



Solenoid valve
direct acting
2/2 way type ZEA

Class A

Group 1

Diameters range DN

threaded connection **Rp 3/8 ÷ Rp 2 1/2 (DN10 ÷ DN65)**

flanged connection **DN50 ÷ DN100**

Media

gas fuels (gases as per PN-EN 437); air, non-aggressive gases

FEATURES:

- poppet valve
- simple design
- single-stage, unidirectional
- closed in deenergized state -**NC**
- uniform flow - standad design
- manual regulation of flow (flow capacity) - version **ZEAb**
- suited to zero pressure differential conditions ($\Delta P_{\min} = 0$ bar)
- maximum pressure diffrence $\Delta P_{\max}$ that can appear on the valve depends on nominal diameter of valve (see **-TABLE 1**)
- permanent strainer built-in (apart from ZEA-10 and ZEA-15)
- conforms to **PN-EN 161:2011+A3:2013**
- meets principal requirments of Regulations (UE)
 - **2016/426** (GAR) from 9th March 2016
- meets principal requirments of Directive UE:
 - **2014/35/UE** (LVD)
 - **2014/30/UE** (EMC)

VERSIONS:

- type **ZEA...** standard design (uniform flow)
- type **ZEAb...** manual regulation of flow design in range 0% ÷ 100%

APPLICATION:

- designed for reliable service in all types of installations and appliances (e.g burners, heating boilers), supplied from low pressure gas network
- as a part of the **gas train** supplying high power gas appliances (mentioned above), the valve will act as an automatic safety shut-off valve class A
- in air conditioning systems
- pneumatic control systems

TECHNICAL DATA

Valve

maximum operating pressure.....	$P_{\max}$	see TABLE 1
differential pressure minimum	$\Delta P_{\min} = 0$ bar	
maximum.....	$\Delta P_{\max}$	= see TABLE 1
safe static pressure.....	$P_s = 5$ bar	
closing/opening time	< 1s	
ambient and media temperature.....	-10°C ÷ 60°C	
pipe threaded connection.....	Rp - internal straight thread	
	compliant with PN-EN 10226	
pipe flanged connection.....	keeps compatibility of flange	
	connection dimensions [PN16, 01, B]	
	in acc. with PN-EN 1092-1	
mounting direction.....	coil upwards - acceptable deviation from	
	vertical position up to - 90°	
solenoid coil.....	replaceable (together with terminal block)	
coil replacement.....	without valve disassembly	
coil position on the valve	any (360° rotation)	

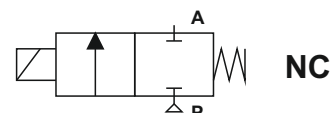
Coil

control voltage alternating	AC(50Hz)	230V	24V	(110V - option)
direct	DC	24V		(12V - option)
voltage tolerance.....		-15%; +10%		
ambient temperature		-10°C ÷ 60°C		
operation type		S1 continuous		
electrical connection		tri-contact terminal block		
safety class.....		I (earthing)		
degree of protection (acc. PN-EN 60529).....		IP54		
coil types (other data).....		see COILS data sheet...		
design (integrated)		resin-molded coil		

CE₁₀₁₅

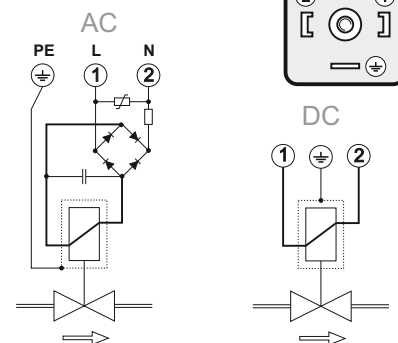


Schematic symbol



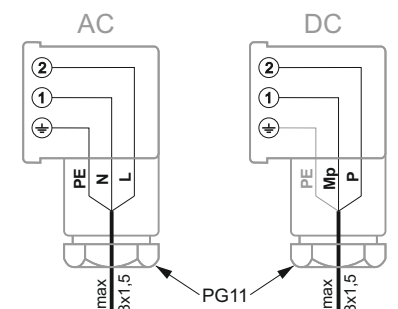
ELECTRICAL TERMINATION

coil connection



plug-in socket

The plug can be fixed in **4 positions** towards the socket (each 90°)



Conductor wires polarization- **indifferent** (apart from PE);
recommended - as on figure

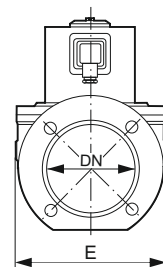
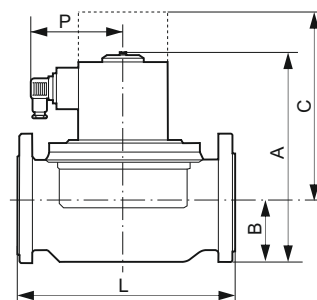
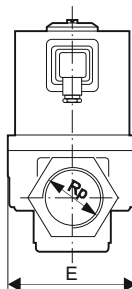
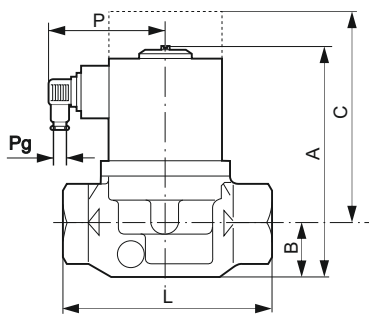
TABLE 1	Valve type		DN	Rp	Diff.pressure ΔP [bar]		P_{MAX} [bar]	Coil type			
								voltage AC		voltage DC	
					ΔP_{min}	ΔP_{max}		230V	110V	24V	12V
	ZEA-10	ZEAb-10	10	3/8	0	1,20	1,20	AC 230/25	AC 110/25	AC-DC 24/25	DC 12/25
	ZEA-15	ZEAb-15	15	1/2	0	1,20	1,20				
	ZEA-20	ZEAb-20	20	3/4	0	0,26	0,26	AC 230/25B	AC 110/25B	AC-DC 24/25B	DC 12/25B
						0,35	0,35				
	ZEA-25	ZEAb-25	25	1	0	0,17	0,17	AC 230/25	AC 110/25	AC-DC 24/25	DC 12/25
						0,30	0,30	AC 230/25B	AC 110/25B	AC-DC 24/25B	DC 12/25B
ZEA-32	ZEAb-32	32	1 1/4	0	0,14	0,14	AC 230/32	AC 110/32	AC-DC 24/32	DC 12/32	
ZEA-40	ZEAb-40	40	1 1/2	0	0,25	0,25	AC 230/50	AC 110/50	AC-DC 24/50	DC 12/50	
ZEA-50	ZEAb-50	50	2	0	0,14	0,14					AC 230/65
					0,20	0,20	AC 230/50				
ZEA-50k*	ZEAb-50k*	50		0	0,14	0,14	AC 230/50				
					0,20	0,20	AC 230/65				
ZEA-65	ZEAb-65	65	2 1/2	0	0,25	0,25	AC 230/80	AC 110/80	AC-DC 24/80	DC 12/80	
ZEA-65k*	ZEAb-65k*	65		0	0,25	0,25	AC 230/100	AC 110/100	AC-DC 24/100	DC 12/100	
ZEA-80k*	ZEAb-80k*	80		0	0,11	0,11					
ZEA-100k*	ZEAb-100k*	100		0	0,11	0,11					

(*) flanged connection valves

OVERALL DIMENSIONS (mm), WEIGHT (kg)

Type	ZEA-10	ZEA-15	ZEA-20	ZEA-25	ZEA-32	ZEA-40	ZEA-50	ZEA-65	ZEA-50k	ZEA-65k	ZEA-80k	ZEA-100k
	threaded connection valves								flanged connection valves [PN16, 01, B]			
DN	10	15	20	25	32	40	50	65	50	65	80	100
Rp	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2				
A	108	109	126	138	174	198	205	261	242	286	318	332
A*	119	120	136	148	197	221	228	314	265	339	371	385
B	14	14	22	28	37	48	40	61	78	83	94	103
C ⁽¹⁾	154	155	164	170	215	239	254	320	253	323	344	349
C*	165	166	174	180	238	262	277	373	276	376	397	402
E	41	41	77	79	100	112	142	170	165	185	200	222
L	62	72	105	115	144	178	193	240	230	270	310	350
P	95	95	95/102 ⁽²⁾	95/102 ⁽²⁾	102	110	110	132	110	132	132	144
Pg	11	11	11	11	11	11	11	11	11	11	11	11
Weight ⁽²⁾	1,64	1,66	1,80	2,05	4,08	5,80	6,40	14,80	7,40	17,15	23,65	27,10

(*) dimension for valve with flow regulation-ZEAB...
(1) dimension updated to allow coil maintenance
(2) approximate value (dependant on the selected coil)



ACCESSORIES - options (available upon request)

- plugs G1/8 or G1/4 (position 24) with gaskets
Note that standard version does not have holes for above plugs.
- counterflanges with connector pipe (for valves with flanged connection)
- stub pipe for inlet and/or outlet pressure measurement (Ø9, G1/8 lub G1/4 together with gaskets)
- used alternatively with plugs
- gas pressure sensor (at the inlet and/or outlet of a valve)
Pressure sensors are assembled as marked on figure, position 24
- valve head position sensor (position 27) from **DUNGS** type **K01/1**
- plug with voltage presence indicator
- colour

ORDERING

Necessary information for ZEA valve order:

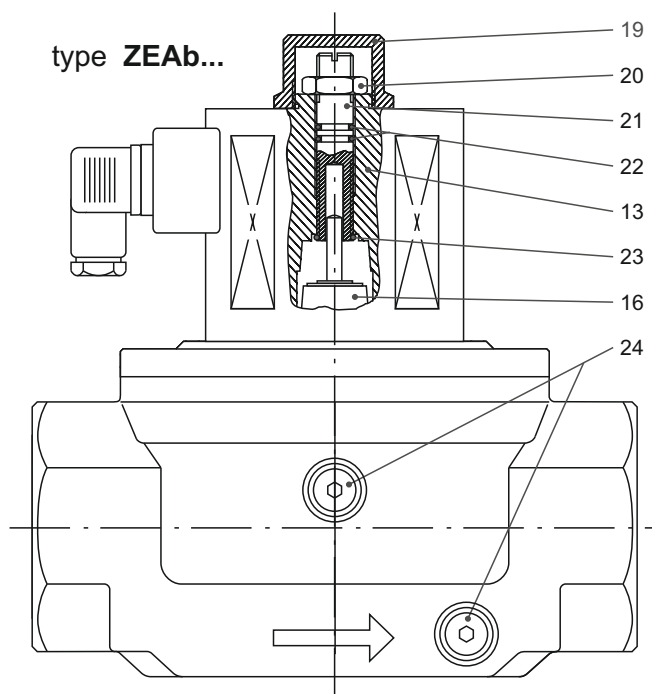
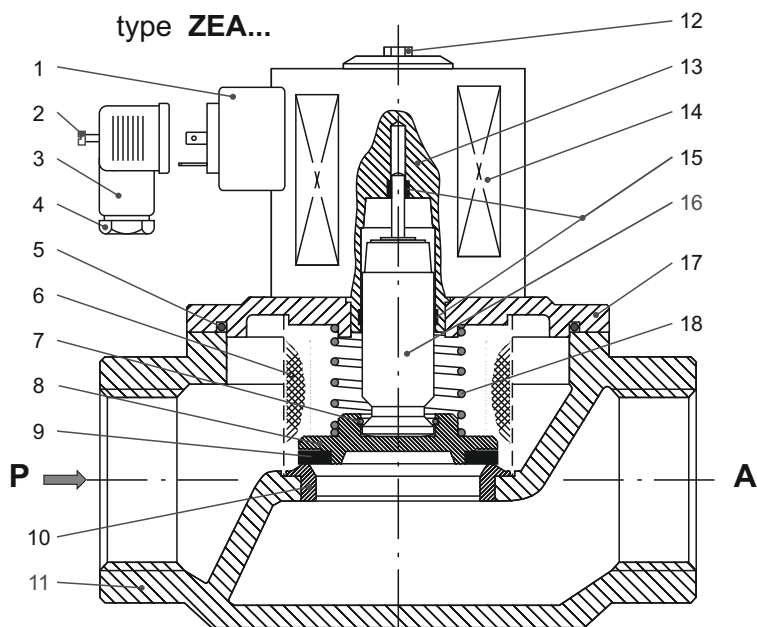
- valve **type** and pressure P_{max}
- control voltage
- possible option and accessories

Example:

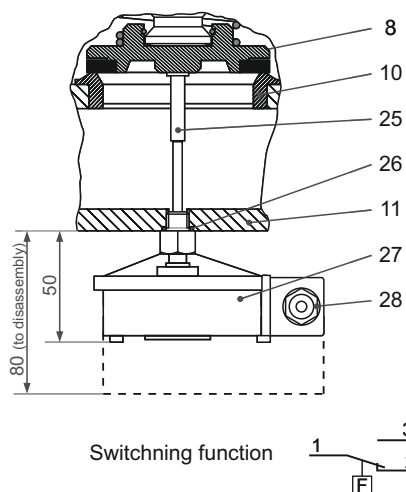
ZEA-25/0,3bar/24V DC
it means: valve with threaded connection DN25
maximum operating pressure 0,3bar
control voltage DC 24V
standard design

CONSTRUCTION

1. power supply socket
2. fastening screw
3. plug-in socket
4. impedance coil Pg11
5. sealing ring (o-ring)
6. filter
7. seating ring
8. poppet
9. poppet gasket
10. valve seat
11. valve body
12. coil fastening screw
13. coil sleeve
14. solenoid coil
15. slide rings
16. movable core
17. bonnet
18. pressing spring
19. housing
20. counter nut
21. control mandrel
22. sealing ring (o-ring)
23. protective ring
24. plug G1/8 lub G1/4
25. push rod
26. sealing ring(o-ring)
27. limit switch **K01/1** type from **DUNGS**
28. impedance coil Pg11



Valve head* position sensor (valve closing)

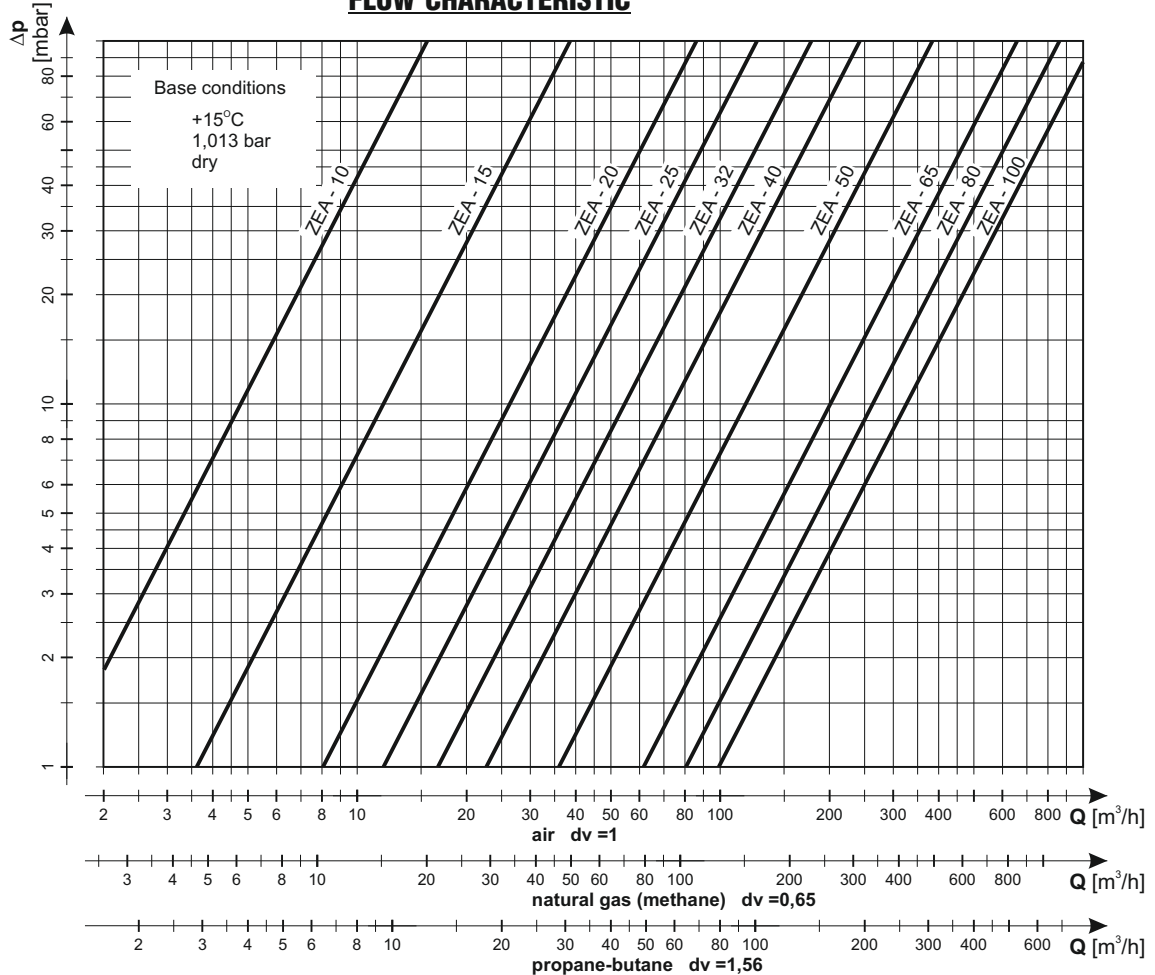


(*) - valve head: movable part of valve which shuts-off gas flow

Constructional materials

valve body	aluminium alloy
movable core	ARMCO
coil sleeve	ARMCO + brass
springs	galvanized or stainless steel
poppet body	aluminium alloy
poppet gasket	NBR (nitrile-butadiene rubber)
valve seat	aluminium alloy
sealings	NBR (nitrile-butadiene rubber)
slide rings	PTFE or brass
filter	stainless steel- filter gauze
coil	copper

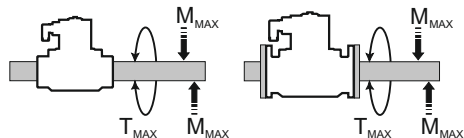
FLOW CHARACTERISTIC



INSTALLATION - basic assembly requirements:

- mounting to installation according to the gas flow arrow on the valve
- it is necessary to anticipate and take into account the pressure surplus that may occur at the valve inlet in case of failure to components in the system located upstream the valve
- mounting position is coil upwards. Acceptable deviation from vertical position cannot exceed 90°
- direct contact of the valve with wall, ground, etc. is unacceptable; keep the minimum distance - about 1 cm
- location of the valve should be selected so as to ensure free access needed to its operation (for persons authorized to do so)
- attention should be paid so that after valve installation there is enough space left (**maneuvering area**) for ease coil replacement
- ensure proper rigidity of the installation in the place where the valve is installed (Group 1 valve). This can be achieved by using rigid supports to the bending and torsional stress exerted by the piping system in the installation (eg due to the lack of alignment of the of the pipeline at the inlet and outlet of the valve).
- maximum moments: turning T_{MAX} and bending M_{MAX} cannot exceed the values given in TABLE 2
- ensure that valve is mounted rigidly so as to avoid any vibration
- in valves with threaded connections pipe should be screw in that way so that 10 second torque not exceed values of T_{MAX} given in TABLE 2
- use appropriate thread sealant to ensure tightness of the connections
- tighten the flange screws crosswise **Attention:** maximum torque of **50 Nm (~5 kGm)**
- a strainer which protects from mechanical impurities should be fitted upstream the valve in the gas installation. Maximum dimension of strainer openings should not exceed 0,2 mm
- valve's assembly should be finalized with carrying out an leaktightness test of installation including **ZEA** valve using compressed air or inert gas (oxygen use is forbidden) Test pressure cannot exceed **$P_s = 5 \text{ bar}$**
- during operation valve
 - cannot be exposed to dilatation nor dynamic forces
 - need to have ensured correct operating temperature (ambient and media)
 - should be protected against strong dustiness and water flooding

TABLE 2



DN	10	15	20	25	32	40	50	65	80	100
Rp	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2		
T_{MAX} [Nm] $t \leq 10s$	35	50	85	125	160	200	250	325	400	400
M_{MAX} [Nm] $t \leq 10s$	35	70	90	160	260	350	520	630	780	950

FLAMA-GAZ ELEKTROZAWORY S.C.
43-418 Pogwizdów k/Cieszyna, ul. Szkolna 3

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phone +48 33 856-85-70, fax +48 33 856-85-62, www.flamagaz.com, e-mail: firma@flamagaz.com