



Explosion Proof Products

DESCRIPTION

CXD

The **CXD explosion proof solenoid enclosure** is designed for those applications where the atmosphere may present the possibility of combustion. The CXD enclosure is explosion proof with the following grade of protection: **Exd IIB T5 IP67 T100°C**. This ensures that any spark, resulting from the electrical activation of the solenoid, will be restricted within the interior of the enclosure. The CXD explosion proof enclosure is certified in accordance to the European Directive 94/9/CE (ATEX).

The CXD Series is available in two models/sizes:

- CXD 4: from 1 to 4 solenoid pilots,
- CXD 8: from 5 to 8 solenoid pilots.

Each solenoid pilot, energized in sequence, commands a corresponding **VEM** type diaphragm valve, by way of a 6 mm. internal diameter pneumatic tube being less than 2 metres in length. The control consists in releasing the compressed air from the upper chamber of the valve and its piping. The CXD enclosure are supplied complete with fixing brackets. The common terminal is pre-wired.

The CXD solenoid base is made of extruded aluminium while the cover is in die-cast aluminium. Both are anodised for protection against aggressive agents. The CXD enclosure features a common exhaust port, located on the underside of the unit. The exhaust is open to the atmosphere and can be piped or muted with a silencer. Within the enclosure a safety device is installed in order to cut-off the power supply to the solenoids in case of an abnormal increase in temperature within the enclosure. This device is recognised as **GTRM-1**. It is possible to install within the enclosure a heat resistor group complete with thermostat for installation in frigid climates where low temperature is a problem. **GTRM-2** maintains an internal temperature of approximately +4°C, and is available in two models:

- GRT 50, for CXD 4
- GRT 120, for CXD 8

(PLEASE NOTE: single diaphragm 1 1/2" VEM valve not suitable with remote pilot.)



HOW TO ORDER:

CXD 5 - ..V/..Hz - R

CXD: Explosion proof enclosure

Number of solenoid pilots:
CXD 1-2-3-4 (small enclosure)
CXD 5-6-7-8 (large enclosure)

COIL VOLTAGE - FREQUENCY

Nominal values	Operating range
24/50	24 V / 50 Hz
24/60	24 V / 60 Hz
24/DC	24 V / DC 15W
110/50	110 - 127 V / 50 Hz
110/60	110 - 127 V / 60 Hz
110/DC	110 V / DC
220/50	220 - 240 V / 50 Hz
220/60	220 - 240 V / 60 Hz

R: heater element with thermostat.
Available in two versions:
GRT 50 = 70 WATT (for CXD 4)
GRT 100 = 100 WATT (for CSN 8)

GENERAL FEATURES

Operating temperature	-20 °C / +60 °C
Weight	CXD 4 - 5 Kg CXD 8 - 8,5 Kg

CONSTRUCTION FEATURES

Top Cover	Die-cast aluminium (Anodised)
Base	Extruded aluminium (Anodised)
Pilot	Stainless Steel
Gaskets	NBR

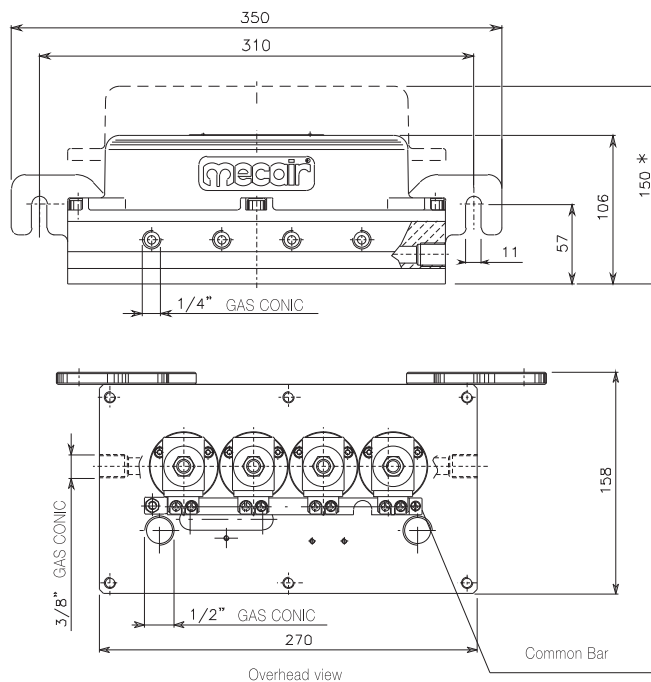
ELECTRICAL FEATURES

Coil insulation	Class H
Electrical connection	2 x 1/2" Tapered Gas for CXD 1÷4 2 x 3/4" Tapered Gas for CXD 5÷8
Electrical protection	Ex d IIB T5 IP67 T100°C
Voltage and frequency	AC: 24/110/220 V 50/60 Hz - DC: 24/110V
Pneumatic connections	To VEM Valves 1/4" female Gas Common exhaust, No. 2 connections 3/8" female Gas
Approvals - INERIS	INERIS 03 ATEX 0069X II 2GD

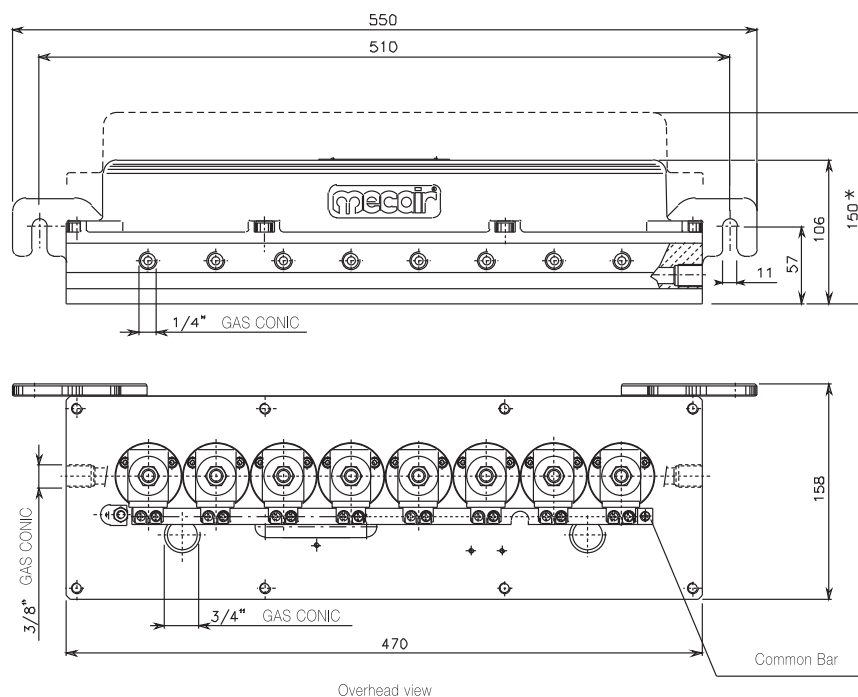
DIMENSIONS

CXD

CXD 4

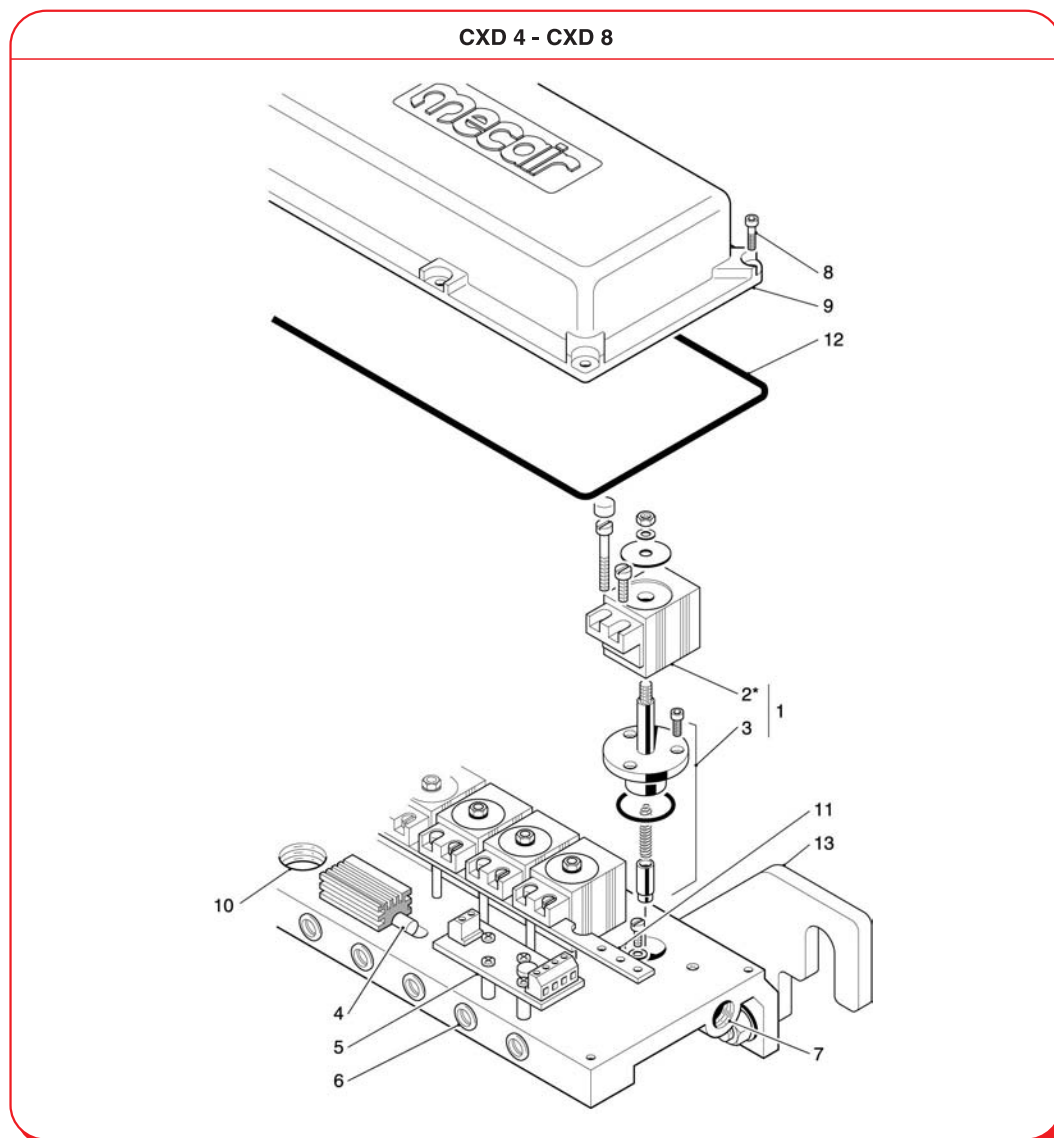


CXD 8



SPARE PARTS

CXD



SPARE PARTS

POS.	DESCRIPTION	CODE
1	Pilot group complete with coil	ELA2 - ../.. (*)
2	Solenoid Coil (*)	SA2 - ../.. (*)
3	Ferrule tube complete	ECL 28 X
4	Heater for CXD4	GRT 50 - 220 V 50/60 Hz
4	Heater for CXD8	GRT 100 - 220 V 50/60 Hz
5	Circuit - Temperature Control	GTRM - 1
5	Circuit - Temperature Control and resistor	GTRM - 2

(*) specify voltage, frequency (or DC).

RECOMENDED SPARE PARTS

For start up:

≥ 5% of supply (min. 1 piece):

- pilot group (1), complete with coil.

For the first two years of service:

≥ 10% of supply (min. 2 pieces):

- pilot group (1), complete with coil.

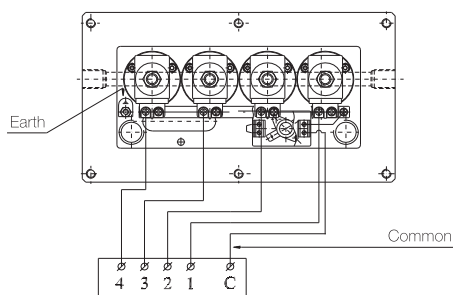
ELECTRICAL CONNECTIONS

CXD

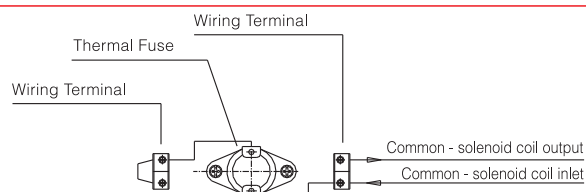
ELECTRICAL CONNECTIONS

- | | |
|---|---|
| A | Loosen the screws (8) and remove the top cover (9). |
| B | Connect the solenoid coils as described in drawing [E1 if without the heater or E2 if with heater]. Use a multi core cable to: 1 wire to pre-wired common terminal (11) and 1 wire to each solenoid coil. |
| C | Connect the thermostatically controlled heater (optional) as per drawing [E2]. |
| D | Refit the top cover (9) ensuring the correct position of the seal (12). |

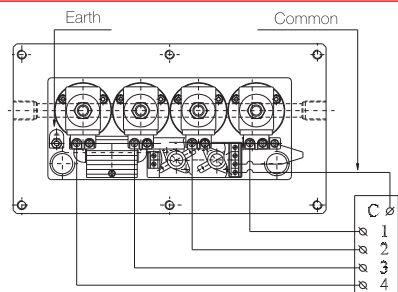
E1 - INTERNAL TEMPERATURE CONTROL



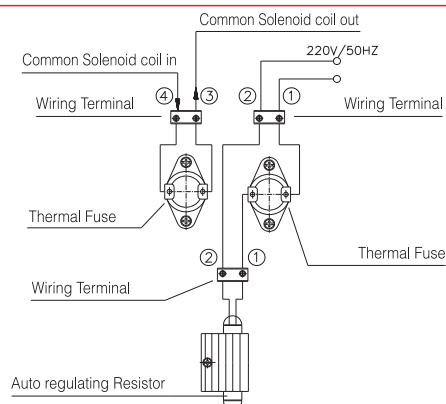
E1 - INTERNAL TEMPERATURE CONTROL (GTRM-1)



E2 - INTERNAL TEMPERATURE CONTROL AND RESISTOR



E2 - INTERNAL TEMPERATURE CONTROL AND THERMOSTAT GTRM-2



PNEUMATIC CONNECTIONS

Pneumatic connections (6) 1/4" Gas - Valve connection with:

- Tube Ø 6/8 mm - Rilsan or stainless steel • Max. length 2 mt.

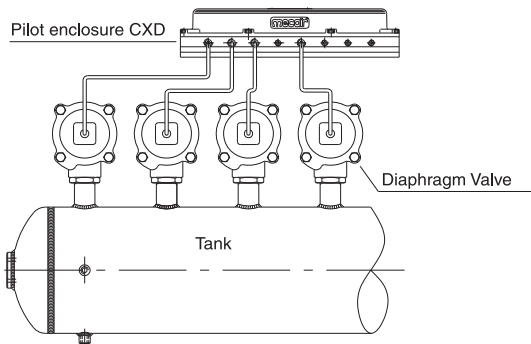
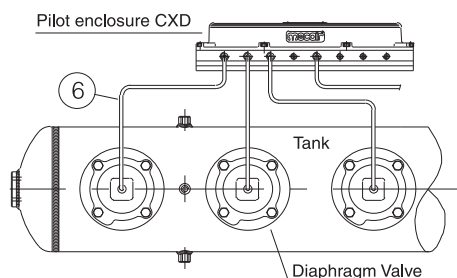
Fluid: Compressed Air (or nitrogen) dried, filtered and oil free. - min/max pressure 0,5÷7,5 bar

Exhaust connections (7): Connection 3/8" Gas:

- Open in atmosphere • or muted with silencer • or piped to an external tank for nitrogen recovery.

PNEUMATIC CONNECTIONS ON TANKS

Certified in accordance to ATEX 94/9/EC



DESCRIPTION

The two way (normally closed) **explosion proof pilot model PXA 42F** and **PEX 42H** is specifically designed to be installed on diaphragm valves type VEM. The PXA 42F and PEX 42H explosion proof solenoid valve is designed for those applications where introduction of a spark may ignite the surrounding atmosphere. The PEX and PXA series has been designed and approved according to the ATEX Directive 94/9/CE and has **EEEx d IIC T4** rating, **IP67** water resistant which ensures that any spark occurring within the solenoid, will remain restricted within the internal area of the enclosure, with no possibility of spreading to the external environment.

PXA / PEX

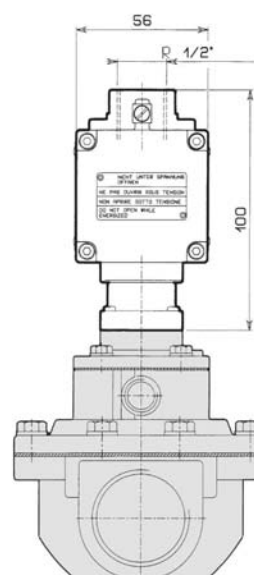
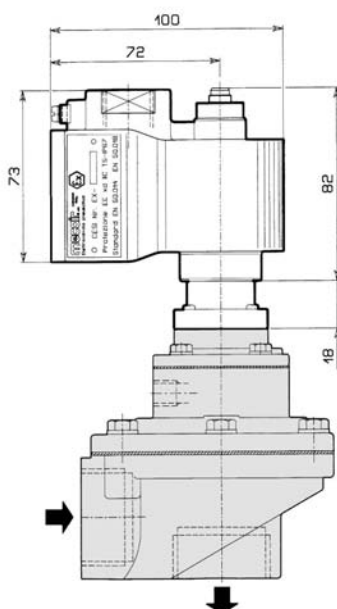


GENERAL CHARACTERISTICS

Protection	IP67 EN60529
Coil insulation	Class H
Coil voltage	24 V AC - 50 Hz 24 V AC - 60 Hz 110/220 V - 50/60 Hz 24/110 V DC
Power consumption	19 VA / AC 12 W / DC
Enclosure	Explosion proof EEx d IIC T4
Electical connection	R 1/2" or 1/2" NPT
Approvals INERIS	INERIS 03 ATEX 0071XII 2GD

Solenoid Pilot	PXA42F	PXA42H	PEX42F	PEX42H
Solenoid enclosure	Die cast aluminium-anodised	Stainless steel	Stainless steel	Stainless steel
Pilot group	Nickel-plated brass	Stainless steel	Nickel-plated brass	Stainless steel
Screws and bolts	Stainless steel	Stainless steel	Stainless steel	Stainless steel
Gaskets	Nitrile rubber	Nitrile rubber	Nitrile rubber	Nitrile rubber
Weight	0,7 kg.	1,4 kg.	1,4 Kg	1,4 Kg

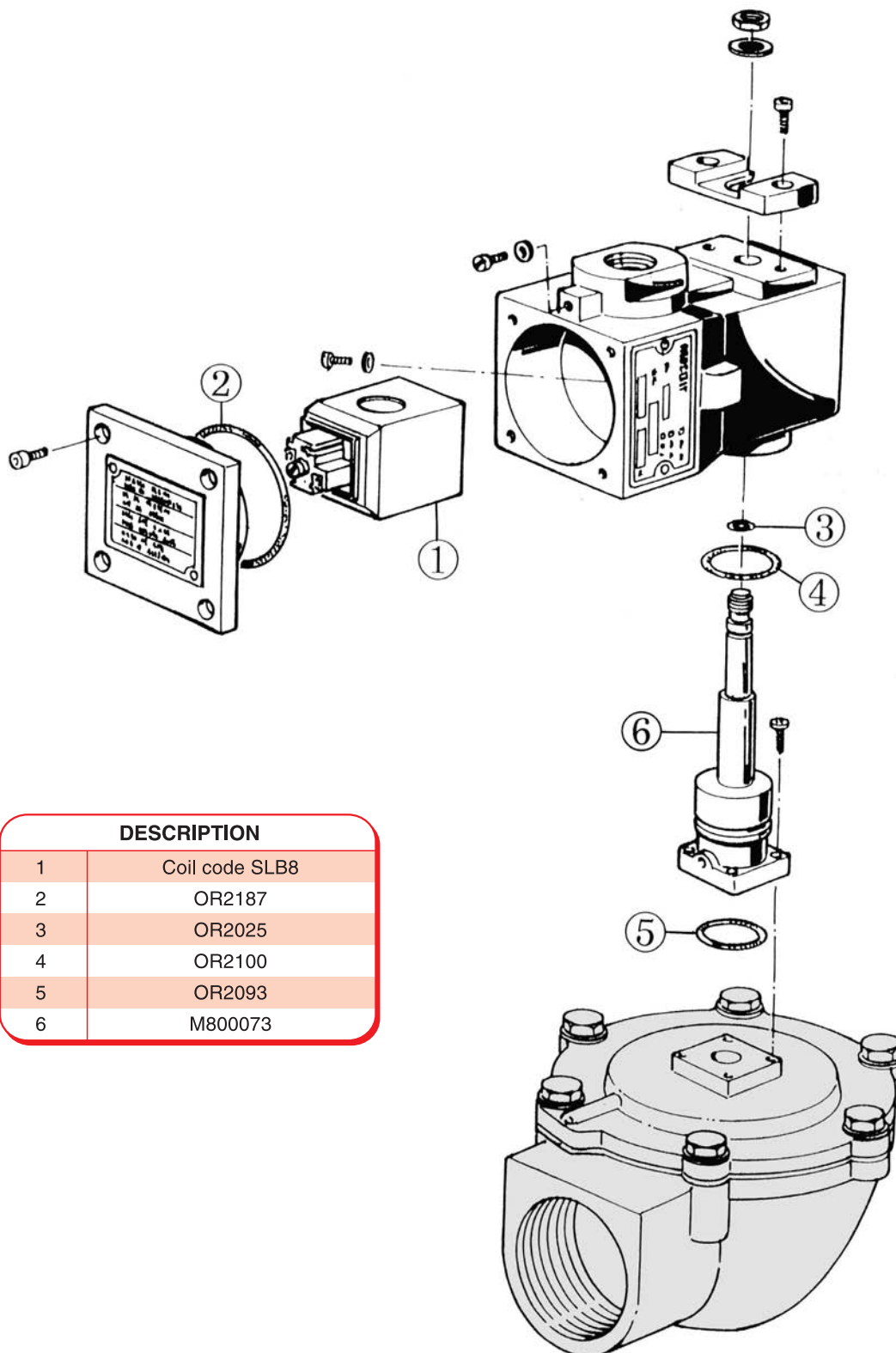
PXA / PEX



ASSEMBLY DIAGRAM

PXA / PEX

PXA / PEX



DESCRIPTION

1	Coil code SLB8
2	OR2187
3	OR2025
4	OR2100
5	OR2093
6	M800073

DESCRIPTION

PXA / PEX pneumatic solenoid

Mecair manufactures a complete range of **explosion proof solenoid pilots** for compressed air or inert gas, in the 2 or 3 way version (normally closed). Bolts and screws are in stainless steel, gaskets are in NBR. Operating pressure range is from 0,5 to 8 bar. The explosion proof pilot is certified **EEx d IIC T4** and is **IP67** water resistant. The explosion proof solenoid coils are in conformity to the European directive - ATEX 94/9/CE. The explosion proof pilots can be mounted on Namur valves, industrial valves and any other valve where the use of a 2 way or 3 way valve is required.



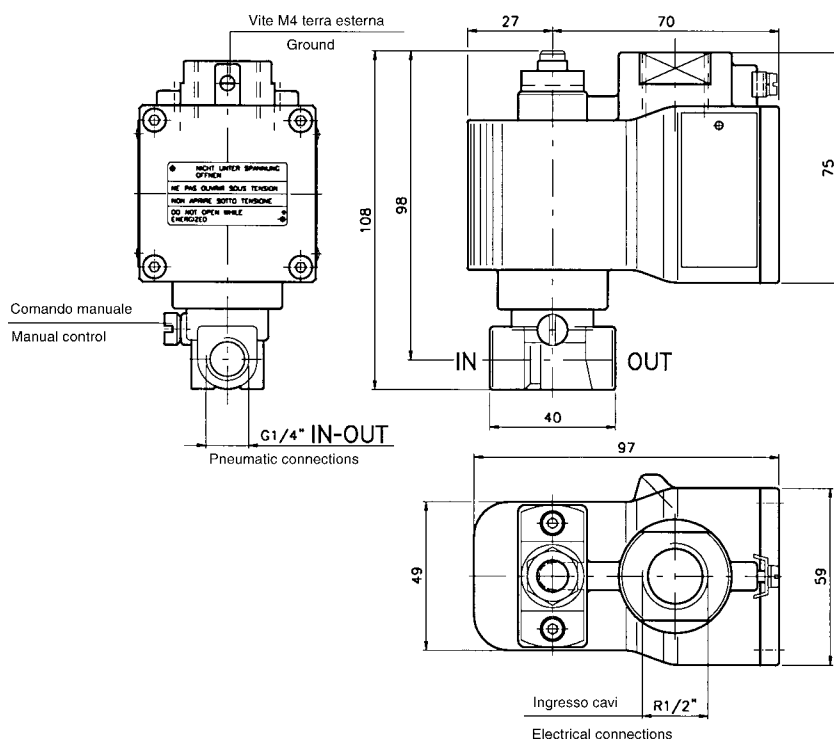
GENERAL CHARACTERISTICS

Fluids	Filtered, oil free air or inert gas.
Pneumatic connection	1/4" GAS
Protection	IP67 EN 60529
Coil insulation	Class H
Temperature range - Solenoid coil	-20 °C / +80 °C
Coil voltage	24 V AC - 50 Hz
	24 V AC - 60 Hz
	110/220 V AC - 50/60 Hz
	24/110 V DC
Enclosure	Explosion proof execution EEx d IIC T4
	Orientation in various positions
Electrical connection	R 1/2", for PEX or 1/2" NPT
	R 1/2", for PXA or 1/2" NPT
Approvals INERIS	INERIS 03 ATEX 0071X II 2GD

Model	N. Ways	Ø Orifice (mm)	Enclosure	Pilot body	Weight Kg
PEX42X	2	4	Stainles steel	Stainles steel	1,3
PEX42T	2	4	Stainles steel	Nickel plated brass	1,3
PEX43T	3	1,5	Stainles steel	Nickel plated brass	1,3
PXA42X	2	4	Die-cast aluminium Anodized	Stainles steel	0,7
PXA42T	2	4	Die-cast aluminium Anodized	Nickel plated brass	0,7
PXA43T	3	1,5	Die-cast aluminium Anodized	Nickel plated brass	0,7

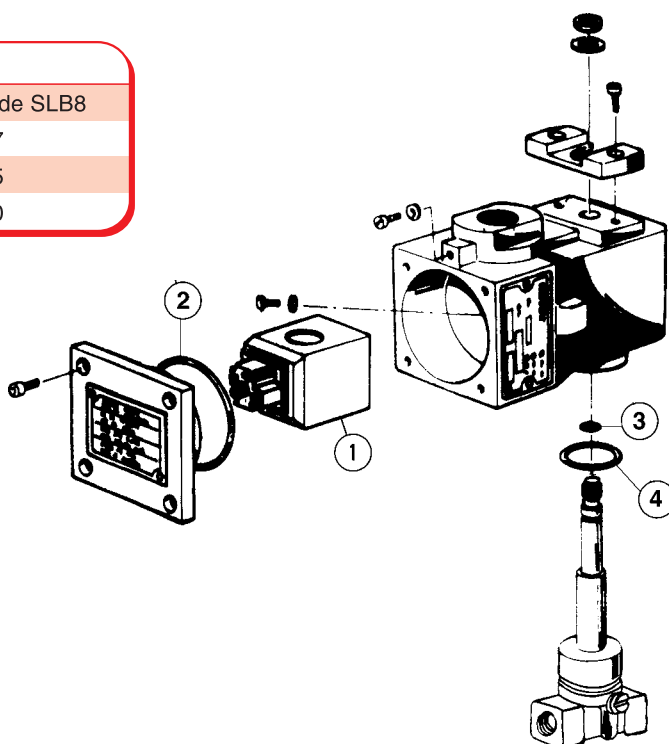
DIMENSIONS

PXA / PEX pneumatic solenoid



ASSEMBLY DIAGRAM

DESCRIPTION	
1	Solenoid coil code SLB8
2	OR2187
3	OR2025
4	OR2100



Guida alla Direttiva ATEX - ATEX Guide

Direttiva Europea 94/9/CE / European Directive 94/9/CE

Apparecchiature elettriche e non-elettriche e sistemi di protezione.

Electrical and non-electrical equipment and protection systems.

MARCATURA APPARECCHIATURA - MARKING OF EQUIPMENT

CENELEC (EN 50014)

EEx

Standard Europeo
Antideflagrante
Explosion proof.
European Standards.

Tipo di Protezione.
Type of Protection.

Gruppi di gas.
Group of gas.

I	Miniere / Mines (Methane)	Gas di accensione rappresentativi. Representative ignition gas.
II	Industria / Surface Industries	
IIA	Propane	
IIB	Ethylene	
IIC	Hydrogen Acetylene	

Classe di temperature (gruppo II).
Temperature class (group II).
Temperatura superficiale max.
Maximum surface temperature

Class / Classe	°C
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

Temperatura ambiente di riferimento -20°C / +40°C
Reference ambient temperature.

ATEX (DIRETTIVA 94/9/CE / DIRECTIVE)

CE

Marcatura CE.
Making CE.

...

Numero identificazione
ente di certificazione.
Identification number
of notified body.

Utilizzo dell'apparecchiatura in atmosfere
potenzialmente esplosive.
Use of equipment in potentially
explosive atmosphere.



Gruppo apparecchiatura.
Equipment group.

Categoria apparecchiatura.
Equipment category.

I mines / miniere
M1 - Livello molto alto
Very high level | M2 - Livello alto
High level

II surface / superfice

1 - Livello molto alto Very high level	0	20
2 - Livello alto High level	1	21
3 - Normale Normal	2	22

Tipo di atmosfera esplosiva.
Type of explosive atmosphere.
(Gruppo II / Group II)

G	D
Gas	Dust

Zone	Zone
------	------

Classificazione delle Aree - Classification of the Areas

IDENTIFICAZIONE DELLE ZONE DI PERICOLO

L'identificazione in un impianto chimico o petrolchimico delle zone di pericolo, viene fatta da personale altamente qualificato. Di solito responsabili di processo, che stabiliscono ove nell'impianto vi sia la presenza continua o saltuaria di una atmosfera esplosiva. I centri di perico più frequenti sono quelli ove esiste la possibilità di fuoriuscita di gas infiammabili, che possono avvenire durante il funzionamento ordinario o a causa di qualche guasto. Il tipo di presenza di un gas in una data zona ne determina la sua classificazione.

A seconda dei vari paesi nel mondo esistono diverse classificazioni delle aree di pericolo.

Prendiamo in considerazione la classificazione in uso in Europa, che corrispondono a quelle internazionali IEC e negli USA.

Classificazione delle aree pericolose in Europa.

In Europa vengono seguite le raccomandazioni IEC 79-10, in base a queste ogni luogo pericoloso deve essere classificato secondo la suddivisione in una delle tre zone previste dalla normativa:

ZONA 0	È un'area nella quale una miscela di gas esplosivo è presente in maniera continuativa (es: interno di un serbatoio di benzina)
ZONA 1	È un'area in cui una miscela di gas esplosivo può essere presente durante il normale funzionamento dell'impianto.
ZONA 2	È un'area in cui una miscela di gas non è normalmente presente, e nel caso lo sia lo è solo per brevi periodi di tempo

Ogni altra parte dell'impianto viene considerata AREA SICURA. I luoghi di pericolo in base alle sostanze presenti si dividono in:

CLASSE 0	Materiale Esplosivo (Dinamite)
CLASSE 1	Gas o Vapori (Benzine)
CLASSE 2	Polveri Infiammabili (Magnesio)
CLASSE 3	Sostanze combustibili (Trucioli, fibre)

IDENTIFICATION OF THE HAZARDOUS AREAS

The identification of a danger zone in a chemical or petrochemical plant should be carried out by highly qualified personnel. Normally process managers, who establish where in the plant there is presence of either a continuous or occasional explosive atmosphere. The most frequent danger point are found where there is a possibility of inflammable gas leaks, that can occur during normal operation or due to a breakdown.

The classification is determined by the quantity of gas present in given zone. Various countries around the world have different classifications of the danger areas. We will consider the European classification, which corresponds to the international IEC classification and to North America (USA and Canada).

Classification of hazardous areas (Europe).

Europe follows the IEC 79-10 recommendations, which indicate that every dangerous location must be classified according to the one of the zones foreseen by the regulation:

ZONE 0	An area in which the mixture of explosive gas is costantly present (eg. fuel tank internally).
ZONE 1	An area in which the mixture of explosive gas may be present during the normal operation of the plant.
ZONE 2	An area in which the mixture of explosive gas is not normally present, but is only present for brief periods of time.

All other parts of the plant are considered SAFE AREAS. The dangerous locations are divided on the basis of the substances present:

CLASS 0	Explosive Materials (Dynamite)
CLASS 1	Gas or Vapours (Fuel)
CLASS 2	Inflammable powders (Magnesium)
CLASS 3	Combustibles (Shavings, Chipping, Fibres)

COSTRUZIONI ELETTRICHE PER ATMOSFERE ESPLOSIVE PER LA PRESENZA DI GAS (diversi dalle miniere)
ELECTRICAL APPARATUS FOR EXPLOSIVE ATMOSPHERES IN PRESENCE OF GAS (other than mines)

SCELTA DELLE COSTRUZIONI ELETTRICHE IN RELAZIONE ALLE ZONE	SELECTION OF ELECTRICAL APPARATUS ACCORDING TO ZONE																
Costruzioni elettriche per uso in Zona 0 Modi di protezione: In accordo alla norma EN 50020 (categoria "ia" - sicurezza intrinseca) Costruzioni elettriche per uso in Zona 1 Modi di protezione: <table border="1"> <tr> <td>D - EN 50018</td><td>E - EN 50019</td></tr> <tr> <td>P - EN 50016</td><td>I - EN 50020</td></tr> <tr> <td>Q - EN 50017</td><td>M - EN 50028</td></tr> <tr> <td>O - EN 50015</td><td></td></tr> </table> Costruzioni elettriche per uso in Zona 2 Modi di protezione: Tutti i modi di protezione per zona 0 e zona 1 N - EN 50021 Oppure costruzioni elettriche indicate dalla normativa EN 60079-14	D - EN 50018	E - EN 50019	P - EN 50016	I - EN 50020	Q - EN 50017	M - EN 50028	O - EN 50015		Electrical apparatus for use in Zone 0 Types of protection: In accordance with standard EN 50020 (category "ia" - intrinsically safe) Electrical apparatus for use in Zone 1 Types of protection: <table border="1"> <tr> <td>D - EN 50018</td><td>E - EN 50019</td></tr> <tr> <td>P - EN 50016</td><td>I - EN 50020</td></tr> <tr> <td>Q - EN 50017</td><td>M - EN 50028</td></tr> <tr> <td>O - EN 50015</td><td></td></tr> </table> Electrical apparatus for use in Zone 2 Types of protection: All types of protection for zone 0 and zone 1 N - EN 50021 Or electrical apparatus as specified in standard EN 60079-14	D - EN 50018	E - EN 50019	P - EN 50016	I - EN 50020	Q - EN 50017	M - EN 50028	O - EN 50015	
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COSTRUZIONI ELETTRICHE PER ATMOSFERE ESPLOSIVE PER LA PRESENZA DI POLVERE COMBUSTIBILE
ELECTRICAL APPARATUS FOR EXPLOSIVE ATMOSPHERE IN PRESENCE OF COMBUSTIBLE DUST

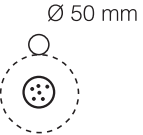
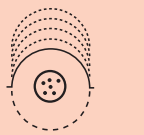
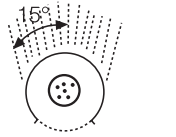
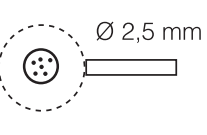
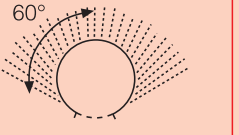
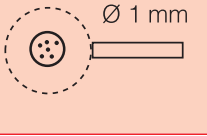
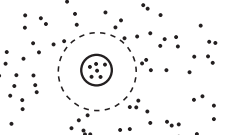
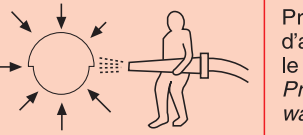
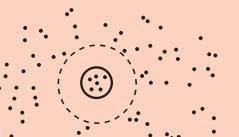
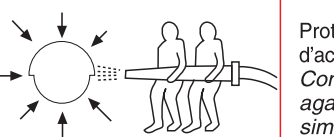
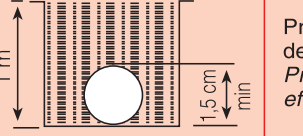
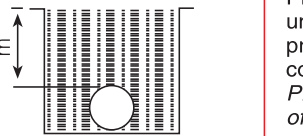
Scelta delle costruzioni elettriche in relazione alle zone. La costruzione elettrica può essere scelta tenendo conto delle condizioni indicate dalla norma EN 50281-1-2.	Selection of electrical apparatus according of zones. The apparatus shall be selected taking into account the condition as specified in standard EN 50281-1-2.
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Zone Zones	Zona 20 Zone 20	Zona 21 - Zona 22 con polvere conduttrice Zone 21 - Zone 22 with conductive dust	Zona 22 Zone 22
(EN 60529)	IP 6X	IP 6x	IP 5x
Contrassegno / Marking	II 1 D	II 2 D	II 3 D

Categoria ATEX ATEX Category	Livello di protezione Level of protection	Requisito di progetto Design requirement	Area di applicazione Application area	Zona Zone
1	Livello molto elevato Livello alto Very high level High level	Due mezzi di protezione indipendenti ad assicurare il livello di protezione nel caso di due guasti indipendenti. Two independent means of protection or safe in use with a fault or with frequently occurring disturbances.	Presenza continua di atmosfere esplosive o presenti per lunghi periodi. Where explosive atmosphere is continuously present or present for long periods.	Zona 0 Zona 20 Zone 0 Zone 20
2	Livello alto High level	Assicurare il livello di protezione in caso di guasto od in caso di frequenti disturbi. Safe in use with a fault or with frequently occurring disturbances.	Probabile presenza di atmosfere esplosive. Where explosive atmosphere is likely to occur.	Zona 1 Zona 21 Zone 1 Zone 21
3	Livello normale Normal level	Assicurare il livello di protezione durante il funzionamento normale. Safe during normal operation.	Improbabile presenza di atmosfere esplosive o presenti poco frequentemente per brevi periodi. Where explosive atmosphere is likely to occur infrequently and for short period only.	Zona 2 Zona 22 Zone 2 Zone 22

Classe di temperatura Temperature class	T1	T2	T3	T4	T5	T6
Temp. (°C)	450	300	200	135	100	85

Grado di Protezione - Protection Grade

1ª CIFRA - PROTEZIONE CONTRO I CORPI SOLIDI 1 st NUMERIC DIGIT - PROTECTION AGAINST SOLID BODIES			2ª CIFRA - PROTEZIONE CONTRO I LIQUIDI 2 nd NUMERIC DIGIT - PROTECTION AGAINST LIQUIDS		
IP	Prove - Tests	Descrizione - Description	IP	Prove - Tests	Descrizione - Description
0		Nessuna protezione <i>No protection</i>	0		Nessuna protezione <i>No protection</i>
1		Protetto contro i corpi solidi superiori a 50 mm. (es. contatti involontari alla mano) <i>Protected against solid bodies larger than 50 mm. (eg.: accidental contact with the hand).</i>	1		Protetto contro le cadute verticali di gocce d'acqua (condensazione). <i>Protected against vertically - falling water drops (condensation).</i>
2		Protetto contro i corpi solidi superiori a 12 mm. (es. dito della mano). <i>Protected against solid bodies larger than 12 mm. (eg.: accidental contact with the hand).</i>	2		Protetto contro le cadute di gocce d'acqua fino a 15° dalla verticale. <i>Protected against drops of water falling vertically at 15° angle.</i>
3		Protetto contro i corpi solidi superiori a 2,5 mm. (arnesi, fili). <i>Protected against solid bodies larger than 2,5 mm. (tools, wires).</i>	3		Protetto contro le cadute d'acqua a pioggia fino a 60° dalla verticale. <i>Protected against drops of rainwater vertically at 60° angle.</i>
4		Protetto contro i corpi solidi superiori a 1 mm. (arnesi fini, fili sottili). <i>Protected against solid bodies larger than 1 mm. (small tools, thin wires).</i>	4		Protetto contro getti d'acqua da tutte le direzioni. <i>Protected against water from all directions.</i>
5		Protetto contro le polveri (nessun deposito nocivo). <i>Protected against dust (no harmful deposit).</i>	5		Protetto contro getti d'acqua con lancia da tutte le direzioni. <i>Protected against jets of water from all directions.</i>
6		Totalmente protetto contro le polveri. <i>Completely protected against dust.</i>	6		Protetto contro proiezioni d'acqua simili a onde marine. <i>Completely protected against jets of water or similar force.</i>
			7		Protetto contro gli effetti dell'immersione. <i>Protected against the effects of immersion.</i>
			8		Protetto contro gli effetti di una immersione prolungata a specifiche condizioni. <i>Protected against effects of prolonged immersion under specific conditions.</i>

This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin, light gray lines. There are 20 columns and 20 rows of squares, creating a total of 400 square units. The background is white, and the grid lines are evenly spaced both horizontally and vertically.

Note:

A large rectangular area filled with a fine grid of dashed lines, intended for handwritten notes or technical drawings.



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