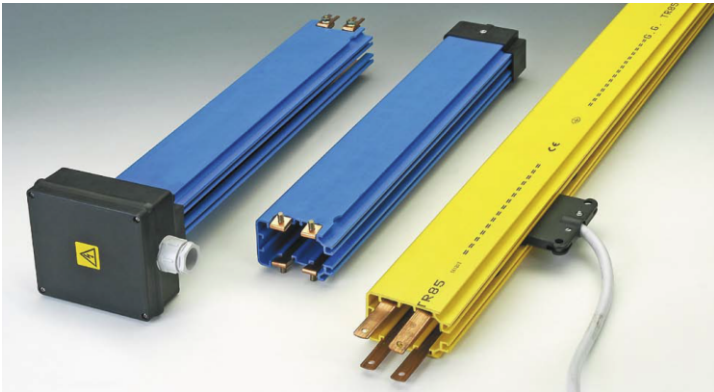




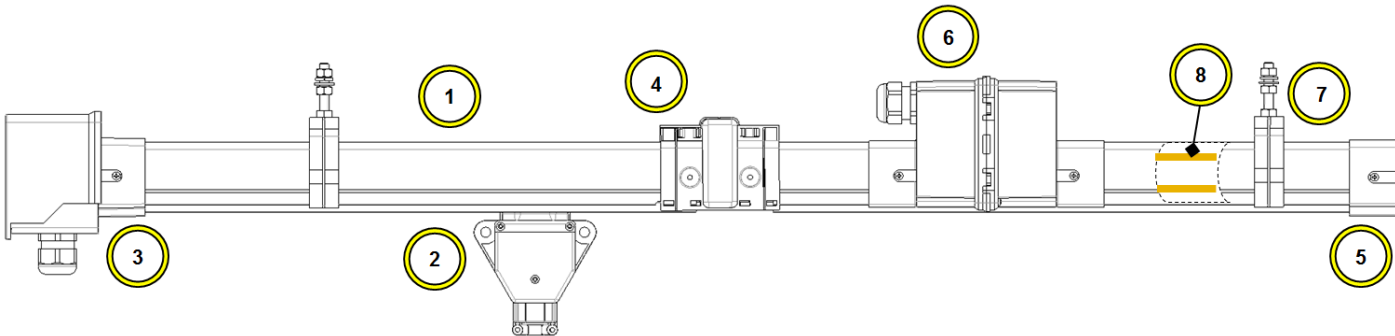
Busbar system – trolley line TR60 and TR85 Giovenzana page 44 to 67

The “trolley system” series conductors rails are modern and safe system for energy and data transmission for various types of equipment such as: cranes - bridge cranes - conveyour belts - chain conveyors - etc...
The “trolley system” complies with the relevant international standards ensuring operator safety, easy of installation and reliability.



- ✓ Worldwide installation: complies with the relevant international standards.
- ✓ Safety: the conductors are protected and insulated by the busbar.
- ✓ Extra quality materials: self-extinguishing and high resistant strenght.
- ✓ Easy & Fast installation: only a simple “click” (NO tools required) is needed to mount almost all items.
- ✓ Flexible: indoor or outdoor installation, all components are designed to tolerate different climate status.
- ✓ Expansion possibilities: a lot of possibilities to expand or customize your line

Typical line schematic



ID	Name	Function
①	Busbar	PVC housing
②	Trolley	transmit the energy from the conductor to the load
③	Feed	connect power supply to the conductors
④	Joint / Fixed point	connect two busbars / create a fixed point
⑤	End Cap	close and protect the busbar end
⑥	In-line feed	avoid the voltage reduction
⑦	Hanger clamp	connect the busbar to the brackets
⑧	Copper strip	transmit the energy from the power supply to the trolley

Busbar line example and module type

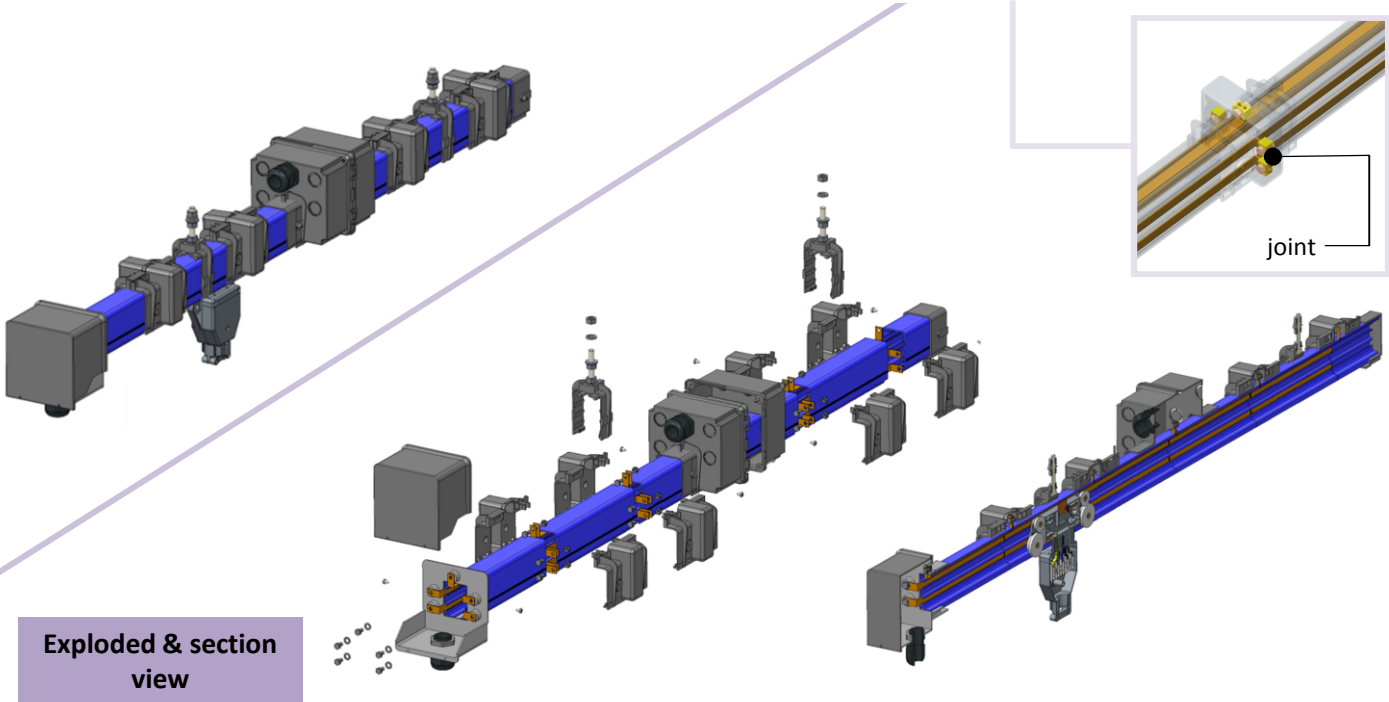
Straight :	3 or 4 meter module
90° curve	standard radius available or customized radius on request
Height drop	available on request



Versions

Blue colour

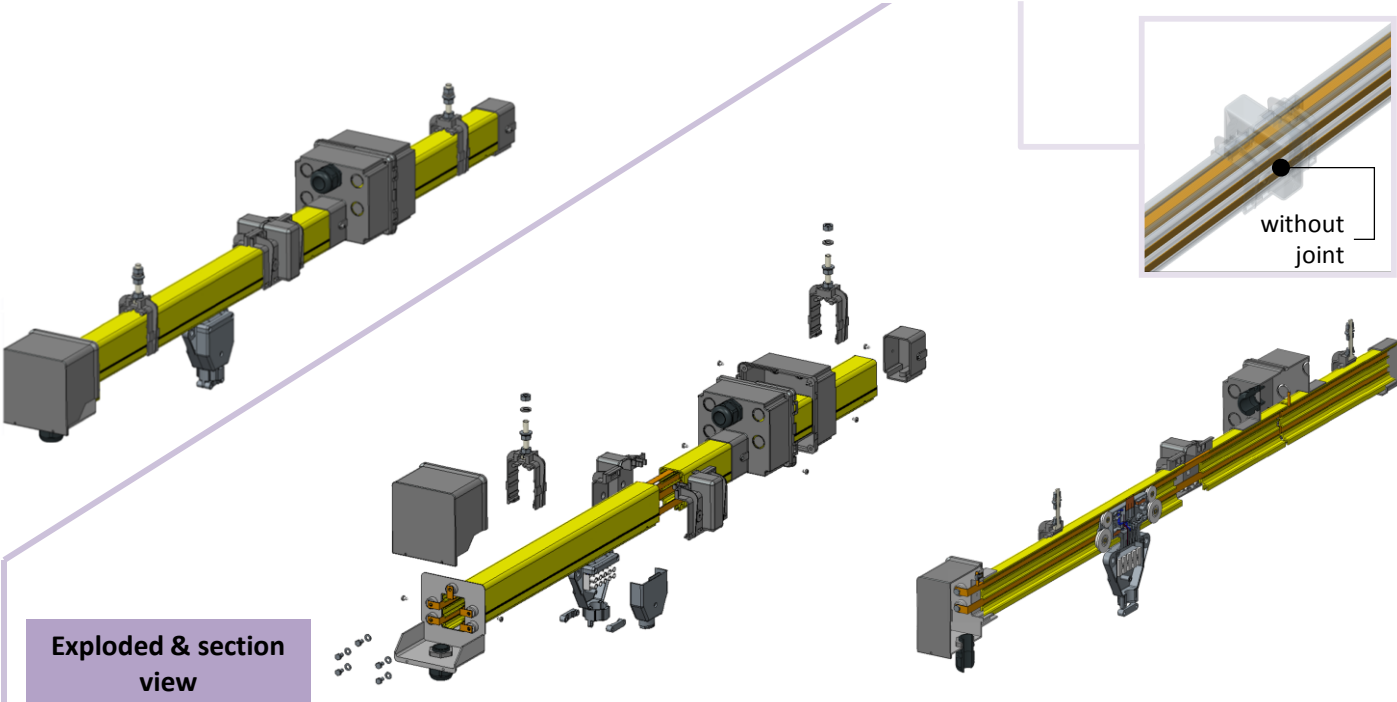
**PRE-MOUNTED CONDUCTORS:** the conductors are already inserted in the plastic casing.  
*very fast installation! Since the conductors are already inserted into the housing, it is only necessary to joint each section of the busbar.*



Exploded & section  
view

Yellow colour

**CONTINUOUS CONDUCTORS:** the conductors strip are pulled from a coil without joints into the already installed casing.  
*long life, minimal and constant voltage reduction! The absence of joints between the conductors permits a long life brushes, plus minimal deposit and ohmmic resistance.*



Exploded & section  
view



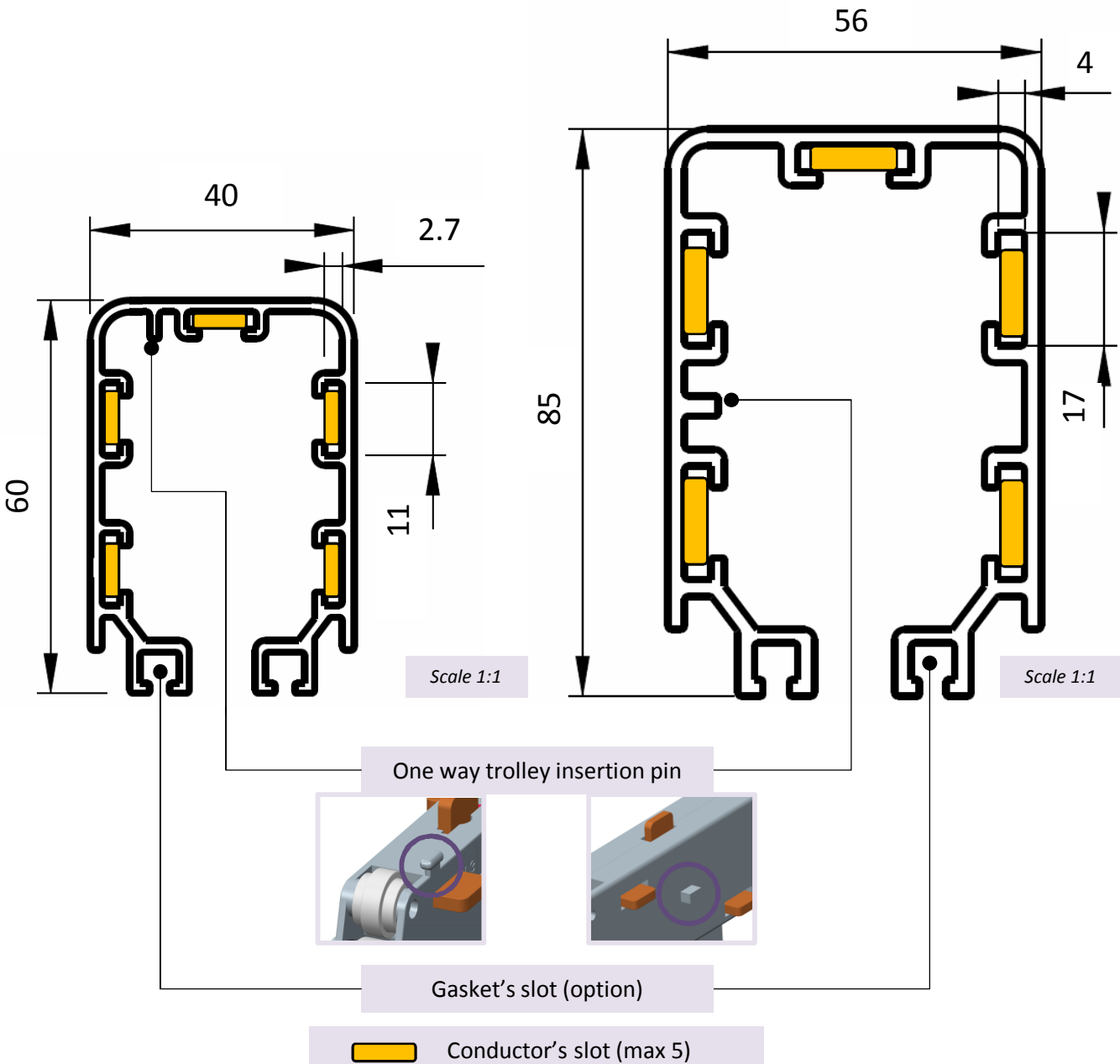
Size

TR60

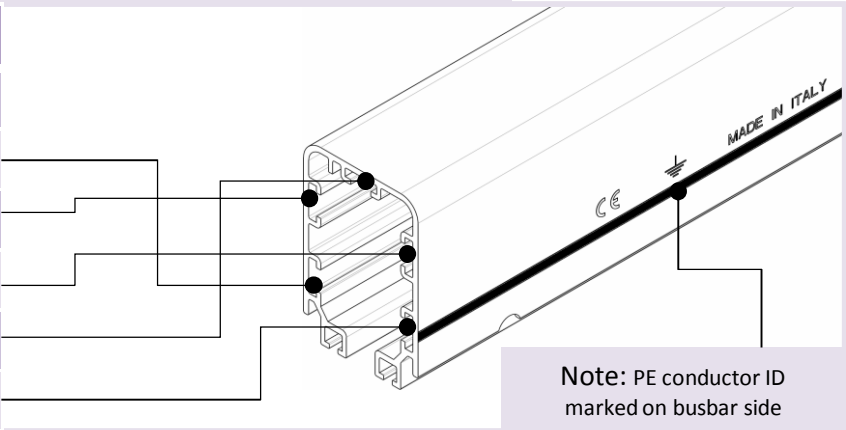
40 - 60 amp

TR85

40 - 70 - 100 - 140 - 200 amp



Power supply	
Type	ID
Phase	R/L1
Phase	S/L2
Phase	T/L3
Neutral	N
Ground	PE





Line construction

- To decide the size of trolleys is necessary to consider:
- Maximum current in service
- Devices (cage motors, slip rings motors, resistors, electronic starters)
- Starting current of the devices
- Maximum ambient temperature
- The distance between device to the nearest power feed
- Voltage and admissible voltage drop in continuous and in starting service
- Type of current
- Devices cycle operations (load factor)

Calculation of the voltage drop

Voltage drop should not exceed 5% of rated voltage in normal operating service

Three phase alternate current:

Legenda:

Delta U = sqrt(3) x I x Lt x Z
Delta U % = (Delta U x 100) / U

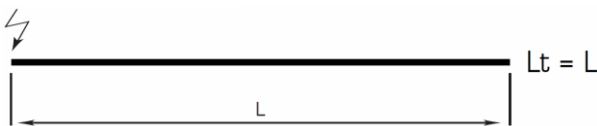
Table with 4 columns: Symbol, Operator, Description, Unit. Rows include Delta U, Delta U %, I, Lt, Z, and U.

Power feed: busbar track length

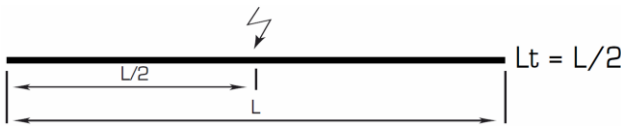
A proper disposal of power feed points minimize the voltage reduction.
If "L" is the lenght of the line, "Lt" is the track maximum length to consider the voltage reduction.

Table with 4 columns: Label, Lt, Operator, L, Description. Rows A, B, C, D show different power feed configurations and their corresponding track lengths.

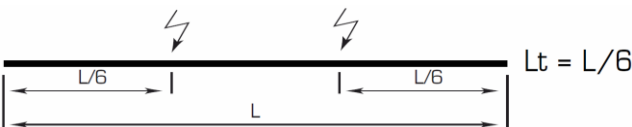
A



B



C



D







Current in continuous service

Specify the number of the devices which work simultaneously to calculate the corresponding current:

$$I_n = I_1 + I_2 + I_3 + \dots$$

The current can be determined from the devices power [W] that for a three phase system is:

$$I_n = \frac{P_u}{\sqrt{3} \cdot U \cdot \cos \varphi \cdot \eta}$$

Legenda:

Table with 4 columns: Symbol, Operator, Description, Unit. Rows include In, Pu, η, U, and cosφ.

In the absence of information on the operation of simultaneous devices, consider the following table:

Table with 5 columns: Numbers of in-line lifting device, 1st engine, 2nd engine, 3rd engine, 4th engine. Rows show combinations of engines for 1 to 5 devices.

(o) about η motors connected in parallel with rated current In', consider In = η • In'

Starting current

Calculate the numbers of the devices started simultaneously and the device already in service, then calculate the corresponding current. If the starting current is unknown, proceed with the following approximation:

$$I_a = K \cdot I_n$$

for a single user

Starting current (Ia)

Nominal current (In)

as a general rule, consider:
K = 5 to 6 for cage motors
K = 2 for winding motors
K = 2 for inverters (frequency converters)

In the absence of information on the operation of simultaneous devices, consider the following table:

Table with 9 columns: Numbers of in-line lifting device, 1st engine (Ia, In), 2nd engine (Ia, In), 3rd engine (Ia, In), 4th engine (Ia, In). Rows show combinations of engines for 1 to 5 devices.



TR85 Blue line (pre-mounted conductors) 70 A – 4 conductors, order example:

To define line overall length is necessary to consider the standard modular length of the busbar, except the curves. These can be obtained with the 3 or 4 meters module. The real length of the line will therefore be higher or lower than the theoretical length assumed or required.

Example of order and composition of a line according to the diagram:

① section 15,250m = 15.250mm

15.250-85 (power feed) = 15.165mm

No.3 busbar 4m = 12.000mm

No.3 busbar 4m = 12.000mm

TR85704C

3

No.1 busbar 3m = 3.000mm

TR85704C3

1

12.000mm+3.000mm = 15.000mm-15.165 = -165mm (lack)

② section 8,750 = 8.750mm

No. 3 busbar 3m = 9.000m

TR85704C3

3

9.000mm – 8.750mm = +250mm (excess)

③ section 7,0m = 7.000mm

15.250-290 (end cap) = 14.960mm

No.3 busbar 4m = 12.000mm

No.1 busbar 4m = 4.000mm

TR85704C

1

No.1 busbar 3m = 3.000mm

TR85704C3

1

7.000mm – 7.000mm = 0

Total busbar length: ① + ② + ③ sector = 31m

Total busbar 4m module

TR85704C

4

Total busbar 3m module

TR85704C3

5

Other items

Power feed from 40A to 140A

TR8503A4

1

End cap from 40A to 200A

TR8506A

1

Hanger clamp from 40A to 140A plastic material

TR8502 (o)

17

Hanger clamp from 40A to 140A steel material

TR8525 (o)

17

Joint from 40A to 200A plastic material  
(the quantity of the joints is equal to the quantity of the busbar +1)

TR8504 (o)

10

(o) add no. 2 hanger clamp for R.1200 to 1.800mm curve  
add no. 3 hanger clamp for R.2.200mm curve

①

②

③

15.250 mm

8.750 mm

L 3.455 mm

L 1.885 mm

7000 mm

PVC rail track

End cap

Line power feed

Sliding hanger

Power feed

R.2200 mm

R.1200 mm

155

240

ENERGY & DATA transmission
49



					TR60				
					YELLOW line		BLUE line		
ID	Name	Function	Specifications		40 A	60 A	40 A	60 A	
①	Busbar	PVC housing	3 meters module		-	TR6000 (w/o conductors)	TR60404C3	TR60604C3	
			3 meters module				TR60405C3	TR60605C3	
			4 meters module				TR60404C	TR60604C	
			4 meters module				TR60405C	TR60605C	
			Curved 90°	(□)	R.1.2 meters 4 conductors	TR60A90	TR60404A90	TR60604A90	
			Curved 90°	(□)	R.1.5 meters 4 conductors	TR60B90	TR60404B90	TR60604B90	
			Curved 90°	(□)	R.1.8 meters 4 conductors	TR60C90	TR60404C90	TR60604C90	
			Curved 90°	(□)	R.2.2 meters 4 conductors	TR60D90	TR60404D90	TR60604D90	
②	Trolley	transmit the energy from the conductor to the load				4 conductors		TR6004 (25 A)	
						5 conductors		TR6005 (25 A)	
③	Feed	connect power supply to the conductors				4 conductors		TR6003	TR6003A4
						5 conductors			TR6003A5
④	Joint / Fixed point	connect two busbars / create a fixed point		Joint		TR6001 (PA66)			
				Fixed point		TR6014			
⑤	End Cap	close the busbar end			TR6006			TR6006A	
⑥	In-line feed	avoid the voltage reduction				4 conductors		TR6008	TR6008A4
						5 conductors			TR6008A5
⑦	Hanger clamp	connect the busbar to the brackets	PA66 material		TR6002 (PA66) – TR6020 (steel) every 1.33 meter max				
⑧	Copper strip	transmit the energy from the power supply to the trolley			CS40	CS60	-(copper strip already inserted)		
-	Support bracket	support the line		Rail fixing	L 350mm	TR8550			
					L 500mm	TR8551			
					L700 mm	TR8552			
				Wall fixing	L 350mm	TR8555			
					L 500mm	TR8556			
-	Towing arm	fixed to the mobile device permits to tow the trolleys			TR8510				
-	Towing arm bracket	permits to the mobile device to tow the trolley			TR6007				
-	Double trolley support	connects two trolley in parallel to increase current rating			TR6013				
-	Gasket IP23	additional protection IP13>IP23			TR6012				
-	Copper strip trolley insertion	specific tool to insert easily the copper strip into the busbar			TR6011		-(copper strip already inserted)		
-	De-coil unit	unwind easily the copper rolls			TR8513		-(copper strip already inserted)		
-	Inspection joint	allow easy trolley's replacement			-		-		
-	Section joint	Isolate two side track			-				
-	Brushes	spare parts			-	-	-	-	



(\*) copper rolls already included in the busbar code
(□) on request available other curve radius

TR85							
YELLOW line			BLUE line				
70 A	100 A	140 A	40 A	70 A	100 A	140 A	200 A
-	-	-	TR85404C3	TR85704C3	TR851004C3	TR851404C3	TR852004C3
-	-	-	TR85405C3	TR85705C3	TR851005C3	TR851405C3	TR852005C3
TR85704 (*)	TR851004 (*)	TR851404 (*)	TR85404C	TR85704C	TR851004C	TR851404C	TR852004C
TR85705 (*)	TR851005 (*)	TR851405 (*)	TR85405C	TR85705C	TR851005C	TR851405C	TR852005C
TR8529A90			TR8529404A90	TR8529704A90	TR85291004A90	TR85291404A90	-
TR8529B90 (R. 1400mm)			TR8529404B90 (R. 1400mm)	TR8529704B90 (R. 1400mm)	TR85291004B90 (R. 1400mm)	TR85291404B90 (R. 1400mm)	-
TR8529C90			TR8529404C90	TR8529704C90	TR85291004C90	TR85291404C90	-
TR8529D90			TR8529404D90	TR8529704D90	TR85291004D90	TR85291404D90	-
TR8511 (35 A) / TR8518 (70 A) / TR8532 (70A articulated used for line with curved busbar)							
TR8512 (35 A) / TR8519 (70 A)							
TR8503			TR8503A4				TR8533A4
			TR8503A5				TR8533A5
TR8501 (PA66) / TR8524 (steel)			TR8504				
TR8527.1							
TR8506			TR8506A				
TR8547							
TR8502 (PA66 not for 200 A) / TR8525 (steel) every 2meters max from 40 to 140 amp - every 1 meter max for 200 amp							
(*)	(*)	(*)	- (copper strip already inserted)	- (copper strip already inserted)	- (copper strip already inserted)	- (copper strip already inserted)	- (copper strip already inserted)
TR8550							
TR8551							
TR8552							
TR8555							
TR8556							
TR8510							
TR6007							
TR8523							
TR8505							
TR8514			- (copper strip already inserted)				
TR8513			- (copper strip already inserted)				
TR8528			-				
TR8545			TR8545B				
TR8517 (35 A) / TR8520 (70 A)							



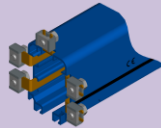
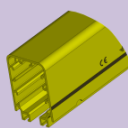
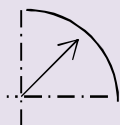



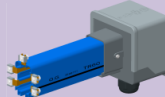


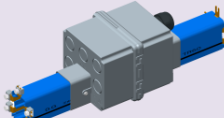
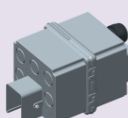
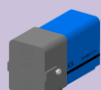




TR60

40 amp
60 amp

Code table list page 1/2

Dimensions see pag 58

Code table list page 1/2			Blue line  pre-mounted conductors			Yellow line  conductors to be pulled		min. qty
Name	Specifications		N° conductors	40 A	60 A	40 A	60 A	
Straight busbar	<div><input type="checkbox"/> Self-extinguishing material</div> <div><input type="checkbox"/> One-way trolley insertion pin.</div> <div>↔ L = length</div>	L meters						
		3	4	TR60404C3	TR60604C3	-	-	3-4 meters
			5	TR60405C3	TR60605C3	-	-	
		4	4	TR60404C	TR60604C	TR6000		
5	TR60405C		TR60605C					
90° curved busbar	<div><input type="checkbox"/> Self-extinguishing material</div> <div><input type="checkbox"/> One-way trolley insertion pin.</div> <div>R = radius </div>	R meters						
		1.2	4	TR60404A90	TR60604A90	TR60A90		1
		1.5		TR60404B90	TR60604B90	TR60B90		
		1.8		TR60404C90	TR60604C90	TR60C90		
2.2	TR60404D90	TR60604D90		TR60D90				
Feed	<div></div> <div><input type="checkbox"/> Fast assembly</div> <div><input type="checkbox"/> M25 cable gland equipped</div>							
		4	TR6003A4			TR6003		1
5	TR6003A5							
In-line feed	<div></div> <div><input type="checkbox"/> Fast assembly (+screw)</div> <div><input type="checkbox"/> M25 cable gland equipped</div>							
		4	TR6008A4			TR6008		1
5	TR6008A5							
End cap	<div><input type="checkbox"/> Self tapping screw fix</div>							
		4	TR6006A			TR6006		1
5								
Copper strip								
						CS40 40 A /10mm²	CS60 60 A /15mm²	(o)

Note (o) "copper strip quantity": will be supplied the total meters according busbar quantity



TR60 40 amp 60 amp
Code table list page 2/2


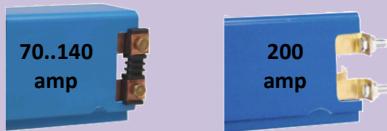

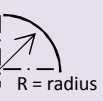




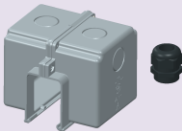



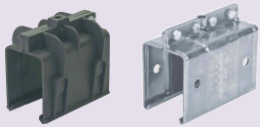


Dimensions see pag 58

Table with columns for Blue line (pre-mounted conductors) and Yellow line (conductors to be pulled), including sub-columns for 40 A and 60 A, and a min. qty column. Rows include various components like Trolley 25 A, Double trolley support, Hanger clamp, Joint, Fixed point, Towing arm, Towing arm bracket, Gasket IP23, Strip insertion trolley, and De-coil unit.



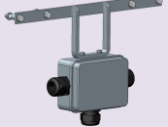


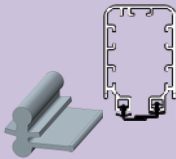






Note (●) "gasket IP23 quantity": (for order please consider twice the length of the line)





<input type="checkbox"/> TR85		40-70-100-140-200 amp				Dimensions see pag 62						
Code table list page 1/2		Blue line <input type="checkbox"/> pre-mounted conductors					Yellow line <input type="checkbox"/> conductors to be pulled			min. qty		
Name	Specifications	N° conductors	40 A	70 A	100 A	140 A	200 A	70 A	100 A	140 A		
Straight busbar	<input type="checkbox"/> Self-extinguishing material <input type="checkbox"/> One-way trolley insertion pin.  ↔ L = lenght	L meters										
								copper strip rolls already included in busbar code				
		3	4	TR85404C3	TR85704C3	TR851004C3	TR851404C3	TR852004C3	-			3-4 meters
		5	TR85405C3	TR85705C3	TR851005C3	TR851405C3	TR852005C3	-				
		4	4	TR85404C	TR85704C	TR851004C	TR851404C	TR852004C	TR85704	TR851004	TR851404	1
5	TR85405C	TR85705C	TR851005C	TR851405C	TR852005C	TR85705	TR851005	TR851405				
90° curved busbar	<input type="checkbox"/> Self-extinguishing material <input type="checkbox"/> One-way trolley insertion pin.   R = radius	R meters										
		1.2	4	TR8529404A90	TR8529704A90	TR85291004A90	TR85291404A90	-	TR8529A90			1
		1.4		TR8529404B90	TR8529704B90	TR85291004B90	TR85291404B90	-	TR8529B90			
		1.8		TR8529404C90	TR8529704C90	TR85291004C90	TR85291404C90	-	TR8529C90			
2.2	TR8529404D90	TR8529704D90		TR85291004D90	TR85291404D90	-	TR8529D90					
Feed	<input type="checkbox"/> M40 cable gland equipped											
		4	TR8503A4				TR8533A4	TR8503		1		
		5	TR8503A5				TR8533A5					
In-line feed	<input type="checkbox"/> Pg29 cable gland equipped (not mounted)							TR8547			1	
End cap	<input type="checkbox"/> Self-tapping screw fixing											
			TR8506A					TR8506			1	
Joint												
			TR8504 (PA66)					TR8501 (PA66) – TR8524 (steel)				
Section joint	<input type="checkbox"/> N°2 Pg29 cable gland equipped <input type="checkbox"/> Insulating strip bars											
			TR8545B					TR8545				



<div><div></div>TR85</div>		40-70-100-140-200 amp		<div><div></div>International</div>		Dimensions see pag 62							
Code table list page 2/2													
Name	Picture	Specifications	Note	Blue line <div><div></div>pre-mounted conductors</div>					Yellow line <div><div></div>conductors to be pulled</div>			min. qty	
				40 A	70 A	100 A	140 A	200 A	70 A	100 A	140A		
35 A trolley		<div><div><input type="checkbox"/> 35 or 70 A load current</div><div><input type="checkbox"/> Self-extinguishing material</div><div><input type="checkbox"/> Fully insulated</div><div><input type="checkbox"/> Metal graphite brushes</div><div><input type="checkbox"/> One-way insertion pin</div><div><input type="checkbox"/> Complete of 1.5m cable CEI 20-22 NPI</div></div>	4 conductors	TR8511								1	
			5 conductors	TR8512									
70 A trolley		<div><div><input type="checkbox"/> One-way insertion pin</div><div><input type="checkbox"/> Complete of 1.5m cable CEI 20-22 NPI</div></div>	4 conductors	TR8518 – TR8532 (articulated used for line with curved busbar)								1	
			5 conductors	TR8519									
Double trolley support		<div><div><input type="checkbox"/> Connects two trolleys in parallel to increase current rating</div></div>		TR8523								1	
Hanger calmp	<div><div><div>Click!</div></div></div>	<div><div><input type="checkbox"/> Fast connection</div><div><input type="checkbox"/> Every 2 meters MAX from 40 to 140 amp</div><div><input type="checkbox"/> Every 1 meter MAX for 200A</div></div>	Pa66 material	TR8502 (not for 200 A)								1	
			Steel material	TR8525									
Fixed point				TR8527.1								1	
Gasket IP23		<div><div>Additional prot. IP13&gt;IP23</div><div><input type="checkbox"/> PVC material</div><div><input type="checkbox"/> Resistance to cold: -30°</div><div><input type="checkbox"/> Stretching 340%</div><div><input type="checkbox"/> Hardness shore A 81</div></div>		TR8505								(●)	
Towing arm		<div><div>Fixed to the mobile device permits to tow the trolley</div><div><input type="checkbox"/> Galvanized steel material</div></div>		TR8510								1	
Towing arm bracket		<div><div>Fixed to the trolley permits to the mobile device to tow the trolley</div><div><input type="checkbox"/> Painted black steel material</div></div>		TR6007								1	
Inspection joint		<div><div>With multiple trolleys allows easy maintenance or replacement of trolleys</div></div>								TR8528		1	
Strip insertion trolley		<div><div>Specific tool to insert easily the copper into the busbar</div></div>								TR8514		1	
De-coil unit		<div><div>Specific tool to easily unwind the copper rolls</div></div>								TR8513		1	
Brushes		Spare parts	35 A	TR8517								1	
			70 A	TR8520									

Note (●) "gasket IP23 quantity": (for order please consider twice the length of the line)



Yellow line  
(conductors to be pulled)



NEED HELP?  
Ask to our technical service

1 Fix the support bars



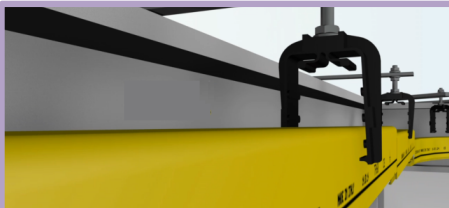
- ☐ TR60 max 1.33 meters
- ☐ TR85 from 40 A to 140 A max 2 meters
- ☐ TR85 200 A max 1 meters

2 Fix the hanger clamp



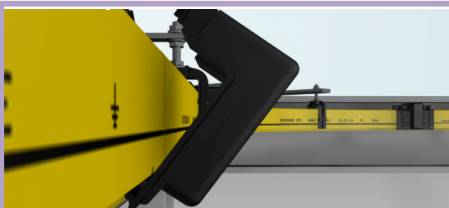
- ☐ Set vertical positions moving up and down the bolt and tighten well

3 Fix the busbar



- ☐ NO tools required

4 Apply all the joints



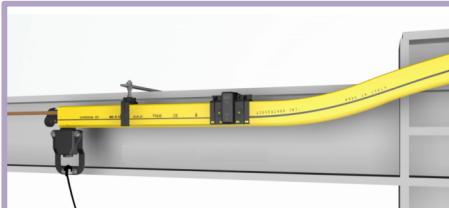
- ☐ TR60 no tools required
- ☐ TR85 fixed by screws

5 Fix the copper strip to the insertion trolley



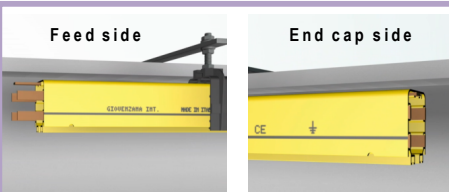
- ☐ Drill the copper strip if not already provided with holes and fix it to the insertion trolley

6 Pull the conductors



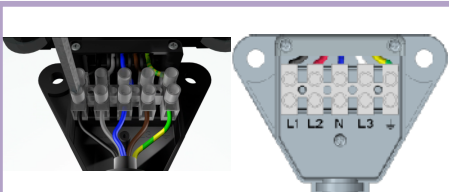
- ☐ Drag the trolley using a rope
- ☐ Repeat the operation for all the conductors
- ☐ Drag one conductor one by one

7 Cut the copper strip



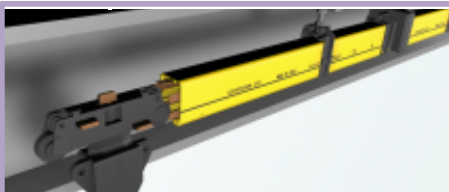
- ☐ Cut the copper strip 50mm out from the busbar (line feed side)
- ☐ Cut the copper strip flush with the busbar (end cap side)

8 Prepare the trolleys



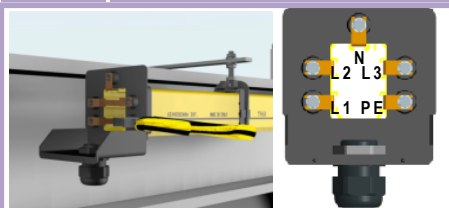
- ☐ TR60: to be cabled: wire the trolley respecting the connections shown
- ☐ TR85 Trolleys are already supplied with the wire

9 Insert the trolley



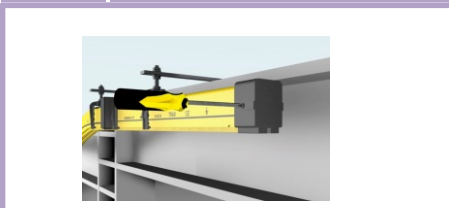
- ☐ One way insertion pin / press in the brushes
- ☐ PE brush corresponding to the continuous black line on the busbar side

10 Mount the feed

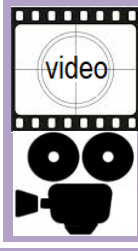


- ☐ Fix the case to the busbar
- ☐ Bend and drill (if not already drilled) the strips
- ☐ Cable the strips as shown/tight the cable gland

11 Mount the end cap

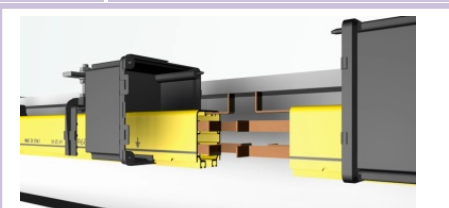


- ☐ Fix the end cap



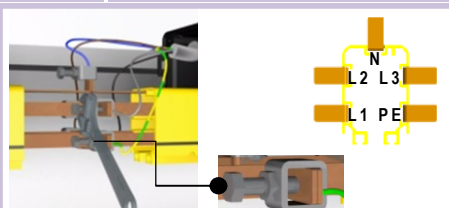
YouTube [www.youtube.com/user/GiovenzanaInt](https://www.youtube.com/user/GiovenzanaInt)

4a If needed mount the in-line feed



- ☐ Put both sides on the busbar
- ☐ Pull & bend the copper conductors
- ☐ Operation recommended to do before point 5

4b Cable the line



- ☐ Cable the strips as shown

4c Close & fix the cover



- ☐ Close and fix both cover
- ☐ Tighten the cable gland



NEED HELP?
Ask to our technical service

Blue line
(pre-mounted conductors)

1 Fix the support bars

- TR60 max 1.33 meters
- TR85 from 40 A to 140 A max 2 meters
- TR85 200 A max 1 meters

2 Fix the hanger clamp

- set vertical positions moving up and down the bolt and tighten well

3 Fix the busbar

- NO tools required

4 Fix each conductors strip

- Fast connection using dedicated clamps

5 Apply all the joints

- TR60 no tools required
- TR85 fixed by screws

6 Prepare the trolleys

- TR60: to be cabled: wire the trolley respecting the connections shown
- TR85 Trolleys are already supplied with the wire

7 Insert the trolley

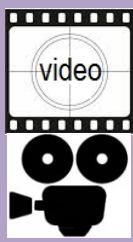
- One way insertion pin / press in the brushes
- PE brush corresponding to the continuous black line on the busbar side

8 Mount the feed

- Fix the conductors of each legs
- Apply joint / cable the strips as shown
- tight the cable gland and close with the cover

9 Mount the end cap

- Fix the end cap / apply joint



YouTube www.youtube.com/user/GiovenzanaInt

3a If needed mount the in-line feed

- Fix the conductors of each side
- Apply joint

3b Cable the line

- Cable the strips as shown

3c Close & fix the cover

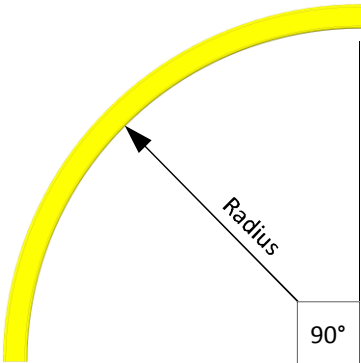
- Close and fix both cover
- Tight the cable gland



compatible with blue line (pre-mounted conductors) [blue square icon] compatible with yellow line (conductors to be pulled) [yellow square icon]

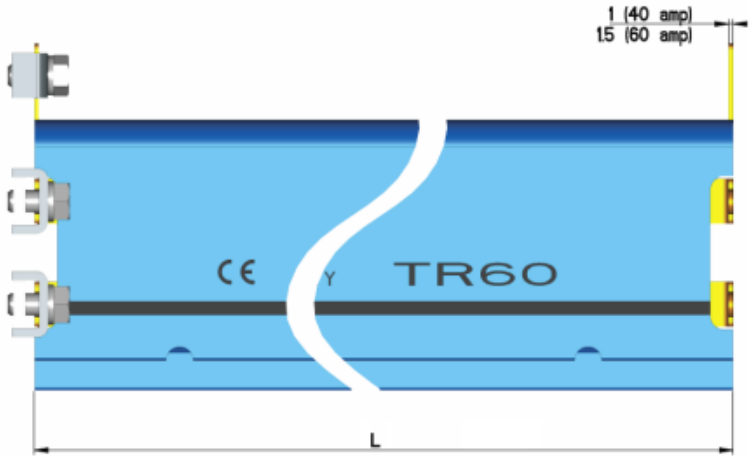
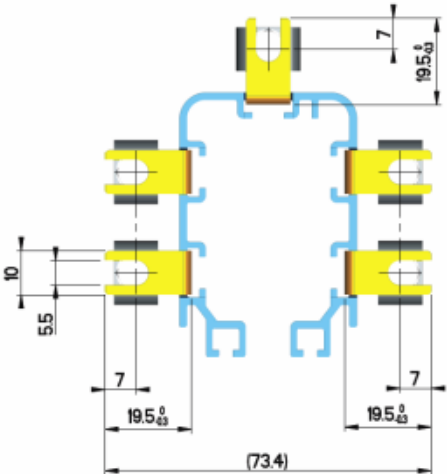
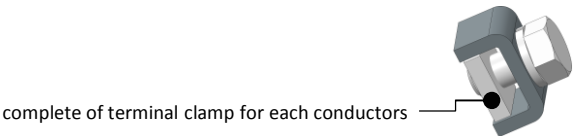
TR6000 TR60 line busbar [yellow square icon]

Radius [meters]	40 amp
1.2	TR60A90
1.5	TR60B90
1.8	TR60C90
2.2	TR60D90
4 conductors only can be pulled	

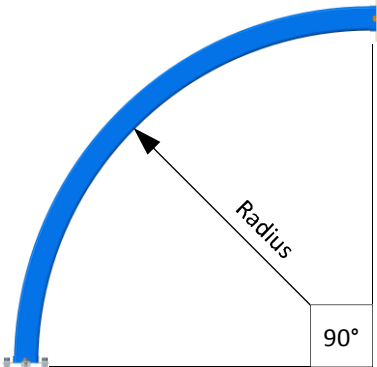


TR60404C3-TR60405C3-TR60404C-TR60405C TR60 line pre-mounted busbar [blue square icon]  
TR60604C3-TR60605C3-TR60604C-TR60605C

Line	Amp	N° conductors	Bar length "L"
TR60	40= 40 amp	4C= four	No extension = 4meters 3= three meters
	60= 60 amp	5C= five	



Radius [meters]	40 amp	60 amp
1.2	TR60404A90	TR60604A90
1.5	TR60404B90	TR60604B90
1.8	TR60404C90	TR60604C90
2.2	TR60404D90	TR60604D90
4 conductors only		







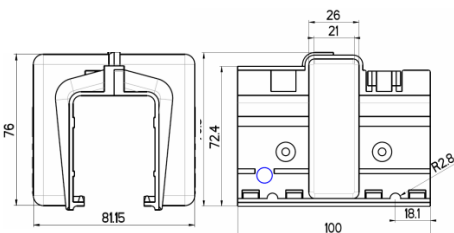
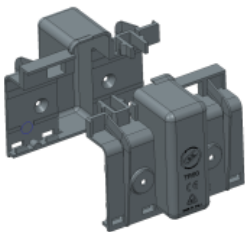
compatible with blue line
(pre-mounted conductors)



TR6001

TR60 line

joint



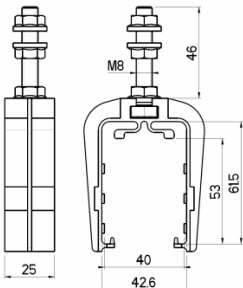
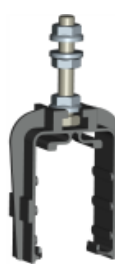
compatible with yellow line
(conductors to be pulled)



TR6002

TR60 line

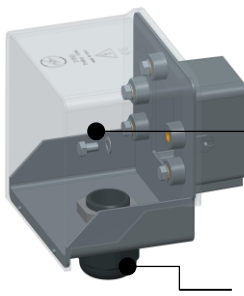
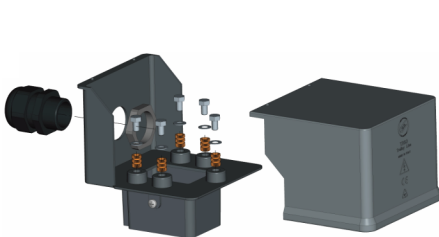
hanger clamp



TR6003

TR60 line

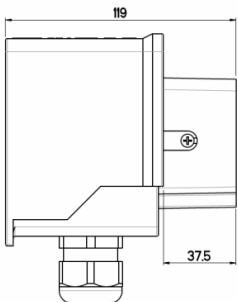
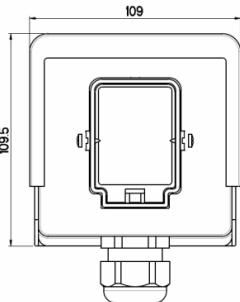
feed



5x M5x8

2x 3.5x9.5 self tapping

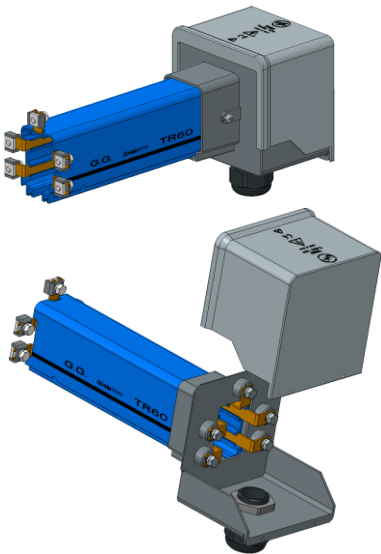
M25



TR6003A4-TR6003A5

TR60 line

pre-mounted feed

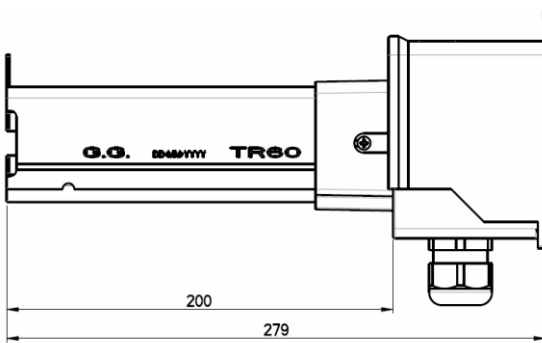


TR6003A4

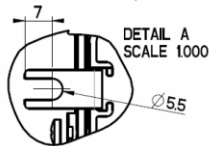
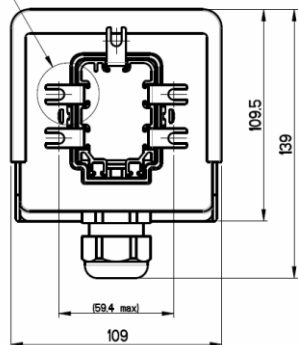
4 poles
L1-L2-L3-PE

TR6003A5

5 poles
L1-L2-L3-N-PE



DETAIL A



TR6004 - TR6005

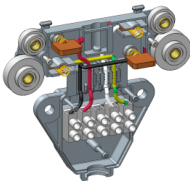
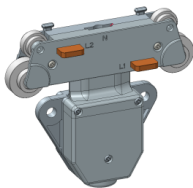
TR60 line

trolley



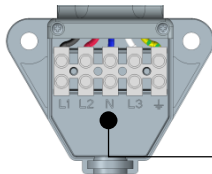
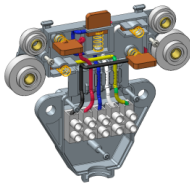
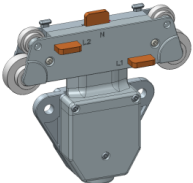
TR6004

4 poles
L1-L2-L3-PE

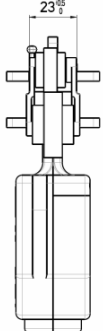
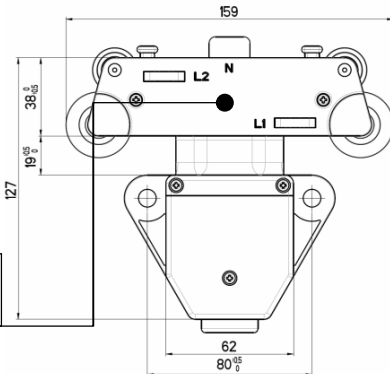


TR6005

5 poles
L1-L2-L3-N-PE



connection rif.
markings







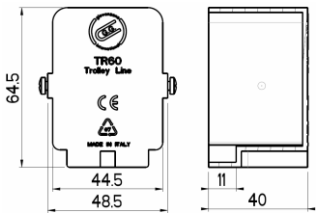
compatible with blue line
(pre-mounted conductors)



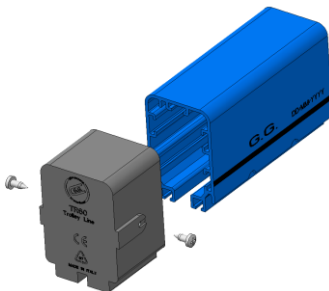
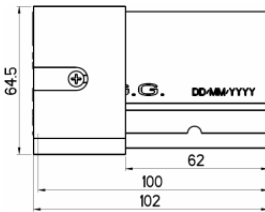
compatible with yellow line
(conductors to be pulled)



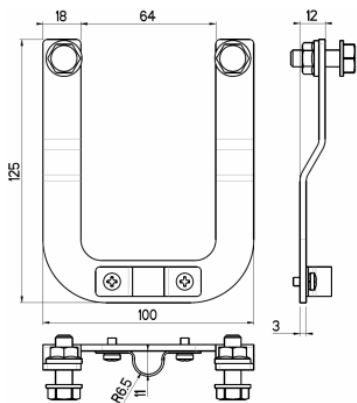
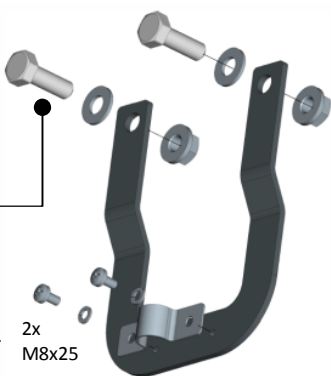
TR6006 TR60 line end cap



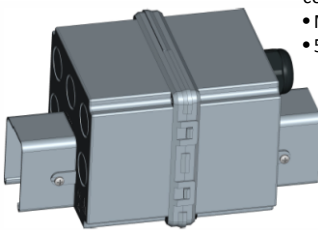
TR6006A TR60 line pre-mounted end cap



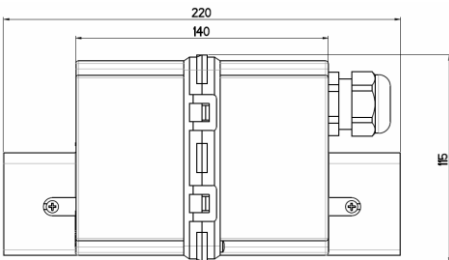
TR6007 TR60-85 line towing arm bracket



TR6008 TR60 line in-line feed



- complete of:
• M25 cable gland
• 5x terminal clamp



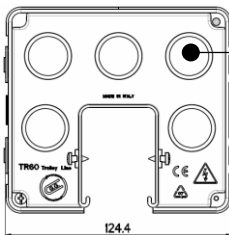
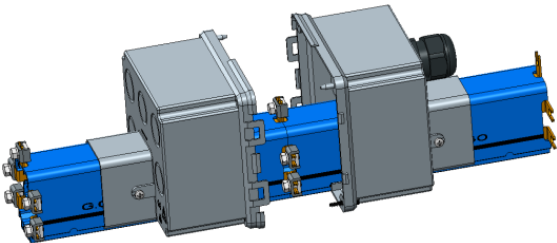
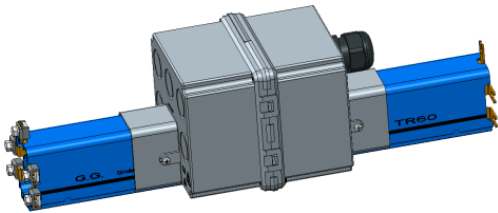
TR6008A4-TR6008A5 TR60 line pre-mounted in-line feed

TR6008A4

4 poles
L1-L2-L3-PE

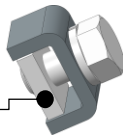
TR6008A5

5 poles
L1-L2-L3-N-PE

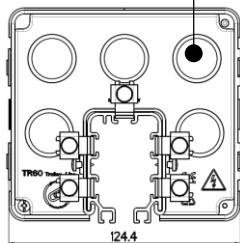
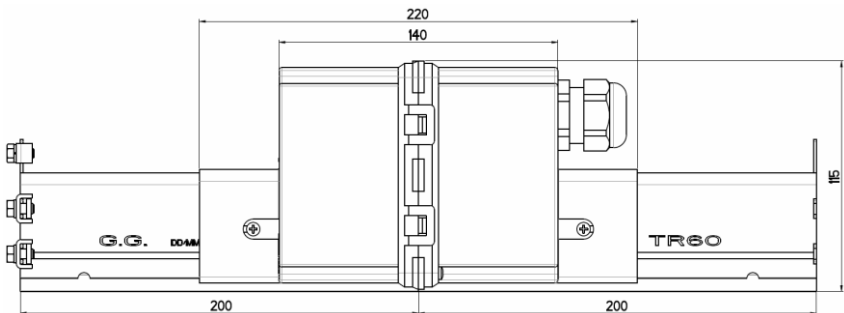


6x M25 closed spot

complete of terminal clamp for each conductors



5x M25 closed spot





compatible with blue line  
(pre-mounted conductors)



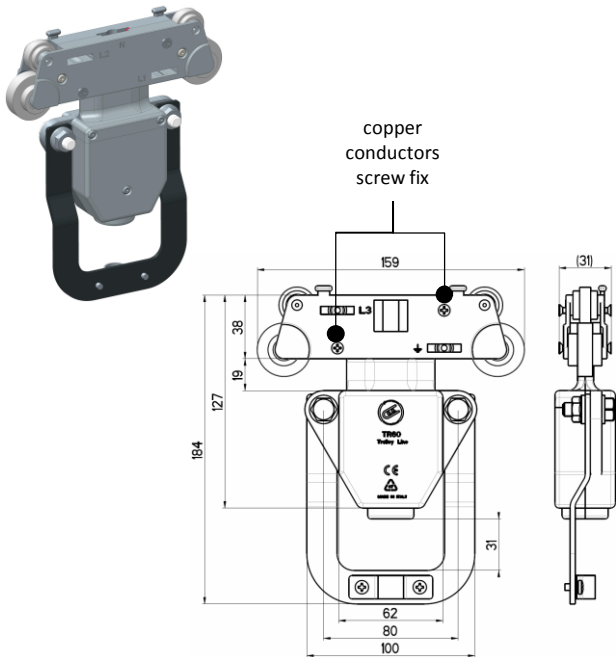
compatible with yellow line  
(conductors to be pulled)



TR6011

TR60 line

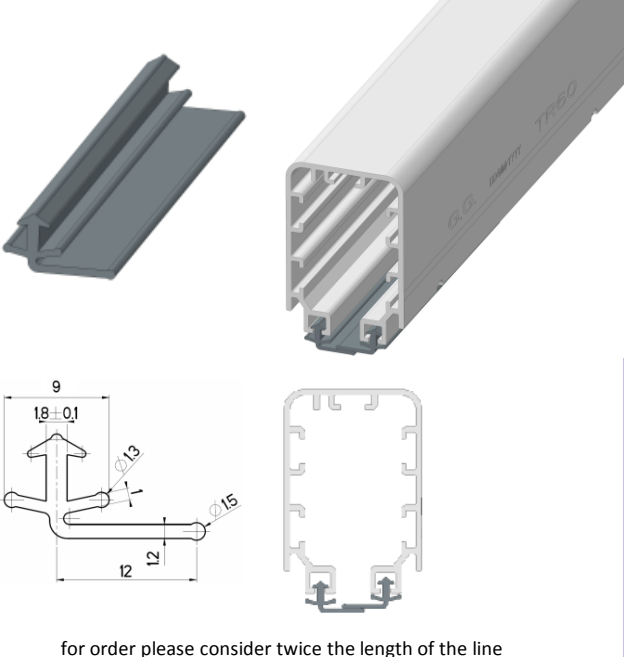
strip insertion trolley



TR6012

TR60 line

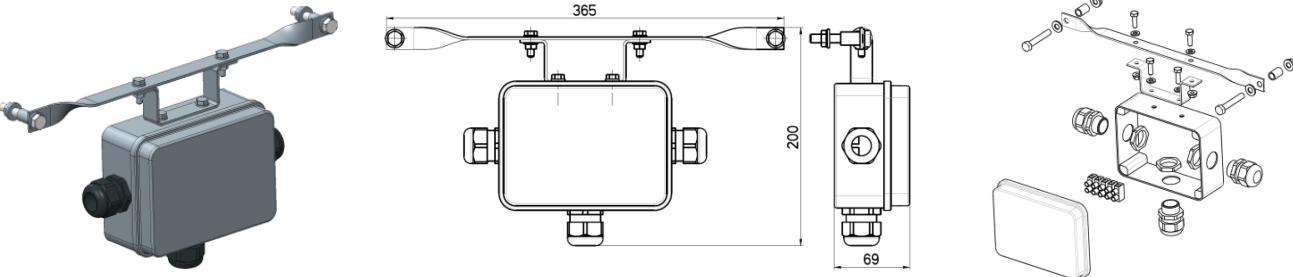
gasket IP23



TR6013

TR60 line

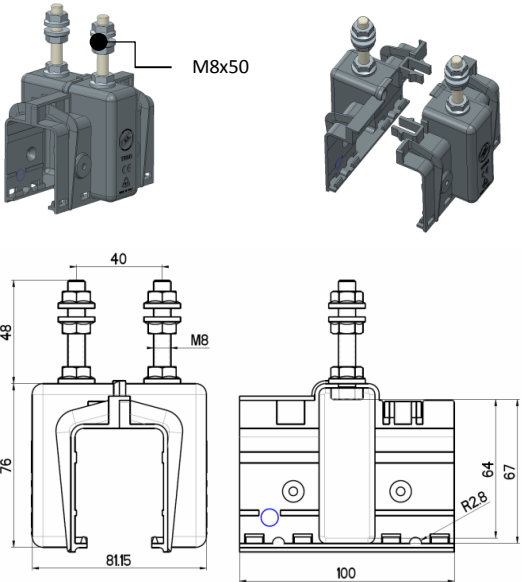
double trolley support



TR6014

TR60 line

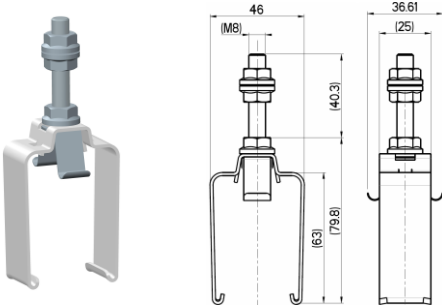
fixed point



TR6020

TR60 line

hanger clamp (steel)



CS40-CS60

TR60 line

copper strip



CS40

40 amp  
10 mm<sup>2</sup>  
1 x 10 mm<sup>2</sup>

CS60

60 amp  
15mm<sup>2</sup>  
1.5 x 10 mm<sup>2</sup>

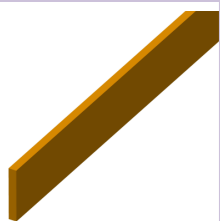




Table with 4 columns: Compatibility (blue line/pre-mounted conductors), Color (blue), Logo, Compatibility (yellow line/conductors to be pulled), and Product List (TR85404C3-TR85405C3-TR85404C-TR85405C, TR85704C3-TR85705C3-TR85704C-TR85705C, TR851004C3-TR851005C3-TR851004C-TR851005C, TR851404C3-TR851405C3-TR851404C-TR851405C, TR852004C3-TR852005C3-TR852004C-TR852005C).

Technical drawings and specifications for the 40A.....140A Series and 200A Series busbars. Includes cross-sections, side views, and a table of dimensions.

Line	Amp	N° conductors	Length bar "L"
TR85	40= 40 amp 70= 70 amp 100= 100 amp 140= 140 amp 200= 200 amp	4C = four 5C= five	No extension = 4meters 3= three meters

Table with 5 columns: Radius [meters], Amp (40, 70, 100, 140), and Product codes (e.g., TR8529404A90, TR8529704A90, TR85291004A90, TR85291404A90). Includes a diagram of a 90-degree bend with radius.

Table with 4 columns: Product codes (TR85704-TR85705, TR851004-TR851005, TR851404-TR851405), TR85 line, busbar, and Color (yellow).

Technical drawings and specifications for the 40 amp busbar system. Includes cross-sections, side views, and a table of dimensions.

Line	Amp	N° conductors	Bar lenght "L"
TR85	70= 70 amp 100= 100 amp 140= 140 amp	4C = four 5C= five	4meters

Radius [meters] vs 40 amp table:

Radius [meters]	40 amp
1.2	TR8529A90
1.4	TR8529B90
1.8	TR8529C90
2.2	TR8529D90

4 conductors only can be pulled



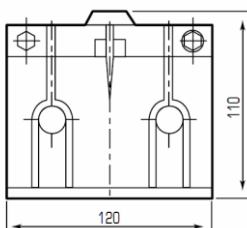
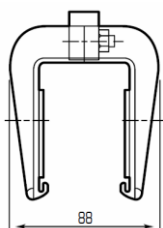
compatible with blue line  
(pre-mounted conductors)



TR8501

TR85 line

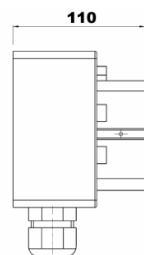
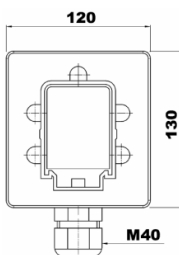
joint



TR8503

TR85 line

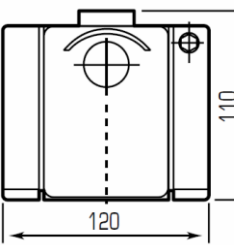
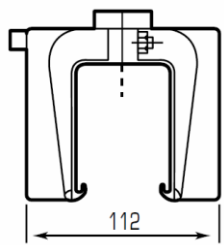
feed



TR8504

TR85 line

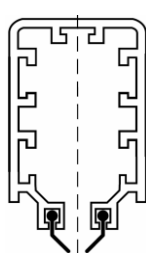
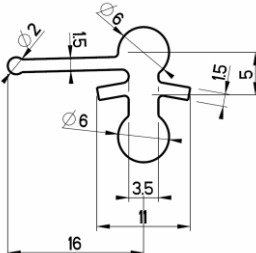
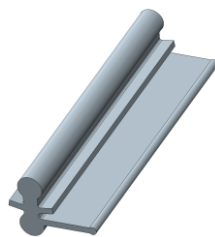
joint



TR8505

TR85 line

gasket IP23

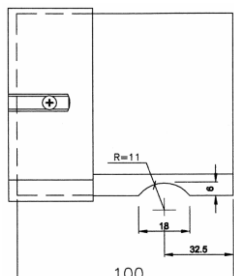


for order please consider twice the length of the line

TR8506A

TR85 line

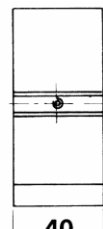
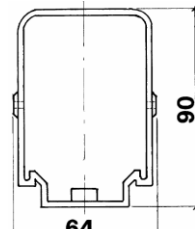
pre-mounted end cap



TR8506

TR85 line

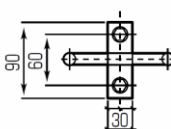
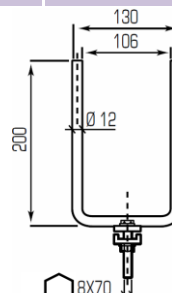
end cap



TR8510

TR60-85 line

towing arm



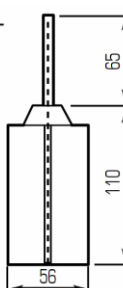
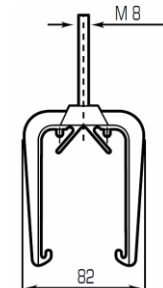
compatible with yellow line  
(conductors to be pulled)



TR8502

TR85 line

hanger clamp

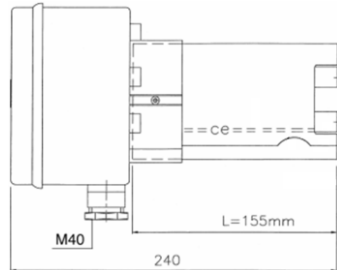


TR8503A4-TR6003A5

TR8533A4-TR8533A5

TR85 line

pre-mounted feed



TR8503A4  
(40...140amp)

4 poles  
L1-L2-L3-PE

TR8533A4  
(200amp)

TR8503A5  
(40...140amp)

5 poles  
L1-L2-L3-N-PE

TR8533A5  
(200amp)



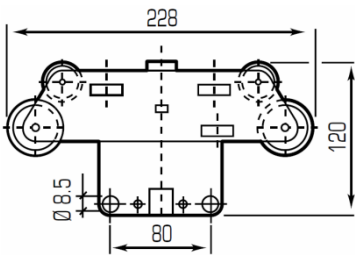
compatible with blue line  
(pre-mounted conductors)



compatible with yellow line  
(conductors to be pulled)



☐ **TR8511-TR8512** TR85 line 35 amp trolley 




☐ **TR8511**

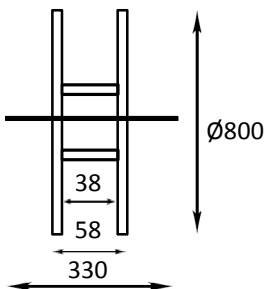
4 poles  
L1-L2-L3-PE

☐ **TR8512**

5 poles  
L1-L2-L3-N-PE

- ☐ Ball bearing wheels
- ☐ Complete of L 1500mm CEI 20-22 NPI cable

☐ **TR8513** TR60-85 line de-coil unit 



☐ **TR8517-TR8520** TR85 line brush 




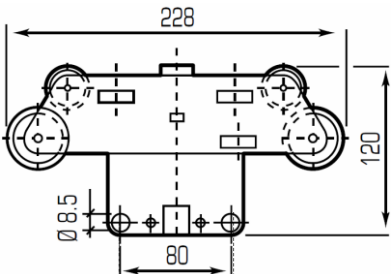
☐ **TR8517**

for 35 amp  
trolley

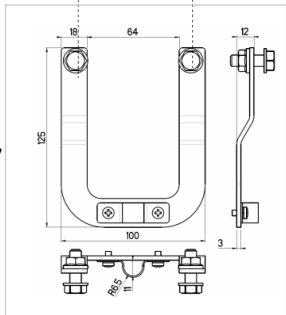
☐ **TR8520**

for 70 amp  
trolley

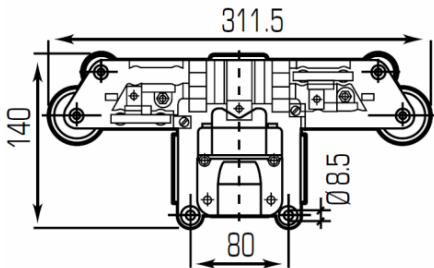
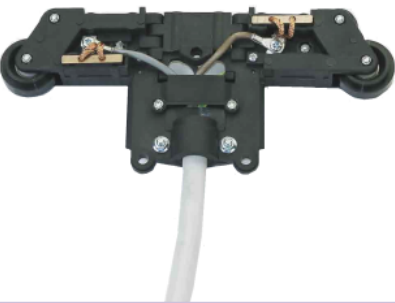
☐ **TR8514** TR85 line strip insertion trolley 



TR6007



☐ **TR8505** TR85 line 70 amp trolley 



☐ **TR8518**

4 poles  
L1-L2-L3-PE


☐ **TR8519**

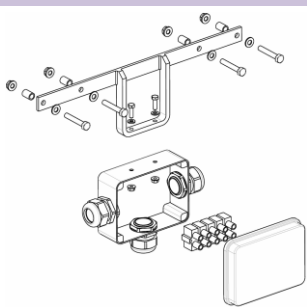
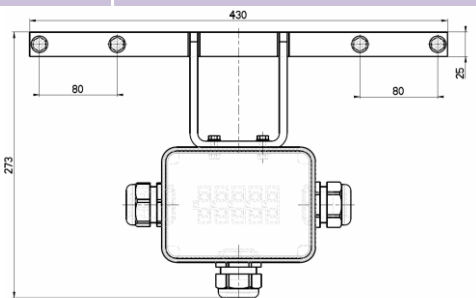
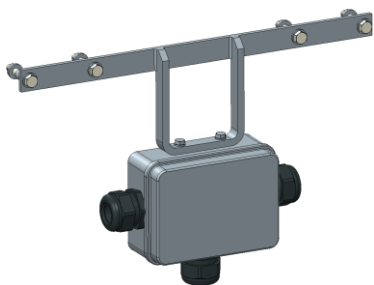
5 poles  
L1-L2-L3-N-PE

☐ **TR8532**

4 poles  
L1-L2-L3-PE  
articulated  
for curves

- ☐ Ball bearing wheels
- ☐ Complete of L 1500mm CEI 20-22 NPI cable

☐ **TR8523** TR85 line double trolley support 



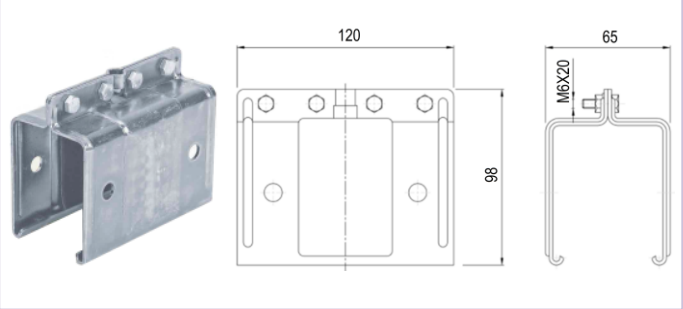




compatible with blue line  
(pre-mounted conductors)



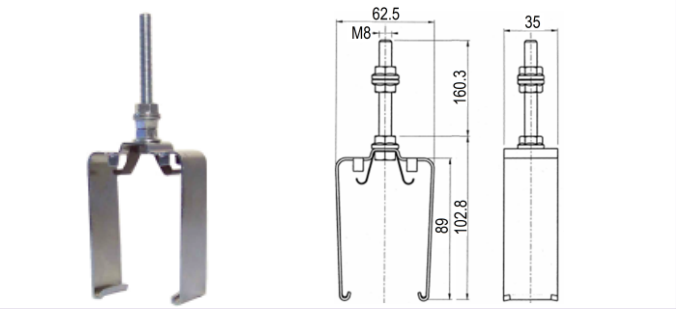
TR8524 TR85 line joint (steel)



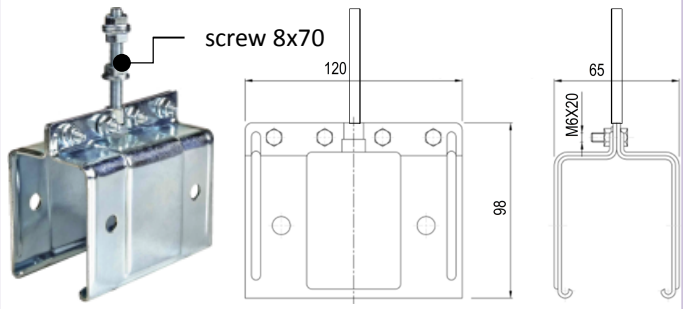
compatible with yellow line  
(conductors to be pulled)



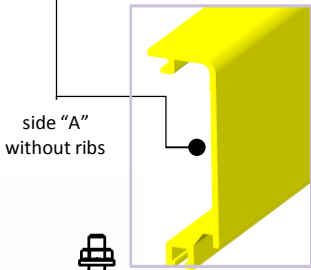
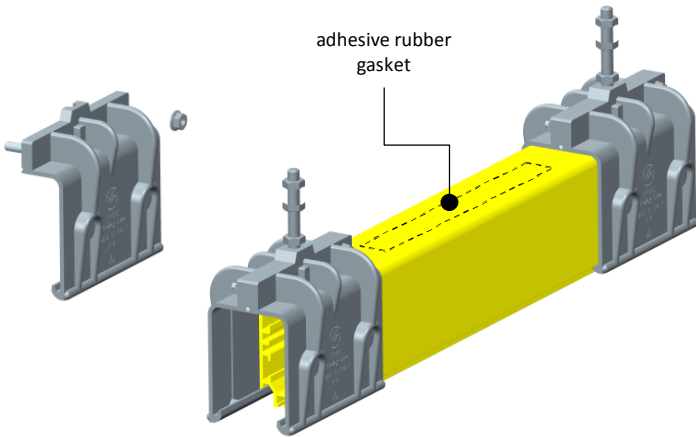
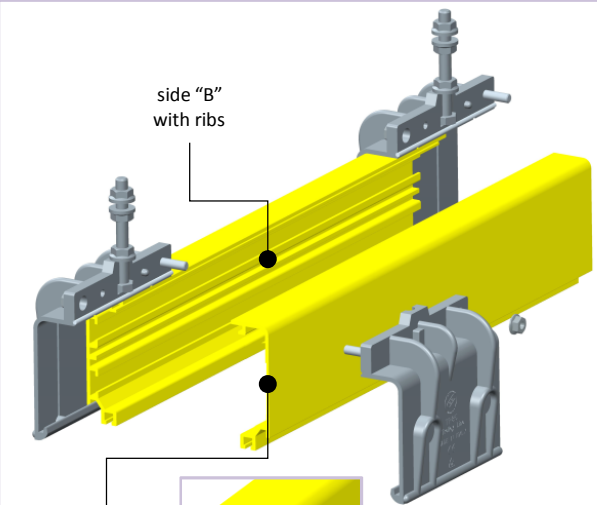
TR8525 TR85 line hanger clamp (steel)



TR8527.1 TR85 line fixed point

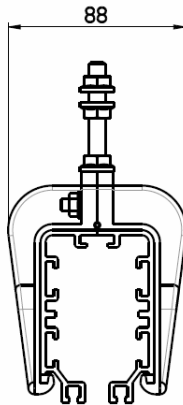
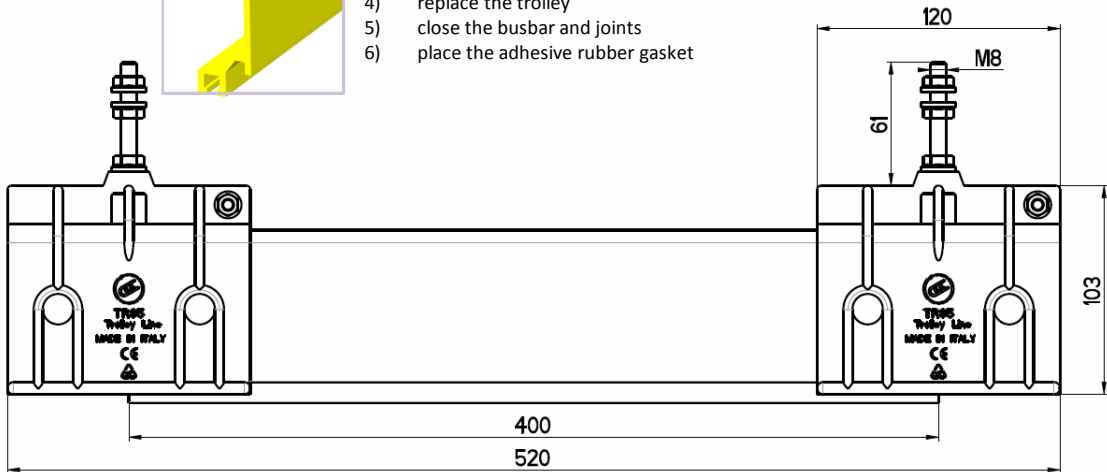


TR8528 TR85 line inspection joint



Used for maintenance operation, it allows easy removal of the trolley:

- 1) disconnect the trolley to be removed
- 2) place the trolley in the inspection joint
- 3) remove the half joints and half busbar (side "A" without ribs)
- 4) replace the trolley
- 5) close the busbar and joints
- 6) place the adhesive rubber gasket







compatible with blue line  
(pre-mounted conductors)



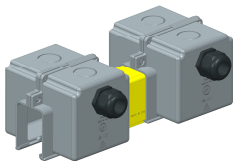
compatible with yellow line  
(conductors to be pulled)

TR8545-TR8545B TR85 line section joint



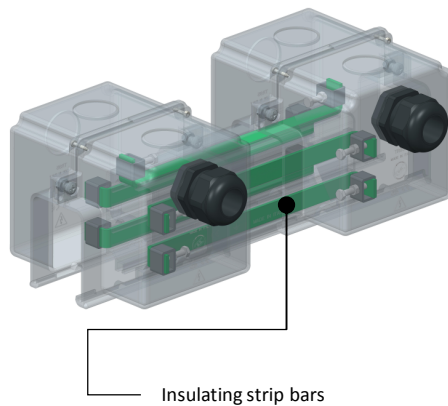
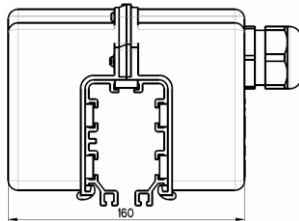
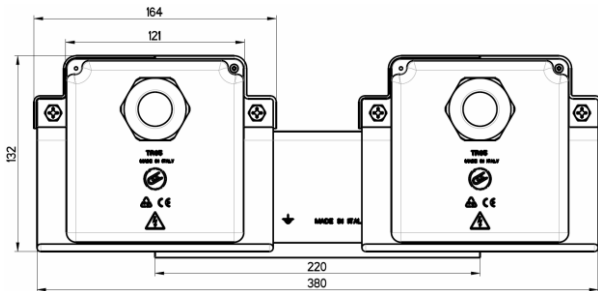
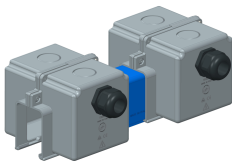
TR8545

yellow



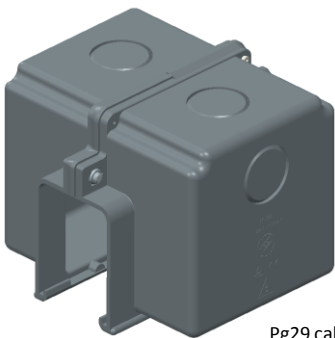
TR8545B

blue

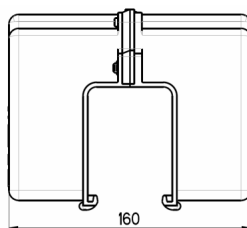
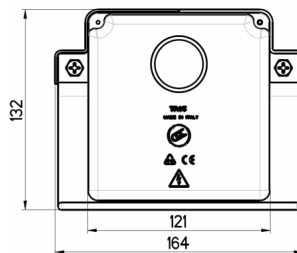


Insulating strip bars

TR8547 TR85 line in-line feed



Pg29 cable gland included  
(not mounted)



TR8550-TR8551-TR8552 TR60-85 line support bracket (rail fixing)



TR8550

L= 350mm



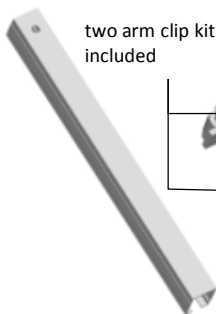
TR8551

L= 500mm

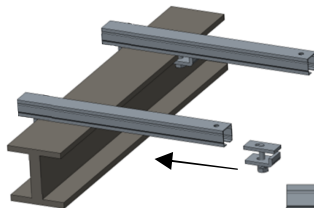


TR8552

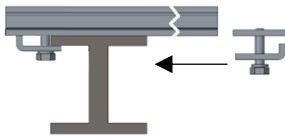
L= 700mm



two arm clip kit  
included



Mounting  
example



TR8555-TR8556 TR60-85 line support bracket (wall fixing)



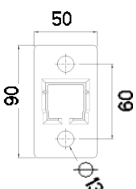
TR8555

L= 350mm



TR8556

L= 500mm





General characteristics							
Line / Size		TR60		TR85			
		40	60	40	70	100	140 200
Operating current 23°C		40A	60A	40A	70A	100A	140A 200A
Comply with standards		CEI EN 60439-1, CEI EN 60439-2, CEI EN 60695-2-1, CEI EN 60570					
Markings		CE ENEC					
Rated operating voltage [Ue]		600 Vac					
Frequency		50 Hz					
Conditional rated short circuit withstand current		10 kA					
Fuse rating gG		40A	60A	40A	70A	100A	160A 200A
Protection class CEI EN 60529		IP13 (IP23 with gasket accessories)					
Flammability resistance	UL94	V0					
	Cei EN 60695-2-1 [°C]	960					
Ambient temperature	operating	-30 °C + 55 °C					
	storage	-30 °C + 70 °C					
Admissible trolley speed		200 m/min¹					
Copper strip section [mm²]		10	15	9.3	15.5	21.7	31 46.5
Resistance [Ω/m 10 <sup>-4</sup> ]		17	11.33	18.27	10.96	7.83	5.48 3.65
Impedence [Ω/m 10 <sup>-4</sup> ]		17.09	11.38	18.36	11.01	7.87	5.55 3.67

PVC busbar characteristics		
Material		rigid PVC
Self-extinguish	UL 94	V0
	DIN 4102	B2
	D.M.6/7/83	CI
Ultimate tensile strenght	ISO R527 23 °C	430 kg/cm³
Yield point	ISO R527 23 °C	460 kg/cm²
Modulus of elasticity	ISO R178 23 °C	30000 kg/cm²
Impact resistance	DIN 53453	unbroken
Dielectric strenght	ASTM 149	25 kV/mm
Softening temperature – Vicat	ISO R306 49N	82 °C

Conductors bars weight table (complete of conductors)							
Line / Size		TR60		TR85			
		40	60	40	70	100	140 200
N° of conductors	4	1.035 kg/m	1.219 kg/m	1.680 kg/m	1.902 kg/m	2.122 kg/m	2.454 kg/m 3.010 kg/m
	5	1.127 kg/m	1.357 kg/m	1.764 kg/m	2.050 kg/m	2.305 kg/m	2.730 kg/m 3.423 kg/m