

Electrical power connectors



Electrical power connectors

The Cavotec Group

Cavotec is the name of a group of companies specialized in power supply technology for cranes and other industrial equipment. It is formed by 5 manufacturing "Centres of Excellence" located in Canada, France, Germany, Italy and Sweden and by 5 local manufacturing units located in Australia, China, Germany, Sweden and USA.

For distribution of their products and support to customers Cavotec has 22 sales companies which, together with a network of Distributors, serve more than 30 countries on five continents.

Each manufacturing company, no matter where it is located, aims at being a market leader in its field by providing innovative and reliable products to Group customers.

Although they manufacture different products in different countries, they are globally supported and coordinated by the Cavotec Group in their product development and marketing activities.

Each sales company, and each distributor, has a policy aiming at better serving its local market with the full support of the Cavotec Group.

Our aim is to be local everywhere

Great emphasis is put in providing the highest quality not only in the selected products, but also in service and backing to their customers. Our philosophy in fact is to be local everywhere.

Our fields of activity are



**Mining,
tunnelling**



Steel Mills



Airports



**Ports,
Terminals**



**Robots,
Automation**



Offshore



Constructions

Cavotec Connectors

Cavotec Connector's products and technology are used world-wide in many different industrial applications. These industrial applications are found in ports & terminals, mining and tunnelling, railways, steel and aluminium plants, mobile generator sets, off-shore, and other industrial mobile machines. Cavotec Connector's products are mainly power connectors up to 660 Amp, 25kV, complete with electrical panels made out of standard components and control and signal connectors for up to 50 core cables. The manufactured products are distributed around the world by the Cavotec Sales Companies as well as by a network of selected Distributors.

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An environmentally friendly power supply solution provided by Cavotec Connectors in the Port of Stockholm

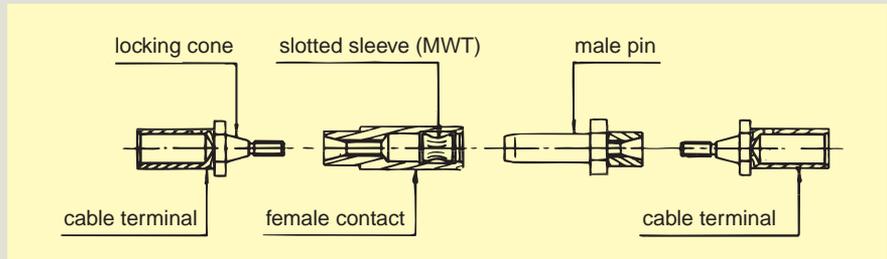


General Information

All our connectors featured in this catalogue are electrically interlocked by the pilot contacts. During the actual connection and disconnection process, the shortest pilot pin is the first one to make contact and the last one to break contact. Our power connectors can also be delivered with mechanical interlocking at the request of the customer.

The MWT system

Cavotec power connectors make use of a special technique using lamellar technology with multicontacts (Multi-Way Technology). The lamellar system MWT greatly improves the contact between the male pin and female contact. When the MWT becomes warm it expands thus increasing the contact pressure between the surfaces. This additional contact pressure allows for an exceptional current-carrying capacity relative to the size of the contacts and makes connecting and disconnecting the plug and socket easier.



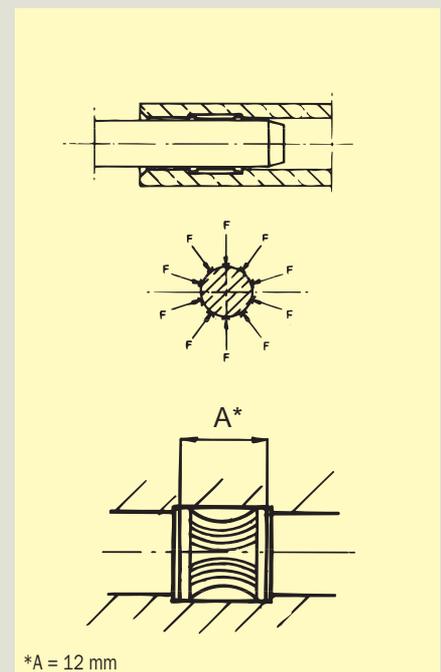
MWT system contacts

PIN Diameter	Nominal Amperage
3	40
5	64
6	100
7	125
8	200
10	250
12	320
14	420
16	500
18	640
20	800
25	1000

Spring loaded contacts

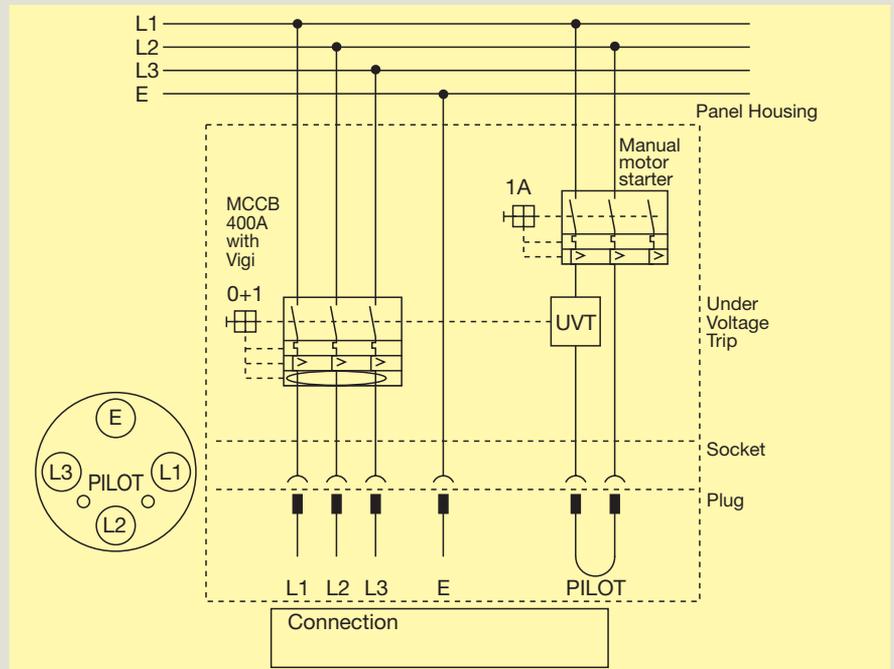
PIN Diameter	Nominal Amperage
3	25
4	35
6	55
9	100

MWT system contacts



Norms and Regulations

All our connectors are electrically interlocked by the pilot contacts. To the right is a typical circuit for the pilot contacts where the pins are loop connected and the female pilot contacts are connected to the operating coil terminals of the switching device. For safety reasons, the pilots are last to connect and first to disconnect. This insures that no disconnection under load can take place. Mechanical interlocking can be provided on request. All materials are made of marine grade aluminium and bronze. All sockets are delivered with a cover. All connectors are manufactured in accordance with NFC 63300 rules.



Standards we refer to:

To ensure our high quality standard the complete product is made out of marine grade aluminium and bronze. All sockets are delivered standard with a cover. All power connectors are made in accordance with NFC 63300 rules.

Cavotec Power Connector confirm to the following standards:

NFC 20 040, VDE 0110, NFC 63300

IEC 309-1, CEE 17, BS 4343

IEC 529, DIN 40050, NFC 20010

Standard inter-protection is IP 667 on all our connectors

Standard inter-protection is IP 557 on all our power units

The standard max temperature for Cavotec connectors up 1100V is 80°C.

The high temperature range for Cavotec connectors is available for max 400°C.

Our High Voltage Push & Pull connectors are tested according to VDE 0432 List 2.

Definition of material criteria

CTI= Cross Tracking Index

PPO have a CTI =400 moulded std insulators

POM have a CTI >400 < 600 tooled insulators

PP have a CTI > 600 moulded insulators for IEC 309-2



Power supply centre for a welding machine in Aker Shipyard, Finland.

Low voltage Power Connectors < 1100V

Cavotec Power Connectors for low voltage applications are robustly designed plugs and sockets for use in harsh and difficult environments. They are standard IP 66 protected and have a standard maximum temperature of 80°C. On request the maximum temperature range can be adjusted to withstand a maximum of 400°C.

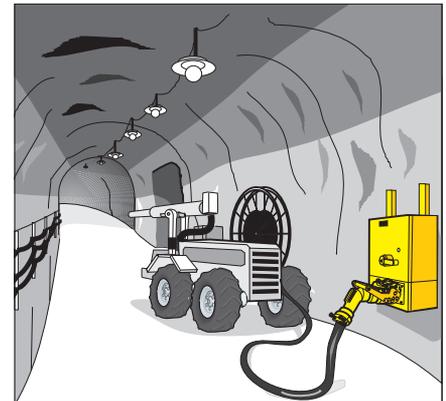
Our range of power connectors for low voltage comes in various different sizes and two different operation systems.

The first is the 'Push & Pull' system which has been designed to operate in environments where the connectors have to be disconnected manually or automatically several times a day. The second system consists of a connector fitted with a screw ring. This system is designed for applications where the connectors have to be disconnected by hand on a day-to-day or weekly basis. The screw ring is a fast thread with a large tolerance allowing dirt or similar into the grooves without failure in operation.

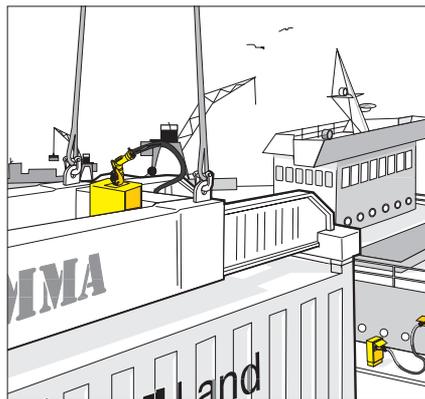
Thanks to their robustness and versatility our power connectors are often chosen for applications in mines, tunnelling, marine applications, steel works, railways, ports, bulk and container terminals.



Electrical connectors are used for mobile generator sets for telecommunication networks, open pit mines and other major users of electrical power.



The illustration shows a complete electrical panel including contactor, power switch and connector for mining and tunnelling applications.



Electrical connectors are used on container spreaders and in container terminals as well as for land connection of ships, ferries, icebreakers, military vessels and in many off-shore applications. A normal application is the power supply to harbour cranes.

Size X2 Power Connector $\leq 660A$

Push & Pull system

The X2 – size power connector with Push & Pull System is designed to be used on applications in harsh environments such as steel mills, mines, harbours and ship-to-shore cranes, etc. where the connectors have to be disconnected frequently, quickly and safely. The design is the most compact of our range and provides an option for applications where space is limited and/or Amperage requirements are lower. The cams are made from marine grade bronze while the mating ears in the plugs are from stainless steel. The connector has IP66 protection when connected.



PG LENGHT TABLE

Type SD

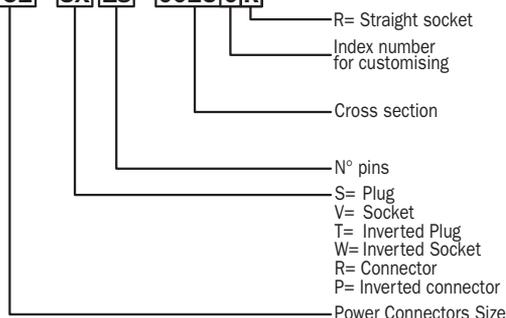
PG42= 32mm, cable \varnothing 34-45mm
 PG36= 29mm, cable \varnothing 26-35mm
 PG29= 26mm, cable \varnothing 16-28mm
 PG21= 26mm, cable \varnothing 10-20mm

Type ZES with strain-bearing

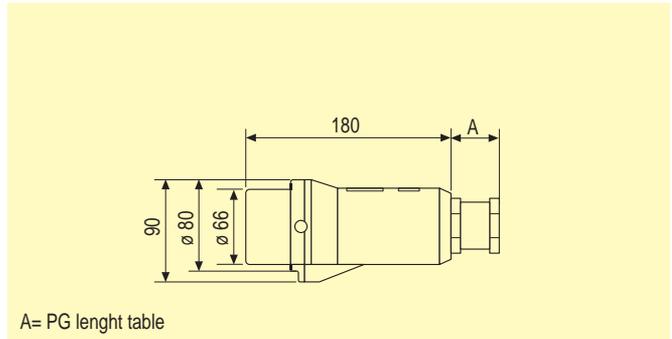
PG42= 43mm, cable \varnothing 34-40mm
 PG36= 41mm, cable \varnothing 24-34mm
 PG29= 34mm, cable \varnothing 19-28mm
 PG21= 32mm, cable \varnothing 13-20mm

Code guide

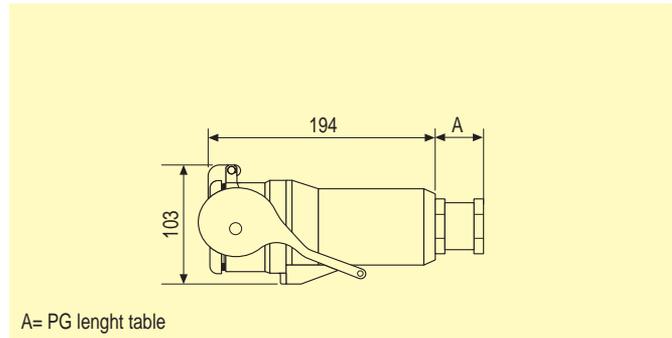
|PC2| - |SX| |18| - |0025| |OR|



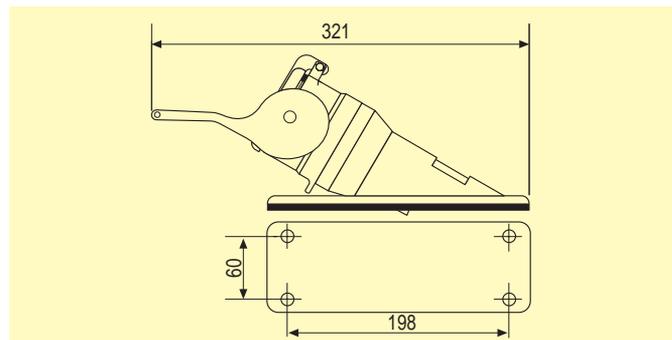
Plug/Inverted Plug, straight Push & Pull



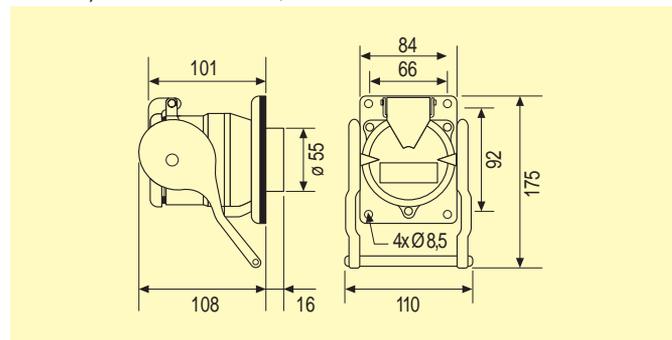
Connector, straight Push & Pull



Socket/Inverted Socket, 30° Push & Pull

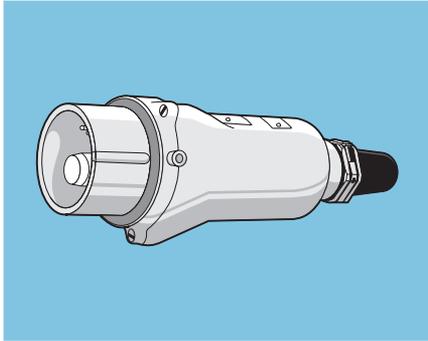


Socket/Inverted Socket, 90° Push & Pull



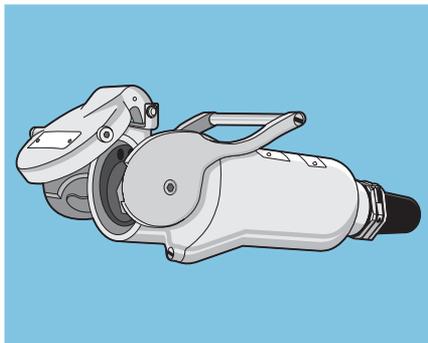
Size X2 Power Connector ≤ 660A

Push & Pull system



PLUG/INVERTED PLUG, STRAIGHT PUSH & PULL

Type	No pins	Max. voltage	Max.current	Weight	Cross	Plug: Male Pins	Inv.plug: Female
Size	P&E+pil	Phase/pilot	Amp.	kg	section mm ²	Product code ⁽¹⁾	Product code ⁽¹⁾
2	1+2	600V/110V	160	1,1	≤ 35	PC2-SX01-S350zz/yy	PC2-TX01-S350zz/yy
			200		50	PC2-SX01-0500zz/yy	PC2-TX01-0500zz/yy
			250		70	PC2-SX01-0700zz/yy	PC2-TX01-0700zz/yy
2	1+2	600V/110V	320	1,5	95	PC2-SX01-0950zz/yy	PC2-TX01-0950zz/yy
			370		120	PC2-SX01-1200zz/yy	PC2-TX01-1200zz/yy
			420		150	PC2-SX01-1500zz/yy	PC2-TX01-1500zz/yy
			480		185	PC2-SX01-1850zz/yy	PC2-TX01-1850zz/yy
			570		240	PC2-SX01-2400zz/yy	PC2-TX01-2400zz/yy
			660		300	PC2-SX01-3000zz/yy	PC2-TX01-3000zz/yy
2	3+3	500V/230	160	1,3	≤ 35	PC2-SX03-S350zz/yy	PC2-TX03-S350zz/yy
			200		50	PC2-SX03-0500zz/yy	PC2-TX03-0500zz/yy
			250		70	PC2-SX03-0700zz/yy	PC2-TX03-0700zz/yy
2	4+2	500V/230	125	1,4	≤ 25	PC2-SX04-S250zz/yy	PC2-TX04-S250zz/yy
			160		35	PC2-SX04-0350zz/yy	PC2-TX04-0350zz/yy
			200		50	PC2-SX04-0500zz/yy	PC2-TX04-0500zz/yy
2	18	500V	20		1,5	PC2-SX18-0015zz/yy	PC2-TX18-0015zz/yy
			30		2,5	PC2-SX18-0025zz/yy	PC2-TX18-0025zz/yy
			40		4	PC2-SX18-0040zz/yy	PC2-TX18-0040zz/yy



Fixing plate for wall mounting etc. of plug and connector is available.
High temperature insulators are available.

CONNECTOR, STRAIGHT PUSH & PULL

Type	No pins	Max. voltage	Max.current	Weight	Cross	Connector: Female	Connector: Male Pins
Size	P&E+pil	Phase/pilot	Amp.	kg	section mm ²	Product code ⁽¹⁾	Product code ⁽¹⁾
2	1+2	600V/110V	160	2,2	≤ 35	PC2-RX01-S350zz/yy	PC2-PX01-S350zz/yy
			200		50	PC2-RX01-0500zz/yy	PC2-PX01-0500zz/yy
			250		70	PC2-RX01-0700zz/yy	PC2-PX01-0700zz/yy
2	1+2	600V/110V	320	1,5	95	PC2-RX01-0950zz/yy	PC2-PX01-0950zz/yy
			370		120	PC2-RX01-1200zz/yy	PC2-PX01-1200zz/yy
			420		150	PC2-RX01-1500zz/yy	PC2-PX01-1500zz/yy
			480		185	PC2-RX01-1850zz/yy	PC2-PX01-1850zz/yy
			570		240	PC2-RX01-2400zz/yy	PC2-PX01-2400zz/yy
			660		300	PC2-RX01-3000zz/yy	PC2-PX01-3000zz/yy
2	3+3	500V/230	160	2,4	≤ 35	PC2-RX03-S350zz/yy	PC2-PX03-S350zz/yy
			200		50	PC2-RX03-0500zz/yy	PC2-PX03-0500zz/yy
			250		70	PC2-RX03-0700zz/yy	PC2-PX03-0700zz/yy
2	4+2	500V/230	125	2,5	≤ 25	PC2-RX04-S250zz/yy	PC2-PX04-S250zz/yy
			160		35	PC2-RX04-0350zz/yy	PC2-PX04-0350zz/yy
			200		50	PC2-RX04-0500zz/yy	PC2-PX04-0500zz/yy
2	18	500V	20		1,5	PC2-RX18-0015zz/yy	PC2-PX18-0015zz/yy
			30		2,5	PC2-RX18-0025zz/yy	PC2-PX18-0025zz/yy
			40		4	PC2-RX18-0040zz/yy	PC2-PX18-0040zz/yy

⁽¹⁾ zz, in product code stands for key position;

⁽¹⁾ yy, in product code stands for cable gland size.

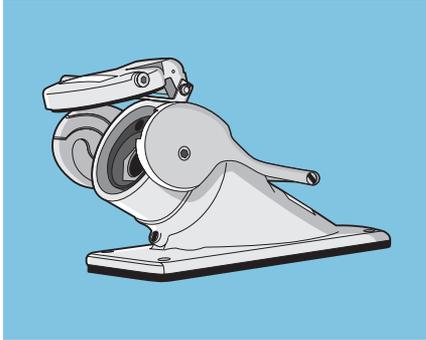
zz key position

2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
12	12 + all positions marked (spare when several key positions are used).
blank	12 (standard)

yy =Pg size IP Cable diameter

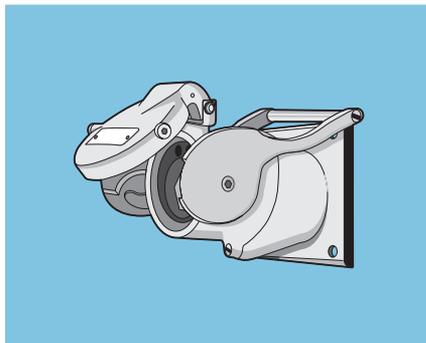
29	68	ø = 19-28
29	55	ø = 19-28
36	68	ø = 26-35
36	55	ø = 24-34
42	68	ø = 35-45
42	55	ø = 34-40

NOTE: specify cable diam. on order



SOCKET/INVERTED SOCKET, 30° PUSH & PULL

Type	No pins	Max. voltage	Max.current	Weight	Cross	Socket: Female	Inv. Socket: Male Pins
Size	P&E+pil	Phase/pilot	Amp.	kg	section mm ²	Product code	Product code
2	1+2	600V/110V	160	2,2	≤ 35	PC2-VX01-S350zz/yy	PC2-WX01-S350zz/yy
			200		50	PC2-VX01-0500zz/yy	PC2-WX01-0500zz/yy
			250		70	PC2-VX01-0700zz/yy	PC2-WX01-0700zz/yy
2	1+2	600V/110V	320	1,5	95	PC2-VX01-0950zz/yy	PC2-WX01-0950zz/yy
			370		120	PC2-VX01-1200zz/yy	PC2-WX01-1200zz/yy
			420		150	PC2-VX01-1500zz/yy	PC2-WX01-1500zz/yy
			480		185	PC2-VX01-1850zz/yy	PC2-WX01-1850zz/yy
			570		240	PC2-VX01-2400zz/yy	PC2-WX01-2400zz/yy
			660		300	PC2-VX01-3000zz/yy	PC2-WX01-3000zz/yy
2	3+3	500V/230	160	2,4	≤ 35	PC2-VX03-S350zz/yy	PC2-WX03-S350zz/yy
			200		50	PC2-VX03-0500zz/yy	PC2-WX03-0500zz/yy
			250		70	PC2-VX03-0700zz/yy	PC2-WX03-0700zz/yy
2	4+2	500V/230	125	2,5	≤ 25	PC2-VX04-S250zz/yy	PC2-WX04-S250zz/yy
			160		35	PC2-VX04-0350zz/yy	PC2-WX04-0350zz/yy
			200		50	PC2-VX04-0500zz/yy	PC2-WX04-0500zz/yy
2	18	500V	20	2,1	1,5	PC2-VX18-0015zz/yy	PC2-WX18-0015zz/yy
			30		2,5	PC2-VX18-0025zz/yy	PC2-WX18-0025zz/yy
			40		4	PC2-VX18-0040zz/yy	PC2-WX18-0040zz/yy



SOCKET/INVERTED SOCKET, 90° PUSH & PULL

Type	No pins	Max. voltage	Max.current	Weight	Cross	Socket: Female	Inv. Socket: Male Pins
Size	P&E+pil	Phase/pilot	Amp.	kg	section mm ²	Product code	Product code
2	1+2	600V/110V	160	1,8	≤ 35	PC2-VX01-S350Rzz/yy	PC2-WX01-S350Rzz/yy
			200		50	PC2-VX01-0500Rzz/yy	PC2-WX01-0500Rzz/yy
			250		70	PC2-VX01-0700Rzz/yy	PC2-WX01-0700Rzz/yy
2	1+2	600V/110V	320	2,2	95	PC2-VX01-0950Rzz/yy	PC2-WX01-0950Rzz/yy
			370		120	PC2-VX01-1200Rzz/yy	PC2-WX01-1200Rzz/yy
			420		150	PC2-VX01-1500Rzz/yy	PC2-WX01-1500Rzz/yy
			480		185	PC2-VX01-1850Rzz/yy	PC2-WX01-1850Rzz/yy
			570		240	PC2-VX01-2400Rzz/yy	PC2-WX01-2400Rzz/yy
			660		300	PC2-VX01-3000Rzz/yy	PC2-WX01-3000Rzz/yy
2	3+3	500V/230	160	2,0	≤ 35	PC2-VX03-S350Rzz/yy	PC2-WX03-S350Rzz/yy
			200		50	PC2-VX03-0500Rzz/yy	PC2-WX03-0500Rzz/yy
			250		70	PC2-VX03-0700Rzz/yy	PC2-WX03-0700Rzz/yy
2	4+2	500V/230	125	2,1	≤ 25	PC2-VX04-S250Rzz/yy	PC2-WX04-S250Rzz/yy
			160		35	PC2-VX04-0350Rzz/yy	PC2-WX04-0350Rzz/yy
			200		50	PC2-VX04-0500Rzz/yy	PC2-WX04-0500Rzz/yy
2	18	500V	20	1,7	1,5	PC2-VX18-0015Rzz/yy	PC2-WX18-0015Rzz/yy
			30		2,5	PC2-VX18-0025Rzz/yy	PC2-WX18-0025Rzz/yy
			40		4	PC2-VX18-0040Rzz/yy	PC2-WX18-0040Rzz/yy

High temperature insulators are available.

⁽¹⁾ zz, in product code stands for key position;

zz	key position
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
12	12 + all positions marked (spare when several key positions are used).
blank	12 (standard)

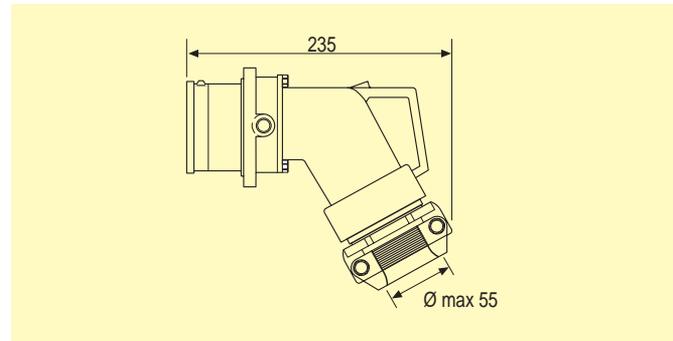
Size X4 Power Connector ≤ 250A, 1100V

Push & Pull system

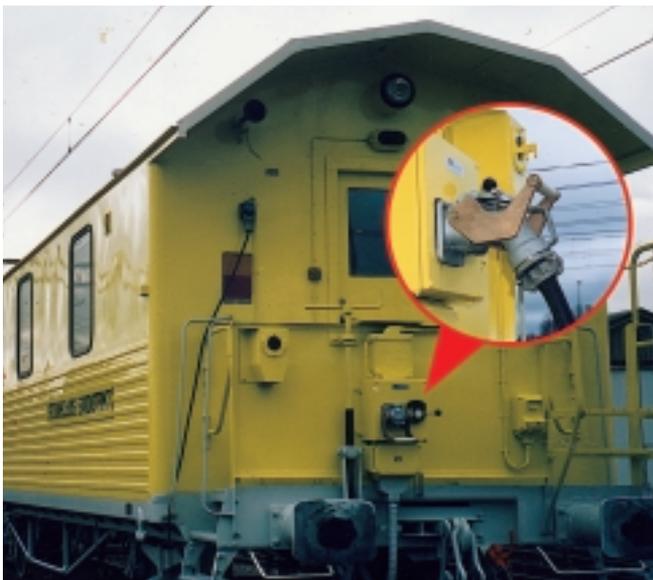
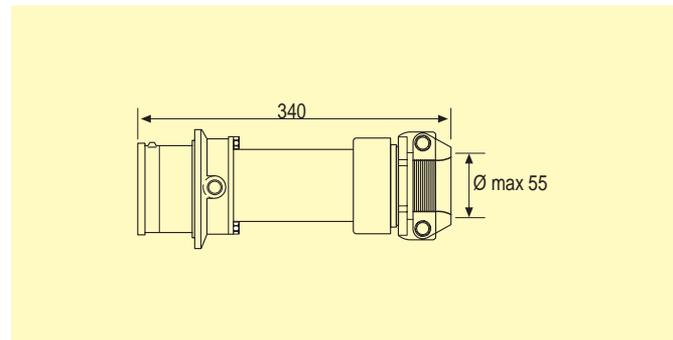
The X4 size power connector with Push & Pull system is often used on applications where the connector has to frequently be connected and disconnected, either by hand or automatically. Thanks to their robust design these connectors are often used in harsh environments such as steel mills, mines, ports, terminals, etc. The cams are made from marine grade bronze while the mating ears in the plugs are from stainless steel. The connector has IP66 protection when connected.



Plug/Inverted Plug, bent Push & Pull

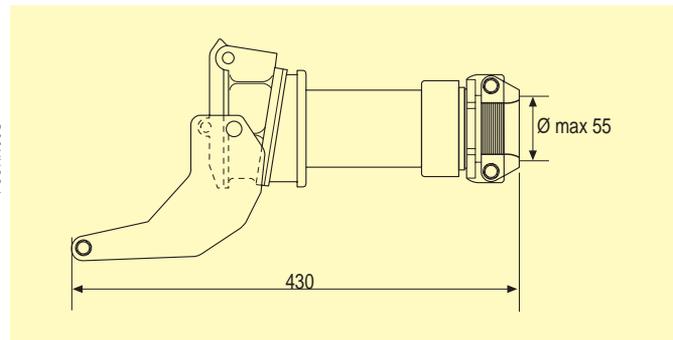


Plug/Inverted Plug, straight Push & Pull



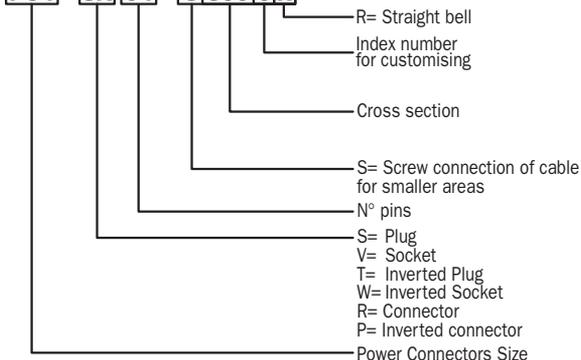
The above photo shows a typical connector application on a ballast service wagon of the Swedish Railways (Banverket).

Connector, straight Push & Pull

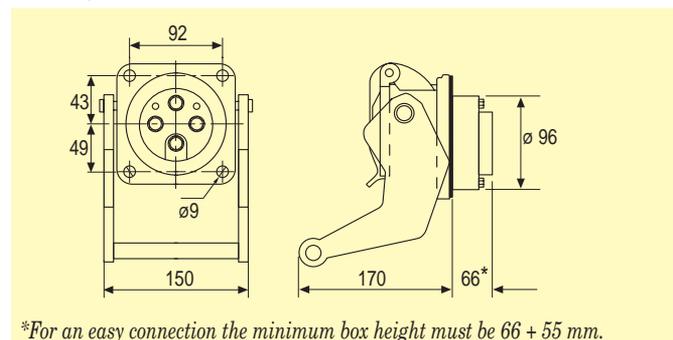


Code guide

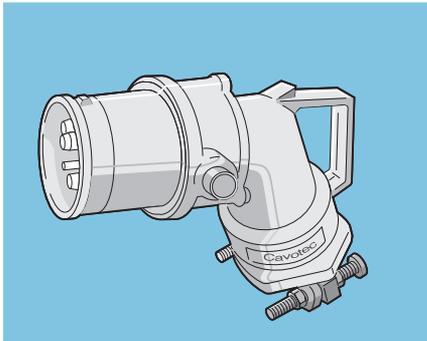
PC4-SX04-S500IR



Socket/Inverted Socket, Push & Pull

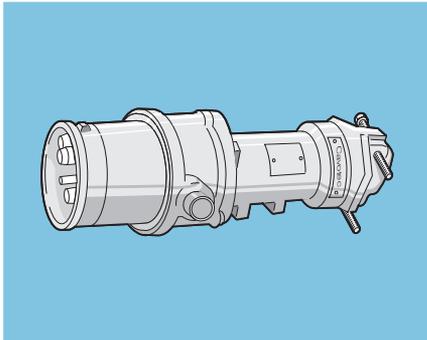


*For an easy connection the minimum box height must be 66 + 55 mm.



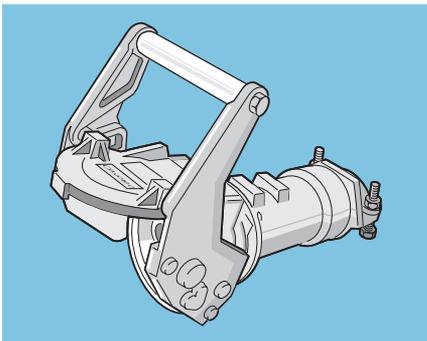
PLUG/INVERTED PLUG, BENT PUSH & PULL

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Plug: Male Pins Product code	Inv.plug: Female Product code
4	4	160	1,9	≤ 35	PC4-SX04-S350	PC4-TX04-S350
		200		50	PC4-SX04-0500	PC4-TX04-0500
		250		70	PC4-SX04-0700	PC4-TX04-0700
4	5	125	1,9	≤ 25	PC4-SX05-S250	PC4-TX05-S250
		160		35	PC4-SX05-0350	PC4-TX05-0350
		200		50	PC4-SX05-0500	PC4-TX05-0500
		200		70	PC4-SX05-0700	PC4-TX05-0700



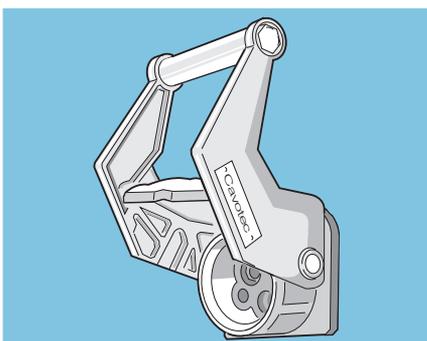
PLUG/INVERTED PLUG, STRAIGHT PUSH & PULL

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Plug: Male Pins Product code	Inv.plug: Female Product code
4	4	160	1,8	≤ 35	PC4-SX04-S350R	PC4-TX04-S350R
		200		50	PC4-SX04-0500R	PC4-TX04-0500R
		250		70	PC4-SX04-0700R	PC4-TX04-0700R
4	5	125	1,8	≤ 25	PC4-SX05-S250R	PC4-TX05-S250R
		160		35	PC4-SX05-0350R	PC4-TX05-0350R
		200		50	PC4-SX05-0500R	PC4-TX05-0500R
		200		70	PC4-SX05-0700R	PC4-TX05-0700R



CONNECTOR, STRAIGHT PUSH & PULL

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Connector: Female Product code
4	4	160	4,8	≤ 35	PC4-RX04-S350
		200		50	PC4-RX04-0500
		250		70	PC4-RX04-0700
4	5	125	4,8	≤ 25	PC4-RX05-S250
		160		35	PC4-RX05-0350
		200		50	PC4-RX05-0500
		200		70	PC4-RX05-0700



SOCKET/INVERTED SOCKET, PUSH & PULL

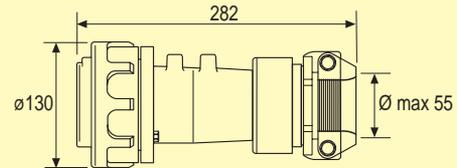
Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Socket: Female Product code	Inv. Socket: Male Pins Product code
4	4	160	3,5	≤ 35	PC4-VX04-S350	PC4-WX04-S350
		200		50	PC4-VX04-0500	PC4-WX04-0500
		250		70	PC4-VX04-0700	PC4-WX04-0700
4	5	125	3,5	≤ 25	PC4-VX05-S250	PC4-WX05-S250
		160		35	PC4-VX05-0350	PC4-WX05-0350
		200		50	PC4-VX05-0500	PC4-WX05-0500
		200		70	PC4-VX05-0700	PC4-WX05-0700

Size S4 Power Connector $\leq 250A, 1100V$ Screw Ring system

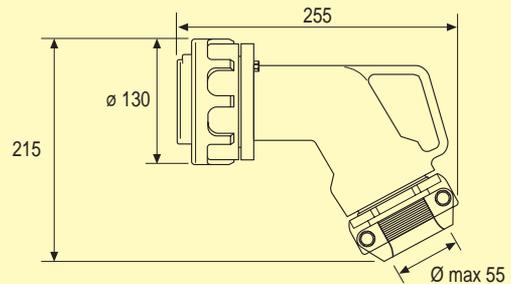
The size S4 power connector has a screw ring and is designed for use in harsh environments where the connector only needs to be disconnected every other day. The screw type is a fast thread with a large tolerance which allows dirt or similar into the grooves without causing any operational failure. The sockets come standard with a cover whereas the connector can be supplied with a cover on request. The connector has IP66 protection when connected.



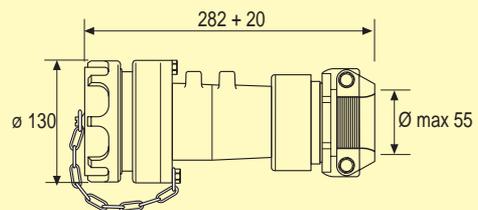
Plug/Inverted Plug, straight Screw ring



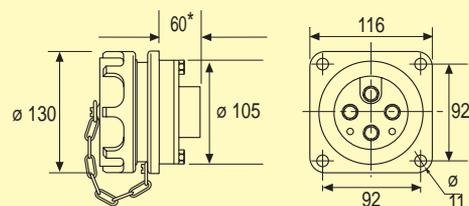
Plug/Inverted Plug, bent Screw ring



Connector, straight Screw ring



Socket/Inverted Socket, Screw ring



* For an easy connection the minimum box height must be 60 + 55 mm.

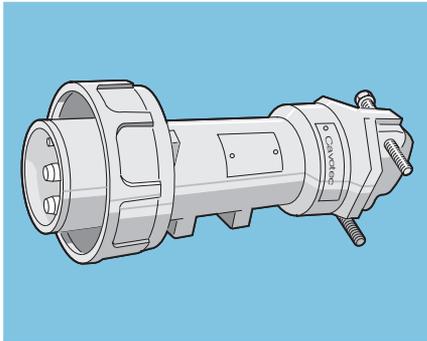


This photograph shows a tunnelling site in Stockholm where the excavation work is carried out by means of an Atlas Copco drilling rig with a Cavotec Connectors panel for power supply to a shotcrete machine.

Code guide

PC4-SS04-S5000B

- B= Bent bell
- Index number for customising
- Cross section
- S= Screw connection of cable for smaller areas
- N° pins
- S= Plug
- V= Socket
- T= Inverted Plug
- W= Inverted Socket
- R= Connector
- P= Inverted connector
- I= Wall mounted plug
- Power Connectors Size



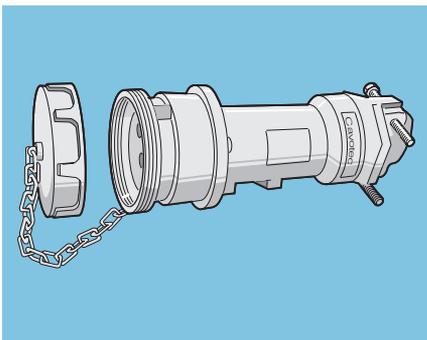
PLUG/INVERTED PLUG, STRAIGHT SCREW RING

Type	No pins	Max.current	Weight	Cross section	Plug: Male Pins	Inv.plug: Female
Size		Amp.	kg	mm ²	Product code	Product code
4	4	160	2,4	≤ 35	PC4-SS04-S350	PC4-TS04-S350
		200		50	PC4-SS04-0500	PC4-TS04-0500
		250		70	PC4-SS04-0700	PC4-TS04-0700
4	5	125	2,4	≤ 25	PC4-SS05-S250	PC4-TS05-S250
		160		35	PC4-SS05-0350	PC4-TS05-0350
		200		50	PC4-SS05-0500	PC4-TS05-0500
		200		70	PC4-SS05-0700	PC4-TS05-0700



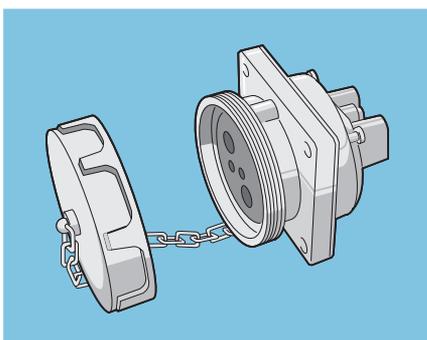
PLUG/INVERTED PLUG, BENT SCREW RING

Type	No pins	Max.current	Weight	Cross section	Plug: Male Pins	Inv.plug: Female
Size		Amp.	kg	mm ²	Product code	Product code
4	4	160	2,5	≤ 35	PC4-SS04-S350B	PC4-TS04-S350B
		200		50	PC4-SS04-0500B	PC4-TS04-0500B
		250		70	PC4-SS04-0700B	PC4-TS04-0700B
4	5	125	2,5	≤ 25	PC4-SS05-S250B	PC4-TS05-S250B
		160		35	PC4-SS05-0350B	PC4-TS05-0350B
		200		50	PC4-SS05-0500B	PC4-TS05-0500B
		200		70	PC4-SS05-0700B	PC4-TS05-0700B



CONNECTOR, STRAIGHT SCREW RING

Type	No pins	Max.current	Weight	Cross section	Connector: Female
Size		Amp.	kg	mm ²	Product code
4	4	160	2,7	≤ 35	PC4-RS04-S350
		200		50	PC4-RS04-0500
		250		70	PC4-RS04-0700
4	5	125	2,7	≤ 25	PC4-RS05-S250
		160		35	PC4-RS05-0350
		200		50	PC4-RS05-0500
		200		70	PC4-RS05-0700



SOCKET/INVERTED SOCKET, SCREW RING

Type	No pins	Max.current	Weight	Cross Section	Socket: Female	Inv. Socket: Male Pins
Size		Amp.	kg	mm ²	Product code	Product code
4	4	160	1,7	≤ 35	PC4-VS04-S350	PC4-WS04-S350
		200		50	PC4-VS04-0500	PC4-WS04-0500
		250		70	PC4-VS04-0700	PC4-WS04-0700
4	5	125	1,7	≤ 25	PC4-VS05-S250	PC4-WS05-S250
		160		35	PC4-VS05-0350	PC4-WS05-0350
		200		50	PC4-VS05-0500	PC4-WS05-0500
		200		70	PC4-VS05-0700	PC4-WS05-0700

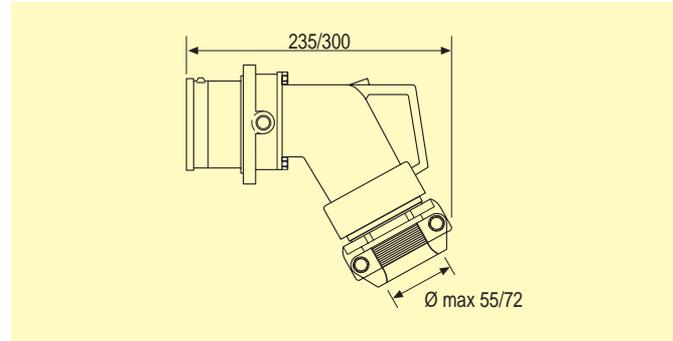
Size X4/X5 Multipin Connector 500V

Push & Pull system

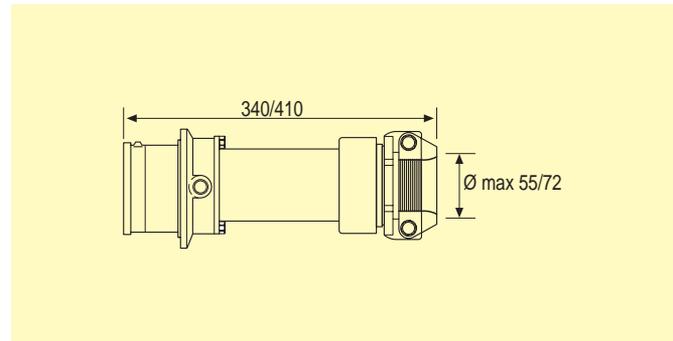
The X4/5 size multipin connector with Push & Pull System is designed to be used on applications in harsh environments such as steel mills, mines, harbours and ship-to-shore cranes, etc. where the connectors have to be disconnected frequently, either by hand or automatically. The cams are made from marine grade bronze while the mating ears in the plugs are from stainless steel. The connector has IP66 protection when connected.



Plug/Inverted Plug, bent Push & Pull, multipin

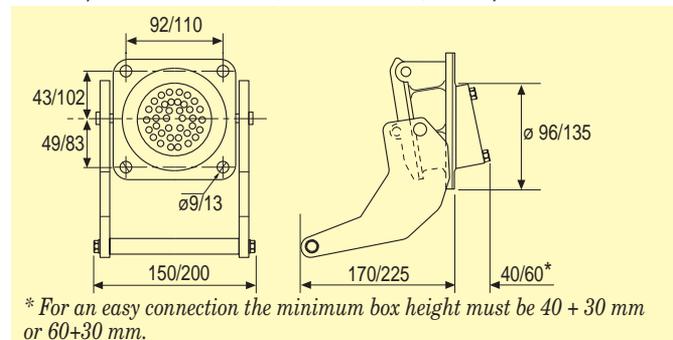


Plug/Inverted Plug, straight Push & Pull, multipin



Plugs & Sockets of Push & Pull type are used to connect quickly and easily on various crane equipment like spreaders, vacuum-loaders, hydraulic grabs and other crane lifting equipment. The photo shows a typical application area.

Socket/Inverted Socket, Push & Pull, multipin

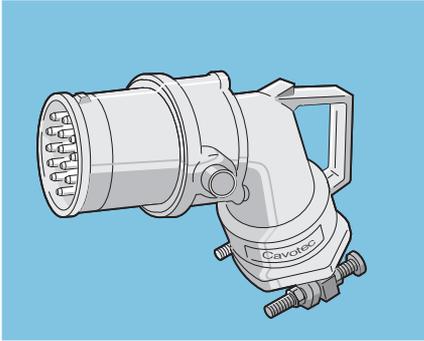


NOTE: First dimension = size 4 - Second dimension = size 5

Code guide

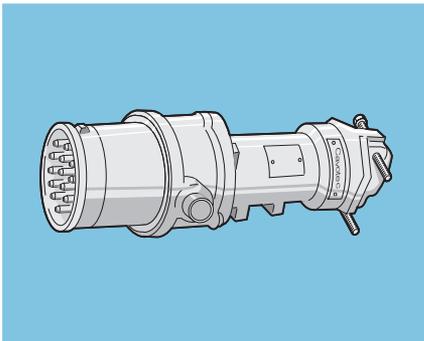
PC4 - **SX** | **24** - **0025** | **0** | **R**

- R= Straight bell
- Index number for customising
- Cross section
0015= 1,5mm²
0025= 2,5mm²
0040= 4mm²
- N° pins
- S= Plug
V= Socket
T= Inverted Plug
W= Inverted Socket
- Power Connectors Size:
4 or 5



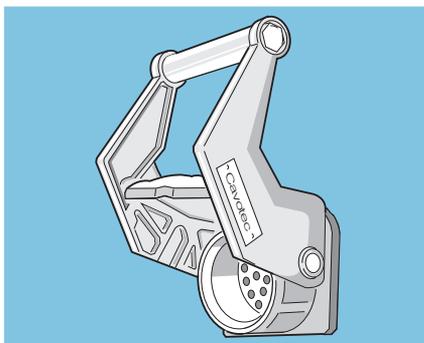
PLUG/INVERTED PLUG, BENT PUSH & PULL, MULTIPIN

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Plug: Male Pins Product code	Inv.plug: Female Product code
4	24	20	1,9	1,5	PC4-SX24-00150	PC4-TX24-00150
		30		2,5	PC4-SX24-00250	PC4-TX24-00250
		40		4	PC4-SX24-0040	PC4-TX24-0040
4	30	20	1,9	1,5	PC4-SX30-00150	PC4-TX30-00150
		30		2,5	PC4-SX30-00250	PC4-TX30-00250
		40		4	PC4-SX30-0040	PC4-TX30-0040
4	37	20	2,0	1,5	PC4-SX37-00150	PC4-TX37-00150
		30		2,5	PC4-SX37-00250	PC4-TX37-00250
		40		4	PC4-SX37-0040	PC4-TX37-0040
5	50	20	4,2	1,5	PC5-SX50-00150	PC5-TX50-00150
		30		2,5	PC5-SX50-00250	PC5-TX50-00250
		40		4	PC5-SX50-0040	PC5-TX50-0040



PLUG/INVERTED PLUG, STRAIGHT PUSH & PULL, MULTIPIN

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Plug: Male Pins Product code	Inv.plug: Female Product code
4	24	20	1,8	1,5	PC4-SX24-00150R	PC4-TX24-00150R
		30		2,5	PC4-SX24-00250R	PC4-TX24-00250R
		40		4	PC4-SX24-0040R	PC4-TX24-0040R
4	30	20	1,8	1,5	PC4-SX30-00150R	PC4-TX30-00150R
		30		2,5	PC4-SX30-00250R	PC4-TX30-00250R
		40		4	PC4-SX30-0040R	PC4-TX30-0040R
4	37	20	1,9	1,5	PC4-SX37-00150R	PC4-TX37-00150R
		30		2,5	PC4-SX37-00250R	PC4-TX37-00250R
		40		4	PC4-SX37-0040R	PC4-TX37-0040R
5	50	20	4,2	1,5	PC5-SX50-00150R	PC5-TX50-00150R
		30		2,5	PC5-SX50-00250R	PC5-TX50-00250R
		40		4	PC5-SX50-0040R	PC5-TX50-0040R



SOCKET/INVERTED SOCKET, PUSH & PULL, MULTIPIN

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Socket: Female Product code	Inv. Socket: Male Pins Product code
4	24	20	3,5	1,5	PC4-VX24-00150	PC4-WX24-00150
		30		2,5	PC4-VX24-00250	PC4-WX24-00250
		40		4	PC4-VX24-0040	PC4-WX24-0040
4	30	20	3,5	1,5	PC4-VX30-00150	PC4-WX30-00150
		30		2,5	PC4-VX30-00250	PC4-WX30-00250
		40		4	PC4-VX30-0040	PC4-WX30-0040
4	37	20	3,6	1,5	PC4-VX37-00150	PC4-WX37-00150
		30		2,5	PC4-VX37-00250	PC4-WX37-00250
		40		4	PC4-VX37-0040	PC4-WX37-0040
5	50	20	7,8	1,5	PC5-VX50-00150	PC5-WX50-00150
		30		2,5	PC5-VX50-00250	PC5-WX50-00250
		40		4	PC5-VX50-0040	PC5-WX50-0040

NOTE: Pin and female connector box spanner for multipin plugs and sockets is available.

Size S4/S5 Multipin Connector 500V

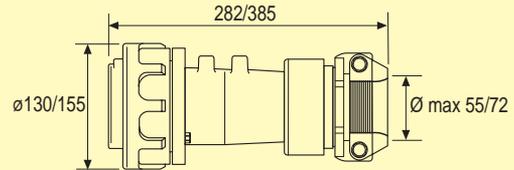
Screw Ring system

The size S4/5 multipin connector has a screw ring and is designed for use in harsh environments where the connector only needs to be disconnected every other day. The screw type is a fast thread with a large tolerance which allows dirt or similar into the grooves without causing any operational failure. The sockets come standard with a cover whereas the connector can be supplied with a cover on request. The connector has IP66 protection when connected.

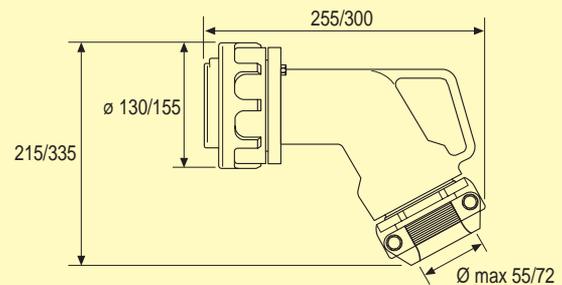


Multipin Plugs & Sockets are used in harsh environment like steel mills.

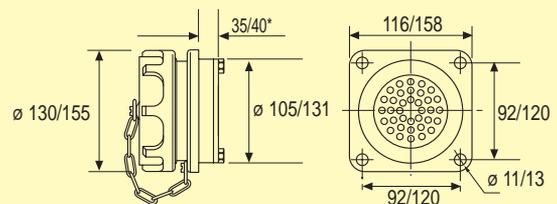
Plug/Inverted Plug, straight with Screw ring, multipin



Plug/Inverted Plug, bent with Screw ring, multipin



Socket/Inverted Socket with Screw ring, multipin



* For an easy connection the minimum box height must be 35+30 mm or 40+30 mm

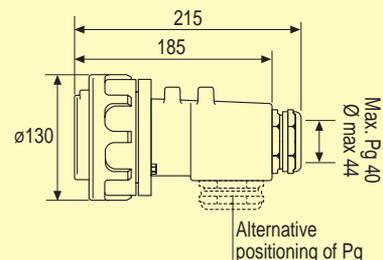
Code guide

PC4| - |SS| |24| - |0025|0|B|

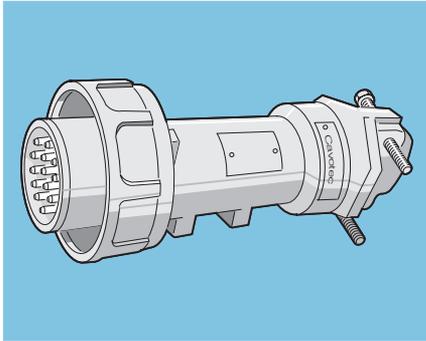
- B= Bent bell
- Index number for customising
- Cross section
0015= 1,5mm²
0025= 2,5mm²
0040= 4mm²
- N° pins
- S= Plug
- V= Socket
- T= Inverted Plug
- W= Appliance Inlet
- Power Connectors Size:
4 or 5

Plug size 4 Short bell

(AVAILABLE ON REQUEST FOR ALL SIZE 4 PLUGS AND CONNECTORS).

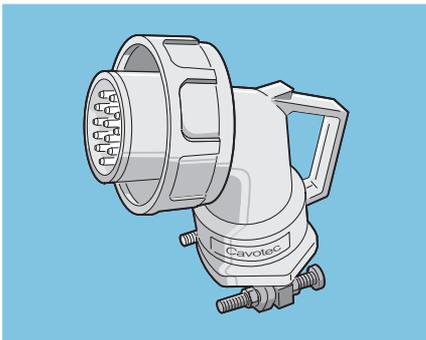


NOTE: First dimension = size 4 - Second dimension = size 5



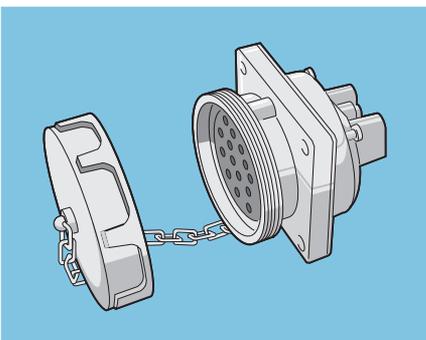
PLUG/INVERTED PLUG, STRAIGHT WITH SCREW RING, MULTIPIN

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Plug: Male Pins Product code	Inv.plug: Female Product code
4	24	20	2,4	1,5	PC4-SS24-00150	PC4-TS24-00150
		30		2,5	PC4-SS24-00250	PC4-TS24-00250
		40		4	PC4-SS24-00400	PC4-TS24-00400
4	30	20	2,4	1,5	PC4-SS30-00150	PC4-TS30-00150
		30		2,5	PC4-SS30-00250	PC4-TS30-00250
		40		4	PC4-SS30-00400	PC4-TS30-00400
4	37	20	2,5	1,5	PC4-SS37-00150	PC4-TS37-00150
		30		2,5	PC4-SS37-00250	PC4-TS37-00250
		40		4	PC4-SS37-00400	PC4-TS37-00400
5	50	20	4,1	1,5	PC5-SS50-00150	PC5-TS50-00150
		30		2,5	PC5-SS50-00250	PC5-TS50-00250
		40		4	PC5-SS50-00400	PC5-TS50-00400



PLUG/INVERTED PLUG, BENT WITH SCREW RING, MULTIPIN

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Plug: Male Pins Product code	Inv.plug: Female Product code
4	24	20	2,5	1,5	PC4-SS24-00150B	PC4-TS24-00150B
		30		2,5	PC4-SS24-00250B	PC4-TS24-00250B
		40		4	PC4-SS24-0040B	PC4-TS24-0040B
4	30	20	2,5	1,5	PC4-SS30-00150B	PC4-TS30-00150B
		30		2,5	PC4-SS30-00250B	PC4-TS30-00250B
		40		4	PC4-SS30-0040B	PC4-TS30-0040B
4	37	20	2,6	1,5	PC4-SS37-00150B	PC4-TS37-00150B
		30		2,5	PC4-SS37-00250B	PC4-TS37-00250B
		40		4	PC4-SS37-0040B	PC4-TS37-0040B
5	50	20	4,1	1,5	PC5-SS50-00150B	PC5-TS50-00150B
		30		2,5	PC5-SS50-00250B	PC5-TS50-00250B
		40		4	PC5-SS50-0040B	PC5-TS50-0040B



SOCKET/INVERTED SOCKET WITH SCREW RING, MULTIPOLE

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Socket: Female Product Code	Inv. Socket: Male Pins Product Code
4	24	20	1,7	1,5	PC4-VS24-00150	PC4-WS24-00150
		30		2,5	PC4-VS24-00250	PC4-WS24-00250
		40		4	PC4-VS24-00400	PC4-WS24-00400
4	30	20	1,7	1,5	PC4-VS30-00150	PC4-WS30-00150
		30		2,5	PC4-VS30-00250	PC4-WS30-00250
		40		4	PC4-VS30-00400	PC4-WS30-00400
4	37	20	1,8	1,5	PC4-VS37-00150	PC4-WS37-00150
		30		2,5	PC4-VS37-00250	PC4-WS37-00250
		40		4	PC4-VS37-00400	PC4-WS37-00400
5	50	20	2,7	1,5	PC5-VS50-00150	PC5-WS50-00150
		30		2,5	PC5-VS50-00250	PC5-WS50-00250
		40		4	PC5-VS50-00400	PC5-WS50-00400

NOTE: Pin and female connector box spanner for multi-pin plugs and sockets is available.

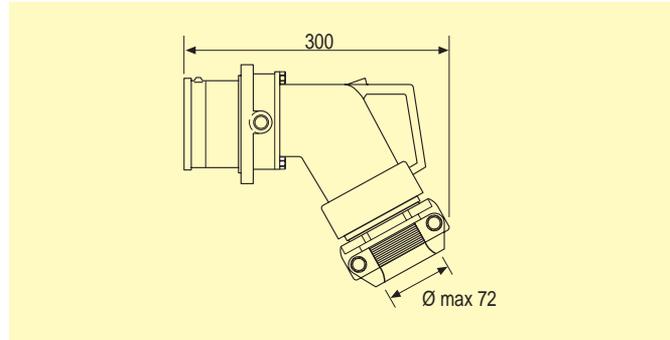
Size X5 Power Connector ≤ 420A, 1100V

Push & Pull system

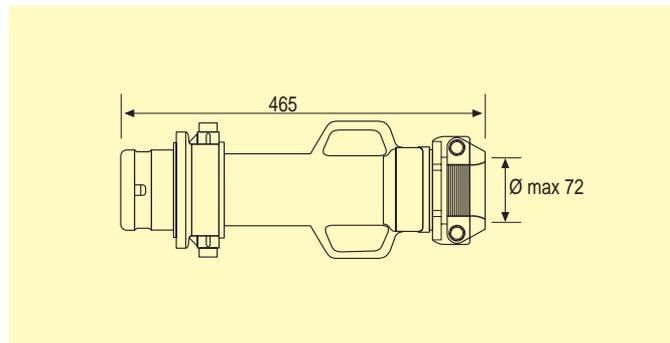
The X5 size power connector with Push & Pull system is often used on applications where the connector has to frequently be connected and disconnected, either by hand or automatically. Thanks to their robust design these connectors are often used in harsh environments such as steel mills, mines, ports, terminals, etc. The cams are made from marine grade bronze while the mating ears in the plugs are from stainless steel. The connector has IP66 protection when connected.



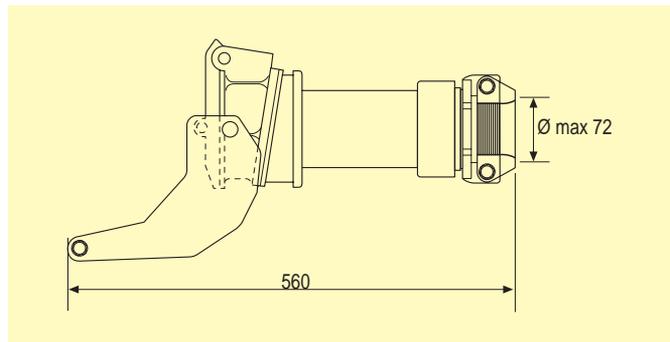
Plug/Inverted Plug, bent Push & Pull



Plug/Inverted Plug, straight Push & Pull



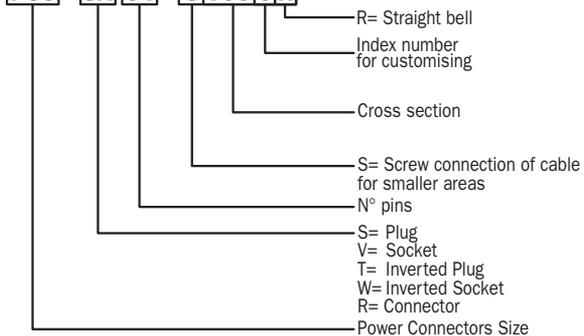
Connector, straight Push & Pull



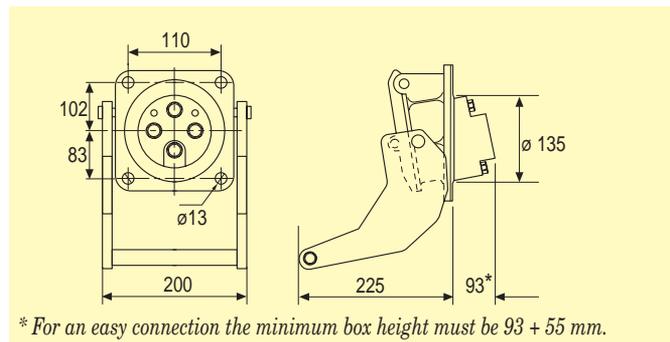
Cranes are often connected to the power line with Cavotec Connectors. The photo shows a Push & Pull Power Socket, including fiber optic socket and connection box.

Code guide

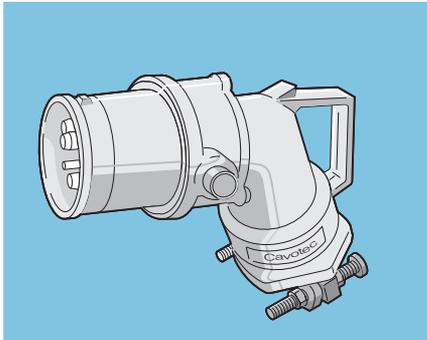
PC5]-[SX][04]-[S]700[OR]



Socket/Inverted Socket, Push & Pull

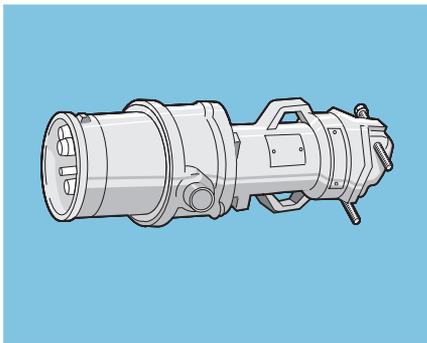


* For an easy connection the minimum box height must be 93 + 55 mm.



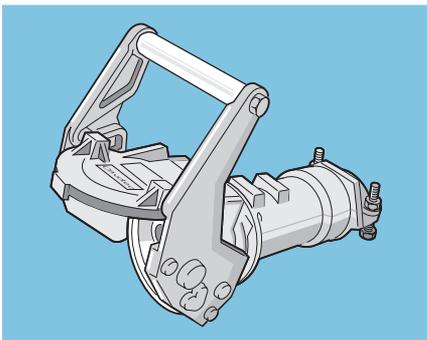
PLUG/INVERTED PLUG, BENT PUSH & PULL

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Plug: Male Pins Product code	Inv.plug: Female Product code
5	4	250	4,5	≤ 70	PC5-SX04-S700	PC5-TX04-S700
		320		95	PC5-SX04-0950	PC5-TX04-0950
		420		120/150	PC5-SX04-1500	PC5-TX04-1500
		420		150/185	PC5-SX04-1850	PC5-TX04-1850
5	5	250	4,5	≤ 70	PC5-SX05-S700	PC5-TX05-S700
		320		95	PC5-SX05-0950	PC5-TX05-0950
		320		120/150	PC5-SX05-1500	PC5-TX05-1500
		320		150/185	PC5-SX05-1850	PC5-TX05-1850



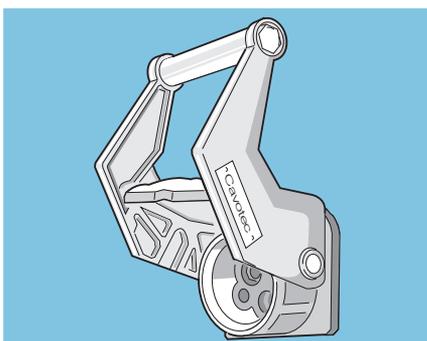
PLUG/INVERTED PLUG, STRAIGHT PUSH & PULL

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Plug: Male Pins Product code	Inv.plug: Female Product code
5	4	250	4,5	≤ 70	PC5-SX04-S700R	PC5-TX04-S700R
		320		95	PC5-SX04-0950R	PC5-TX04-0950R
		420		120/150	PC5-SX04-1500R	PC5-TX04-1500R
		420		150/185	PC5-SX04-1850R	PC5-TX04-1850R
5	5	250	4,5	≤ 70	PC5-SX05-S700R	PC5-TX05-S700R
		320		95	PC5-SX05-0950R	PC5-TX05-0950R
		320		120/150	PC5-SX05-1500R	PC5-TX05-1500R
		320		150/185	PC5-SX05-1850R	PC5-TX05-1850R



CONNECTOR, STRAIGHT PUSH & PULL

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Connector: Female Product code
5	4	250	9,4	≤ 70	PC5-RX04-S700
		320		95	PC5-RX04-0950
		420		120/150	PC5-RX04-1500
		420		150/185	PC5-RX04-1850
5	5	250	9,4	≤ 70	PC5-RX05-S700
		320		95	PC5-RX05-0950
		320		120/150	PC5-RX05-1500
		320		150/185	PC5-RX05-1850



SOCKET/INVERTED SOCKET, PUSH & PULL

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Socket: Female Product Code	Inv. Socket: Male Pins Product Code
5	4	250	7,8	≤ 70	PC5-VX04-S700	PC5-WX04-S700
		320		95	PC5-VX04-0950	PC5-WX04-0950
		420		120/150	PC5-VX04-1500	PC5-WX04-1500
		420		150/185	PC5-VX04-1850	PC5-WX04-1850
5	5	250	7,8	≤ 70	PC5-VX05-S700	PC5-WX05-S700
		320		95	PC5-VX05-0950	PC5-WX05-0950
		320		120/150	PC5-VX05-1500	PC5-WX05-1500
		320		150/185	PC5-VX05-1850	PC5-WX05-1850

Size S5 Power Connector ≤ 420A, 1100V

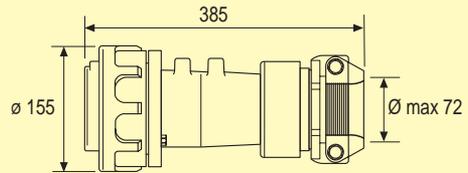
Screw Ring system

The size S5 power connector has a screw ring and is designed for use in harsh environments where the connector only needs to be disconnected every other day. The screw type is a fast thread with a large tolerance which allows dirt or similar into the grooves without causing any operational failure. The sockets come standard with a cover whereas the connector can be supplied with a cover on request. The connector has IP66 protection when connected.

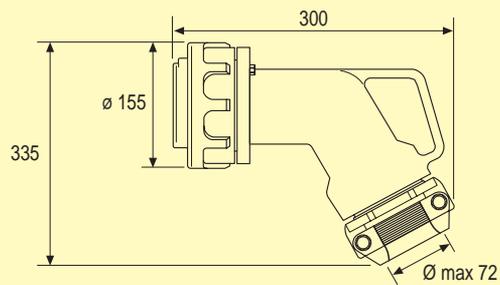


Above two X5-type connectors in the harbour of Stockholm. The unique Push & Pull design assists the operators to connect the plug and socket without effort, also in severe environmental conditions caused by ice, snow, dust, extreme temperatures or corrosive atmosphere.

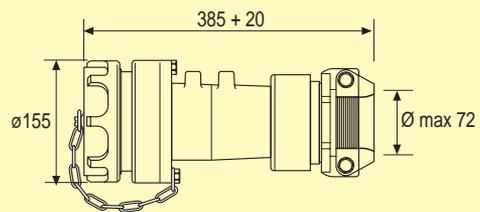
Plug/Inverted plug, straight Screw Ring



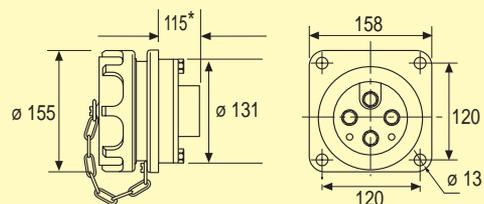
Plug/Inverted plug, bent Screw Ring



Connector, straight Screw Ring



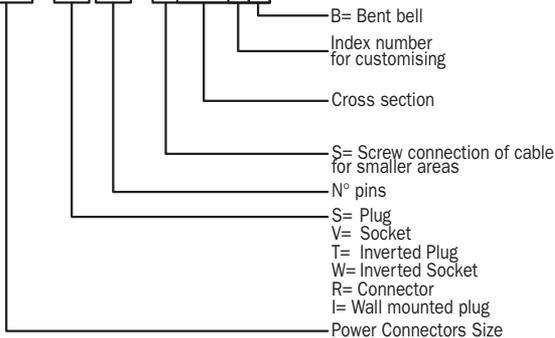
Socket/Inverted Socket, Screw Ring

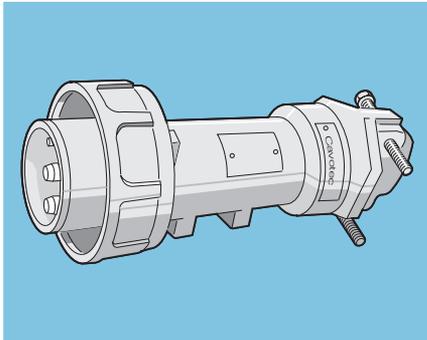


* For an easy connection the minimum box height must be 115 + 100 mm.

Code guide

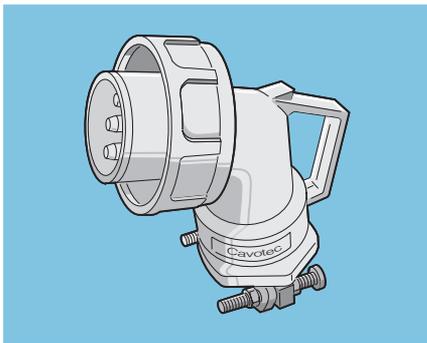
PC5-SS04-S7000B





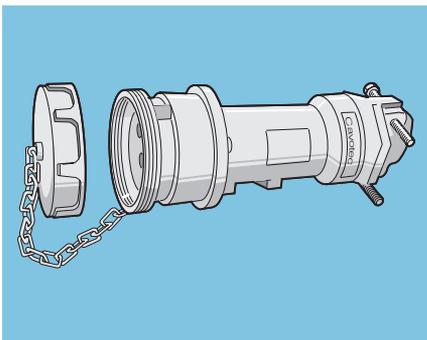
PLUG/INVERTED PLUG, STRAIGHT SCREW RING

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Plug: Male Pins Product code	Inv.plug: Female Product code
5	4	250	4,3	≤ 70	PC5-SS04-S700	PC5-TS04-S700
		320		95	PC5-SS04-0950	PC5-TS04-0950
		420		120/150	PC5-SS04-1500	PC5-TS04-1500
		420		150/185	PC5-SS04-1850	PC5-TS04-1850
5	5	250	4,3	≤ 70	PC5-SS05-S700	PC5-TS05-S700
		320		95	PC5-SS05-0950	PC5-TS05-0950
		320		120/150	PC5-SS05-1500	PC5-TS05-1500
		320		150/185	PC5-SS05-1850	PC5-TS05-1850



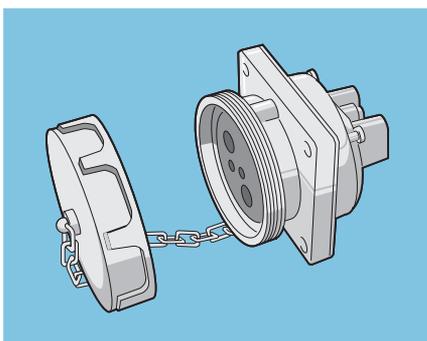
PLUG/INVERTED PLUG, BENT SCREW RING

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Plug: Male Pins Product code	Inv.plug: Female Product code
5	4	250	4,4	≤ 70	PC5-SS04-S700B	PC5-TS04-S700B
		320		95	PC5-SS04-0950B	PC5-TS04-0950B
		420		120/150	PC5-SS04-1500B	PC5-TS04-1500B
		420		150/185	PC5-SS04-1850B	PC5-TS04-1850B
5	5	250	4,4	≤ 70	PC5-SS05-S700B	PC5-TS05-S700B
		320		95	PC5-SS05-0950B	PC5-TS05-0950B
		320		120/150	PC5-SS05-1500B	PC5-TS05-1500B
		320		150/185	PC5-SS05-1850B	PC5-TS05-1850B



CONNECTOR, STRAIGHT SCREW RING

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Connector: Female Product code
5	4	250	4,9	≤ 70	PC5-RS04-S700
		320		95	PC5-RS04-0950
		420		120/150	PC5-RS04-1500
		420		150/185	PC5-RS04-1850
5	5	250	4,9	≤ 70	PC5-RS05-S700
		320		95	PC5-RS05-0950
		320		120/150	PC5-RS05-1500
		320		150/185	PC5-RS05-1850



SOCKET/INVERTED SOCKET, SCREW RING

Type Size	No pins	Max.current Amp.	Weight kg	Cross section mm ²	Socket: Female Product code	Inv. Socket: Male Pins Product code
5	4	250	2,7	≤ 70	PC5-VS04-S700	PC5-WS04-S700
		320		95	PC5-VS04-0950	PC5-WS04-0950
		420		120/150	PC5-VS04-1500	PC5-WS04-1500
		420		150/185	PC5-VS04-1850	PC5-WS04-1850
5	5	250	2,7	≤ 70	PC5-VS05-S700	PC5-WS05-S700
		320		95	PC5-VS05-0950	PC5-WS05-0950
		320		120/150	PC5-VS05-1500	PC5-WS05-1500
		320		150/185	PC5-VS05-1850	PC5-WS05-1850

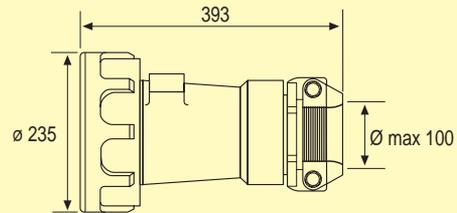
Size S6 Power Connector ≤ 660A, 1100V

Screw Ring system

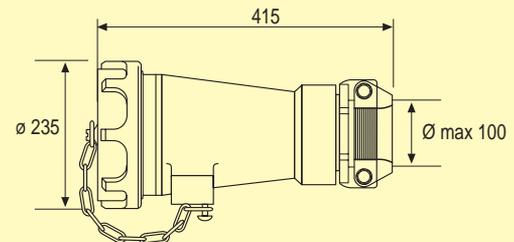
The size S6 power connector has a screw ring and is designed for use in harsh environments where the connector only needs to be disconnected every other day. The screw type is a fast thread with a large tolerance which allows dirt or similar into the grooves without causing any operational failure. The sockets come standard with a cover whereas the connector can be supplied with a cover on request. The connector has IP66 protection when connected.



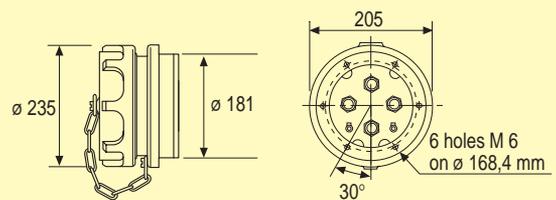
Plug/Inverted Plug, straight Screw ring



Connector, straight Screw ring



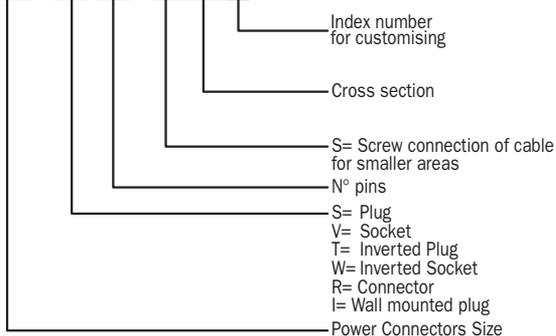
Socket/Inverted Socket, Screw ring

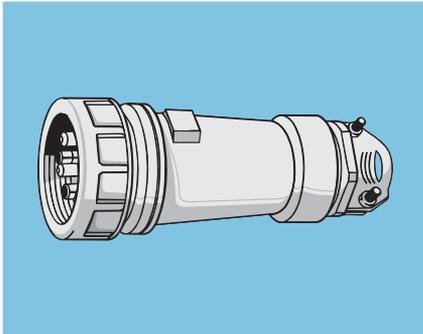


Cavotec Connectors are often used for power supply solutions for mobile harbour cranes.

Code guide

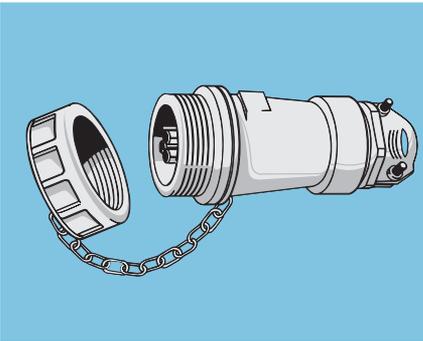
PC6-SS04-S0950





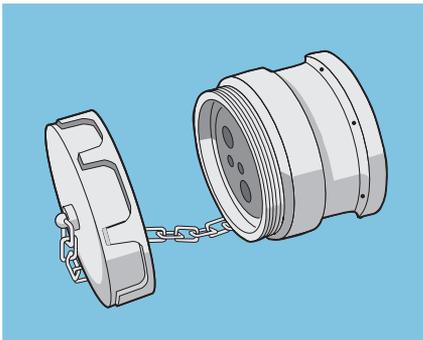
PLUG/INVERTED PLUG, STRAIGHT SCREW RING

Type	No pins	Max.current	Weight	Cross section	Plug: Male Pins	Inv.plug: Female
Size		Amp.	kg	mm ²	Product code	Product code
6	4	480	8,0	185	PC6-SS04-1850	PC6-TS04-1850
		570		240	PC6-SS04-2400	PC6-TS04-2400
		660		300	PC6-SS04-3000	PC6-TS04-3000
6	5	480	8,0	185	PC6-SS05-1850	PC6-TS05-1850
		570		240	PC6-SS05-2400	PC6-TS05-2400
		660		300	PC6-SS05-3000	PC6-TS05-3000



CONNECTOR, STRAIGHT SCREW RING

Type	No pins	Max.current	Weight	Cross section	Connector: Female
Size		Amp.	kg	mm ²	Product code
6	4	480	8,2	185	PC6-RS04-1850
		570		240	PC6-RS04-2400
		660		300	PC6-RS04-3000
6	5	480	8,2	185	PC6-RS05-1850
		570		240	PC6-RS05-2400
		660		300	PC6-RS05-3000



SOCKET/INVERTED SOCKET, SCREW RING

Type	No pins	Max.current	Weight	Cross section	Socket: Female	Inv. Socket: Male Pins
Size		Amp.	kg	mm ²	Product code	Product code
6	4	480	6,0	185	PC6-VS04-1850	PC6-WS04-1850
		570		240	PC6-VS04-2400	PC6-WS04-2400
		660		300	PC6-VS04-3000	PC6-WS04-3000
6	5	480	6,0	185	PC6-VS05-1850	PC6-WS05-1850
		570		240	PC6-VS05-2400	PC6-WS05-2400
		660		300	PC6-VS05-3000	PC6-WS05-3000

Reefer Plugs

Power Supply for Refrigerated Containers

As the use of refrigerated containers to transport all kinds of goods is becoming more and more common, a reliable and secure power supply is an absolute necessity.

Our R323 range has been specially developed to supply power to refrigerated containers on the quays, placed in a ground pit, on a bollard or on ships. The sockets are made of aluminium bronze or aluminium alloy, which are treated against possible corrosion. The product is manufactured according to IEC 309-1 and IEC 309-2 standards and has a special 3 o'clock positioning of the earth.



Port of Dunkerque uses Cavotec Connectors reefer point outlets for their new extension.

Connector characteristics

Electrical

Nominal rating:	32 A
Maximum rating:	consult us
Nominal voltage:	380-415 V
Maximum voltage:	consult us

Creepage Ph/ph:	20 mm
Creepage Ph/earth:	15 mm

Clearance Ph/ph:	11 mm
Clearance Ph/earth:	10 mm
Test voltage:	2 kV eff.

Installation

Cable and wiring

Max. outside ϕ (O.D.):	20 mm
Max ϕ on insulation sheath:	5 mm
Max ϕ on core (standard):	6 mm
Max cross-section (HO7VK):	10 mm ²

For a larger cross-section, please consult us.

Contact configuration

3 poles + earth

Contacts

Type:	sleeve
ϕ of pin:	6 mm
Protection:	nickel plating
Standard wiring:	screwed connection
ϕ bore:	5 mm

Physical

Materials

Switch socket:	aluminium bronze CU AL 9
C-breaker socket:	aluminium AS 12 tropicalised
Automatic socket:	AISI 316
Insert:	thermo-setting
Contacts:	brass
Gaskets:	elastomere
Screws, bolts nuts:	stainless steel
Standard cover:	thermo-plastic
Standard gland top:	thermo-plastic

Temperature class

-40°C to +80°C.

Protection index

IP 567.

Application

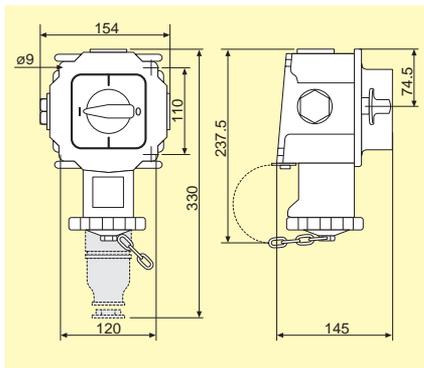
Material complying with I.E.C. 309.1.2, C.E.E. 17, DIN 49462, BS 4343, with special position of earth at 3 o'clock. For power supply of refrigerated containers



The power supply for the reefer containers has to be reliable, safe and easy to control. The socket and the container is protected by the MCB inside the stainless steel box.

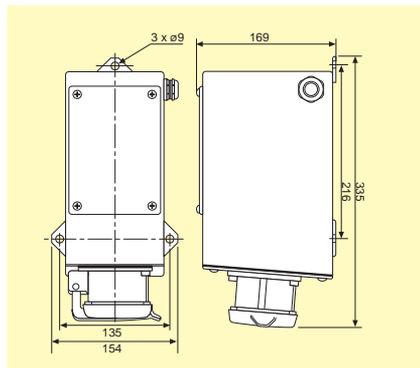
Type R323 NI Switched socket

The R323 NI is a waterproof and sea resistant connector that is used in many ports around the world. The housing is in bronze and is fitted with a mechanical interlock that prevents the breaker to be turned on, without first mating the plug or withdrawing the plug without first turning of the breaker. The power outlet is fitted with a high rated 32 Amps loadbreaker. The R323 NI has been developed and produced for over 15 years.



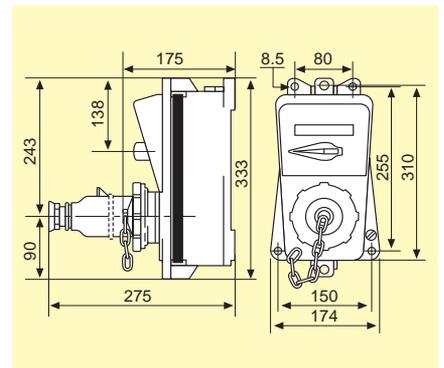
Type R323 A Automatic sockets

The R323 A is a water and sea resistant connector developed for the new type of reefer containers and reefer container ports. The housing is in stainless steel AISI 316 and with connector housing of marine grade bronze. The switching on and off the power outlet is completely automatic by inserting the plug and withdrawing it. The MCB has a C-curve as standard, but can be fitted with other curves according to customer specifications. The featured signal lamp is optional. The part number PC0NN061 is visible on the left.



Type R323 L1 Circuit breaker sockets

The R323 L1 is an water and sea resistant connector that is used in many ports around the world. The housing is made in aluminium and with a mechanical interlock that prevents the breaker to be turned on without first mating the plug or withdrawing the plug without turning of the breaker. The breaker is fitted with an 32 Amps MCB. The MCB has a C-curve as standard, but can be fitted with other curves according to customer specifications. The R323 L1 has been developed and produced for over 20 years. The part number PC0NN062 is visible on the left.



Rackmatic

Automatic Electrical Connectors for Spreaders

The “Rackmatic” connector has been specially designed to enable the crane operator to automatically connect and disconnect the electricity supply from the head-block to the spreader. This ensures a minimum of downtime while obtaining a maximum of efficiency.

The kinematics of the “Rackmatic” connector were specially developed to enable a fast and reliable connection between the plug on the crane head-block and the self-centering receptacle on the spreader. The weight of the head-block operates the automatic covers. Despite possible misalignment between the head-block and the spreader, the guides mounted on the connector ensure that a proper and secure connection is made.

Thanks to its robust design, the “Rackmatic” connectors have an excellent durability and protection index (IP56). This enables them to operate without risk of failure under severe conditions such as extreme high temperature conditions, frost and exposure to sand and wind.



PCONN053

The "Rackmatic" is IP56 when mated and is made for quick and reliable automatic connections.



PCONN055

PSA in Singapore use the "Rackmatic" system for their Pasir Panjang terminal (PSA) where they needed a fully automatic connector for fast changes of the spreaders.



PCONN054

A typical application for spreader connector type "Rackmatic"

Rackmatic characteristics

Mechanical

Aluminium alloy housing
 Chemical oxidation and epoxy painted
 Stainless steel fastenings
 Silver-plated brass contacts ranging from 1.5 to 6mm
 Polyamide insulating insert
 Vibration resistance up to 50G
 Shock absorption:

- vertical : 5G
 40G
- lateral: 15G

Note: Customize your own configuration can be adapted to your needs for signal and power. (max 60 cores)

Adjustment

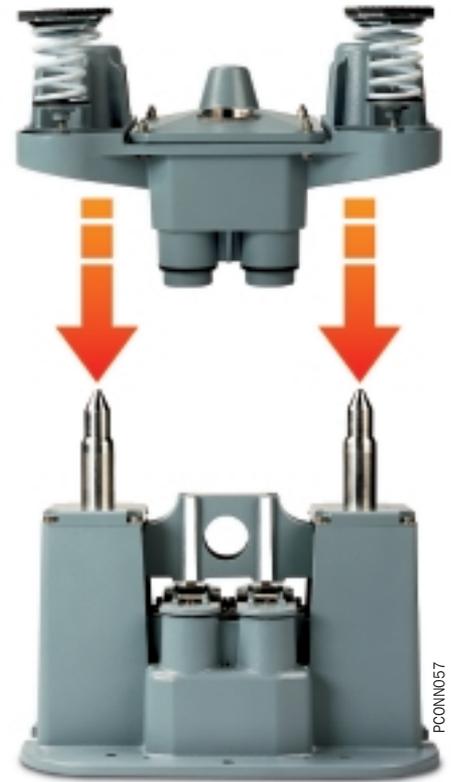
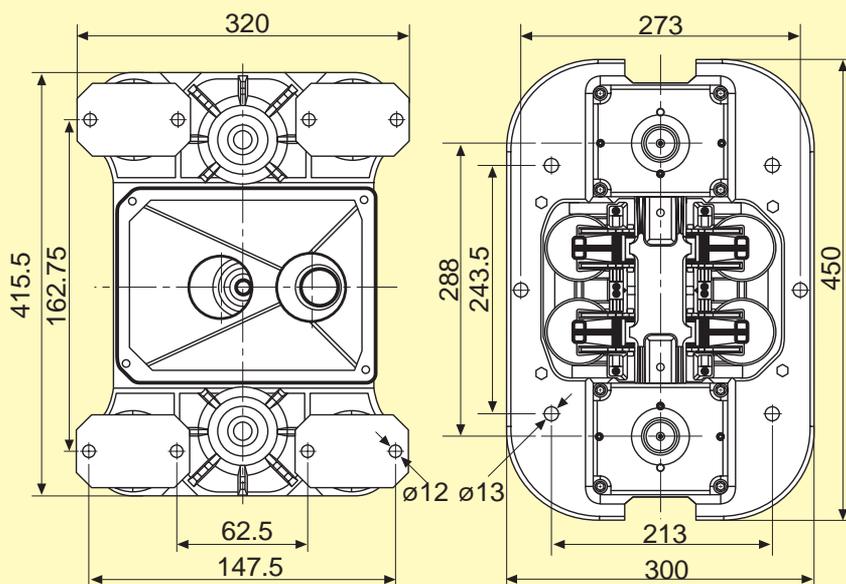
A 10mm self-centering radius and 20mm level variation between spreader beam and crane head block is accepted. This is done without disturbing the electrical continuity +/- 2 degrees angular misalignment is acceptable.

Environmental

The "rackmatic" connectors have a protection index of IP56 when connected. The protection index for the receptacle is IP56 and for the plug IP23.

Electrical

660 V maximum voltage
 15 KVA maximum power
 27 A nominal rating
 Cable exit PG48 DIN cable clamp
 Cable ends fitted with crimp contacts



PC00N057

The automatic connector type "Rackmatic" has been tested and developed to withstand large G-forces for applications as spreaders, module rack systems and lifting devices in steel industries.

The "Rackmatic" is good for at least 10.000 matings and can be configured to every special need.



PC00N056



High voltage Power Connectors $\leq 25000V$

The Cavotec Group has been serving the mining and tunnelling industries with solutions for their power connector requirements. Our electrical connectors provide a flexible, convenient and reliable means of extending cables from fixed or mobile powers sources to mining, tunnelling and earthmoving equipment. They are also often used for portable junction boxes either in above- or underground applications.

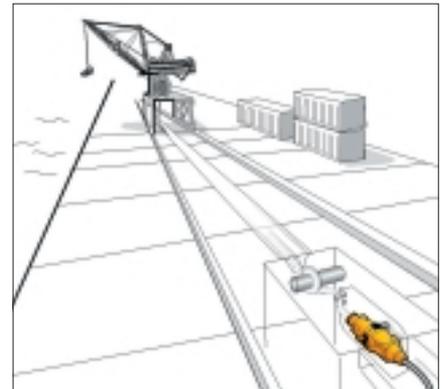


An open pit mining application

The concept of replaceable cables and cable connectors on high voltage equipment has been recognised as practical for many years. Now, with increased emphasis being placed on limiting the number and frequency of temporary splices made in trailing cables, the use of permissible connectors and replaceable medium-voltage cables is gaining increasing acceptance.

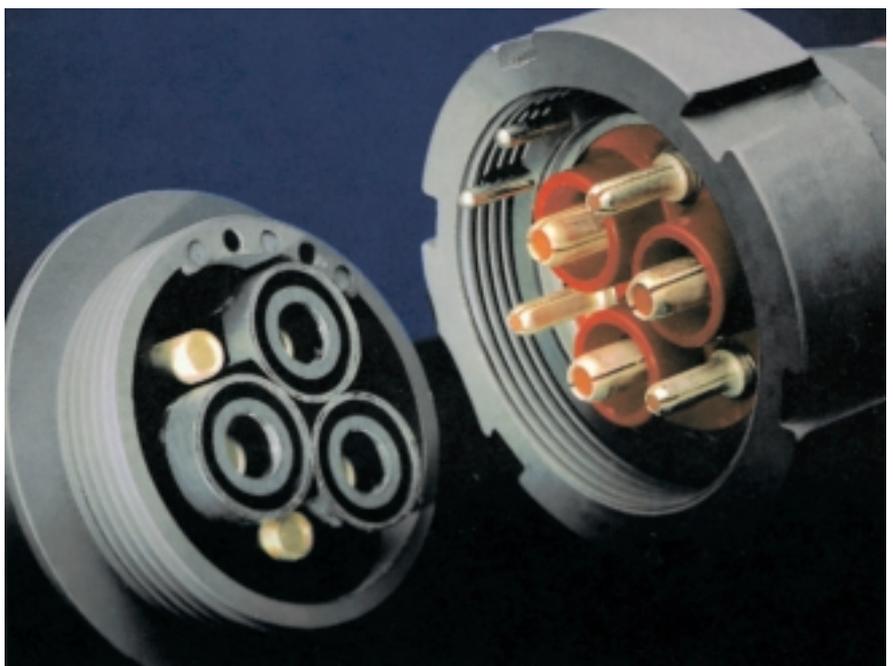


A tunnelling application for power feed to a full-face drilling machine



A quay application for power supply to harbour cranes.

To meet this growing demand the Cavotec Group offers a range of specially designed “trailing cable connectors” to expedite cable changes and minimize downtime. Heavy-duty aluminium housings enclose impact resistant insulators which support pin-and-socket type contacts. The contacts are attached to conductors by set screws or by soldering. These connectors are X7P-1944 MSHA certified.



PCONN032

Size X5 Power Connector $\leq 320A$, 7 200V

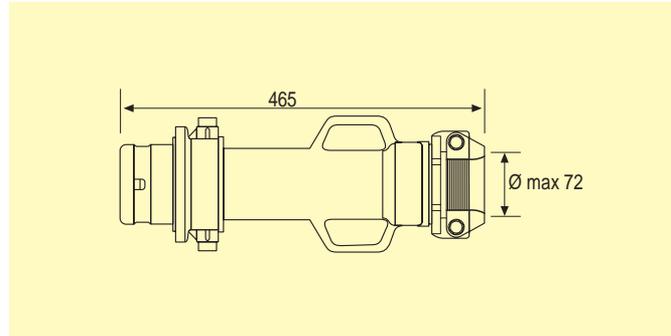
Push & Pull system

The X5 size power connector for high voltage with Push & Pull system is often used on applications where the connector has to frequently be connected and disconnected, either by hand or automatically. Thanks to their robust design these connectors are often used in harsh environments such as steel mills, mines, ports, terminals, etc. The cams are made from marine grade bronze while the mating ears in the plugs are from stainless steel. The connector has IP66 protection when connected.

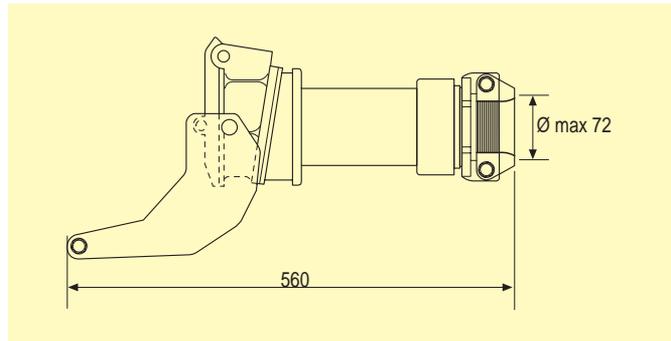


Thanks to their robust design these connectors are often used in harsh environments such as this open pit mine in Germany.

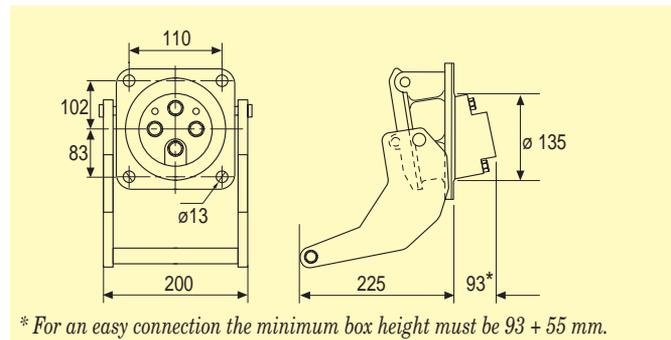
Plug/Inverted Plug, straight Push & Pull



Connector, straight Push & Pull



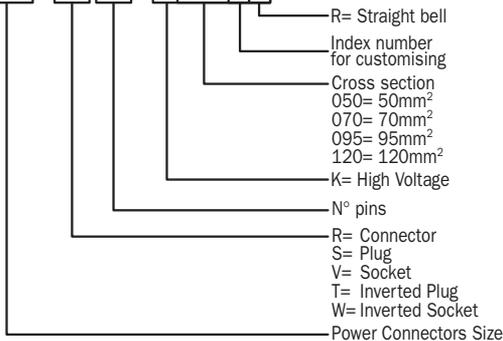
Socket/Inverted Socket, Push & Pull

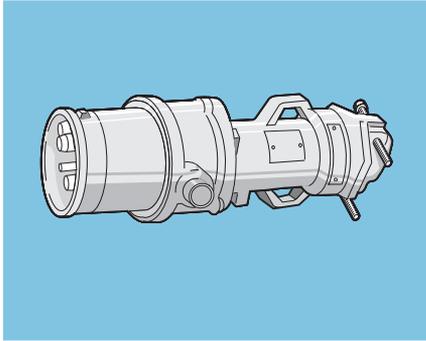


* For an easy connection the minimum box height must be 93 + 55 mm.

Code guide

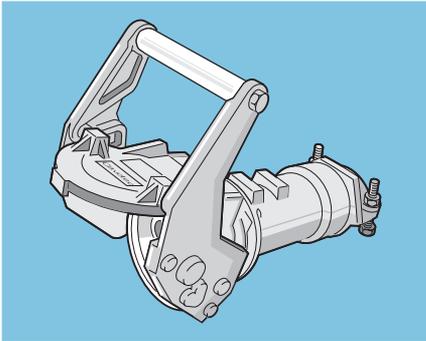
PC5 - **SX** | **04** | - **K** | **095** | **0R**





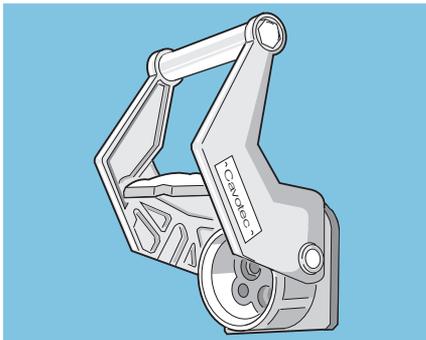
PLUG, STRAIGHT PUSH & PULL

Type	No poles	Max. voltage	Max.current	Weight	Cross Section	Plug: Male Pins
Size	P&E + pil	Phase/pilot	Amp.	kg	mm ²	Product code
5	4+2	7 200V/400V	200		50	PC5-SX04-K0500R
			250		70	PC5-SX04-K0700R
			320		95	PC5-SX04-K0950R
			320		120	PC5-SX04-K1200R
	4+3+FO	7 200V/400V	200		50	PC5-SX04-K0501R
			250		70	PC5-SX04-K0701R
			320		95	PC5-SX04-K0951R
			320		120	PC5-SX04-K1201R



SOCKET, STRAIGHT PUSH & PULL

Type	No poles	Max. voltage	Max.current	Weight	Cross Section	Connector: Female
Size	P&E + pil	Phase/pilot	Amp.	kg	mm ²	Product code
5	4+2	7 200V/400V	200		50	PC5-RX04-K0500
			250		70	PC5-RX04-K0700
			320		95	PC5-RX04-K0950
			320		120	PC5-RX04-K1200
	4+3+FO	7 200V/400V	200		50	PC5-RX04-K0501
			250		70	PC5-RX04-K0701
			320		95	PC5-RX04-K0951
			320		120	PC5-RX04-K1201



SOCKET, PUSH & PULL

Type	No poles	Max. voltage	Max.current	Weight	Cross Section	Connector: Female
Size	P&E + pil	Phase/pilot	Amp.	kg	mm ²	Product code
5	4+2	7 200V/400V	200		50	PC5-VX04-K0500
			250		70	PC5-VX04-K0700
			320		95	PC5-VX04-K0950
			320		120	PC5-VX04-K1200
	4+3	7 200V/400V	200		50	PC5-VX04-K0501
			250		70	PC5-VX04-K0701
			320		95	PC5-VX04-K0951
			320		120	PC5-VX04-K1201

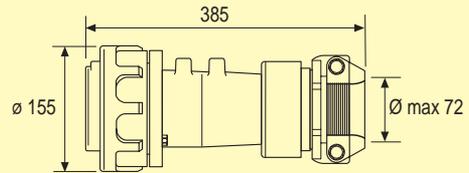
Size S5 Power Connector $\leq 320A$, 7200V

Screw Ring system

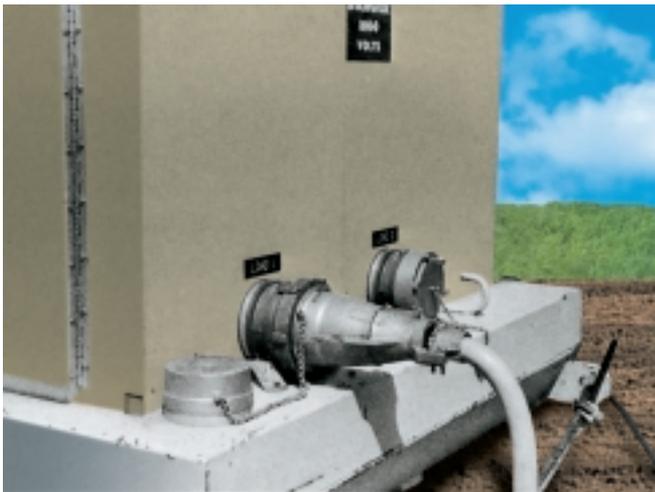
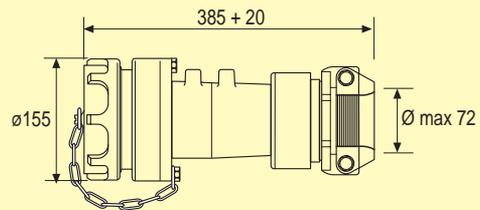
The size S5 power connector has a screw ring and is designed for use in harsh environments where the connector only needs to be disconnected every other day. The screw type is a fast thread with a large tolerance which allows dirt or similar into the grooves without causing any operational failure. The sockets come standard with a cover whereas the connector can be supplied with a cover on request. The connector has IP66 protection when connected.



Plug/Inverted plug, straight Screw Ring

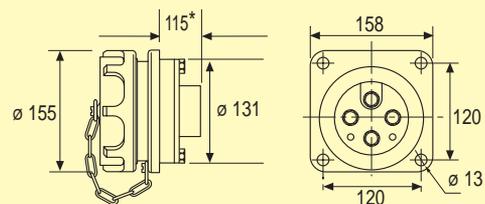


Connector, straight Screw Ring



Switchgear-mounted connectors in a mine location

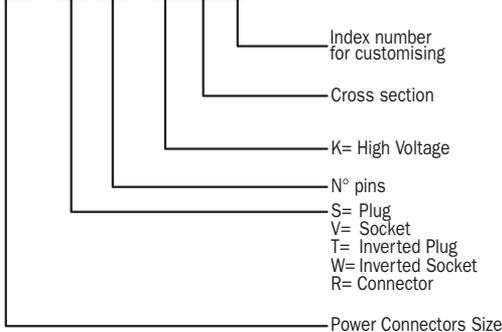
Socket/Inverted Socket, Screw Ring

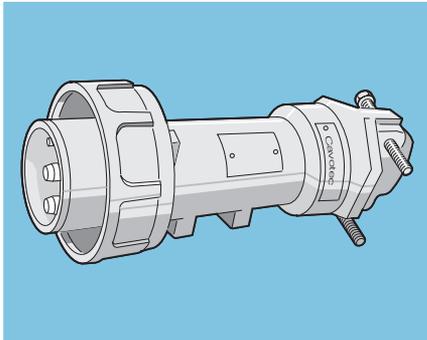


* For an easy connection the minimum box height must be 115 + 100 mm.

Code guide

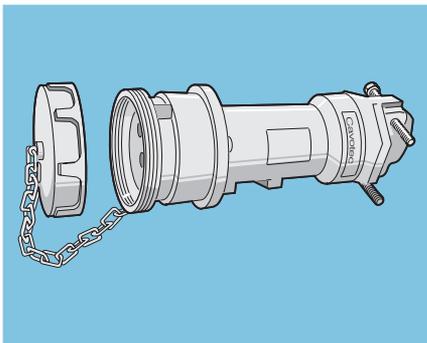
PC5 - **SS** | **04** - | **K** | **700** | **0**





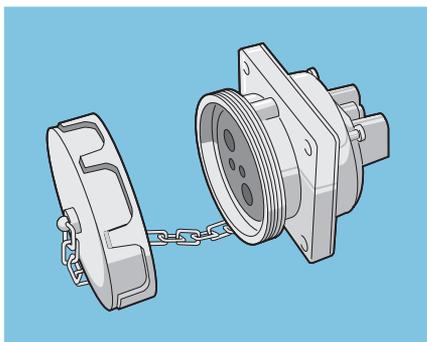
PLUG, STRAIGHT PUSH & PULL

Type	No poles	Max. voltage	Max.current	Weight	Cross Section	Plug: Male Pins
Size	P&E + pil	Phase/pilot	Amp.	kg	mm ²	Product code
5	4+2	7 200V/400V	200	4,6	50	PC5-SS04-K0500
			250		70	PC5-SS04-K0700
			320		95	PC5-SS04-K0950
			320		120	PC5-SS04-K1200



SOCKET, STRAIGHT PUSH & PULL

Type	No poles	Max. voltage	Max.current	Weight	Cross Section	Connector: Female
Size	P&E + pil	Phase/pilot	Amp.	kg	mm ²	Product code
5	4+2	7 200V/400V	200	5,1	50	PC5-RS04-K0500
			250		70	PC5-RS04-K0700
			320		95	PC5-RS04-K0950
			320		120	PC5-RS04-K1200



SOCKET, PUSH & PULL

Type	No poles	Max. voltage	Max.current	Weight	Cross Section	Connector: Female
Size	P&E + pil	Phase/pilot	Amp.	kg	mm ²	Product code
5	4+2	7 200V/400V	200	2,9	50	PC5-VS04-K0500
			250		70	PC5-VS04-K0700
			320		95	PC5-VS04-K0950
			320		120	PC5-VS04-K1200

Size S8 Power Connector $\leq 500A$, 25000V

Screw Ring system

The size S8 power connector for high voltage has a screw ring and is designed for use in harsh environments where the connector only needs to be disconnected every other day. The screw type is a fast thread with a large tolerance which allows dirt or similar into the grooves without causing any operational failure. The sockets come standard with a cover whereas the connector can be supplied with a cover on request. The connector has IP66 protection when connected.



PCONN051

Electrical connector with a flexible 50mm², 10kV, power feeding a full facer drilling machine from NFM Framatone in Copenhagen, Denmark

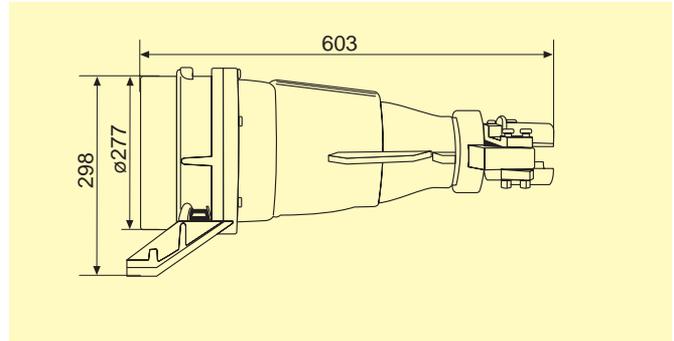
Data requested on order:

1. Complete Catalog Number
2. Line Conductor Size, Stranding
3. Number and Size Ground Wires
4. Number and Size Ground Check Wires
5. Diameter Over Cable Jacket

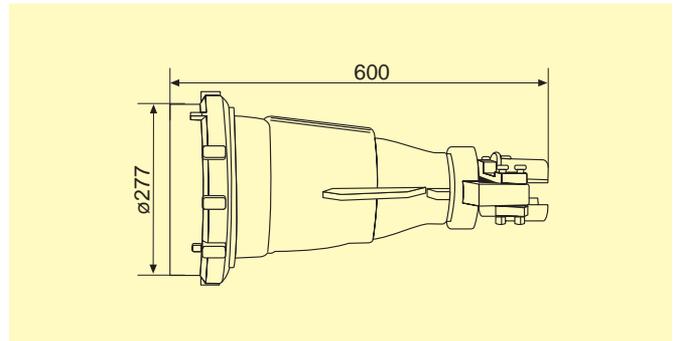
OPTIONAL FEATURES

See page 37

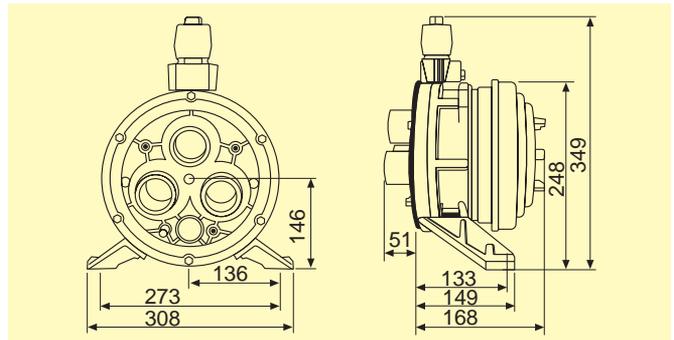
Connector



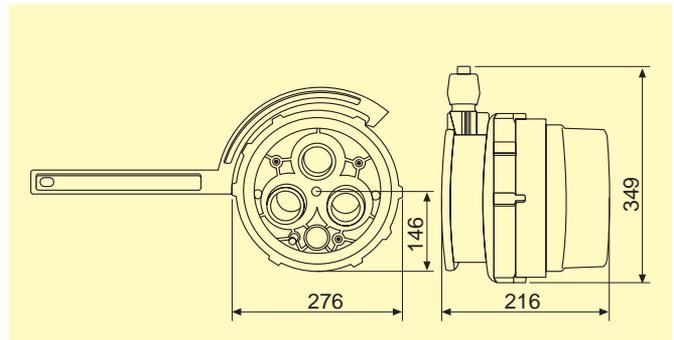
Plug

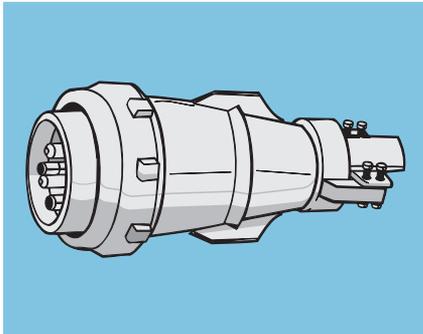


Gear mounted socket



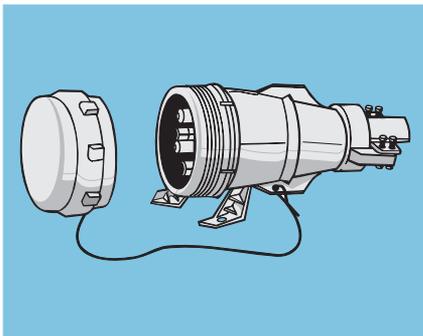
Gear mounted plug





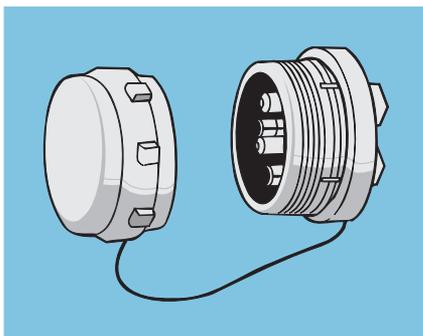
PLUG, STRAIGHT WITH SCREW RING 25000V

Type	No poles	Max. voltage	Max. current	Weight	Cross Section	Plug: Male Pins
Size	P&E+pil	Phase/pilot	Amp.	kg	mm2	Product code
8	4+1	15 000V/220V	160	18	50	PC8-SS04-0500
			210		70	PC8-SS04-0700
			250		95	PC8-SS04-0950
			270		120	PC8-SS04-1200
			320		150	PC8-SS04-1500
			420		240	PC8-SS04-2400



CONNECTOR, STRAIGHT WITH SCREW RING 25000V

Type	No poles	Max. voltage	Max. current	Weight	Cross Section	Connectors Female
Size	P&E+pil	Phase/pilot	Amp.	kg	mm2	Product code
8	4+1	15 000V/220V	160	18	50	PC8-RS04-0500
			210		70	PC8-RS04-0700
			250		95	PC8-RS04-0950
			270		120	PC8-RS04-1200
			320		150	PC8-RS04-1500
			420		240	PC8-RS04-2400



SOCKET, WITH SCREW RING 25000V

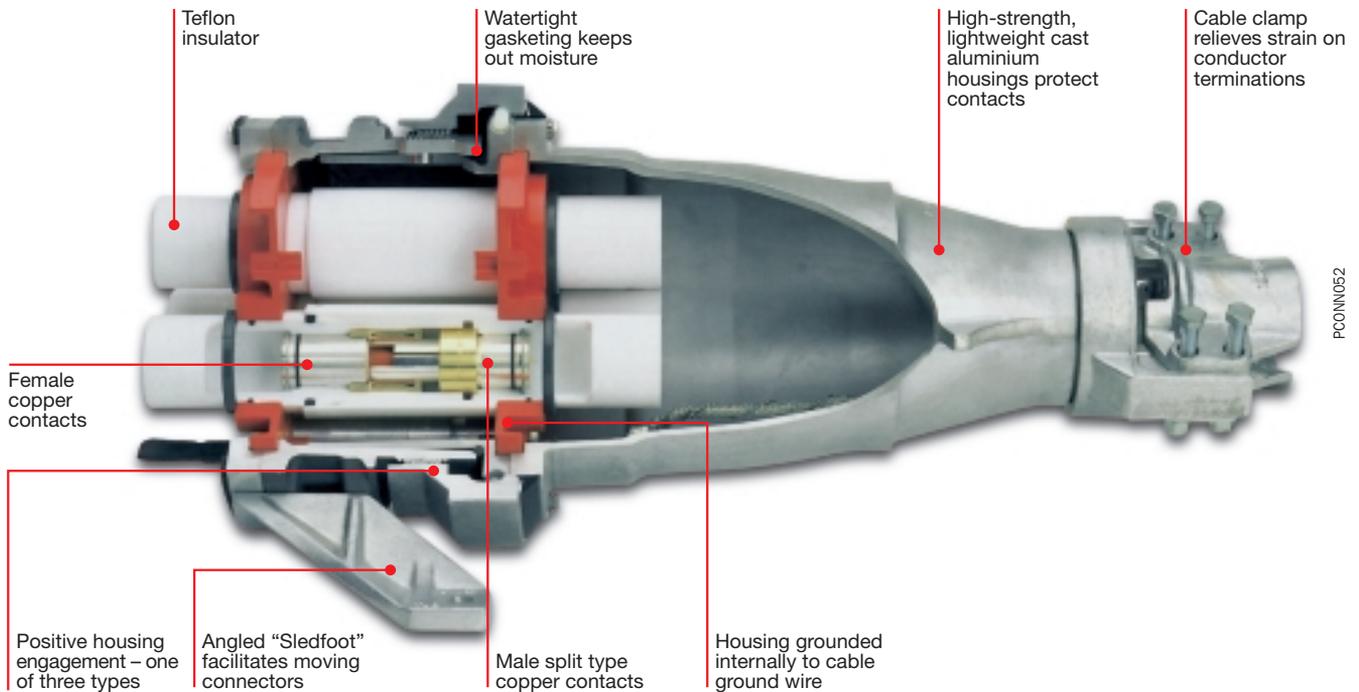
Type	No poles	Max. voltage	Max. current	Weight	Cross Section	Socket Female
Size	P&E+pil	Phase/pilot	Amp.	kg	mm2	Product code
8	4+1	15 000V/220V	160	13,5	50	PC8-VS04-0500
			210		70	PC8-VS04-0700
			250		95	PC8-VS04-0950
			270		120	PC8-VS04-1200
			320		150	PC8-VS04-1500
			420		240	PC8-VS04-2400

FLANGE MOUNTED PLUG, WITH SCREW RING 25000V

Type	No poles	Max. voltage	Max. current	Weight	Cross Section	Plug: Male Pins
Size	P&E+pil	Phase/pilot	Amp.	kg	mm2	Product code
8	4+1	15 000V/220V	160	13,5	50	PC8-IS04-0500
			210		70	PC8-IS04-0700
			250		95	PC8-IS04-0950
			270		120	PC8-IS04-1200
			320		150	PC8-IS04-1500
			420		240	PC8-IS04-2400

NOTE: For power supply solutions with 25000V and max. amperage ratings please consult us.

Innovative Features



PCONN052

Conversion table

AWG or MCM	Circular Mils	Cross Sectional Area mm ²	Metric Conductor Size mm ²
14	4110	2,08	-
	4930	2,50	2,5
12	5530	3,31	-
	7890	4,00	4,0

AWG or MCM	Circular Mils	Cross Sectional Area mm ²	Metric Conductor Size mm ²
1	53590	12,41	-
	98700	50,00	50,0
1/0	105600	53,48	-
	133100	67,43	-
2/0	138000	70,00	70,0
	167800	85,03	-
3/0	187000	95,00	95,0
	211600	107,20	-
4/0	237000	120,00	120,0
	250000	126,64	-
250 MCM	296000	150,00	150,0
	300000	152,00	-
300	350000	177,35	-
	365000	185,00	185,0
350	400000	202,71	-
	474000	240,00	240,0
400	500000	253,35	-
	592000	300,00	300,0

3 END-BELL SIZES



Where larger, stiffer cables are involved, Cavotec Connectors offers a choice of longer, larger-entrance end-bells. Two sizes are available that can accommodate cable sizes through 4 1/4" O.D., with clamps to fit cables 1 1/4" - 4 1/4" O.D. Where end-bell

extension is required for phasing conductors or applying foot to cable mounted plug, a flanged insert is available.

PCONN034

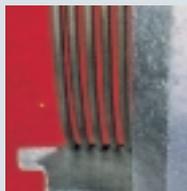
TEFLON OR HARD EP INSULATORS



Cavotec Connectors couplers offer a choice of a semi-rigid EP (Ethylene Propylene) molded insulator or a teflon insulator introduced in 1994 which has rapidly become the industry standard.

PCONN035

STAINLESS STEEL THREAD



Galling or "lock-up" of aluminium-to-aluminium threads which can occur after surface films, dry lubricant or anodizing wear off, is prevented by the original Cavotec

Connectors design feature. A stainless steel insert in the locking nut produces a connection which is non-corrosive and less subject to dirt accumulation, eliminating problems from aluminium-to-aluminium contact.

PCONN036

"SPIN-ON" AXI-NUT



Cavotec Connectors design enables easier thread starting by floating the

nut. This allows the mating coupler to be partially inserted with the threads aligned, by sliding the nut, not the entire coupler. Axi-nut is factory assembled to plug body with self-lubricated nylon ball bearings, providing a rolling rather than sliding contact which results in easier operation.

PCONN037

Closure Types

8 Pitch – Fast coupling



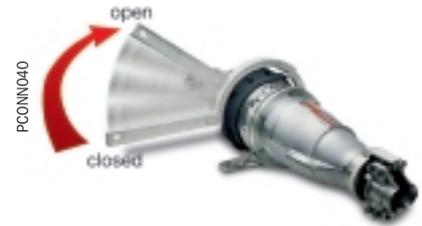
Cavotec Connectors supplies three methods of mechanical connection for high-voltage cable couplers. The oldest method is the 8 pitch thread. This closure incorporates axi-nut action and blunt-start, relieved-thread design, all of which contribute to easier operation and longer life. The floating axi-nut allows the plug to be inserted into the socket, the nut more easily started, and secures the coupler by compressing the o-ring seal. The "blunt-start" and "relieved-thread" features aid in preventing "first-thread rollover", common in couplers not supplied with these features, which may result in jamming of the nut.

4 Pitch – Faster coupling



A second type of closure supplied incorporates a 4-pitch acme, double-start thread, again with "blunt-start" and "relieved-thread" features. This design also includes the same axi-nut action more rapid than other brands.

No Thread – Fastest coupling



The third and best type of closure utilizes a pin-and-slot design which requires only a 90° movement of the nut to lock, close and compress the "O" ring seal. Detents prevent unintentional opening due to vibration. This design lends itself to easy conversion of existing 8 or 4 pitch threaded couplers to the no-thread concept. Such a conversion requires a minimum of time (less than an hour for a set of couplers) and is economical in conversion cost. Operating time (opening or closing) is measured in seconds, rather than the 5 to 15 minutes that may be required with other types of closures.

Selection Guide

PC[8] - [S][S] 04 - 070 T - 3A/4

VOLTAGE	TYPE OF COUPLER	TYPE OF CLOSURE	POLES	CROSS SECTION	TYPE OF INSULATOR	OPTIONAL FEATURES
8= 25kV	S= Plug V= Socket T= Inverted Plug W= Inverted Socket R= Connector I= Flange mounted plug P= Inverted Connector	S= Screw Ring 4" pitch T= Screw Ring 8" pitch B= Bayonet	04= 3 phases + Earth + 1 pilot	025= 25 mm ² 035= 35 mm ² 050= 50 mm ² 070= 70 mm ² 095= 95 mm ² 120= 120 mm ² 150= 150 mm ² 185= 185 mm ² 240= 240 mm ² 300= 300 mm ²	T= Teflon insulator S= Rubber insulator	1= Non Threaded contacts 1A= Setscrew Threaded Phase & Ground Contact 1B= 1-1/2" Backend on Phase Contacts for 500 MCM Cable-Solder 1C= 1-1/2" Backend on Phase Contacts for 500 MCM Cable-Set Screw 2A= 8kV Interlocking Cover 2B= 15kV Interlocking Cover 2C= 15kV Interlocking Cover with Teflon Cups 3= Kirklock Plain Push On Cover 3A= Kirklock Heavy-Duty O-Ring Sealed screw on Cover 3B= Padlock Device 4= 2 Ground Checks 4A= 3 Ground Checks 4B= 4 Ground Checks 5= Large Bell 3.01" Cable and Larger 5A= Large Bell 3.00" Cable and Smaller (For Phase Crossing) 5B= Large Bell 3.01" and Larger with Extension 5C= Large Bell 3.00" and Smaller with Extension 5D= Gear Flange Extension 5E= Gear Flange Extension with One Piece Foot 5F= Plug Flange on Gear Mounted Socket 6= 4 Hole Foot 6A= Footless 7= Silseal Moisture Block in Rubber Tubed Female Insulator 8= Pipe Plugs in End Bell 8A= Fibre Optic Cable Exit Gland 8B= Split End Casting 9= Hard Anodize all Surfaces for Additional Corrosion Protection 9A= Hard Anodize all Surfaces and Epoxy Paint 9B= Coated with Everslick 1201

Panel Housings

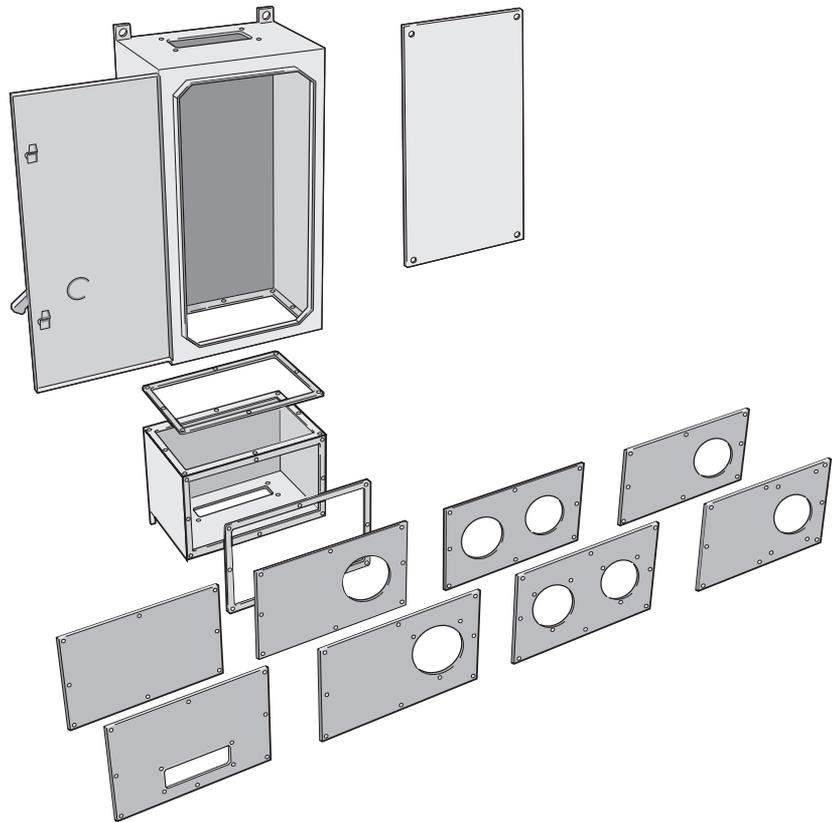
Complementary to plugs and sockets Cavotec Connectors has a standard range of panel housing made in 3mm hot-dip galvanised steel plate designed for the same harsh environment as the plugs and sockets.

Cavotec also provides panel housing in 2 mm AISI 316 stainless steel.

The panel housings are built up as a modular system consisting of upper/lower modules and flanges in order to comply with different needs of available space and required functions.

Cavotec Connectors has designed standard outlet panels for 250A and 400A with a voltage range of 380V to 1000V. These are equipped with moulded-case Circuit Breakers interlocked via the pilot contacts in plug and socket.

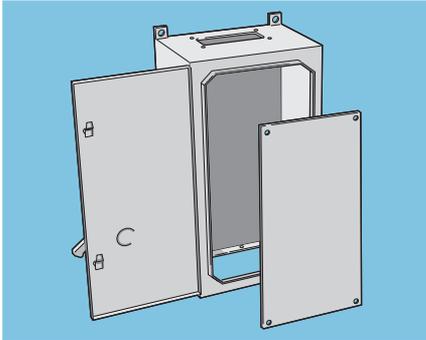
On request Cavotec Connectors supply custom made outlet panels based on module panel housings. Examples of these are shown in the pictures below.



PC0NN020

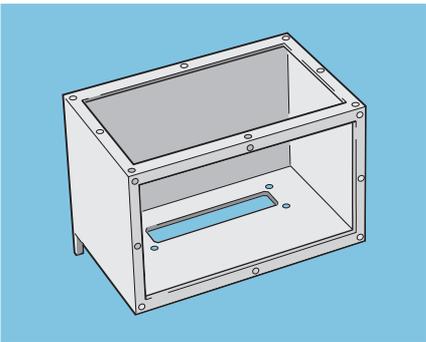


PC0NN021



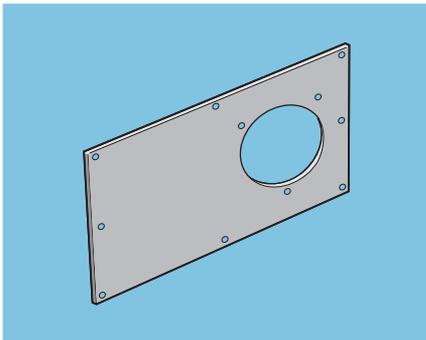
PANEL HOUSING, UPPER MODULE

Width mm	Height mm	Depth mm	Weight kg	Flange opening FL	Panel housing compl.with mounting plate Product code
380	380	250	17	21	PCX-76504-900
380	500	250	22	21	PCX-76504-920
380	750	250	32	21	PCX-76504-940
480	500	250	26	21	PCX-76506-920
480	750	250	36	21	PCX-76506-940



PANEL HOUSING, LOWER MODULE

Width mm	Height mm	Depth mm	Weight kg	Flange opening FL	Panel housing Product code
380	250	250	8,5	21	PCX-76504-990
480	250	250	10,5	21	PCX-76506-990



FLANGES FOR PANEL HOUSINGS, 4 mm HOT-DIP GALVANIZED STEEL PLATE

Width mm	Height mm	Weight kg	Openings*	Flange Product code	Gasket Product code
372	242	3	No opening	PCX-76504-300	PCX-72504-250
372	242	3	1 pc FL21	PCX-76504-301	PCX-72504-250
372	242	3	1 pc S4	PCX-76504-310	PCX-72504-250
372	242	3	2 pc S4	PCX-76504-320	PCX-72504-250
372	242	3	1 pc S5	PCX-76504-410	PCX-72504-250
372	242	3	1 pc X4	PCX-76504-340	PCX-72504-250
372	242	3	2 pc X4	PCX-76504-360	PCX-72504-250
372	242	3	1 pc X5	PCX-76504-440	PCX-72504-250
472	242	4	No opening	PCX-76506-300	PCX-72506-250
472	242	4	1pc FL21	PCX-76506-301	PCX-72506-250
472	242	4	1 pc S5	PCX-76506-410	PCX-72506-250
472	242	4	2 pc S5	PCX-76506-420	PCX-72506-250
472	242	4	1 pc X5	PCX-76506-440	PCX-72506-250
472	242	4	2 pc X5	PCX-76506-460	PCX-72506-250

NOTE: Alternative openings on special request

PANEL DOOR LOCKS AND KEYS

Type*	Size mm	Door Lock Product code	Key Product code
Triangle	10	PCX-79193-701	PCX-79193-702

NOTE: Alternative panel door locks are available on request



Power supply and crane technology

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