

**INDUSTRIAL@AMPHENOL**  
TRUSTED GLOBALLY



**POWERMATE**



**INDUSTRIAL@AMPHENOL**

CONNECTIVITY SOLUTIONS INDUSTRIAL  
& COMMERCIAL TRANSPORTATION

# CONNECTIVITY FOR INDUSTRIAL TRANSPORTATION

We want to enable and support our customers with the industrialization of electric propulsion systems and secure a greener, more sustainable future in the industrial and commercial transportation sector.

We are a market leader for interconnection solutions for battery electric propulsion systems, as well as for Fuel Cell propulsion systems.

Our interconnections are especially designed for harsh environments with hard requirements in terms of high power, environmental influences, vibrations and safety.

We prove that by validation according Automotive standards that are accepted by major OEMs in this market, to provide the best customer solutions within the right timing of the customers project and product life cycle.

Enabling the electronics revolution within the segment of Industrial & Commercial Transportation.

Offering a wide range of various interconnection solutions for ICT segment, especially validated according market standards for critical features that enable secure interconnection for every applications and especially harsh environments.

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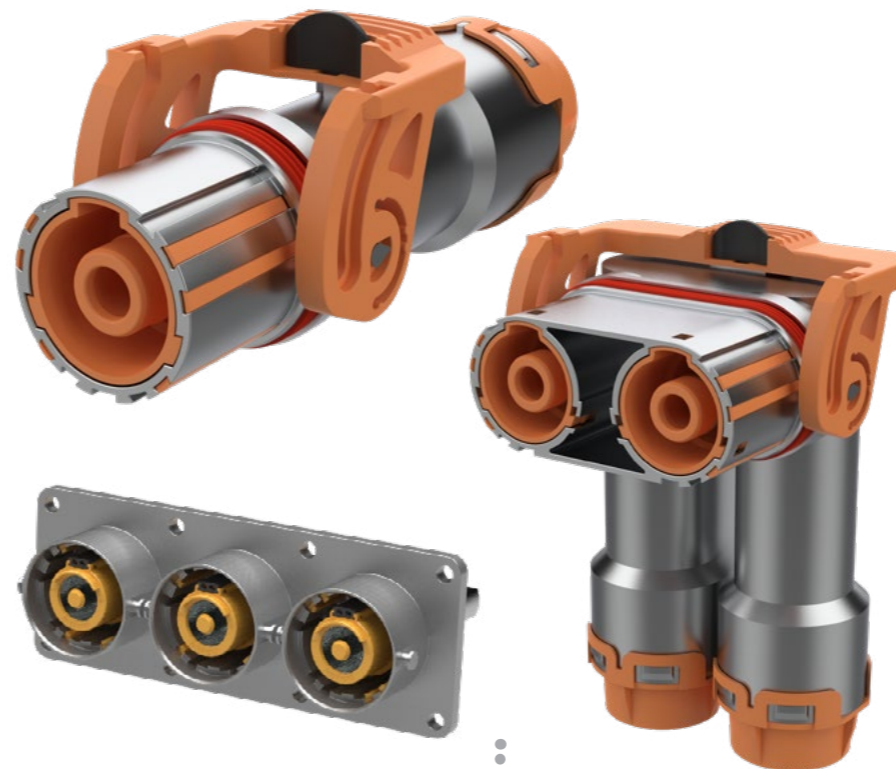
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# POWERMATE - KEY FEATURES AND PRODUCT SPECIFICATION

The PowerMate series is a high voltage interconnection system for various applications on the propulsion system of Battery Electric Commercial Vehicles, for example inverter, motor or battery.

PowerMate is specifically designed for harsh environments.

SERIES	CONTACT SIZE	Poles	WIRE GAUGE	RATED CURRENT
PowerMate 500	14 mm RADSOK	1,2 ways	70 mm <sup>2</sup>	380 A
		1,2 ways	95 mm <sup>2</sup>	415 A
		1,2 ways	120 mm <sup>2</sup>	470 A
		1,2 ways	150 mm <sup>2</sup>	515 A
PowerMate 300	8 mm RADSOK	1,2,3 ways	16 mm <sup>2</sup>	148 A
		1,2,3 ways	25 mm <sup>2</sup>	180 A
		1,2,3 ways	35 mm <sup>2</sup>	215 A
		1,2,3 ways	50 mm <sup>2</sup>	255 A
		1,2,3 ways	70 mm <sup>2</sup>	300 A



Criteria	PowerMate
Temperature Range	-40 to 125 °C
IP-Rating	IP6K7, IP6K9K mated
Touchproof	IPXXB mated/unmated, IPXXD mated
Voltage Rating	up to 1500 V DC
HVIL	yes
Mating cycles	60 cycles
Corrosion resistance	+600 h (LV)
CPA	Yes
General validation	according LV 215, ISO 16750/3-7&9

## KEY FEATURES:

- Very small mounting height
- Assembly with crimp tools
- Validation according EMEA Automotive standards
- Vibration resistant design and validation
- 16-150mm<sup>2</sup> wire gauge in only two frame sizes
- Short lead-time due to modular and variable design
- Manufactured in European Union



Contact us for product related information:  
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industrial@amphenol.de

Please note that we can offer all cable connectors as cable assemblies according your specific requirements

- With all typical cables known to the market. We are pleased to share suggestions.
- Specific B-side, also non-Amphenol content.
- Splitters – also overmoulded.
- Typical accessories like clips, tape, conduits, etc.



# POWERMATE NUMBERING SYSTEM

C215	2AG21	000	01
	1.2.3.4.	5.	6.

## 1. Number of Poles HV

- 1 – 1 pole
- 2 – 2 pole
- 3 – 3 pole (only receptacle)

## 2. Coding

- A – coding A
- B – coding B
- C – coding C
- D – coding D
- E – coding E
- F – coding F
- Z – coding Z

## 3. Version

- H – cable connector straight
- K – cable connector right angled
- G – receptacle

## 4. Connection type

- 1 – Crimp
- 2 – screw connection
- 3 – screw connection with thread

## 5. Cross Section

- 000 – Receptacle
- 801 – Receptacle without HVIL contacts
- 016 – 16mm<sup>2</sup> wire gauge
- 025 – 25mm<sup>2</sup> wire gauge
- 035 – 35mm<sup>2</sup> wire gauge
- 050 – 50mm<sup>2</sup> wire gauge
- 070 – 70mm<sup>2</sup> wire gauge
- 095 – 95mm<sup>2</sup> wire gauge
- 120 – 120mm<sup>2</sup> wire gauge

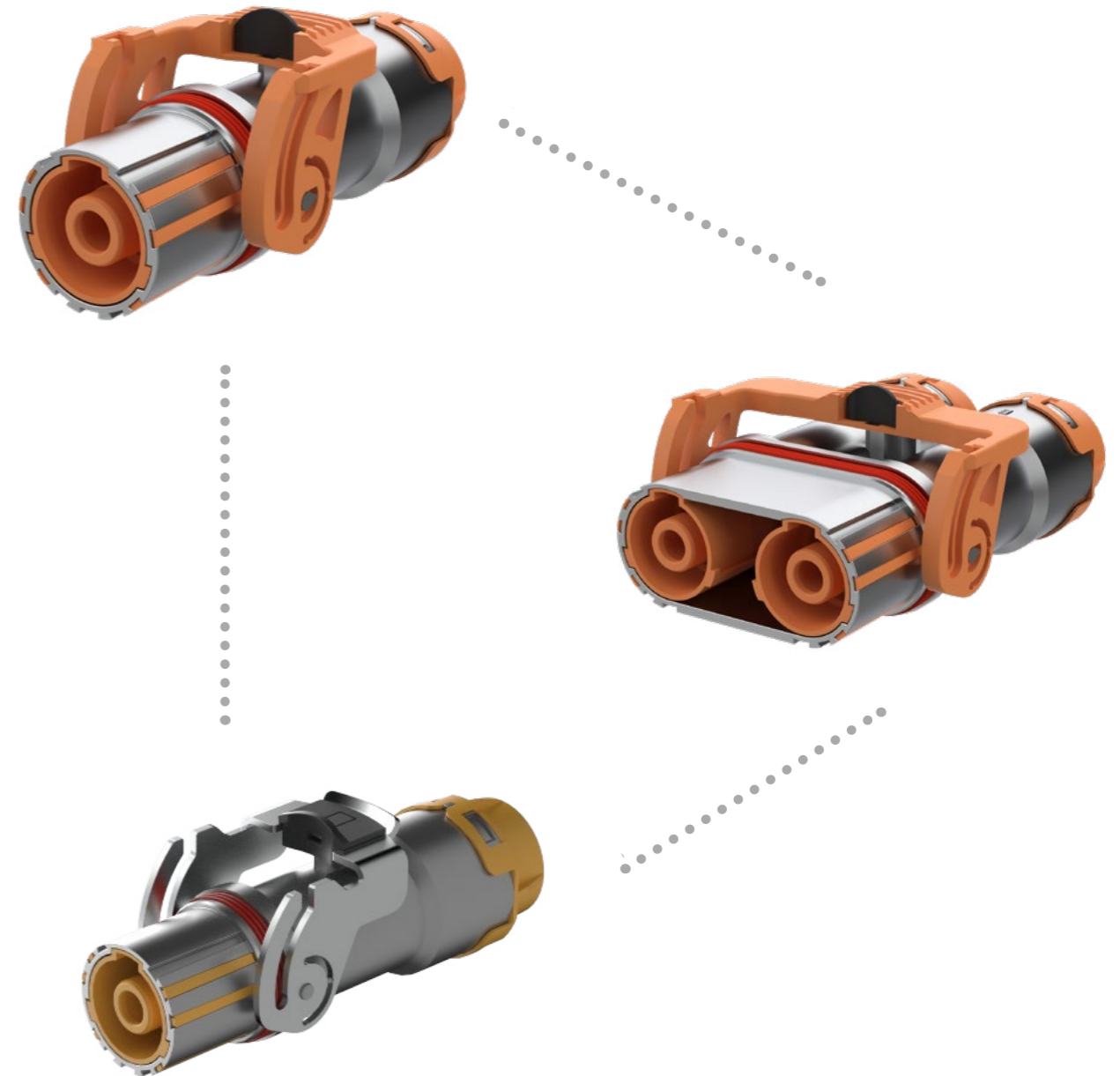
## 6. Size

- 01 – PowerMate 500
- 02 – PowerMate 300
- 21 – PowerMate 500 Multipole
- 22 – PowerMate 300 Multipole

# CABLE CONNECTORS

## C215 XXH11 XXX XX: MALE CABLE CONNECTOR POWERMATE 500, STRAIGHT

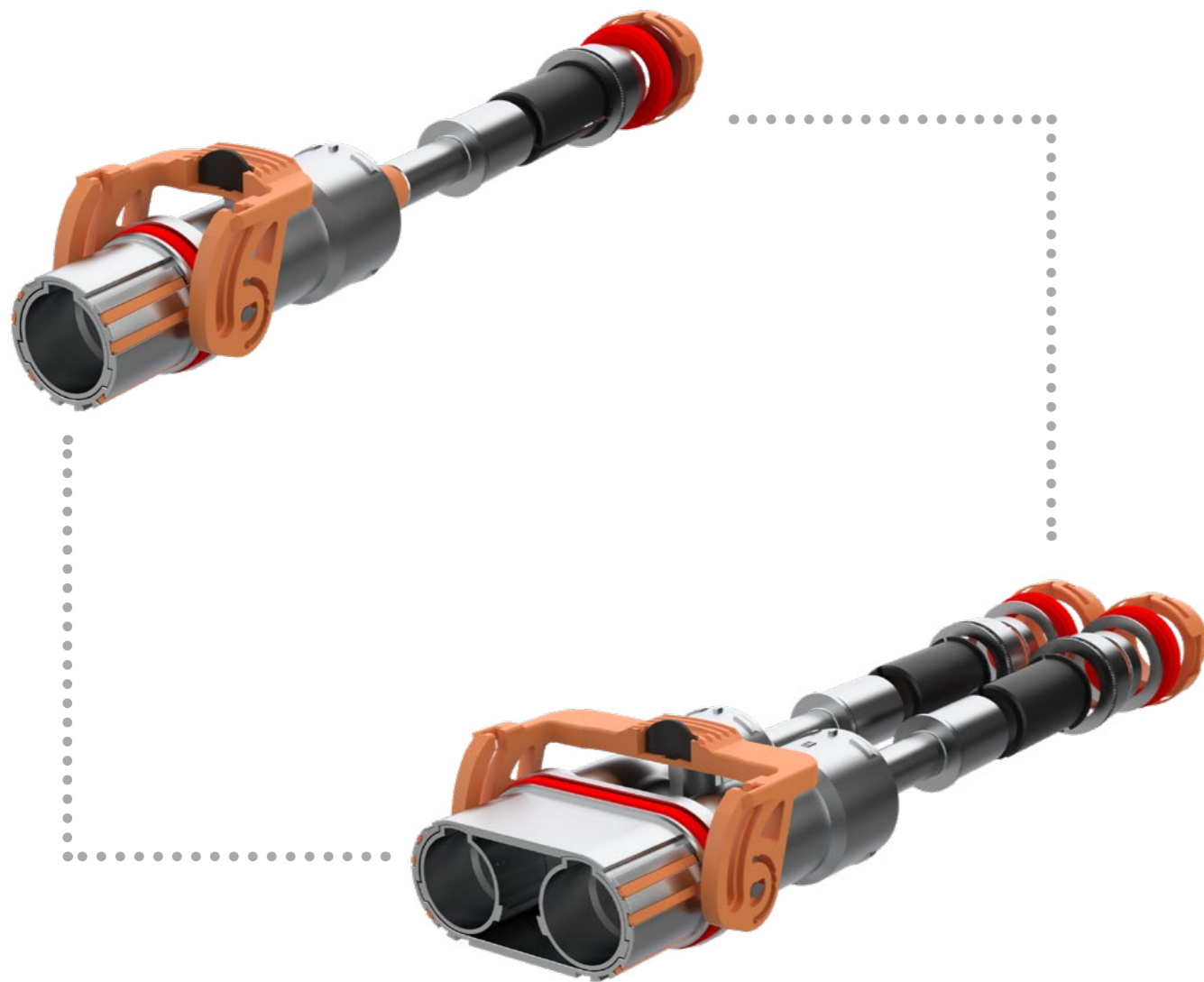
Assembled status



# CABLE CONNECTORS

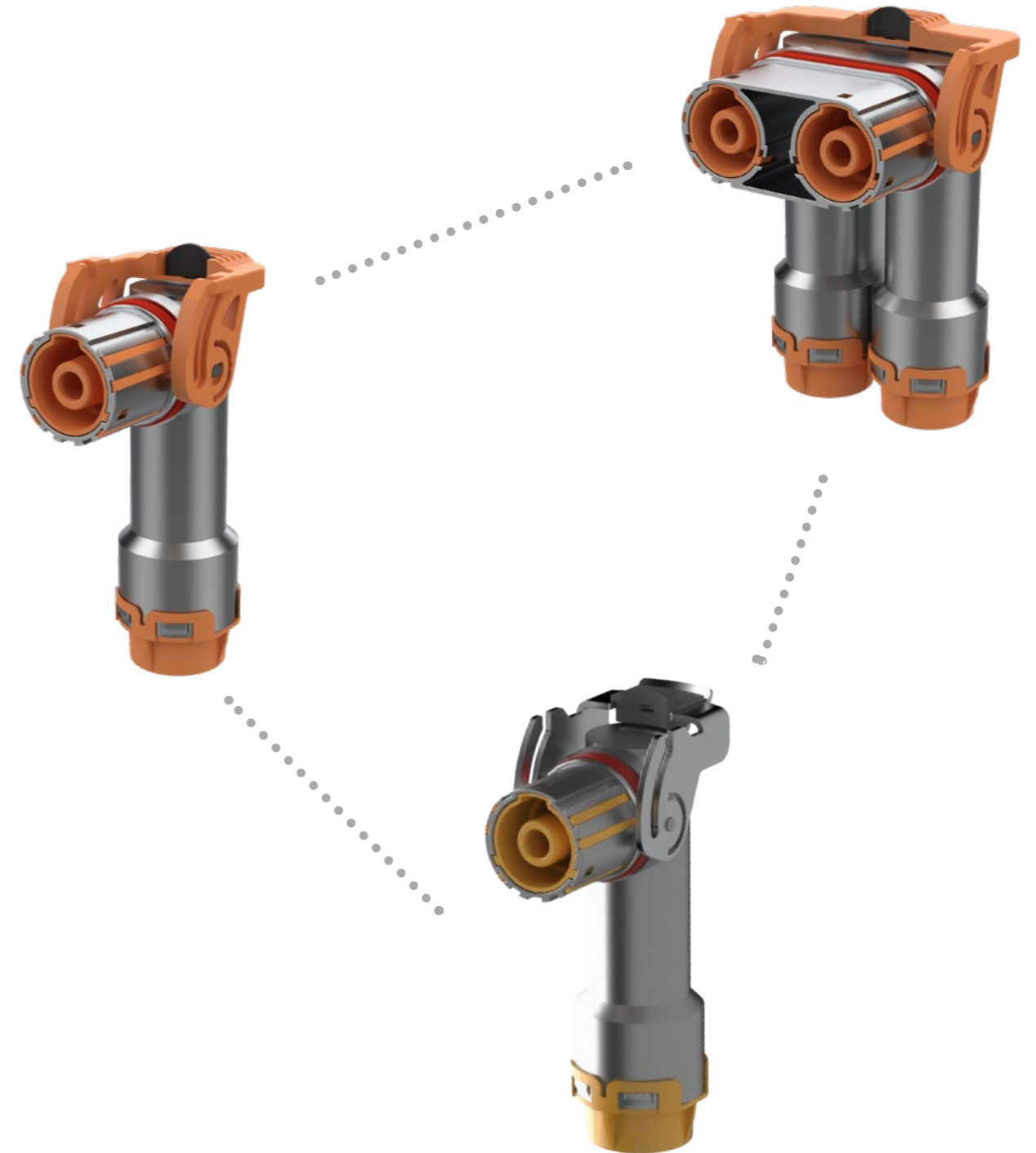
C215 XXH11 XXX XX:  
MALE CABLE CONNECTOR POWERMATE,  
STRAIGHT

Delivered in subassemblies



C215 XXK11 XXX XX:  
MALE CABLE CONNECTOR POWERMATE,  
RIGHT ANGLED

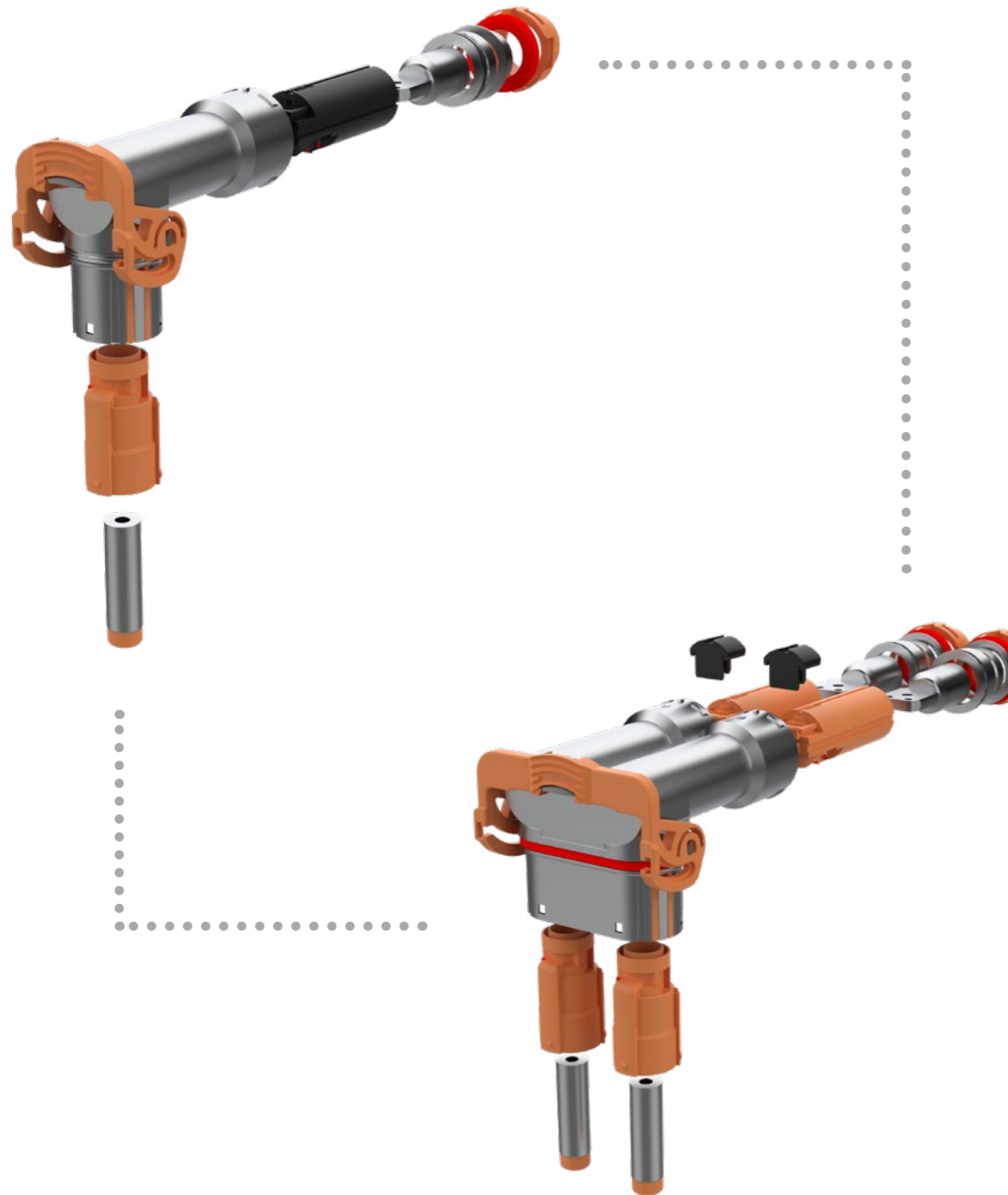
Assembled status



# CABLE CONNECTORS

## C215 XXK11 XXX XX: MALE CABLE CONNECTOR POWERMATE, RIGHT ANGLED

Delivered in subassemblies



## POWERMATE 500 CABLE CONNECTOR

DESCRIPTION	ORIENTATION	POLES	WIRE GAUGE [mm <sup>2</sup> ]	PART NUMBER	CODINGS
Cable Connector	180°	1,2	70	C215 XXH11 070 01	A,B,C,D,E,F,Z
		1,2	95	C215 XXH11 095 01	A,B,C,D,E,F,Z
		1,2	120	C215 XXH11 120 01	A,B,C,D,E,F,Z
		1,2	150	C215 XXH11 150 01	A,B,C,D,E,F,Z
Cable Connector	90°	1,2	70	C215 XXK11 070 01	A,B,C,D,E,F,Z
		1,2	95	C215 XXK11 095 01	A,B,C,D,E,F,Z
		1,2	120	C215 XXK11 120 01	A,B,C,D,E,F,Z
		1,2	150	C215 XXK11 150 01	A,B,C,D,E,F,Z

## POWERMATE 300 CABLE CONNECTOR

DESCRIPTION	ORIENTATION	DIMENSION	WAYS	WIRE GAUGE [mm <sup>2</sup> ]	PART NUMBER	CODINGS
Cable Connector	180°	PICTURE	1,2	16	C215 XXH11 016 02	A,B,C,D,E,F,Z
			1,2	25	C215 XXH11 025 02	A,B,C,D,E,F,Z
			1,2	35	C215 XXH11 035 02	A,B,C,D,E,F,Z
			1,2	50	C215 XXH11 050 02	A,B,C,D,E,F,Z
			1,2	70	C215 XXH11 070 02	A,B,C,D,E,F,Z
Cable Connector	90°	PICTURE	1,2	16	C215 XXK11 016 02	A,B,C,D,E,F,Z
			1,2	25	C215 XXK11 025 02	A,B,C,D,E,F,Z
			1,2	35	C215 XXK11 035 02	A,B,C,D,E,F,Z
			1,2	50	C215 XXK11 050 02	A,B,C,D,E,F,Z
			1,2	70	C215 XXK11 070 02	A,B,C,D,E,F,Z

## POWERMATE 500 RECEPTACLES

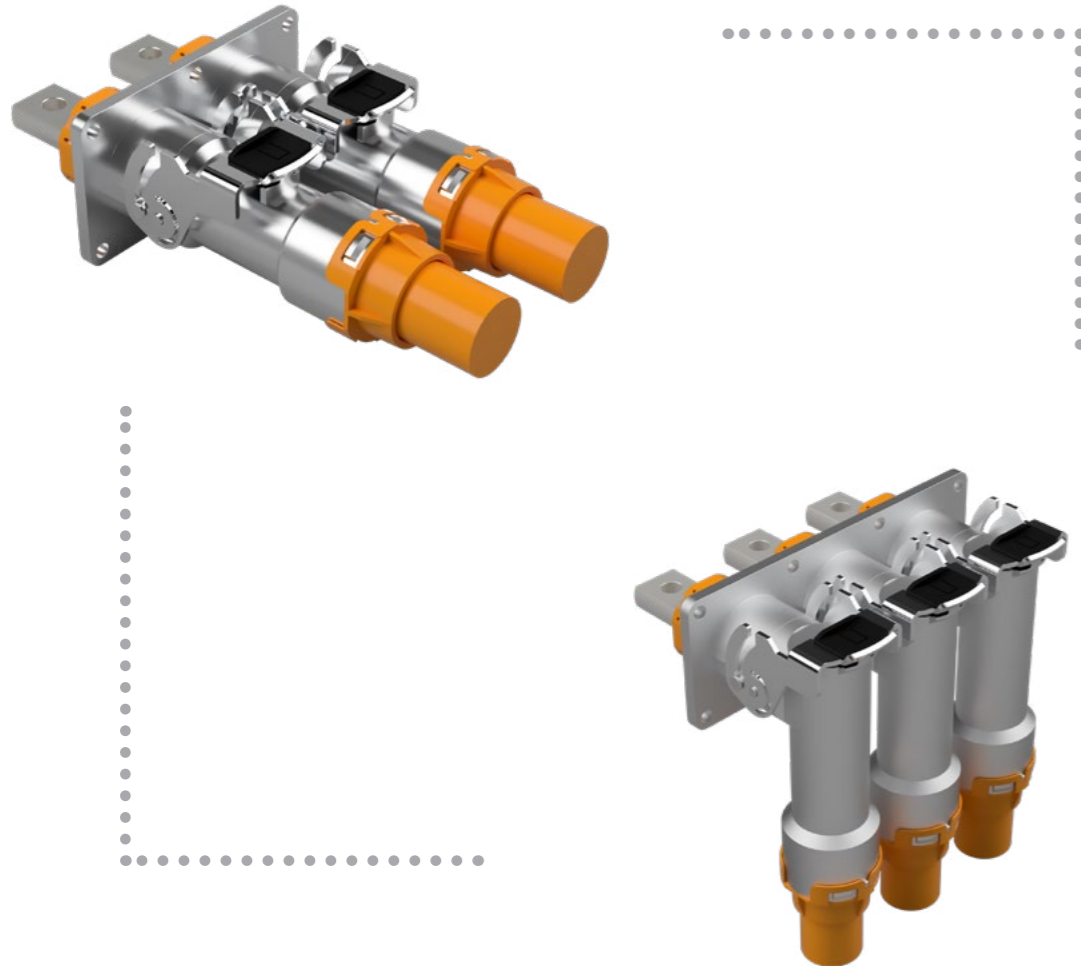
DESCRIPTION	ORIENTATION	POLES	PART NUMBER	CODINGS	TERMINATION
Receptacles	180°	1	C215 1XG21 000 01	A,C,E	Busbar - screw connection
Receptacles	180°	2	C215 2XG21 000 01	A,D	Busbar - screw connection

## POWERMATE 300 RECEPTACLES

DESCRIPTION	ORIENTATION	POLES	PART NUMBER	CODINGS	TERMINATION
Receptacles	180°	1	C215 1XG21 000 02	A,B,C,D,E,F,Z	Busbar - screw connection
Receptacles	180°	2	C215 2XG21 000 02	A,B,C,D,E,F,Z	Busbar - screw connection

# POWERMATE MULTIPOLE SYSTEM

Multipole Receptacles (2- & 3 ways, PowerMate 300 and 500) to mate with 1-way cable connector. Bigger contact sizes required for high currents are hard to mate due to high mating forces, especially in 2- or 3 ways housings. System improves the handling of multiple cables.



## Key Features Multipole System:

- efficient handling of high wire gauges in a single Receptacle.
- 2 contact and housing sizes for wire gauges from 16-150 mm<sup>2</sup> in 2- & 3 ways.
- Validation according EMEA Automotive standard (LV & ISO; designed AND tested).
- Assembly with Crimping for easy assembly also for higher wire gauges.
  - No EMPT, no high tool invest necessary.
- Smallest mating height on 90deg solution orientation via connector.

## POWERMATE 500 MULTIPOLE CONNECTORS

DESCRIPTION	ORIENTATION	POLES	WIRE GAUGE [mm <sup>2</sup> ]	PART NUMBER	CODINGS
Multipole Cable Connector	180°	1	70	C215 1XH11 070 21	A,B,C,D,E,F,Z
		1	95	C215 1XH11 095 21	A,B,C,D,E,F,Z
		1	120	C215 1XH11 120 21	A,B,C,D,E,F,Z
		1	150	C215 1XH11 150 21	A,B,C,D,E,F,Z
Multipole Cable Connector	90°	1	70	C215 1XK11 070 21	A,B,C,D,E,F,Z
		1	95	C215 1XK11 095 21	A,B,C,D,E,F,Z
		1	120	C215 1XK11 120 21	A,B,C,D,E,F,Z
		1	150	C215 1XK11 150 21	A,B,C,D,E,F,Z

## POWERMATE 300 MULTIPOLE CONNECTORS

DESCRIPTION	ORIENTATION	POLES	WIRE GAUGE [mm <sup>2</sup> ]	PART NUMBER	CODINGS
Multipole Cable Connector	180°	1	16	C215 1XH11 016 22	A,B,C,D,E,F,Z
		1	25	C215 1XH11 025 22	A,B,C,D,E,F,Z
		1	35	C215 1XH11 035 22	A,B,C,D,E,F,Z
		1	50	C215 1XH11 050 22	A,B,C,D,E,F,Z
		1	70	C215 1XH11 070 22	A,B,C,D,E,F,Z
Multipole Cable Connector	90°	1	16	C215 1XK11 016 22	A,B,C,D,E,F,Z
		1	25	C215 1XK11 025 22	A,B,C,D,E,F,Z
		1	35	C215 1XK11 035 22	A,B,C,D,E,F,Z
		1	50	C215 1XK11 050 22	A,B,C,D,E,F,Z
		1	70	C215 1XK11 070 22	A,B,C,D,E,F,Z

## POWERMATE 500 MULTIPOLE RECEPTACLES

DESCRIPTION	ORIENTATION	POLES	PART NUMBER	CODINGS	TERMINATION
Multipole Receptacles	180°	2	C215 2XG21 000 21	A,C,E	Busbar - screw connection
Multipole Receptacles	180°	3	C215 3XG21 000 21	A,D	Busbar - screw connection

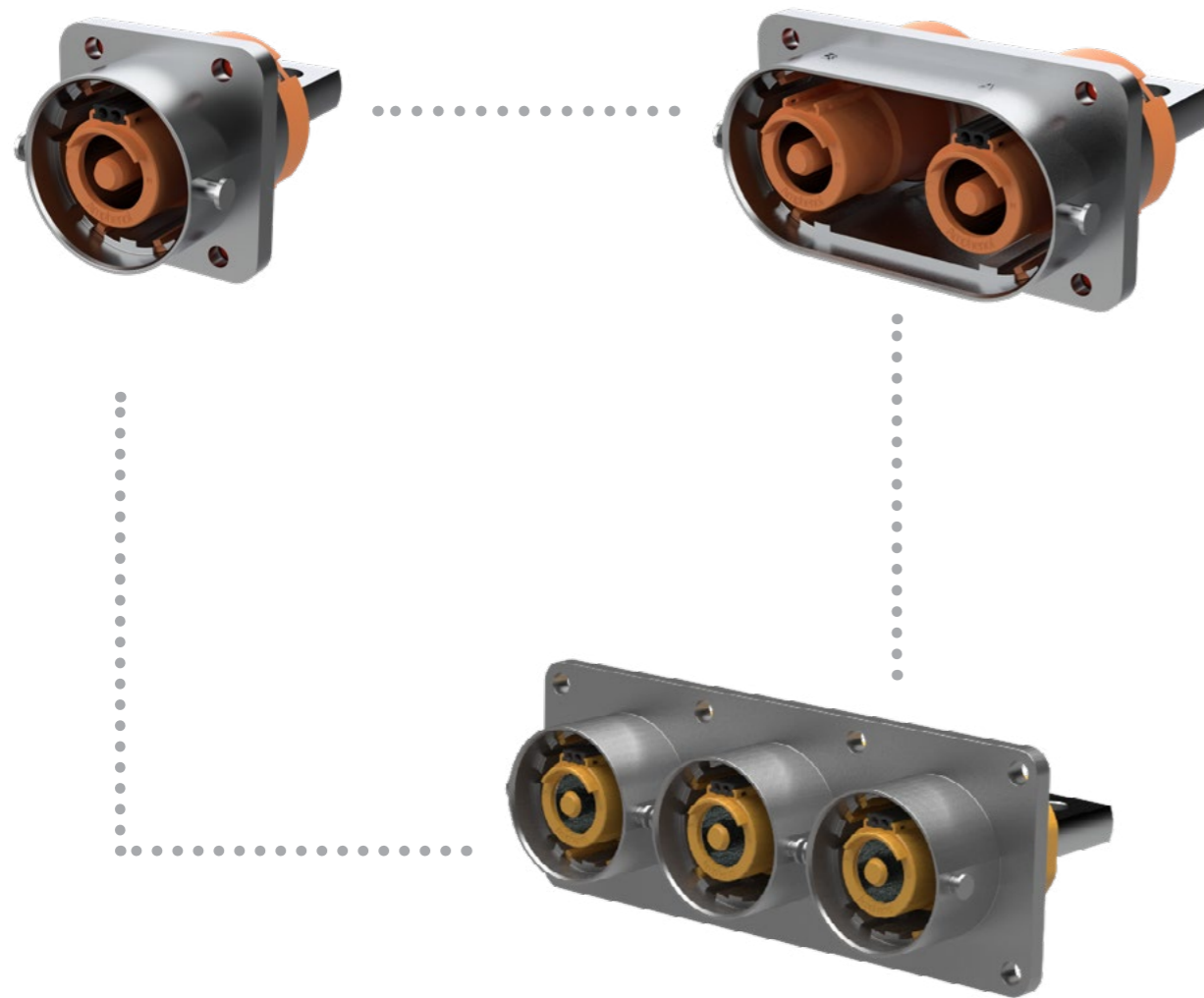
## POWERMATE 300 MULTIPOLE RECEPTACLES

DESCRIPTION	ORIENTATION	POLES	PART NUMBER	CODINGS	TERMINATION
Multipole Receptacles	180°	2	C215 2XG21 000 22	A,C,E	Busbar - screw connection
Multipole Receptacles	180°	3	C215 3XG21 000 22	A,D	Busbar - screw connection

# RECEPTACLES

## C215 XXGX1 000 XX: FEMALE RECEPTACLES POWERMATE 500, FRONT MOUNTING

Delivered in complete assembled status



## POWERMATE 500 RECEPTACLES

DESCRIPTION	ORIENTATION	POLES	PART NUMBER	CODINGS	TERMINATION
Receptacle	180°	1	C215 1XG21 000 01	A,B,C,D,E,F,Z	Busbar - screw connection
Receptacle	180°	2	C215 2XG21 000 01	A,B,C,D,E,F,Z	Busbar - screw connection
Multipole Receptacle	180°	2	C215 2XG21 000 21	A,B,C	Busbar - screw connection
Multipole Receptacle	180°	3	C215 3XG21 000 21	A,B,C	Busbar - screw connection

## POWERMATE 300 RECEPTACLES

DESCRIPTION	ORIENTATION	POLES	PART NUMBER	CODINGS	TERMINATION
Receptacle	180°	1	C215 1XG21 000 01	A,B,C,D,E,F,Z	Busbar - screw connection
Receptacle	180°	2	C215 2XG21 000 01	A,B,C,D,E,F,Z	Busbar - screw connection
Multipole Receptacle	180°	2	C215 2XG21 000 22	A,B,C	Busbar - screw connection
Multipole Receptacle	180°	3	C215 3XG21 000 22	A,B,C	Busbar - screw connection



# CODINGS

CODING	1 POL	2 POL
A		
B		
C		
D		
E		
F		
Z		

# CABLES POWERMATE 500

CROSS SECTION	H+S PART NUMBER	OUTER DIAMETER	CONTACT CRIMP TOOL	SHIELDING CRIMP TOOL
150mm <sup>2</sup>	84 111 254	24.9 ± 0.5	TE 0500 501	TS 0500 501
120mm <sup>2</sup>	84 103 410	22.6 ± 0.4	TE 0500 402	TS 0500 402
95mm <sup>2</sup>	84 100 299	19.9 ± 0.4	TE 0500 307	TS 0500 307
70mm <sup>2</sup>	84 100 298	17.0 ± 0.3	TE 0500 204	TS 0500 204

# CABLES POWERMATE 300

CROSS SECTION	H+S PART NUMBER	OUTER DIAMETER	CONTACT CRIMP TOOL	SHIELDING CRIMP TOOL
70mm <sup>2</sup>	84 111 298	17.0 ± 0.3	TE 0500 203	TS 0500 204
50mm <sup>2</sup>	84 103 257	14.9 ± 0.3	TE 0500 104	TS 0500 104
35mm <sup>2</sup>	84 100 296	12.7 ± 0.3	TE 0500 091	TS 0500 091
25mm <sup>2</sup>	84 100 604	11.2 ± 0.3	TE 0500 071	TS 0500 071
16mm <sup>2</sup>	84 116 032	9.7 ± 0.3	TE 0500 065	TS 0500 065

# SAFETY CLASSIFICATION

## 1. General Remarks

These connectors are designed on the base of LV215 especially in accordance with the standards IEC 60664-1 (VDE 0110-1) and IEC 60529.

The connectors may be used only within the technical ratings. All technical data refer to mated connectors under live conditions. The safety of the connector system depends on the correct selection of products, proper assembly of the connector device and a precise fit of the connectors

## 2. Application Remarks

Connectors with / without breaking capacity must be used according to specified technical ratings.

The technical data represents the initial value of mated parts under predetermined conditions and length of time. These values could change with different test parameters or product requirements.

The connectors of the series are designed for the use in commercial vehicles. The product has been tested for the intended purposes only. If the connection is used other than originally intended, or in another manner that we have not previously tested, the consumer assumes full responsibility.

All rated data for the connectors listed in this catalogue are based on overvoltage category II and pollution degree 3 for electronic applications if not stated differently. When using connectors with / without breaking capacity, ensure that they are fully plugged in resp. securely locked or screwed together.

Selection and testing of connectors with / without breaking capacity to meet specific product or industrial requirements such as rated voltage and the related clearances and creepage distances are the responsibility of the user.

## 3. Assembling Remarks

Protection against electrical shock of the termination of the connectors shall be secured by correct mounting according the assembly instruction. Connectors of the same or different series being mounted side by side may be protected against incorrect mating by the use of coding options. Care must be taken to ensure the parts are correctly mated and screws are tightened with the proper torque.

## 4. Termination Remarks

All cable properties or specifications must be compatible with the connector design and materials.

Designated wire conductors must be terminated to the correct poles in the connector. Wire should be stripped correctly according to printed specifications to insure no electrical contact can be made between the conductors. There should be no nicked or cut strains during the stripping action. It's strictly recommended to fix the cable 100mm after the connector.

# SOLUTION GUIDE

## INDUSTRIAL TRANSPORTATION

SERIES	A SERIES	ISOBUS	Groundmate	ACTIVE PIN LOCK
				
Typical Segments and Applications	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Transportation</li> <li>• Marine</li> <li>• Diagnostic</li> <li>• 48 V Applications</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Transportation</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Transportation</li> <li>• Factory Automation</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Energy Storage</li> <li>• Machine Tools</li> <li>• Medical</li> </ul>
Mating Cycles	100	100	1.000	1.000
Contact Positions	1 - 102	2+2+4+1	1	1
Voltage	48 V DC	24 V DC	60 V DC/AC	60 V DC/AC 100 V DC/AC
AWG/mm <sup>2</sup>	4 - 26 AWG	6 - 16 mm <sup>2</sup>	4 - 10 mm <sup>2</sup>	16 - 50 mm <sup>2</sup>
Shielding	No	No	No	No
IP Ratings	IP65, IP67, IP69K	IP67/IP69K	IP20	IP20
Highlights	<ul style="list-style-type: none"> <li>• usable with 48 V applications &amp; electrical systems</li> <li>• validated according SAE J2023</li> </ul>	<ul style="list-style-type: none"> <li>• Connection between tractor and implement standardized connection according ISO 11783-2</li> <li>• customized cable assemblies up on request</li> </ul>	<ul style="list-style-type: none"> <li>• Fast connection for grounding</li> </ul>	<ul style="list-style-type: none"> <li>• Fast connection for grounding</li> </ul>

# SOLUTION GUIDE

## INDUSTRIAL TRANSPORTATION

SERIES	PRESSFIT	PRESSMATE	SPE	MULTIWAY SYSTEM
				
Typical Segments and Applications	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Transportation</li> <li>• Energy Storage</li> <li>• Machine Tools</li> <li>• Medical</li> <li>• Grounding</li> <li>• fast connection</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Transportation</li> <li>• Energy Storage</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Transportation</li> <li>• Displays</li> <li>• Camera Systems</li> <li>• Controllers</li> <li>• Switch</li> <li>• Gateway</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Transportation</li> <li>• Marine</li> <li>• Diagnostic</li> <li>• 48 V Applications</li> </ul>
Mating Cycles	1.000	50	100	100
Contact Positions	1	1 - 2	2	38 - 102
Voltage	60 V DC/AC 1.000 V DC/AC	> 1.000 V DC/AC	48 V DC	250 V AC/DC
AWG/mm <sup>2</sup>	specific	specific	20 - 22 AWG	6 - 22 AWG
Shielding	No	No	Yes	No
IP Ratings	IP00	specific	IP67, IP69K	IP67, IP69K
Highlights	<ul style="list-style-type: none"> <li>• Easy to install Power to Board solutions for high Power applications</li> </ul>		<ul style="list-style-type: none"> <li>• Standardized interface for fast &amp; reliable data transmission Displays</li> <li>• Camera Systems</li> <li>• Controllers</li> <li>• Switch</li> <li>• Gateway</li> </ul>	<ul style="list-style-type: none"> <li>• High pole count connector systems in a lot of different styles for various electrical systems</li> </ul>

MSD	POWERMATE	HVSL	HVSL AUXILIARY	ECOMATE RM
				
<ul style="list-style-type: none"> <li>• Transportation</li> <li>• Energy Storage</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Transportation</li> <li>• Rail Mass Transit</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Transportation</li> <li>• Energy Storage</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Transportation</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Transportation</li> </ul>
50	50	50	50	500
2	3	1 - 3	2 - 5	1 - 48
500 V DC / 1.000 V DC	1.500 V DC	1.000 V DC	1.000 V DC	690 V DC
specific	16 - 150 mm <sup>2</sup>	35 - 120 mm <sup>2</sup>	2.5 - 16 mm <sup>2</sup>	0.09 - 95 mm <sup>2</sup>
Shielding	No	Yes	Yes	Yes
IP67, IP69K	IP67, IP6K9K	IP67, IP6K9K	IP67, IP6K9K	IP67, IP69K
	<ul style="list-style-type: none"> <li>• Validated according specific EMEA Automotive standards</li> </ul>		<ul style="list-style-type: none"> <li>• Most connector systems are available for the use with Multi shielding cables</li> </ul>	<ul style="list-style-type: none"> <li>• Circular metal connector with bayonet locking</li> </ul>

# SOLUTION GUIDE

## INDUSTRIAL TRANSPORTATION

SERIES	ENERGYMATE	CHARGING INLETS	CHD 90 DEG HEADER
			
Typical Segments and Applications	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Transportation</li> <li>• Energy Storage</li> <li>• Factory Automation</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Transportation</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy Equipment</li> <li>• Transportation</li> </ul>
Mating Cycles	10.000	10.000	50
Contact Positions	2 - 100	CCS2, CCS2, AC, MCS	2
Voltage	1.000 V DC	1.000 V DC	1.500 V DC
AWG/mm <sup>2</sup>	0.09 - 95 mm <sup>2</sup>	150 mm <sup>2</sup>	70 - 120 mm <sup>2</sup>
Shielding	Yes	Yes	Yes
IP Ratings	IP00	specific	IP67, IP69K
Highlights	<ul style="list-style-type: none"> <li>• Rack- &amp; Panel solutions, Tolerance +/- 10 mm</li> </ul>	<ul style="list-style-type: none"> <li>• All standard interfaces available</li> <li>• customized cable assemblies up on request</li> </ul>	<ul style="list-style-type: none"> <li>• 90 degree header if application requires specific orientation</li> </ul>



[www.amphenol-industrial.de](http://www.amphenol-industrial.de)



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