

EFP

Amphenol
Energy Technologies

HOW TO ORDER



EFP Series

The EFP series has a similar modular design to the HDS series but is designed and certified for use in hazardous locations such as drilling rigs and oil refineries. The hardware is precision machined from aircraft-grade aluminum and hard anodic coated. 'Through-shell' conductivity is standard. Reversible inserts are a 'one-piece' design with wire sealing and a 'cork and bottle' interface, giving advanced moisture sealing for each contact pair. Single-pin through to 143 ways are available with service duty from control up to 1135 amps and 1000V AC or DC. Glands are available for unarmored or armored and sheathed cables.

Applicable Standards

CSA C22.2 No. 182.3-1987, CSA C22.2 No. 30-1986, CSA C22.2 No. 60079-0 – 2007, CSA C22.2 No. 60079-1 – 2007, UL 1977 2nd edition, ISA/ANSI 60079-0 -2009, ISA/ANSI 60079-1-2009
UL1203 4th edition, IEC 6007-0, IEC 60079-1

Certification

- North America (NEC 500/505) #LR1049-2R6
- Class I, Div 2 Gr ABCD, T5-T6, Ex d IIC, T5-T6
- Class I Zone 1, AEx db IIC T5-T6, Ex d IIC, T5-T6
- ATEX Certificate #CML 17ATEX1297X
- Ex db eb IIC T5 or T6 Gb (Zone 1 / 2)
- IECEx Certificate #QPS_12.0002X
- EX d IIC T5 or T6 Gb (Zone 1 / 2)
- IP68 Ingress Protection



**Hazardous
Area**

EFP

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HOW TO ORDER

BLANK : ALUMINUM

S STAINLESS STEEL

B BRASS

Hardware Options

- 1 ENCLOSURE*
- 2 MECHANICAL CLAMP*
- 3 EExd GLAND
- 4 BASKET WEAVE*
- 5 COMPRESSION NUT*
- 6 PANEL MOUNT ADAPTER FOR 13*
- 7 NPT MOUNT FOR 17*
- 8 45° JUNCTION BOX*
- 9 EZ TERM
- * POTTING REQUIRED

COLOR CODE OPTION

BK BLACK
R RED
W WHITE
BL BLUE
G GREEN
OR ORANGE
Y YELLOW

INSERT ARRANGEMENT (SEE CATALOG)

CONTACT

F FEMALE
M MALE

INSERT ORIENTATION - OMIT FOR NORMAL ALT SEE CATALOG

TERMINATION STYLE

S SOLDER
R PRESSURE PAD
- OMIT FOR CRIMP

SHELL SIZE

12
16
20, C20
24, C24
28, C28

AR FOR ARMORED CABLE
BLANK FOR NON ARMORED

GROMMET (SEE CHART)
CABLE GLAND (SEE CHART)

Shell Style

13 PLUG
15 INLINE RCPT
17 PANEL MOUNT RCPT

EFP	S	-	13	-	3	-	B2	-	AR	-	12	-	1216	F	R	01	-	BK
	1		2		3		4				5		6	7	8	9		10

Product
Series

HOW TO ORDER

EEx d Cable Gland Selections Chart

EEx d Cable Gland Size Code	Unarmored Cable No deviation if Unarmored		Armored & Sheathed Cable				Armored & Sheathed with reduced bore	
			UA		Standard		OD-Reduced	
	Min	Max	Min	Max	Min	Max	Min	Max
A1	.1575 (4.0)	.3307 (8.4)	.1339 (3.4)	.3307 (8.4)	.3543 (9.0)	.5315 (13.5)	.2638 (6.7)	.4055 (10.3)
A2	.2835 (7.2)	.4606 (11.7)	.2835 (7.2)	.4606 (11.7)	.4528 (11.5)	.6299 (16.0)	.3701 (9.4)	.4921 (12.5)
A	.3780 (9.6)	.5512 (14.0)	.3701 (9.4)	.5512 (14.0)	.6102 (15.5)	.8307 (21.1)	.4724 (12.0)	.6929 (17.6)
B	.5315 (13.5)	.7874 (20.0)	.5315 (13.5)	.7874 (20.0)	.7992 (20.3)	1.079 (27.4)	.6614 (16.8)	.9409 (23.9)
C	.7677 (19.5)	1.035 (26.3)	.7677 (19.5)	1.035 (26.3)	1.051 (26.7)	1.339 (34.0)	.9134 (23.2)	1.201 (30.5)
C2	.9055 (23.0)	1.268 (32.2)	.9055 (23.0)	1.268 (32.2)	1.299 (33.0)	1.598 (40.6)	1.126 (28.6)	1.425 (36.2)
D	1.110 (28.2)	1.504 (38.2)	1.106 (28.1)	1.504 (38.2)	1.551 (39.4)	1.839 (46.7)	1.370 (34.8)	1.669 (42.4)
D2	1.307 (33.2)	1.736 (44.1)	1.303 (33.1)	1.736 (44.1)	1.799 (45.7)	2.094 (53.2)	1.618 (41.1)	1.909 (48.5)
E	1.547 (39.3)	1.972 (50.1)	1.543 (39.2)	1.969 (50.0)	2.051 (52.1)	2.343 (59.5)	1.870 (47.5)	2.157 (54.8)
E2	1.839 (46.7)	2.205 (56.0)	1.839 (46.7)	2.205 (56.0)	2.299 (58.4)	2.591 (65.8)	2.118 (53.8)	2.409 (61.2)
F	2.059 (52.3)	2.441 (62.0)	2.051 (52.1)	2.441 (62.0)	2.551 (64.8)	2.843 (72.2)	2.370 (60.2)	2.677 (68.0)
F2	2.287 (58.1)	2.677 (68.0)	2.283 (58.0)	2.677 (68.0)	2.799 (71.1)	3.071 (78.0)	2.618 (66.5)	2.890 (73.4)
G	2.453 (62.3)	2.835 (72.0)	2.449 (62.2)	2.835 (72.0)	3.031 (77.0)	3.307 (84.0)	—	—

Grommet size chart:



OIL-RESISTANT RUBBER GROMMETS—SYMBOL NUMBERS OF SIZES AVAILABLE

Cable Dia.	Shell 12	Shell 16	Shells 20 & C20	Shells 24 & C24	Shells 28 & C28	Cable Dia.	Shell 12	Shell 16	Shell 20 & C20	Shells 24 & C24	Shells 28 & C28
.062 to .125	02	—	—	—	—	1.500 to 1.625	—	—	26	26	26
.125 to .250	04	—	—	—	—	1.625 to 1.750	—	—	28	28	28
.250 to .375	06	06	—	—	—	1.750 to 1.875	—	—	30	30	30
.375 to .500	08	08	—	—	—	1.875 to 1.937	—	—	31	—	—
.500 to .625	10	10	10	—	—	1.875 to 2.000	—	—	—	32	32
.625 to .750	12	12	12	—	—	2.000 to 2.125	—	—	—	34	34
.750 to .875	14	14	14	—	—	2.125 to 2.250	—	—	—	36	36
.875 to .937	15	—	—	—	—	2.250 to 2.375	—	—	—	38	38
.875 to 1.000	—	16	16	16	—	2.375 to 2.437	—	—	—	39	—
1.000 to 1.125	—	18	18	18	—	2.437 to 2.500	—	—	—	—	40
1.125 to 1.250	—	20	20	20	—	2.500 to 2.625	—	—	—	—	42
1.250 to 1.375	—	22	22	22	—	2.625 to 2.750	—	—	—	—	44
1.375 to 1.437	—	23	—	—	—	2.750 to 2.875	—	—	—	—	46
1.375 to 1.500	—	—	24	24	24						

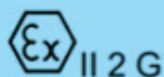
HOW TO ORDER

Connector Marking for the different styles:

EFP-13-2-XX, EFP-13-3-XX,
EFP-13-4, EFP-13-5-XX,

EFP-15-2-XX, EFP-15-3-XX, EFP-15-4-XX,
EFP-15-5-XX,

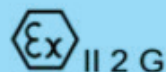
EFP-17-2-XX, EFP-17-3-XX, EFP-17-4-XX,
EFP-17-5-XX



Ex db IIC T5 or T6 Gb

Ta = -55/-40°C to +40/+50/+60°C

EFP-17-1-XX and 17-8-XX



Ex db eb IIC T5 or T6 Gb

Ta = -55/-40°C to +40/+50/+60°C

The temperature class and ambient temperature can be varied based on the maximum wattage in the connector. The maximum wattage is determined from the maximum current and resistance values of the conductors used in the connector using Ohm's law and industry standards for resistive values of the conductors.

The temperature class must be specified at the moment of ordering.

Connector	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
12	23.8	31.7	17	24.3	10.7	18.7
16	39.6	52.8	30.2	43.2	14.6	25.6
20	52.1	69.4	37.2	53.1	17.1	29.8
24	64.3	85.1	47	67.1	24.1	42.1
28	79.5	106.1	57.3	81.8	29.8	52.2

Note: The ambient temperature can be extended down to -55°C when potted.

PRODUCT CERTIFICATIONS



Cert. No. IECEX QPS 12.0002X



Cert. No. CML 17ATEX1297X Issue 3



Cert. No. LR1049-2R6



**Hazardous
Area**



Flameproof Barrier Joint

A component carrier joint provides a flameproof method of protection with a low temperature rating of -55°C.



EX Series Cable Glands

A2 Series cable glands are the perfect cable gland for the termination of offshore-type cable. A straightforward design and good quality workmanship allow EEC to offer this gland for assembly onto cable-mounted receptacles for protection classes Eex d and Eex e.

HAZARDOUS CERTIFICATION INFORMATION



Hazardous Area Equipment Mark

Markings for IECEX / ATEX / NEC 500/505

IECEX

Explosion protection

Protection method

Gas Group

Temperature Class

Equipment

Protection Level

EX

db

IIC

T5 or T6

GB

Ingress Protection (IP) Ratings

Protection Against Solid Bodies		Protection Against Liquids	
0	No Protection	0	No Protection
1	Objects Greater than 50mm	1	Vertically Dripping Water
2	Objects Greater than 12mm	2	75 to 90 Dripping Water
3	Objects Greater than 2.5mm	3	Sprayed Water
4	Objects Greater than 1mm	4	Splashed Water
5	Dust-Protected	5	Water Jets
6	Dust-Tight	6	Heavy Seas
		7	Temporary Immersion
		8	Indefinite Immersion



Temperature Ratings

Surface Temperature	UEC, EU (EUROPE) USA (NEC 505) CANADA
450° C (842° F)	T1
300° C (572° F)	T2
200° C (392° F)	T3
135° C (275° F)	T4
100° C (212° F)	T5
85° C (185° F)	T6

HAZARDOUS CERTIFICATION INFORMATION



Atmosphere Groups

Substance	Hazard Class	Division Groups	Zone Groups
Acetylene	Class I Flammable Gases	Group A	IIC
Hydrogen		Group B	IIB + H2
Ethylene		Group C	IIB
Propane		Group D	IIA
Methane		Group D	IIA ⁶
Combustible Metal Dusts	Class II Combustible Dusts	Group E ⁵	IIIC
Combustible Carbonaceous Dusts		Group F	IIIB
Combustible Dust not in Group E or F (Flour, Grain, Wood, Plastics, Chemicals)		Group G	IIIB
Combustible Fibers and Flyings	Class III Fibers and Flyings	Not Applicable	IIIA

Note 5: Group E is applicable to Class II Division 1 only

Note 6: Methane is a group IIA Gas for non-mining applications

Other Useful Standards

Standard Types	IEC Standards	US & CA standards
Area Classification - Gases, Vapors and Mists	IEC 60079-10-1	NFPA 497
Area Classification - Combustible Dusts, Fibers, Flyings	IEC 60079-10-2	NFPA 499
Electrical Equipment Installation	IEC 60079-14	NFPA 70 [NEC]/CSA C22.1 [CEC]
Electrical Equipment Inspection and Maintenance	IEC 60079-17	NFPA 70B
Electrical Equipment Repair and Overhaul	IEC 60079-19	-
Material Characteristics for Gas and Vapor Classification	ISO/IEC 80079-20-1	NFPA 497
Material Characteristics for Dust Classification	ISO/IEC 80079-20-2	NFPA 499
Application of Quality Systems for Equipment Manufacture	ISO/IEC 80079-34	-
Quality Management Systems	ISO 9001	ISO 9001



Classification of Divisions and Zones

Hazard Level	Division Scheme	Zone Scheme Gas/Dust	Type of Explosive Atmosphere
Continuous Hazard	Division 1	Zone 0 / Zone 20	Continually present
Intermittent Hazard		Zone 1 / Zone 21 [†]	Likely to occur during normal operations
Hazard Under Abnormal Conditions	Division 2	Zone 2 / Zone 22	Not likely to occur during normal operations, but may occur for short periods

[†] Note: Zone 1 and Zone 21 products are not suitable for use in Division 1 areas.