

Hazardous Area Connectors

Certified ATEX / IECEx / EAC / INMETRO / cCSAus

Selection Overview

Hawke International connectors are ideal for use in hazardous areas commonly found in Oil and Gas exploration, production and process plants. Their features, however, also offer numerous benefits in explosive dust environments as well as harsh and hostile non-explosive applications where temporary but safe disconnection of power is critical. Hawke International's Ex range of connectors permit the safe and rapid service, repair and replacement of key plant, provide quick connection to temporary and permanent equipment and greatly reduce hook-up time in capital-intensive processes.

For a guide as to which Ex connector may be best suited to an individual application the table below outlines the main variables.

APPLICATION							
Connector Type	Minimum Number of Pins	Maximum Number of Pins	Minimum cross sectional area of Conductor mm ²	Maximum Conductor mm ²	Maximum Voltage	Maximum Current (amps)	Live Demate
Instrum ^{Ex}	1	9	0.14	2.5	250V	10	✓
Control ^{Ex}	3	60	0.5	35	750V	125	X
Power ^{Ex}	1	4	50	630	750V*	780	X

* Other voltages available on special request.



INSTRUM^{Ex}

Tamb: -40°C to +60°C ^{Ex} II2 GD Exdbe IIC Extb IIIC Db T85
IP66, 67 & DTS01 deluge protected
Certificate No's Baseefa06ATEX0061X & IECEx BAS 06.0018X

This revolutionary design allows the live mate and de-mating of signal and low power in hazardous areas safely and quickly. The Instrum^{Ex} connector is available in two sizes. The 4-way and the 9-way options will accept cores ranging between 0.5mm² and 2.5mm² 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 0.14mm² and 0.37mm² and can carry 1A (AC1) at 60V AC and 0.5A (DC1) 60V DC. Instrum^{Ex} connectors include an integral Hawke cable gland for easy termination of both armoured and un-armoured cables.



CONTROL^{Ex}

Tamb: -40°C to +60°C ^{Ex} II2 GD Exdb IIC Gb, Extb IIIC T95Db
IP66, 67 & DTS01 deluge protected
Certificate No's Baseefa12ATEX0144X & IECEx BAS 12.0006X

The 4th generation of Control^{Ex} connectors include many features and refinements as a result of consumer feedback, which makes them particularly suitable for control and low/medium power applications. The robust stainless steel body can hold up to 60 contacts and will accept conductor sizes ranging between 0.5mm² and 35mm², operating up to 125A and 750V.

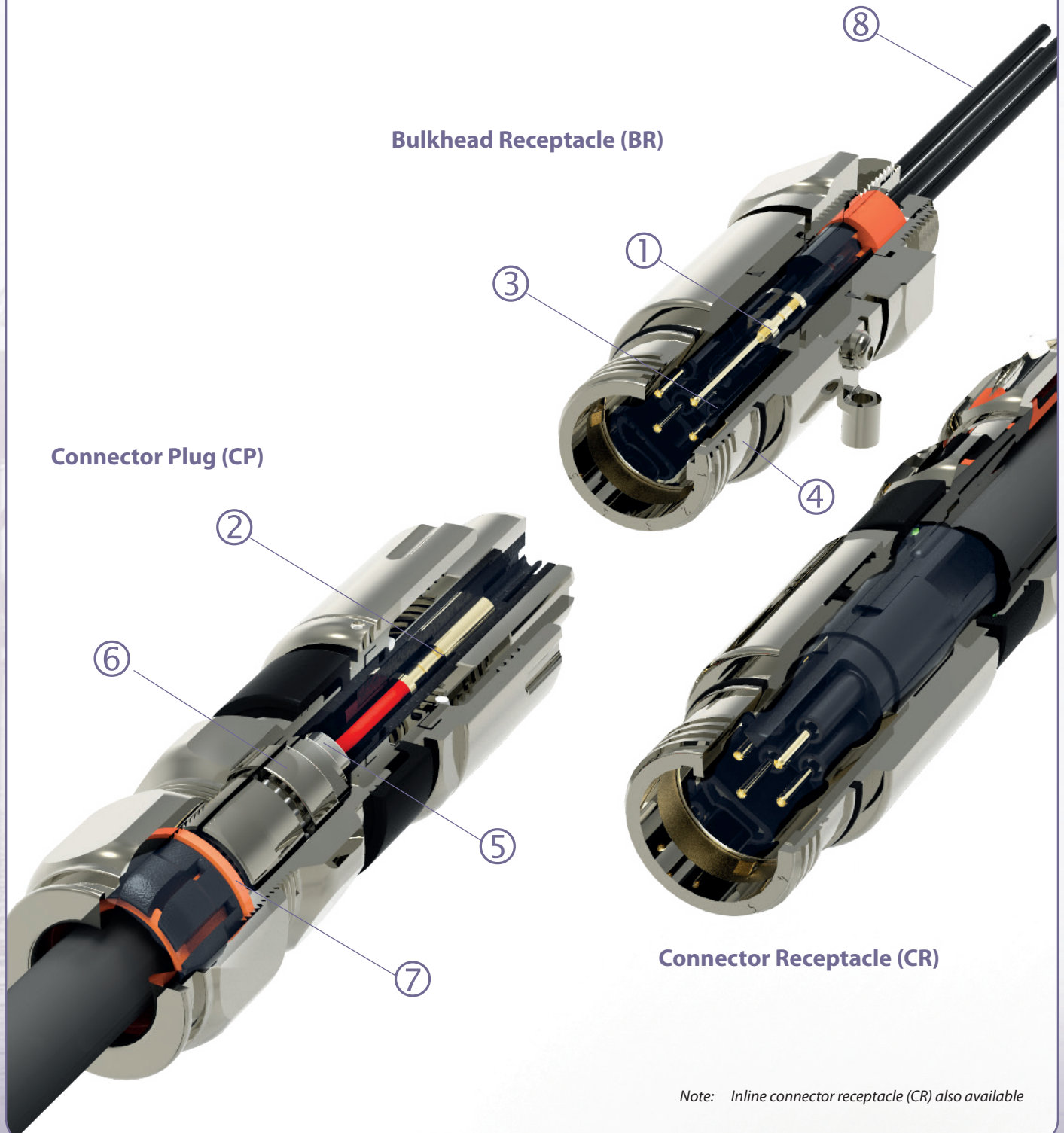


POWER^{Ex}

Tamb: -40°C to +60°C ^{Ex} II2 GD Exdb IIC Extb IIIC Db T85
IP66, 67 & DTS01 deluge protected
Certificate No's Baseefa06ATEX0062X & IECEx BAS 06.0019X

The Power^{Ex} range of connectors have been designed specifically for the extremely demanding requirements of higher power applications. 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.

Tamb: -40°C to +60°C. II2 GD Exdbe IIC Gb Extb IIIC Db T85
IP66, 67 and DTS01 deluge protected.
Certificate No's Baseefa06ATEX0061X and IECEx BAS 06.0018X.



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Instrum^{Ex} Features



①

Electrical Insert with Key

Easy to assemble electrical insert allows crimped or soldered connections.



⑤

Anti-rotation

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



②

Keyed Positions

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



⑥

Reversible Armour Clamp

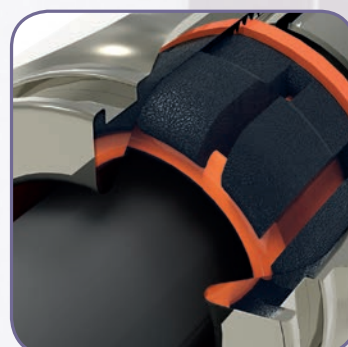
The Instrum^{Ex} incorporates Hawke's proven and patented armour termination method to accommodate different types of armour or braid.



③

Integral Keying

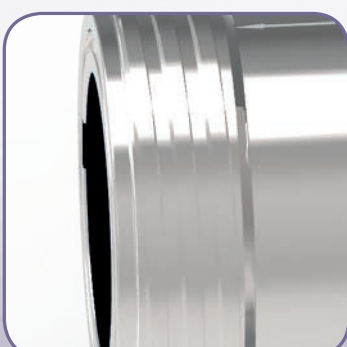
Machined key and keyway ensures connector alignment. Unique 5 position insert keying system prevents cross-mating.



⑦

Versatile LSFZH Rear Seal

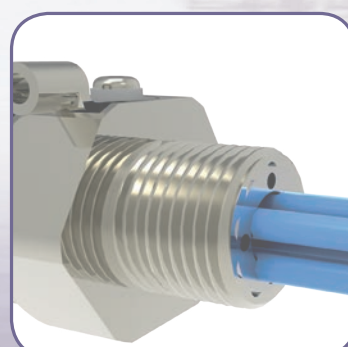
Accommodates a wide range of cable sizes and provides highly effective cable grip and ingress protection.



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.

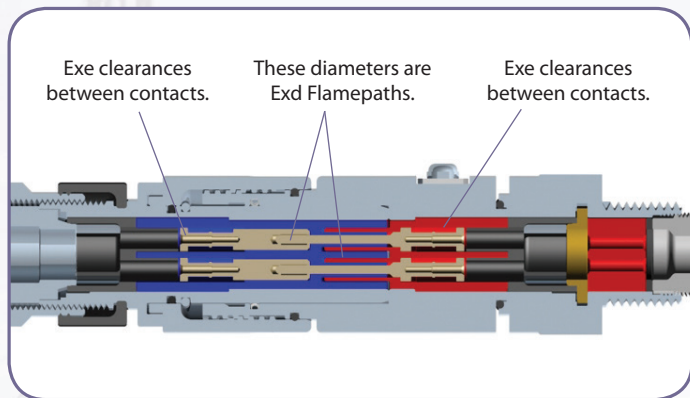


⑧

Pre-terminated

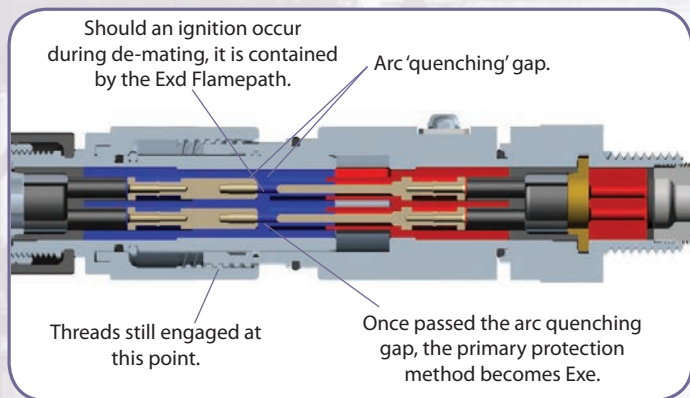
All BR connectors are supplied with pre-terminated tails to suit your requirements.

The Instrum  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**.



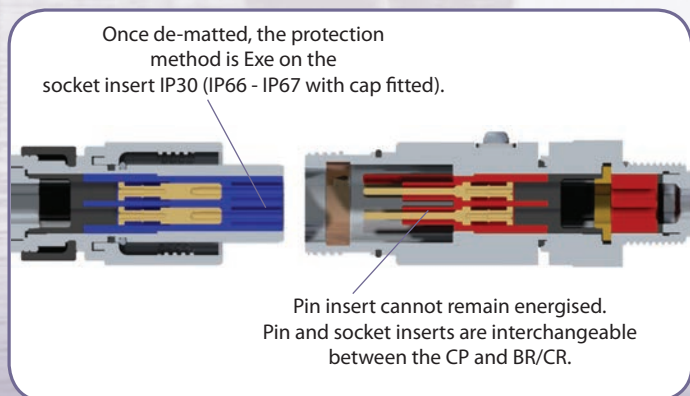
Stage 1

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 flameproof areas.



Stage 3

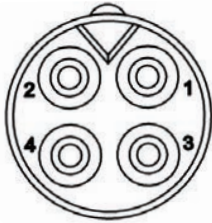
When the connector halves are disengaged, the socket section is protected to IP30 and must have the protective cap fitted immediately to restore the full Exe increased safety requirements and IP rating. The pins and socket inserts are interchangeable between all three connector components: i.e. Bulkhead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

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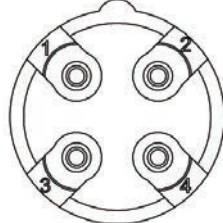
Instrum Inserts

Front View of Socket Insert



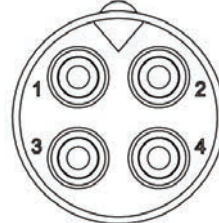
4 x 0.5 - 1mm²
4 x 1.5 - 2.5mm²

Back View of Socket Insert



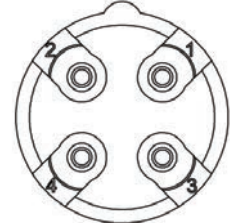
4 x 0.5 - 1mm²
4 x 1.5 - 2.5mm²

Front View of Pin Insert

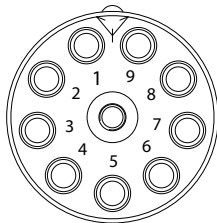


4 x 0.5 - 1mm²
4 x 1.5 - 2.5mm²

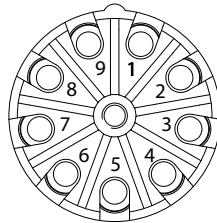
Back View of Pin Insert



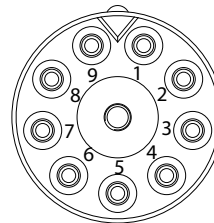
4 x 0.5 - 1mm²
4 x 1.5 - 2.5mm²



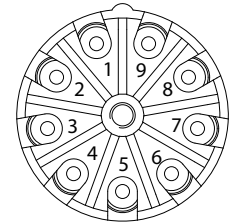
9 x 0.5 - 1mm²
9 x 1.5 - 2.5mm²



9 x 0.5 - 1mm²
9 x 1.5 - 2.5mm²



9 x 0.5 - 1mm²
9 x 1.5 - 2.5mm²



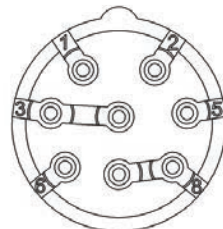
9 x 0.5 - 1mm²
9 x 1.5 - 2.5mm²

Front View of Socket Insert



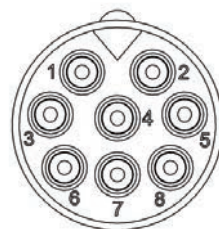
8 x 0.14 - 0.37mm²

Back View of Socket Insert



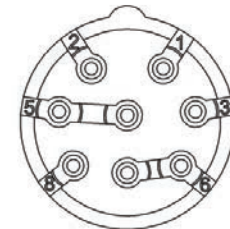
8 x 0.14 - 0.37mm²

Front View of Pin Insert



8 x 0.14 - 0.37mm²

Back View of Pin Insert




8 x 0.14 - 0.37mm²




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 2.5mm².

Contacts must be crimped using the Hawke supplied crimping tool part No. HCT1.

When ordering, select relevant code from each block as shown in the example below: **Instrum  N-BR1-M-B-P-X-0-4-X-A**

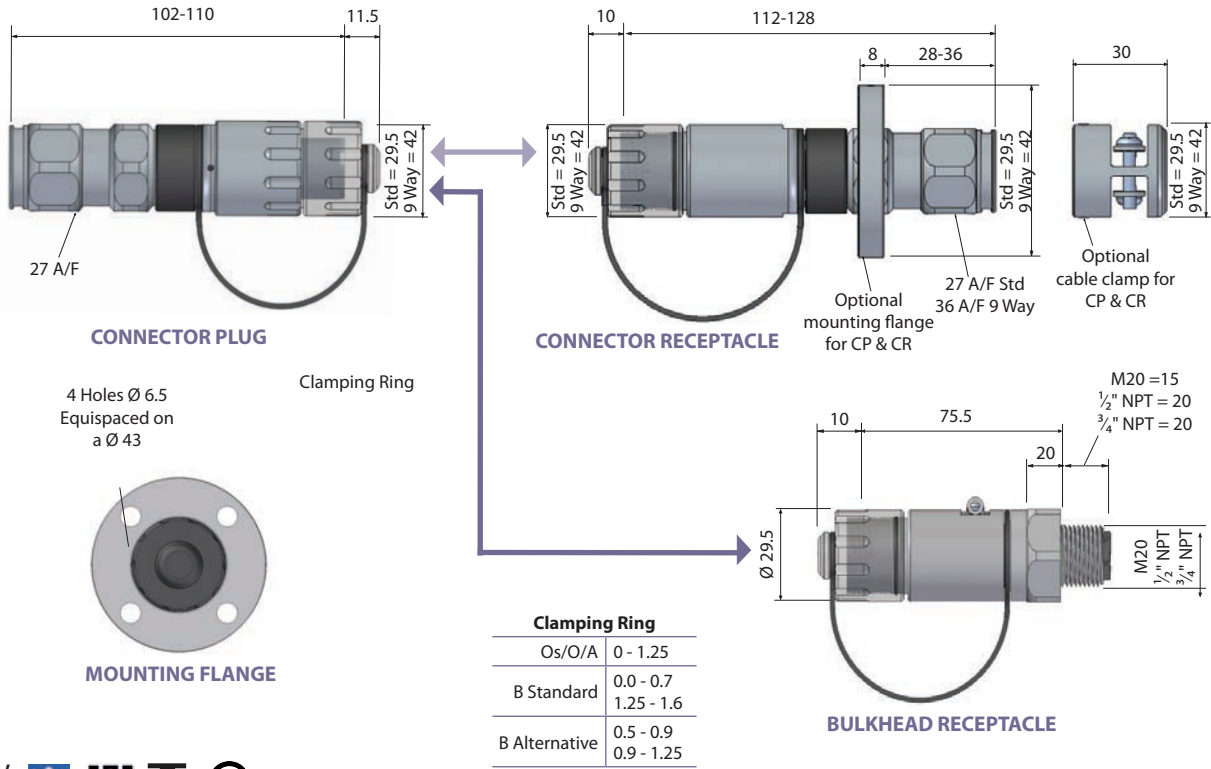
Instrum 	SELECT CODE	DESCRIPTION	EXAMPLE CODE
MATERIAL	N	Nickel Plated Brass	N
	S	Stainless Steel	
CONNECTOR STYLE	CP	Connector Plug	BR1
	FP	Flange Mounted Connector Plug	
	CR	Connector Receptacle	
	FR	Flange Mounted Connector Receptacle	
	BR1	Bulkhead Receptacle (Fixed Position 1 Standard)	
	BR2	Bulkhead Receptacle (Fixed Position 2)	
	BR3	Bulkhead Receptacle (Fixed Position 3)	
BULKHEAD ENTRY THREAD	M	Metric Thread (M20 4/8-way / M32 9-way)	M
	N	NPT Thread (1/2" for 4/8-way / 1" 9-way)	
	R	NPT Alternative Thread (3/4" 4/8-way / 1 1/4" 9-way)	
	X	N/A (for Connector Plug or Connector Receptacle)	
CROSS SECTIONAL AREA <i>* 4 way Bulkhead Receptacle will always be pre-terminated with 1.5mm² conductors, irrespective of cross sectional area.</i>	A	4 x 0.5 - 1mm ² *	B
	B	4 x 1.5 - 2.5mm ² *	
	C	8 x 0.14 - 0.37mm ²	
	D	9 x 0.5 - 1mm ²	
	E	9 x 1.5 - 2.5mm ²	
INSERT TYPE <i>** Note: In all installations the "live" side of the connector must always contain the socket insert.</i>	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 # <i># Bulkheads also include an additional earth lead.</i>	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 <i>** Note: See Clamping Ring table on page 59.</i>	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

*suitable for use in Zone 1 and Class I Div 2 areas in accordance with NEC

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Instrum^{Ex} Dimensions



All dimensions in mm unless otherwise stated.



TECHNICAL DATA - 4 WAY / 9 WAY

Explosion Protection	ExII2 GD Exdbe IIC Gb Extb IIIC Db T85°C
Ambient Temperature	-40°C to +60°C
Certification	Baseefa 06 ATEX 0061X IECEx BAS06.0018X
Ratings 4 / 9 way	Voltage AC 250V 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 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)
Fuse Rating 4 / 9 way	10 amp without thermal protection 20A gL with thermal protection
Max No. of make & break operations (EN61984)	On load 150 Off load 500
IP Rating	IP66, IP67 and DTS01 deluge protected. Note: Caps to be fitted to maintain IP ratings when the connector halves are separated.
Storage Temperature	-50°C to +70°C

TECHNICAL DATA - 8 WAY

Explosion Protection	ExII2 GD Exdbe IIC Gb Extb IIIC Db T85°C
Ambient Temperature	-40°C to +60°C
Certification	Baseefa 06 ATEX 0061X IECEx BAS06.0018X
Ratings 8 way	Voltage AC 60V 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 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)
Fuse Rating 8 way	0.5 amp without thermal protection 1A gL with thermal protection
Max No. of make & break operations (EN61984)	On load 150 Off load 500
IP Rating	IP66, IP67 and DTS01 deluge protected. Note: Caps to be fitted to maintain IP ratings when the connector halves are separated.
Storage Temperature	-50°C to +70°C