

# Simplified Pressurized Enclosure system

(Zone 2)  
**F840**

According to EN 60079 – 2 (pz)  
Test No. TÜV 03 ATEX 2095 X



## Properties of the Ex pz- System

- ☛ Very compact system, mounting direct in hazardous area (Zone 2) or inside Ex pz-housing
- ☛ ATEX- Certification according to EN 60079 – 2 (pz), TÜV 03 ATEX 2095X
- ☛ II 3 G, Ex nAC [pz] IIC T6 Gc  
II 3 D, Ex t [pD] IIIC T70°C Dc IP54 (Dust Ex)
- ☛ Programmable automatic pre- purging, output for solenoid valve
- ☛ Two free programmable output relay contacts (250V / 5A)
- ☛ Proportional working pressure measurement, high overpressure safety (no membrane switch)
- ☛ Visualisation of status, pressure, remaining purge time and failure report via integrated Display
- ☛ Available languages: German, English, French, Spanish, Dutch
- ☛ Solenoid valve fuse easy exchangeable inside of FS840
- ☛ Integrated spark and particle barrier
- ☛ User is able to build up pressurized enclosure system on his own regarding the operation manual (no additional test report of notified body necessary)

## Description

The use of simplified pressurized enclosures allows the operation of 'non explosion protected' devices in hazardous areas inside zone 2. The protection type 'pressurisation' is based on the principle of maintaining a constant pressure using air or a protective gas to prevent an explosive mixture forming near the apparatus inside the pressurized enclosure.

Generally before start-up, the pressurized enclosure must be purged with air or protective



gas to remove any explosive mixture that may be inside the enclosure. This automatic procedure is called purging process.

A simplified pressurized enclosure system consists of two components and the enclosure.

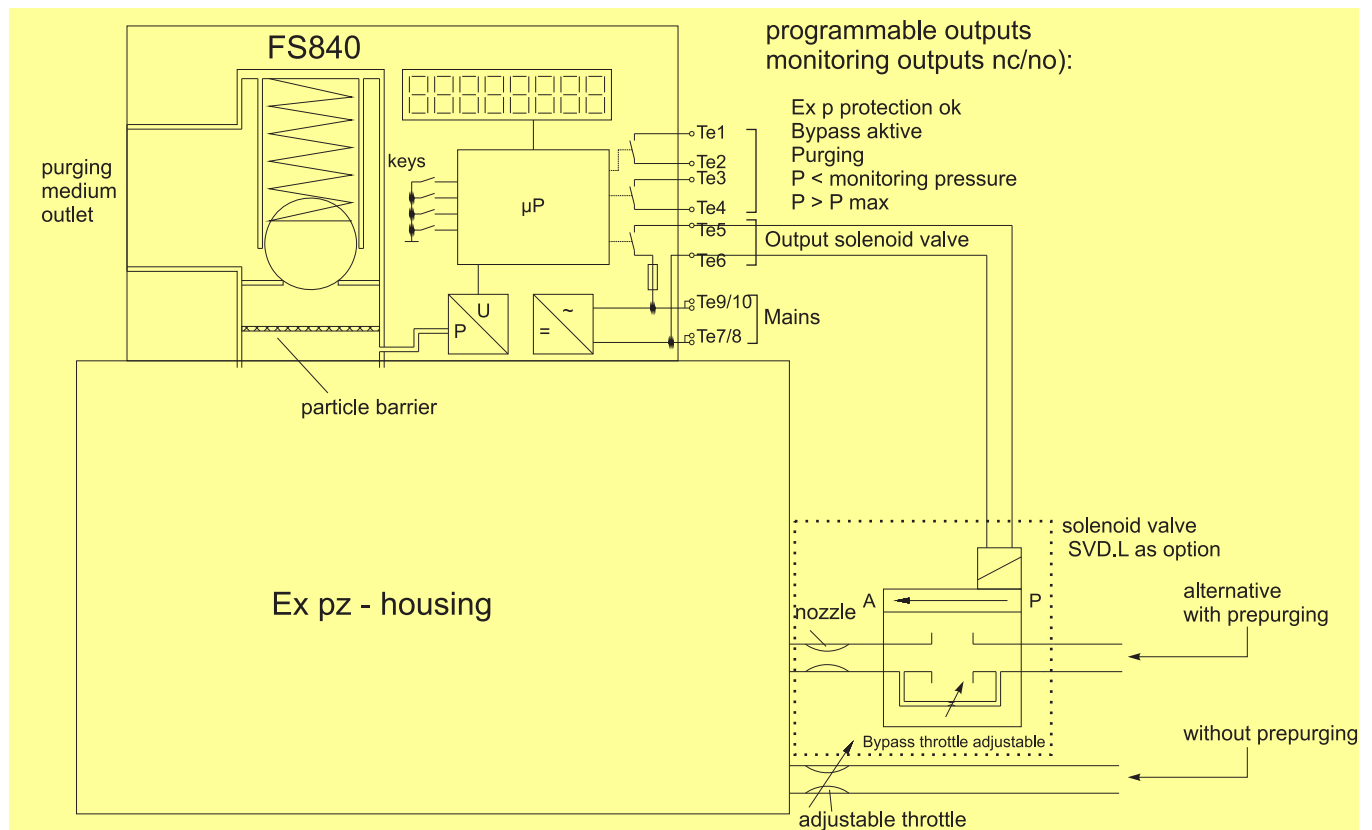
1. control unit FS840 for process control and monitoring
2. Sinter metal throttle SD840 to control air input fed by pressured air network

See manual F840 for requirements of pressurized enclosure and integrated ignition capable apparatus.

If the operator is not sure, that the atmosphere inside of the enclosure and the appropriate pipe infrastructure is below 25% of the lower explosive limit (LEL) (EN 60079 – 14 chapter 13.4), the enclosure must be purged to achieve a safe atmosphere inside of the enclosure.

The F840 system can purge the enclosure automatically using the solenoid valve SVD.L In this case the SVD.L replaces the sinter metal throttle.

## Application



## Technical Details

		Control unit FS 840
General	Mounting	inside hazardous area
	Ex-protection class	II 3 G, Ex nA nC [pz] IIC T6 Gc -20°C ≤ TA ≤ 40°C II 3 G, Ex nA nC [pz] IIC T5 Gc -20°C ≤ TA ≤ 60°C II 3 D Ex tc [p] IIIC T70°C Dc -20°C ≤ TA ≤ 60°C
	EC- type certificate	TÜV 03 ATEX 2095 X
Housing	Environment protection	IP65 (Remark: without regard of outlet opening)
	Dimensions	H x W x D: 120 mm x 122 mm x 90 mm
Electrical specifications	Material	Aluminium, painted / Ral 7035
	Main voltage	AC: 230V, 115V ; 48 ..62 Hz DC: 24V
	Power consumption	ca. 2 VA, without solenoid valve
	Working circuits Terminal 1-4	U <sub>m</sub> = 250VAC, I <sub>m</sub> = 5A at AC1, P <sub>m</sub> = 1500VA U <sub>m</sub> = 250VAC, I <sub>m</sub> = 1,2A at AC15, P <sub>m</sub> = 300VA U <sub>m</sub> = 30V DC; I <sub>m</sub> = 4A at DC1, P <sub>m</sub> = 150W
	Solenoid valve te. 5/6	Output voltage is equal to mains, protected by internal fuse
	Max. wire diameter	2,5 mm <sup>2</sup>
Pneumatic	Pressure range	0 ... 22 mbar
Mounting	Environment temperature	-20°C ...+40°C bei T6 -20°C ...+60°C bei T5
	Humidity	5-95%, non-condensing
Ex p Configuration	Parameter input	LC-Display, menu guided Different languages : German, English, French, Dutch, Spanish

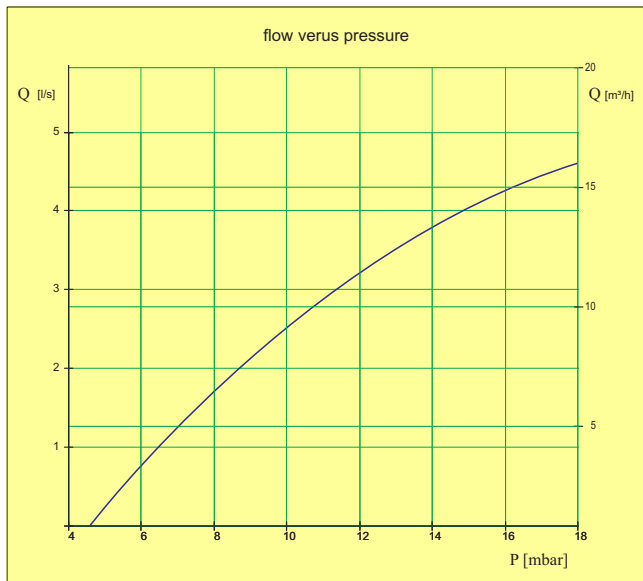
## Flow rate table, dependent on pressure and nozzle diameter

The table below shows flow rate depending on pre- pressure and nozzle diameter

Pressure [bar] [10 <sup>5</sup> Pa]	Flow rate [l/s] $\rho_{\text{Air}} = 1.293 \text{ kg/m}^3$							
	Nozzle diameter [mm]							
	0,3	0,5	0,7	1	1,5	2	3	4
1,5	0,0275	0,076	0,149	0,304	0,693	1,208	2,676	4,653
2	0,0338	0,094	0,184	0,374	0,838	1,48	3,27	5,651
2,5	0,0391	0,109	0,213	0,433	0,968	1,708	3,759	6,471
3	0,0438	,0121	0,238	0,484	1,063	1,908	4,186	7,177
3,5	0,048	0,133	0,261	0,53	1,195	2,087	4,569	7,804
4	0,0518	0,144	0,282	0,573	1,28	2,252	4,917	8,37
4,5	0,0554	0,154	0,301	0,612	1,367	2,404	5,239	8,883

## Flow diagram

The diagram shows the relationship between pressure inside of enclosure and the output flow. The diagram is only valid, without reducing input or output diameters as well as flow reducing pipes.



## Type code

- Control unit FS840

FS840 .x	
mains:	
230V AC .....	.0
115V AC .....	.2
24V DC .....	.6

We can offer you the complete Solution: System F 840 with Ex p- housing and mounting of your apparatus inclusive system test and ATEX report

- Solenoid valve SVD.L.x

SVD.L .x	
nozzle:	
1 mm .....	.1
1,5 mm .....	.1.5
2 mm .....	.2
3 mm .....	.3
4 mm .....	.4
5 mm .....	.5

- adjustable Sinter metal throttle SD840

SD840	
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## Dimensions

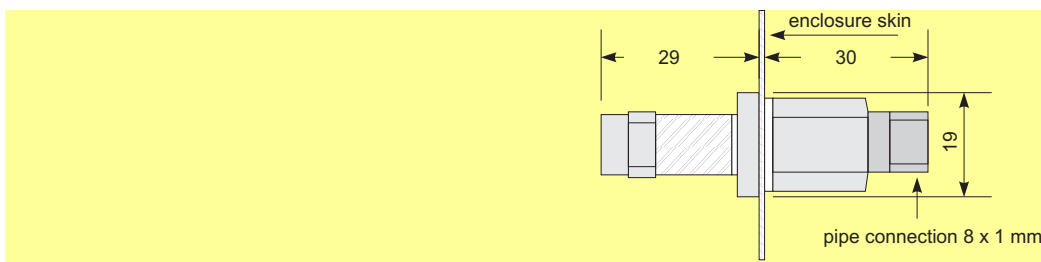
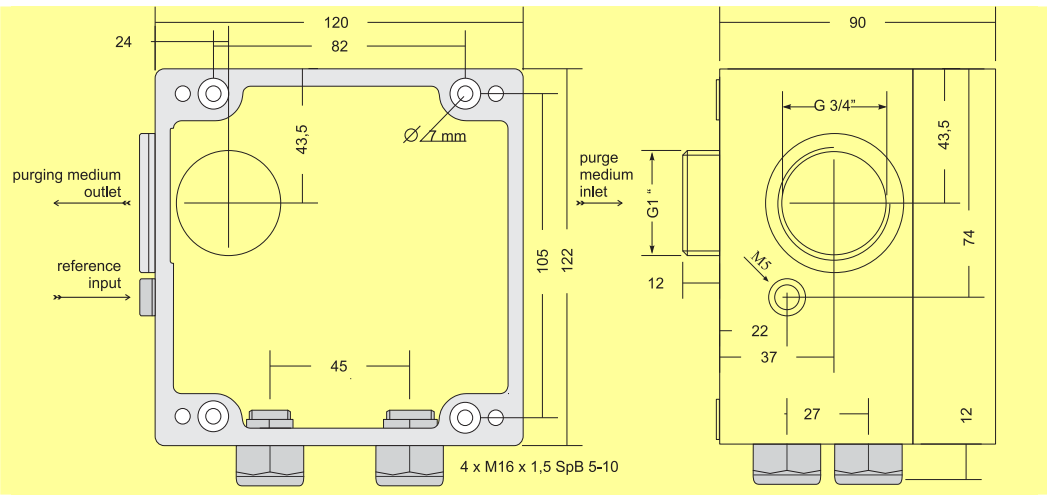
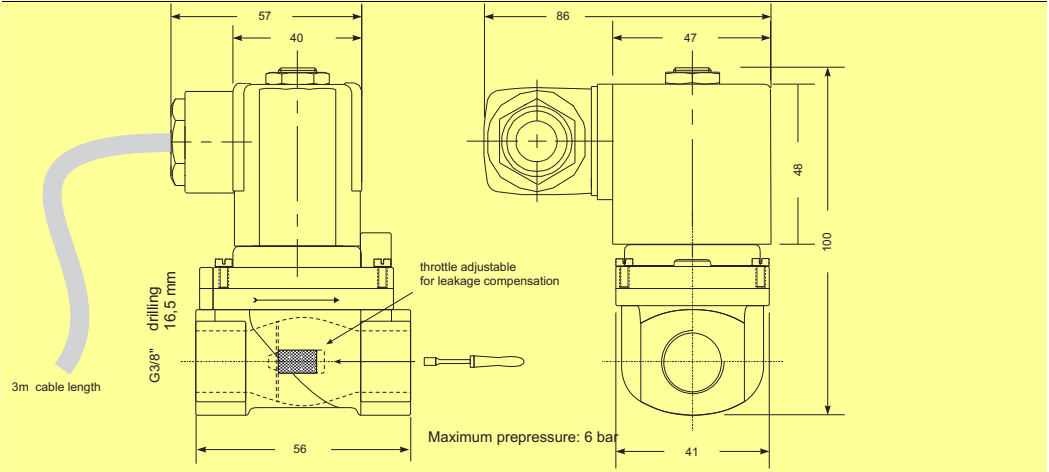


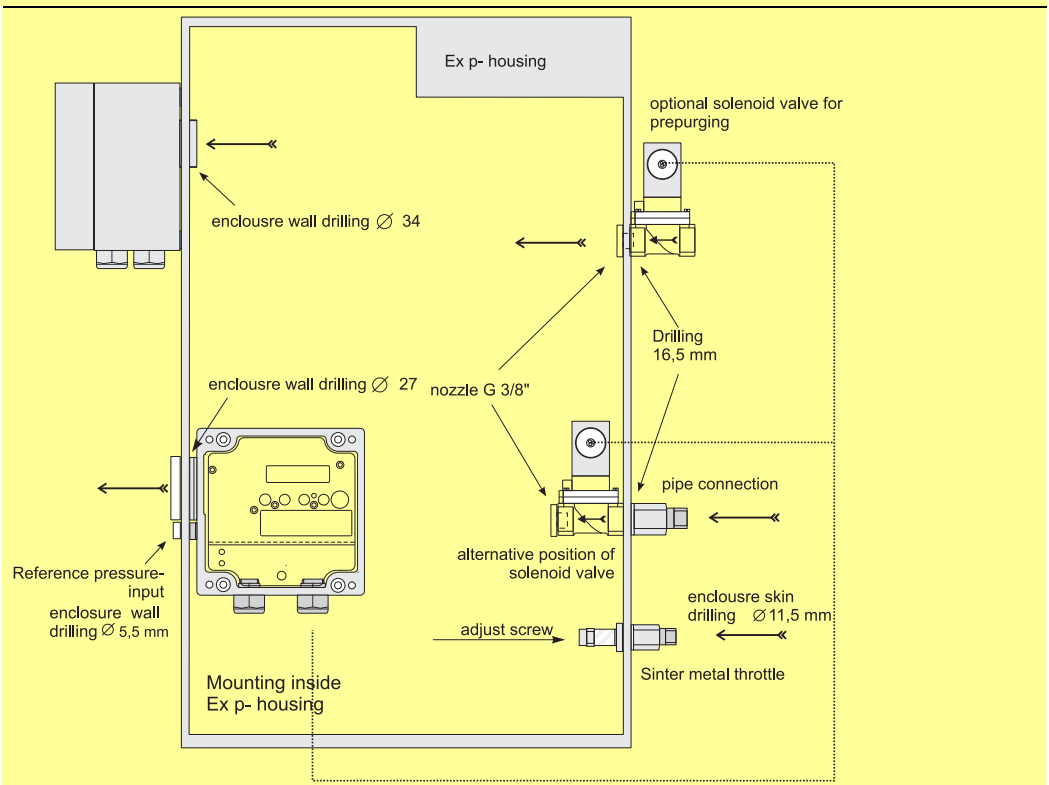
Figure 1:  
Sinter metal throttle  
SD840



**Figure 2:**  
Dimensions FS840 [mm]



**Figure 3: solenoid valve**  
SVD.L.x [mm]



**Figure 4:**  
Mounting examples

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Zertifiziertes

**Qualitäts-**

Managementsystem

nach

DIN EN ISO 9001

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