

DOUBLE AUTOMATIC NORMALLY CLOSED SOLENOID VALVES



Serie IEDD...

DESCRIPTION



Double gas automatic normally closed solenoid valve. .
Solenoid valves open when they are electrically powered and close when there is no tension.

Flow regulator available too.

Pmax = 500 mbar

Pmax = 1 bar

- In conformity with EN 161
- In conformity with Directive 2009/142/EC (Gas Directive)
- In conformity with Directive 2004/108/EC (Electromagnetic Compatibility)
- In conformity with Directive 2006/95/EC (Low Voltage)

IDENTIFICATION

IEDD S 03 32 3 B

Gas automatic solenoid valve series IEDD...

B = biogas

Types

S = standard (fast opening)
R = with flow regulation

Pmax

05 = Pmax 500 mbar
1 = Pmax 1 bar

Voltage

3 = 24 V/50 Hz
4 = 24 Vdc
6 = 110 V/50-60 Hz with rectifier
8 = 230 V/50-60 Hz with rectifier

Connections

Flanged			
Code	PN 16	Code ANSI	ANSI PN 16
32	DN 32	32A	DN 32 ANSI
40	DN 40	40A	DN 40 ANSI
50	DN 50	50A	DN 50 ANSI
08	DN 65	08A	DN 65 ANSI
09	DN 80	09A	DN 80 ANSI
10	DN 100	10A	DN 100 ANSI

**NOTE: not all combinations are possible
Please contact the technical department.**

GENERAL DATA

TECHNICAL DATA

- Use: not aggressive gases of the 3 families (dry gases)
- Flanged connections PN 16: (DN 32 ÷ DN 100) according to ISO 7005
- On request ANSI 150 flanged connections
- Power supply voltage: 24 Vdc, 24 V/50 Hz, 110 V/50-60 Hz, 230 V/50-60 Hz
- Power supply voltage tolerance: -15% ... +10%
- Electric connection (DN 32 ÷ DN 50): cable gland PG 13,5
(DN 65 ÷ DN 100): cable gland PG 11
- Cycles/hour: see table
- Power absorption: see coils and connector table
- Max. working pressure: 500 mbar; 1 bar
- Environment temperature: -15 ÷ +60 °C
- Max superficial temperature: 85 °C
- Protection degree: IP65
- Class: A
- Group: 2
- Closing time: <1 s
- Opening time: <1 s

Coils (DN 32 ÷ DN 100): the insulation class and the enamelled copper wire class is H (180°).

MATERIALS

- Die-cast aluminium (UNI EN 1706)
- 11S aluminium (UNI 9002-5)
- Galvanized and 430 F stainless steel (UNI EN 10088)
- NBR rubber (UNI 7702)
- Nylon 30% glass fibre (UNI EN ISO 11667)
- Viledon

COMPONENTS

fig. 1
DN 32 - DN 40 - DN 50

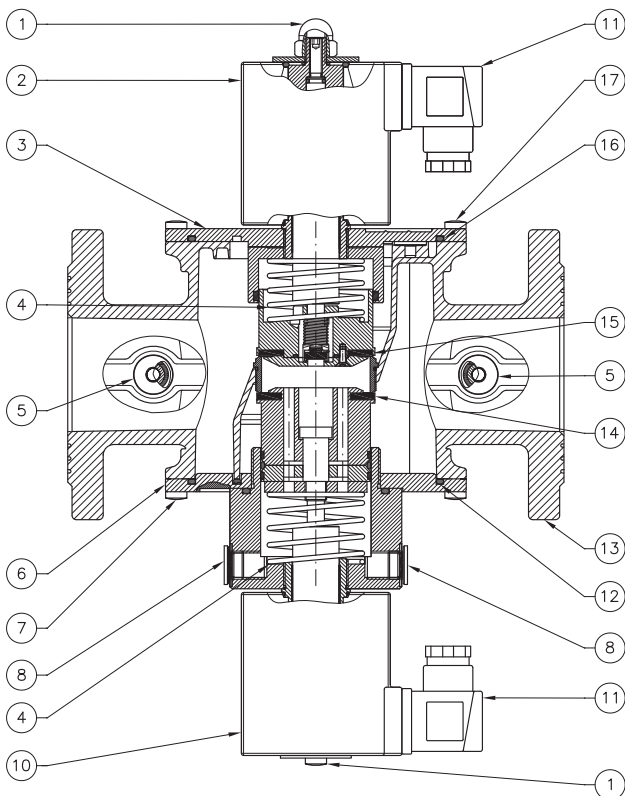
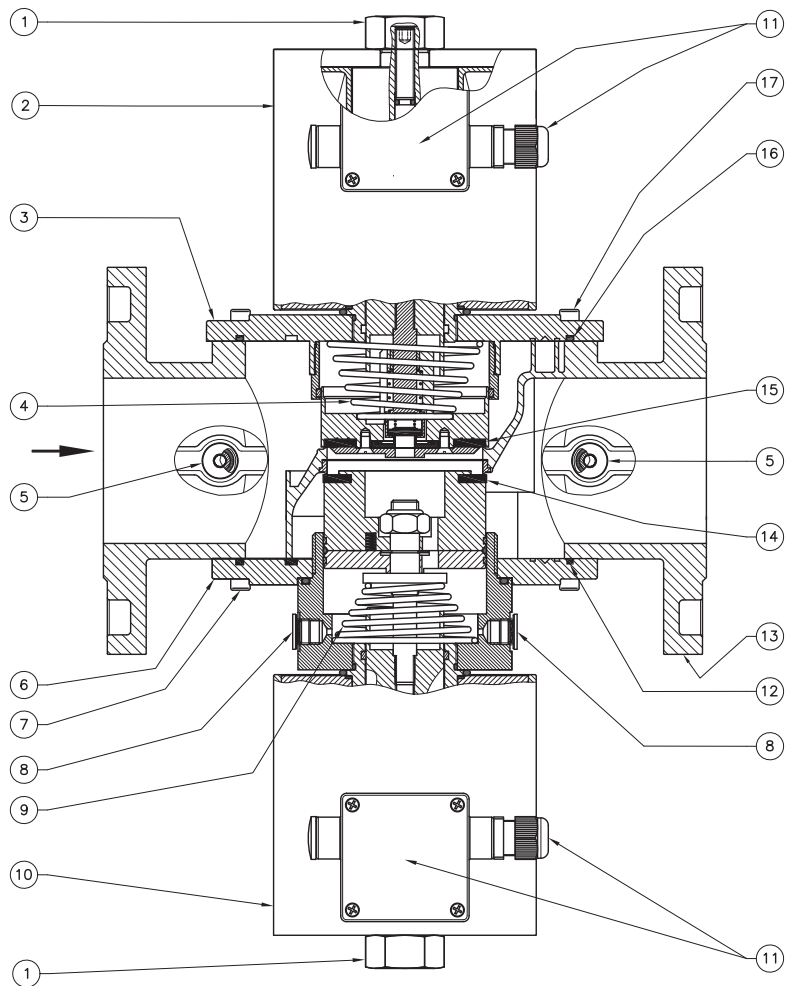


fig. 2
DN 65 - DN 80 - DN 100

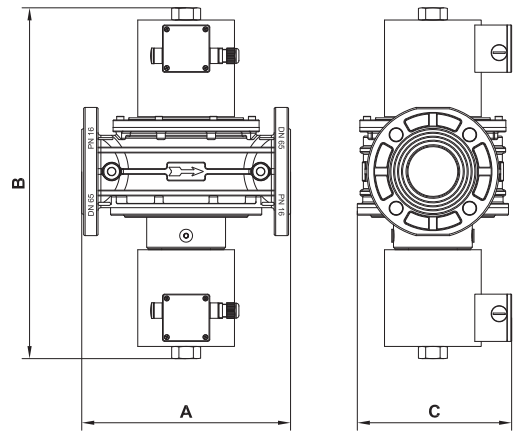


LEGEND

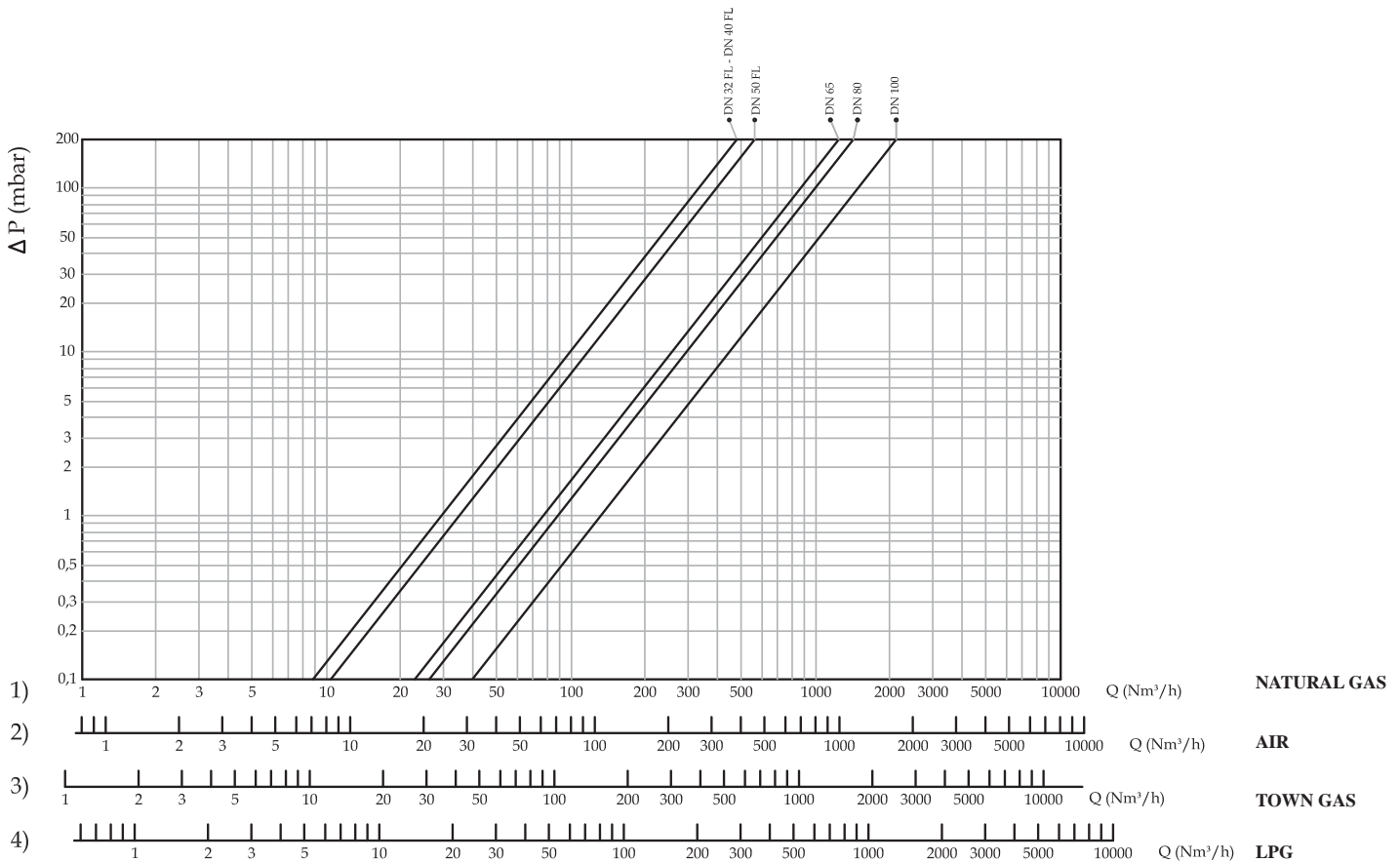
- | | |
|--|-----------------------------------|
| 1. Fixing coil nut or screw | 10. Electrical coil (valve no. 1) |
| 2. Electrical coil (valve no. 1) | 11. Electrical connector |
| 3. Cover | 12. Bottom seal O-Ring |
| 4. Closing spring (valve no. 1) | 13. Body valve |
| 5. G 1/4" cap | 14. Closure member (valve no. 2) |
| 6. Bottom | 15. Closure member (valve no. 1) |
| 7. Fixing bottom screws | 16. Cover seal O-Ring |
| 8. G 1/4" cap (for Valve Proving System) | 17. Fixing cover screws |
| 9. Closing spring (valve no. 2) | |

DIMENSIONS

Overall dimensions in mm			
Connections	A	B	C
DN 32	230	345	165
DN 40	230	345	165
DN 50	230	345	165
DN 65	290	490	215
DN 80	310	490	215
DN 100	350	665	254



PRESSURE DROP DIAGRAM



Flow calculating using K_v factor

Subcritical behavior

$$\left(p_2 > \frac{p_1}{2} \right)$$

$$Q_N = 514 \cdot K_v \sqrt{\frac{\Delta p \cdot p_2}{\rho_N \cdot T_1}}$$

$$\Delta p = \frac{Q_N^2 \cdot \rho_N \cdot T_1}{K_v^2 \cdot 514^2 \cdot p_2}$$

FL. DN 32 - FL. DN 40 $K_v = 27,6$

FL. DN 50 $K_v = 32,5$

DN 65 $K_v = 70,7$

DN 80 $K_v = 83,3$

DN 100 $K_v = 122,7$

Critical behavior

$$Q_N = 257 \cdot K_v \cdot p_1 \frac{1}{\sqrt{\rho_N \cdot T_1}}$$

$$Q_N = \frac{Nm^3}{h} \text{ air}$$

$$T_1 = K \text{ Temperature at valve inlet}$$

$$\rho_N = \frac{kg}{m^3} \text{ Density at } 0^\circ C \text{ and } P_{atm}$$

$$p_1, p_2 = \text{bar (absolute pressure)}$$

COILS AND CONNECTORS

COILS AND CONNECTORS								
Model	Tension	Coil code *	Coil stamping	Connector code *	Energy Saving	Powwer absorption	Max Cycles/hour	Min OFF time (s)
DN 32 DN 40 DN 50	24 Vdc	BO-0355	BO-0355 24 V RAC ES	CN-2100	YES	136 VA Energy saving 36 VA	400	1
	24 V/50 Hz	BO-0355	BO-0355 24 V RAC ES	CN-2110	YES	136 VA Energy saving 36 VA	400	1
	110 V/50-60 Hz	BO-0365	BO-0365 110 V RAC ES	CN-2130	YES	144 VA Energy saving 46 VA	400	1
	230 V/50-60 Hz	BO-0375	BO-0375 230 V RAC ES	CN-2130	YES	178 VA Energy saving 50 VA	400	1
DN 65 DN 80	24 Vdc **	BO-1106	BO-1106 24 Vdc - DN 65 - 80	CN-2005	YES	160 VA Energy Saving 40 VA	120	2
	24 Vdc	BO-1110	BO-1110 24 Vdc - DN 65 - 80	CN-2005	YES	370 VA Energy Saving 100 VA	120	2
	24 V/50 Hz	BO-1115	BO-1115 24 Vac - DN 65 - 80	CN-2010	YES	370 VA Energy Saving 100 VA	120	2
	110 V/50-60 Hz	BO-1120	BO-1120 110 Vac - DN 65 - 80	CN-2020	YES	520 VA Energy Saving 140 VA	120	2
	230 V/50-60 Hz	BO-1130	BO-1130 230 Vac - DN 65 - 80	CN-2030	YES	580 VA Energy Saving 150 VA	120	2
DN 100	24 Vdc	BO-1210	BO-1210 24 Vdc - DN 100	CN-2005	YES	260 VA Energy Saving 80 VA	120	2
	24 V/50 Hz	BO-1215	BO-1215 24 Vac - DN 100	CN-2010	YES	240 VA Energy Saving 70 VA	120	2
	110 V/50-60 Hz	BO-1220	BO-1220 110 Vac - DN 100	CN-2020	YES	540 VA Energy Saving 140 VA	120	2
	230 V/50-60 Hz	BO-1230	BO-1230 230 Vac - DN 100	CN-2030	YES	540 VA Energy Saving 140 VA	120	2

* Every device needs 2 coils / connectors

** Low absorption coils only for DN 65 - DN 80 versions with P.max 500 mbar

INSTALLATION

The solenoid valve is in conformity with the Directive 94/9/CE (said Directive ATEX 100 a) as device of group II, category 3G and as device of group II, category 3D; for this reason it is suitable to be installed in the zones 2 and 22 as classified in the attachment I to the Directive 99/92/EC. The solenoid valve is not suitable to be used in zones 1 and 21 and, all the more so, in zones 0 and 20 as classified in the already said Directive 99/92/EC.

To determine the qualification and the extension of the dangerous zones, see the norm EN 60079-10.

The device, if installed and serviced respecting all the conditions and the technical instructions of this document, is not source of specific dangers: in particular, during the normal working, there is no emission in the atmosphere of inflammable substance in way to cause an explosive atmosphere.



Installation must be in compliance with local legislation in force!

**WARNING: Read carefully the instruction sheet of each product before installing.
Installation and maintenance operations must be carried out by qualified personnel.**

- The gas supply must be shut off before installation.
- Check that the line pressure **DOES NOT EXCEED** the maximum pressure stated on the product label.
- The device is normally installed before the user. It must be installed with the arrow on the body towards the user and in horizontal position.
- Outside the device, there are some checking pressure nipples for the control of the regulation pressure.
- During installation take care not to allow debris or scraps of metal to enter the device.
- If the device is threaded check that the pipeline thread is not too long; overlong threads may damage the body of the device when screwed into place.
- Do not use the coil for leverage when screwing into place; use the appropriate tool.
- If the device is flanged check that the inlet and outlet counterflanges are perfectly parallel to avoid unnecessary mechanical stresses on the body of the device.
Also calculate the space needed to fit the seal. If the gap left after the seal is fitted is too wide, do not try to close it by over-tightening the device's bolts.
- Always check that the system is gas-tight after installation.

ELECTRICAL CONNECTIONS

- Before making electrical connections, check that the mains voltage is the same as the power supply voltage stated on the product label.
- Disconnect the power supply before wiring.
- **DN 32 ÷ DN 50:** Wire the connector (1) with H05SS-K 3X0.75 mm² cable outside Ø from 6.2 a 8.1 mm, taking care to ensure that the device has IP65 protection. Use cable terminals when wiring the connector (1) (see fig. 3).
- **DN 65 ÷ DN 100:** Wire the connector (1) with H05SS-K 3X1 mm² cable outside Ø from 8.3 a 9.5 mm, taking care to ensure that the device has IP65 protection.
- Connect the power supply to terminals 1 and 2 and the ground wire to terminal \perp .
- **IMPORTANT:** with tension 24 Vdc observe the polarity.

The coil (11) is also suitable for permanent power supply. In case of continuous duty, it is absolutely normal for the coil to heat up. The coil (11) should not be touched with bare hands after it has been continuously powered for more than 20 minutes. Before maintenance work, wait the coil temperature decreases or use suitable protective equipment.

MAINTENANCE

In all cases, before performing any internal checks make sure that:

1. the power supply to the device is disconnected
2. there is no pressurised gas inside the device

Unscrew the screw/nut (1) and remove the coil (2). Unscrew the fixing screws (17) and, with care, remove the cover (3), then control the closure member (14/15) and if it is necessary change the rubber made seal component (12/16). Then assemble doing backward the same operation.



All operations must be carried out only by qualified technicians.

FOR FORWARD INFORMATION PLEASE CONTACT OUR TECHNICAL OFFICE.

