Technor

Explosion proof Connectors

Pyle National Starline EX

Features Pyle Star-Line

- Technor is an approved distributor of the Starline Ex product's.
- Heavy duty, environmental cylindrical for high power applications with harsh/potentially explosive environments. Rugged, double lead threaded, EX designations.
- Mass Transportation.
- Petro-chemical.
- Off-shore oil drilling.
- Automotive paint booths.
- Aircraft Refueling Pits.
- Pharmaceutical Mfg. Equip.
- ATEX approved.

Technor as, Dusavikv. 39, P.O. Box 658, NO-4003 Stavanger, Norway
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Spesifications

Performance environment/Electrical

- Operating temperature from -65ºC to +257ºC
- IP68 rating for environmental sealing
- Hard anodic coating provides dielectric strength with heat and corrosion resistance.
- Up to high amperage of 1420 Amps at 1000VAC or DC rating available.

Contact termination

Solder, crimp and pressure terminals.
Circuit braking power and control types.

Standards/Requirements.

Hybrid form of the Star-Line series with higher temperature ranges.

Cenelec Certified for use in Zone 1-IIc hazardous environment.

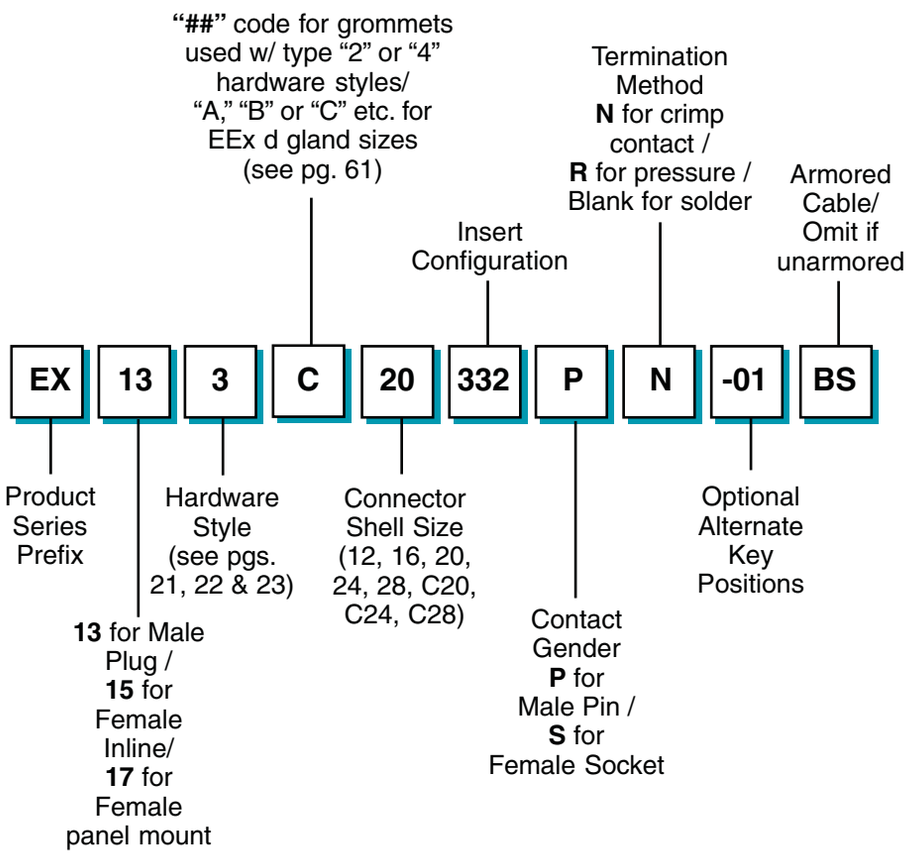
Certificate SIRA03ATEX1101X
Ex II 2 GD
EEx d IIC T6
EEx de IIC T6

Coupling / mounting

Double lead Acme threads provide complete coupling in one turn of the coupling nut, and do not clog under adverse weather conditions.

Large wiring space provided in cable housings and conduit fitting bodies.

Code Logic Starline EX



Example: EX-13-3-C-20-332PN
Male Plug with EEX gland for a cable with 0.95"/24.1mm O.D.,
20ea #12/4.0mm male contacts

EX-15-4-1620-332SN
Female Inline with basket weave grip for a cable with 0.95"/24.1mm O.D.,
20ea #12/4.0mm female contacts

EX-17-1-20-332SN
Female Panel Mount. 20ea #12/4.0mm female contacts.

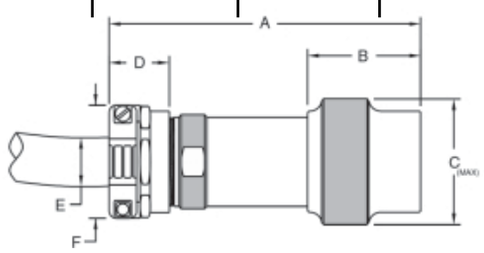
EX-13-3-C-16-22PR-BS
Male Plug with EEX gland for an armored cable with
1.25"/31.75mm O.D. 4ea #4/25.0mm male contacts

EX-17-3-C-16-22SR-BS
Female Panel Mount with cable adapter with
and EEX gland for an armored cable to match above.

Hardware

Plug with Mechanical Clamp — EX-13-2 Style

Dimension Shell	A	B	C	D	E	F	G
12	8-3/4 (222.3)	1-3/4 (44.5)	1-1/2 (38.1)	2 (50.8)	15/16 (23.8)	2-3/8 (60.3)	N/A
16	8-13/16 (223.8)	1-3/4 (44.5)	2 (50.8)	2-1/16 (52.4)	1-7/16 (36.5)	3 (76.2)	N/A
20	8-7/8 (225.4)	1-3/4 (44.5)	2-1/2 (63.5)	2-1/8 (54.0)	1-15/16 (49.2)	3-3/4 (95.3)	N/A
24	8-15/16 (227.0)	1-3/4 (44.5)	3 (76.2)	2-3/16 (55.6)	2-7/16 (61.9)	4-1/2 (114.3)	N/A
28	9 (228.6)	3 1/16 (77.8)	4 3/16 (106.4)	2 1/4 (57.2)	2-7/8 (73.0)	5-1/8 (130.2)	N/A

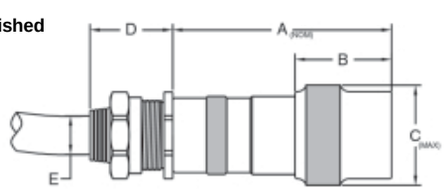


Plug with EEx d Gland — EX-13-3 Style

Note: *Dimensions "D" and "E" are controlled by the gland manufacturer, gland is included with the connector.*
POTTING IS NOT REQUIRED

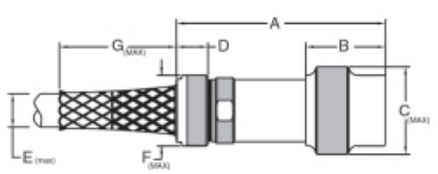
Dimension Shell	A	B	C*	D**	E	F	G
12	7-5/8 (193.7)	1-3/4 (44.5)	1-1/2 (38.1)	N/A	N/A	N/A	N/A
16	7-5/8 (193.7)	1-3/4 (44.5)	2 (50.8)	N/A	N/A	N/A	N/A
20	7-5/8 (193.7)	1-3/4 (44.5)	2-1/2 (63.5)	N/A	N/A	N/A	N/A
24	7-5/8 (193.7)	1-3/4 (44.5)	3 (76.2)	N/A	N/A	N/A	N/A
28	7-5/8 (193.7)	1-3/4 (44.5)	3-1/2 (88.9)	N/A	N/A	N/A	N/A

***Notes: For "C" length inserts, add 1/2" to both dimensions "A" & "B".**
****Notes: For unarmored cable a Hawke 501/421 gland is furnished.**
For armored and sheathed cables a Hawke 501/453 gland is furnished
(detailed cable dimensions required)



Plug with Kellems Grip — EX-13-4 Style

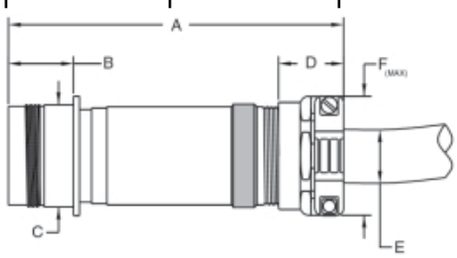
DIMENSION SHELL	A	B	C	D	E	F	G
12	7-3/8 (187.3)	1-3/4 (44.5)	1-1/2 (38.1)	1-1/4 (31.8)	15/16 (23.8)	1-1/2 (38.1)	8 (203.2)
16	7-3/8 (187.3)	1-3/4 (44.5)	2 (50.8)	1-1/4 (31.8)	1-7/16 (36.5)	2 (50.8)	10-1/2 (266.7)
20	7-3/8 (187.3)	1-3/4 (44.5)	2-1/2 (63.5)	1-1/4 (31.8)	1-15/16 (49.2)	2-1/2 (63.5)	14-1/2 (368.3)
24	7-3/8 (187.3)	1-3/4 (44.5)	3 (76.2)	1-1/4 (31.8)	2-7/16 (61.9)	3 (76.2)	17-1/2 (444.5)
28	7-3/8 (187.3)	1-3/4 (44.5)	3-1/2 (88.9)	1-1/4 (31.8)	2-7/8 (73.0)	3-1/2 (88.9)	19 (482.6)



In-line Receptacle with Mechanical Clamp

EX-15-2 Style

Dimension Shell	A	B	C	D	E	F	G
12	8-3/4 (222.3)	1-3/4 (44.5)	1-1/2 (38.1)	2 (50.8)	15/16 (23.8)	2-3/8 (60.3)	N/A
16	8-13/16 (223.8)	1-3/4 (44.5)	2 (50.8)	2-1/16 (52.4)	1-7/16 (36.5)	3 (76.2)	N/A
20	8-7/8 (225.4)	1-3/4 (44.5)	2-1/2 (63.5)	2-1/8 (54.0)	1-15/16 (49.2)	3-3/4 (95.3)	N/A
24	8-15/16 (227.0)	1-3/4 (44.5)	3 (76.2)	2-3/16 (55.6)	2-7/16 (61.9)	4-1/2 (114.3)	N/A
28	9 (228.6)	1-3/4 (44.5)	3-1/2 (88.9)	2-1/4 (57.2)	2-7/8 (73.0)	5-1/8 (130.2)	N/A



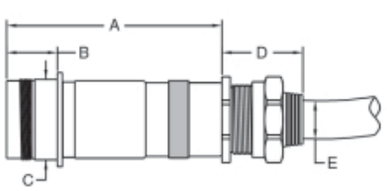
In-line Receptacle with EEx d Gland

EX-15-3 Style

POTTING IS NOT REQUIRED

Dimension Shell	A	B	C	D*	E	F	G
12	7-5/8 (193.7)	1-3/4 (44.5)	1-1/2 (38.1)	N/A	N/A	N/A	N/A
16	7-5/8 (193.7)	1-3/4 (44.5)	2 (50.8)	N/A	N/A	N/A	N/A
20	7-5/8 (193.7)	1-3/4 (44.5)	2-1/2 (63.5)	N/A	N/A	N/A	N/A
24	7-5/8 (193.7)	1-3/4 (44.5)	3 (76.2)	N/A	N/A	N/A	N/A
28	7-5/8 (193.7)	1-3/4 (44.5)	3-1/2 (88.9)	N/A	N/A	N/A	N/A

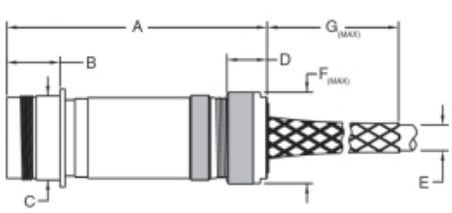
***Notes: For "C" length inserts, add 1/2" to both dimensions "A" & "B".**
****Notes: For unarmored cable, a Hawke 501/421 gland is furnished.**
For armored and sheathed cables, a Hawke 501/453 gland is furnished.
(detailed cable dimensions required)



In-line Receptacle with Kellems Grip

EX-15-4 Style

Dimension Shell	A	B	C	D	E	F	G
12	7-3/8 (187.3)	1-3/4 (44.5)	1-1/2 (38.1)	1-1/4 (31.8)	15/16 (23.8)	1-1/2 (38.1)	8 (203.2)
16	7-3/8 (187.3)	1-3/4 (44.5)	2 (50.8)	1-1/4 (31.8)	1-7/16 (36.5)	2 (50.8)	10-1/2 (266.7)
20	7-3/8 (187.3)	1-3/4 (44.5)	2-1/2 (63.5)	1-1/4 (31.8)	1-15/16 (49.2)	2-1/2 (63.5)	14-1/2 (368.3)
24	7-3/8 (187.3)	1-3/4 (44.5)	3 (76.2)	1-1/4 (31.8)	2-7/16 (61.9)	3 (76.2)	17-1/2 (444.5)
28	7-3/8 (187.3)	1-3/4 (44.5)	3-1/2 (88.9)	1-1/4 (31.8)	2-7/8 (73.0)	3-1/2 (88.9)	19 (482.6)



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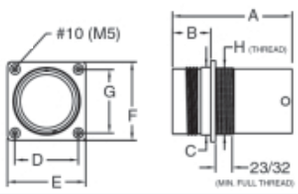
Explosion proof Connectors

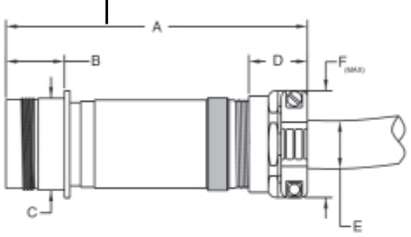
Panel Mount Receptacle (Potting Required) — EX-17-1 Style



Dimension Shell	A	B	C	D	E	H
12	4-3/4 (120.7)	1-3/4 (44.5)	1-1/2 (38.1)	1.654 (42)	2-1/4 (57.2)	M40
16	4-3/4 (120.7)	1-3/4 (44.5)	2 (50.8)	2.047 (52)	2-5/8 (66.7)	M50
20	4-3/4 (120.7)	1-3/4 (44.5)	2-1/2 (63.5)	2.441 (62)	3 (76.2)	M63
24	4-3/4 (120.7)	1-3/4 (44.5)	3 (76.2)	2.835 (72)	3-1/2 (88.9)	M75
28	4-3/4 (120.7)	1-3/4 (44.5)	3-1/2 (88.9)	3.228 (82)	4 (101.6)	M90

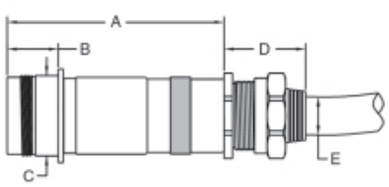
Fixed In-line Receptacle with Mechanical Clamp — EX-17-2 Style

Dimension Shell	A	B	C	D	E	F
12	8-3/4 (222.3)	1-3/4 (44.5)	1-1/2 (38.1)	2 (50.8)	5/16 (23.8)	2-3/8 (60.3)
16	8-13/16 (223.8)	1-3/4 (44.5)	2 (50.8)	2-1/16 (52.4)	1-7/16 (36.5)	3 (76.2)
20	8-7/8 (225.4)	1-3/4 (44.5)	2-1/2 (63.5)	2-1/8 (54.0)	1-15/16 (49.2)	3-3/4 (95.3)
24	8-15/16 (227.0)	1-3/4 (44.5)	3 (76.2)	2-3/16 (55.6)	2-7/16 (61.9)	4-1/2 (114.3)
28	9 (228.6)	1-3/4 (44.5)	3-1/2 (88.9)	2-1/4 (57.2)		



Fixed In-line Receptacle with EEx d Gland — EX-17-3 Style

Dimension Shell	A	B	C
12	7-5/8 (193.7)	1-3/4 (44.5)	1-1/2 (38.1)
16	7-5/8 (193.7)	1-3/4 (44.5)	2 (50.8)
20	7-5/8 (193.7)	1-3/4 (44.5)	2-1/2 (63.5)
24	7-5/8 (193.7)	1-3/4 (44.5)	3 (76.2)
28	7-5/8 (193.7)	1-3/4 (44.5)	3-1/2 (88.9)

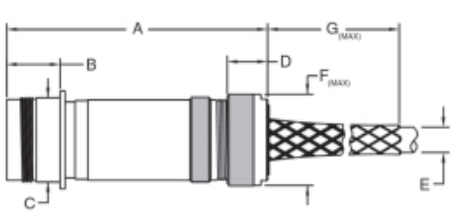


***Notes:** For "C" length inserts, add 1/2" to both dimensions "A" & "B".

****Notes:** For unarmored cable a Hawke 501/421 gland is furnished. For armored and sheathed cables a Hawke 501/453 gland is furnished ***(detailed cable dimensions required)***

Fixed In-line Receptacle with Kellems Grip — EX-17-4 Style

Dimension Shell	A	B	C	D	E	F	G
12	7-3/8 (187.3)	1-3/4 (44.5)	1-1/2 (38.1)	1-1/4 (31.8)	15/16 (23.8)	1-1/2 (38.1)	8 (203.2)
16	7-3/8 (187.3)	1-3/4 (44.5)	2 (50.8)	1-1/4 (31.8)	1-7/16 (36.5)	2 (50.8)	10-1/2 (266.7)
20	7-3/8 (187.3)	1-3/4 (44.5)	2-1/2 (63.5)	1-1/4 (31.8)	1-15/16 (49.2)	2-1/2 (63.5)	14-1/2 (368.3)
24	7-3/8 (187.3)	1-3/4 (44.5)	3 (76.2)	1-1/4 (31.8)	2-7/16 (61.9)	3 (76.2)	17-1/2 (444.5)
28	7-3/8 (187.3)	1-3/4 (44.5)	3-1/2 (88.9)	1-1/4 (31.8)	2-7/8 (73.0)	3-1/2 (88.9)	19 (482.6)



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Explosion proof Connectors

Environmental Highlights

PROPERTY	MIL-C-5015 REQUIREMENTS CLASSES A, B, E J & R	STAR-LINE, STAR-LOK CONNECTORS
TEMPERATURE	-67° F to 225° F	Temperature Classes A, B, E, J and R can withstand 257° F continuously. For short duration high-temperature life, consult factory.
PRESSURE	No requirement	300 PSI external (coupled connectors) 200 PSI internal (with pin and socket inserts)
AIR LEAKAGE	1 cubic inch/ hour maximum	Exceeds Classes E and R specifications
HUMIDITY AND MOISTURE RESISTANCE	1 1/2 times A.C. voltage rating after 14 days. Exposure to 95% relative humidity at 160° F.	Exceeds Classes E and R. MIL-C-5015 Meets MIL-STD-202B, Method 106A
CORROSIION RESISTANCE	48 Hours – Method 1001 MIL-STD-1344 No exposure of base metal.	Salt spray: 300 days – No exposure of base metal.
CHEMICAL RESISTANCE	No requirement	Oil, most acids and alkalis.
DUST RESISTANCE	No requirement	Meets MIL-STD-202B, Method 110, Condition B
SHOCK RESISTANCE	50 G minimum	Exceeds 60 G's Certain inserts available to 200 G.
VIBRATION	Method 2006 Method II MIL-STD-1344	Exceeds Method II & MIL-STD-167-1 (Ships).
TEST PROBE ABUSE	Contact size No. 16 and No. 18	Exceeds MIL-C-5015 on all contacts No. 18 through 4/0.

Why the Double-Lead Acme Thread?

The double-lead Acme thread is a moderate torque quick-coupling thread which permits complete coupling in approximately one turn of the coupling nut. In addition, there are actually two parallel threads having starting points 180 degrees apart. All of this ensures that plugs and receptacles are being mated or unmated axially. The thread contour makes it self-cleaning.

Standard double-lead Acme. Two parallel threads.

One parallel thread removed to show actual thread angle.

Wire Limitation Guide

There are restrictions to the maximum diameter of wire as they relate to the rear or wire side of the connector insert as follows.

Mod I. When wires are passed through the rigid back insulation for ease of soldering:

Wire size	Maximum diameter
#4/0	.747”
#2/0	.555”
#4	.400”
#8	.262”
#10	.201”
#12	.150”
#16	.107”
#18	.086”
Mod II & III	
#10	.248”
#12	.193”
#16	.130”
#18	.110”

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Explosion proof Connectors

Hazardous area information & terminology

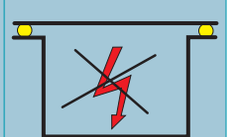
ATEX Directive

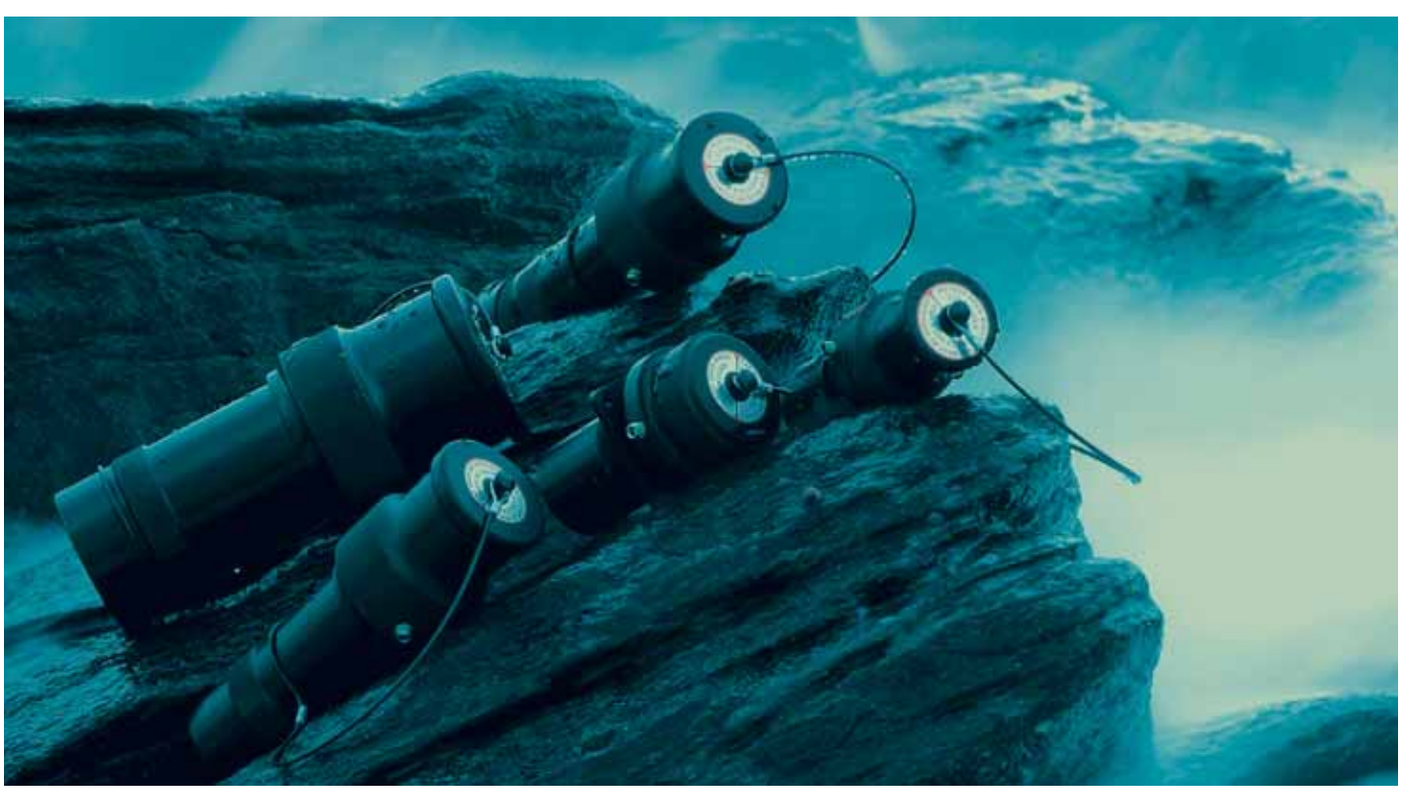
The ATEX Directive, derived from the French “AT mosphères EXplosibles” and formally known as 94/9/EC, contains the ESR (Essential Safety Requirements) to which electrical equipment and protective systems used within potentially explosive atmospheres must conform.

The new ATEX Directive currently in place within the European Union was made mandatory on 1st July 2003. Primarily intended for manufacturers of hazardous area equipment for use in the presence of flammable gases, vapours, fumes or dusts, the new directive requires a quality management system to be implemented.

Procedures for the design, manufacture and verification of products are to be approved by a notified body (i.e. DNV, NEMKO, etc.) and all equipment conforming to the new directive will feature CE and Ex Marking.

Zone Classification with the presence of GAS	
Zone 1 (Category 2)	An area in which explosive gas is likely to be present during normal operation of the plant.
Zone 2 (Category 3)	An area in which explosive gas is not continuously present, but may exist for a short period of time.

Applicable EX protection	
EEx d Protection Parts, which can ignite a potentially explosive atmosphere, are surrounded by an enclosure, which are designed to withstand the pressure of an internal explosion and to prevent the propagation of the explosion to the atmosphere surrounding the enclosure.	
EEx e Protection for electrical components that do not spark under normal working conditions but where measures are applied to prevent high temperatures and the occurence of arcs and sparks internally.	



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