FAST MOVING TECHNOLOGY

STÄUBLI

Modular Power Connector MPC

Railwayline | Industrial Connectors

EN

STÄUBLI ELECTRICAL CONNECTORS

Long-term solutions – Expert connections

Stäubli Electrical Connectors is a leading international manufacturer of high-quality electrical contacts and connector systems and solutions for industrial applications. We are part of the Stäubli mechatronics group, the technology leader in connection solutions, robotics and textile machinery.

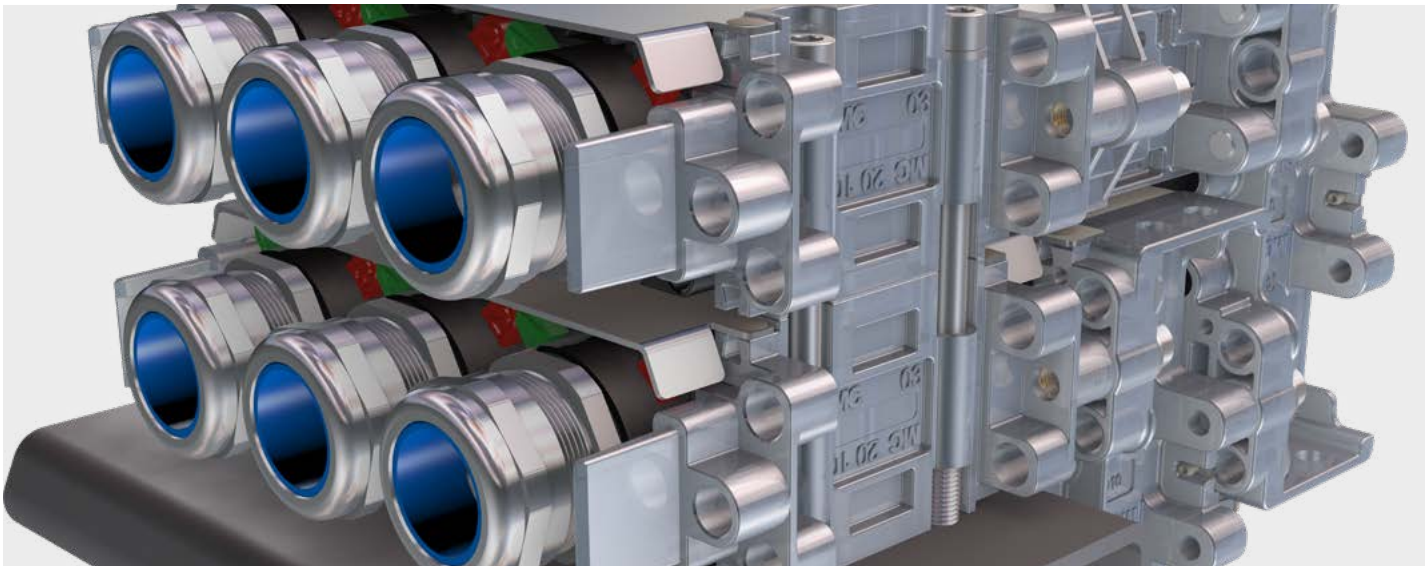
Stäubli develops, produces, sells and services products for markets with the highest productivity and safety standards. As recognized specialists, our focus is always on solutions and customers. Many new developments got their start here and are now becoming established as worldwide standards.

Our customers depend on our expertise and our active support, even when dealing with unusual challenges. With Stäubli, you're entering into a long-term partnership built on reliability, dedication, and exceptional quality in both products and services.

Pioneering contact technology for increased efficiency

The entire Stäubli Electrical Connectors product range meets market expectations for high performance, the highest number of mating cycles, and long-lasting reliability for safe, durable operation. Our proven **MULTILAM technology** is ideal for all types of connections in industrial applications.
Customers in the **power transmission and distribution** sector rely on our consistent, loss-free transmission performance in all voltage ranges. The **automotive industry** depends on our high-efficiency connections for spot-welding applications in production lines. Harsh conditions in the **transportation sector** require high vibration resistance, maximum reliability, and compact design. These attributes are vitally important for railway and e-mobility applications. The safety and reliability of our products are essential for **test and measurement technology.**
In the growing field of **alternative energy**, our products have been setting standards since the 1990s. About half of the solar energy generated worldwide is transmitted through safe, long-lasting, high-performance Stäubli connectors.

Applications and advantages



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

MPC features

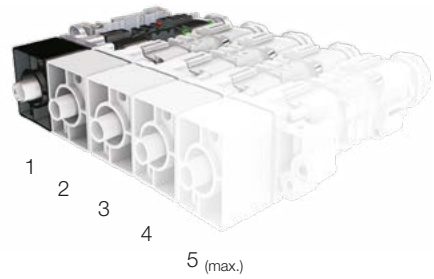
- Assembly of several HV single pole connectors
- Rated up to 3600 V
- Contact Ø: 8 mm, 14 mm, and 20 mm
- Suited for cable cross-section from 10 mm^2 to 240 mm^2
- 2 sizes of housings available
- Straight and right angled for plug versions
- Panel mount receptacles available in crimp, cable lug or busbar 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 Clearance distance, acc. to EN 50124-1/OV3 - PD 3	40 mm 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	240 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 MPC connectors varies from 1 to 5 poles in-line and enables placement of up to 3 levels.



Assembly

MPC

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:

Male

Mobil
Straight

Fix
Straight

Female

MPC-S

Mobil
Straight

MPC-S

Fix
Straight

Combinations

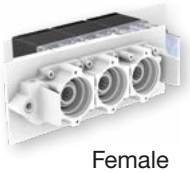
MPC

Receptacle
Fix

Right Angled
Mobil

MPC-X

MPC-B



Female

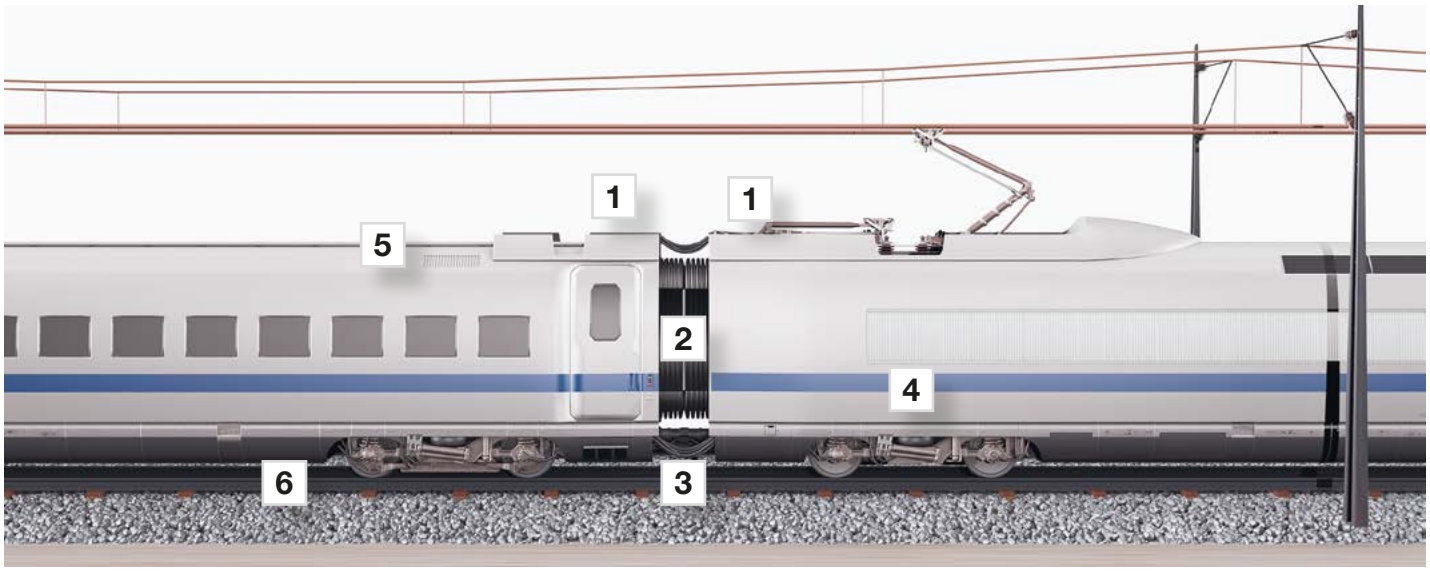
Fix
Receptacle

Mobil
Right Angled

Male

Field of application

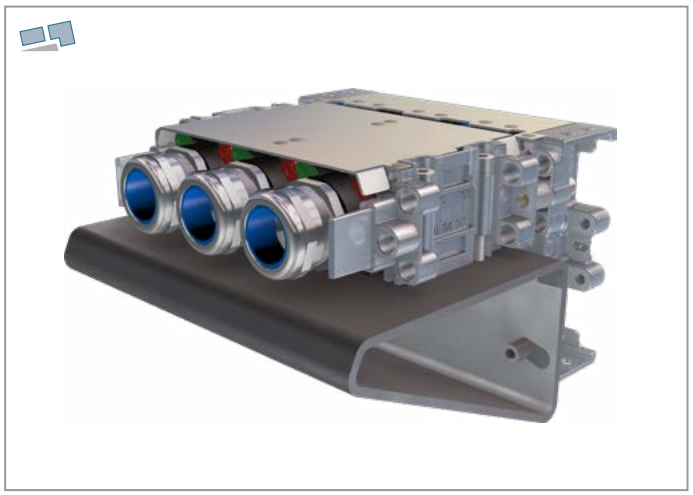
Type of connections		Example	Combinations				
Intercar couplings	on the roof	1	Page 8		Page 8	Page 8	
	between cars	2		Page 9			Page 9
	under cars	3	Seite 8		Seite 8	Seite 8	
Motor		4	Page 8				
Container/ Converter connection	on the roof	5		Page 9			Page 9
	under cars	6		Page 9			Page 9
Customer specific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

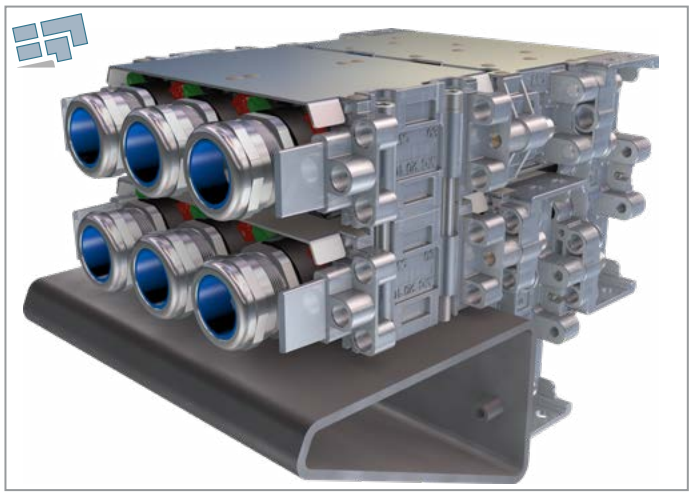


Application examples

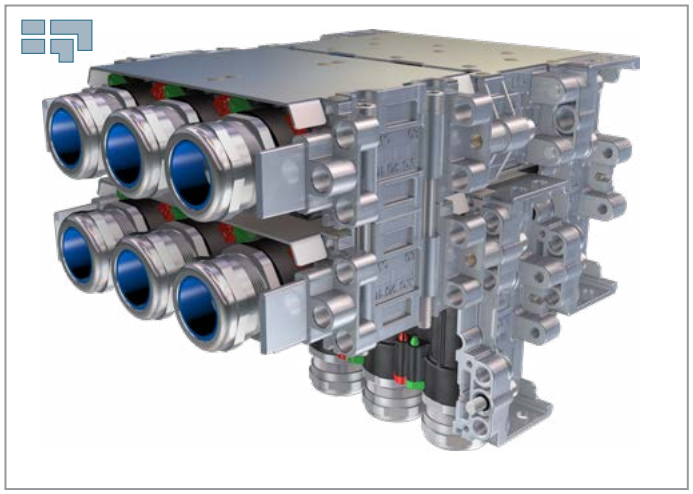
1 3 Intercar couplings or motor, flat connection

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



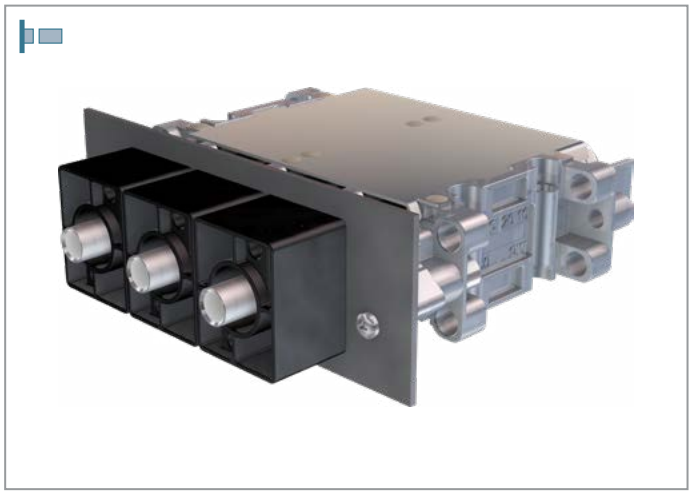


2 Intercar couplings, on the roof, cable output at 90°

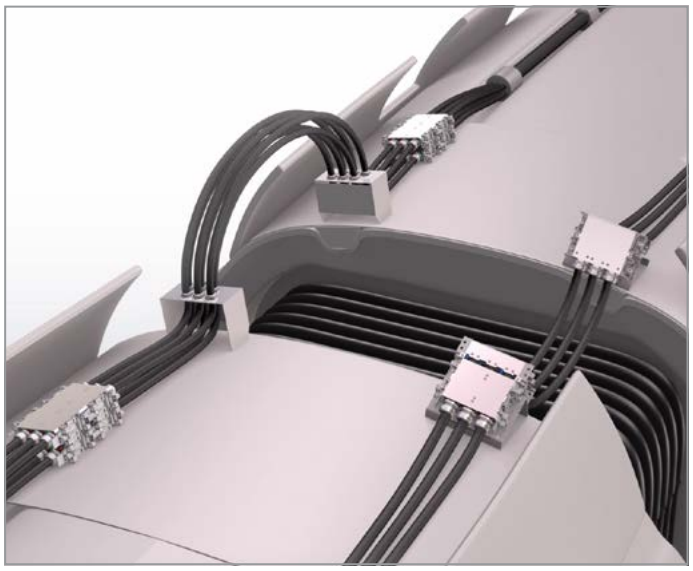


2 5 6 Intercar couplings, converter container connections

2 5 6 Intercar couplings, converter container connections



Application examples



Examples of intercar couplings with straight and right-angled 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 MPC.

Customer-specific configuration

We can create a customer-specific 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 (Icc + 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

KENSINGTON ELECTRONICS inc.

Not just products - Solutions!

INTERNATIONAL, ALASKA & HAWAII

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