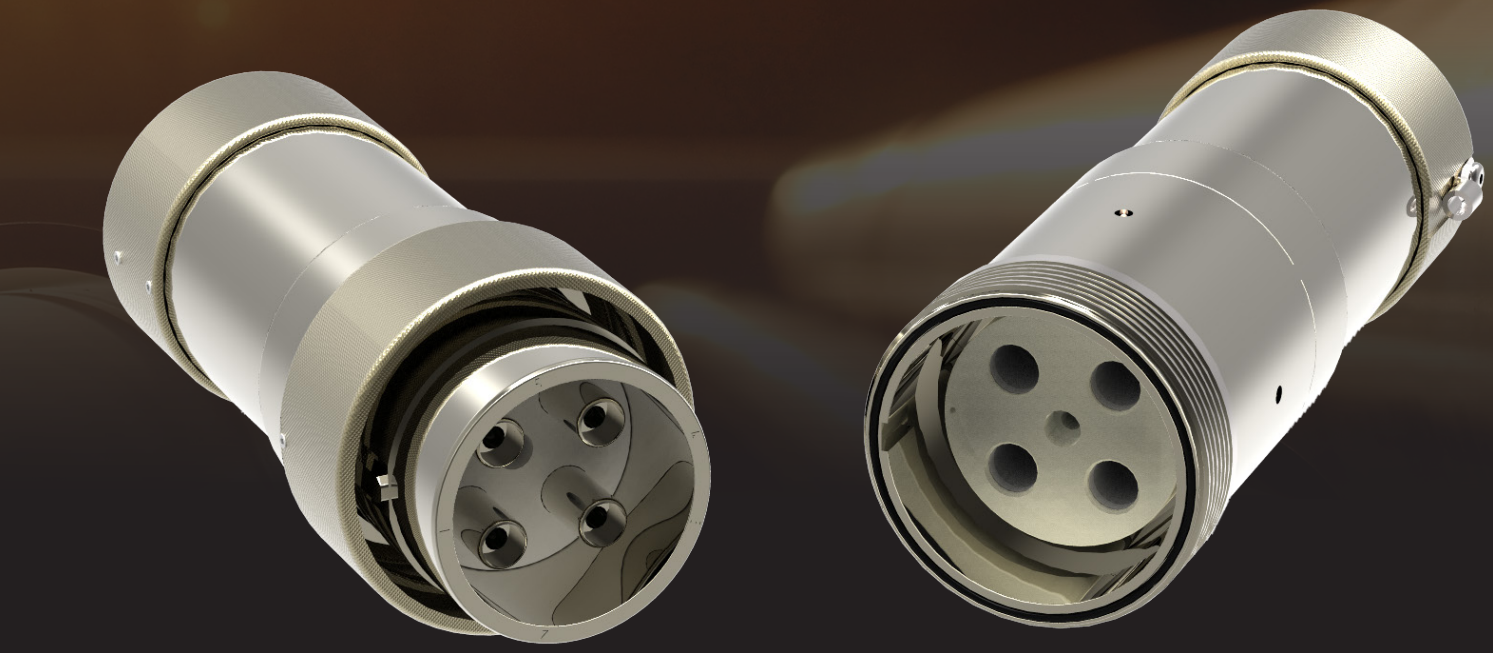
HAWKE International

POWEREx CONNECTORS

For Harsh & Hazardous Environments

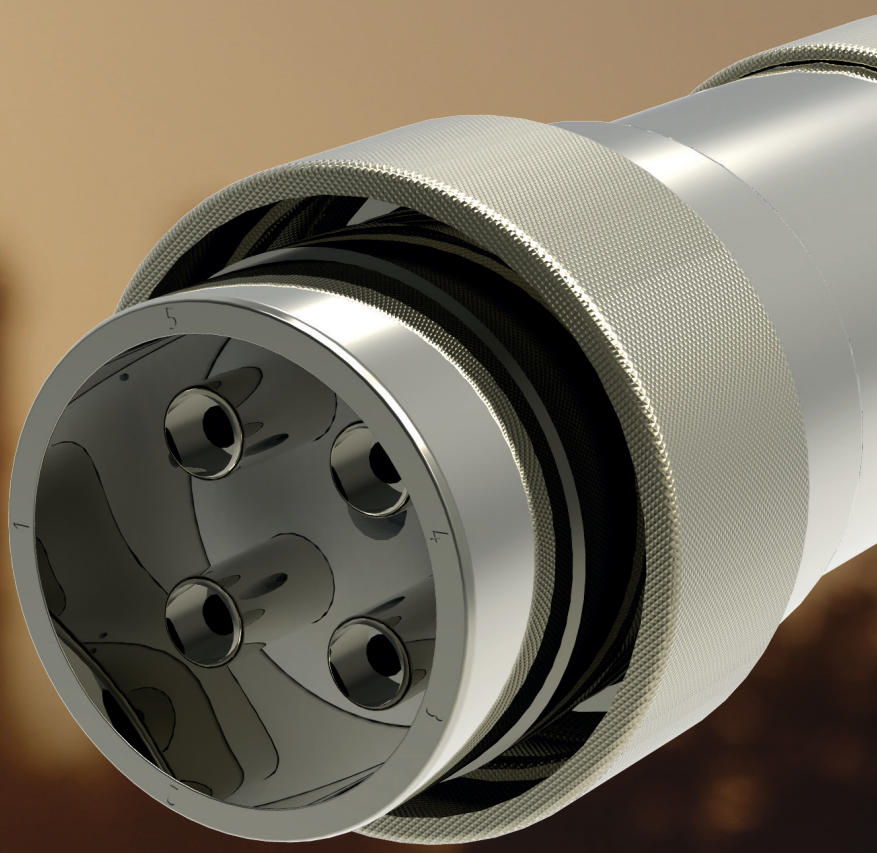


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Introducing Hawke's **Power**Ex range of Connectors

The PowerEx range of connectors have been designed specifically for the extremely demanding requirements of harsh and hazardous environments.

Inserts are available with 1 to 4 contacts with a conductor acceptance range of between 50mm² and 630mm² operating up to 780A and 750V as standard.

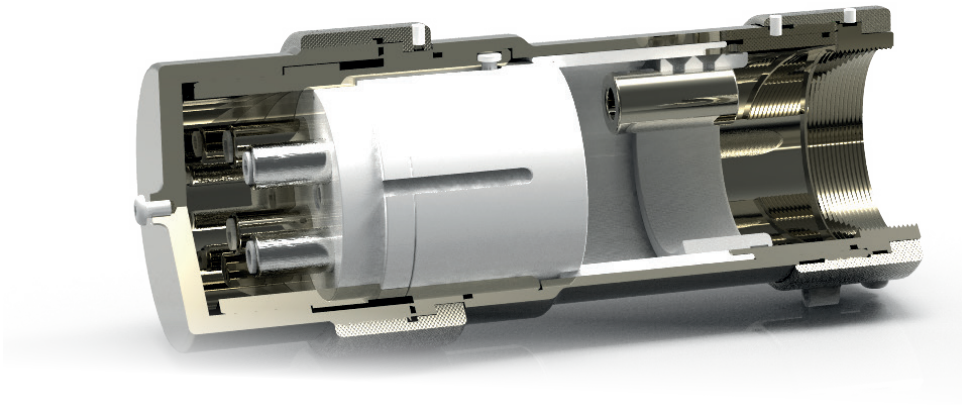
Other voltages available on special request.

Product design and specifications are subject to change without notice. Please check the Hawke website for latest specifications.
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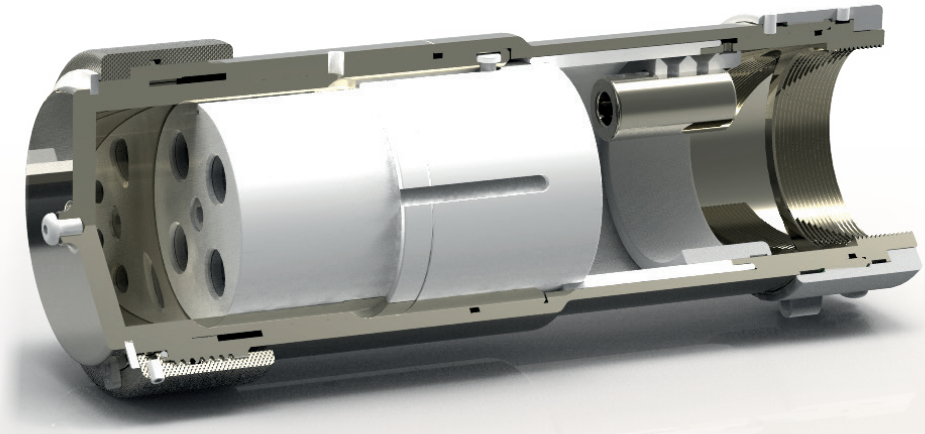
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International Approvals

Connector Plug - CP



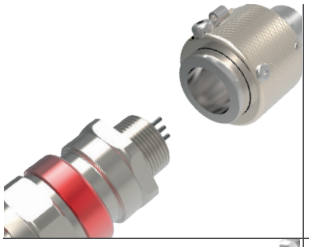
Connector Receptacle - CR



Technical Data	
Material Options	Manufactured in 316L Stainless Steel
Ingress Protection	IP66 67
Deluge Protection	to DTS01
Operating Temperature	-40°C to +60°C
Applications	Suitable for use in Zone 1, Zone 21, Zone 2 and Zone 22
Global Approvals	
Protection Class	Ex II 2GD Ex db IIC T6/T5 Gb; Ex tb IIIC T80/95°C Db IP66/67
ATEX Certificate No	CML 19 ATEX 1404X
IECEx Certificate No	IECEx CML 19.0145X
UKEX Certificate No	CML 21 UKEX 1165X
Construction & Test Standards	IEC/EN 60079-0, 1, 31
Marine Approvals	ABS: 17-LD1653736-PDA BV: 43523/B0 DNV: TAE00003RX
Additional Certifications	CCC:2020312308000084 EAC: EA3C KZ 7100841.01.01.03126 EQM: 20-11-27224/Q20-11-000979/NB0007 Inmetro: IEx 14.0218X PESO: P411510
NEC/CEC Approvals	
NEC Protection Class	Class I, Zone 1, AEx d IIC T6/T5 Gb, AEx tb IIIC T80/T95°C Db IP66/67
CEC Protection Class	Ex db IIC T6/T5 Gb, Ex tb IIIC T80/T95°C Db IP66/67
c CSA us Certificate	2633583
Construction & Test Standards	UL1977, CSA/UL 60079-0, 1, 31

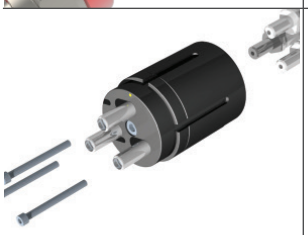
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POWEREX



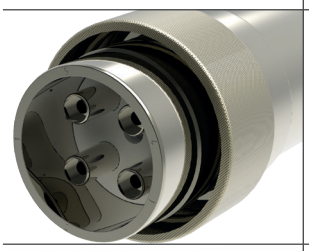
1 Running Coupler

Allows the connector to be installed onto a pre-assembled cable gland.



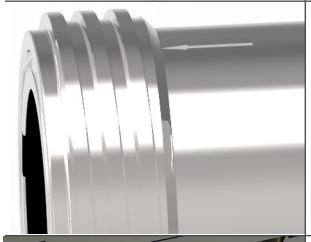
2 Easily Fieldwireable

Insert assembled outside connector shell to assist wiring of large and rigid conductors.



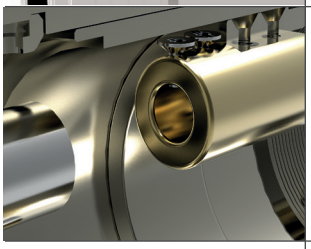
3 Keying Position

The unique visual 5 position insert keyring system along with the internal machined keyway prevents contact damage and ensures safe use by eliminating the possibility of misconnection of adjacent circuits.



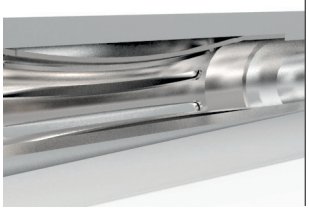
4 Acme Thread at Mating Interface

Unique ACME thread offers a smooth and quick fully mating action.



5 Internal Earth

Internal earth fitted as standard. Size to suit cable earthing facility.



6 Multilam Technology

Tried and tested multiple high contact force, low resistance multilams used in all contacts.

Product design and specifications are subject to change without notice. Please check the Hawke website for latest specifications.
www.hubbell.com/hawke

PowerEx Inserts


Ex32 - 1 x 50


Ex32 - 1 x 70


Ex32 - 1 x 95


Ex32 - 1 x 120


Ex32 - 1 x 150


Ex40 - 1 x 85


Ex40 - 1 x 240


Ex50 - 3 x 50

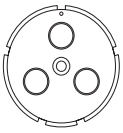

Ex50 - 3 x 70

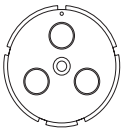

Ex50 - 4 x 50

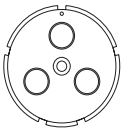

Ex50 - 4 x 70

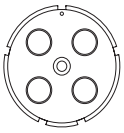

Ex50 - 1 x 185

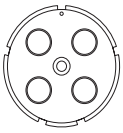

Ex50 - 1 x 240

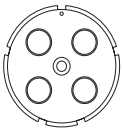

Ex63 - 3 x 95

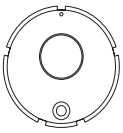

Ex63 - 3 x 120

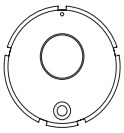

Ex63 - 3 x 150

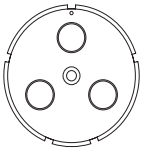

Ex63 - 4 x 95

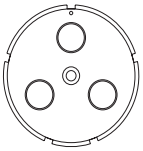

Ex63 - 4 x 120

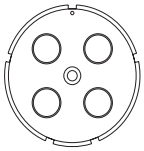

Ex63 - 4 x 150

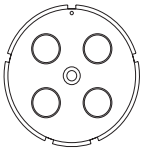

Ex63 - 1 x 300

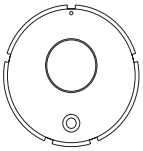

Ex63 - 1 x 400

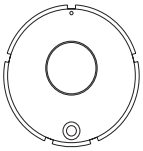

Ex75 - 3 x 185


Ex75 - 3 x 240


Ex75 - 4 x 185


Ex75 - 4 x 240


Ex75 - 1 x 500


Ex75 - 1 x 630

Insert Selection Table

Connector Shell Size	Conductor Size	Quantity of Contacts	Max Conductor Acceptance Diameter (mm)
32	50mm²	1	9.5
	70mm²	1	11.5
	95mm²	1	13.0
	120mm²	1	14.5
	150mm²	1	16.5
40	185mm²	1	18.5
	240mm²	1	20.5
50	50mm²	3	9.5
		4	
	70mm²	3	11.5
		4	
	185mm²	1	18.5
	240mm²	1	20.5
63	95mm²	3	13.0
		4	
	120mm²	3	14.5
		4	
	150mm²	3	16.5
		4	
	300mm²	1	25.0
	400mm²	1	29.0
75	185mm²	3	18.5
		4	
	240mm²	3	20.5
		4	
	500mm²	1	32.0
	630mm²	1	38.0

All configurations are provided with internal and external earthing points.

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Connectors Order Codes

Order Code Builder

PowerEx Connector

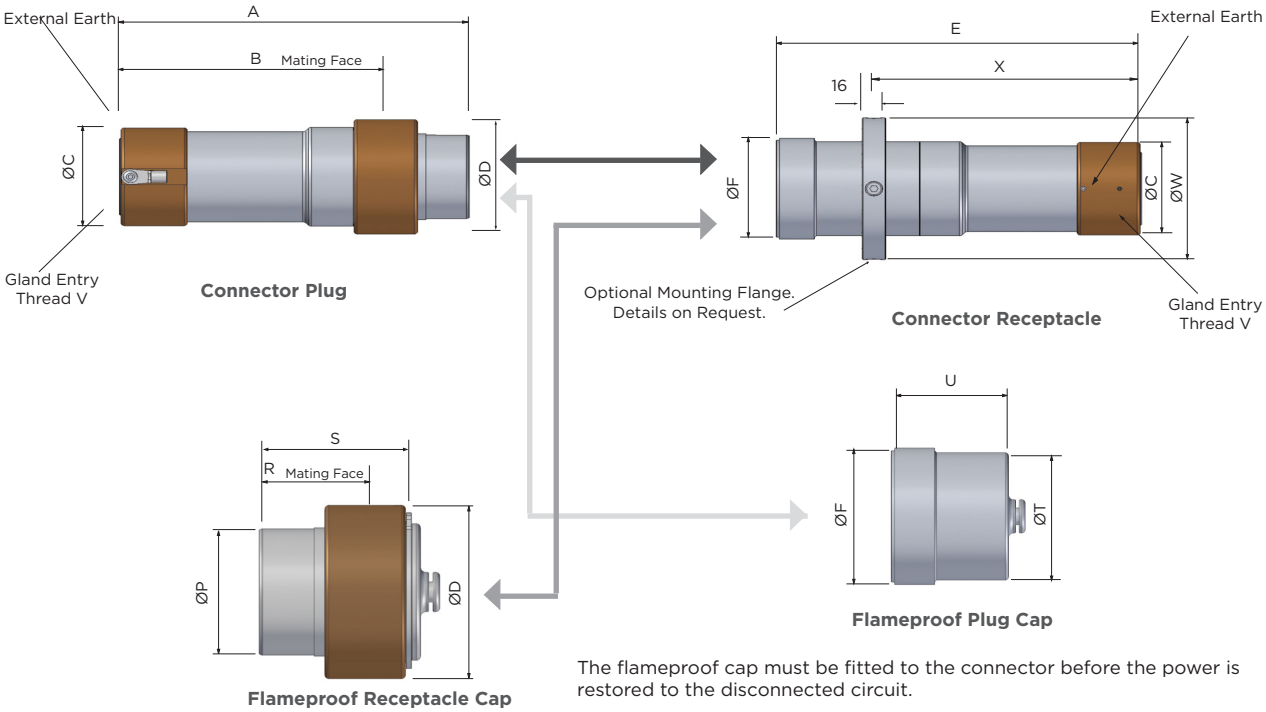
Parameter	Select Code	Description	Example Code
Protection Concept	Exd	Flameproof	Exd
Shell Size	32	32 Shell Size	50
	40	40 Shell Size	
	50	50 Shell Size	
	63	63 Shell Size	
	75	75 Shell Size	
Material	S	Stainless Steel	S
	N	Nickel Plated Brass (Mandatory for Single Core Configs)	
Connector Style	CP	Connector Plug	CP
	CR	Connector Receptacle	
Internal Earth Size (Should be min 50% of phase conductor size)	A	50mm²	A
	B	70mm²	
	C	95mm²	
	D	120mm²	
	E	150mm²	
	F	185mm²	
	G	240mm²	
	X	No Internal Earth May only be selected if single core cable is used	
Quantity of Contacts	See Insert Selection Table		4
Contact Size (mm²)	See Insert Selection Table		50
Insert Type	P	Pin	S
	S	Socket	
Termination Style BR is always solder for 6mm² contacts and above	S	Solder	C
	C	Crimp	
	X	No Insert	
Flange Type*	FL	Mounting Flange	FL
Cap Type	FRC	Flameproof Receptacle Cap	FPC
	FPC	Flameproof Plug Cap	
Cable Gland Reduced Entry*	R25	Reduced Cable Gland Entry M25 (Ex 32 & Ex 40 only)	R32
	R32	Reduced Cable Gland Entry M32 (Ex 40 & Ex 50 only)	
	R40	Reduced Cable Gland Entry M40 (Ex 50 & Ex 63 only)	
	R50	Reduced Cable Gland Entry M50 (Ex 63 only)	
	R63	Reduced Cable Gland Entry M63 (Ex 75 only)	
Certification Type	A	Group II : ATEX / IECEx / UKEx / InMetro / EAC	A
	N	Group II: ATEX / IECEX / UKEx / InMetro / cCSAus (Voltage reduced to 600V for Zn1 Div2)	

**If not required, omit this parameter from the order code*

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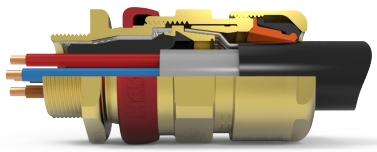
International Approvals

Dimensions & Technical Specifications



The flameproof cap must be fitted to the connector before the power is restored to the disconnected circuit.

The receptacle cap and plug cap are available in acetal and provide an IP rating of IP66/67. They may only be used when the socket or plug is not re-energised following disconnection



ICG 653/UNIV Cable Gland

For connector plugs and connector receptacles, cable glands are required to terminate incoming cables. These can be selected from our cable gland section or our website.

For Exd application Hawke recommends the ICG 653/UNIV barrier cable gland.

PowerEx Dimensions (mm)

Dimension	Ex32P	Ex40P	Ex50P	Ex63P	Ex75P
A	228	228	228	228	238
B	168	168	168	168	178
Ø C	60	66	76	89	101
Ø D	73	79	89	102	114
E	251	251	251	251	261
Ø F	67	73	82.5	95	108
ØP	48	55	65	78	90
R	60	60	60	60	60
S	75.5	75.5	75.5	75.5	76
ØT	61	68	77	90	102
U	68.5	68.5	68.5	68.5	68.5
Thread V (1.5mm Pitch)	M32**	M40**	M50**	M63**	M75**
ØW	100	106	116	129	141
X	184	184	184	184	194

***Reduced Entry Threads available. Refer to order code information table.*

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Electrical Specifications

Table 1: Maximum Allowable Dissipated Wattage			
Connector Shell Size	Ambient Temperature (Tamb)	Maximum Dissipated Wattage by T-Rating	
		T6	T5
Ex32	-40°C to +40°C	20.5W	27.5W
	-40°C to +50°C	15.75W	26W
	-40°C to +60°C	7.5W	15.75W
Ex40	-40°C to +40°C	22.5W	30.5W
	-40°C to +50°C	17.5W	28W
	-40°C to +60°C	8.7W	17.75W
Ex50	-40°C to +40°C	25.8W	35.3W
	-40°C to +50°C	20W	32.5W
	-40°C to +60°C	10W	20W
Ex63	-40°C to +40°C	30.2W	41.5W
	-40°C to +50°C	23.5W	37.7W
	-40°C to +60°C	11.7W	23.5W
Ex75	-40°C to +40°C	36.3W	49.5W
	-40°C to +50°C	28.25W	45.25W
	-40°C to +60°C	14W	28.25W

Dissipated wattage calculation

Equation Definitions

W = Dissipated wattage factor of the connector

N = The number of conductors to be terminated/number of contacts required.
(Note: A contact comprises of a pin and socket).

I = The current requirement per contact.
(Note: This must be equal to or less than the maximum current rating of the contact, as shown in table 2).

R = The combined cable and contact resistance (see table 2)

Values pertinent to these definitions must then be input into the following equation to calculate the dissipated wattage (w) of your chosen arrangement:

$W = N \times I^2 \times R$

(Note: The results must be lower than the maximum figure shown in table 1 for the appropriate temperature class and ambient temperature).

e.g. T6 40°C ambient application with 4 x 95mm^2 conductors, running at 160 amps.

N = 4 contacts I = 160 amps R = 0.000283Ω (95mm^2 soldered combined cable and contact resistance)

Therefore W = 4 x 25600 x 0.000283Ω = 28.9 watts.

Therefore, an Ex63P Connector should be specified for this application as the shell size can accommodate the required 4 x 95mm^2 pin/socket inserts (SEE PAGE 68 - Insert Selection Table) and the resultant dissipated wattage (28.9 watts) is below the maximum permitted 30.2 watts (See Table 1).

This equation can also be transposed to facilitate the calculation of the maximum number of conductors permitted in your selected connector ① and the maximum allowable current within the upper ambient temperature of our location ②.

① $N = \frac{W}{R \times I^2}$ ② $I = \sqrt{\frac{W}{N \times R}}$

The result of equation ② must not exceed the maximum current rating of contacts (see Table 2).
Note: Unless otherwise requested, connectors will be marked as T5 with an upper ambient temperature of +40°C.

Electrical Specifications

Table 2: Combined Cable and Contact Resistance

Contact Size	Combined Resistance (Ohms)	Contact Current Rating*
50mm²	0.000514Ω	190 amps
70mm²	0.000387Ω	240 amps
95mm²	0.000283Ω	290 amps
120mm²	0.000239Ω	340 amps
150mm²	0.000202Ω	385 amps
185mm²	0.000170Ω	440 amps
240mm²	0.000144Ω	520 amps
300mm²	0.000082Ω	590 amps
400mm²	0.000067Ω	670 amps
500mm²	0.000054Ω	720 amps
630mm²	0.000045Ω	780 amps

***Alternative values for cCSA, see cCSA Max Ampacity Table**

CSA CEC Specific Data

Cable Types Permitted for Canada (CEC) Applications

Cable Types		Cable Classification			
		Class I Div 1	Class I Div 2	Class II Div 1	Class II Div 2
Armoured	AC90HL, ACG90HL, AC90	✓	✓	✓	✓
	TECK 90 -HL,	✓		✓	✓
	RA-90-HL, RA90	✓		✓	✓
	TECK 90		✓		✓
	RC90		✓		✓
	ACIC		✓		✓
Unarmoured	TC, TC-ER		✓		✓
	RW90		✓		✓
	CIC		✓		✓

The above table denotes suitable cable selections dependent on hazadous area classification, in line with the requirements of the CEC. For NEC applications the cable type is not limited by the PowerEx Connector. The end user shall specify the correct cable type and gland for their applications. The appropriate gland shall be selected by the end user for the type of cable used in the application.

cCSA Max Ampacity

Connector Shell Size	Conductor Size		Max Current
	mm²	AWG	Amps (A)
Ex 32	50	1 AWG	130
	70	2/0 AWG	175
	95	3/0 AWG	200
	120	4/0 AWG	230
	150	250 kcmil	255
Ex 40	185	350 kcmil	310
	240	400 kcmil	335
Ex 50	50	1 AWG	104
	70	2/0 AWG	140
	185	350 kcmil	310
	240	400 kcmil	335
Ex 63	95	3/0 AWG	160
	120	4/0 AWG	184
	150	250 kcmil	204
	300	500 kcmil	380
	400	750 kcmil	475
Ex 75	185	350 kcmil	248
	240	400 kcmil	268
	500	900 kcmil	520
	630	1000 kcmil	545

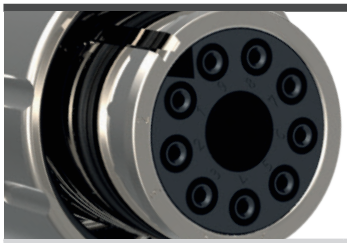
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Hawke Connectors Range

Utilising the most advanced technology, Hawke connectors are designed for quick and easy termination. Boasting market-leading features like the complete elimination of cross-mating, high reliability contacts and much more, the Hawke Connector range guarantees innovation, safety and reliability.

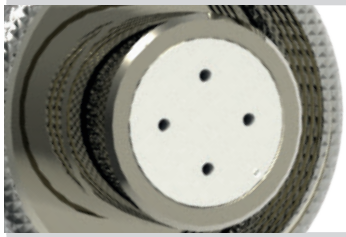
The range is ideal for use in dust and gas hazardous areas commonly found in Oil and Gas exploration and production and chemical process plants. Hawke connectors may also be used in explosive dust environments and hostile non-explosive environments.

The Hawke Connector range has been designed for four electrical application areas: Instrumentation, Control, Power and Fibre. Take a closer look at our range, below.



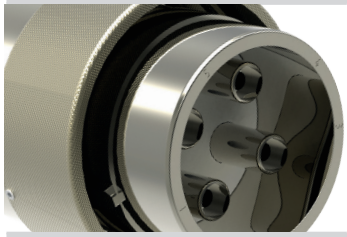
InstrumEx

The revolutionary InstrumEx allows for the live mate and de-mating of signal and low power in hazardous areas safely and quickly.



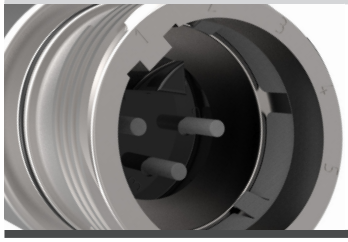
ControlEx

ControlEx is ideal for use in control and low/ medium power applications. Front loaded design allows for easy assembly and installation of Exd compound barriers during termination.



PowerEx

The PowerEx range has been designed specifically for the extremely demanding requirements of higher power applications up to 780A and 750V as standard. Other voltages are available on special request.



FibreEx

The FibreEx from Hawke and Acal BFi combines the strength of Hawke's market-leading connection range with the latest in Ex Fibre-Optic specifications.



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