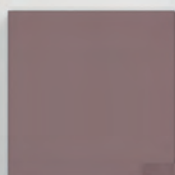
• Textile Cutting and Spreading Tables



• Moving Ceiling and Door Systems



• Assembly and Test Lines



## E-LINE KT

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Trolley Busbar Systems .....	2
KT Trolley Busbar .....	3
KT Feeder Unit .....	4
KT Installation Manual .....	5

# E-LINE KT

## Trolley Busbar Systems



- Textile Cutting and Spreading Tables
- Moving Ceiling and Door Systems
- Assembly and Test Lines

It consists of copper conductors and current collectors in the C-PVC body. The uninterrupted energy supply and movement of the system is provided by current collectors connected to the system mechanically.

The eliminates the possibilities such as accident, malfunction in energy distribution with suspended and reel cable in conventional systems. Conductors are enclosed in C-PVC housing and personnel safety is maximized.

There is no fixed connection between the conductor housings and the conductors and between the C-PVC housing and the sliding hangers, the necessary expansion opportunity is provided, therefore the expansion element is unrequired.

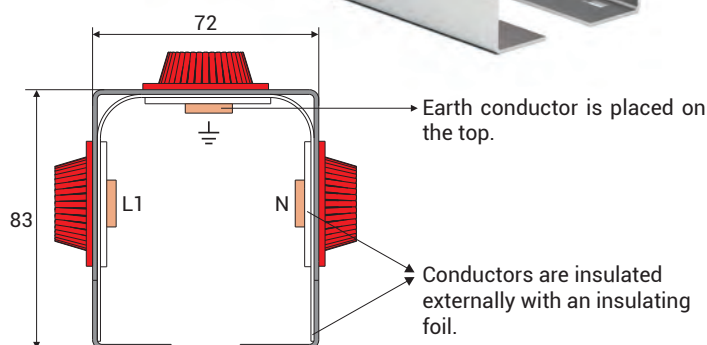
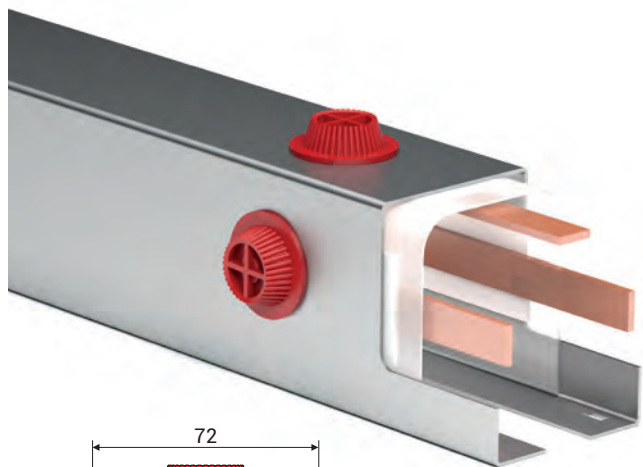
### **Cautions:**

If it is used in external environments exposed to rain, it is recommended to protect it with a cover such as a canopy.





## KT Galvanize Steel Housing Trolley Busbar



- **Number of Conductors:** 3 Conductors
- **Colour :** Metallic
- **Temperature range:** -20°C , +55°C.
- **Standard housing length:** 2,5 meters
- Housing is made of pre-galvanized sheet metal and plastic accessories are made of PA6 raw material.
- Conductors are protected against hand contact inside the housing.

### Standard 2,50 Meters

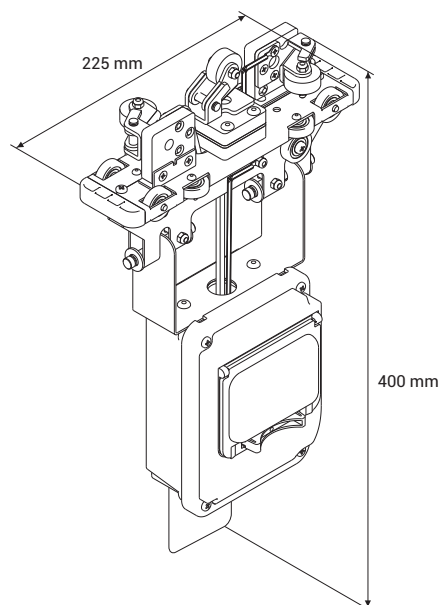
Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm <sup>2</sup> )	Order Code
KT	3P - 100A	4400	3x15	3025172

### Special Length (1,00 - 1,50 - 2,00 Meters)

Model	Conductors Quantity-Current (A)	Weight (gr/m)	Conductor Cross Section (mm <sup>2</sup> )	Order Code
KT	3P - 100A	4400	3x15	3025139

Joint plastics are not included in the weight values.  
Total weight of the joint plastics and bolts is 0.79 Kg.

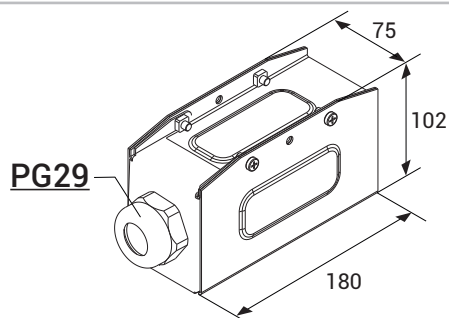
## KT A3 Current Collector



Current collector with round brushes facilitate the movement of the trolley inside the busbar by reducing the friction when the movement in the installation tables are provided by the operating personnel.

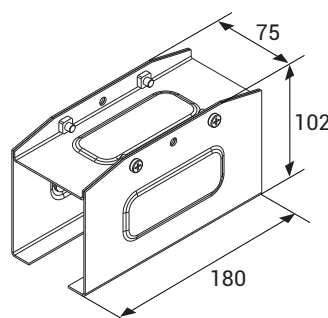
Model	Brushes Number-Current (A)	Weight (gr)	Order Code
KT-A3 Current Collector	3P - 25A	1850	3025166
KT-A3 Current Collector Brush Set		120	2053527

## KT Feeder Unit



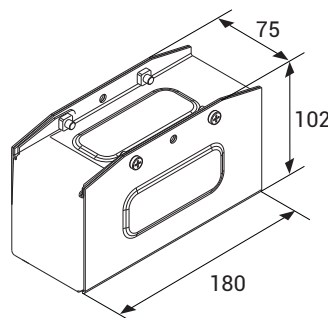
Description	Weight (gr)	Order Code
KT Feeder Unit	1000	3025171

## KT Joint Unit



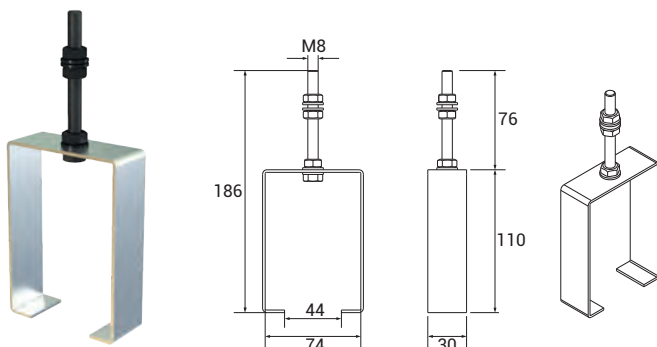
Description	Weight (gr)	Order Code
KT Joint Unit	800	2011166

## KT End Closure



Description	Weight (gr)	Order Code
KT End Closure	900	3025170

## KT Sliding Hanger



Description	Weight (gr)	Order Code
KT Sliding Hanger	200	3025169

Trolley busbar should be mounted with sliding hangers and each hangers should be between 1,30m - 1,50m.

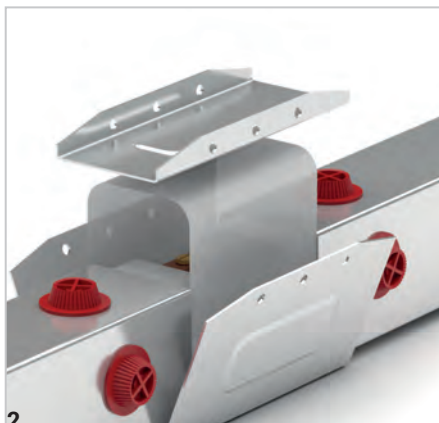
# E-LINE KT

## Installation Manual

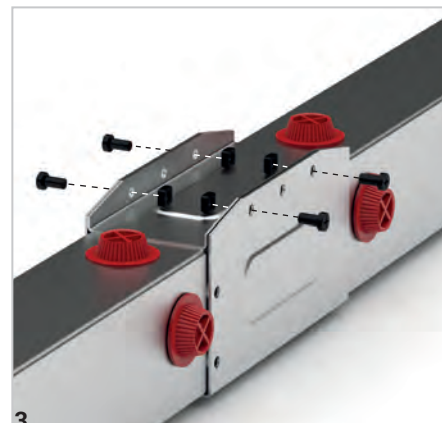
### KT - Installation Of Joint Unit



1  
Connect the coppers with an joint unit.

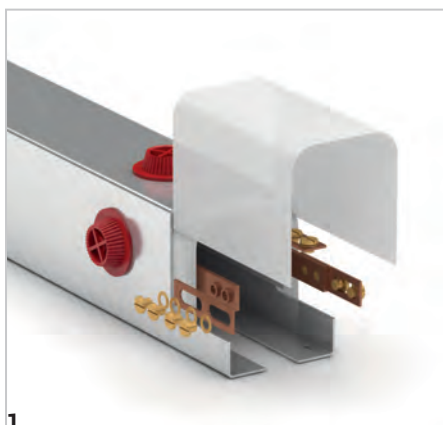


2  
Place the insulating foil and close the covers.

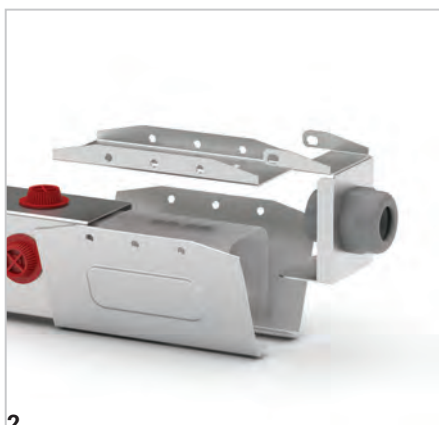


3  
Complete the installation by screwing the covers.

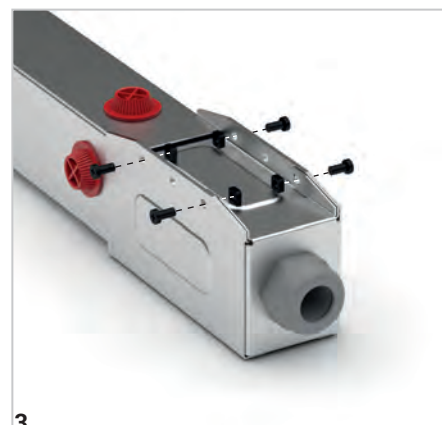
### KT - Feeder



1  
Connect the feeding cables with the windowed tool and place the insulating foil.

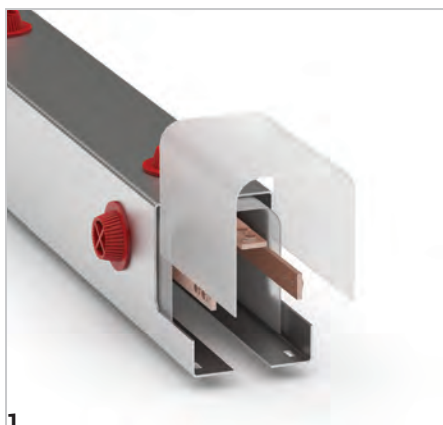


2  
Place the covers.

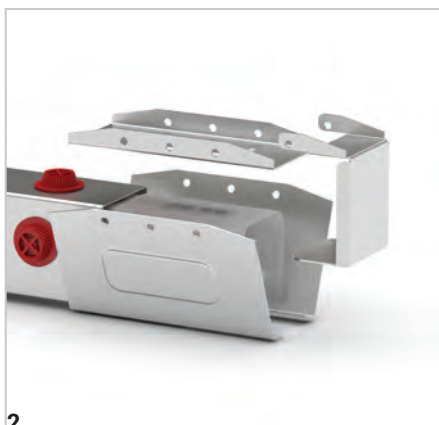


3  
Complete the installation by screwing the covers.

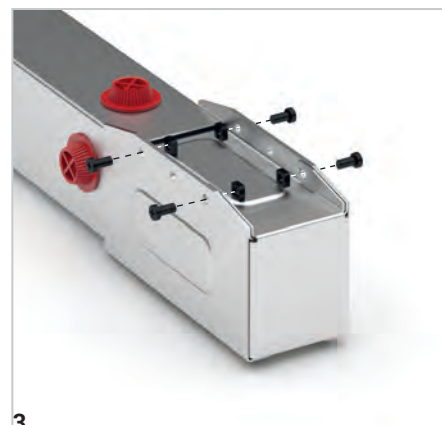
### KT - End Closure



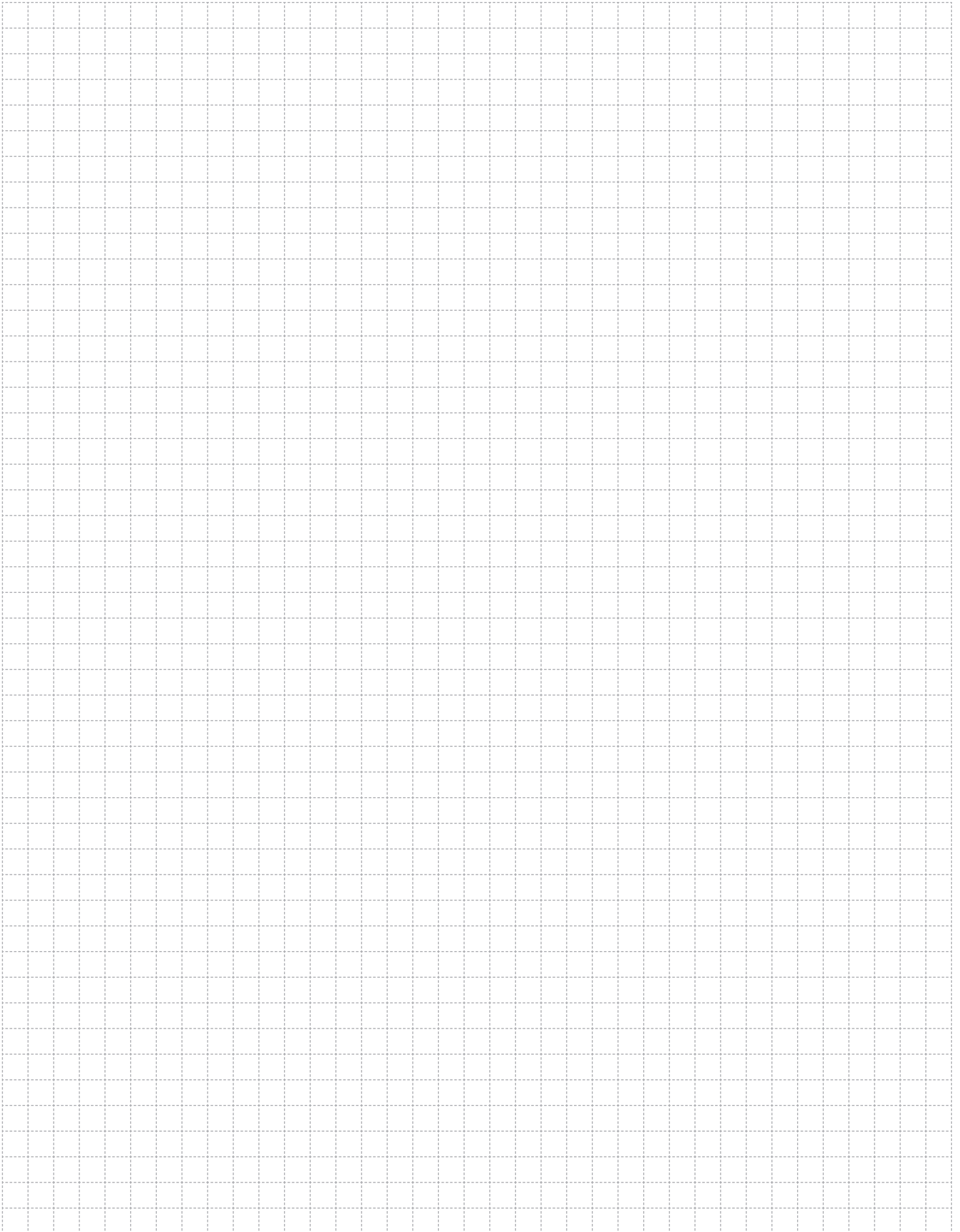
1  
Place the insulating foil.



2  
Install the covers.



3  
Complete the installation by screwing the covers.

A large rectangular area filled with a fine grid of dashed lines, intended for taking notes or drawing diagrams.

# E-LINE KT

## Offer Request Form



Date :

Project Name	:	<input type="text"/>
Company	:	<input type="text"/>
Name Surname	:	<input type="text"/>
Tel	:	<input type="text"/>
E-Mail	:	<input type="text"/>
Address	:	<input type="text"/>

### General Data

Track Length	:	<input type="text"/>
Number of Cranes on Track	:	<input type="text"/>
Crane Travel Speed	:	<input type="text"/>

### Environmental Data

Operating Environment	:	<input type="checkbox"/> Indoor	<input type="checkbox"/> Outdoor
Ambient Temperature	:	<input type="text"/> °C min.	<input type="text"/> °C max.
Other Operating Conditions (Humidity, Dust, Chemical Influence, etc.)	:	<input type="text"/>	

### Electrical Data

Operating Voltage	:	<input type="text"/> Volts	<input type="checkbox"/> AC	<input type="checkbox"/> DC			
	:	<input type="text"/> Phases	<input type="checkbox"/> N	<input type="checkbox"/> PE			
Position and Number of Feeder	:	<input type="text"/> from End	<input type="text"/> from Middle				
Duty Cycle (%)	:	<input type="checkbox"/> 50%	<input type="checkbox"/> 60%	<input type="checkbox"/> 70%	<input type="checkbox"/> 80%	<input type="checkbox"/> 90%	<input type="checkbox"/> 100%

Motor Specifications	Crane - 1		Crane - 2		Crane - 3	
	Power (kW)	Current (A)	Power (kW)	Current (A)	Power (kW)	Current (A)
Hoist motors	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Auxiliary motor	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Long travel	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Cross travel	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

### Options

Brackets Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Repair Zone Required	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Collector Replacement Required:	:	<input type="checkbox"/> Yes	<input type="checkbox"/> No
Descriptions	:	<input type="text"/>	



## DECLARATION

# CE DECLARATION OF CONFORMITY

**Product Group** E-Line TB Trolley Busbar Systems

**Manufacturer** Akcaburgaz Mahallesi, 3114. Sokak,  
No:10 34522 Esenyurt-Istanbul

The objects of the declaration described below is in conformity with the relevant Cable gland harmonisation legislation. This declaration of conformity is issued under the sole responsibility of the manufacturer.

### Standard:

**TS EN 61439-6**

Low-voltage switchgear and controlgear assemblies - Part 6: Busbar trunking systems

### CE - Directive:

2014/35/EU "The Low Voltage Directive"

2014/30/EU "(EMC) Electromagnetic Compatibility Directive"

2011/65/EU "RoHS Directive"

### Technical Document Preparation Official:

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Mustafa AKÇELİK

### Date

20.03.2025

### Document Authorized Signatory

Elif Gamze KAYA OK  
Deputy General Manager

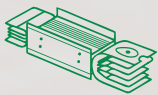


# SUSTAINABLE FUTURE

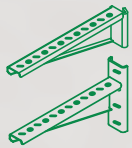
## Sustainability Management at EAE Elektrik



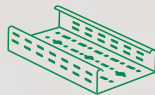
As part of our goal to support sustainable development and green transformation, measuring, evaluating, and managing all economic, environmental, and social impacts resulting from our sustainability practices is a key governance priority for EAE Elektrik. We act with great care in analyzing, monitoring, and managing the economic, environmental, and social impacts and risks that arise throughout our value chain in both our national and global operations.



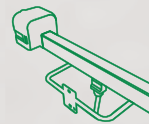
Busbar  
Systems



Support  
Systems



Cable Tray  
Systems



Trolley Busbar  
Systems



Fit-Out  
Solutions

*"We are working together with all our stakeholders to develop the electrical technologies that will build the future."*

You can visit our sustainability website at  
[surdurulebilirlik.eae.com.tr](https://surdurulebilirlik.eae.com.tr)



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