

PILOT VALVE ENCLOSURES FOR HAZARDOUS LOCATIONS

GOYEN

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PRODUCT LEAFLET

3-6VFD COMBINATION FLAME AND DUST IGNITION PROOF ENCLOSURES

Goyen pilot valve enclosures for hazardous locations are available in a combination of flame proof and dust ignition proof assemblies, where 4, 5 and 6 pilot valves are available. The 3-6VFD can be supplied with combined international approvals: Canadian CSA/Underwriters Laboratory UL or European ATEX/International IECEx.

This has the advantage of simplifying assembly designs when using the Goyen enclosures.

CONSTRUCTION

Body: Diecast Aluminium AS313, LM24, A380. The ATEX/IECEx enclosure is available with optional electroless nickel plating, or optional E-coat when there is no heater fitted.

Ferrule: AISI 302 SS

Armature: 430FR SS

Seals: Nitrile

Screws: AISI 302 SS

OPERATION

Recommended on time: 50–150 ms

On time range: 50–500 ms

Recommended time between pulses:

1 minute or more, if maximum on time is used.

PILOT PERFORMANCE

Flow: 0.27 Kv/0.32 Cv

Maximum Working Pressure: 800 kPa/
116 psi

Minimum Working Pressure: 0 kPa/0 psi

SOLENOID PERFORMANCE

VOLTAGE	INRUSH CURRENT MA	HOLD CURRENT MA	POWER
220/240 50/60 Hz	148/143	105/94	23.1 V A
100/120 50/60 Hz	234/255	180/152	19.8 V A
24 V DC	873	873	20 W
24 V AC	1338	963	13 W
110 V DC	212	212	24 W

AMBIENT TEMPERATURE RANGE

ATEX/IECEx: -20°C to +55°C
(-4°F to +131°F)

UL: -25°C to +60°C
(-13°F to +140°F)

CSA: -25°C to +40°C
(-13°F to +104°F)

Fluid Media: Air or inert gas as per ambient temperatures shown above.

CERTIFICATION

CSA/UL: NEC500 Div 1, NEC505 Class I and NEC506 Class II

ATEX/IECEx: II Category 2G, II Category 2D

IP Rating: IP66

RESTRICTIONS

This product's hazardous areas certifications are valid only for product that has not been modified since leaving the factory. Modifications made to the enclosure such as the fitment of additional seals. The addition or removal of pilot valves and coils, changes in markings, or physical modifications made to the enclosure itself will invalidate the product certifications. Only activities described in 'Installation' and 'Maintenance' may be conducted without affecting the certification of the product.

MAINTENANCE

Annual maintenance of serviceable parts is recommended. Serviceable items are the pilot armature, armature spring, pilot valve body o-ring. The same model Goyen coil may also replace damaged coils. All other items are non-serviceable. Goyen recommend that appropriately qualified personnel conduct all maintenance activities. Certification of maintenance staff and facilities may be required under some certification schemes. Inappropriate service invalidates the product certifications.

PRODUCT WARNING LABELS

3-6VFD Series

CSA/UL

CAUTION: open circuit and allow 5 minutes after heater is de-energised before removing cover. Keep tightly closed when in operation

WARNING: more than one live circuit. See diagram.

ATEX/IECEx

Warning do not open whilst energised, do not open when explosive atmosphere is present. Use cables rated at 135°C when anti-condensation heater is installed. Where optional E-coat is applied to the enclosure: warning – Electrostatic hazard, clean only with damp cloth.

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GUIDE TO HAZARDOUS AREAS APPLICATION WITHIN DUST COLLECTORS

Example zones around a dust collector
The following examples assume that the particulate being collected is a combustible dust.

Note that the responsibility for correctly assessing the hazardous zones around the dust collection equipment remains with the plant operator.

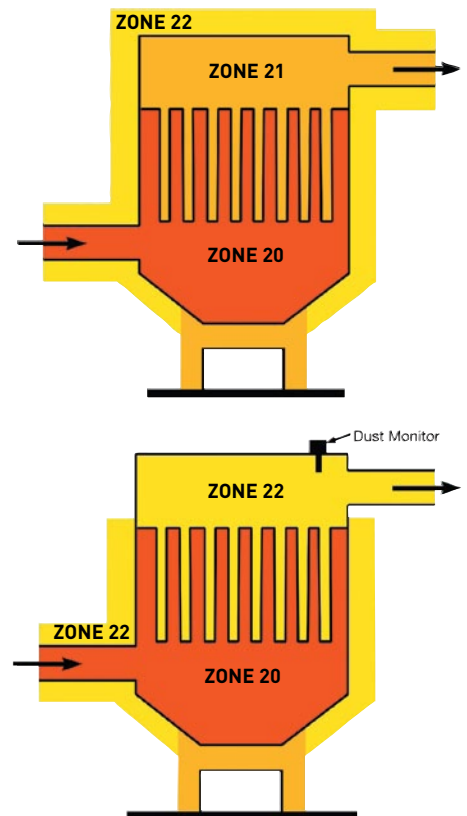
In the event of a filter breakage, dust will enter the clean side of the dust collector. The migration of dust may be in sufficient concentration to present a dust explosion risk.

Where there are no dust monitors in place on the clean side of the dust collector,

a broken bag condition may exist for more than 10 hours before rectification. Therefore the clean side is classed as Class II (NEC505) or Zone 21 (ATEX).

Goyen supplies ATEX II 2 D dust monitors to raise an alarm in the case of a filter break. In this case the clean air plenum is classified as Zone 21 if the system will be rectified within 10 hours.

The area surrounding the dust collector housing may be classified as Zone 22. If there is adequate ventilation around the dust collector the Zone 22 classification may be eliminated. The area around the dust collection point is usually classified as Zone 21.



COMPARING AREA CLASSIFICATION SCHEMES

NORTH AMERICA		EUROPE (ATEX SCHEME)			
NEC500 DIVISIONS	NEC505 & 506 CEC ZONES	GAS ZONES	DUST ZONES	EQUIPMENT CATEGORY*	GROUP**
1	1	0	20	1	II
1	1	1	21	2	II
2	2	2	22	3	II

* Under the ATEX scheme equipment categories for use in gas environments are denoted by a 'G' suffix, and equipment categories for dust environments are denoted by a 'D' suffix. Examples: Equipment category 2G is suitable for use in ATEX zone 1 areas. Equipment category 2D is suitable for use in ATEX zone 21 areas.

** Only Group II zones are shown. Group I zones are relevant to mining applications only.

HAZARDOUS ZONE DEFINITIONS

DIVISION	ZONE	HAZARDOUS AREA CHARACTERISTIC
1	0 or 20	Hazardous condition is present continuously, for long periods
1	1 or 21	Hazardous condition is likely to occur in normal operation occasionally
2	2 or 22	Hazardous condition is unlikely to occur in normal operation

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3-6VFD SERIES COMBINATION FLAME AND EXPLOSION PROOF PILOT VALVE ENCLOSURE

Diecast aluminium enclosure with explosion proof and flame proof (Ex-d) protection suitable for use in hazardous areas, available optionally with anticondensation heater.

SUITABLE FOR

NEC500 Division 1, NEC505 Zone 1, NEC506 Zone 21 and ATEX/IECEX Zone 1 and 21 (II Cat 2G and 2D equipment) hazardous environments, for piloting Goyen diaphragm valves.

SPARE PARTS

K0383 Single armature kit. Includes, spring, armature, and o-ring

G604718 DP Seal

ORDER CODE

3-6VFD - 4 - 0 - 1 - 0 - C - N - XXX

Number of pilots fitted

4=4 Pilot valves
5=5 Pilot valves
6=6 Pilot valves

Pilot thread/Enclosure entry thread *

0=NPT/NPT (UL, CSA & ATEX/IECEX Approvals)
1=RP/Metric (ATEX/IECEX Approvals)
3=NPT/Metric (ATEX/IECEX Approvals)

Nameplate

1=Goyen nameplate

Heater Type

0=None
5=24 V DC
6=100/120 V AC
7=220/240 V AC

Solenoid electrical detail

330=220/240 V AC 50/60Hz
331=100/120 V AC 50/60Hz
332=24 V AC 50/60Hz
334=110 V DC
336=24 V DC
337=12 V DC

Surface Protection

Blank=Natural finish
N=Electroless Nickel Plated
E=E-Coated

Approval type (see following page for further details)

C=CSA/UL Approval
A=ATEX/IECEX Approval
AL=ATEX/IECEX Approval (extra low temperature)

* Pilot size 1/8"
* Entry M25 or 3/4"

3-6VFD PRODUCT CERTIFICATIONS

WITH HEATER KIT FITTED	WITHOUT HEATER KIT FITTED
CSA	
File number: 026709_0_000	File number: 026709_0_000
Class I, Group D	Class I, Group D
Class II Groups E, F, G	Class II Groups E, F, G
Temp Code T2C	Temp Code T4
UL	
File number: E53107	File number: E53107
Class I, Group D	Class I, Group D
NEMA 7	NEMA 7
Class II Groups E, F, G	Class II Groups E, F, G
NEMA 9	NEMA 9
Temp Code T3C	Temp Code T3C
IECEX	
Ex d IIB T3 Gb	Ex d IIB T6 Gb
Ex tb IIIC T192°C Db IP6X	Ex tb IIIC T85°C Db IP6X
IECEX SIR 08.0045X	IECEX SIR 08.0045X
ATEX	
II 2 G D	II 2 G D
Ex d IIB T3 Gb	Ex d IIB T6 Gb
Ex tb IIIC T192°C Db IP6X	Ex tb IIIC T85°C Db IP6X
SIRA 02ATEX1408X	SIRA 02ATEX1408X

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






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





3-6VFD#C

CSA APPROVAL	UL APPROVAL
File number: 026709_0_000	File number: E53107
Class I, Group D	Class I, Group D
Class II, Group E, F, G	NEMA 7
Temperature code:	Class II, Group E, F, G
Without heater: T4	NEMA 9
With heater: T2C	Temperature code: T3C
Ta = -25°C to +40°C	Ta = -25°C to +60°C

3-6VFD#A

3-6VFD#A	ENCLOSURE WITHOUT ANTI-CONDENSATION HEATER AMBIENT TEMPERATURE RANGE			ENCLOSURE WITH ANTI-CONDENSATION HEATER AMBIENT TEMPERATURE RANGE	
	Ta = -20°C to +55°C	Ta = -40°C to +76°C	Ta = -40°C to +82°C	Ta = -20°C to +55°C	Ta = -40°C to +55°C
Gas Protection	 Ex d IIB T6 Gb		 Ex d IIB T5 Gb	 Ex d IIB T3 Gb	
Dust Protection	 Ex tb IIIC T85°C Db	 Ex tc IIIB T85°C Dc	 Ex tc IIIB T100°C Dc	 Ex tb IIIC T192°C Db	

3-6VFD#AL

3-6VFD#AL (Extra low temperature)	ENCLOSURE WITHOUT ANTI-CONDENSATION HEATER AMBIENT TEMPERATURE RANGE		ENCLOSURE WITH ANTI-CONDENSATION HEATER AMBIENT TEMPERATURE RANGE
	Ta = -52°C to +76°C	Ta = -52°C to +82°C	Ta = -52°C to +55°C
Gas Protection	 Ex d IIB T6 Gb	 Ex d IIB T5 Gb	 Ex d IIB T3 Gb
Dust Protection	 Ex tc IIIB T85°C Dc	 Ex tc IIIB T100°C Dc	 Ex tc IIIB T192°C Dc

CERTIFICATES

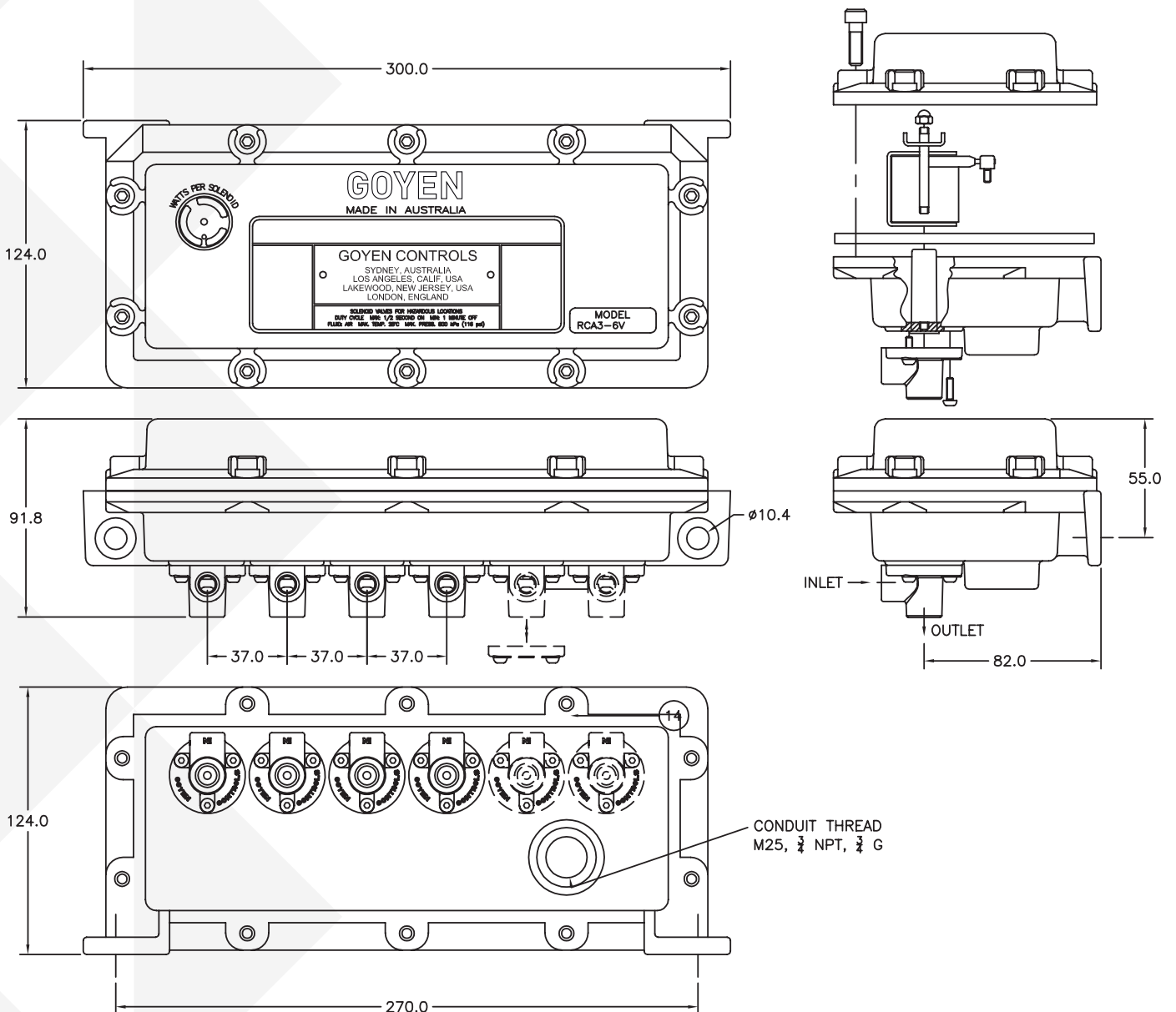
Sira 02ATEX1408X
Sira 16ATEX9218X

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3-6VFD - DIMENSIONS AND WEIGHTS IN MM (AND INCHES)



WEIGHTS

3-6VFD Series

Mass = 2.21 kg + 0.08 kg per fitted pilot (4.87 lbs + 0.18 lbs per fitted pilot)



GOYEN CONTROLS PTY LIMITED

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