GIOVENZANA INTERNATIONAL B.V.
1077 XX Amsterdam, The Netherlands
WTC Strawinskylaan 1105
Phone: +31(0) 20.4413576 - Fax: +31(0) 20.4413456
E-mail: *giovenzana@giovenzana.com*

G.T.R. LLC
127051, Moscow, Russian Federation
Likhov lane, 3, b.2, office 101
Phone: +7.495.6991296 / +7.499.9228548 - Fax +7.495.6991520
E-mail: *gtr@giovenzana.com*

GIOVENZANA CONTROLS INDIA Pvt. Ltd.
400064, Near Mindspace, Malad West, Mumbai
A-203, Knox Plaza, Chincholi, Off Link Road
Phone: +91.22.42640071
E-mail: *ggindia@giovenzana.com*

GIOVENZANA do Brasil
São Paulo, Brasil
Rua Enxovia, 472 cj1904
Cep. 04711-030; Vila São Francisco
Phone: +55.11.3360-6840 / 11.3530-5316
E-mail: *logistic.brasil@giovenzana.com*

Branch DUBAI
DUBAI U.A.E. P.O. Box 262146 - Jebel Ali Free Zone
Phone: +971.4.8870788 - Fax: +971.4.8870787
E-mail: *uae@giovenzana.com*

www.giovenzana.com

GIOVENZANA
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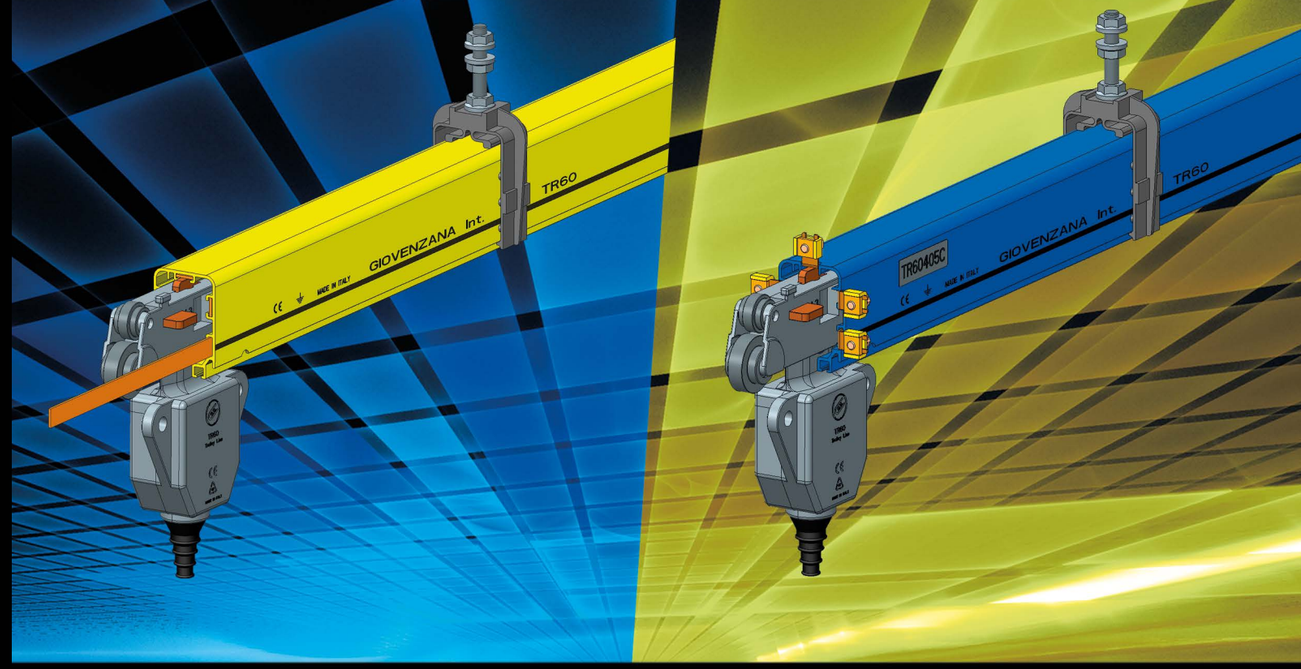

BUSBAR TROLLEY LINE

TR60 • TR85H5P • TR85H7P

GIOVENZANA
INTERNATIONAL B.V.

Automation - Lift - Handling System

QUALITY AS A LIFE STYLE

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BUSBAR TROLLEY LINE 5-7 POLES - Rev. 01_2017

GENERAL INDEX

LINE TYPE / AMPERAGE COVERAGE

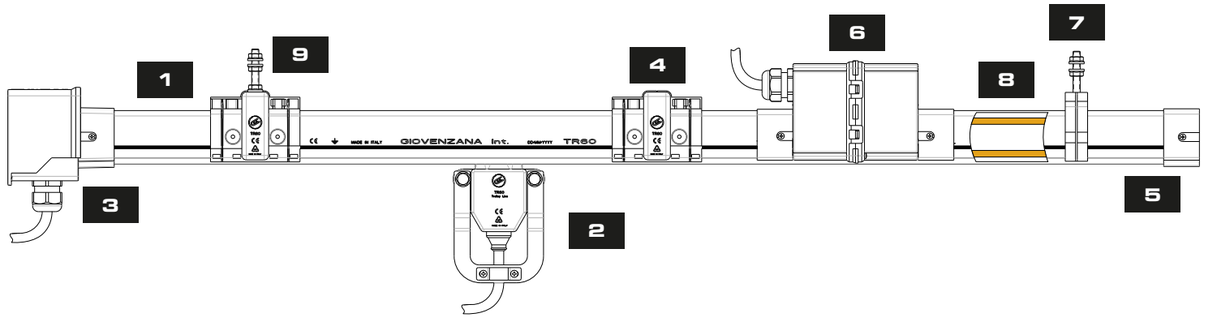
	40 A	50 A	60 A	70 A	100 A	140 A	160 A	200 A	320 A
TR60 YELLOW LINE Continuous Conductors – Max 5 Poles	■	■	■	■					
TR60 BLUE LINE Pre-Mounted Conductors – Max 5 Poles	■	■	■	■	■	■	■	■	■
TR85H5P YELLOW LINE Continuous Conductors – Max 5 Poles	■	■	■	■	■	■	■	■	■
TR85H5P BLUE LINE Pre-Mounted Conductors – Max 5 Poles	■	■	■	■	■	■	■	■	■
TR85H7P YELLOW LINE Continuous Conductors – Max 7 Poles	■	■	■	■	■	■	■	■	■ (Only 4 poles with parallel connections)
TR85H7P BLUE LINE Pre-Mounted Conductors – Max 7 Poles	■	■	■	■	■	■	■	■	■ (Only 4 poles with parallel connections)

PRODUCT DESCRIPTION

BUSBAR TROLLEY LINE

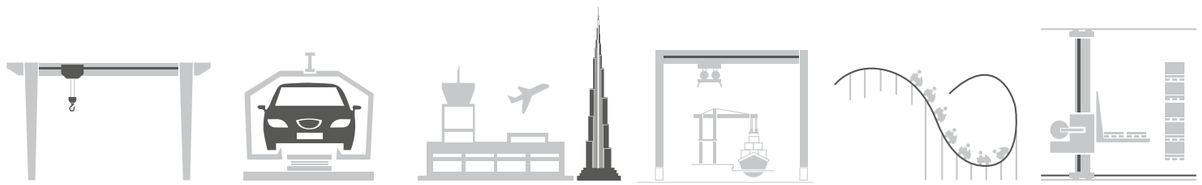
The “trolley system” series conductors rails is modern and safe system for energy transmission for various types of equipment, such as, cranes, bridge cranes, conveyour belts, chain conveyors, etc...
The “trolley system” complies with the relevant international standards ensuring safety of the operator, easy installation and reliability.
The new “H” honeycomb profile of the TR85H line guarantees extra endurance and lightness.

TYPICAL LAYOUT



1	BUSBAR	PVC Housing
2	TROLLEY CURRENT COLLECTOR	Transmits the energy from the conductor to the machine
3	HEAD FEED BOX	Connects power supply to the conductors
4	JOINT BOX	Links two busbars
5	END CAP	Closes and protects the busbar end
6	IN-LINE FEED BOX	Connects power supply from centre to avoid the voltage drop
7	HANGER CLAMP	Connects the busbar to the brackets
8	COPPER STRIP	Transmits the energy from the power supply to the current collector
9	FIXED POINT	Creates a fixed point

TYPICAL LINE UTILIZATION



CRANE TECHNOLOGY
Cranes and Hoists
Recycling plans
Galvanized plants

PRODUCTION AUTOMATION
Electric systems
Automated conveyors

BMU
Building Maintenance Units
Airport and terminal stations
Skyscrapers
Cleanroom technology

PORT TECHNOLOGY
RTG cranes
STG cranes

PEOPLE MOVER SYSTEM
People movers
Vertical elevators
Inclined elevators

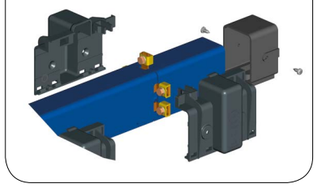
STORAGE
High-bay warehouses
Autometes storages

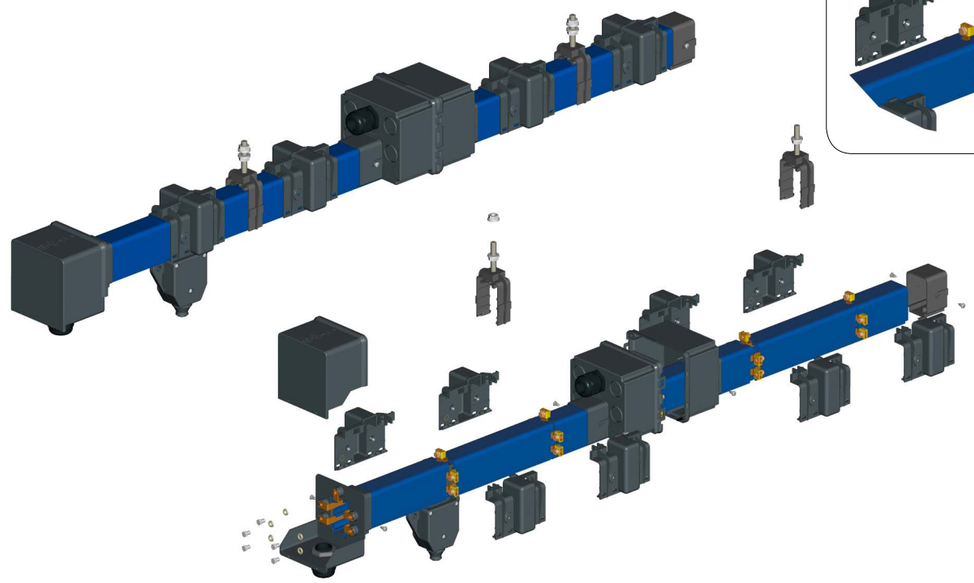
BUSBAR TROLLEY LINE'S VERSIONS

BLUE LINE > PRE-MOUNTED CONDUCTORS

The conductors are already inserted in the plastic casing

With conductor joint

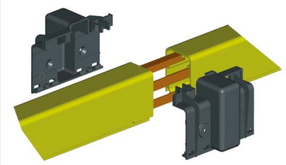


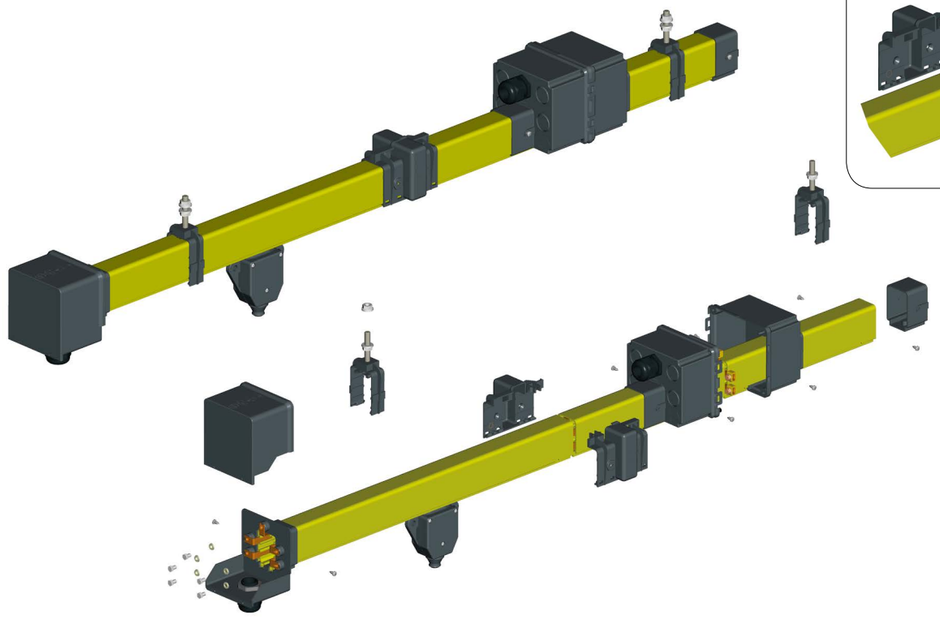


YELLOW LINE > CONTINUOUS CONDUCTORS

The conductors are pulled from a coil without joints into the already installed casing.

Without conductor joint





VERTICAL LINE

Special application on request with customized parts.
White RAL 1013 busbar customized for vertical installation.

GIOVENZANA
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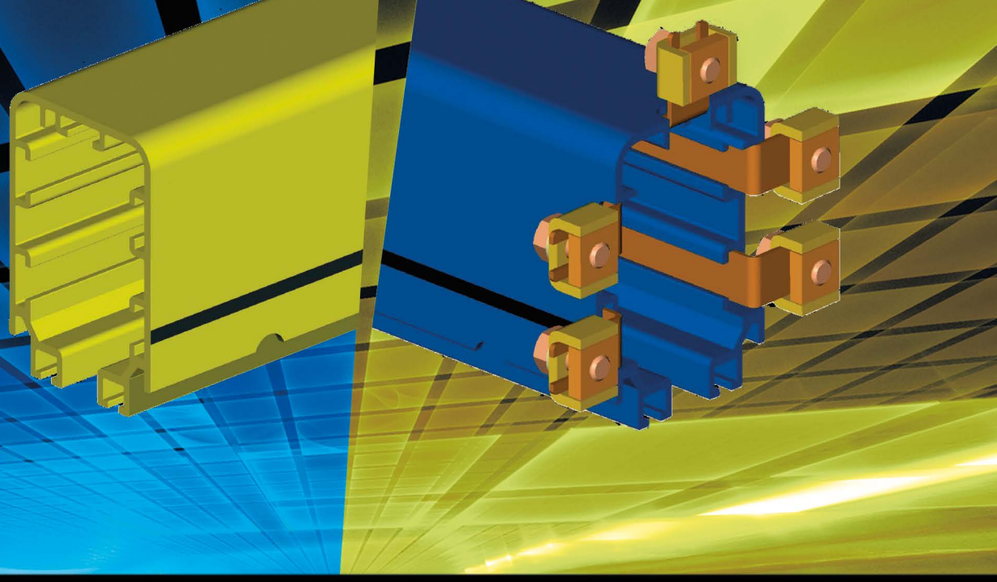


TR60

YELLOW LINE
Continuous Conductors

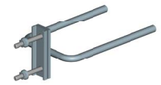
BLUE LINE
Pre-Mounted Conductors

BUSBAR SYSTEM | TR60 | YELLOW LINE

BUSBAR SYSTEM | TR60 | YELLOW LINE

40A | 60A

			YELLOW LINE - Continuous Conductors	
ITEM	PRODUCT	SPECIFICATION	40A	60A
BUSBAR 4 meters (*)			**TR6000**	
CONDUCTOR SIZE		ETP Copper	**CS40** 10x1 - 10mm²	**CS60** 10x1,5 - 15mm²
JOINT BOX		Plastic	**TR6001**	
HANGER CLAMP		Plastic	**TR6002**	
		Steel	**TR6020**	
END CAP			**TR6006**	
FEED BOX			**TR6003**	
IN-LINE FEED		Clamps or screws + nuts not included	**TR6008**	
TROLLEY CURRENT COLLECTOR		35A - 4 Conductors	**TR6004**	
		35A - 5 Conductors	**TR6005**	

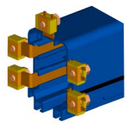
			YELLOW LINE - Continuous Conductors	
ITEM	PRODUCT	SPECIFICATION	40A	60A
TOWING ARM BRACKET			**TR6007**	
TOWING ARM			**TR8510**	
FIXED POINT			**TR6014**	
DOUBLE TROLLEY SUPPORT			**TR6013**	
FUNNELL			**TR6034**	
SPRING LOADED TOWING ARM		For transfer guide	**Coming soon**	
GASKET IP44			**TR6012**	
CONDUCTOR INSERTION TROLLEY			**TR6011**	
DE-COIL UNIT			**TR8513**	

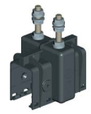
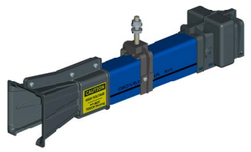
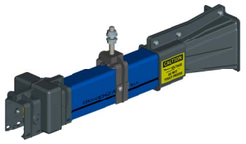
* Curved busbar available on request ONLY 4 conductors.

BUSBAR SYSTEM | TR60 | BLUE LINE

BUSBAR SYSTEM | TR60 | BLUE LINE

40A | 60A

ITEM	PRODUCT	SPECIFICATION	BLUE LINE - Pre-Mounted Conductors 40A	60A
BUSBAR 4 meters (*)		4 Conductors	**TR60404C**	**TR60604C**
		5 Conductors	**TR60405C**	**TR60605C**
		Conductor type	**Included in busbar code** 10x1 - 10mm²	**Included in busbar code** 10x1,5 - 15mm²
JOINT BOX			**TR6001**	
HANGER CLAMP		Plastic	**TR6002**	
		Steel	**TR6020**	
END CAP			**TR6006**	
FEED BOX		4 Conductors	**TR6003A4**	
		5 Conductors	**TR6003A5**	
IN-LINE FEED		4 Conductors	**TR6008A4**	
		5 Conductors	**TR6008A5**	
TROLLEY CURRENT COLLECTOR		35A - 4 Conductors	**TR6004**	
		35A - 5 Conductors	**TR6005**	

ITEM	PRODUCT	SPECIFICATION	BLUE LINE - Pre-Mounted Conductors 40A	60A
TOWING ARM BRACKET			**TR6007**	
TOWING ARM			**TR8510**	
FIXED POINT			**TR6014**	
DOUBLE TROLLEY SUPPORT			**TR6013**	
TRANSFER GUIDE		LEFT - 4 Conductors	**TR6034A4**	
		LEFT - 5 Conductors	**TR6034A5**	
		RIGHT - 4 Conductors	**TR6035A4**	
		RIGHT - 5 Conductors	**TR6035A5**	
SPRING LOADED TOWING ARM		For transfer guide	**Coming soon**	
GASKET IP44			**TR6012**	

* Curved busbar available on request ONLY 4 conductors.

OBSERVATORY DOME

giovenzana G.G. international srl

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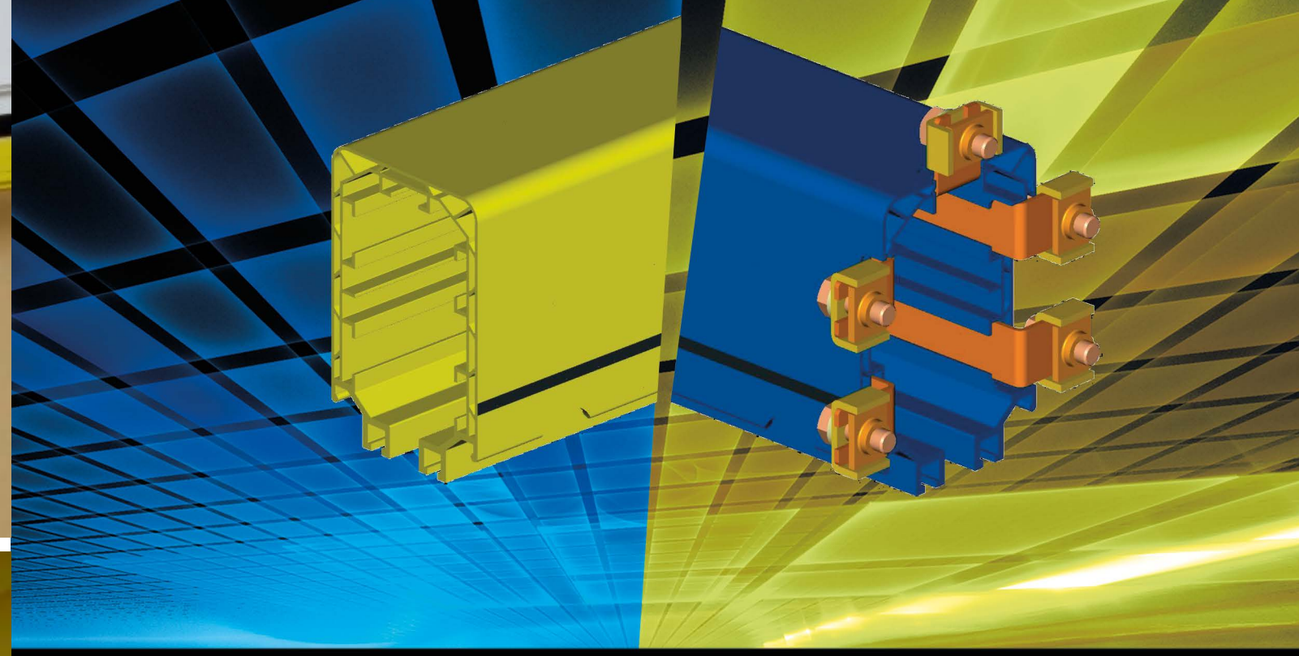


TR85H5P

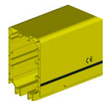
YELLOW LINE
Continuous Conductors

BLUE LINE
Pre-Mounted Conductors

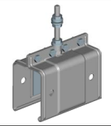
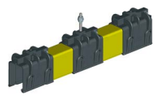
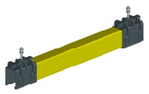
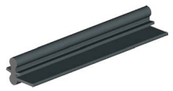
BUSBAR SYSTEM | TR85H5P | YELLOW LINE

BUSBAR SYSTEM | TR85H5P | YELLOW LINE

40A | 70A
100A | 140A

ITEM	PRODUCT	SPECIFICATION	YELLOW LINE - Continuous Conductors 40A	70A	100A	140A
BUSBAR 4 meters (*)			TR85H5P			
CONDUCTOR SIZE		ETP Copper	RM40 15,5x0,6 9,3mm²	RM70 15,5x1 15,5mm²	RM100 15,5x1,5 23,25mm²	RM140 15,5x2 31mm²
JOINT BOX		Plastic	TR8501			
		Steel	TR8524			
HANGER CLAMP		Plastic	TR8502			
		Steel	TR8525			
END CAP			TR8506			
FEED BOX			TR8503			
IN-LINE FEED		Clamps or screws + nuts not included	TR8547			
TROLLEY CURRENT COLLECTOR		35A - 4 Conductors	TR8511			
		35A - 5 Conductors	TR8512			
		70A - 4 Conductors	TR8518			
		70A - 5 Conductors	TR8519			
TROLLEY CURRENT COLLECTOR FOR CURVES		35A - 4 Conductors	TR8516			
		70A - 4 Conductors	TR8532			

YELLOW LINE - Continuous Conductors

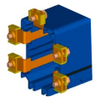
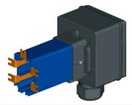
ITEM	PRODUCT	SPECIFICATION	40A	70A	100A	140A
TOWING ARM BRACKET			TR6007			
TOWING ARM			TR8510			
FIXED POINT			TR8527.1			
DOUBLE TROLLEY SUPPORT			TR6013			
EXPANSION JOINT			TR85H5P07			
INSPECTION JOINT			TR85H5P28			
SECTION JOINT			TR85H5P45			
FUNNELL			TR85H5P34			
SPRING LOADED TOWING ARM		For transfer guide	Coming soon			
GASKET IP44			TR8505			
CONDUCTOR INSERTION TROLLEY			TR8514			
DE-COIL UNIT			TR8513			

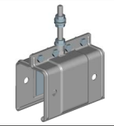
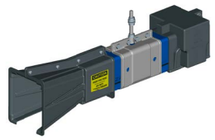
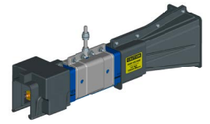
* Curved busbar available on request ONLY 4 conductors.

BUSBAR SYSTEM | TR85H5P | BLUE LINE

BUSBAR SYSTEM | TR85H5P | BLUE LINE

40A | 70A
100A | 140A

ITEM	PRODUCT	SPECIFICATION	BLUE LINE - Pre-Mounted Conductors 40A	70A	100A	140A
BUSBAR 4 meters (*)		4 Conductors	TR85H5P404C	TR85H5P704C	TR85H5P1004C	TR85H5P1404C
		5 Conductors	TR85H5P405C	TR85H5P705C	TR85H5P1005C	TR85H5P1405C
		Conductor Type	Included in Busbar code			
			15,5x0,6 9,3mm²	15,5x1 15,5mm²	15,5x1,5 23,25mm²	15,5x2 31mm²
JOINT BOX			TR8535			
HANGER CLAMP		Plastic	TR8502			
		Steel	TR8525			
END CAP			TR8506			
FEED BOX		4 Conductors	TR85H55P03A4			
		5 Conductors	TR85H55P03A5			
IN-LINE FEED			TR8547			
TROLLEY CURRENT COLLECTOR		35A - 4 Conductors	TR8511			
		35A - 5 Conductors	TR8512			
		70A - 4 Conductors	TR8518			
		70A - 5 Conductors	TR8519			
TROLLEY CURRENT COLLECTOR FOR CURVES		35A - 4 Conductors	TR8516			
		70A - 4 Conductors	TR8532			

ITEM	PRODUCT	SPECIFICATION	BLUE LINE - Pre-Mounted Conductors 40A	70A	100A	140A
TOWING ARM BRACKET			TR6007			
TOWING ARM			TR8510			
FIXED POINT			TR8527.1			
DOUBLE TROLLEY SUPPORT			TR6013			
SECTION JOINT			TR85H5P45B			
TRANSFER GUIDE		LEFT - 4 Conductors	TR85H5P34A4			
		LEFT - 5 Conductors	TR85H5P34A5			
		RIGHT - 4 Conductors	TR85H5P35A4			
		RIGHT - 5 Conductors	TR85H5P35A5			
SPRING LOADED TOWING ARM		For transfer guide	Coming soon			
GASKET IP44			TR8505			

* Curved busbar available on request ONLY 4 conductors.

CRANE

ROUND HOIST

GIOVENZANA
INTERNATIONAL B.V.

TR85H7P

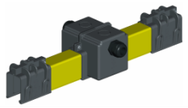
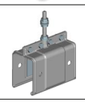
YELLOW LINE
Continuous Conductors

BLUE LINE
Pre-Mounted Conductors

BUSBAR SYSTEM | TR85H7P | YELLOW LINE

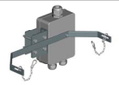
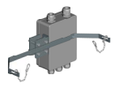
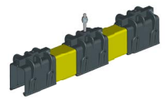
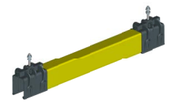
BUSBAR SYSTEM | TR85H7P | YELLOW LINE

50A | 100A | 160A
200A | 320A

ITEM	PRODUCT	SPECIFICATION	YELLOW LINE - Continuous Conductors 50A	100A 200A*	160A 320A*
BUSBAR 4 meters			**TR85H7P**		
CONDUCTOR SIZE		ETP Copper	**CSH750** 12,5x0,8 10mm²	**CSH7100** 12,5x1,8 22,5mm²	**CSH7160** 12,5x2,5 31,25mm²
JOINT BOX		Plastic	**TR8501**		
		Steel	**TR8524**		
HANGER CLAMP		Plastic	**TR8502**		
		Steel	**TR8525**		
END CAP			**TR8506**		
FEED BOX		Only for 7 poles till 100A	**TR85H7P005**		-
IN-LINE FEED		Clamps or screws + nuts not included	**TR85H7P03**		
TRANSITION BOX		For parallel connections 200A or 320A	-	**Coming soon**	
FIXED POINT			**TR8527.1**		
TROLLEY CURRENT COLLECTOR FOR CURVES		35A - Single	**TR85H7P001**		
		70A - Double	**TR85H7P002**		
		105A - Triple	**TR85H7P010**		

* The 200A and the 320A are obtained by parallel configuration ONLY for 4 poles.

BUSBAR SYSTEM | TR85H7P | YELLOW LINE

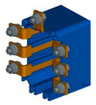
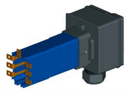
ITEM	PRODUCT	SPECIFICATION	YELLOW LINE - Continuous Conductors 50A	100A 200A*	160A 320A*
TOWING ARM		Single	**TR8557**		
		Double	**TR8558**		
		Triple	**TR8559**		
4 POLES TROLLEY CONNECTION CLAMP		Single (3ph 70A - PE 35A)	**Coming soon**		
		Double - need 2x (3ph 140A - PE 70A)	**Coming soon**		
		Triple - need 3x (3ph 210A - PE 105A)	**Coming soon**		
EXPANSION JOINT			**TR85H7P07**		
INSPECTION JOINT			**TR85H7P28**		
SECTION JOINT			**TR85H7P45**		
FUNNELL			**Coming soon**		
SPRING LOADED TOWING ARM		For transfer guide	**Coming soon**		
GASKET IP44			**TR8505**		
CONDUCTOR INSERTION TROLLEY			**TR85H7P14**		
DE-COIL UNIT			**TR8513**		

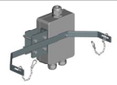
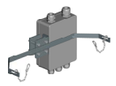
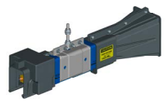
* The 200A and the 320A are obtained by parallel configuration ONLY for 4 poles.

BUSBAR SYSTEM | TR85H7P | BLUE LINE

BUSBAR SYSTEM | TR85H7P | BLUE LINE

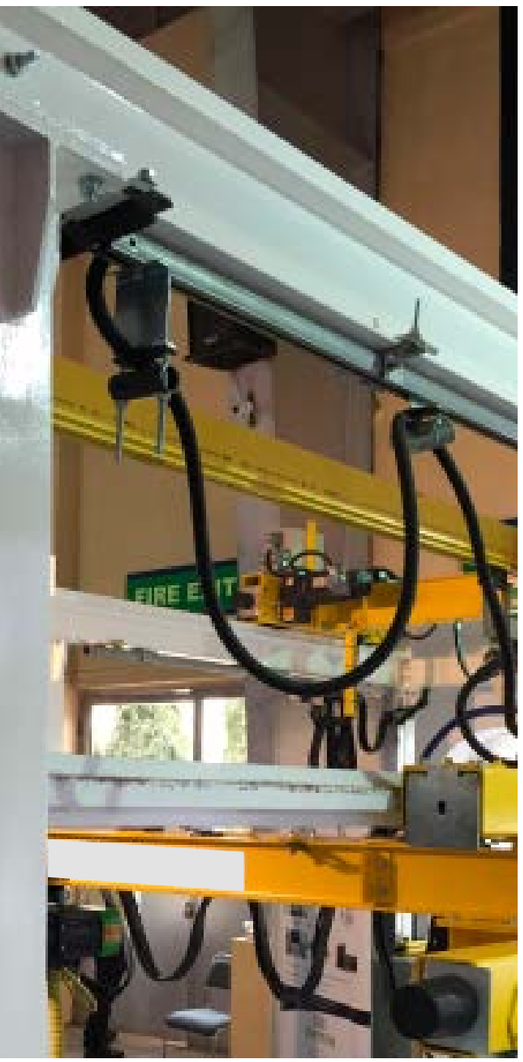
50A | 100A | 160A
200A | 320A

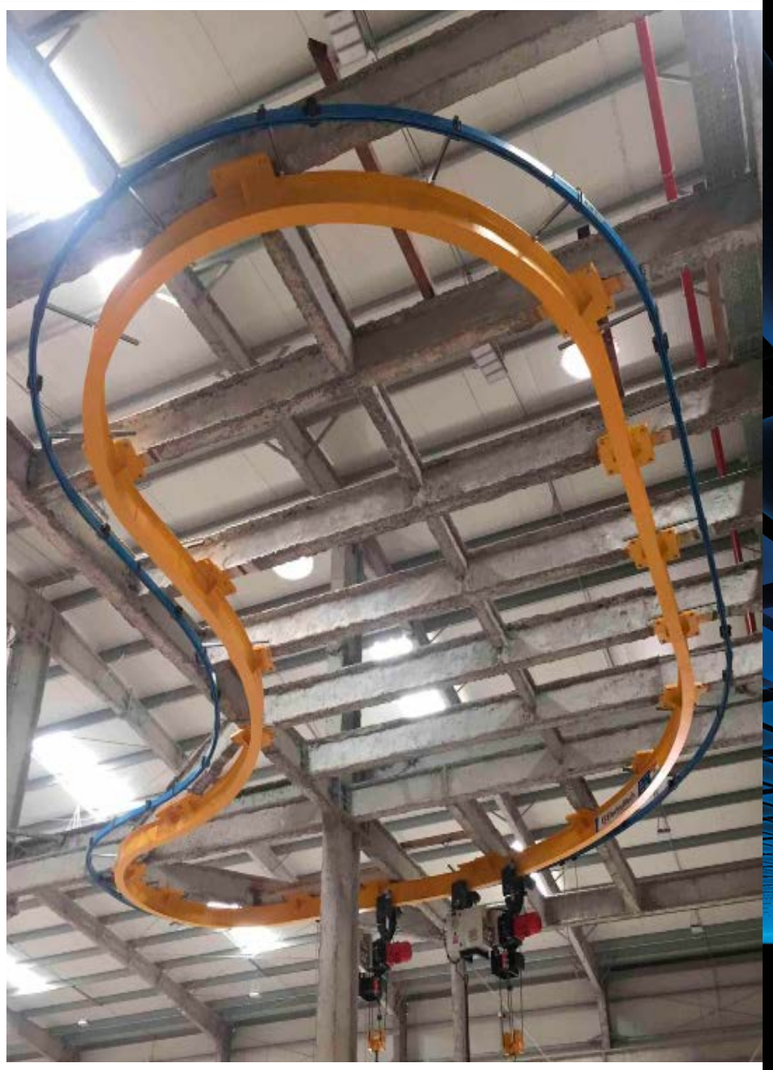
ITEM	PRODUCT	SPECIFICATION	BLUE LINE - Pre-Mounted Conductors 50A	100A	160A	200A*	320A*
BUSBAR 4 meters		4 Conductors *	-	-	-	TR85H7P1007C	TR85H7P1607C
		7 Conductors *	TR85H7P507C	TR85H7P1007C	TR85H7P1607C	-	-
		Conductor Type	Included in busbar code: 12,5x0,8 10mm²	12,5x1,8 22,5mm²	12,5x2,5 31,25mm²	2X (12,5x1,8) 2x22,5mm²	2X (12,5x2,5) 2x31,25mm²
JOINT BOX			TR85H7P007				
HANGER CLAMP		Plastic	TR8502				
		Steel	TR8525				
END CAP			TR8506				
FEED BOX		7 Conductors	TR85H7P005A7	-			
IN-LINE FEED		7 Conductors	TR85H7P03A7				
TRANSITION BOX		For parallel connections 200A or 320A	-	Coming soon			
FIXED POINT			TR8527.1				
TROLLEY CURRENT COLLECTOR FOR CURVES		35A - Single	TR85H7P001				
		70A - Double	TR85H7P002				
		105A - Triple	TR85H7P010				

ITEM	PRODUCT	SPECIFICATION	BLUE LINE - Pre-Mounted Conductors 50A	100A	160A	200A*	320A*
TOWING ARM		Single	TR8557				
		Double	TR8558				
		Triple	TR8559				
4 POLES TROLLEY CONNECTION CLAMP		Single (3ph 70A - PE 35A)	Coming soon				
		Double - need 2x (3ph 140A - PE 70A)	Coming soon				
		Triple - need 3x (3ph 210A - PE 105A)	Coming soon				
SECTION JOINT			TR85H7P45B				
TRANSFER GUIDE		LEFT - 7 Conductors	Coming soon				
		RIGHT - 7 Conductors	Coming soon				
SPRING LOADED TOWING ARM		For transfer guide	Coming soon				
GASKET IP44			TR8505				

* The 200A and the 320A are obtained by parallel configuration ONLY for 4 poles.

* The 200A and the 320A are obtained by parallel configuration ONLY for 4 poles.





GIOVENZANA
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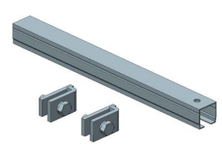
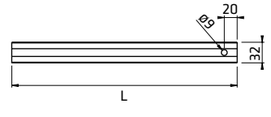
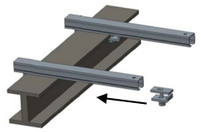
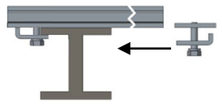
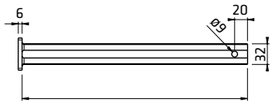
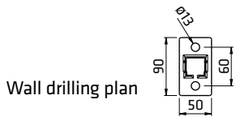
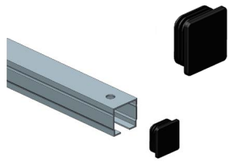
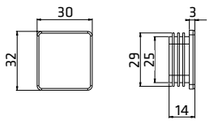
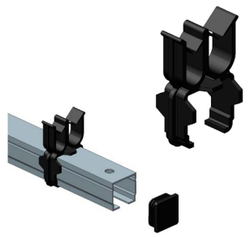
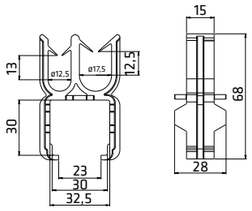
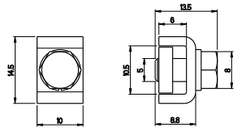
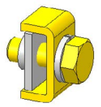
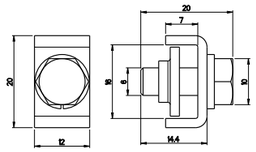
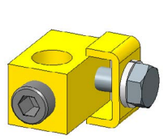
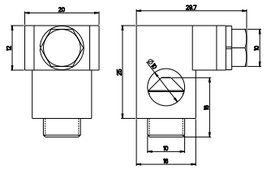
ACCESSORIES
SPARE PARTS

ITEM	PRODUCT	SPECIFICATION	CODE
SUPPORT BRACKET (RAIL Fixing)	  2 arm clips kit included. THK ≤ 10mm Mounting Example  	L=350mm	**TR8550**
		L=500mm	**TR8551**
		L=700mm	**TR8552**
SUPPORT BRACKET (Wall Fixing)	   Wall drilling plan	L=350mm	**TR8555**
		L=500mm	**TR8556**
END CAP	 		**30607015**
CABLE CLIP	 		**30607016**

ITEM	PRODUCT	SPECIFICATION	CODE
TR60 CONDUCTORS CONNECTION CLAMP	 	Brass material	**TR6015**
TR85H5P CONDUCTORS CONNECTION CLAMP	 	Brass material	**TR8548**
TR85H5P CONDUCTORS CONNECTION CLAMP (for IN-LINE FEED)	 	Brass material	**TR8537**
TR85H7P CONDUCTORS CONNECTION KIT		Flanged screw M6x12	**11606075**
		Flanged nut M6	**11612013**
TR85H5P 70A TROLLEY BRUSH KIT REPLACEMENT	 	1x Brush 2x Springs	Only for: TR8518 TR8519 TR8532 **TR8520**

GIOVENZANA
INTERNATIONAL B.V.

1. LINE CONSTRUCTION
2. SURVEY
3.TECHNICAL DATA

BUSBAR SYSTEM | 1. LINE CONSTRUCTION

LINE CONSTRUCTION

To decide the size of trolleys it 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:

$$\Delta u = \sqrt{3} \times I \times Lt \times Z$$

$$\Delta u\% = \frac{\Delta u \times 100}{U}$$

Keys:
Δu = Voltage drop [V]
Δu% = Voltage drop [%]
I = Current intensity [A]
Lt = Length of section [m]
Z = Impendence [Ω/m]
U = Voltage [V]

POWER FEED: BUSBAR TRACK LENGHT

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.

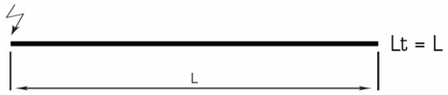
A Lt = L - with ending/starting power feed

B Lt = L/2 - with in-line power feed

C Lt = L/6 - with power feed at 1/6 from each end

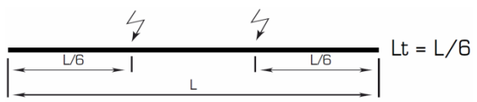
D Lt = L/10 - with three power feed at L/2 and L/10 from each end

A

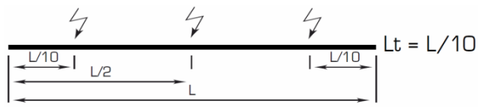


B

C



D



CURRENT IN CONTINUOUS SERVICE

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

$$In = I_1 + I_2 + I_3 + \ldots$$

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

$$In = \frac{Pu}{\sqrt{3} \times U \times \cos\varphi \times \eta}$$

Keys:
In = Current consumption [A]
Pu = Power devices [W]
η = Devices performance
U = Operating Voltage [V]
$\cos\varphi$ = Power factor

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

N° OF IN-LINE LIFTING DEVICE	LIFTING EQUIPMENT IN USE			
	1ST ENGINE	2ND ENGINE	3TH ENGINE	4TH ENGINE
	max power engine*	decreasing power engine*		
1	x	x		
2	x	x	x	
3	x	x	x	
4	x	x	x	x
5	x	x	x	x
N° 2 lifting equipment operating simultaneously	x	x	x	x

* About η motors connected in parallel with rated current In', consider In = η x 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:

For a single user

$$Ia = K \times In \qquad K = \frac{\text{Starting current (Ia)}}{\text{Nominal current (In)}}$$

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:

N° OF IN-LINE LIFTING DEVICE	LIFTING EQUIPMENT IN USE							
	1ST ENGINE		2ND ENGINE		3TH ENGINE		4TH ENGINE	
	Ia	In	Ia	In	Ia	In	Ia	In
1	x			x				
2	x			x		x		
3	x		x					
4	x		x			x		
5	x		x			x		x
N° 2 lifting equipment operating simultaneously	x		x			x		x

BUSBAR SYSTEM | 2. SURVEY

COMPANY NAME: _____ **CITY:** _____

COUNTRY: _____ **CONTACT:** _____

PHONE: _____ **MAIL:** _____

DATE: _____ **REFERENCE:** _____

1 GENERAL DATA

1.1 TYPE OF INDUSTRY ☐ Crane ☐ BMU ☐ Storage ☐ Other _____

1.2 N° MACHINE FOR TRACK _____

1.3 N° OF TRACKS _____

1.4 TRACK LENGHT _____ mt

1.5 TRACK LAYOUT _____ mt straight - _____ mt curved

(Please include Layout Drawing on the next page)

2 ELECTRICAL DATA

2.1 POWER / CURRENT PER MACHINE _____ Kw - Inom _____ A - Istart _____ A

2.2 MAX SIMULTANEOUS CURRENT PER TRACK _____ A

2.3 POWER SUPPLY VOLTAGE _____ V 50/60 Hz - n° _____ phases ☐ PE ☐ N

2.4 CONTROL SIGNALS Specify number _____ - Voltage _____

2.5 SWITCH FREQUENCY AND DUTY CYCLE OF THE MACHINERY _____ per _____ - duty cycle ☐ 50% ☐ 60% ☐ 70% ☐ 80% ☐ 90% ☐ 100%

3 SYSTEM CONFIGURATION

3.1 FEED POINT(S) ☐ At beginning - ☐ At _____ mt from beginning - ☐ At _____ mt from each end

3.2 CENTRE DISTANCE HANGERS _____ mt

4 MACHINE PARAMETERS

3.1 TRAVEL SPEED _____ mt/min

3.2 BUILD DIMENSIONS Please list if there are any build dimensions to take in consideration (include drawing)

5 ENVIRONMENTAL DATA

1.1 INDOOR OR OUTDOOR ☐ Indoor ☐ outdoor

1.2 MIN & MAX AMBIENT TEMP. _____ °C min _____ °C max

1.3 ENVIRONMENTAL DETAILS ☐ Normal ☐ Dusty ☐ Humid ☐ Corrosive ☐ Other _____

6 OPTIONS

6.1 TRANSFER GUIDES ☐ Yes ☐ No Quantity _____

6.2 SECTION JOINT ☐ Yes ☐ No Specify the position in the line _____

6.3 IP44 RUBBER GASKET ☐ Yes ☐ No

6.3 OTHER _____

BUSBAR SYSTEM | 2. SURVEY

1.5 LAYOUT DRAWING

GENERAL CHARACTERISTICS

LINE / SIZE	TR60		TR85H5P				TR85H7P		
	40	60	40	70	100	140	50	100 200*	160 320*
Operating current 23°C	40A	60A	40A	70A	100A	140A	50A	100A	160A
Comply with standards	CEI EN 60439-1, CEI EN 60439-2, CEI EN 60695-2-1, CEI EN 60570								
Markings	CE EAC								
Rated operating voltage [Ue]	600Vac								
Frequency	50Hz								
Conditional rated short circuit withstand current	10 ka								
Fuse rating gG	40A	60A	40A	70A	100A	140A	50A	100A	160A
Protection class CEI EN 60529	IP13 (IP44 with gasket accessories)								
Flammability resistance:									
UL94	V0								
Cei EN 60695-2-1	960°C								
Ambient Temperature									
operating	-30°C +55°C								
storage	-30°C +70°C								
Max admissible trolley speed	200 m/min^{-1}								
ETP Copper strip section [mm^2]	10 10x1	15 10x1,5	9,3 15,5x0,6	15,5 15,5x1	23,25 15,5x1,5	31 15,5x2	10 12,5x0,8	22,5 12,5x1,8	31,25 12,5x2,5
Resistance [$\Omega/m\ 10^{-4}$]	17	11,33	18,27	10,96	7,83	5,48	17	8,38	5,29
Impendence [$\Omega/m\ 10^{-4}$]	17,09	11,38	18,36	11,01	7,87	5,55	17,09	8,42	5,36

* The 200A and the 320A are obtained by parallel configuration, so only for 4 poles. The values indicated are referred to the single conductor.

CONDUCTORS BARS WEIGHT TABLE

LINE / SIZE	TR60		TR85H5P				TR85H7P		
	40	60	40	70	100	140	50	100	160
Weight [kg/m] +/- 50g									
4 poles	1,05	1,25	1,40	1,65	1,95	2,25	-	-	-
5 poles	1,15	1,35	1,50	1,80	2,15	2,55	-	-	-
7 poles	-	-	-	-	-	-	1,70	2,30	3,05

PVC BUSBAR CHARACTERISTICS

MATERIAL	CERTIFICATIONS	RIGID PVC
Self-extinguish	UL94	V0
	DIN 4102	B2
	D.M. 6/7/83	CI
Ultimate tensile strenght	ISO R527 23°C	430 kg/cm^3
Yield point	ISO R527 23°C	460 kg/cm^3
Modulus of elasticity	ISO R178 23°C	30.000 kg/cm^3
Impact resistance	DIN 53453	Unbroken
Dielectric strenght	ASTM 149	25 kv/mm
Softening temperature - Vicat	ISO R306 49N	82°C

NOTES