Tamb: -40°C to +60°C Ex II2 GD Exdb IIC Gb, Extb IIIC Db T95
IP66, 67 & DTS01 deluge protected
Certificate No's Baseefa12ATEX0014X & IECEx BAS 12.0006X.

Connector Plug-CP

Bulkhead-BR

Connector Receptacle - CR

①

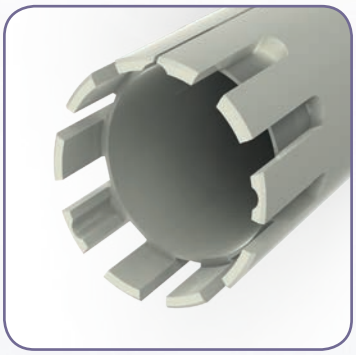
Easy Fieldwireable

Pin and socket inserts are numbered front and back to assist wiring and avoid termination errors. Crimp and solder inserts available.

⑤

Running Coupler

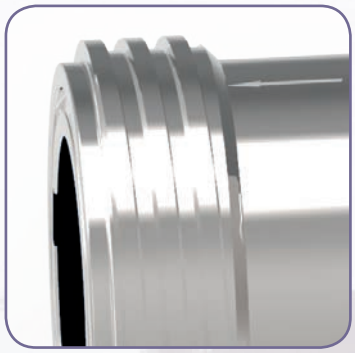
Allows the connector to be installed onto a pre-assembled cable gland. Connector is rear loading and includes locking engaging nut.



②

Internal Keyway Spacer

Eases accessibility for termination as tube fitted after termination complete, along with allowing easy installation into the required keyed position (See ④)



⑥

Acme Thread at Mating Interface

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

③

Locking Pin

Optional locking pin provides the facility for mated connectors to be permanently locked, via the use of a padlock, ensuring they cannot be separated under load. *(Padlock not supplied)*

⑦

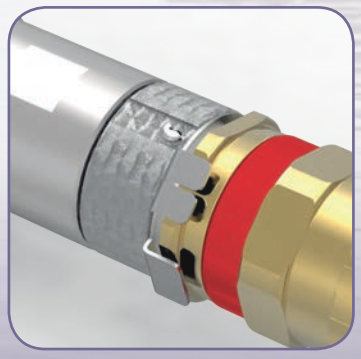
Fully Inspectable Flameproof Barrier

Provides direct inspection of the flameproof seal and offers users the peace of mind that the connector is safe for installation.

④

Keying Position

The unique visual 5 position insert keying system (3 on Ex16) along with the integral machined keyways prevent contact damage and ensures safe use by eliminating the possibility of misconnection of adjacent circuits.



⑧

Anti-Rotation Device

Connector plugs and receptacles come complete with anti-rotation ring, which when fitted between the connector and gland, helps to eliminate the possibility of the gland loosening, locking this in position.


Ex16 - 3 x 1.5


Ex16 - 4 x 1.5


Ex25 - 4 x 1.5


Ex25 - 9 x 1.5


Ex25 - 12 x 1.5


Ex25 - 4 x 2.5


Ex25 - 7 x 2.5


Ex25 - 4 x 6
Soldered Only


Ex32 - 12 x 1.5


Ex32 - 19 x 1.5


Ex32 - 10 x 2.5


Ex32 - 12 x 2.5


Ex32 - 4 x 6

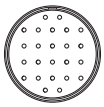

Ex32 - 6 x 6


Ex32 - 3 x 10

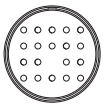

Ex32 - 4 x 10

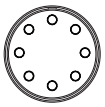

Ex32 - 3 x 16

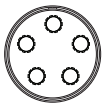

Ex32 - 4 x 16

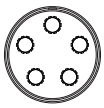

Ex40 - 24 x 1.5

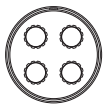

Ex40 - 30 x 1.5

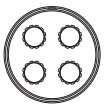

Ex40 - 19 x 2.5

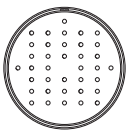

Ex40 - 8 x 6

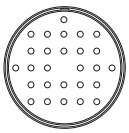

Ex40 - 5 x 10

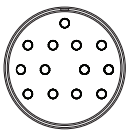

Ex40 - 5 x 16

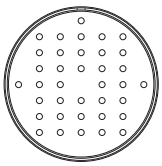

Ex40 - 4 x 25

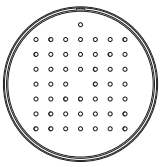

Ex40 - 4 x 35


Ex50 - 37 x 1.5


Ex50 - 27 x 2.5


Ex50 - 13 x 6


Ex63 - 37 x 2.5


Ex63 - 49 x 1.5

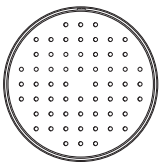

Ex63 - 60 x 1.5

TABLE		
Insert Size	Internal Diameter of cup (mm) Nominal	
	Soldered	Crimped
1.5mm²	2	2
2.5mm²	3	3
6mm²	3.5	3.2
10mm²	7	4
16mm²	7	5
25mm²	8	6.5
35mm²	8	8.3

INSERT SELECTION TABLE

Configuration					
Shell size 16	Shell Size 25	Shell Size 32	Shell Size 40	Shell Size 50	Shell Size 63
3 x 1.5mm² + Earth	4 x 1.5mm² + Earth	12 x 1.5mm² + Earth	24 x 1.5mm² + Earth	37 x 1.5mm² + Earth	49 x 1.5mm² + Earth
4 x 1.5mm² + Earth	9 x 1.5mm² + Earth	19 x 1.5mm² + Earth	30 x 1.5mm² + Earth	27 x 2.5mm² + Earth	60 x 1.5mm² + Earth
-	12 x 1.5mm² + Earth	10 x 2.5mm² + Earth	19 x 2.5mm² + Earth	13 x 6mm² + Earth	37 x 2.5mm² + Earth
-	4 x 2.5mm² + Earth	12 x 2.5mm² + Earth	4 x 25mm² + Earth	-	-
-	7 x 2.5mm² + Earth	4 x 6mm² + Earth	4 x 35mm² + Earth	-	-
-	4 x 6mm² + Earth	6 x 6mm² + Earth	-	-	-
-	-	3 x 10mm² + Earth	-	-	-
-	-	4 x 10mm² + Earth	-	-	-
-	-	3 x 16mm² + Earth	-	-	-
-	-	4 x 16mm² + Earth	-	-	-

Note: Inserts for use in bulkhead receptacles are solder termination only for contact sizes of 6mm² and above.

Hawke Control Ex connectors have a maximum working voltage of 660V DC (660V AC) as standard.
3rd & 4th generation Control Ex connectors can be connected together within certification.
Other voltages available on special request.

Hazardous Area Connectors

Certified ATEX / IECEx / EAC / INMETRO / NEC505

Control Ex Code

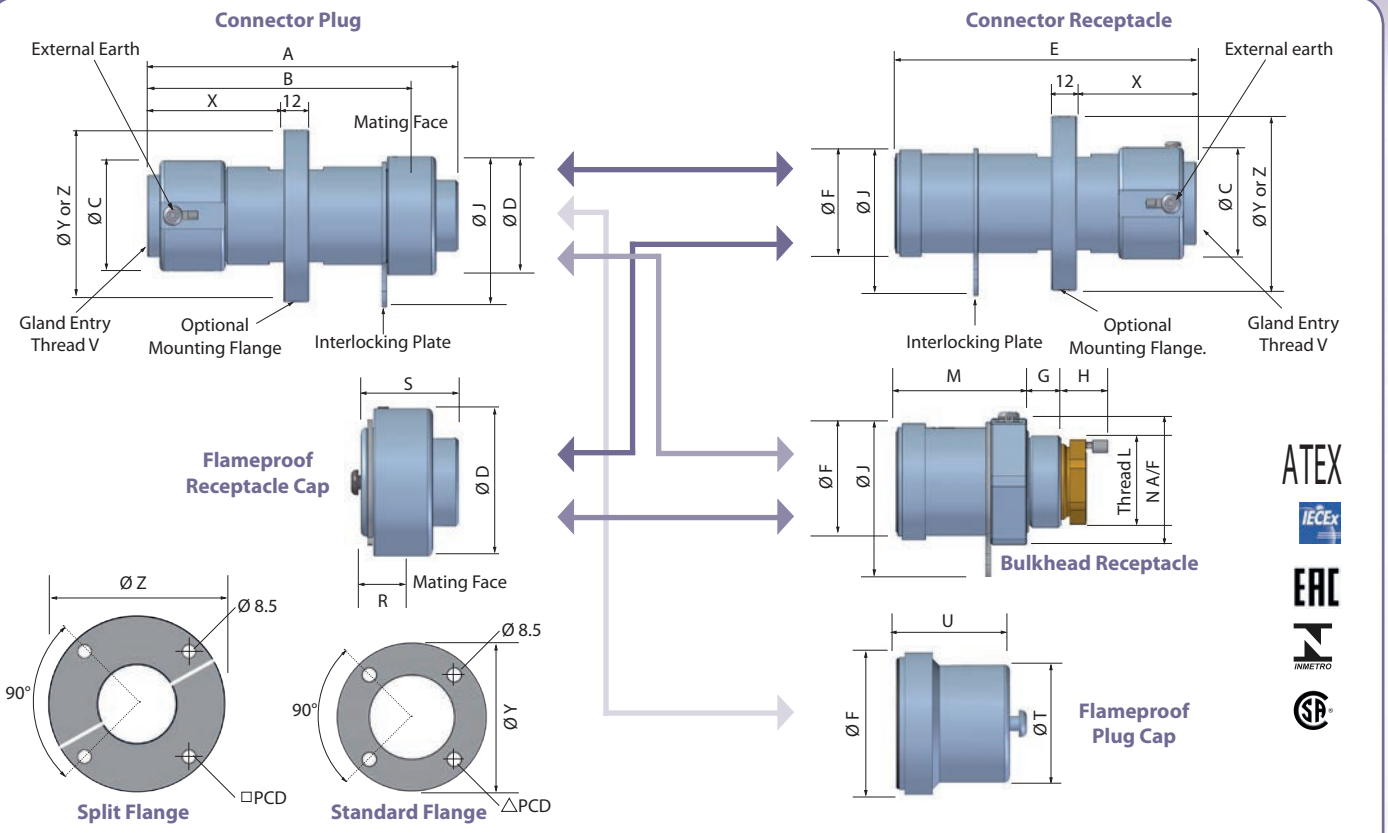
Hawke International does not recommend the use of their ControlEx Connectors in applications where rigid PVC/SWA/PVC power cabling (typically to BS 6346 standards or equivalnts) is used in portable/semi-portable applications.

When ordering, select relevant code from each block as shown in the example below:

Control Ex/ Exd-32-S-CP-V-19 x 1.5-S-C-FL-FPC-P-R25-A-1-T

Control Ex	SELECT CODE	DESCRIPTION	EXAMPLE CODE
PROTECTION	Exd	Flameproof	**Exd**
SHELL SIZE	16	16	**32**
	25	25	
	32	32	
	40	40	
	50	50	
	63	63	
MATERIAL	S	Stainless Steel	**S**
CONNECTOR STYLE	CP	Connector Plug	**CP**
	CR	Connector Receptacle	
	BR	Bulkhead Receptacle	
KEYING SYSTEM	V	Variable Keyway (All)	**V**
	F	Fixed Keyway *(only available if purchasing terminated)*	
NUMBER OF CONTACTS		See Insert Selection Chart	**19**
	X	No Insert	
CONTACT SIZE		See Insert Selection Chart	**1.5**
INSERT TYPE	P	Pin	**S**
	S	Socket	
	X	No Insert	
TERMINATION STYLE	S	Solder*	**C**
** Note: Inserts for use in Bulkhead receptacles are solder termination only for contact sizes of 6mm² and above.*	C	Crimp*	
	X	No Insert	
FLANGE TYPE ♦	FL	Mounting Flange	**FL**
Note: CP or CR only - one per mating pair.	SF	Split Flange *(can be retro fitted after termination)*	
CAP TYPE	FRC	Flameproof Receptacle Cap	**FPC**
	FPC	Flameproof Plug Cap	
	PRC	Plastic Receptacle Cap	
	PPC	Plastic Plug Cap	
LOCKING PIN ♦	P	Locking Pin *(only one required per mating pair)*	**P**
ALTERNATIVE CABLE GLAND ENTRY ♦	R20	Reduced Cable Gland Entry M20 *(Ex 25 only)*	**R25**
	R25	Reduced Cable Gland Entry M25 *(Ex 40 & Ex 32 only)*	
	R32	Reduced Cable Gland Entry M32 *(Ex 50 & Ex 40 only)*	
	R40	Reduced Cable Gland Entry M40 *(Ex 63 & Ex 50 only)*	
	R50	Reduced Cable Gland Entry M50 *(Ex 63 only)*	
CERTIFICATION	A	ATEX/IECEx/EAC/INMETRO	**A**
	N	ATEX/IECEx/EAC/INMETRO /NEC 505 Voltage reduced to 600V	
AMBIENT RATING AND TEMPERATURE CLASS	1	T5 +40°C Standard	**1**
T5 +40°C will be supplied as standard if alternative not specified.	2	T5 +50°C	
	3	T5 +60°C	
	4	T6 +40°C	
	5	T6 +50°C	
	6	T6 +60°C	
TERMINATION ♦	T	Termination Required	**T**

♦ ***If not required, omit selection character from order code.***



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.
For connector plugs and connector receptacles cable glands are required to terminate incoming cables. Hawke recommend the ICG 653/UNIV cable gland is used.

HAWKE Ex SERIES DIMENSIONS (MM)

Dimension	Ex16	Ex25	Ex32	Ex40	Ex50	Ex63
A	127	152	152	152	152	148
B	105	128	129	129	129	126
Ø C	36	46	53	60	66	83
Ø D	37	49	57	65	76	90
E	128	152	152	152	152	152
Ø F	32	45	51	59	70	83
G	15	15	15	15	15	15
H (nominal)	20	20	20	20	20	20
J (Aperture Clearance Hole)	55	65	75	85	95	115
*Thread L (1.5mm Pitch)	M25	M32	M40	M50	M63	M75
M	54	54	56	56	56	56
N A/F	36	46	55	65	80	95
R	15	15	15	16	16	17
S	38	38	38	39	39	40
Ø T	28	34	42	51	60	73
U	40	40	40	40	40	40
Thread V (1.5mm Pitch)	M20	M25	M32	M40	M50	M63
X (nominal)	54	70	70	70	70	67
Ø Y	66	76	83	91	102	117
△	49	59	66	74	85	100
Ø Z	87	99	105	117	129	147
□	70	82	88	100	112	130

*Bulkhead entry thread L can be adapted to other sizes. This may affect the overall length of unit.

To select the shell size of the connector, it is essential that you calculate the dissipated wattage of the arrangement. This ensures that the arrangement does not exceed the maximum permitted temperature classification with regard to the upper ambient temperature for the area of installation. (please refer to table 1 for the maximum allowable dissipated wattage per connector size).

TABLE 1

Connector Size	Upper ambient Temperature of +40°C		Upper ambient Temperature of +50°C		Upper ambient Temperature of +60°C	
	Temperature Class		Temperature Class		Temperature Class	
	T6	T5	T6	T5	T6	T5
Ex16	5W	7W	4W	6W	2.6W	4.6W
Ex25	8W	11W	6W	10W	4W	7W
Ex32	10.5W	14.5W	8W	12W	5.4W	9W
Ex40	12W	17W	9W	14W	5.5W	10.5W
Ex50	13W	20W	10W	17W	6.5W	12.5W
Ex63	17W	29W	13W	24W	8.5W	17W
	Maximum allowable dissipated wattage					

Other ambient temperature options can be extrapolated from Table 1 above, or contact Hawke International for more information.

TABLE 2

Contact Size	Combined Cable and Contact Resistance (Ohms)		Contact Current Rating
	Soldered	Crimped	
1.5mm²	0.0166 Ω	0.0173 Ω	10 amps
2.5mm²	0.0102 Ω	0.0109 Ω	17 amps
6mm²	0.0047 Ω	0.0054 Ω	30 amps
10mm²	0.0027 Ω	0.0033 Ω	78 amps
16mm²	0.0018 Ω	0.0024 Ω	78 amps
25mm²	0.0012 Ω	0.0018 Ω	125 amps
35mm²	0.0009 Ω	0.0015 Ω	125 amps

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 9 x 1.5mm² conductors, running at 7 amps.

N = 9 contacts I = 7 amps R = 0.0166Ω (1.5mm² soldered combined cable and contact resistance)

Therefore W = 9 x 49 x 0.0166Ω = 7.32 watts.

Therefore, an Ex25 Connector should be specified for this application as the shell size can accommodate the required 9 x 1.5mm² pin/socket inserts (SEE PAGE 56 - Insert Selection Table) and the resultant dissipated wattage (7.32 watts) is below the maximum permitted 8 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 $$I = \sqrt{\frac{W}{N \times R}}$$

(Note: 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.