

Modular Power Connector EvoTrak MPC

Railway | Modular connectors EvoTrak

EN



STÄUBLI ELECTRICAL CONNECTORS

Connections for Life



Stäubli, as the international technology leader, offers innovative mechatronics solutions in its four divisions: Electrical Connectors, Fluid Connectors, Robotics, and Textile. At Stäubli Electrical Connectors, we develop advanced connection solutions based on the reliable MULTILAM contact technology.

Together for reliable and safe connections

We know that you entrust us with the functionality of your applications and we work hard to ensure this every single day. Thanks to our high level of expertise, our extensive experience and the multiple successful co-operation with our partners, numerous new developments have originated at Stäubli Electrical Connectors and subsequently have become worldwide standards. This includes our MC4 connector portfolio for which we are today the global market

We create connections for life – and our customers are at the center of these connections. We are convinced that solid and stable partnerships directly contribute to our mutual success.

We take on the needs of our partners and deal with the most extraordinary challenges. As a result, we always create, sell and

leader in photovoltaic. As the Stäubli original, the MC4 represents the result of our constant quest for innovation, quality and safety.

Further examples are the CombiTac modular connector system or the Quick Charging Connector (QCC) for automatic charging systems.

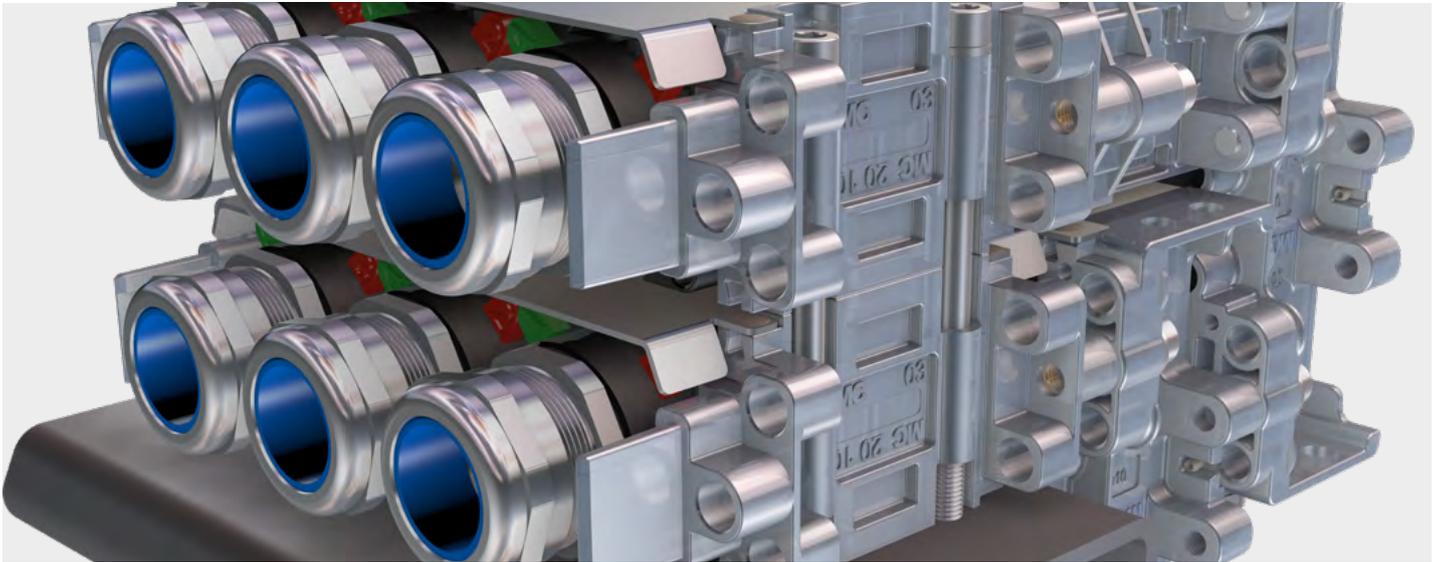
We ensure connections for life together with our long-standing customers in a wide range of industries from renewable energies, power transmission and distribution and E-mobility to industrial automation applica-

support reliable and long-lasting products for markets with the highest productivity and safety requirements in close cooperation with our customers.

tions, railway and welding automation, test and measurement and medical devices.

Thus, developing reliable, efficient and safe solutions based on our proven MULTILAM contact technology, which guarantees a high service lifetime in addition to highly efficient power transmission.

Applications and advantages



The Modular Power Connectors (EvoTrak MPC) can be used in the following applications:

- Every rolling stock: regional trains, high speed trains, metros, locomotives etc.
- All on-board power applications for inter-car connection on the roof or under the cars, traction converter and battery outputs, body to bogie and motor connection.

Thanks to the unique and tested MULTILAM Technology, our Modular Power Connectors guarantee high lifetime and reliability in applications with the most demanding requirements. They feature:

- Modularity through several configurations
- High resistance to vibration, shock and impact
- Compact solutions
- Easy and fast assembly

- Suitable for harsh environments
- Easy and fast maintenance
- Same system for every power connection

The Concept

This product range is designed to carry out the electric connections between several functions of the electrical chain of traction present on railway rolling stock.

The Modular Power Connector EvoTrak MPC has the advantage of a universal multi-application, compact and modular solution, through the rationalization and the standardization of the common components.

EvoTrak MPC features

- Assembly of several HV single pole connectors
- Rated up to 3600 V
- Contact Ø: 8 mm, 14 mm, and 20 mm
- Suited for cable cross-section from 10 mm² to 240 mm²
- 2 sizes of housings available
- Straight and right angled for plug versions
- Panel mount receptacles available in crimp, cable lug or busbar version



Technical data

Electrical data

Number of poles	1 – 15
Rated current Higher current possible (depending on temperature)	up to 700 A (ΔT 50 °K)
Rated voltage	up to 3600 V
Test voltage	12 kV
Cable cross section	10 mm ² – 240 mm ²
Protection, mated	IP66/IP67/IP69 (IEC 60529)
Creepage distance	40 mm
Clearance distance, acc. to EN 50124-1/OV3 - PD 3	32 mm
CTI (Comparative Tracking Index)	400 < CTI < 600
Type of termination for the receptacle	Crimping/Threading for Busbar or cable lug

Mechanical data

Mating cycles	> 500
Vibrations and shocks	Category 2 Bogie mounted

Material

Carrier	PA (UL94 V0)
Contacts	Cu (Ag)/Al (on request)
Screws	Stainless steel
End piece	Zamak

Climatic data

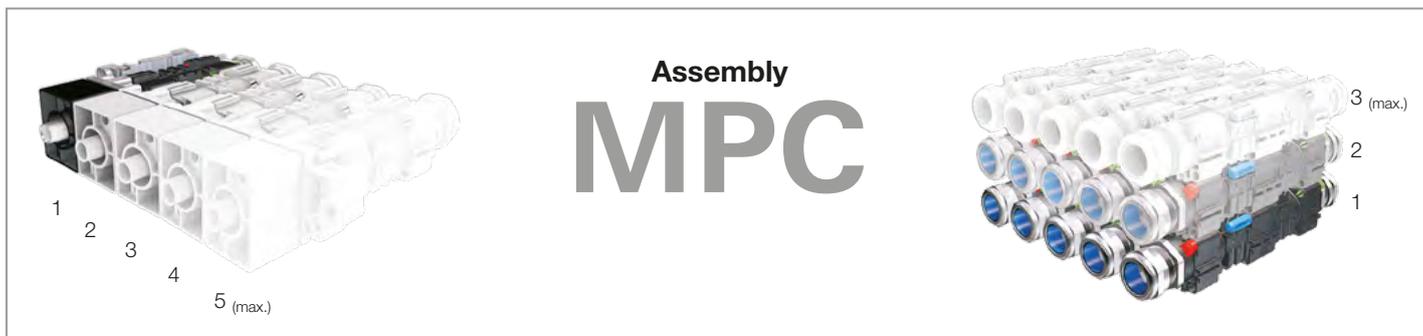
Operating temperature	-40 °C ... +120 °C
Surrounding temperature	-50 °C ... +70 °C
Salt spray test	500 h (EN 60068-2-11)

Norms

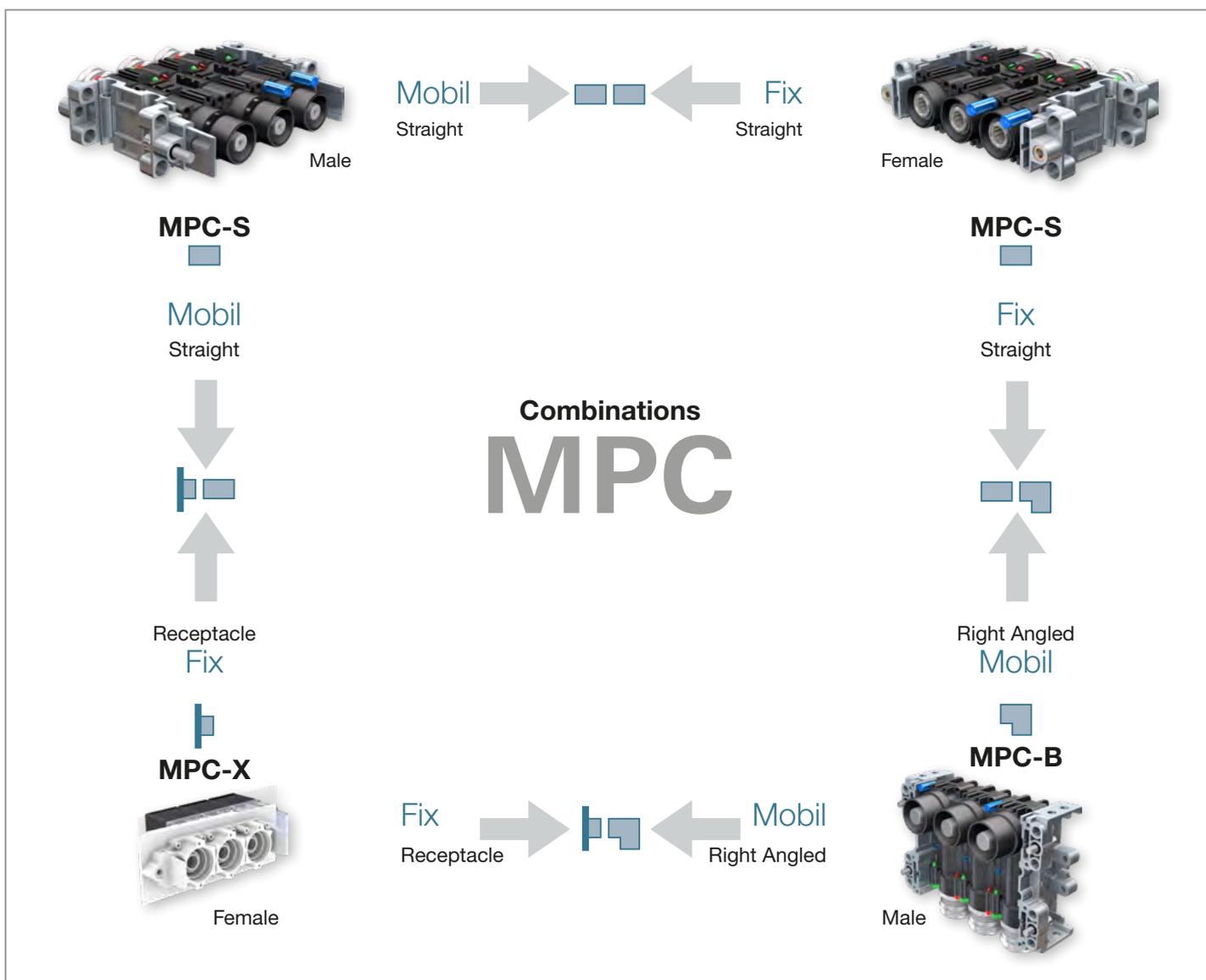
Railway applications – Rolling stock – Electrical connectors, requirements and test methods	EN 50467
Railway rolling stock system – Electrical connectors – General	NF F 61-030
Railway applications – Rolling stock equipment - Shock and vibration tests.	EN 61373
Railway applications – Insulation coordination. Part 1: basic requirements. Clearances and creepage distances for all electrical and electronic equipment.	EN 50124-1 NFPA130: According customer's application and requirements
Railway applications – Fire protection on railway vehicles. Part 2: Requirements for fire behaviour of materials and components	EN 45545-2
Railway rolling stock system – Fire performance – Choice of material	NF F 16-101
Railway rolling stock system – Fire performance – Choice of material, scope of application of electrical equipment	NF F 16-102
Railway applications – Railway rolling stock cables having special fire performance – Standard wall – Part 2: Single core cables	EN 50264-2:2002
Railway applications – Railway rolling stock high temperature power cables having special fire performance – Part 2: Single core silicone rubber insulated cables for 120 °C or 150 °C	EN 50382-2:2008
Railway rolling stock – Halogen free cables	NF F 63827
GOST-R	

Assembly and Combinations

The assembly of EvoTrak MPC connectors varies from 1 to 5 poles in-line and enables placement of up to 3 levels.

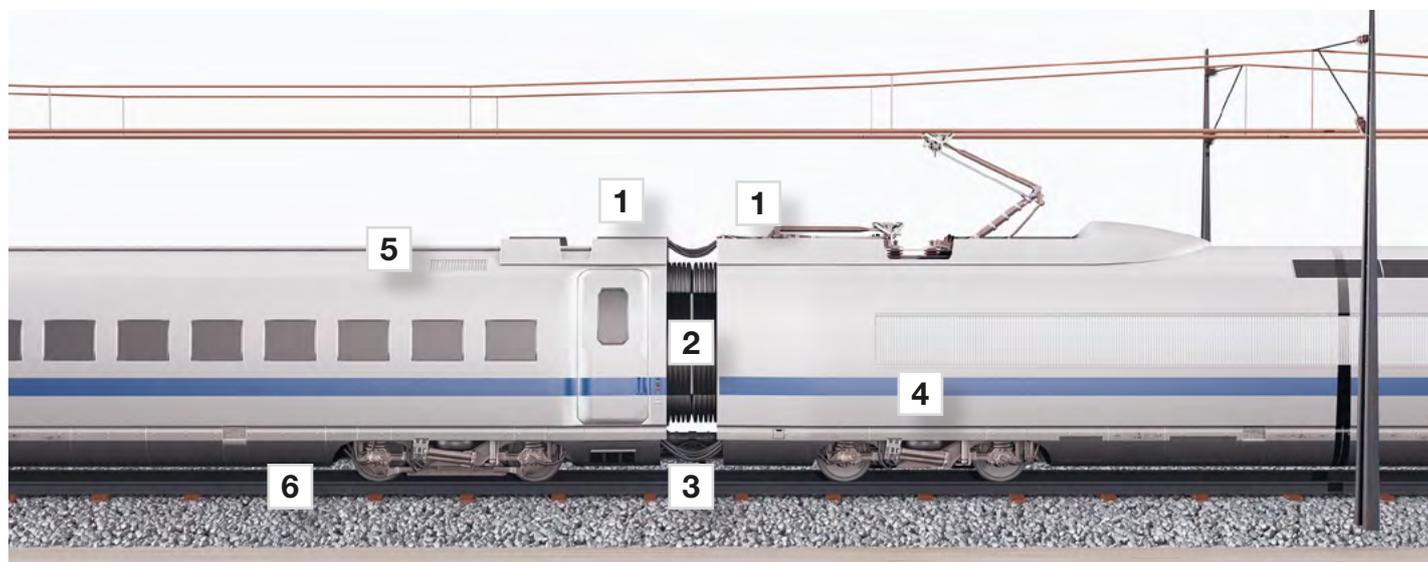


The range of products is made up of straight connectors (MPC-S), right angled (MPC-B), as well as receptacles (MPC-X). The various possible combinations are shown in the chart below:



Field of application

Type of connections		Example	Combinations					
Intercar couplings	on the roof	1	 Page 8		 Page 8	 Page 8		
	between cars	2		 Page 9			 Page 9	
	under cars	3	 Seite 8		 Seite 8	 Seite 8		
Motor		4	 Page 8					
Container/ Converter connection	on the roof	5		 Page 9			 Page 9	
	under cars	6		 Page 9			 Page 9	
Customer specific	1 level		 Page 8	 Page 9	 Page 8	 Page 8	 Page 9	
	2 levels		 Page 8	 Page 9	 Page 8	 Page 8	 Page 9	
	3 levels		 Page 8	 Page 9				



Application examples

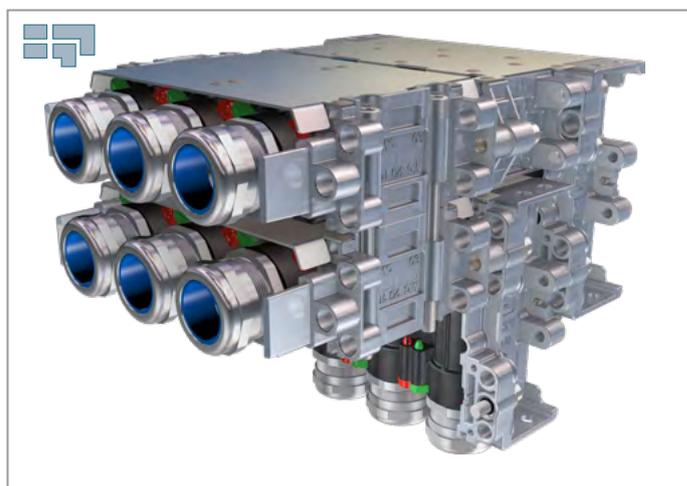
1 3 Intercar couplings or motor, flat connection



1 Intercar couplings, on the roof, cable output at 60°



2 Intercar couplings, on the roof, cable output at 90°



2 5 6 Intercar couplings, converter container connections



2 5 6 Intercar couplings, converter container connections



Application examples



Examples of intercar couplings with straight and right-angled EvoTrak MPC plug combinations. Even three-level solutions are possible.



Examples of motor and converter container connections. Straight or right-angled connections in combination with a panel receptacle are no problem for the EvoTrak MPC.

Customer-specific configuration

We can create a customer-specific EvoTrak MPC designed solely according to your specific requirements.

Please provide us with the following data:

Cable

- Cross section
- Outer diameter on insulation (min + max)

Current

- Nominal current (permanent)
- Peak current
- Short circuit current (I_{cc} + time)

Voltage

- Nominal voltage
- Test voltage

Contacts

- Number and configuration resp.

Combination of Connectors

- MPC-S – MPC-S
- MPC-S – MPC-X
- MPC-BS – MPC-X
- MPC-BS – MPC-S

Receptacles

- For crimp contacts
- With threading for cable lugs
- With threading for busbars

Optional

- Labeling
- Coding
- Shielding
- Dynamic cable option/strain relief
- Protection cap (against dust) for contacts when disconnected

Further information

- Depending on usage/requirements



● Stäubli Units ○ Representatives/Agents

Global presence of the Stäubli Group

www.staubli.com