

*The certification icons shown on the cover only represent the certifications covered by the entire catalog.
For the certifications of each product, please refer to the technical characteristics of the product in the catalog.

” WAIN at the EPLAN Data Portal

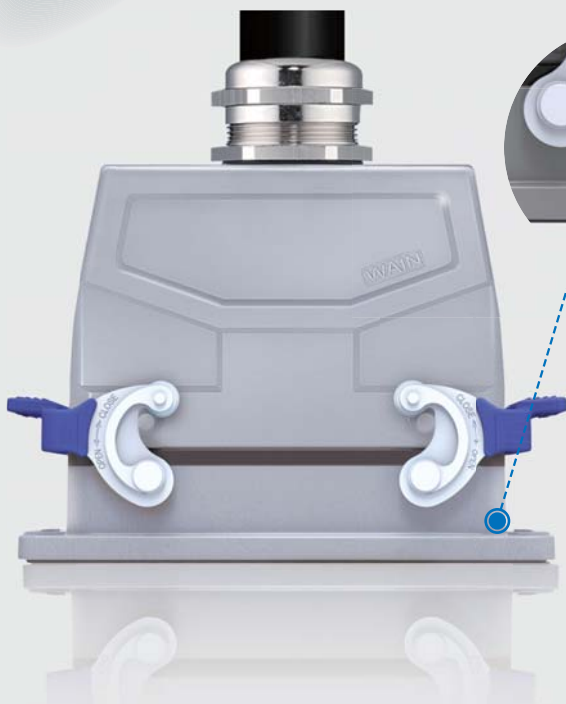
We are glad to inform you that WAIN products are now available on EPLAN Data Portal. There are more than 3500 components online for your reference. This way, customers can select WAIN products more quickly and conveniently so as to save the time of design and production and furthermore improve the efficiency.



” Selected the best
online products
over 3500



WAIN[®] new hoods/housings (IP67)



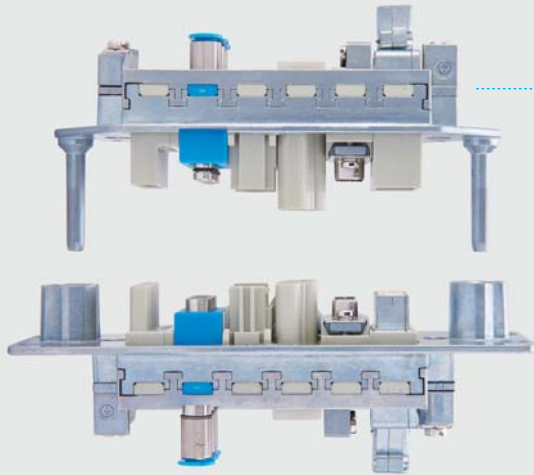
■ Glue-free bottom base without mucilage glue

The hidden bottom base provides better corrosion resistance.

■ Innovation:

1. New appearance by independent development.
2. Degree of protection IP67.
3. The hidden glue-free bottom base provides better corrosion resistance.
4. Compatible with the old-designed hoods/housings.

HF24B-F(M)ADK Metal Docking Frame



Direct installation without hood and housing

Innovation:

1. Easy assembly and disassembly with hanging type half-threaded screws.
2. Putting guiding pins into conical holes to realize guiding.
3. Using the floating washers to increase gaps, it helps to increase guiding function.
4. Guiding through crown spring improves the safety performance greatly.
5. Direct installation and no need to match with hoods/housings.

HMP-003-V2 Metal Pneumatic Module

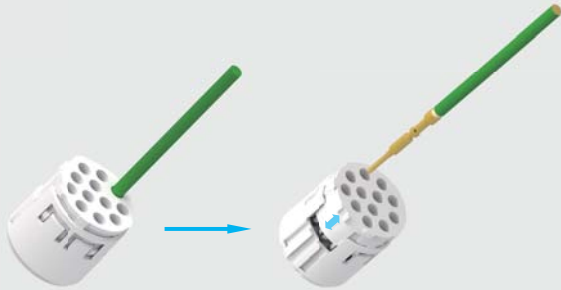


Innovation:

1. Easy disassembly of the contacts and module by using contact removal tool.
2. Quick connection and disconnection of the air tube.
3. Metal pneumatic contact increases strength and service life of the module.

MR23 Circular Connector

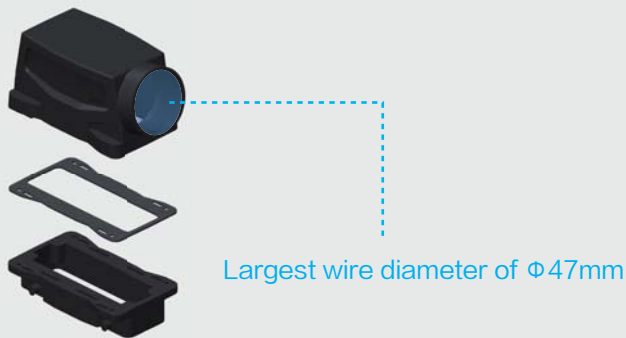
Efficient mounting and removal of contacts through Push-Pull mounting technology



Innovation:

1. Crimp connection stabilizes the signal transmission in vibration environment.
2. Push-Pull mounting technology realizes efficient mounting and removal without any tool.
3. Reverse coding is also available.

H24B.P-SEH-4B-M50 Extra Large Plastic Hood



Innovation:

1. The hood is designed as a separate structure, easy assembly and disassembly with screws
2. Enlarged space inside the hood makes it convenient to connect and install large cables
3. Mating hood and housing with locking levers, the connector will not easily fall apart
4. Excellent electrical insulating property (Insulating resistance $>10 \Omega$)
5. High performance material suits the harsh environment
6. Light weight, high mechanical properties and economical
7. Widely used in various applications, compatible with regular inserts, frames, etc.



32 pin anti-open circuit connector



Innovation:

1. The stress relief structure of PCB electrical connection can release the stress, so as to protect PCB from damage.
2. Assembly and welding of two-stage welding pins: one or more pins and PCB at male end are welded with female plug at the same time, which is not easy to damage the welding points, more effective to achieve reliable operation of the system, and easy to install and maintain.



Assembly and welding of two-stage welding pins
The stress relief structure of PCB electrical connection
can release the stress, so as to protect PCB from damage.

7/8 Circular connector

Screw terminal, Easy assembly on site.



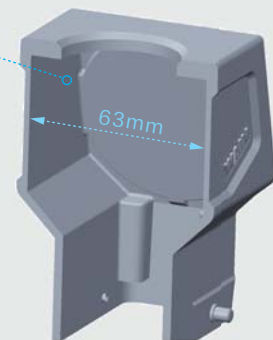
Innovation:

1. Original anti-loosing joint to avoid accidental loosening, with superior performance in shock resistance and vibration load.
2. 7/8 flange seat with fixed cable wiring design, greatly improving cable life and connection stability.
3. Screw terminal, easy to maintain and operate! Easy assembly on site.
4. Patented design with sleeve pin to improve mechanical life.
5. Superior waterproof, dustproof and explosion-proof performance, with protection grade up to IP67.
6. The connector is made of high temperature resistant material, with the maximum temperature of 125 °C, and the fire rating of UL94V0

W24B.C-TEH/E-4B-M50 Enlarge metal hood



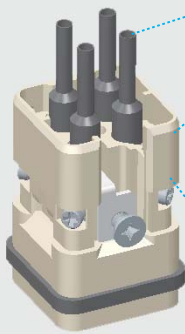
Internal space up to 63mm wide
Large cable wiring and installation is easier!



Innovation:

1. The internal space of the conventional 24B high structure hood is only 34mm, and the internal space of this extra large shell can reach 63mm.
2. Increase the internal space to ensure that the cable with large cable outer diameter can also be wired.
3. It is made of aluminum alloy metal with high strength and long service life!
4. It can be compatible with conventional insert, frame and other usage, It has a wide range of uses.
5. Wiring method: side entry/top entry.

HA-003-M/F-V2 new and upgraded modules



The max is up to 2.5mm² terminal connection

The cover is open up and down,
Simply insert the cable when it is installed
The corresponding insert hole position,
easy to operate.

The cover is designed with buckle limit,
so it will not fall off



The innovative:

1. There is a cover barrier between the insert and shell.
Ensure sufficient creepage distance to ensure reliable electrical performance;
2. The top outlet avoids the side outlet when the wire needs to be folded into 90° and then up. It is convenient operation when wiring;
3. Protective the cover structure is reliable, pushing up and down will not fall off.
4. It has the function of coding pin, including 4 encoding modes



WAIN independently developed "TL-DZ Thimble Device"

The indicator



WAIN TL - DZ thimble is a kind of tool for detecting contact retention, use the function of the LED lights have solved the problem of test results is not intuitive, structure compact, the operation is simple and intuitive, chrome plated good appearance, the mechanical working life is 100000 times or more, a variety of immediate free replacement, compatible with a variety of pin detection, detection a strength can be customized by customer

*Please refer to P31-05~P31-06 for selection and operation.

- ① Female head:
for testing 16A female contact (optional)
- ② Female head:
for testing 10A female contact (standard)
- ③ Female head:
for the detection of 5A female contact (standard)
- ④ male head:
used for 5A/10A/16A male contact detection (standard)

M12 Circular Connector, X-coded



The high data transmission speed is up to 10Gbps.

The innovative:

1. The high data transmission speed is up to 10Gbps.
2. Full metal shell, effective anti-electromagnetic interference.
3. Adopts cold-pressed contact, which can effectively resist vibration and increase the stability of data transmission.
4. The contact is fixed by side pressure and insert, which is convenient for assembly and maintenance without tools

1440 Shell

The neutral salt spray test is up to **1440** hours (C5H grade)



1440 Shell

1. Adopt the special treatment process
2. The neutral salt spray test is up to 1440 hours (C5H grade)
3. Apply to all the aluminum alloy shell
4. It can be used in the environment with high anti-corrosion requirements

WAIN Heavy duty connector

Heavy-duty connector is designed for modular production pre-wiring and satisfying severe environmental conditions, which is mainly applied in rail transit, industrial automation and equipment manufacturing fields. Compared with traditional wiring methods, use of heavy-duty connector can reduce site wiring operation after equipment or vehicle leaves the workshop, enhance production efficiency and reduce quality risk of site wiring.

Flexible production is core reflection of industrial 4.0. Modular design, production and application of all functional modules of equipment can lay solid foundation for flexible production. With deep development of industrial automation, equipment has witnessed more renovation. For example, a large amount of equipment has adopted module design whose functions have been constantly increased according to application demand. Use of heavy-duty connectors including pneumatic module, large current module, electromagnetic shielding module and D-Sub module has not only achieved accessible and rapid connection among module equipment, but also has guaranteed transmission of signal and power supply. As for manufacturers of machinery equipment, they can not only obtain safe and reliable connection, but also save installation time and reduce comprehensive production cost. As for end users, they can easily install operation equipment without instructions of any professional personnel and maintenance also becomes easier. It can not only increase effectiveness and practicality of machinery equipment, but also reduce installation time and reduced equipment repair time.

WAIN is a comprehensive professional enterprise with integration of R&D, manufacture and sales of heavy-duty connectors. The company has modernized work places including injection molding workshop, hardware workshop, casting workshop, electroplating workshop, assembly and mould workshop. In addition, the company has product R&D and product performance testing laboratory and several technical patents. We are dedicated to providing high-quality product for industrial connection system. WAIN connector product has thousands of portfolios and can satisfy electric and signal connection requirements of different fields and different situations.



Contents

Rectangular connector
–Inserts

	Rated voltage	Rated current	Number of contacts	Wire Connection	Page
HA Series –the slim inserts	230/400V 250V	10A 16A	3, 4, 10, 16, 32	Crimp / Screw Spring	P01–01 ~ P01–06
HE Series –compact inserts	500V	16A	6, 10, 16, 24, 32, 48	Crimp / Screw Spring	P02–01 ~ P02–10
HVE Series –high voltage inserts	830V 400/690V	16A 16A	3, 6, 10, 12, 20, 16, 32	Screw Crimp	P03–01 ~ P03–11
HVES Series –high voltage inserts	830V	16A	3, 6, 10, 12, 20	Spring	P04–01 ~ P04–07
HEE Series –high density inserts	500V *690V, 1000V	16A	10, 18, 32, 46, 40, 64, 92	Crimp	P05–01 ~ P05–12
HEEE Series –high density inserts	400V	16A	32, 72	Crimp	P05E–01 ~ P05E–04
HD&HDD Series –ultra–high density inserts	–120V/–50V 250V *400V, 500V	10A 10A	8 7–216	Crimp	P06–01 ~ P06–24
HSB Series –high heavy–current inserts	400/690V	35A	6, 12	Screw	P07–01 ~ P07–05
HK Series –combination inserts	160–830V	10A–100A	various	Crimp Screw	P08–01 ~ P08–27
HE AV Series –extendible inserts	500V	16A	6, 10, 16, 24	Screw	P09–01 ~ P09–07
HD AV Series –extendible inserts	250V	10A	40, 64	Screw	P09–08 ~ P09–12
HM Series –flexible and combined inserts	50–5000V Fiber Optic / Pneumatic	5A–200A	1–42	Crimp / Screw Spring	P10–01 ~ P10–70
HQ Series –compact inserts	230–690V	10A, 16A, 40A	2–17	Crimp Screw	P11–01 ~ P11–19
HC Series –high heavy–current inserts	1150–4000V	200A–650A	1–4	Crimp Screw	P12–01 ~ P12–26

Rectangular connector–Crimp contacts

Type	Page
5A, 10A, 16A, 40A, 70A, 100A, 200A, 250A, 350A, 650A Crimp	P13–01 ~ P13–07

Rectangular connector–Accessories

	Page
	P14–02 ~ P14–11
PCB–adapter	P14–02 ~ P14–11
Rail bracket	P14–12 ~ P14–13
Ground terminal/Docking frame	P14–14 ~ P14–16
Code pin	P14–17 ~ P14–18
Cable clamp	P14–19

Rectangular connector–Hoods/Housings

3A	Hoods/Housings (Plastic, Metal, EMC, Corrosion resistance, H version Pressure tight)	P15–06 ~ P15–16
10A	Hoods/Housings(Plastic, Metal)	P15–17 ~ P15–18
16A	Metal Hoods/Housings	P15–19 ~ P15–20
32A	Metal Hoods/Housings	P15–21 ~ P15–24
6B	Hoods/Housings (Plastic, Metal, Corrosion resistance, EMC, W version, H version, C version Pressure tight, WV/HV)	P15–25 ~ P15–38
10B	Hoods/Housings (Plastic, Metal, Corrosion resistance, EMC, W version, H version, C version Pressure tight, WV/HV)	P15–39 ~ P15–69
16B	Hoods/Housings (Plastic, Metal, Corrosion resistance, EMC, W version, H version, C version Pressure tight, WV/HV)	P15–70 ~ P15–107
24B	Hoods/Housings (Plastic, Metal, Corrosion resistance, EMC, W version, H version, C version Pressure tight, WV/HV)	P15–108 ~ P15–150
32B	Hoods/Housings (Metal, WV/HV)	P15–151 ~ P15–159
48B	Hoods/Housings (Metal, WV/HV)	P15–160 ~ P15–162
HC	Hoods/Housings (Plastic, Metal)	P15–163 ~ P15–168
Thickned seal part	(H series BK housing)	P15–169 ~ P15–170

*By adjusting the layout of contacts, they could be applied up to 690V or 1000V.

By adjusting the layout of contacts, they could be applied up to 400V or 500V.

To users: Part of the data pictures in this product manual may be updated. Please refer to the latest data provided by the technical department of our company while selecting the model. For the details, please call 400–882–5885, confirm with the sales personnel of our company or inquire via info@wainconnector.com.

Contents

Circular connector

	Rated voltage	Rated current	Number of contacts	Terminal	Page
Technical characteristics					P16-02 ~ P16-11
M8	30V, 60V	4A	3, 4, 5	screw clamp connection, solder, dip solder, moulded	P17-01 ~ P17-23
M12-A	60V, 125V, 250V	2A, 4A, 8A	3, 4, 5, 8, 12	screw clamp connection, solder, dip solder, moulded, single wires	P18-01 ~ P18-40
M12-B	125V, 250V	4A, 8A	2, 3, 4, 5	screw clamp connection, solder, dip solder, moulded, single wires	P18B-01 ~ P18B-27
M12-D	250V	4A	4	screw clamp connection, solder, dip solder, moulded, single wires	P19-01 ~ P19-15
M12-X	250V	4A	8	crimp terminal, single wires	P19X-01 ~ P19X-07
M12 Distributor Sensor junction box	60/250V 10~30V DC	4A 2A, 9A	4, 5 4, 5	- pluggable M23	P20-01 ~ P20-04
7/8	300V	8A, 9A, 10A, 12A	3(2+PE), 4(3+PE), 5(4+PE),	screw clamp connection,	P21-01 ~ P21-08
HR23(M23)	25V~/60V-	7A, 15A	6, 9, 12, 17, 19	crimp terminal, (PCB)solder terminal screw clamp connection	P22-01 ~ P22-13
MR23	25V~/60V-	7A	12, 17	crimp terminal	P23-01 ~ P23-07
M23	250V, 630V	9A, 30A	6, 8	crimp terminal	P24-01~ P24-10
M40	250V	20A, 60A	4/4	crimp terminal	P25-01~ P25-04
Power electrical connector	250V	1A, 13A, 20A, 25A, 40A	4, 5, 6, 10, 26, RJ45&3	crimp terminal, solder terminal	P26-01~ P26-08
HW	1000V	800A	1	crimp terminal	P27-01~ P27-04

Customized product

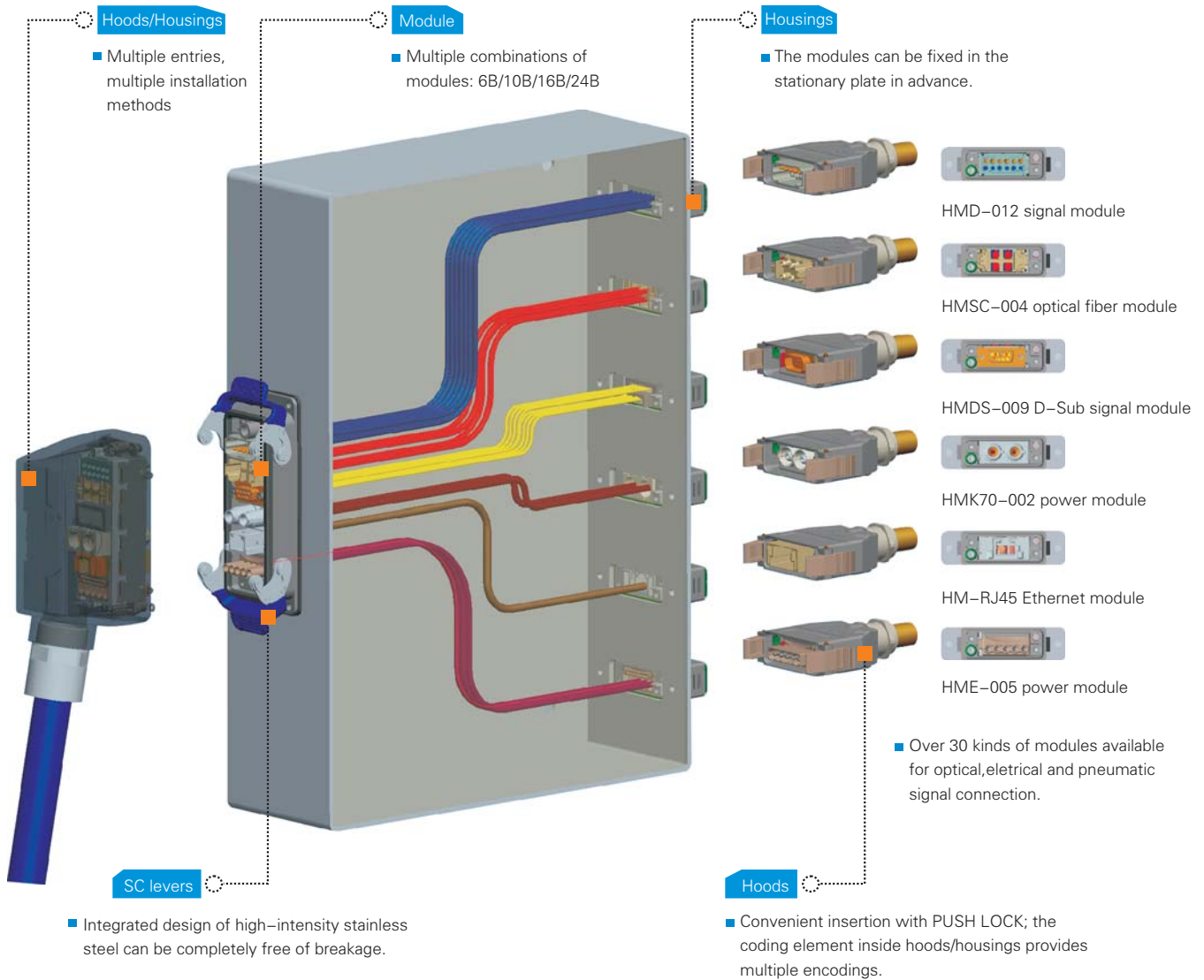
	Rated voltage	Rated current	Number of contacts	Terminal	Page
HCC Series-single row inserts	500V	30A	10	Screw terminal	P28-01 ~ P28-02
HV Series-single row inserts	400V	20A	8	Screw terminal	P29-01 ~ P29-04
国网防开路连接器	250V	10A	24+8(anti-open circuit) +1 (grounding) 8+8(anti-open circuit) +40	crimp terminal, (PCB)solder terminal screw clamp connection	P29-05 ~ P29-08
D-Sub-044 Series		3A	44	crimp terminal	P29-09 ~ P29-12
Charging socket	500V/12V	150A/2A	8/2	crimp terminal	P29-13 ~ P29-16
wiring harness					P30-01 ~ P30-14
Optical fiber					P31-01 ~ P31-06

Tools/Cable gland

	Page
Tools/Cable gland	P32-01 ~ P32-26
List of part no.	P33-01 ~ P33-30

New products: "WU" single module connector series

The innovative products of WAIN in 2016 combine dozens of modules (large current, signal current, optical fiber, gas, Ethernet and so on) into an independent unit with EMC performance and a protection level of IP65.



WAIN provides solutions for various branching integration demands!



● Product characteristics:

- smaller width, more compact, space-saving;
- convenient locks save time during assembly;
- encoder inside hoods/housings provides multiple encodings;
- modules can be fixed in the stationary plate in advance;
- With grounding function;
- Grounding screw is in vertical direction, which does not interfere with the face plate so that operation space is large;
- It is matched with multiple single module slugs;
- EMC function;

For more information about the hoods, housings and modules of "WU" Series, please refer to HM Series.

System certificates



ISO 14001

ISO 9001

IRIS

Product certificates



VDE

UL

CE

CQC

EAC

Introduction to IRIS: IRIS, standing for International Railway Industry Standard, is an initiative led by the Union of the European Railway Industries (UNIFE). It is mainly used to ensure the high quality of the whole railway industry and make the manufacturers of railway equipment meet the requirements of global railways for high-quality railway parts and increase their competitiveness in the world. IRIS aims to develop and implement a universal system to evaluate the quality management systems of railway industry. IRIS adds railway specific requirements into ISO 9001; in short, IRIS is the extension of ISO 9001 for railway industry.

EUROMAP WAIN is one of the recommended suppliers of EUROMAP, the Europe's Association for plastics and rubber machinery manufacturers.

EUROMAP recommendations:

The inserts and the relevant enclosures meet the EUROMAP Recommendations (European Committee of machinery manufacturers for the plastic and rubber industry) EUROMAP 12, 13, 14.1, 14.2, 16, 27.1, 28, 29, 62, 67, 67.1, 70, 73, 74, 78

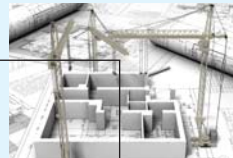
For more information, please visit WAIN's homepage: www.wainconnector.com

Product applications

• Energy



• Machine manufacturing



• Rail transit



• Automation





■ Turbine parts



■ Turbine parts



■ Pitch system

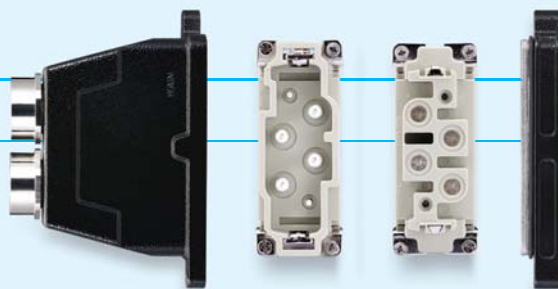
】】 Connectors in wind power generation

Wind power generation is the most mature way of power generation, which is qualified for large-scale development and has commercial development prospect., and it has been developed in the recent years. Reliable operation and convenient maintenance and replacement of functional module system are significant for the wind power station.

WAIN Connector provides reliable electrical connection solutions for wind power generation. The HC, HE, RJ45, HR23 series, as well as other series can satisfy various connection of weak and strong current in different applications of wind power.

】】 HK Combination Connectors

- Combination of power and signal area in one connector
- Up to 200A current connection
- Match with various kinds of hoods and housings
- An ideal connector for large current connection in narrow space



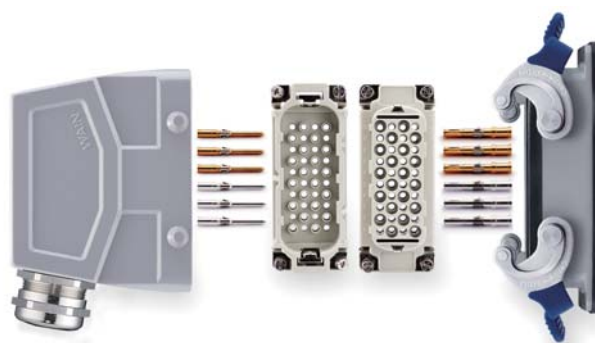
» Connectors in Electric power industry

Reliability, safety, economic efficiency, energy efficiency and environment–friendliness are important indicators of power grid operation. Therefore, new–type intelligent power grid taking physical power grid as foundation and integrating advanced sensor measurement technology, communication technology, information technology, computer technology and control technology is an important way to reach these indicators.

The various model of WAIN Connector also facilitates the safety, reliable operation and intelligent transformation of power grid.



” In order to meet the heavy-current and high-voltage requirements in power generation, WAIN provides HD HDD series and H version shell to build a secure and stable system.



» HD HDD High-Density Inserts

- Safe and reliable, convenient maintenance
- High density of crimping contacts, up to 216 contacts, compact structure
- Match with various kinds of hoods and housings



■ Vacuum circuit breaker



■ High-tension switch cabinet



■ Box-type substation



» Connectors in Rail transit

Due to further specialization of labor and requirements for convenient maintenance, the modular design of components in the railway traffic technology is being attached with more and more attention. WAIN Connector provides a complete solution for different electrical connections among all kinds of components, ensuring the safe and reliable coordinated operation of each component in various environments.



» HM Series Inserts: Flexible Combination

- Modular structure with high flexibility.
- Compact structure saves space.
- Connectors can be assembled according to special requirement.



” WAIN provides connection solution with high protection grade for important occasions such as high-speed train, jumper wire of subway, air-conditioner and lighting, etc.



■ Jumper wire



■ Coupling end



■ Coupling end



■ Hauling system



WAIN uses single connector to achieve power and signal transmission so that robot wiring is more reasonable and engineering application can be carried out with high efficiency.



» Use the least space to realize the automation

In the development of modern automation technology, flexibility is a very important indicator, including flexibility and convenience of installation, use, production and commissioning.

WAIN ' s HE, HEE, HK, HM and other series, along with hoods and housings with various degrees of protection, cable outlets and locking levers, can satisfy the requirements for space and electrical connection.

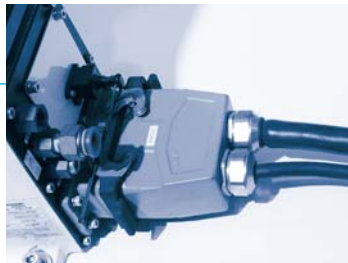


» HM Combined suite

- Modular structure
- Universality , reducing inventory
- Realize the power and signal transmission in the least space
- Meet electrical or signal connecting requirements in different fields and for different purposes



■ Outer join



■ Control system

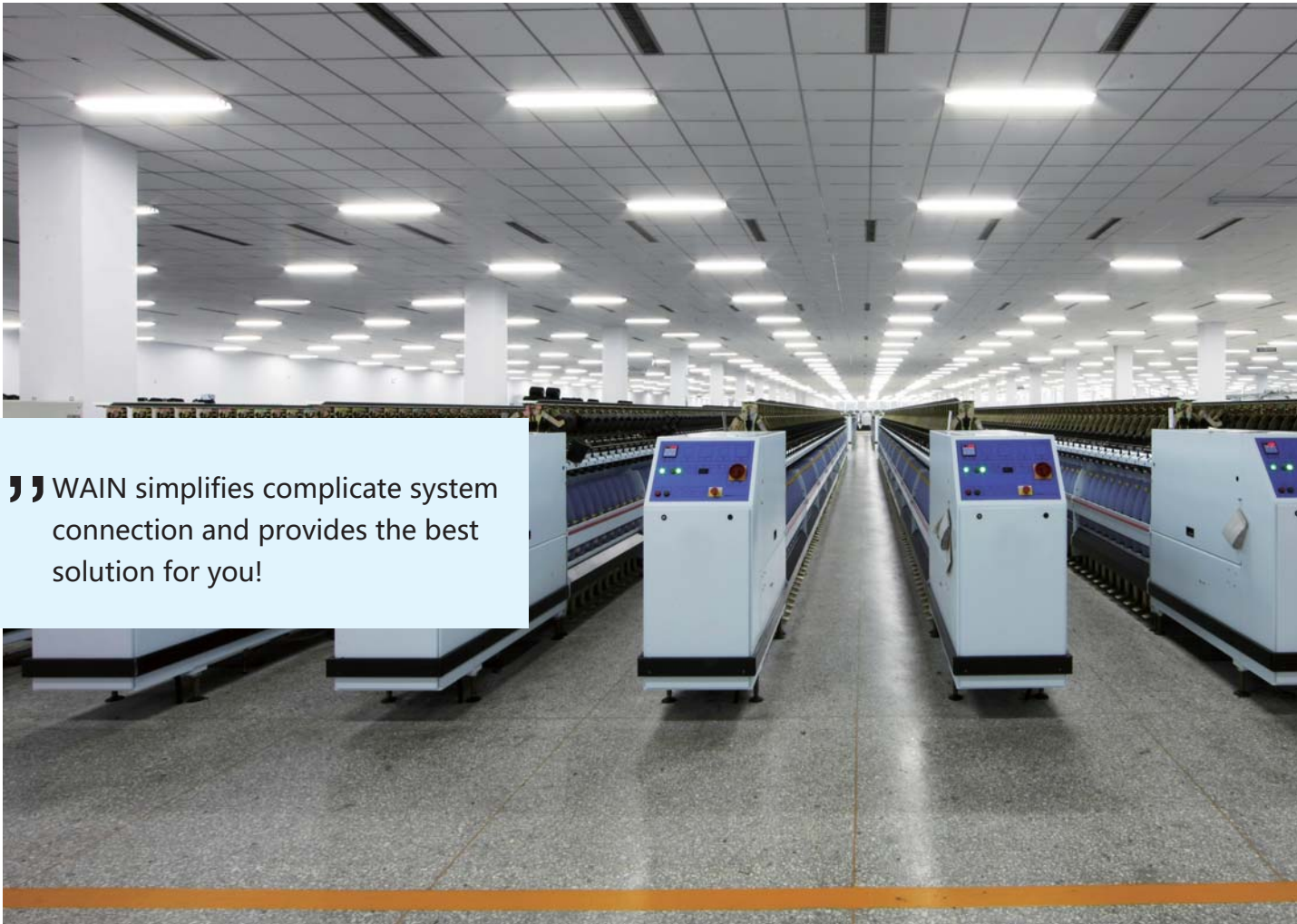


■ Outer join

» Connector in machinery

In machinery manufacturing field, due to the diversified equipment and space requirements, light, gas and other media are also needed to be transmitted in some cases, besides weak current and strong current.

WAIN Connector provides integral solutions for this; it not only has many electrical connectors, but also has connectors for other media (such as pneumatic connector). It can satisfy different applications of various kinds of equipment, and simultaneously connect electrical circuit and gas circuit in a connector if necessary.



» WAIN simplifies complicate system connection and provides the best solution for you!



» HQ compact connectors

- Convenient maintenance
- Compact design
- Match pressure tight or EMC hoods/housings




» Connector in engineering machinery

The future demands for diversification, high rise, beautiful appearance, energy conservation and environmental protection in construction industry will absolutely promote the development of engineering machinery.

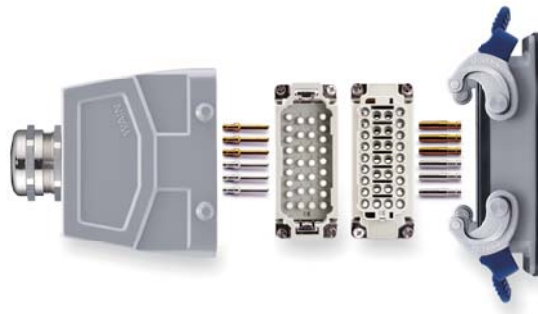
WAIN Connector, boasting of dozens of series, thousand of models, strong current connection up to 650A and shells with IP65/IP68 protection grade, provides reliable electrical connection for the high-end and intelligent development of construction machinery.

*The hoods/housings developed by WAIN for harsh environment reach a salt-spray protection of 500 hours. Compared with similar product around the world, it has more excellent protection capability.

*Airtightness of fluororubber has formed standard adapter of WAIN product. Therefore, it can satisfy protection requirement under chemistry and chemical engineering environment.



» In the harsh environment, WAIN offers high protection grade connection scheme for the stability of the engineering machinery .



HEE High density connectors

- High density of crimping contacts, up to 92 pins
- Polarised insert
- Contacts available with either hard silver plated or hard gold plated surface
- Various degrees of protection and cable entries for the hoods
- Airtightness of fluororubber
- Locking levers made of stainless steel



■ Engineering machinery



■ Engineering machinery

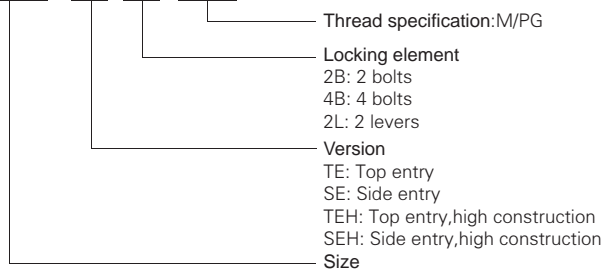


■ Engineering machinery

Explain for Designation

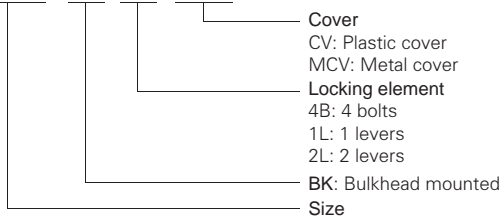
Hood

W24B-TE-4B-M25

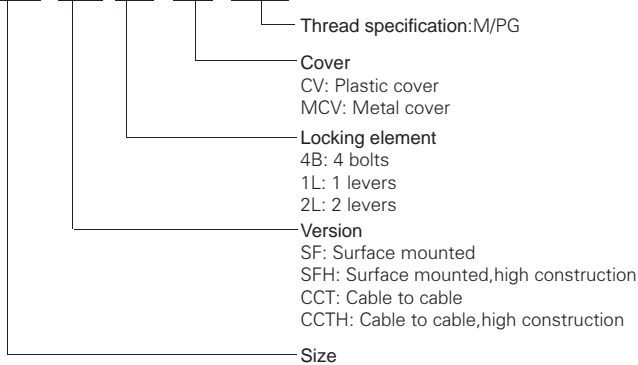


Housing

W24B-BK-4B-CV

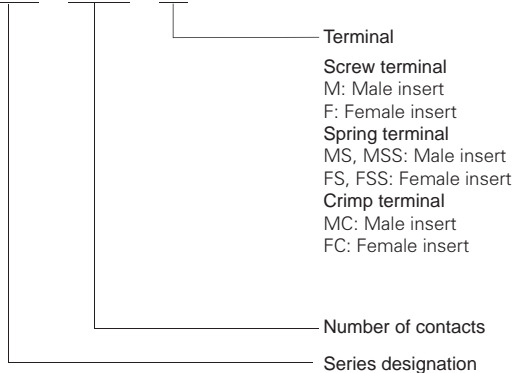


W24B-SF-1L-CV-M25

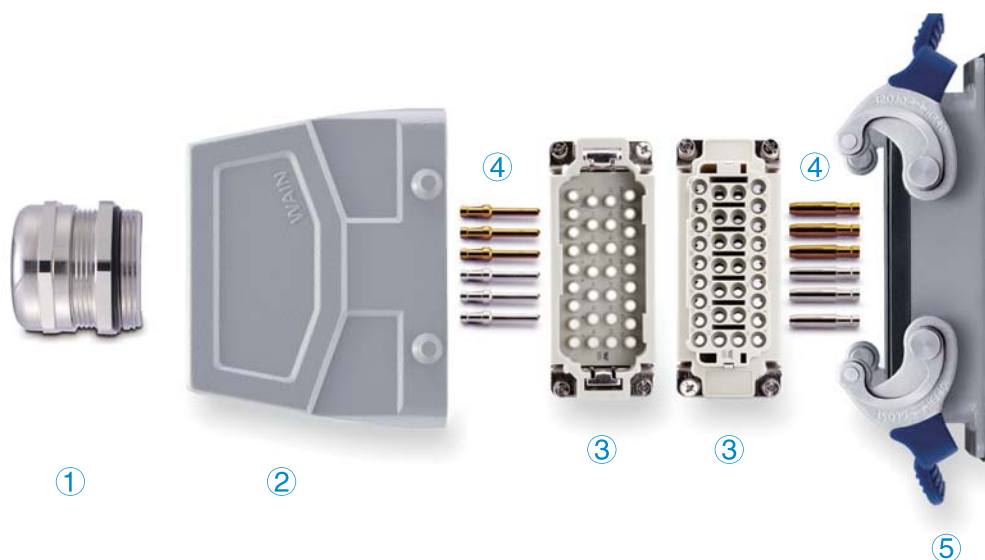


Insert

HE-024-M



Parts of the heavy duty connector



① Cable gland

- Nylon or brass nickel plated
- Universal cable glands
- Cable gland with normal or multiple seal
- Other Cable gland

② Hoods

- Low or high construction
- Top or side cable ent
- 2 bolts or 4 bolts or 2 locking levers

③ Male insert or Female insert

- Screw terminal
- Crimp terminal
- Cage-clamp terminal
- Spring terminal

④ Crimp contacts (only for crimp connection insert)

- Golden plated or silver plated
- Rated current: 5A, 10A, 16A, 40A, 70A, 100A, 200A, 350A, 650A

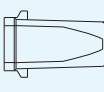




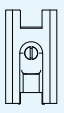
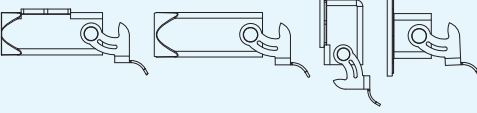





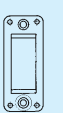
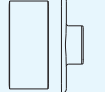




⑤ Housings

- Bulkhead mounting or surface mounting or cable to cable
- Low or high construction
- 1 or 2 locking levers or 4 bolts
- With or without thermoplastic/metal covers

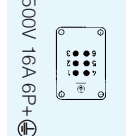
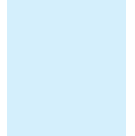
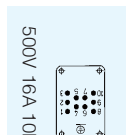
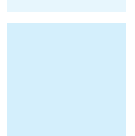
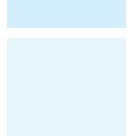
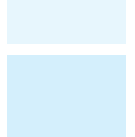
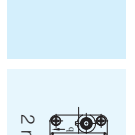

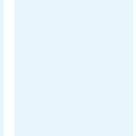
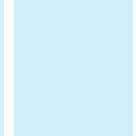
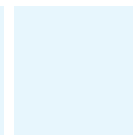
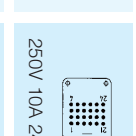
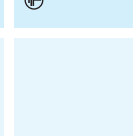
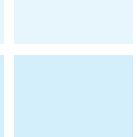
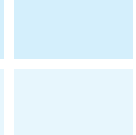
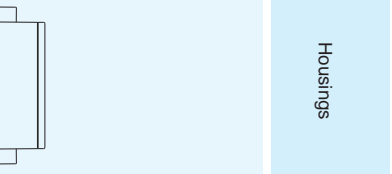
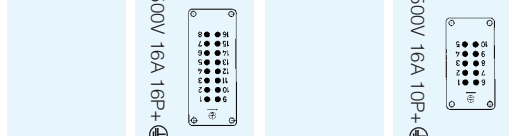
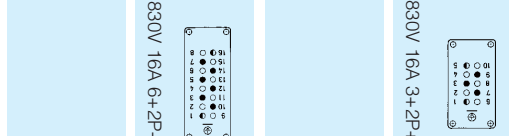
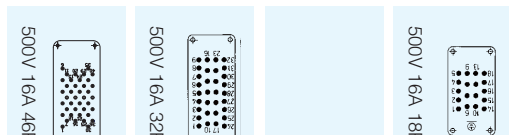
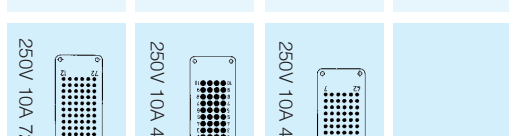
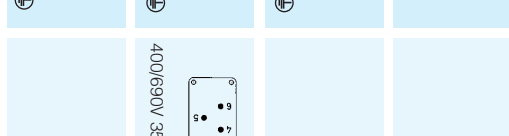
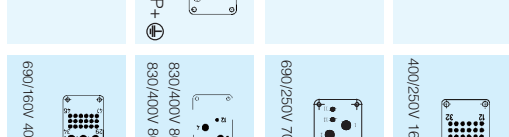
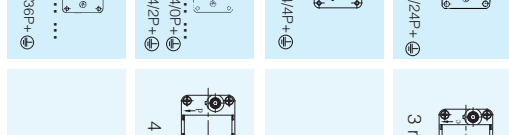
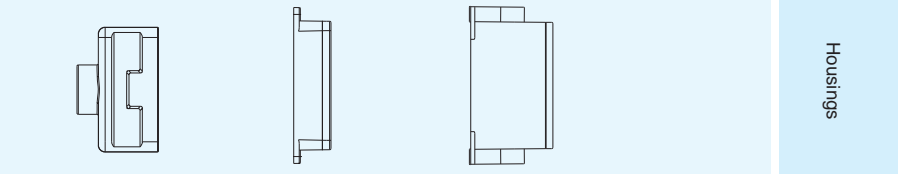
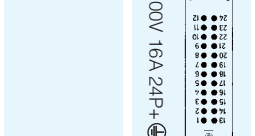
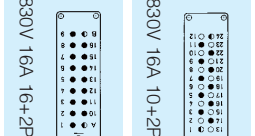
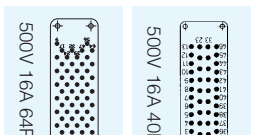
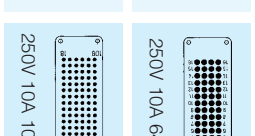

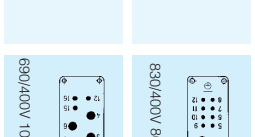
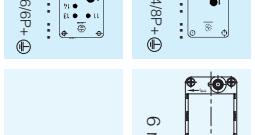
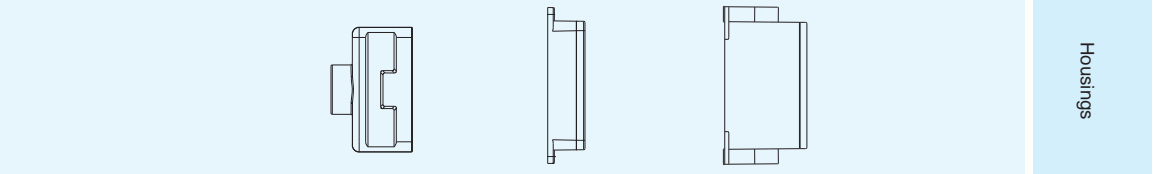
Except standard hoods/housings, special hoods/housings with high protection level(IP68) and EMC screening are also available for clients.

*For customized requirement, please contact us.

Product overview

Hoods	Inserts	suitable for 2 inserts of size 16 A							Housings
									HA Series Crimp terminal Screw terminal Spring terminal
3A									
	10A								
16A									
	32A								

Product overview

Hoods	Inserts	Housings
6B	<p>HE Series Crimp terminal Screw terminal Spring terminal</p>  <p>HVE/HES Series Screw terminal Spring terminal</p>  <p>HEE Series Crimp terminal</p>  <p>HD/HDD Series Crimp terminal</p>  <p>HSB Series Screw terminal</p>  <p>HK Series Screw terminal</p>  <p>HM Series Crimp terminal Screw terminal Spring terminal</p> 	
10B	<p>HE Series Crimp terminal Screw terminal Spring terminal</p>  <p>HVE/HES Series Screw terminal Spring terminal</p>  <p>HEE Series Crimp terminal</p>  <p>HD/HDD Series Crimp terminal</p>  <p>HSB Series Screw terminal</p>  <p>HK Series Screw terminal</p>  <p>HM Series Crimp terminal Screw terminal Spring terminal</p> 	
16B	<p>HE Series Crimp terminal Screw terminal Spring terminal</p>  <p>HVE/HES Series Screw terminal Spring terminal</p>  <p>HEE Series Crimp terminal</p>  <p>HD/HDD Series Crimp terminal</p>  <p>HSB Series Screw terminal</p>  <p>HK Series Screw terminal</p>  <p>HM Series Crimp terminal Screw terminal Spring terminal</p> 	
24B	<p>HE Series Crimp terminal Screw terminal Spring terminal</p>  <p>HVE/HES Series Screw terminal Spring terminal</p>  <p>HEE Series Crimp terminal</p>  <p>HD/HDD Series Crimp terminal</p>  <p>HSB Series Screw terminal</p>  <p>HK Series Screw terminal</p>  <p>HM Series Crimp terminal Screw terminal Spring terminal</p> 	
32B	<p>suitable for 2 inserts of size 16 B</p>	
48B	<p>suitable for 2 inserts of size 24 B</p>	

Size of the Cable Entry

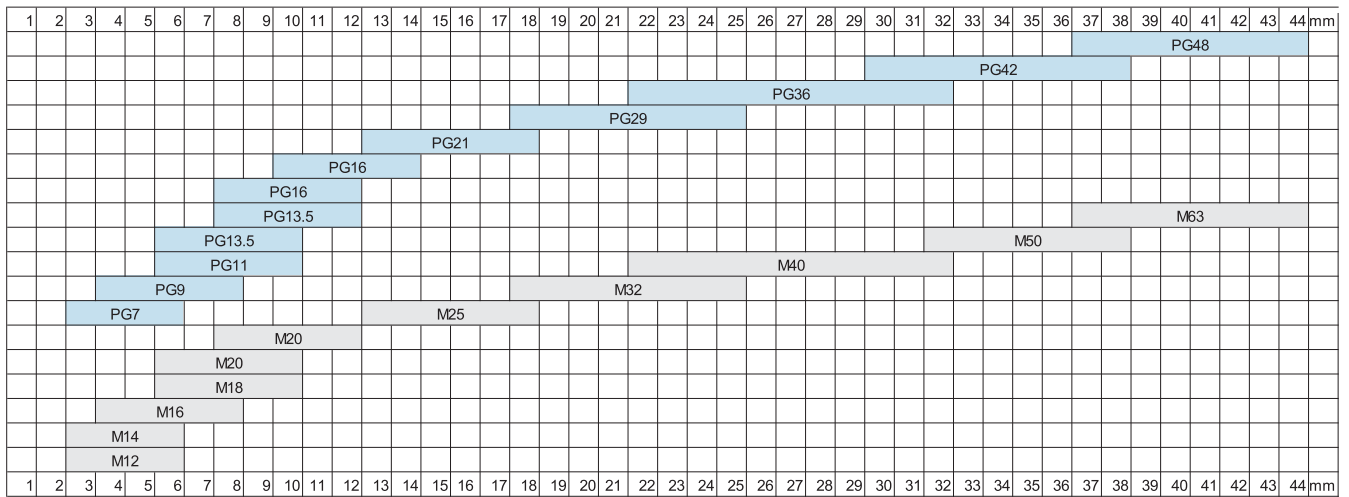
The adoption of metric threads considerably simplifies the understanding and specification of the size of cable entry as the product type description contains the thread dimension.

The following Cross Reference table shows the correlation between the PG versions and the new metric types.

Please notice that the maximum cable diameter may be reduced by the new metric cable glands.

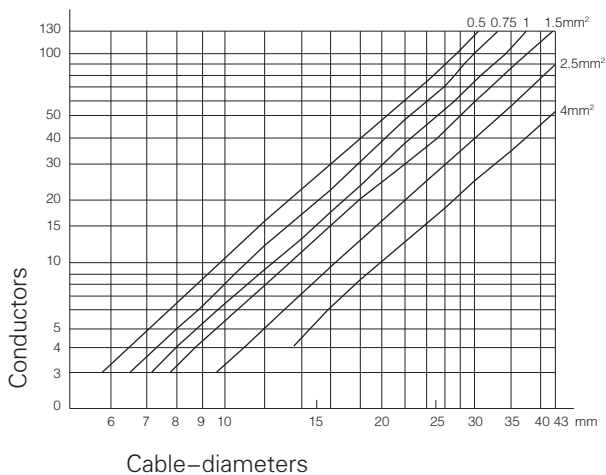
PG	Cross reference	M
PG11	→	M20
PG13.5		
PG16		
PG21	→	M25
PG29	→	M32
PG36	→	M40
PG42	→	M50
PG48	→	M63

Below is shown the cable range of metric glands:



Cable

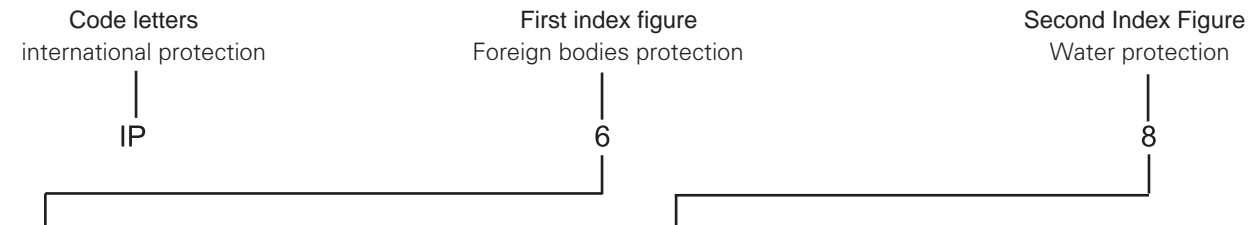
The diagram shows different cable-diameters, being dependent on wire gauges and number of conductors. All data are averages for commercial cables.



Degree of Protection of Hoods/Housings

The connector's hood, housing, sealing and locking lever protect the inner components from external influences such as mechanical shocks, foreign bodies, humidity, dust, water or other fluids such as cleansing and cooling agents, oils, etc. The degree of protection the housing offers is explained in the IEC 60 529, DIN EN 60 529, standards that categorize enclosures according to foreign body and water protection.

The following table shows the different degrees of protection.









Index figure	Degree of protection	Index figure	Degree of protection
0	No protection: No protection against accidental contact, no protection against solid foreign bodies.	0	No protection against water.
1	Protection against large foreign bodies: protection against contact with any large area by hand and against large solid foreign bodies with $\varnothing > 50\text{mm}$.	1	Drip-proof: Protection against vertical water drips.
2	Protection against medium sized foreign bodies: protection against contact with the fingers, protection against solid foreign bodies with $\varnothing > 12\text{mm}$.	2	Drip-proof: Protection against water drips (Up to a 15° angle)
3	Protection against small solid foreign bodies: protection against tools, wires or similar objects $\varnothing > 2.5\text{mm}$, protection against small foreign solid bodies with $\varnothing > 2.5\text{mm}$.	3	Spray-proof: Protection against diagonal water drips (Up to 60° angle)
4	Protection against grain-shaped foreign bodies: As 3 however, $\varnothing > 1\text{mm}$.	4	Splash-proof: Protection against splashed water from all directions.
5	Protection against injurious deposits of dust: Full protection against contact, protection against interior injurious dust deposits.	5	Hose-proof: Protection against water (out of a nozzle) from all directions.
6	Protection against ingress dust: Total protection against contact, protection against penetration dust.	6	Protection against flooding: Protection against temporary flooding.
		7	Protection against immersion: Protection against temporary immersion.
		8	Water-tight: Protection against temporary Pressure.
		9k ¹⁾	Protected against water from high-pressure / steam jet cleaners

1) ... IP x9k is not part of IEC 60529

Electrical engineering data

Rated impulse voltages (Table B2 of DIN EN 60 664–1)

Nominal voltage of the supply system (= rated insulation voltage of equipment)					Preferred values for the rated impulse voltage kV (1.2/50 μ s)			
					Overvoltage category			
					I	II	III	IV
Voltage line to earth derived from the nominal voltage of the supply system to the a. c. voltage (r. m. s. value) or d. c. voltage	AC voltage (r. m. s. value) 	AC voltage   	AC voltage (r. m. s. value d. c. voltage) 	AC voltage (r. m. s. value d. c. voltage) 	Special protected levels	Level for electrical equipment (household and others)	Level for distribution supply systems	Input level
V	V	V	V	V				
100	66/115	66	60	—	0.5	0.8	1.5	2.5
150	120/208; 127/220	115; 120; 127	110; 120	220–110; 240–120	0.8	1.5	2.5	4
300	220/380; 230/400; 240/415; 260/440; 277/480	220; 230; 240; 260; 277	220	440–220	1.5	2.5	4	6
600	347/600; 380/660; 400/690; 415/720; 480/830	347; 380; 400; 415; 440; 480; 500; 577; 600	480	960–480	2.5	4	6	8
1000		660; 690; 720; 830; 1000	1000	—	4	6	8	12

Over-voltage category

The following categories in line with the standard IEC 60664–1

The overvoltage category is dependent on the mains voltage and the location at which the equipment is installed. It describes the maximum overvoltage resistance of a device in the event of a power supply system fault, e. g. in the event of a lightning strike. According to the relevant standards, there are 4 overvoltage categories.

Category I is equipment for connection to circuits in which measures are taken to limit transient overvoltages to an appropriately low level.

Note: Examples are protected electronic circuits.

Category II is energy-consuming equipment to be supplied from the fixed installation.

Note: Examples of such equipment are appliances, portable tools and other household equipment with similar loads.

Category III is equipment in fixed installations and for cases where the reliability and the availability of the equipment is subject to special requirements.

Note: Examples of such equipment are switches in the fixed installation and equipment for industrial use with permanent connection to the fixed installation. WAIN industrial connectors belong to the over-voltage type

Category IV is for use at the origin of the installation.

Note: Examples of such equipment are electricity meters and primary overcurrent protection equipment.

Electrical engineering data

Pollution degree

The following categories in line with the standard IEC 60664–1

The dimensioning of operating equipment is dependent on environmental conditions. Any pollution or contamination may give rise to conductivity that, in combination with moisture, may affect the insulating properties of the surface on which it is deposited. The pollution degree influences the design of components in terms of the creepage distance. The pollution degree is defined for exposed, unprotected insulation on the basis of environmental conditions.

Pollution degree 1

No pollution or only dry, non-conductive pollution occurs. The pollution has no influence. such as computer and measuring instrument rooms, for example.

Pollution degree II

Only non-conductive pollution occurs except that occasionally a temporary conductivity caused by condensation is to be excepted. such as residential, sales, laboratories, precision engineering workshops, for example.

Pollution degree III

Conductive pollution occurs or dry nonconductive pollution occurs which becomes conductive due to condensation which is to be excepted. such as unheated storage premises, workshops or boiler rooms, also for the electrical components of assembly or mounting equipment and machine tools, for example. **WAIN heavy duty connectors are designed as standard for the Pollution Degree .**

Pollution degree IV

The pollution generates persistent conductivity caused by conductive dust or by rain or snow, such as in the environment of outdoor,

Special ruling for connectors

Subject to compliance with certain preconditions, the standard for connectors permits a lower pollution degree than that which applies to the installation as a whole. This means that in a pollution degree 3 environment, connectors may be used which are electrically rated for pollution degree 2.

Extract from DIN EN 61 984, Para. 6.19.2.3.

For a connector with a degree of protection IP54 or higher according to IEC 60529, the insulating parts inside the enclosure may be dimensioned for a lower pollution degree, This also applies to mated connectors where enclosure is ensured by the connector housing and which may only be disengaged for test and maintenance purposes.

The conditions fulfills:

- a connector which is protected to at least IP54 acc. to IEC 60 529
- a connector which is installed in a housing and which as described in the standard is disconnected for testing and maintenance purposes only.
- a connector which is installed in a housing and which when disconnected is protected by a cap or cover to at least IP54,
- a connector located inside a switching cabinet to at least IP54.

Note: These conditions do not extend to connectors which when disconnected remain exposed to the industrial atmosphere for an indefinite period.

Typical applications in which to choose pollution degree 2 connectors:

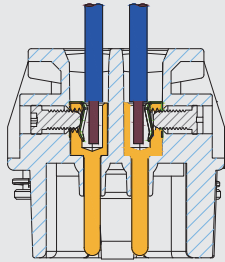
- A connector serving a drive motor which is disconnected only for the purpose of replacing a defective motor, even when the plant or system otherwise calls for pollution degree 3.
- Connectors located inside a switching cabinet to IP54. In such cases, it is even possible to dispense with the IP54 housings of the connectors themselves.
- Connectors serving a machine of modular design which are disconnected for transport purposes only and enable rapid erection and reliable commissioning. In transit, protective covers or adequate packing must be provided to ensure that the connectors are not affected by pollution/contamination.

Terminations technology

Screw terminal

Advantages

Wide scope of applicable wire specification;
 No special tool needed;
 Protection plate of wire is available;
 A single hole can be connected to several wires at the same time if necessary;
 Insert has contact pins itself, easy to reduce inventory.



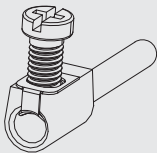
Screw terminal is accord to VDE 0609/EN 60 999. Test dimensions and tightening torques are shown in the list following.

Dimensions and tightening torque of screw terminals.

Wire gauge (mm ²)	1.5	2.5	4	6	10	16
Screw thread	M3	M3	M3.5	M4	M4	M6
Test moment of torque (Nm)	0.5	0.5	0.8	1.2	1.2	1.2*
min. pull-out for stranded wire(N)	40	50	60	80	90	100

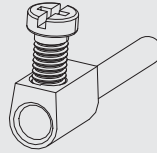
*For fixed screws without heads

Terminals with wire protection



The ferrules is not necessary to use for:
 HSB series, HVE series, HK-006/12, HK-006/6

Terminals without wire protection



The insulation is to be removed and use the wire ferrules:
 HK-004/0, HK-004/2, HK-004/8

Screw terminal

Inserts	Wire protection		min. wire gauge		max. wire gauge		Stripping length mm
	Yes	No	mm ²	AWG	mm ²	AWG	
HA-003/HA-004		✓	0.75	18	1.5	16	4.5
HA-010/HA-016/HA-032	✓		0.75	18	2.5	14	7.5
HE Series, HVE Series	✓		0.75	18	2.5	14	7.5
HSB Series	✓		1.5	16	6	10	11.5
HK-006/6, HK-006/12(signal contacts)	✓		0.2	24	2.5	14	7.5
HK-004/2, HK-004/8(signal contacts)		✓	0.5	20	2.5	14	7.5
HK-004/0, HK-004/2, HK-004/8(power contacts)		✓	1.5	16	16	6	14
HD AV Series, HE AV Series	✓		0.2	24	2.5	14	8...11

Terminations technology

Screw terminal

Recommendation of tightening torque and screwdriver types for inserts connecting with screws

Screw type	Screws classification	Inserts	tightening torque recommendation (Nm)	tightening torque recomma (Lbft)	screwdriver types recommendation
M3	screw terminal	HA - 003/HA - 004, HQ - 005/HQ - 007/HQ - 012 (PE)	0.25	0.20	cross screwdr PH0
	screw terminal	HD AV, HE AV, HK - 006/6 (signal pin) , HK - 006/12 (signal pin)	0.50	0.40	slot type screwdriver 0.5x3.0
	screw terminal	HA - 010/HA - 016/HA - 032, HVE, HE, HME - 005, HWK - 006/6 (signal pin)	0.50	0.40	slot type screwdriver 0.6x3.5 or cross screwdriver PH1
	Screws fixed on the 3A Hoods/Housings	HA - 002/HA - 003/HA - 004, HD - 007/HD - 008, HQ - 002/HQV - 002/HQ - 005/HQ - 007/HQ - 012	0.50	0.40	cross screwdriver PH1 or cross screwdriver PH2
	Screws fixed on the H10A/H16A/H32A Hoods/Housings, HB Hoods/Housings	HA - 010/HA - 016/HA - 032, HE, HVE, HEE, HD - 015 /HD - 025/HD - 050/HD - 040/HD - 064/HD - 080/HD - 128 , HDD, HSB, HK, HWK, HKH, HE AV, HD AV	0.50	0.40	slot type screwdriver 0.6x3.5 or cross screwdriver PH1 or cross screwdriver PH2
	Coding Pin	CODE - M3, MCODE - M3, GBUSH - M3, GPIN - M3 , MGBUSH - M3, MGPIN - M3	0.50	0.40	slot type screwdriver 1x6.0
M3.5	Ground terminal	HA - 010/HA - 016/HA - 032, HD - 015/HD - 025	0.80	0.60	slot type screwdriver 0.6x3.5 or cross screwdriver PH1
M4	screw terminal	HSB - 006/HSB - 012	1.20	0.90	slot type screwdriver 0.6x3.5 or cross screwdriver PH1
	Ground terminal	HE, HVE, HD - 040/HD - 064/HD - 080/HD - 128, HE AV, HD AV, HK - 008/24, HWK - 006, HK - 006/6 , HK - 006/12, HK - 008/0, HSB - 006/HSB - 012	1.20	0.90	slot type screwdriver 0.8x4.5 or cross screwdriver PH2
M5	screw terminal	HWK - 006/6 (power pin)	2	1.4	slot type screwdriver 0.8x4.5
	Ground terminal	HK - 012/2, HKH - 012/0, HK - 004/0, HK - 004/2, HK - 004/8, HK - 006/36	2	1.4	slot type screwdriver 0.8x4.5 or cross screwdriver PH2
M6	screw terminal	HK - 004/0 (power pin) , HK - 004/2 (power pin) , HK - 004/8 (power pin)	the corresponding technical data please see chapter 8		slot type screwdriver 0.8x4.5
slot type screwdriver according to ISO 2380 cross screwdriver according to ISO 8764					

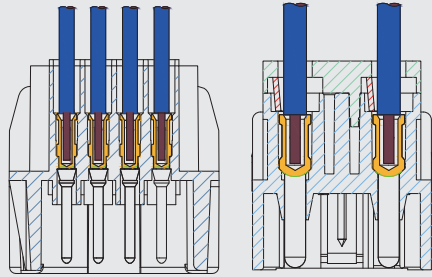
Increasing the tightening torque does not improve considerably the contact resistances. The torque moments were determined when optimum mechanical, thermal and electrical circumstances were given. If the recommended figures are considerably exceeded the wire or the termination can be damaged.

Terminations technology

Crimp connection

Advantages

- Applicable to vibration situation;
- Density of the contact pin is high;
- Nearly cold welding guarantees corrosion resistance;
- Able to achieve pre-assembly of wiring harness;
- The same insert can be used for different coated pins according to actual demand.



A perfect crimping can realize air tight state, and has the effect of cold welding. To achieve high-quality crimping requires the coordination of crimping parts and crimping tools, the crimped wires must match the correct specifications of crimping pieces. As long as these basic requirements are met, the user can ensure a connection with low contact resistance and high corrosion resistance.

The requirements for crimping connectors shall be in accordance with DIN EN60 352-2 as following table.

Tensile strength:

The tensile strength of the contact wire at the terminal can be used to judge the crimping quality of the conductor. The relationship between tensile strength and cross section area of conductor is defined under DIN EN60 352-2.

Using the Wain crimping tool can ensure the required tensile strength in the correct application process.

Crimping tools

The crimping tool (hand or automatic) is designed to make the connecting parts of contact or wire deform uniformly under the pressure of pliers, to ensure the uniform extension of material.

Overview inserts with crimp terminal

Wire gauge		Internal diameter Ø (mm)	Stripping length l (mm)		
(mm ²)	AWG		HDD HD R15 Modular (10 A)	HE HA Hv E (16 A)	HC (40 A)
0.14 ... 0.37	26 ... 22	0.9	8	–	–
0.5	20	1.15	8	7.5	–
0.75	18	1.3	8	7.5	–
1	18	1.45	8	7.5	–
1.5	16	1.75	8	7.5	9
2.5	14	2.25	6	7.5	9
4	12	2.85	–	7.5	9.6
6	10	3.5	–	–	9.6
10	8	4.6	–	–	15

	Conductor cross-section	Ø	Stripping length
100 A Modul	10 mm ²	4.3 mm	19.0 mm
	16 mm ²	5.5 mm	19.0 mm
	25 mm ²	7.0 mm	19.0 mm
	35 mm ²	8.2 mm	16.0 mm
HC Modular 350	35 mm ²	8.2 mm	26.0 mm
	50 mm ²	10.0 mm	28.0 mm
	70 mm ²	11.5 mm	28.0 mm
	95 mm ²	13.5 mm	30.0 mm
HC Modular 650	120 mm ²	15.5 mm	24.0 mm
	240 mm ²	22.5 mm	50.0 mm

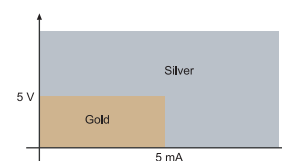
for fine stranded wires according to IEC 60 228 class 5

Tensile strength of crimped connections (Table 1: DIN EN 60 352-2)

Conductor cross-section		Tensile strength
mm ²	AWG	N
0.05	30	6
0.08	28	11
0.12	26	15
0.14		18
0.22	24	28
0.25		32
0.32	22	40
0.5	20	60
0.75		85
0.82	18	90
1.0		108
1.3	16	135
1.5		150
2.1	14	200
2.5		230
3.3	12	275
4.0		310
5.3	10	355
6.0		360
8.4	8	370
10.0		380

The selection of contact surface plated

Below is a table derived from actual experiences



Recommendation

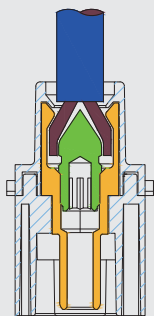
Notes: The tools for crimp terminal may influence the product quality and stability. Please select the tools recognized by our company.

Terminations technology

Axial screw terminal

Advantages

- Scope of applicable wire specification is wide;
- Special tool will not be used;
- Little space required;
- Simple operation;



Technical notes for Axial screw terminal:

The wire gauge (sectional area) mentioned in the catalogue refers to the geometric wire gauge (sectional area) of the cable.

Background:

According to DIN VDE 0295 for cables and insulated wires, the sectional area of cables is measured according to the conductance (Ω / km) and the maximum diameter of wire. The minimum diameter of wire is not specified. For example (rated sectional area 95mm² → actual geometric sectional area 89mm²)

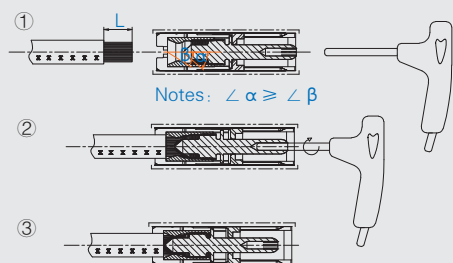
Suggestions:

If there is a big difference between the geometric cross-sectional area and the rated cross-sectional area of the cable, additional detection should be carried out when axial screw terminal is used.

Stress relief:

For safe operation, there should be enough distance between the cable and the pressure contact to ensure that the contact is not affected by radial stress. Specific stress relief designs can be found in DIN VDE 0100–520:2003–6 (refer to the table below).

Axial screw crimping instruction



- Strip insulation from the wire, the length as per the form and insert the wire into the contact until insulation layer is flush with the wiring access of the contact. Do not twist the strands of the wire.
- Hold the wire in position and tighten the wire from the mating side by a twist driver (SW–2x40), the tightening torque reference the form.
- Complete wiring.

Outer cable diameter (mm)	Maximum fixing distance (mm)	
	horizontal	vertical
$D \leq 9$	250	400
$9 < D < 15$	300	400
$15 < D < 20$	350	450
$20 < D < 40$	400	550

Cable:

The axial screw terminal technology was developed based on DIN EN 60 228 class 5 cables (cable assembly according to DIN EN 60 228). Different cable assemblies need to be tested independently.

Assembly remarks:

Before assembly, the user must ensure that the axial taper thread completely opens the contact chamber downward. After the cable insulation is stripped, do not twist the strands, and the longest stripping length should not exceed the recommended dimension. Insert the cable completely into the connector and make direct contact with the bottom of the copper strand. Maintain the cable in this position when using the recommended tightening torque.

Maintenance of axial screw terminal:

After initial assembly, only use the recommended tightening torque once again to avoid damaging the individual wire strands.

Wire assembly according to DIN EN 60 228

Wire gauge (mm ²)	Stranded wires DIN EN 60 228 class 2	Fine stranded wires DIN EN 60 228 class 5	Super fine stranded wires DIN EN 60 228 class 6			
0.5	7 x 0.30	16 x 0.20	28 x 0.15	64 x 0.10	131 x 0.07	256 x 0.05
0.75	7 x 0.37	24 x 0.20	42 x 0.15	96 x 0.10	195 x 0.07	384 x 0.05
1	7 x 0.43	32 x 0.20	56 x 0.15	128 x 0.10	260 x 0.07	512 x 0.05
1.5	7 x 0.52	30 x 0.25	84 x 0.15	192 x 0.10	392 x 0.07	768 x 0.05
2.5	7 x 0.67	50 x 0.25	140 x 0.15	320 x 0.10	651 x 0.07	1280 x 0.05
4	7 x 0.85	56 x 0.30	224 x 0.15	512 x 0.10	1040 x 0.07	
6	7 x 1.05	84 x 0.30	192 x 0.20	768 x 0.10	1560 x 0.07	
10	7 x 1.35	80 x 0.40	320 x 0.20	1280 x 0.10	2600 x 0.07	
16	7 x 1.70	128 x 0.40	512 x 0.20	2048 x 0.10		
25	7 x 2.13	200 x 0.40	800 x 0.20	3200 x 0.10		
35	7 x 2.52	280 x 0.40	1120 x 0.20			
50	19 x 1.83	400 x 0.40	705 x 0.30			
70	19 x 2.17	356 x 0.50	990 x 0.30			
95	19 x 2.52	485 x 0.50	1340 x 0.30			
120	37 x 2.03	614 x 0.50	1690 x 0.30			
150	37 x 2.27	765 x 0.50	2123 x 0.30			
185	37 x 2.52	944 x 0.50	1470 x 0.40			
240	61 x 2.24	1225 x 0.50	1905 x 0.40			

Terminations technology

Overview inserts with axial screw terminal

Insert	Wire gauge	Stripping length	Tightening torque	Max. cable insulation diameter	Size hexagon recess	Insert dimension for cable indication (ISK)
	(mm ²)	(mm)	(Nm)	(mm)	(SW)	(mm)
HK-006/12	2.5 – 8	2.5 mm ² : 8+1 4 mm ² : 8+1 6 mm ² : 8+1 8 mm ² : 8+1	2.5 mm ² : 1.5 4 mm ² : 1.5 6 mm ² : 2 8 mm ² : 2	6.2	2	4.7
	6 – 10	6 mm ² : 8+1 8 mm ² : 8+1 10 mm ² : 8+1	6 mm ² : 2 8 mm ² : 2 10 mm ² : 2	6.2	2	4.7
HK-006/6	16 – 35	13+/-1	16 mm ² : 6 25 mm ² : 7 35 mm ² : 8	11.4	4	4.9
HK-008/0	10 – 25	13+/-1	10 mm ² : 6 16 mm ² : 6 25 mm ² : 7	11.4	4	4.75
HQV-002 HQ-002/0 High Voltage	2.5 – 10 2.5 – 10	8+1 PE: 2 mm longer	1.8	7.3	2	5.6
200 A module without PE 200 A module with PE	25 – 40	25 mm ² : 16 40 mm ² : 16	25 mm ² : 8 40 mm ² : 8	12 16	5	3
200 A module without PE 200 A module with PE	40 – 70	40 mm ² : 16 70 mm ² : 16	40 mm ² : 9 70 mm ² : 10	12 16	5	3
100 A module	10 – 25	13+/-1	10 mm ² : 6 16 mm ² : 6 25 mm ² : 7	11.4	4	4.9
	16 – 35	13+/-1	16 mm ² : 6 25 mm ² : 7 35 mm ² : 8	11.4	4	4.9
70 A module	6 – 16	6 mm ² : 11+1 10 mm ² : 11+1 16 mm ² : 11+1	6 mm ² : 2 10 mm ² : 3 16 mm ² : 4	8.9	2.5	7.4
	14 – 22	12.5+1	14 mm ² : 4 16 mm ² : 4 22 mm ² : 5	10	2.5	5.9
40 A module	2.5 – 8	2.5 mm ² : 5+1 4 mm ² : 5+1 6 mm ² : 8+1 8 mm ² : 11+1	2.5 mm ² : 1.5 4 mm ² : 1.5 6 mm ² : 2 8 mm ² : 2	4 4 6 8.2	2	4.7
	6 – 10	6 mm ² : 8+1 10 mm ² : 11+1	6 mm ² : 2 10 mm ² : 2	6 10.5	2	4.7

Overview inserts with axial screw terminal

Module with axial screw terminal	2.5 – 8	2.5 mm ² : 5+1	2.5 mm ² : 1.5	4	2	5.2
	6 – 10	4 mm ² : 5+1 6 mm ² : 8+1 10 mm ² : 11+1	4 mm ² : 1.5 6 mm ² : 2 10 mm ² : 2	4 6 8.2		
HK-003/0 straight	35 – 70	22	35 mm ² : 8 50 mm ² : 9 70 mm ² : 10	15	5	8.2
HK-003/0 angled	35 – 70	22	35 mm ² : 8 50 mm ² : 9 70 mm ² : 10	15	5	9
HK-003/2 straight	35 – 70	22	35 mm ² : 8 50 mm ² : 9 70 mm ² : 10	15 PE: 10	5	8.2 PE: 7.2
HK-003/2 angled	35 – 70	22	35 mm ² : 8 50 mm ² : 9 70 mm ² : 10	15 PE: 10	5	9.0
HC Modular 650	70 – 120	23+2	70 mm ² : 12 95 mm ² : 14 120 mm ² : 16	26.5	8	28
	150 – 185	23+2	150 mm ² : 17 185 mm ² : 18	26.5	8	28

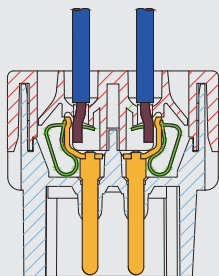
Terminations technology

Spring terminal

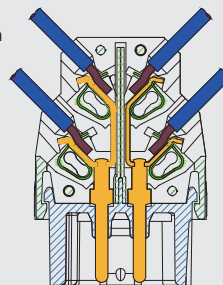
Advantages

No special tool needed;
Applicable to vibration situation;
Insert has contact pins itself, easy to reduce inventory.

Spring terminal

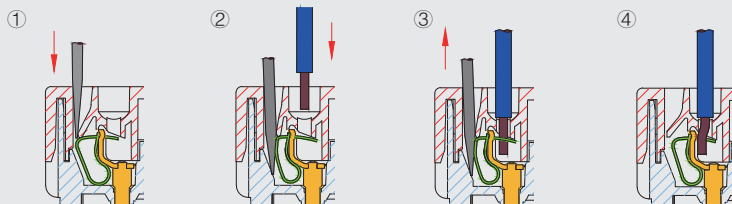


Double spring connection



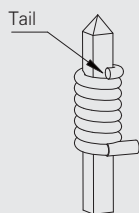
Spring terminal-connection step

Screwdriver width: 3.0 x 0.5 mm



Inserts	max. wire gauge		Stripping length
	(mm ²)	AWG	l (mm)
HE Spring terminal, HVE Spring terminal	0.14 ... 2.5	26 ... 14	7 ... 9
HE Double spring connection	0.14 ... 2.5	26 ... 14	9 ... 11
HK-004/4	0.14 ... 2.5	26 ... 14	7 ... 9
HME-005-MS/FS	0.14 ... 2.5	26 ... 14	7 ... 9

Wrap terminal



The characteristic of wrap terminal:

Solderless wrap connection technology, is to use a special tool-winding device, exerts a pulling force to the single unit solid bare wire, make it according to the prescribed number of turns in a tightly ling edges at the terminal, so that the wire and the terminal form firm joints technology, so as to achieve a reliable electrical connection. It is different from screw connection, welding, crimping, piercing connection way.

Advantage:

Wrap connection has more advantage than solder connection, see the following:

- ① Higher reliability, longer working life;
- ② The junction is durable, anti-fatigue, corrosion resistance;
- ③ Production quality is stable, neat appearance, easier operation, and eliminate the virtual welding problems of the solder connection;
- ④ Achieve high density mounting and product miniaturization.
- ⑤ Reduce manufacture costs and improve work efficiency.

Terminations technology

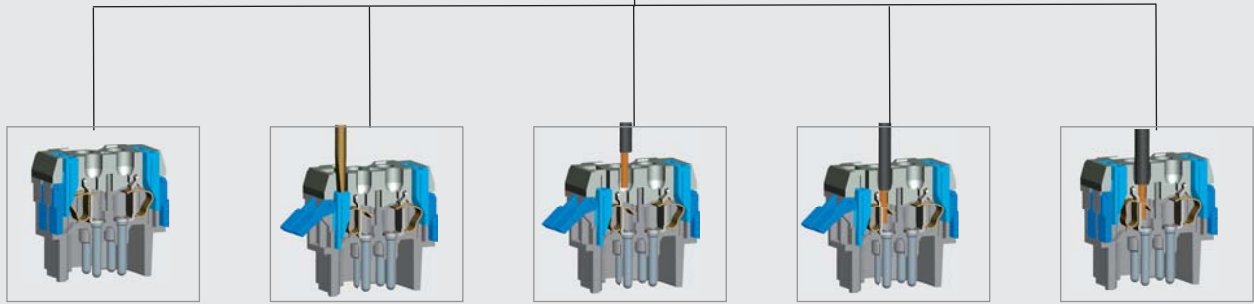
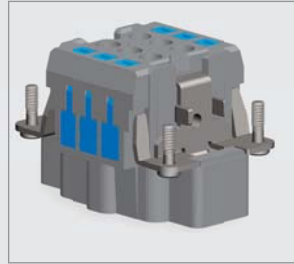
Spring terminal

HE push spring insert

Characteristics of the product:

The product can be connected and disassembled in limited space without special tool. Installation and disassembly can't be disturbed by tools, operation is convenient; Furthermore, during connection and disassembly, the hole can be opened through pushing the corresponding lever. To make it more efficient, all the holes can be opened with a slotted screwdriver simultaneously. The tool is not contacted to the conductor while operating, therefore it avoids electric shock.

Assembly instructions



- step 1: Strip the insulate layer by 9–11 mm;
- step 2: Using slotted screwdriver of spec. 0.5*3 to insert into groove of rectangle pushing lever, and push to the bottom, to let the driving lever tilt out. At this moment the spring stabilizes at opening condition.
- step 3: Insert striped wire/cable into the round hole.
- step 4: Reset the driving lever until hearing the "bang", which indicates the pushing lever automatically reset and the spring shut, the wire/cable and contact are connected securely.
- step 5: Installation is completed.

Tools

HE B Spring open machine¹⁾



Description	Designation	Order NO.
for all HE B spring inserts	SOM01	198 001 003 0008

1) It can open all the shrapnel windows of insert at one time; suitable for using in mass assembly, greatly improving the efficiency of the connection.

Hoods/Housings

Screw tightening torque

Recommended tightening torque for bulkhead mounted housings

Series	Number of screws	Size of screws	Recommended Tightening torque (Nm)	Remarks
H3A	2	M 3	0.8 ... 1.0	Gasket
H10A / 16A	4	M 3	0.8 ... 1.0	Gasket
H32A	4	M 4	0.8 ... 1.0	Gasket
H6B / H10B / H16B / H24B	4	M 4	0.8 ... 1.0	Gasket
H32B	4	M 5	min. 2.5	Gasket
H48B	4	M 6	min. 3.0	O-ring
HP3A	2	M 4	min. 1.0	O-ring
HP6B / HP10B / HP16B / HP24B	4	M 6	min. 3.0	O-ring
HP6B/H / HP10B/H / HP16B/H / HP24B/H	4	M 6	min. 3.0	O-ring

To offer safe protection the surface condition for mounting panel should be according to DIN 4766:

Waviness ≤ 0.2 mm on 200 mm distance

Roughness $R_a \leq 16 \mu\text{m}$