

**HAWKE**  
International

# INSTRUMEx CONNECTORS

..... For Harsh & Hazardous Environments .....



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## Introducing Hawke's **InstrumEx** range of Connectors

This revolutionary design allows the live mate and de-mating of signal and low power in hazardous areas safely and quickly. The InstrumEx connector is available in two sizes. The 4-way and the 9-way options will accept cores ranging between  $0.5\text{mm}^2$  and  $2.5\text{mm}^2$  and can operate up to a maximum current of 10A (AC1) at 250V AC and 2.5A (DC1) 60V DC. The 8-way option, designed predominantly for Ethernet applications, will accept cores ranging between  $0.14\text{mm}^2$  and  $0.37\text{mm}^2$  and can carry 1A (AC1) at 60V AC and 0.5A (DC1) 60V DC. InstrumEx Connectors include an integral Hawke cable gland for easy termination of both armoured and un-armoured cables.

**The InstrumEx range of connectors is ideal for use in hazardous areas.**

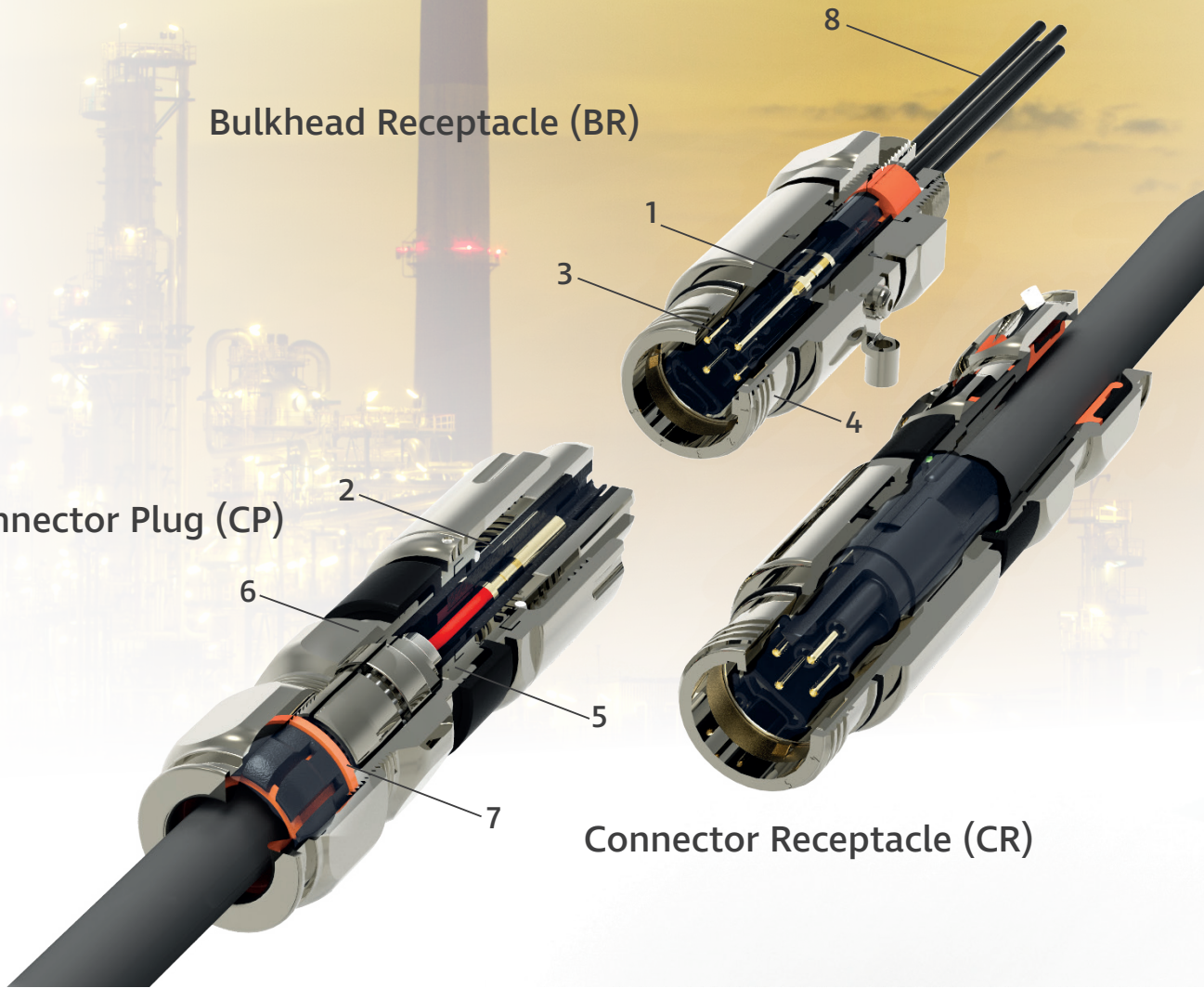


International Approvals

Bulkhead Receptacle (BR)

Connector Plug (CP)

Connector Receptacle (CR)



Technical Data

Material Options	Manufactured in Nickel Plated Brass and 316L Stainless Steel
Ingress Protection	IP66 67
Deluge Protection	to DTS01
Operating Temperature	-40°C to +60°C (may be limited by T-Rating)
Applications	Suitable for use in Zone 1, Zone 21, Zone 2 and Zone 22
<b>Approvals</b>	
Protection Class	Ex II 2GD Ex db eb IIC T6 Gb, Ex tb IIIC T80 Db
ATEX Certificate No	Baseefa06ATEX0061X
IECEx Certificate No	BAS 06.0018X
UKEX Certificate No	BAS21UKEX0061X
Construction & Test Standards	IEC/EN 60079-0, 1, 7, 31
Marine Approvals	17-LD1653736-PDA BV: 43523/B0 DNV: TAE00003RX
Additional Certifications	EAC: No EA3C RU C-GB.HA91.B.00261/21 EQM: 20-11-27224/Q20-11-000979/NB0007 Inmetro: IEx 14.0217X PESO: P410134 SONCAP: LCOGB049552-0500
<b>NEC/CEC</b>	
NEC Protection Class	Class I, Zone 1, AExde IICGb T6, AExtbIIIC Db T80
CEC Protection Class	Exdbe IICGb T6, ExtbIIICDb T80
c CSA us Certificate	2633583
Construction & Test Standards	UL1977, CSA/UL 60079-0, 1, 7, 31

INSTRUMEx



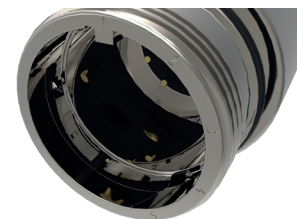
**1 Electrical Insert with Key**

Easy to assemble electrical insert allows crimped or soldered connections.



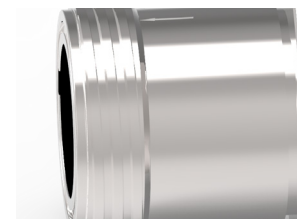
**2 Keyed Positions**

Secondary keying on the actual insert bodies guarantees contact alignment, preventing pin damage.



**3 Integral Keying**

Machined key and keyway ensures connector alignment. Unique 5 position insert keying system prevents cross-mating.



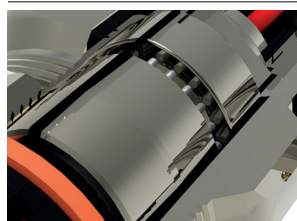
**4 Quick Connect**

Unique 4 start ACME thread offers a smooth and quick fully mating action in less than two turns. Earth continuity is achieved via a 360° contact clip.



**5 Anti-rotation**

Profiled Spigot and connector body prevent cable rotation, eliminating cable damage.



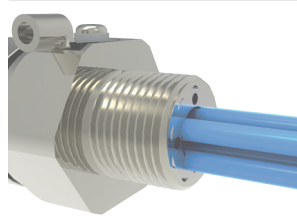
**6 Reversible Armour Clamp**

The InstrumEx incorporates Hawke's proven and patented armour termination method to accommodate different types of armour or braid.



**7 Versatile LSFZH Rear Seal**

Accommodates a wide range of cable sizes and provides highly effective cable grip and ingress protection.

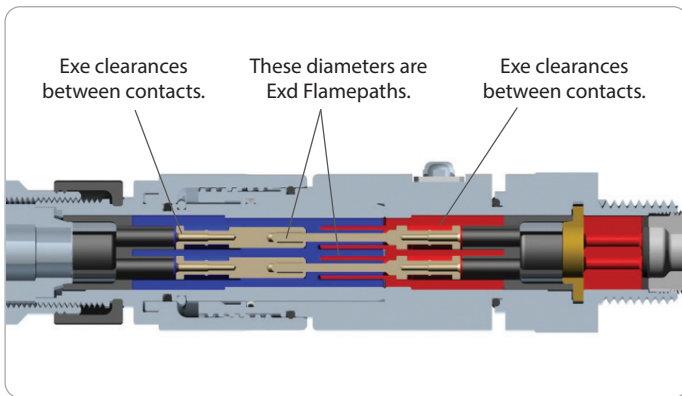


**8 Pre-terminated**

All BR connectors are supplied with pre-terminated tails to suit your requirements.

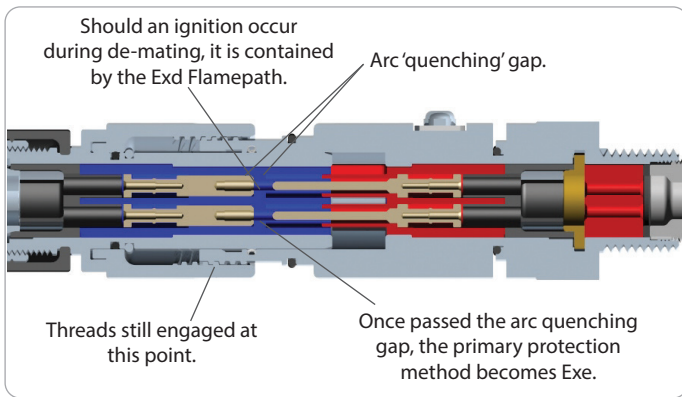
## How It Works

**InstrumEx** Connectors are designed to provide ease of installation and speed of use whilst providing a flexible, safe and reliable method for mating and disconnection of circuits which are energised.



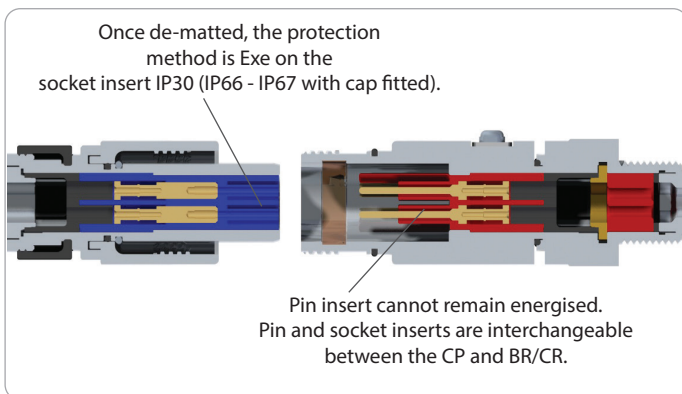
### Stage 1

The two mating halves are easily engaged and disengaged by two full turns of the ACME custom engaging thread, during which time the pins and socket are protected by the Exd flameproof protection concept. The outer shell of the connector combined with the integral Hawke cable gland seal ensure that the internal connections are protected to the Exe increased safety protection concept.



### Stage 2

During connector engagement and disengagement any sparking of the contacts is contained within an arc 'quenching section' which is housed within the Exd flamepath areas.



### Stage 3

When the connector halves are disengaged, the socket section is protected to IP30 and must have the protective cap fitted immediately to restore the full Exe increased safety requirements and IP rating. The pins and socket inserts are interchangeable between all three connector components: i.e. Bulkhead receptacle, in-line receptacle and connector plug. **In all installations, the "live" side of the connector must always contain the socket insert.**

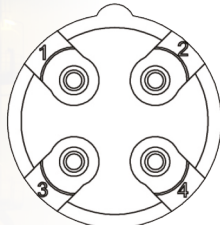
## InstrumEx Inserts

**Front View  
Socket Insert**



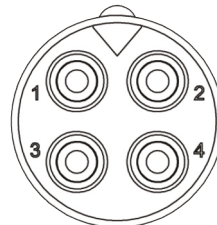
4 x 0.5 - 1mm<sup>2</sup>  
4 x 1.5 - 2.5mm<sup>2</sup>

**Back View  
Socket Insert**



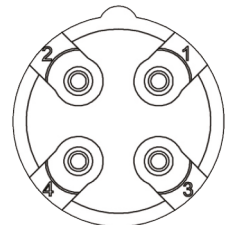
4 x 0.5 - 1mm<sup>2</sup>  
4 x 1.5 - 2.5mm<sup>2</sup>

**Front View  
Pin Insert**

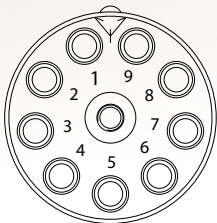


4 x 0.5 - 1mm<sup>2</sup>  
4 x 1.5 - 2.5mm<sup>2</sup>

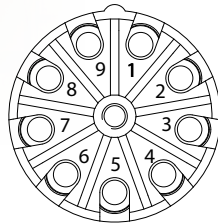
**Back View  
Pin Insert**



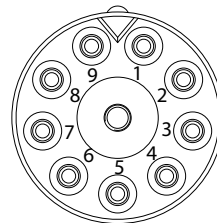
4 x 0.5 - 1mm<sup>2</sup>  
4 x 1.5 - 2.5mm<sup>2</sup>



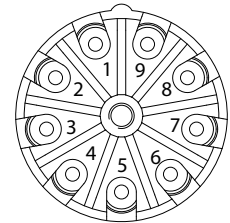
9 x 0.5 - 1mm<sup>2</sup>  
9 x 1.5 - 2.5mm<sup>2</sup>



9 x 0.5 - 1mm<sup>2</sup>  
9 x 1.5 - 2.5mm<sup>2</sup>

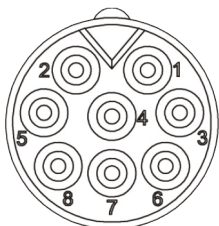


9 x 0.5 - 1mm<sup>2</sup>  
9 x 1.5 - 2.5mm<sup>2</sup>



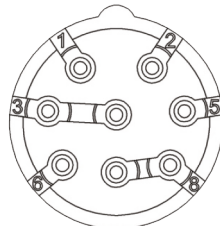
9 x 0.5 - 1mm<sup>2</sup>  
9 x 1.5 - 2.5mm<sup>2</sup>

**Front View  
Socket Insert**



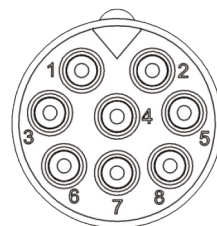
8 x 0.14 - 0.37mm<sup>2</sup>

**Back View  
Socket Insert**



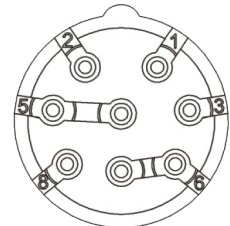
8 x 0.14 - 0.37mm<sup>2</sup>

**Front View  
Pin Insert**

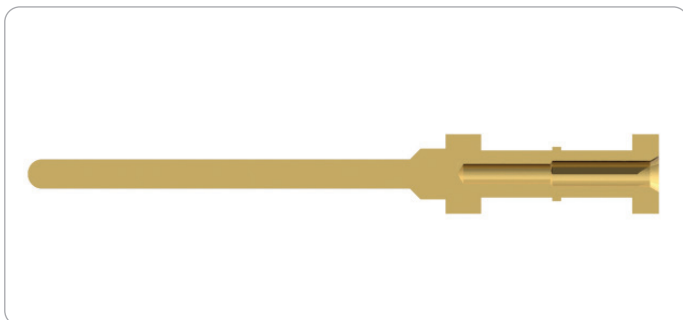


8 x 0.14 - 0.37mm<sup>2</sup>

**Back View  
Pin Insert**



8 x 0.14 - 0.37mm<sup>2</sup>

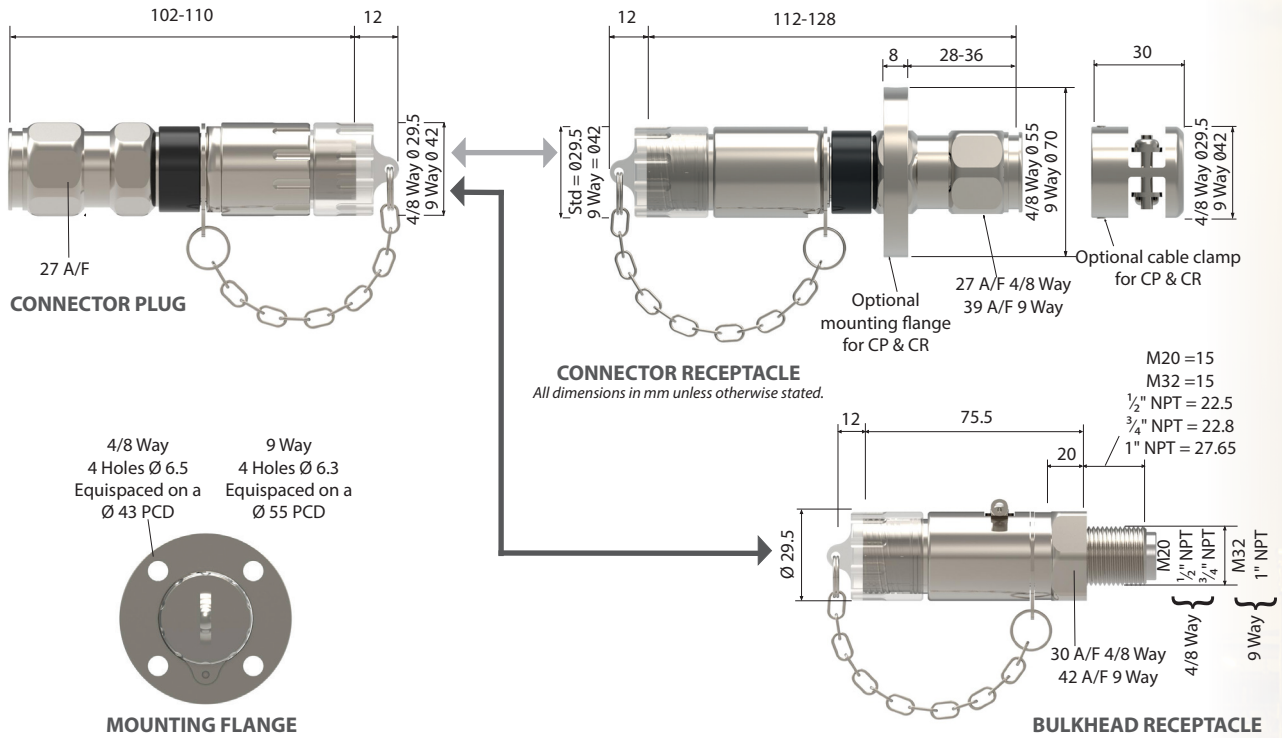


## Dual Crimp

Two crimping locations on the 4 & 9 way contacts allow for only two contact sizes to cover a far greater range than conventional contacts. This allows termination of cores ranging between 0.5 and 2.5mm<sup>2</sup>. Contacts must be crimped using the Hawke supplied crimping tool part No. HCT1.



# Dimensions & Technical Specifications



Technical Data - 4 Way / 9 Way	
<b>Explosion Protection</b>	ExII2 GD Exdbe IIC Gb Extb IIIC Db T85°C
<b>Ambient Temperature</b>	-40°C to +60°C
<b>Certification</b>	Baseefa 06 ATEX 0061X IECEx BAS06.0018X
<b>Ratings 4 Way / 9 Way</b>	Voltage AC 250V RMS
	Current AC EN 60947-4-3 10A (AC21)
	Current AC EN 60947-4-1 10A (AC1)
	Current AC EN 60947-4-1 1A (AC3)
	Frequency 50/60 Hz
	Power Factor 0.9
	Voltage DC 60V
<b>Fuse Rating 4 / 9 way</b>	Current DC EN 60947-4-3 2.5A (DC21)
	Current DC EN 60947-4-1 2.5A (DC1)
	Current DC EN 60947-4-1 0.5A (DC3)
<b>Max No. of make &amp; break operations (EN61984)</b>	10 amp without thermal protection 20A gL with thermal protection
<b>IP Rating</b>	On load 150 Off load 500
<b>Storage Temperature</b>	IP66, IP67 and DTS01 deluge protected. Note: Caps to be fitted to maintain IP ratings when the connector halves are separated.
	-50°C to +70°C

Technical Data - 8 Way	
<b>Explosion Protection</b>	ExII2 GD Exdbe IIC Gb Extb IIIC Db T85°C
<b>Ambient Temperature</b>	-40°C to +60°C
<b>Certification</b>	Baseefa 06 ATEX 0061X IECEx BAS06.0018X
<b>Ratings 8 Way</b>	Voltage AC 60V RMS
	Current AC EN 60947-4-3 1A (AC21)
	Current AC EN 60947-4-1 1A (AC1)
	Current AC EN 60947-4-1 0.1A (AC3)
	Frequency 50/60 Hz
	Power Factor 0.9
	Voltage DC 60V
<b>Fuse Rating 4 / 9 way</b>	Current DC EN 60947-4-3 0.5A (DC21)
	Current DC EN 60947-4-1 0.5A (DC1)
	Current DC EN 60947-4-1 0.1A (DC3)
<b>Max No. of make &amp; break operations (EN61984)</b>	0.5 amp without thermal protection 1A gL with thermal protection
<b>IP Rating</b>	On load 150 Off load 500
<b>Storage Temperature</b>	IP66, IP67 and DTS01 deluge protected. Note: Caps to be fitted to maintain IP ratings when the connector halves are separated.
	-50°C to +70°C

Armour Clamping Ring Size Selection			
Size Ref	Code	Orientation 1	Orientation 2
O	S - Standard Ring	0.8 - 1.25	0.0 - 0.8
A	S - Standard Ring	0.8 - 1.25	0.0 - 0.8
B	S - Standard Ring	1.25 - 1.6	0.0 - 0.7
	R - Alternative Ring	0.9 - 1.25	0.5 - 0.9



## Connectors Order Codes

See below table to correctly identify the specifications you require. An example order code is also shown below to illustrate the correct formatting required. If you need assistance with your order please contact the Hawke Sales Team.

Order Codes			
InstrumEx Connector			
	SELECT CODE	DESCRIPTION	EXAMPLE CODE
MATERIAL	N	Nickel Plated Brass	N
	S	Stainless Steel	
CONNECTOR STYLE	CP	Connector Plug	BR1
	FP	Flange Mounted Connector Plug	
	CR	Connector Receptacle	
	FR	Flange Mounted Connector Receptacle	
	BR1	Bulkhead Receptacle (Fixed Position 1 Standard)	
	BR2	Bulkhead Receptacle (Fixed Position 2)	
	BR3	Bulkhead Receptacle (Fixed Position 3)	
	BR4	Bulkhead Receptacle (Fixed Position 4)	
	BR5	Bulkhead Receptacle (Fixed Position 5)	
BULKHEAD ENTRY THREAD	M	Metric Thread (M20 4/8-way / M32 9-way)	M
	N	NPT Thread (1/2" for 4/8-way / 3/4" 9-way)	
	R	NPT Alternative Thread (3/4" for 4/8-way / 1" 9-way)	
	X	N/A (for Connector Plug or Connector Receptacle)	
CROSS SECTIONAL AREA  4 & 9 way Bulkhead Receptacle will always be pre-terminated with 1.5mm <sup>2</sup> conductors, irrespective of cross sectional area.	A	4 x 0.5 - 1mm <sup>2</sup>	B
	B	4 x 1.5 - 2.5mm <sup>2</sup>	
	C	8 x 0.14 - 0.37mm <sup>2</sup>	
	D	9 x 0.5 - 1mm <sup>2</sup>	
	E	9 x 1.5 - 2.5mm <sup>2</sup>	
INSERT TYPE  In all installations the "live" side of the connector must always contain the socket insert.	P	Pin Insert	P
	S	Socket Insert	
OUTER SHEATH DIAMETER	S	Cable Gland Seal 5.5 - 16mm (4-way/8-way)	X
	A	Cable Gland Seal 12.5 - 20.5mm (9-way)	
	B	Cable Gland Seal 16.9 - 26mm (9-way)	
	X	N/A (Bulkhead Receptacle)	
BULKHEAD RECEPTACLE CABLE LENGTH	0	0.5m (Standard)	0
	1	1m	
	2	2m	
	C	Customer Specified	
	X	N/A (for Connector Plug and Receptacle)	
BULKHEAD RECEPTACLE PIN QUANTITIES  Bulkheads also include an additional earth lead. All RJ selections only available with Cross Sectional Area "C"	4	4 (pins 1-4 terminated) Standard 4-way BR	4
	3	3 (pins 1,2 & 3 terminated)	
	8	8 (pins 1-8 terminated) Standard 8-way BR	
	9	9 (pins 1-9 terminated) Standard 9-way BR	
	C	Customer Specified	
	RJA	RJ45 Jack fitted, wired to T-568A	
	RJB	RJ45 Jack fitted, wired to T-568B	
	RJC	Customer Specified	
X	N/A (for Connector Plug and Receptacle)		
ARMOUR CLAMP SIZE  See Armour Clamping Ring Size Selection Table on Page 8	R	Alternative Clamping Rings B only	X
	X	N/A (Bulkhead Receptacle)	
	S	Standard Clamping Ring O,A,B	
	U	Unarmoured/Copper Braid Clamp (in addition to Clamping Rings)	
CERTIFICATION	A	ATEX/IECEX/EAC/Inmetro/cCSAus	A

Example Code: N-BR1-M-B-P-X-0-4-X-A

# Hawke Connectors Range

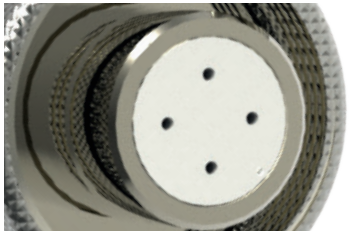
Utilising the most advanced technology, Hawke connectors are designed for quick and easy termination. Boasting market-leading features like the complete elimination of cross-mating, high reliability contacts and much more, the Hawke Connector range guarantees innovation, safety and reliability. The range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



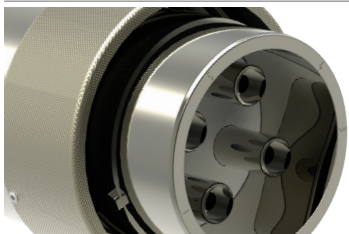
## Instrum

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



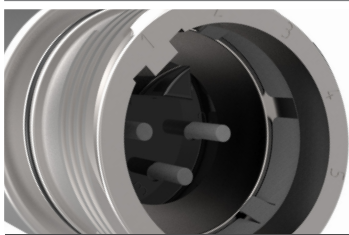
## Control

The ControlEx range 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.



## Power

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.



## Fibre

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



# Contact Details

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