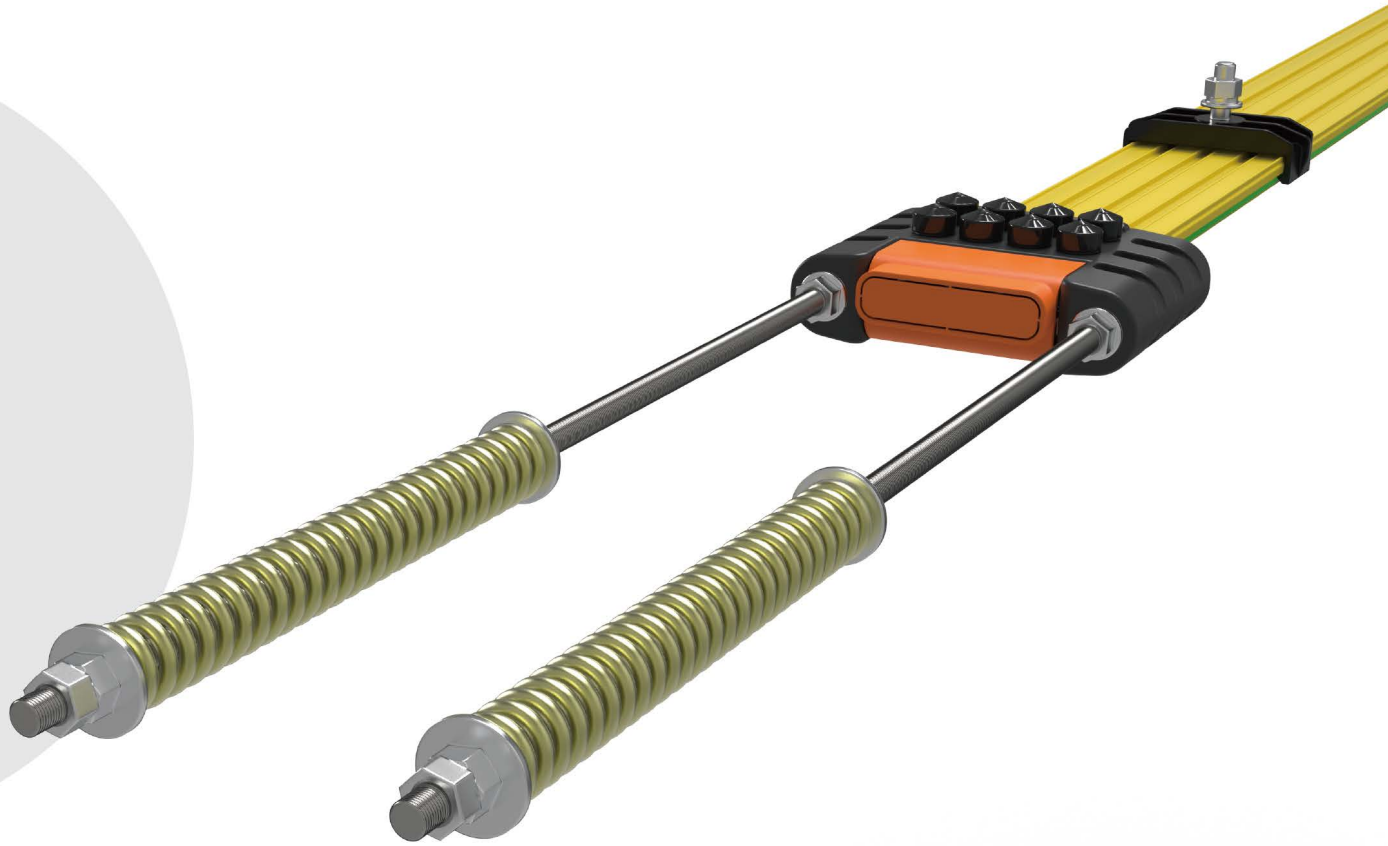


# Multipole Tension Rail



**CONDUCTIX**  
wampfler





Multipole Tension Rail



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# Your Application — Our Solution

**Conductix-Wampfler Multiple Tension Rail (MTR) is the economic solution for multiple applications where electrical power for mobile rail guided consumers are needed.**

From EOT cranes up to AS/RS Stacker cranes or Transfer cars MTR offer here the benefit of a small, compact system for strait lines and optional also curves.



The product is available as a 3 and 4 pole system with 60,90 and 150 amps and 5 pole system with 60 and 90 amps. The product is designed in safety yellow.

The rollable rail system is used where typical long rail segments of 4 or 5 m are not easy to transport, allowing compact transport with a small service van.

With easy logistics, the system solves service issues and offers the potential for a quick system change if needed.

MTR from Conductix-Wampfler not only offers the availability of a well-known standard product in the Asian markets. It combines known technology with high production and quality standards and detail improvements to make good think better.

Where the tension type is not usable and other requirements are present, Conductix-Wampfler is in a global position to support with an alternative solution such as the original EOT product SafeLec 2 or other conductor rail solution from the 800 product line.



**We develop, produce, and consult you in any questions about energy supply or data communication for your logistic or crane project.**



# Multipole Tension Rail System

## Product Application

Multipole tension rail has a compact structure, small occupation space, safe and reliable, fast and easy installation, is widely used in storage, logistics and crane industry in the Asian market.



## Technical Data

Technical Data	Conductor Type			
Nominal Current (Duty Cycle 100% 25°C)	60A	90A	150A	
Resistance at 20°C (DC Ω/m)	0.00086	0.00063	0.00044	
Impedance at 20°C (AC Ω/m)	0.00088	0.00064	0.00046	
Conductor Material	Copper			
Insulation Material	PVC			
Flame Retardant Rating	Class V0 according UL94			
Intended Use	AS/RS and EOT crane application			
Nominal Voltage	600V			
Protection Class	Vertical insertion of current collector : IP23			
	Horizontal insertion of current collector : IP21			
Operation Temperature	-20~45°C			
Max. Temperature Change under Tensioner Maintenance-free Mode	System length(m)	70	110	150
	Max. Temperature Change(°C)	45	25	15
	Higher range possible on request			
Storage Condition	-30°C~45°C Dry UV protected and no condensation			
Max. Speed	300m/min			
Max. System Length	150m			
Max. Coil Length	750m			
Nominal Hanger Distance	800mm (max. distance 1200mm)			
Max. Span Force	5000N Tensioner force for steel structure design			

## Voltage Drop Calculation

The distance between power feed point and collector power taking point defines voltage drop value, normally should below 5% or requested value by customer. If the result exceed requested value, it's necessary to increase conductor section area or add more power feed points to satisfy requested voltage drop value.

### Example of voltage drop calculation :

3 Phase AC system

System voltage = U (V)

System current = I (A)

Maximum distance between power feed point and collector power taking point = L (m)

Conductor Impedance = Z (ohm / m)

Voltage drop =  $1.732 \times I \times L \times Z / V \times 100\%$

# Multipole Tension Rail System

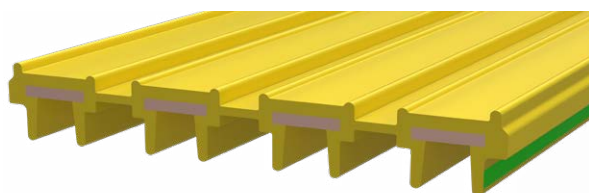
## 60A, 90A, 150A Rail (Indoor Use Only)

- Nominal value: 60A, 90A, 150A
- Conductor material: Copper
- Insulation cover material: PVC (Heatproof 75°C) Yellow (Warning color) RAL1018
- Standard maximum system length is 150m
- Customized production according to system requirements
- 4 and 5 pole according CE standard with PE indication
- The 3-pole version (Non CE) is without PE indication for installation in countries, where grounding over the steel structure is permitted and a dedicated PE pole according international safety standard (like USA, Europe, Australia ...) is not required

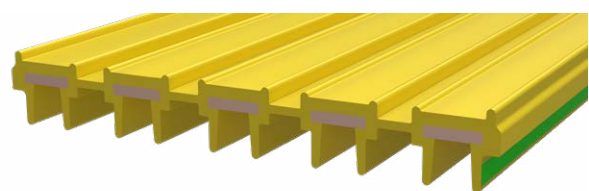
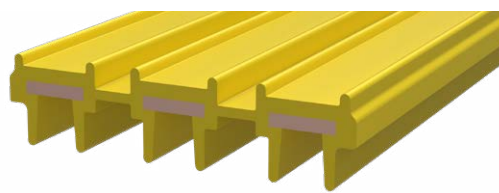
Order No:	Article Description	Ampere[A]	Pole	Weight(kg/m)
FG008011009	Conductor rail 3 pole 60A	60A	3	0.93
FG008010001	Conductor rail 4 pole 60A		4	1.15
FG008010004	Conductor rail 5 pole 60A		5	1.44
FG008011010	Conductor rail 3 pole 90A	90A	2	1.11
FG008010002	Conductor rail 4 pole 90A		4	1.39
FG008010005	Conductor rail 5 pole 90A		5	1.74
FG008011011	Conductor rail 3 pole 150A	150A	3	1.56
FG008010003	Conductor rail 4 pole 150A		4	2.05

### Note:

3P means 3 pole 4P means 4 pole 5P means 5 pole

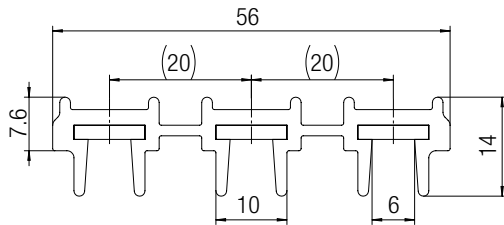


CE

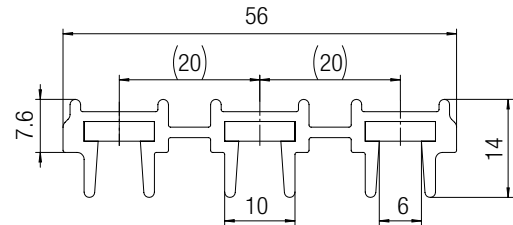


CE

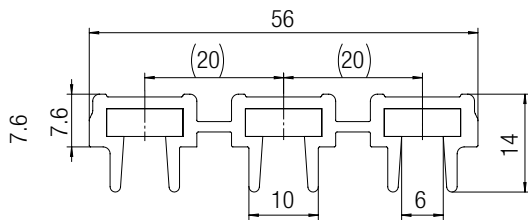
Section Dimension View — 3P60A



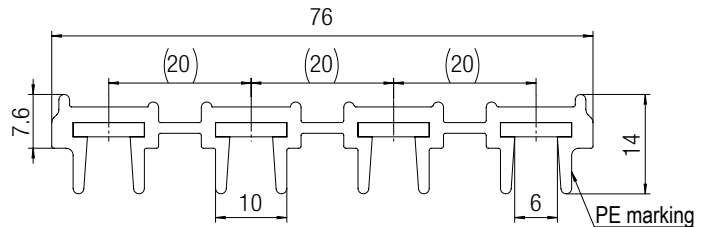
Section Dimension View—3P90A



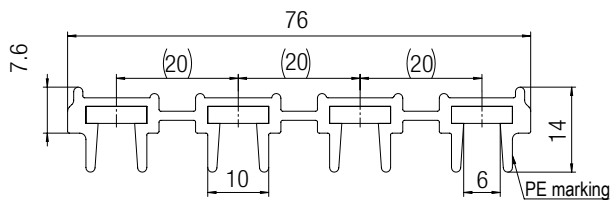
Section Dimension View — 3P150A



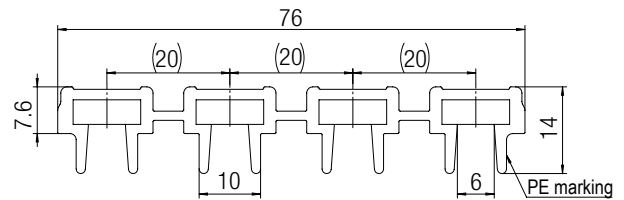
Section Dimension View—4P60A



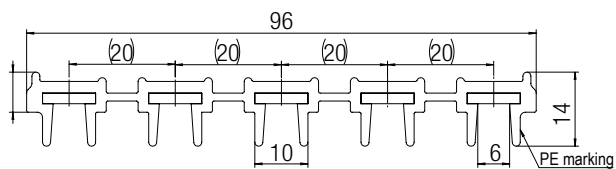
Section Dimension View — 4P90A



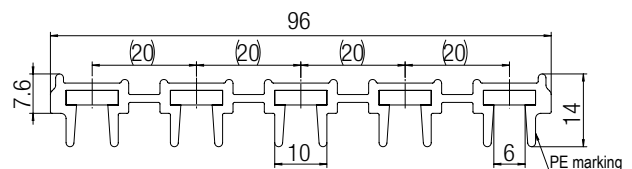
Section Dimension View — 4P150A



Section Dimension View — 5P60A



Section Dimension View — 5P90A





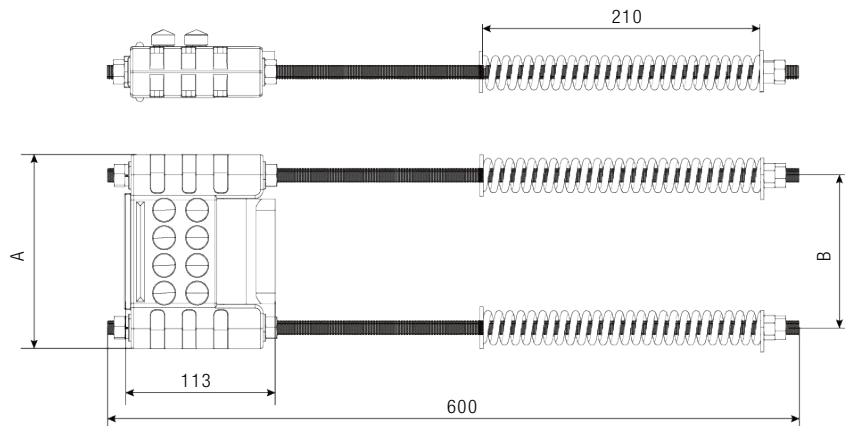
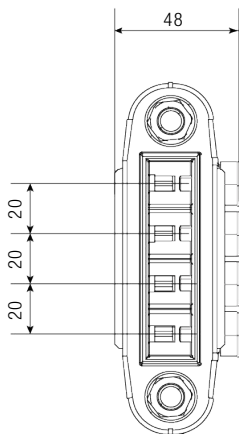
# Multipole Tension Rail System

## Tensioner & End Power Feed

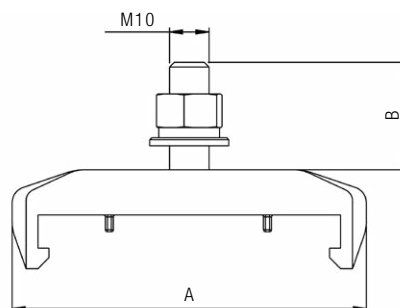


- Pull conductor rail from both end, compensate conductor rail length change which caused by temperature change.
- Suit for 60A•90A•150A
- Max tension force 5000N
- Used for power input, max. outer cable diameter 16mm, cable conductor section 35mm<sup>2</sup>, fixed bolt M6
- 2 tensioners units per line needed

Order No.	Article Description	Pole	A(mm)	B(mm)	Weight(kg/m)
FG008020012	Tensioner & end power feed 3 pole 60-150A	3	120	90	0.48
FG008020001	Tensioner & end power feed 4 pole 60-150A	4	140	110	0.6
FG008020002	Tensioner & end power feed 5 pole 60-150A	5	160	130	0.72



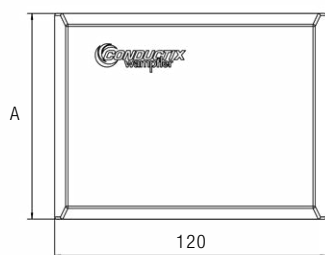
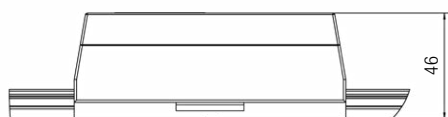
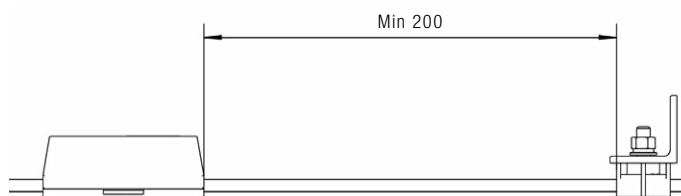
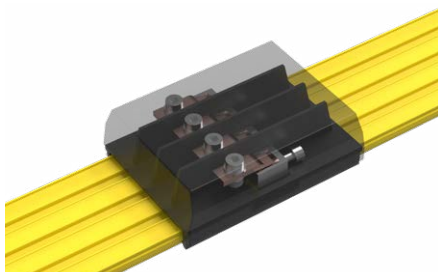
## Hanger



- Recommend installation distance is 800mm(max.distance below 1200mm)
- Recommended torque 18~22 Nm

Order No.	Article Description	Pole	A(mm)	B(mm)	Weight(kg/m)
FG0080400055	Hanger 3 pole 60-150A	3	70	27	0.06
FG0080400001	Hanger 4 pole 60-150A	4	90	27	0.07
FG0080400002	Hanger 5 pole 60-150A	5	110	25	0.08

## Splice Joint & Inline Power Feed



- Used for rail mechanical connection and power input
- Min distance to next hanger is 200mm
- Max. outer cable diameter 20mm,cable conductor section 35mm<sup>2</sup>,fixed bolt M6
- Strain relief must be provide on customer side



Order No.	Article Description	Pole	A(mm)	Weight(kg/m)
FG0080300009	Splice joint & inline power feed 3 pole 60-150A	3	70	0.22
FG0080300001	Splice joint & inline power feed 4 pole 60-150A	4	90	0.29
FG0080300002	Splice joint & inline power feed 5 pole 60-150A	5	110	0.36

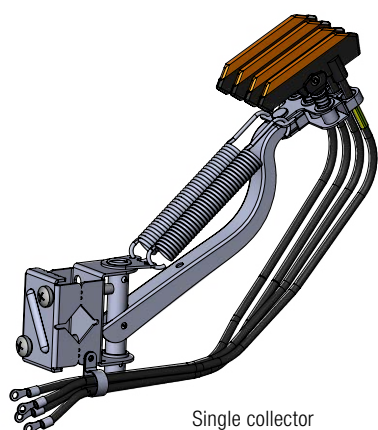
# Multipole Tension Rail System

## Collector

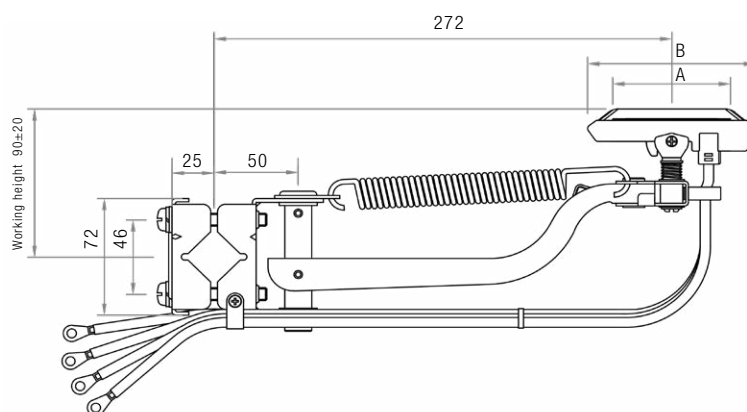
Installed on mobile equipment, used for supply power from conductor rail to equipment (single or double current collectors). The collector is fixed with 25mm square steel or square pipe support, which is not included in the collector components. The installation support should be designed according to the site conditions. For the installation interfaces, please refer to the installation manual.

Collector includes cable and cable lug, the cable total length is 1m, from brush holder to cable lug. Type of the cable lugs as below.

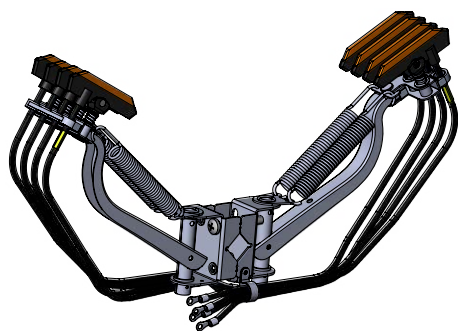
Type of Cable Lug	Cable Cross Section(mm <sup>2</sup> )	Current(A)	Fixed Bolt	Picture
8-5S	8	60A	M5	
SC25-6	25	100A	M6	



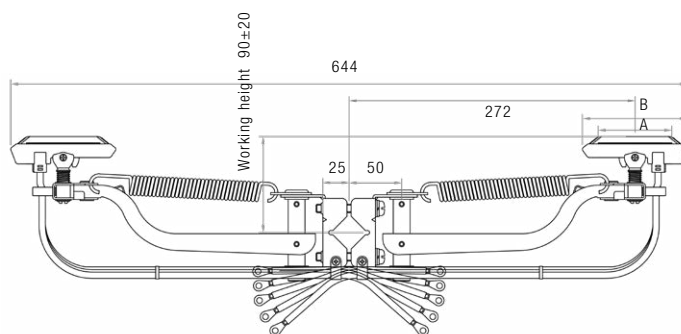
Single collector



Code	Article Description	A(mm)	B(mm)	Weight(kg/m)
FG008050017	Single collector 3 pole 60A without collector guide	70	100	1.00
FG008050018	Single collector 3 pole 100A without collector guide	95	125	1.22
FG008050001	Single collector 4 pole 60A without collector guide	70	100	1.16
FG008050002	Single collector 4 pole 100A without collector guide	95	125	1.41
FG008050003	Single collector 5 pole 60A without collector guide	70	100	1.32
FG008050004	Single collector 5 pole 100A without collector guide	95	125	1.60
FG008050019	Single collector 3 pole 60A with collector guide	70	100	1.66
FG008050020	Single collector 3 pole 100A with collector guide	95	125	1.88
FG008050005	Single collector 4 pole 60A with collector guide	70	100	1.82
FG008050006	Single collector 4 pole 100A with collector guide	95	125	2.07
FG008050007	Single collector 5 pole 60A with collector guide	70	100	1.98
FG008050008	Single collector 5 pole 100A with collector guide	95	125	2.26



Double Collector



Code	Article Description	A(mm)	B(mm)	Weight(kg/m)
FG008050021	Double collector 3 pole 60A without collector guide	70	100	2.00
FG008050022	Double collector 3 pole 100A without collector guide	95	125	2.40
FG008050009	Double collector 4 pole 60A without collector guide	70	100	2.32
FG008050010	Double collector 4 pole 100A without collector guide	95	125	2.82
FG008050011	Double collector 5 pole 60A without collector guide	70	100	2.64
FG008050012	Double collector 5 pole 100A without collector guide	95	125	3.24
FG008050023	Double collector 3 pole 60A with collector guide	70	100	3.32
FG008050024	Double collector 3 pole 100A with collector guide	95	125	3.76
FG008050013	Double collector 4 pole 60A with collector guide	70	100	3.64
FG008050014	Double collector 4 pole 100A with collector guide	95	125	4.14
FG008050015	Double collector 5 pole 60A with collector guide	70	100	3.96
FG008050016	Double collector 5 pole 100A with collector guide	95	125	4.52



Collector guide



Lateral application with installed collector guide

**Note:**

- a) Collector with guide,suit for lateral application.
- b) For improved contact performance and higher safty level(redundant PE)double collector are used.

### Collector head spare part

When the carbon brush is worn to the stop loss line, replace the spare parts of the carbon brush in time.



Code	Article Description	Weight(kg/m)
FG008050025	Collector head spare part 60A	0.2
FG008050026	Collector head spare part 100A	0.4

**Note:**

PE collector head is same with phase collector but need a green / yellow shrinking hose on the cable.Each spare part contains individual shrink hose,users need to put it on collector cable base on needed.



# Multipole Tension Rail System

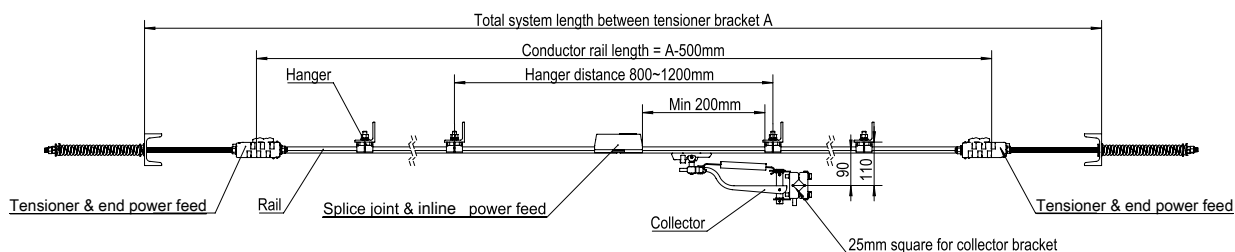
## Packaging Information

Code	Nominal value	Packing method	Rail length(m)	Package size(L * W * H)(mm)
FG008011009	3P*600V*60A	Crates	25≤X≤95 95≤X≤150	1680*1680*(220/240/260) 2000*2000*(220/240/260)
FG008011010	3P*600V*90A			
FG008010001	4P*600V*60A			
FG008010002	4P*600V*90A			
FG008010004	5P*600V*60A			
FG008010005	5P*600V*90A			
FG008011011	3P*600V*150A	Crates	25≤X≤85 85<X≤150	1680*1680*(220/240) 2000*2000*(220/240)
FG008010003	4P*600V*150A			

**Remark:** Less than 25m use folding box for packing, System accessories are the same.



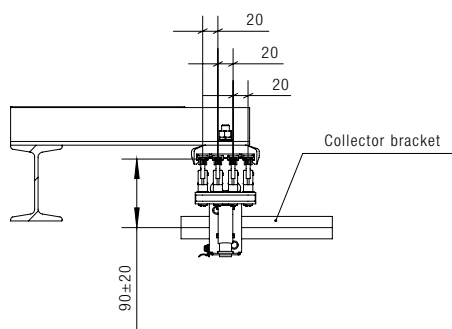
## Typical layout



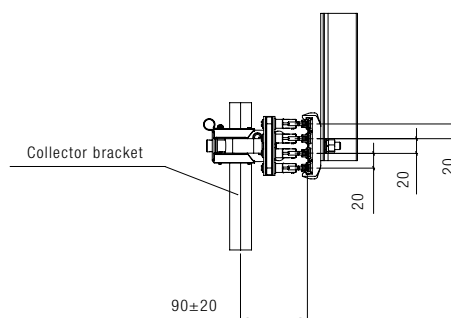
Design note:

- Steel structure for tensioner designed for a tension force up to 5000N
- Support arm load 500N with 1m hanger distance
- Strain relief must be provided on customer side

Horizontal installation

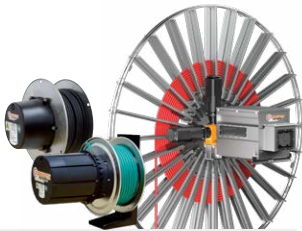


Lateral installation



# Your Applications – our Solutions

The solutions we deliver for your applications are based on your specific requirements. In many cases, a combination of several different Conductix-Wampfler systems can prove advantageous. You can count on Conductix-Wampfler for hands-on engineering support together with the optimum solution to safely meet your needs.



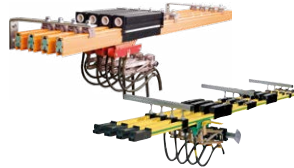
## Cable and Hose Reels

Motor driven and spring driven reels by Conductix-Wampfler provide energy, data and media over a variety of distances, in all directions, fast and safe.



## Festoon Systems

Conductix-Wampfler cable trolleys can be used in virtually every industrial application. They are reliable, robust and available in an enormous variety of dimensions and designs.



## Conductor Rails

Available as enclosed or multiple unipole systems, Conductix-Wampfler conductor rails reliably move people and material.



## Inductive Power Transfer

The no-contact system for transferring energy and data. For all tasks that depend on high speeds and absolute resistance to wear. Flexible installation when used with Automated Guided Vehicles.



## Non-insulated Conductor Rails

Robust, non-insulated aluminum conductor rails with stainless steel cap provide the ideal basis for power supply of people movers and transit networks.



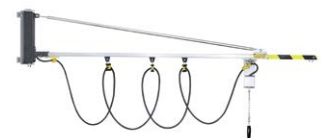
## Radio Remote Controls

Safety remote control solutions customized to meet our customer needs with modern ergonomic design.



## Reels, Retractors and Balancers

Available for hoses and cables, as classical reels or high-precision positioning aids for tools, we offer a complete range of reels and spring balancers.



## Jib Booms

Complete with tool transporters, reels or an entire media supply system – safety and flexibility are key to the completion of difficult tasks.



## Slip Ring Assemblies

Whenever things are really "moving in circles", the proven slip ring assemblies by Conductix-Wampfler ensure the flawless transfer of energy and data. Here, everything revolves around flexibility and reliability!



## Mobile Control Systems

Mobile control solutions for your plant – whether straightforward or intricate. Control and communication systems from LJV have been tried and tested in the automotive industry for decades.



## ProfiDAT®

This data transfer system is a compact slotted waveguide and furthermore can be used as Grounding rail (PE) as well as positioning rail at the same time.



## Charging Solutions

Whether inductive or conductive, this bundle of products offers always the perfect solution for all industrial charging tasks including the matching battery with integrated battery management system.

# www.conductix.com

## **Conductix-Wampfler**

has just one critical mission:

To provide you with energy and  
data transmission systems that  
will keep your operations up  
and running 24/7/365.

To contact your nearest  
sales office, please refer to:  
**[www.conductix.contact](http://www.conductix.contact)**

