

PDS3 80MS IECEx SIL

Item numbers covered by this datasheet

308587 PDS3 80MS IECEx SIL

General

The PDS3 80MS IECEx Pilot is used for activation of Fire Eater INERGEN systems, in which the pilot cylinder is placed in Ex rated area.

It supplies pressure to activate SV22 selector valves and/or discharge valves through solenoid activation or manually. Activation is obtained by pressure from the PDS cylinders to the valves via stainless steel pipes.

The PDS systems can be placed inside the Fire Eater PDS cabinet (items 308202, 308204, 308206)

Specifications

Outlet:

Type: Compression fitting for \varnothing 6mm stainless steel tube
Flow way: \varnothing >2mm

Manoswitch:

See datasheet "Ci Manoswitch" for details
Range: 0 - 160 bar
The manoswitch is a "Simple Apparatus" according to the ATEX directive.

Solenoid:

Voltage/Power: 24VDC/360mA
Zone 1/21 Gases/Dusts
Category/Class: Ex db mb IIC T4, Ex tb IIIC T 130°C, II2 GD
Temperature: -40 to +80°C
Cable entry: M25 cable gland, Cable diameter: \varnothing 7 - \varnothing 9 mm
Cable: 3x0.75mm² IEC 60331, 3m
Blue wire: 0 V
Brown wire: 24 VDC

Note: The installation must be in accordance with EN IEC 60079-25

Materials: See exploded view

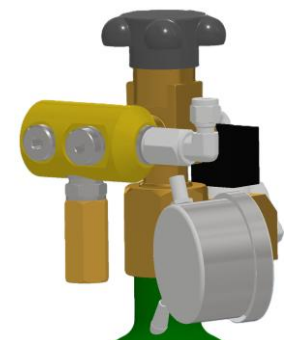
Filling:

Agent: Nitrogen (N₂) or INERGEN®
Pressure: 80 bar @ 15°C

Dimensions:

Height: ~510 mm
Diameter: 102 mm
Weight: ~5kg (empty)

Operating temperature: -20°C to +65°C



Dimensioning

The maximum pipe length must satisfy the equation:

$$L \leq \frac{P_{PDS} \cdot V_{PDS} - P_{act} \cdot (V_{PDS} + V_{act})}{P_{act} \cdot 100 \cdot \frac{\pi}{4} \cdot D_{in}^2}$$

P_{act} = Required actuator pressure [bar], (SV22 = 35 bar)
 P_{PDS} = Pressure in PDS system [bar]
 D_{in} = Internal diameter of the tube/pipe [cm]
 L = Pipe length [m]
 V_{act} = Volume of actuator [cm³], (SV22 = 8; add 1000 when using delay unit;)
 V_{PDS} = Volume of PDS cylinder [cm³], (std=2000)

Installation

A suitable bracket around the cylinder which is sufficient to hold the weight and forces when the cylinder is opened.

Operating

Turn the handwheel counterclockwise until fully open or activate the electric solenoid.

Test & service

Verify pressure of the cylinder according to authorities' requirement, or minimum annually.

Correct pressure at discharge/selector valve is verified by using a class 1.0 gauge.

Function test must be performed annually (or to the requirements set by of the authority having jurisdiction).

Filling

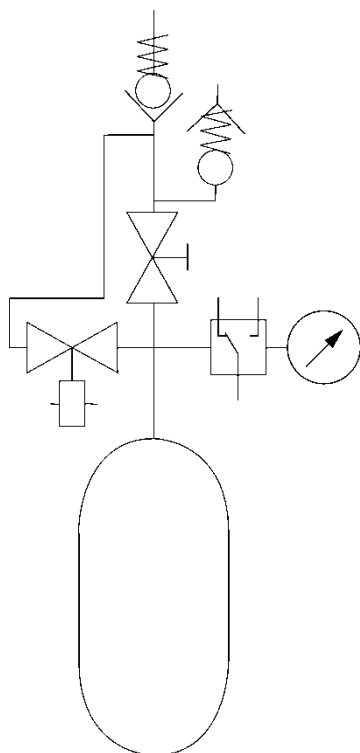
Only correct adapters should be used, damaged adapters etc. are to be destroyed to prevent accidental use.

The filling must comply with the requirements of ISO14520-15.

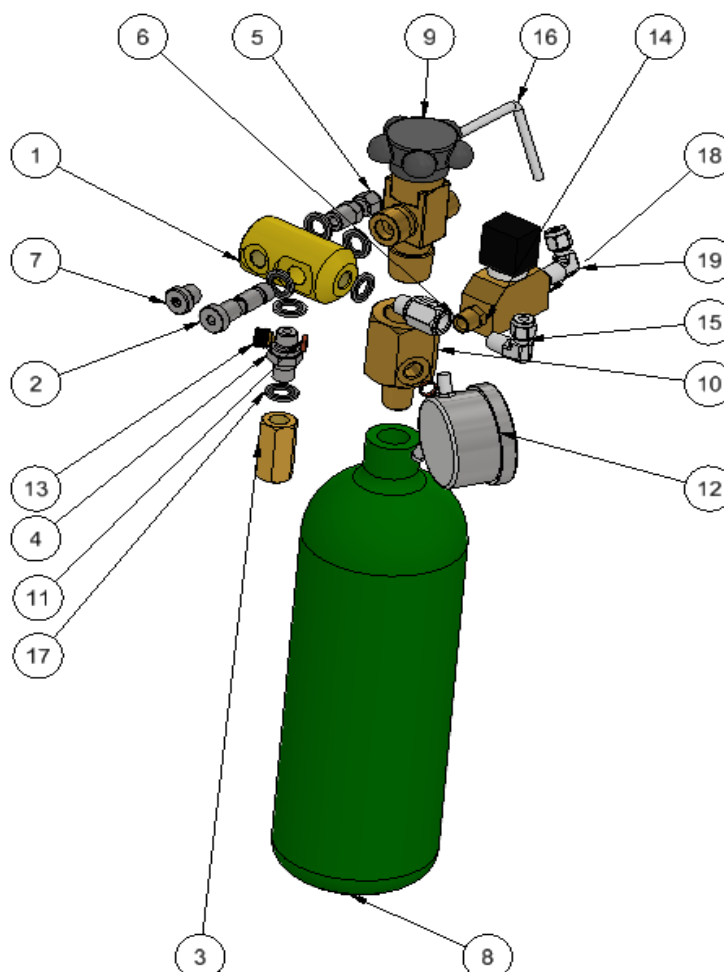
Fire Eater recommendations for this is to:

1. Connect filling equipment
Remove the non return valve from the outlet,
blind the bleed fitting during vacuum operation (place electrical tape on the top)
Connect filling hose (outlet is ¼" Female ISO 7 thread),
close hand wheel valves.
2. Verify system integrity
Evacuate to 100 Pa (1 mbar) vacuum (accuracy 50 - 1000 Pa)
3. Verify free flow
Open all hand wheel valves and evacuate cylinders
4. Remove moisture
Keep at 100 Pa for 5 minutes
5. Flush:
Pressurize with Nitrogen or INERGEN® to 2 bars
Repeat step 3+4 so that the cylinder is flushed minimum 3 times
Evacuate to 100 Pa (vacuum) for 5 minutes
6. Fill with Nitrogen or INERGEN®
7. Verify cylinder integrity
Check for leakage (use soap water):
 - a. Cylinder-Valve connection
 - b. Burst disc

PID Diagram



Replaceable parts



Pos.	Item	Description	Pos.	Item	Description
1	401801	PDS 3 Manifold, Brass	16	102012	Tube SS ø6mm aisi316
2	401802	PDS 3 Banjobolt, SS	17	777203	Bonded Seal 1/4" SS
3	305320	Bleed fitting G1/4 40MPa SV, Brass	18	308145	Valv Soln 1/4" SIL IEC 10MPa
4	401804	Nipple 1/4 BSP AISI316 for bonded seal	19	401803	Comprs. Fit. ø6-1/4bspp 90g Adj.
5	4134221	Comprs. Fit. ø6-1/4bspp Strht SS		214009	Seal Red
6	305302	Non-return valve 1/4" In-Ext, SS		214011	Seal wire (Fine) Cu
7	302217	Plug PDS3, SS		303020	Cable kit: Manosw OK0 2m
8	400009	Cyl Empty 02-200 DNV wo Valve Green			Label Fill Nitrogen
9	603202	HWV 1/4" 200bar Inlet 25E			
10	302179	PM Adaptor W19.8-25E+3x1/4			
11	212181	Seal Cu 1/4" Manom			
12	305360	ManoSw 0-160bar sp50 EN12094			
13	303101	Plug 1/4"BSP Manom			
14	302417	Nipple 1/4-1/4BSPT 135 bar Cu			
15	214071	Comprs fit ø6-1/4bspt Elbow SS			