

SELF-ACTUATING FLOW REGULATORS TYPE ZSN8

APPLICATION AREA:

Regulators ZSN8 are used to control preset pressure in process installations. Regulators are applied in heating systems, in industrial processes with cold and hot water, steam, air and non-flammable gases. Using with other media subject to consulting with manufacturer.

DESIGN:

Regulator comprises two main units: valve (01) and actuator (02). Regulator valve single-ported with balanced plug, and flow rate preset value adjuster in the form of gradually adjusted packing gland. Flanged connections of valve body with valve face as per PN-EN 1092-1:2006 and PN-EN 1092-2:1999 for PN10; 16; 25; 40 PN-EN 1759-1:2005 for CL150; CL300.

Body length as per:

PN-EN 60534-3-1:2000 - Series 1 for PN10; 16; 25; 40;

Series 37 for CL150; Series 38 for CL300

Diaphragm actuator (diaphragm effective area 160 cm²), with bolted housing and spring allowing to achieve preset pressure drop on adjuster packing gland of 20 [kPa] or 50 [kPa].



VARIANTS:

By valve leakage class:

- below 0.01%Kvs (class IV as per PN-EN 60534-4) - hard seat,
- bubble (class VI as per PN-EN 60534-4) – soft seat - PTFE or VMQ (ECOSIL).

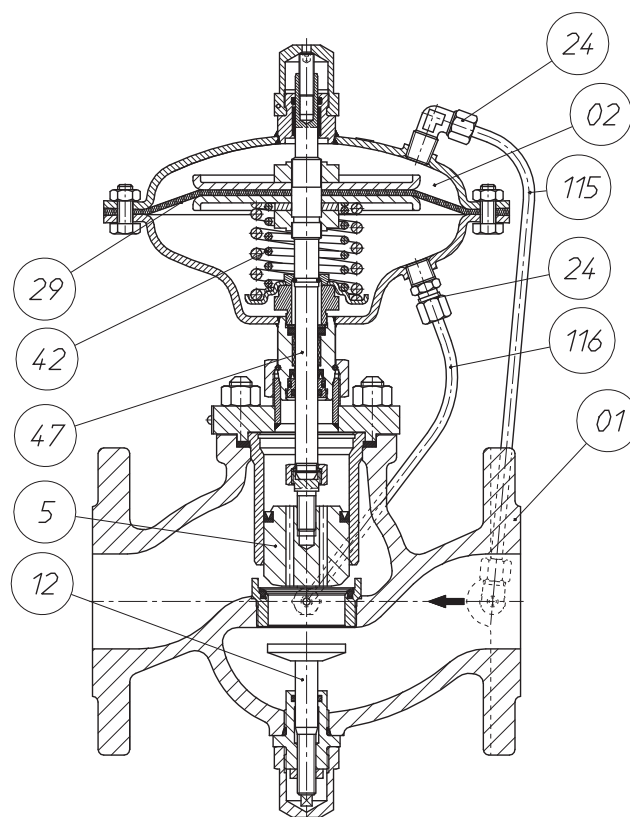
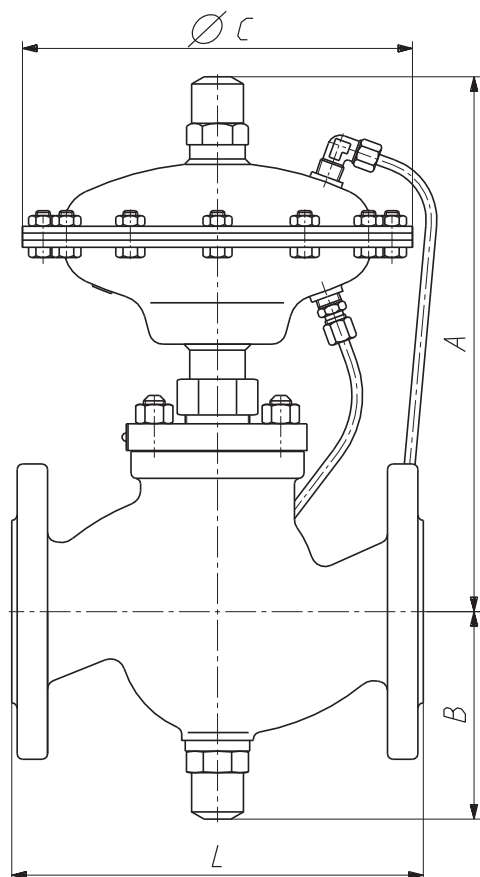
By corrosion-proofness of actuator components:

- standard (ZSN 8.1) – carbon steel with protection coatings,
- special (ZSN 8.2) – stainless steel.

OPERATING PRINCIPLE:

Regulator valve is open when no supply. Regulator operation consists in measurement and control of permanent pressure difference on the packing gland (12) of value preset by medium flow. Controlled pressure difference is transferred to actuator via impulse ducts (115) "+", (116) "-", generates a force on actuator diaphragm (29) corresponding to actual controlled value, compared on actuator stem (47) with spring tension force (42). With change in flow rate, and consequential change in value of controlled pressure difference, force generate don diaphragm shall move the stem (47) with attached plug (5) until spring (42) tension force is compensated. This way flow rate is kept on constant level. Regulator does not require any additional impulse ducts. Total pressure drop in valve comprises pressure drop on packing gland and on plug.

DIMENSIONS AND WEIGHTS



DN	A	B	C	Diaphragm effective area [cm ²]	L	Valve weight (01)
	[mm]					[kg]
15	295	90	215	160	130	9,3
20					150	10,4
25					160	10,9
32					180	14
40	320	110			200	16,3
50	325	120			230	20,3
65	365	142			290	29,5
80		151			310	37
100		185			350	52,5

TECHNICAL SPECIFICATIONS

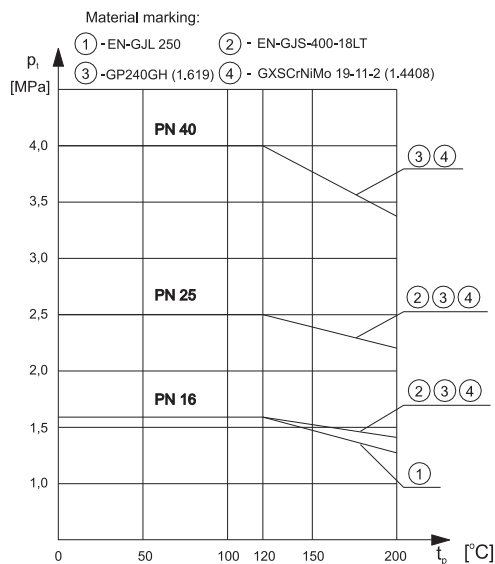
DN		15	20	25	32	40	50	65	80	100
K _{vs} [m³/h]	full flow	3,2	5	8	12,5	20	32	50	80	125
	reduced flow	1	1,6	2,5	5	8	12,5	20	32	50
		1,6	2,5	3,2						
2,5		3,2	5							
Skok [mm]		6			8			12		14
Noise coefficient Z		0,65	0,6	0,55		0,45	0,4		0,35	
Control characteristics		proportional								
Spring range	Δp = 20 [kPa]	4...40								
% K _{vs}	Δp = 50 [kPa]	7...70								
Maximum pressure in actuator chamber [bar]		20								
Allowed pressure drop in valve [bar]		12						10		
Minimum pressure drop in valve [bar]		2 Δp (0,4 lub 1)								
Valve nominal pressure		valve body in grey iron						PN 16		
		valve body in spheroidal iron						PN 16; PN 25; PN 40		
		valve body in carbon steel and stainless steel						PN 16; PN 25; PN 40		
Maximum medium temperature [°C]		steam						150		
		water								
		gases						80		

MATERIALS as per PN

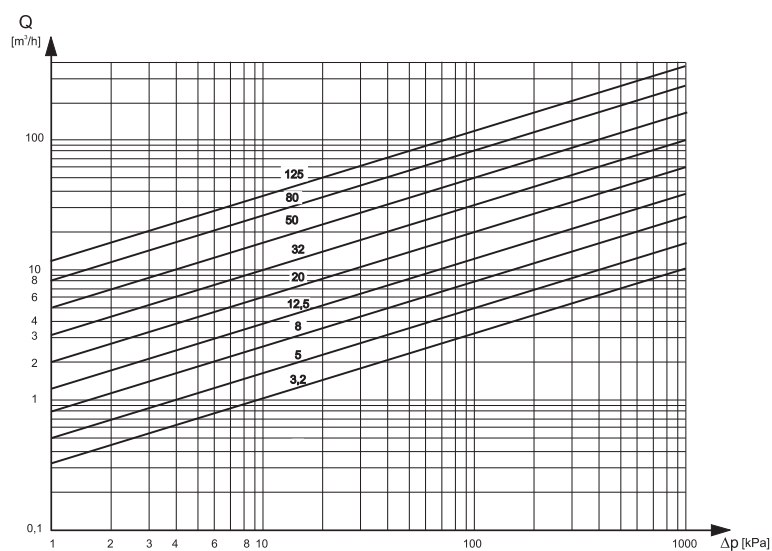
Regulator	ZSN 8.1	ZSN 8.2
	VALVE (01)	
Body	grey iron EN-GJL-250 spheroidal iron EN-GJS-400-178LT carbon steel GP240GH (1.0619) stainless steel GX5CrNiMo 19-11-2 (1.4408)	
Plug and seat	X6CrNiMoTi 17-12-2 (1.4571)	
Guide sleeve		
Packings	EPDM ¹⁾	
	ACTUATOR (02)	
Housing	carbon steel S235JRG2C (1.0122)	stainless steel X6CrNiTi 18-10 (1.4541)
Stem	X17CrNi 16-2 (1.4057)	
Spring	spring steel 60Si7	
Diaphragm	EPDM + polyester fabric ¹⁾	
Packing	EPDM ¹⁾	

¹⁾ other materials, subject to medium type.

NOMINAL PRESSURE, WORKING TEMPERATURE AND WORKING PRESSURE



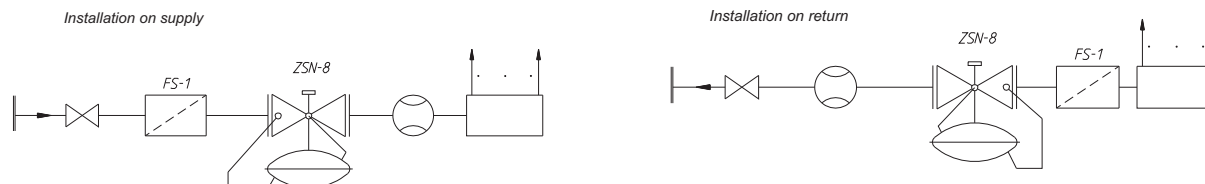
FLOW DIAGRAM FOR WATER



INSTALLATION

Regulator is to be installed on horizontal pipeline. Medium flow direction is to conform to arrow on body. At medium temperature lower than 130°C regulator position is optional, at higher temperatures it is recommended to install regulator with adjuster unit (03) down. To ensure reliable operation of regulator apply strainer FS1 upstream.

EXAMPLES OF APPLICATION



ACCESSORIES

Delivered:

- nut and cutting ring for impulse tube,

Optional (ordered separately):

- strainer FS1.

ORDERING

In your order specify type and marking, ZSN 8.1 or ZSN 8.2, DN nominal diameter, PN nominal pressure, flow ratio K_{vs} , body material, pressure drop on packing gland (20 or 50 [kPa]), closure type (only for tight executions).

Example of order:

ZSN 8.1 – DN 40; PN 25; K_{vs} 20; spheroidal iron; 20 [kPa], tight.