ADDIMAX

CABLE GLANDS

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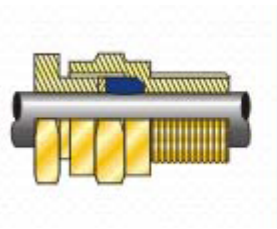
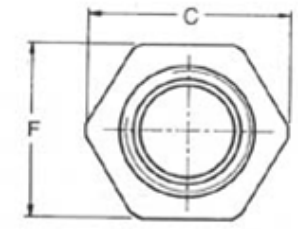
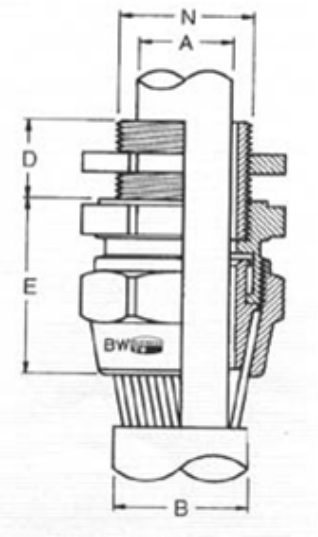
Caledonian

CONTENT

Single Compression A2 Type Weatherproof & Waterproof (IP66) Cable Glands for non armoured cables







Standard

EN 50262 : 1999, BS 6121 1989

Application

Suitable for all types of unarmoured plastic or rubber sheathed cables for indoor as well as outdoor installations. It is used in applications where it is essential to provide an IP66 seal on the outer sheath of the cable.

Feature

Single compression for cable sheath.

Ingress Protection

IP66 (To IP68 if fitted with a gasket).

Material

Brass BS 2874 CZ121 Pb3

Thread Option

ISO METRIC; NPT; BSP; PG or as specified

Seal Option

Neoprene; silicone

Plating Option

Brass Finish, Nickel Finish, Chrome Finish or as specified

Operating Temperature

Standard seals: -20 °C to +80 °C (Neoprene Seals)
Extended seals: -60 °C to +180 °C (Silicone Seals)

Accessories

Lock Nut, Sealing Washer, Earth Tag, Shroud, Serrated Washer, Stopping Plug, Reducer, Adaptor

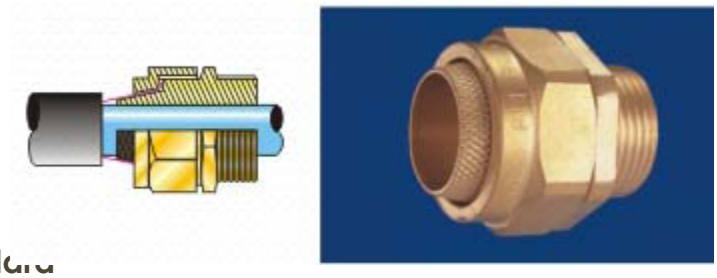
Ordering Code

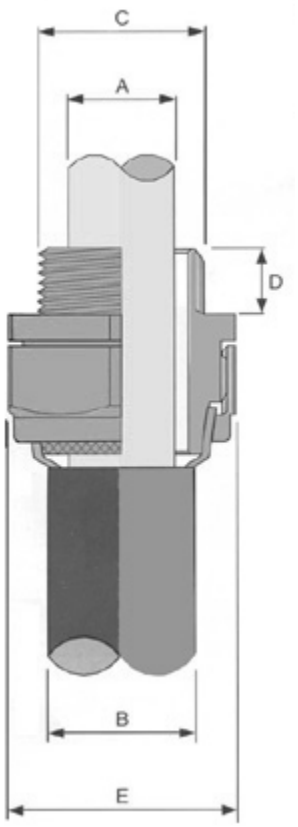
(Gland Type / Size & Entry Thread Size), e.g. A2 32/M32 - 10mm

Technical Data

Part No.	Entry Threads Size		Overall Diameter.		Overall Length "E"	Hexagonal Dimensions (Maximum)	
	Metric "N"	Entry Thread Length "D"	Max. "A"	Max. "B"		"F"	"C"
A2-20SS	M20	10	3.0	8.0	18	25	28.5
A2-20S	M20	10	7.0	11.0	18	25	28.5
A2-20	M20	10	11.0	14.5	20	27	30.0
A2-25	M25	10	14.5	20.5	25	35	38.5
A2-32	M32	10	20.5	26.5	25	42	48.0
A2-40	M40	15	26.5	34.5	28	52	59.0
A2-50	M50	15	34.5	43.5	30	65	72.0
A2-63	M63	15	43.5	56.0	35	82	97.0
A2-75	M75	15	56.0	65.0	40	96	112.0
A2-82	M82	15	65.0	74.0	50	100	113.0
A2-90	M90	15	73.0	82.0	59	100	113.0

Single Compression BW Type Cable Glands for Armoured & Braided Cables





Standard

BS 6121: 1989

Application

Suitable for all types of plastic or rubber sheathed single wire armoured cables. If is used in indoor applications not requiring the weatherproof feature of an inner or outer seal.

Feature

The gland provides mechanical cable retention & electrical wire continuity via armour wire termination. It provides an integral clamp for armoured cables. This armour clamp provides an electrical bond between the cable armour and the gland.

Ingress Protection

IP30

Material

Brass BS 2874 CZ121 Pb3

Thread Option

ISO METRIC; NPT; BSP; PG or as specified

Plating Option

Brass Finish, Nickel Finish, Chrome Finish or as specified.

Operating Temperature

-80 °C to +300 °C

Accessories

Lock Nut, Sealing Washer, Earth Tag, Shroud, Serrated Washer, Stopping Plug, Reducer, Adaptor

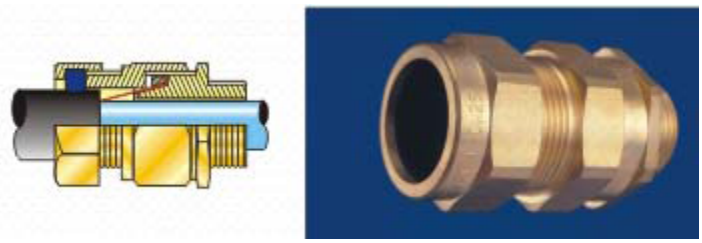
Ordering Code

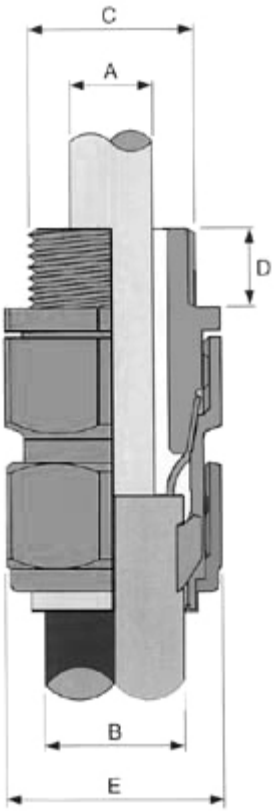
(Gland Type / Size & Entry Thread Size), e.g. BW 32/M32 – 10mm

Technical Data

Part No.	Entry Threads Size Metric "C"	Entry Thread Length "D"	Inner Cable Sheath Diameter "A" Max.	Outer Cable Sheath Diameter "B" Max.	Armour Wire Diameter	Braid Wire Diameter	Main Across Corner Diameter "E"
BW-20S	M20	10	11.6	16.1	0.9/1.25	0.05/0.8	24.4
BW-20	M20	10	13.9	21.1	0.9/1.25	0.05/0.8	30.0
BW-25	M25	10	19.9	27.4	1.25/1.60	0.05/0.8	36.0
BW-32	M32	10	26.2	34.4	1.60/2.00	0.05/0.8	44.5
BW-40	M40	15	32.1	42.4	1.60/2.00	0.05/1.2	56.3
BW-50S	M50	15	38.1	50.1	2.00/2.50	0.05/1.2	63.4
BW-50	M50	15	44.0	55.7	2.00/2.50	0.05/1.2	72.1
BW-63S	M63	15	50.0	62.4	2.50	0.05/1.2	83.7
BW-63	M63	15	55.9	68.2	2.50	0.05/1.2	88.7
BW-75S	M75	15	61.9	76.8	2.50	0.05/1.2	99.8
BW-75	M75	15	67.9	82.9	2.50/3.15	0.05/1.2	105.3

Single Compression CW Type Weatherproof & Waterproof (IP66) Cable Glands for Armoured & Braided Cables





Standard

EN 50262: 1999, BS6121 part1

Application

Suitable for all types of unarmoured plastic or rubber sheathed cables for indoor as well as outdoor installations. If is used in applications where it is essential to provide an IP66 seal on the outer sheath of the cable.

Feature

The gland provides an environmental seal on the cable outer sheath. If also provide mechanical cable retention & electrical continuity via armour wire termination. The armour clamp provides an electrical bond between the cable armour and the gland.

Ingress Protection

IP66

Material

Brass BS 2874 CZ121 Pb3

Thread Option

METRIC; NPT; BSP; PG or as specified

Seal Option

Neoprene; silicone

Plating Option

Brass Finish, Nickel Finish, Chrome Finish or as specified

Operating Temperature

Standard seals: -20 °C to +80 °C(Neoprene Seals)
Extended seals: -60 °C to +200 °C(Silicone Seals)

Accessories

Lock Nut, Sealing Washer, Earth Tag, Shroud, Serrated Washer, Stopping Plug, Reducer, Adaptor

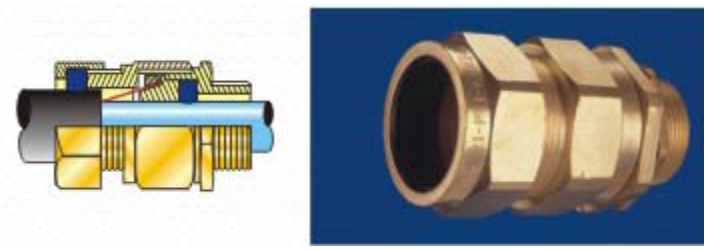
Ordering Code

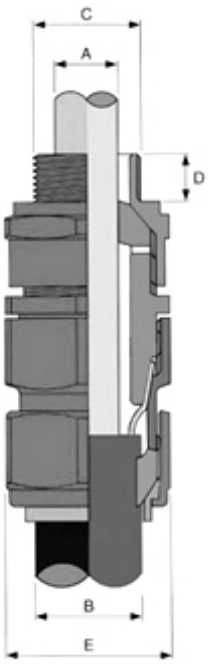
(Gland Type / Size & Entry Thread Size), e.g. CW 32/M32 – 15mm

Technical Data

Part No.	Entry Threads Size "C"			Entry Thread Length "D"	Seal Ranges					Armour Wire Diameter	Max. Across Corner Diameter "E"
					Inner Cable Sheath Diameter "A" Max.	Outer Cable Sheath Diameter "B'					
						Standard Seal		Thick Seal			
	Metric	NPT	PG			Min.	Max.	Min.	Max.		
CW-16	M20	"	11	15	8.6	8.0	13.4	5.5	9.9	0.9	24.4
CW-20S	M20	"	13.5	15	11.6	11.4	15.9	7.0	12.4	0.9/1.25	26.6
CW-20	M20	"	16	15	13.9	15.0	20.9	11.1	17.9	0.9/1.25	33.3
CW-25	M25	3/4"	21	15	19.9	20.3	27.4	15.0	23.9	1.25/1.60	40.5
CW-32	M32	1"	29	15	26.2	26.0	33.9	23.0	29.9	1.60/2.00	51.0
CW-40	M40	1-1/4"	36	15	32.1	31.0	40.4	26.6	35.9	1.60/2.00	61.0
CW-50S	M50	1-1/2"	36	15	38.1	36.5	46.7	32.9	42.4	2.00/2.50	66.5
CW-50	M50	2"	42	15	44.0	43.0	53.1	30.3	49.9	2.00/2.50	77.7
CW-63S	M63	2"	48	15	50.0	48.9	59.4	44.6	55.9	2.50	83.2
CW-63	M63	2-1/2"	-	15	55.9	58.0	65.9	51.5	58.9	2.50	86.7
CW-75S	M75	2-1/2"	-	15	61.9	60.6	72.1	56.4	68.9	2.50	101.6
CW-75	M75	3"	-	15	67.9	64.9	78.5	62.7	74.9	2.50/3.15	111.1
CW-90	M90	3-1/2"	-	-	79.3	76.0	90.4	64.2	79.3	3.15	128.6

Double Compression E1W Type Weatherproof & Waterproof (IP66) Cable Glands for Steel Wire Armoured Cables





Standard

EN 50262: 1999, BS6121 part1

Application

Suitable for all types of plastic or rubber sheathed single wire armoured cables for indoor as well as outdoor installations. If is used in applications where it is essential to provide an IP66 seal on the inner and outer sheath of the cables.

Feature

The gland provides an environmental seal on the inner and outer cable sheath. If also provides mechanical cable retention & electrical continuity via armour wire termination. The armour clamp provides an electrical bond between the cable armour and the gland.

Ingress Protection

IP66

Material

Brass BS 2874 CZ121 Pb3

Thread Option

METRIC; NPT; BSP; PG or as specified

Seal Option

Neoprene; silicone

Plating Option

Brass Finish, Nickel Finish, Chrome Finish or as specified

Operating Temperature

Standard seals: -20 °C to +80 °C(Neoprene seals)
Extended seals: -60 °C to +180 °C(Silicone seals)

Accessories

Lock Nut, Sealing Washer, Earth Tag, Shroud, Lead Sheath Washer, Serrated Washer, Stopping Plug, Reducer, Adaptor

Ordering Code

(Gland Type / Size & Entry Thread Size), e.g. E1W 32/M32 – 15mm

Technical Data

Part No.	Entry Threads Size "C"			Entry Thread Length "D"	Seal Ranges						Armour Wire Diameter	Max. Across Corner Diameter "E"
					Inner Cable Sheath Diameter "A"		Outer Cable Sheath Diameter "B'					
							Standard Seal		Thick Seal			
	Metric	NPT	PG		Min.	Max.	Min.	Max.	Min.	Max.		
E1W-16	M20	"	11	15	3.1	8.6	8.0	13.4	5.5	9.9	0.9	24.4
E1W-20S	M20	"	13.5	15	6.1	11.6	11.4	15.9	7.0	12.4	0.9/1.25	26.6
E1W- 20	M20	"	16	15	6.5	13.9	15.0	20.9	11.1	17.9	0.9/.25	33.3
E1W- 25	M25	3/4"	21	15	11.1	19.9	20.3	27.4	15.0	23.9	1.25/1.60	40.5
E1W-32	M32	1"	29	15	17.0	26.2	26.0	33.9	23.0	29.9	1.60/2.00	51.0
E1W-40	M40	1-1/4"	36	15	22.0	32.1	31.0	40.4	26.6	35.9	1.60/ 2.00	61.0
E1W-50S	M50	1-1/2"	36	15	29.5	38.1	36.5	46.7	32.9	42.4	2.00/2.50	66.5
E1W-50	M50	2"	42	15	35.6	44.0	43.0	53.1	38.3	49.9	2.00/2.50	77.7
E1W-63S	M63	2"	48	15	40.1	49.9	48.9	59.4	44.6	55.9	2.50	83.2
E1W-63	M63	2-1/2"	-	15	47.2	55.9	58.0	65.9	51.5	58.9	2.50	88.7
E1W-75S	M75	2-1/2"	-	15	52.8	61.9	60.6	72.1	56.4	68.9	2.50	101.6
E1W-75	M75	3"	-	15	59.1	67.9	64.9	78.5	62.7	74.9	2.50/3.15	111.1
E1W-90	M90	3"	-	-	66.6	79.3	76.0	90.4	64.2	79.3	3.15	128.6

PG Threaded Weatherproof & Waterproof Cable Glands for Non Armoured Cables

Standard

EN 50262: 1999, DIN-46320/46255

Application

Suitable for all types of unarmoured plastic or rubber sheathed cables for indoor as well as outdoor installations. If is used in applications where it is essential to provide an IP66 seal on the outer sheath of the cable.

Feature

Provide seal on outer sheath of the unarmoured cable

Ingress Protection

IP65

Material

Brass BS 2874 CZ121 Pb3

Optional Acessories

With round or hexagonal intermediate sockets and long or short anti thread

Thread Option

PG and metric threads also available on request

Seal Option

Neoprene; silicone

Plating Option

Chrome Finish, Brass Finish, Nickel Finish or as specified

Operating Temperature

Standard seals: -20 °C to +80 °C(Neoprene Seals)
Extended seals: -60 °C to +180 °C(Silicone Seals)

Accessories

Lock Nut, Sealing Washer, Earth Tag, Shroud, Lead Sheath Washer, Serrated Washer, Stopping Plug, Reducer, Adaptor

Ordering Code

(Gland Type / Size & Entry Thread Size), e.g. PG 36 – 9mm

Technical Data

Part No.	Entry Threads Size "C"	Cable Diameter	Thread Length	Hexagon Dimensions (H)	Length (L)
PG-7	PG7	6	6	H15X18	19
PG-9	PG9	7-8	7	H19X22	20
PG-11	PG11	9-11	7	H21X 27	21
PG-13.5	PG13.5	9-11	7	H24X28	22
PG-16	PG16	12-14	7	H26X30	24
PG-21	PG21	15-17	8	H31X35	25
PG-29	PG29	19- 23	8	H42X46	26
PG-36	PG36	25- 31	9	H52X58	30
PG-42	PG42	33- 37	10	H60X65	36
PG-48	PG48	39- 43	10	H66X71	37

IP 68 Weatherproof & Waterproof Brass Cable Glands

Standard

BS6121: 1989, DIN-46320/46255

Application

Suitable for all type of unarmoured plastic or rubber sheathed cables in indoor as well as outdoor installations.

Feature

With Vibration Lock and Strain Relief Protection Class IP 68 – 5 Bar.

Ingress Protection

IP65

Material

Nickel Plated Brass

Insert

Polyamide - 6

Seals

Neoprene

O - Ring

Perbunan

Plating Option

Chrome Finish, Brass Finish, Nickel Finish or as specified

Temperature Range

-30 °C to +90 °C

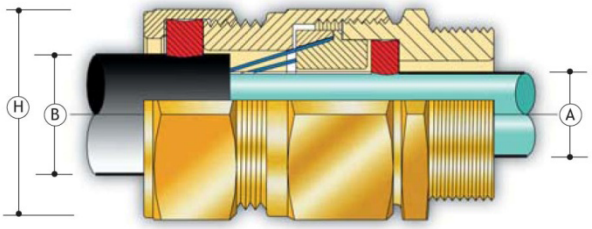
Ordering Code

(Gland Type / Size & Entry Thread Size), e.g. PG 36

Technical Data

Part No.	Clamping Range	Thread Length (in mm)
PG-7	2-6.50	6.00
PG-9	3-8.00	6.00
PG-11	4-10.00	6.00
PG-13.5	5-12.00	8.00
PG-16	8-14.00	8.00
PG-21	11-18.00	8.00
PG-29	16-25.00	9.00
PG-36	20-30.00	9.00
PG-42	28-38.00	12.00
PG-48	34-44.00	12.00
M12	2-6.50	6.00
M16	3-8.00	6.00
M20	5-12.00	8.00
M25	11-18.00	8.00
M32	12-21.00	8.00
M40	18-27.00	9.00
M50	27-33.00	9.00
M63	34-48.00	12.00

Single Compression A2F Type Weatherproof, Waterproof, Flameproof & Increased Safety Cable Glands for Non Armoured Cables (Gas Group I, IIA, IIB IIC)



Standard

EN 50014: 1998; EN 50018: 2000; EN 50019: 2000; EN 50281-1-1: 1998

Application

Suitable for all types of unarmoured plastic or rubber sheathed cables in indoor as well as outdoor installations. It is used in applications where it is essential to provide an IP66/IP67 and explosion proof seal on the outer sheath of the cable. It is particularly suitable for Zone1 & Zone2 in hazardous area.

Feature

Single compression for cable sheath

Fire and Ingress Protection

II2 GD Exd IIC / Exe II / ExtD A21 / IP66 / IP67 Allowable temperature on the elastomeric sealing ring: 100 °C(ATEX), 120 °C(GOST R)

Permitted Zone and Gas Group

Suitable for use in Zone1, Zone2, and Gas Groups, IIA, IIB and IIC.

Certificate

IECEX KOSHA (IECEX KOS 09, 0017X), ATEX NEMKO (03ATEXI460X), KIMM(EX08FLPI96) GOSTR

Material

Brass / Stainless Steel

Plating Option

Brass Finish, Nickel Finish, Chrome Finish or as specified

Accessories

Lock Nut, Sealing Washer, Earth Tag, Shroud, Serrated Washer, Stopping Plug, Reducer, Adaptor

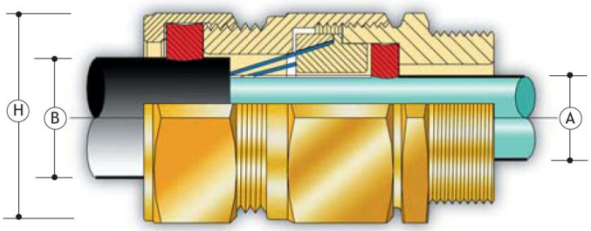
Ordering Code

(Gland Type / Size & Entry Thread Size) e.g. A2F 32a / M32 -18mm

Technical Data

Part No.	Entry Thread Size		Cable Diameter.	Thread Length.		Entry Hole Size		Hexagon Dimensions (H)	Weight	Length
	Metric	NPT	"B"	Metric	NPT	Metric	NPT			
A2F-16a	M16/M20	1/2"	3 -7.5	15	15	17	22	H24X26	100	31
A2F -16b	M16/M20	1/2"	6.1 -10	15	15	17	22	H24X26	100	31
A2F -20a	M20	1/2"or 3/4	10.1 -13	15	15or16	21	22	H27X29	230	33
A2F-20b	M20	1/2"or 3/4	13.1 -15	15	15or16	21	22	H27X29	230	33
A2F-25a	M25	3/4" or 1"	14-17.5	15	16or18	26	26	H32X34	320	34
A2F-25b	M25	3/4" or 1"	16.1-19.5	15	16or18	26	26	H32X34	320	34
A2F-32a	M32	1"or1-1/4"	18.1 -22	15	18or19	33	34	H39X41.5	370	38
A2F-32b	M32	1"or1-1/4"	21 -26	15	18or19	33	34	H39X41.5	370	38
A2F-40a	M40	1-1/4" or 1-1/2"	24-28	15	19 or21	41	43	H48X51	550	40
A2F-40b	M40	1-1/4" or 1-1/2"	27-32	15	19 or21	41	43	H48X51	550	40
A2F-50a	M50	1-1/2" or2"	32.1 -34	15	21or24	51	50	H58X62	690	42
A2F-50b	M50	1-1/2" or2"	34.1 -40	15	21or24	51	50	H58X62	690	42
A2F-63a	M63	2" or2-1/2"	38-44	15	24or27	64	62	H73X78	1110	46
A2F-63b	M63	2" or2-1/2"	43-50	15	24or27	64	62	H73X78	1110	46
A2F-63c	M63	2" or2-1/2"	49-54	15	24or27	64	62	H73X78	1110	46
A2F-75a	M75	2-1/2"or 3"	52-56	20	27 or30	76	74	H85X90	1500	52
A2F-75b	M75	2-1/2"or 3"	55-60	20	27 or30	76	74	H85X90	1500	52
A2F-75c	M75	2-1/2"or 3"	59-62	20	27 or30	76	74	H85X90	1500	52
A2F-75d	M75	2-1/2"or 3"	62.1-66	20	27 or30	76	74	H85X90	1500	52
A2F-90a	M90	3" or 3-1/2"	68-70	20	30or32	91	90	H103X 113	2000	60
A2F-90b	M90	3" or 3-1/2"	68-76	20	30or32	91	90	H103X 113	2000	60
A2F-100a	M100	3-1/2" or4"	76.1-81	20	32	101	102	H112X 120	2500	69
A2F-100b	M100	3-1/2" or4"	81.1-85	20	32	101	102	H112X 120	2500	69

Double Compression E1XF Type Weatherproof, Waterproof Flameproof & Increased Safety Cable Glands for Steel Wire Braided Cables (Gas Group I, IIA, IIB IIC)



Application

Suitable for all types of unarmoured plastic or rubber sheathed cables in indoor as well as outdoor installations. It is used in applications where it is essential to provide an IP66/IP67 and explosion proof seal on the inner and outer sheath of the cable. It is particularly suitable for Zone1 & Zone2 in hazardous area.

Features

The gland provides mechanical cable retention & electrical wire continuity via armour wire termination. If provides an integral clamp for armoured cables. This armour clamp provides an electrical bond between the cable armour and the gland.

Fire and Ingress Protection

II2 GD / Exd IIC / Exe II / Ext D A21 / IP66 / IP67, Allowable temperature on the elastomeric sealing ring: 100 °C (ATEX), 120 °C(GOST R)

Permitted Zone and Gas Group

Suitable for use in Zone1, Zone2, and Gas Groups, IIA, IIB and IIC

Certificate

IECEX KOSHA (IECEX KOS 09.0016x), ATEX NEMKO (02ATEX 501X), GOSTR

Material

Brass / Stainless Steel

Plating Option

Brass Finish, Nickel Finish, Chrome Finish or as specified

Accessories

Lock Nut, Sealing Washer, Earth Tag, Shroud, Lead Sheath Washer, Serrated Washer, Stopping Plug, Reducer, Adaptor

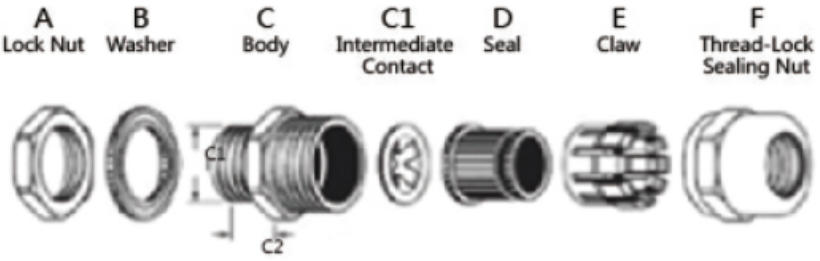
Ordering Code

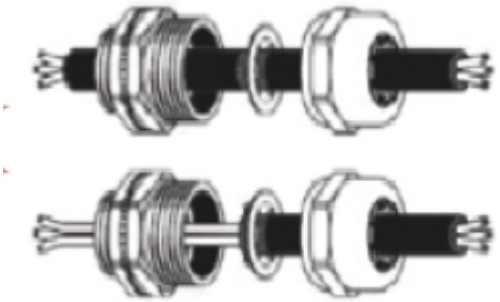
(Gland Type / Size & Entry Thread Size), e.g. E1XF 32a/M32 - 18mm

Technical Data

Part No.	Entry Thread Size		Cable Diameter		Thread Length.		Entry Hole Size		Braid Size	Hexagon Dimensions (H)	Weight	Length
	Metric	NPT	Inner "A"	Outer "B"	Metric	NPT	Metric	NPT				
E1XF-16a	M16/M20	1/2"	5 -11	8-13	15	15	17	22	0.05/0.8	H25X27	150	67
E1XF-16b	M16/M20	1/2"	5 -11	12-15.1	15	15	17	22	0.05/0.8	H25X27	150	67
E1XF-20a	M20	1/2" or 3/4	8 -15.1	13-17.5	15	15or16	21	22	0.05/0.8	H31X33	235	74
E1XF-20b	M20	1/2" or 3/4	8 -15.1	16-19.5	15	15or16	21	22	0.05/0.8	H31X33	235	74
E1XF-25a	M25	3/4" or 1"	13 -19.5	17.5-22	15	16or18	26	26	0.05/0.8	H36X39	290	79
E1XF-25b	M25	3/4" or 1"	13 -19.5	21-26	15	16or18	26	26	0.05/0.8	H36X39	290	79
E1XF-32a	M32	1" or 1-1/4"	17.5-26	22-28	15	18or19	33	34	0.05/1.2	H45X49	490	86
E1XF-32b	M32	1" or 1-1/4"	17.5-26	27-32	15	18or19	33	34	0.05/1.2	H45X49	490	86
E1XF-40a	M40	1-1/4"or1-1/2"	22-32	30-35	15	19or21	41	43	0.05/1.2	H55X59	850	94
E1XF-40b	M40	1-1/4"or1-1/2"	22-32	35.1-40	15	19or21	41	43	0.05/1.2	H55X59	850	94
E1XF-50a	M50	1-1/2" or2"	30-41.5	38-45	15	21or24	51	50	0.05/1.2	H68X73	1390	100
E1XF-50b	M50	1-1/2" or2"	30 -41.5	43-50	15	21or24	51	50	0.05/1.2	H68X73	1390	100
E1XF-63a	M63	2"or2-1/2"	38-54	48-53	15	24or27	64	62	0.05/1.2	H82X88	2070	108
E1XF-63b	M63	2"or2-1/2"	38-54	51 -56	15	24or27	64	62	0.05/1.2	H82X88	2070	108
E1XF-63c	M63	2" or2-1/2"	38-54	55-60	15	24or27	64	62	0.05/1.2	H82X88	3270	108
E1XF-75a	M75	2-1/2"or 3"	49-66	56-62	20	27or30	76	74	0.05/1.2	H98X106	3270	125
E1XF-75b	M75	2-1/2"or 3"	49-66	62.1-66	20	27or30	76	74	0.05/1.2	H98X106	3270	125
E1XF-75c	M75	2-1/2"or 3"	49-66	66.1-70	20	27or30	76	74	0.05/1.2	H98X106	3270	125
E1XF-75d	M75	2-1/2"or 3"	49-66	68-75	20	27or30	76	74	0.05/1.2	H98X106	3270	125
E1XF-90a	M90	3" or3-1/2"	63-77	74-83	20	30or32	91	90	0.05/1.6	H110X120	4600	132
E1XF-90b	M90	3" or3-1/2"	63-77	82-90	20	30or32	91	90	0.05/1.6	H110X120	4600	132
E1XF-100a	M100	3-1/2 or4"	73.1-85	89-94	20	32	101	102	0.05/1.6	H120X130	5500	144
E1XF-100b	M100	3-1/2 or4"	73.1-85	93-98	20	32	101	102	0.05/1.6	H120X130	5500	144

Anti-magnetic Wave Brass Cable Gland





Application

This product is specially designed，isolation in the use of wire and cable, can reduce low-voltage electromagnetic waves. Within the scope of the provisions of card buckle,and use of type O sealing screw tight head, achieve IP68-5 bar.

Thread specification

Metric thread , PG thread.

Fire and Ingress Protection

II2 GD / Exd IIC / Exe II / Ext D A21 / IP66 / IP67, Allowable temperature on the elastomeric sealing ring: 100 °C (ATEX), 120 °C (GOST R)

Permitted Zone and Gas Group

Suitable for use in Zone1, Zone2 and Gas Groups, IIA, IIB and IIC

Certificate

IECEX KOSHA (IECEX KOS 09.0018x), ATEX NEMKO (02ATEX 500X), GOSTR

Material

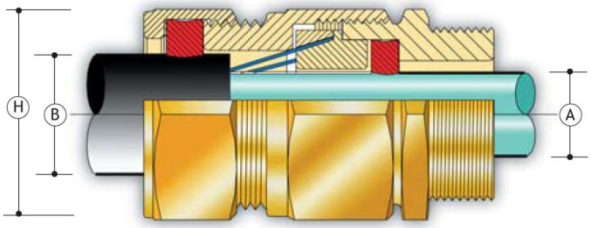
A,C,CI,F part is made of copper alloy plating nickel,E part is made of nylon PA66 which approved by UL(fire rating UL 94 v -2
Part B and D are made of EPDM weather resistance rubber.
Metallic color

Technical Data

Thread Size		Part No.	32Cable Diameter mm	Thread Diameter C1 mm	Length of thread C2 mm	Spanner Diameter A&F mm
M	M12	EMC-AM-12SS	3-6	12	6	14/14
		EMC-AM-12SS	3.5-8	12	7	14/18
	M14	EMC-AM-14SS	3-6.5	14	7	16/14
		EMC-AM-14SS	4-8	14	8	16/16
		EMC-AM-14SS	6-10	14	8	16/16
	M16	EMC-AM-16SS	4-8	16	8	18/18
		EMC-AM-16SS	5-9	16	8	18/18
		EMC-AM-16SS	6-10	16	8	18/18
	M18	EMC-AM-18SS	6-10	18	8	20/20
	M20	EMC-AM-20SS	7-12	20	8	22/22
	M22	EMC-AM-22SS	9-14	22	9	24/24
	M24	EMC-AM-24SS	9-14	24	9.5	27/24
	M25	EMC-AM-25SS	12-16	25	10	27/28
		EMC-AM-25SS	13-18	25	10	27/30
	M27	EMC-AM-27SS	10-18	27	11	30/30
	M32	EMC-AM-32SS	18-22	32	11	36/34
	M33	EMC-AM-33SS	18-22	33	11	36/34
	M36	EMC-AM-36SS	18-25	36	12	40/40
	M40	EMC-AM-40SS	22-28	40	12.5	45/45
		EMC-AM-40SS	24-30	40	12.5	45/45
	M48	EMC-AM-48SS	25-32	48	13	52/50
	M50	EMC-AM-50SS	28-36	50	13	54/54
	M60	EMC-AM-60SS	38-44	60	13	64/64
	M63	EMC-AM-63SS	38-44	62.6	14	68/64
	M64	EMC-AM-64SS	38-44	63.6	14	68/64

Thread Size		Part No.	32Cable Diameter mm	Thread Diameter C1 mm	Length of thread C2 mm	Spanner Diameter A&F mm
P	PG7	EMC-APG-7SS	3-6	13	7	14/14
	PG9	EMC-APG-9SS	4-8	15.2	8	18/18
	PG11	EMC-APG-11SS	6-10	18.6	9	20/20
	PG13.5	EMC-APG-13.5SS	7-12	20.4	9.5	23/22
	PG16	EMC-APG-16SS	9-14	22.5	9.5	24/24
	PG21	EMC-APG-21SS	11-19	28.3	12	30/30
	PG29	EMC-APG-29SS	18-25	37	12.5	40/40
	PG36	EMC-APG-36SS	24-32	47	13	53/50
	PG42	EMC-APG-42SS	30-38	54	13.5	60/55
	PG48	EMC-APG-48SS	32-44	59.3	14	64/64

Double Compression E1WF Type Weatherproof, Waterproof, Flameproof & Increased Safety Cable Glands for Steel Wire Armoured Cables (Gas Group I, IIA, IIB IIC)



Application

Suitable for all types of unarmoured plastic or rubber sheathed cables for indoor as well as outdoor installations. It is used in applications where it is essential to provide an IP66/IP67 and explosion proof seal on the inner and outer sheath of the cable. It is particularly suitable for Zone1 & Zone2 in hazardous area.

Features

The gland provides mechanical cable retention & electrical wire continuity via armour wire termination. If provides an integral clamp for armoured cables. This armour clamp provides an electrical bond between the cable armour and the gland.

Fire and Ingress Protection

II2 GD / Exd IIC / Exe II / Ext D A21 / IP66 / IP67, Allowable temperature on the elastomeric sealing ring: 100 °C (ATEX), 120 °C (GOST R)

Permitted Zone and Gas Group

Suitable for use in Zone1, Zone2 and Gas Groups, IIA, IIB and IIC

Certificate

IECEX KOSHA (IECEX KOS 09.0018x), ATEX NEMKO (02ATEX 500X), GOSTR

Material

Brass / Stainless Steel

Plating Option

Brass Finish, Nickel Finish, Chrome Finish or as specified

Accessories

Lock Nut, Sealing Washer, Earth Tag, Shroud, Lead Sheath Washer, Serrated Washer, Stopping Plug, Reducer, Adaptor

Ordering Code

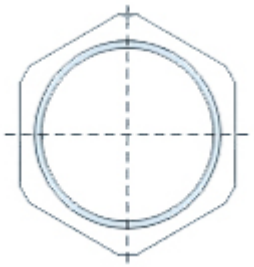
(Gland Type / Size & Entry Thread Size), e.g. E1WF 32a/M32 - 18mm

Technical Data

Part No.	Entry Thread Size		Cable Diameter		Thread Length.		Entry Hole Size		Braid Size	Hexagon Dimensions (H)	Weight	Length
	Metric	NPT	Inner "A"	Outer "B"	Metric	NPT	Metric	NPT				
E1WF-16a	M16/M20	1/2"	5 -11	8-13	15	15	17	22	0.9/1.25	H25X27	150	67
E1WF-16b	M16/M20	1/2"	5 -11	12-15.1	15	15	17	22	0.9/1.25	H25X27	150	67
E1WF-20a	M20	1/2"or 3/4	8 -15.1	13-17.5	15	15or16	21	22	0.9/1.25	H31X33	235	74
E1WF-20b	M20	1/2"or 3/4	8 -15.1	16-19.5	15	15or16	21	22	0.9/1.25	H31X33	235	74
E1WF-25a	M25	3/4" or 1"	13 -19.5	17.5-22	15	16or18	26	26	1.25/1.6	H36X39	290	79
E1WF-25b	M25	3/4" or 1"	13 -19.5	21-26	15	16or18	26	26	1.25/1.6	H36X39	290	79
E1WF-32a	M32	1"or1-1/4"	17.5 -26	22-28	15	18or19	33	34	1.6/2.0	H45X49	490	86
E1WF-32b	M32	1"or1-1/4"	17.5 -26	27-32	15	18or19	33	34	1.6/2.0	H45X49	490	86
E1WF-40a	M40	1-1/4" or 1-1/2"	22-32	30-35	15	19 or21	41	43	1.6/2.0	H55X59	850	94
E1WF-40b	M40	1-1/4" or 1-1/2"	22-32	35.1-40	15	19 or21	41	43	1.6/2.0	H55X59	850	94
E1WF-50a	M50	1-1/2" or2"	30 -41.5	38-45	15	21or24	51	50	1.8/2.5	H68X73	1390	100
E1WF-50b	M50	1-1/2" or2"	30 -41.5	43-50	15	21or24	51	50	1.8/2.5	H68X73	1390	100
E1WF-63a	M63	2" or2-1/2"	38-54	48-53	15	24or27	64	62	1.8/2.5	H82X88	2070	108
E1WF-63b	M63	2" or2-1/2"	38-54	51-56	15	24or27	64	62	1.8/2.5	H82X88	2070	108
E1WF-63c	M63	2" or2-1/2"	38-54	55-60	15	24or27	64	62	1.8/2.5	H82X88	2070	108
E1WF-75a	M75	2-1/2"or 3"	49-66	56-62	20	27 or30	76	74	1.8/2.5	H98X106	3270	125
E1WF-75b	M75	2-1/2"or 3"	49-66	62.1-66	20	27 or30	76	74	1.8/2.5	H98X106	3270	125
E1WF-75c	M75	2-1/2"or 3"	49-66	66.1-70	20	27 or30	76	74	1.8/2.5	H98X106	3270	125
E1WF-75d	M75	2-1/2"or 3"	49-66	68-75	20	27 or30	76	74	1.8/2.5	H98X106	3270	125
E1WF-90a	M90	3" or 3 1/2"	63-77	74-83	20	30or32	91	90	1.8/3.0	H110X 120	4600	132
E1WF-90b	M90	3" or 3 1/2"	63-77	82-90	20	30or32	91	90	1.8/3.0	H110X 120	4600	132
E1WF-100a	M100	3 1/2" or4"	73.1-85	89-94	20	32	101	102	1.8/3.0	H120X 130	5500	144
E1WF-100b	M100	3 1/2" or4"	73.1-85	93-98	20	32	101	102	1.8/3.0	H120X 130	5500	144

Cable Accessries

Brass Locknuts (PGM Metric & NPT)



Application

Brass Locknuts are used for fastening glands to the gland plate they are identical material to the gland, corrosion effects are minimal.

Feathre

With ISO metric thread, the lockouts can secure the brass cable glands to a gland plate.

EMC

With ISO metric thread with cutting edges to cut through paint layers or powder coatings, for optimum contact.

Material

Brass BS 2874 CZ121 Pb3 Steel, Galvanized Aluminium Alloy (BS 1476)

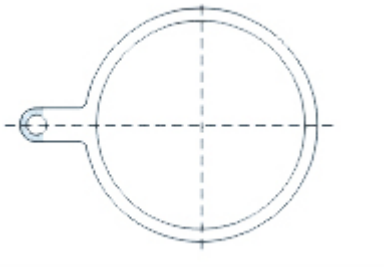
Thread Option

ET NPT BSP BSPT PG

Plating Option

Chrome; Nickel; Tin

Brass Earth Tags



Application

Installed between the gland entry & equipment, providing an earth bond connection.

Feature

Produces an earth bond connection for electrical continuity.

Material

Brass BS 2870 CZ123 lead.

Type

With Brass Screws & Washers, Plain Hole.

Plating Option

Nickel; Chrome Zinc; Tin.

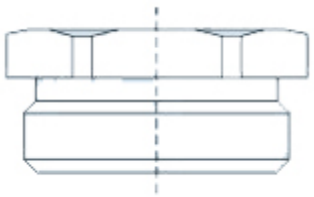
Material

Brass.

Shape

Available in many shapes & thickness in all sizes, can be coated or plated to customers specification as mentioned.

Hexagonal Reducers & Stop Plugs



Application

Reducer allows a PG threaded gland to be terminated in enclosures with different entry thread form (ET NPT BSP BSPT).

Feature

Reduce the entry thread diameter of enclosures.

Material

Brass BS 2874 CZ121 Pb3

Finish

Electro nickel plated

Thread Option

Metric (ISO) ET NPT BSP BSPT.

Plating Option

Chrome; Zinc; Tin.

Material

Brass casting BS 2874 aluminium alloy & galvanized steel.

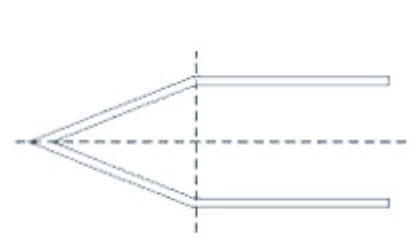
Application

Stop plug may be used to close thread entries as a means of sealing & stopping unused thread entries in flame proof enclosures.

Ingress Protection

IP66 (with Nickel Thread Seal); IP68 (3 bar-with Nitrite 'O' Rings)

PVS Shrouds



Application

Push on shrouds are used to minimize the risk of dirt or foreign substances gathering on the cable gland body, and/or point of cable to a gland interface.

Feature

For all types of gland applications to provide additional protection & enhance the IP rating of the gland termination.

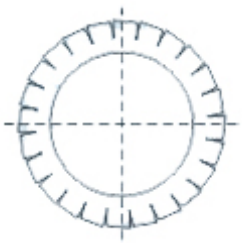
Material

PVC DIP moulded (Black)

Operating Temp

PVC DIP moulded -20 to +100 °C
Injection moulded -20 to +80 °C

Star Washer



Application

The serrated lock washer with external teeth for cable glands

Material

Available in Brass & Stainless Steel & Steel

Size

From M 20 to M 63

Seals & ‘O’ Rings

Application

To maintain the IP rating between equipment & cable glands, it may be necessary to fit an entry thread sealing washer at the gland entry interface

Material

Nitrite Rubber & EPDM

Options Material

PVC (Black); Silicon (Orange); Polyamide or Nylon (White); Red Fiber.

TECHNICAL INFORMATION

ORDERING CODE

Type A1	For unarmoured cable with an elastomer or plastic outer sheath, where the function of the gland is to secure the outer sheath of the cable.
Type A2	As type A1, but with an IP66 seal between the outer sheath and gland.
Type B	For armoured or wire braided cable, where the function of the gland is to secure the armour or metallic braid and to provide electrical continuity between such armour or braid and the threaded fixing component of the gland.
Type C	For armoured or wire braided cable with elastomeric or plastic outer sheath. As type B but with an IP66 seal between the outer sheath and gland.
Type E1	For armoured or wire braided cable with an extruded elastomeric or plastic inner sheath and elastomeric or plastic outer sheath and gland and between the inner sheath and threaded fixing component.

The suffix for each type of protection shall be as follows.

Steel wire armoured (SWA)	W
Pliable wire armoured flexible (PIA)	T
Steel wire braided (SWB)	X
Aluminium strip armoured (ASA)	Y
Double steel tape armoured (DSTA)	Z

The suffix for each type of seal shall be as follows.

Neoprene Seal*	-
Silicone Seal	SS
Neoprene/Lead Seal	N/LS
Silicone/Lead Seal	S/LS

*Default Design

The suffix for each type of brass finish shall be as follows.

No Plating*	-
Nickel Plating	NP
Chrome Plating	CP
Tin Plating	TP
Zinc Plating	ZP

*Default Design

The suffix for cable gland accessories shall be as follows.

Brass Locknut	-
Sealing Washer (Nylon)	-
Fiber Washer (optional)	FW
Lead Sheath Washer (optional)	LSW
Serated Washer (optional)	SW
Brass Earth Tag	-
Stopping Plug	SP
Reducer	R
PVC Shroud	-
PCP Shroud (optional)	PPS
LSOH Shroud (optional)	LHS

*Default Design

Type tests

Proof torque test

Test one gland of each size and type. The gland shall be clean, new and without lubricant. Screw the threaded fixing component of the gland into a suitably tapped hole in a substantial block of steel.

The thickness of the block shall be greater than the length of the thread on the component, and the hole pass right through the block.

Assemble the gland with a short piece of the appropriate kind of cable of any diameter within the range of the gland.

Tighten the gland with a manually operated torque spanner to the appropriate proof torque given in tables 1 to 6(BS 6121) ; apply the spanner first to the main body of the gland and then to each successive hexagonal component.

Dismantle the gland and examine it. Ignore any seal distortion.

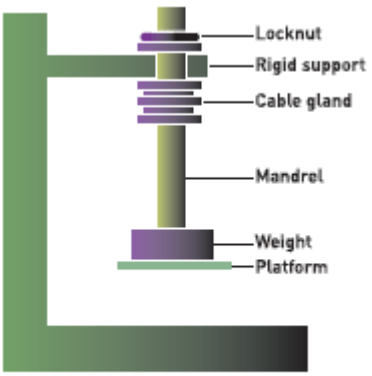


Figure1. Load test for gland

Load test for type A glands

Test one gland of each size and type. The gland shall be clean, new and without lubricant. Mount the gland as shown in figure 1. Secure a cylindrical low carbon steel mandrel, of the diameter specified in table 1(BS 6121) and any convenient length, in the gland; do this by tightening the gland with a torque spanner to a torque equal to 50% of the proof torque specified in table 1(BS 6121). The mandrel, which shall be clean, dry and polished, shall carry a platform on which weights may be placed.

Mark the mandrel so that any movement relative to the gland can easily be detected. Load the mandrel with weights until the total tensile load of the mandrel, platform and weights is in accordance with table 1(BS 6121). Maintain the load for 6 hrs. Measure at the end of this period, the distance, if any, through which the mandrel has moved relative to the gland.

Radial load test for insulated adaptors

Test one insulated adaptor of each size.

Mount the adaptor in a suitable gland plate as shown in figure 2.

Tighten a suitable gland into the adaptor to enable the radial torque to be applied. Insert into the gland a mandrel of appropriate size, ensuring that the mandrel end does not enter the adaptor. Make arrangements to suspend weights from the mandrel.

When calculating the radial torque to be applied assume that the weight of the mandrel itself acts halfway along its length. Apply the load for not less than 5 min. Finally, dismantle the assembly and inspect the insulated adaptor for signs of damage.

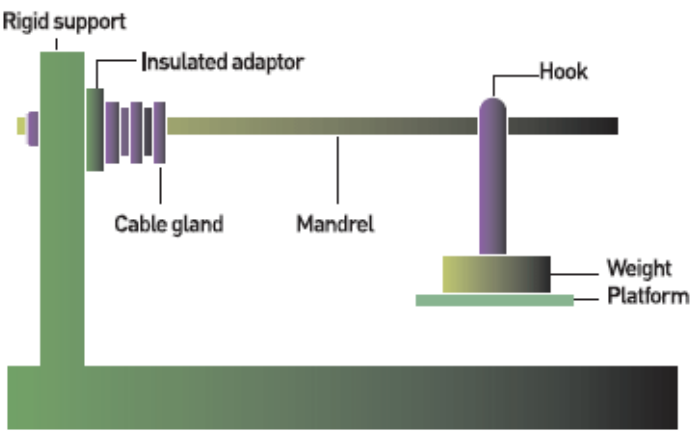


Figure2. Load test for gland

Temperature classification & gas groupings

Flammable mixtures can be classified under two main characteristics in respect of explosion protection; temperature of ignition by hot surfaces and the spark energy required to ignite the mixture. The spark energy of the ignition is also related to the intensity of the explosion. Classification of maximum surface temperatures in both North America and Europe are similar but vary slightly in the nomenclature used. The temperature classification is important to ensure that the correct equipment is matched to the flammable atmosphere that could potentially exist in an area. This will take into account such things as maximum ambient temperature and maximum operating voltage with a + 10% over voltage or an overload condition applied. In some types of protection such as Ex' d'or 'nR' the temperature classification is based on the outside temperature of the enclosure whereas in other types of protection such as Ex 'e'or 'nA'the temperature classification is based on the temperature of the internal components.

Temperature classification

(Unless otherwise specified on the rating plate it is assumed that the operating ambient temperature is in the range -20°C to +40°C in accordance with European standards) All gases are grouped according to their physical properties and details of their grouping can be found in either National or International codes of practice. Some examples of Gas Groups are shown below

Maximum surface Temperature	US(NEC 505) IEC CENELEC	US(NEC 500)
450 °C	T1	T1
300 °C		T2
280 °C	T2	T2A
260 °C		T2B
230 °C		T2C
215 °C		T2D
200 °C	T3	T3
180 °C		T3A
165 °C		T3B
160 °C	T4	T3C
135 °C		T4
120 °C		T4A
100 °C	T5	T5
85 °C	T6	T6

Gas grouping for electrical apparatus (EN 50014)

GROUP	GAS
I(Mining)	Methane(firedamp)
IIA	Industrial methane, propane, petrol & most industrial gases.
IIB	Ethylene, Town gas & other industrial gases
IIC	Hydrogen, Acetylene & Carbon Di-sulphide

Ambient Temperature

The ambient temperature is the surrounding temperature of the environment in which the equipment is installed, whether indoors or outdoors. For electrical equipment certified in Europe it is assumed that the ambient temperature in which the equipment may be operated is between -20 °C and + 40 °C. Some types of equipment are certified for operation outside this range and if so must be stated on the equipment label or certificate."

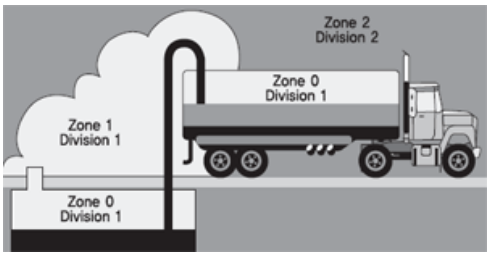
Atex directive

The ATEX directive (94/9/EC) came into force in April 1994 and was enacted into UK law in March 1996. It became a mandatory requirement in july 2003. Most of the products in this catalogue have an EC type examination certificate to the ATEX directive. ATEX covers both electrical and mechanical ignition hazards.

Apparatus are divided into equipment groups (I for mining and II non-mining), source of ignition Gas (G) and Dust (D) and Categories 1, 2 and 3. The categories provide respectively, very high, high and normal levels of protection against ignition. The categories deliver the level of protection which is currently obtained by applying the existing protection techniques (Ex 'd', Ex 'e'etc) and they also take into account other protection concepts proposed by manufacturers and considered by the notified (certification) bodies who produce EC type examination (ATEX) Certificates.

The categories in practice are equated to suitability for Zones. The actual category of apparatus specified for a Zone depends on the overall risk assessment for a Zone. The zoning considers only the probability of the existence of an explosive atmosphere. It does not consider the consequential effects of an ignition taking place. Apparatus are marked with the grouping and category in addition to the marking required by the individual protection standards.

North American Standards



Although this code change permits the use of products that have a Zonal classification, in a similar way to European practice, mixing of different forms of equipment approval across zones or divisions is not acceptable. e. g. products approved for Zone 1 do not necessarily meet the requirements of Division 1, which also encompasses Zone 0.

Although no direct equivalents exist between European/IEC and American codes of protection and Area Classification there are similarities and there is a developing acceptance of European/IEC methods in North

America and vice versa The following table shows the basic relationships between the North American and European classifications.

Equivalent Division/zone

	Flammable gas always present > 1000 hrs/year	Flammable gas normally present > 10 -1000 hrs/year	Flammable gas not normally present < 10 hrs/year
CENELEC/IEC	Zone 0 (Zone 20 dust)	Zone 1 (Zone 21 dust)	Zone 2 (Zone 22 dust)
ATEX	Category 1G Category 1D	Category 2G Category 2D	Category 3G Category 3D
US-NEC 505	Zone 0	Zone 1	Zone 2
US-NEC 500	Division 1	Division 1	Division 2

As can be seen from the table above, Division I covers both the European/IEC Zones 0 & 1. Therefore, care must be taken when using zone classified equipment in a Division1 area as to the suitability of the protection employed.

Underwriters' Labortory (UL) and Factory Mutual Inc(FM) are two main certification bodies in North America and in some cases, electrical equipment may also need to meet certain Marine Standards, and be separately approved by the US Coast Guards, before it can be used e. g. on an offshore oil rig.

Protection concepts

Method of Protection	Symbol	Permitted Zone	ATEX Category	CENELEC Standard	IEC Standard	Protection Principle
Flameproof	Ex d	1 & 2	2 & 3	EN50018	79-1	Contain the explosion and prevent ransmission
Enclosed Break	Ex nC	2	3	EN50021	79-15	
Powder Filled	Ex q	1 & 2	2 & 3	EN50017	79-5	
Increased Safety	Ex e	1 & 2	2 & 3	EN50019	79-7	No Arcs, sparks of hot surfaces or components
Non Sparking	Ex nA	2	3	EN50021	79-15	
Intrinsic Safety	Ex ia	0,1 & 2	1,2 & 3	EN50020	79-11	Limit energy of sparks and limit temperature of hot surfaces or components
	Ex ib	1 & 2	2 & 3	EN50020	79-11	
Energy Limitation	Ex nL	2	3	EN50021	79-15	
Pressurised	Ex p	1 & 2	2 & 3	EN50016	79-2	Prevent flammable gas coming into contact with hot surfaces and ignition capable equipment
Encapsulation	Ex m	1 & 2	2 & 3	EN50028	79-18	
Oil Immersion	Ex o	1 & 2	2 & 3	EN50015	79-6	
Restricted Breathing	Ex nR	2	3	EN50021	79-15	
Special	Ex s	0,1 & 2	1,2 & 3	EHSR		Any proven method

Ingress Protection

A major secondary protection parameter is the ingress protection of the electrical equipment. Moisture or dust if allowed to come into contact with electrical circuits could lead to either sparking or physical breakdown of the components and interfere with the protection method being used. In some cases the IP ratings for products in this catalogue have been carried out in accordance with EN 60529 (IEC 529) and have been witness tested by independent test laboratories. It will be noted that some products have both IP66 and IP67 ratings and this is because in some instances the IP66 requirment is more onerous than the IP67 requirement. Both the SX range and BPG range have also been tested to the Shell/ERA deluge specification. This is one of the most onerous water ingress tests and we designed specifically for electrical equipment which would be subject to deluge conditions, e.g. Ships decks, fire deluge areas. The following table shows the criterion for IP requirement to EN 60529 (IEC 529)

First Digit	Degree of Protection		Second Digit	Degree of Protection	
0		No protection	0		No protection
1		Protection against ingress of large solid particles	1		Protection against ingress of vertically dripping water
2		Protection against ingress of medium sized solid particles	2		Protection against ingress of water dripping at an angle of 75。to 90。
3		Protection against ingress of medium solid particles greater in thickness than 2.5mm	3		Protection against ingress of sprayed water
4		Protection against ingress of small solid foreign bodies greater in thickness than 1mm	4		Protection against ingress of splashed water
5		Protection against ingress of dust in an amount sufficient to interfere with enclosed quipment.	5		Protection against ingress of water jets
6		Complete protection against ingress of dust.	6		Protection against ingress ofwater in heavy water
			7		Protection against effects of temporary immersion
			8		Protection against effects of indefinite immersion

IEC introduction

The IECEx is a single global certification framework to facilitate international trade in equipment and services for use in explosive atmosphere based on the IEC (International Electrotechnical Commission)'s international standard while maintaining the required level of safety :

* Reduced testing and certification costs to manufacturer
* Reduced time to market
* International confidence in the product assessment process
* One international database listing

The goal is to help manufacturers reduce costs and time while developing and maintaining uniform product evaluation to protect users against products that are not in line with the required level of safety. So it should help industry to open up new markets from different conformity assessment criteria in various countries.The aim of the IECEx Scheme and its programs is to ease international trade of explosion protected equipment (termed Ex equipment) by eliminating the need for duplication of testing and certification while preserving safety.

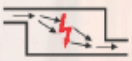
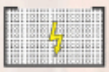
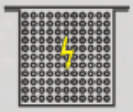
IECEx accepts the participation of Ex certification bodies and Ex test laboratories only after successful completion for the IECEx Assessment Process which also includes on-going surveillance each Ex candidate certification body and testing laboratory are subjected to the same IECEx assessment process utilizing the internationally established ISO/IEC standards and guides on conformity assessment supplemented with the IECEx technical guidance documents with world experts in the field of explosion-protection being appointed as IECEx Assessors.

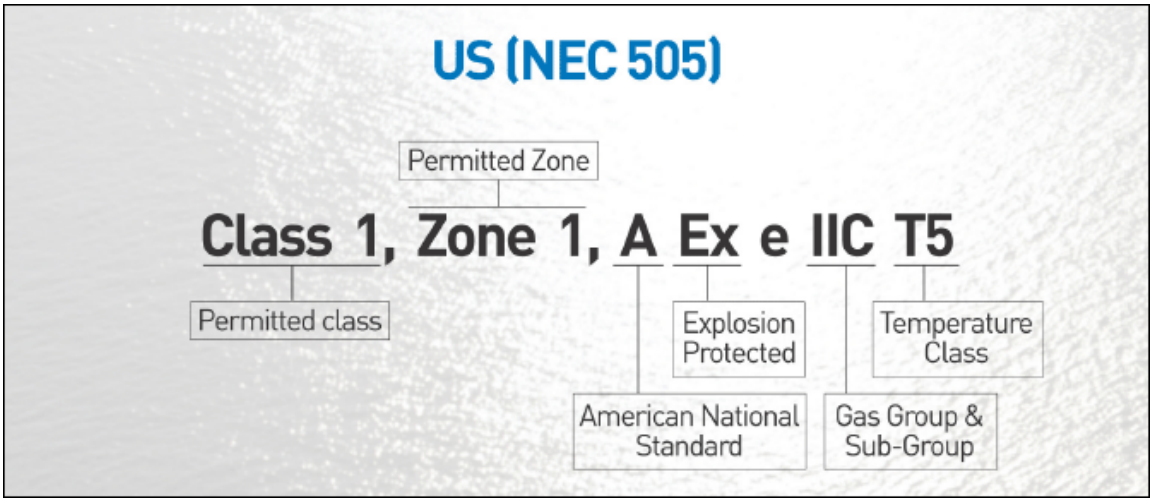
Marking of certification for explosion-proof electrical apparatus

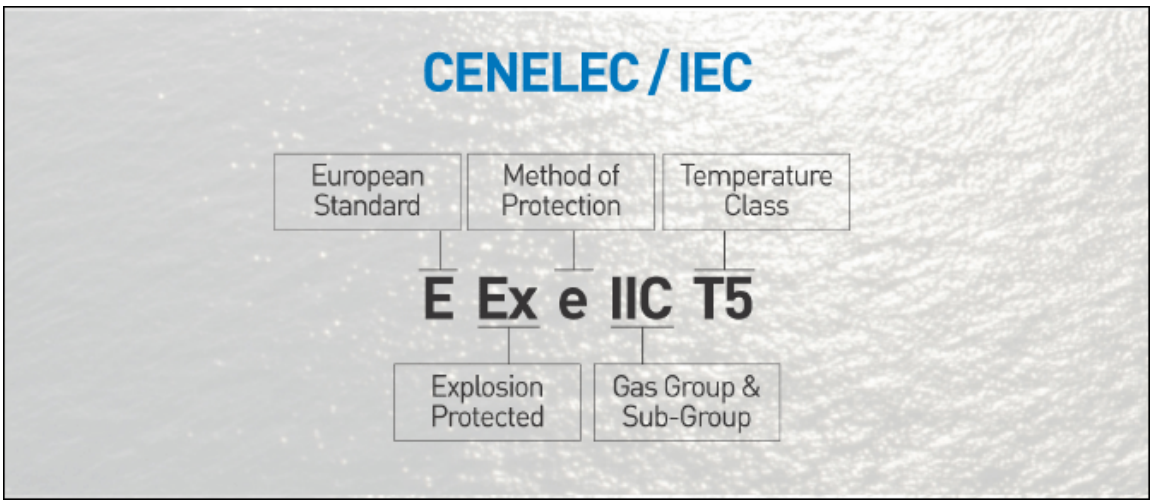
IEC (Marking : Ex d IIB T4)

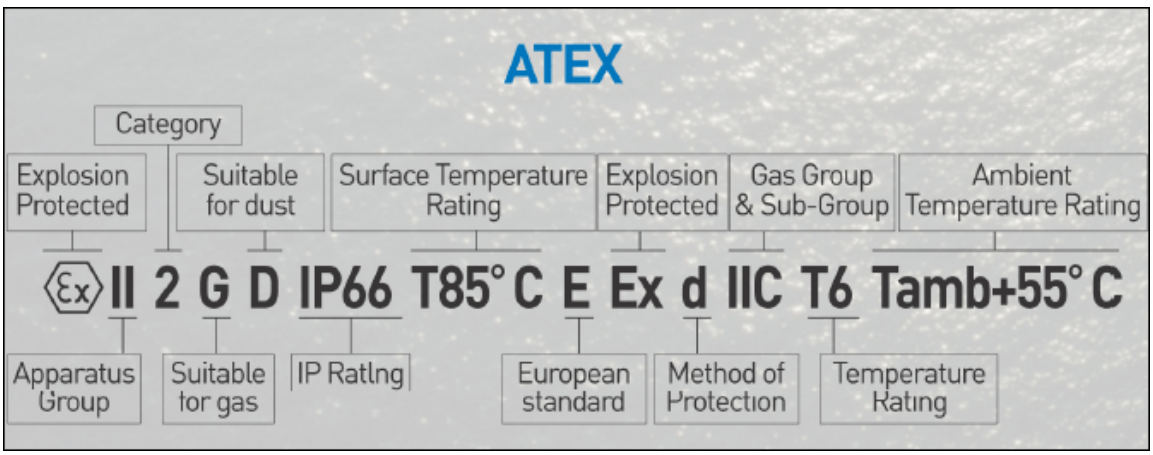
(EEx d IIB T4 : CENELEC Standard / Class, Zone 1, AEx d IIB T4 : American Standard (NEC 505)

Type of Enclosure

Type of Enclosure	Basic Principle	Schematic	IEC Standard
Flameproof Enclosure d	A type of protection of electrical apparatus in which the enclosure will withstand an internal explosion of a flammable mixture which has penetrated into the interior, without suffering damage and without causing ignition, through any joints or structural openings in the enclosure, of an external explosive atmosphere consisting of one or more the gases or vapours for which it is designed.		IEC 60079-1
Pressurized Enclosure P	A type of protection in which the entry of a surrounding atmosphere into the enclosure of the electrical apparatus is prevented by maintaining inside the said enclosure a protective gas at a higher pressure than that of the surrounding atmosphere.		IEC 60079-2
Powder Filling q	A type of protection in which the enclosure of electrical apparatus is filled with a material in a finely granulated state so that, in the intended conditions of service, any arc occuring within the enclosure of an electrical apparatus will not ignite the surrounding atmosphere.		IEC 60079-5
Oil Immersion o	A type of protection in which the electrical apparatus or parts of the electrical apparatus are immersed in oil in such a way that an explosive atmosphere, which may be above the oil or outside the enclosure cannot be ignited.		IEC 60079-6
Increased Safety e	A type of protection applied to electrical apparatus that does not produce arcs or sparks in normal service, in which additional measures are applied so as to give increased security against the possibility of excessive temperatures and of the occurrence of arcs and sparks.		IEC 60079-7
Intrinsic Safety i	A type of protection in which the electrical apparatus contains intrinsically safe circuits, which are incapable of causing an explosion in the surrounding atmosphere.		IEC 60079-11
Non-Sparking Structure n	A type of protection where electrical equipment, in normal operation, is not capable of igniting a surrounding explosive gas atmosphere and a fault capable of causing ignition is not likely to occur.		IEC 60079-15
Encapsulation m	A type of protection in which the parts which can ignite an explosive atmosphere are enclosed in a resin sufficiently resistant to environmental influences in such a way that this explosive atmosphere cannot be ignited by either sparking or heating, which may occur within the encapsulation.		IEC 60079-18
Dust Ignition Protection DIP	An enclosure that will exclude ignitable amounts of dusts that might affect perfomance or rating and that, when installed and protected in accordance with the original design intent, will not permit arcs, sparks, or heats otherwise generated or liberated inside the enclosure to cause ignition of exterior accumulations or atmospheric suspensions of a specified dust.		


US (NEC 505)
Permitted Zone
Class 1, Zone 1, A Ex e IIC T5
Permitted class
Explosion Protected
Temperature Class
American National Standard
Gas Group & Sub-Group


CENELEC / IEC
European Standard
Method of Protection
Temperature Class
E Ex e IIC T5
Explosion Protected
Gas Group & Sub-Group


ATEX
Category
Explosion Protected
Suitable for dust
Surface Temperature Rating
Explosion Protected
Gas Group & Sub-Group
Ambient Temperature Rating
II 2 G D IP66 T85°C E Ex d IIC T6 Tamb+55°C
Apparatus Group
Suitable for gas
IP Ratlng
European standard
Method of Protection
Temperature Rating

Cable gland selection guidelines

There are many factors to consider when selecting cable glands for industrial installations. Neglecting to pay due attention to some of these factors may cause unnecessary anxiety at a future point in time when the equiment and cable have either been forgotten to be ordered or it is discovered that they are the incorrect type or size at the very point when they are needed the most.

Good advice would be to allocate some value added planning and preparation time to the subject of cable gland selection so as to avoid the great inconvenience which is likely to occur at a critical point in time. In the event that a user or contractor is in possession of a cable schedule that requires a cable gland selection and sizing process to be carried out, Caledonian would be more than happy to assist in carrying out this process at no cost to the enquirer. Please contact Caledonian for further information on this subject.

Here is a summary of some aspects to carefully consider when selecting cable glands.

- Identify the type of cable to be used.
- Check the construction, size & material properties of the cable.

When the cable is armoured, verify the following

- Check the type and material of the cable armour
- Check the short circuit fault current rating of the cable armour
- Check the actual diameter of the inner bedding(where present) against this catalogue.
- Check the actual diameter of the lead covering(where present) against this catalogue.
- Check the actual size of the overall cable cable diameter against this catalogue.
- Check the size and type of armour or braid against this catalogue.
- Check any special environmental requirements in relation to corrosion protection.
- Check the material of the mating electrical enclosures to eliminate dissimiar metals.
- Consider whether any protective plating is required to be applied to the cable gland.
- Check the type and size of the cable entry hole in the mating electrical equipment.
- Check the ingress protection rating of the electrical equipment or site standard.
- Check whether a single seal or double seal cable gland is required.
- Check whether an entry thread seal is required for IP66(or IP67/68) conditions.
- Check whether fixing accessories such as lock nuts and serrated washers are required.
- Check whether earth tags are required.
- Check whether shrouds are required.
- Select a corresponding cable gland type from this catalogue.
- For installation in hazardous areas, special considerations should be taken into account to ensure compliance

with national or make the installation.

- Select corresponding adaptors or reducers from this catalogue.
- Check whether any stopping plugs are required to close unused cable entries.
- Select corresponding stopping plugs from this catalogue.

CALEDONIAN

Unit B 22/F CMA Building
64-66 Connaught Road Central
Hong Kong
Tel: 852-36527508
Fax: 852-35834834
Email: hk@caledonian-cable.co.uk