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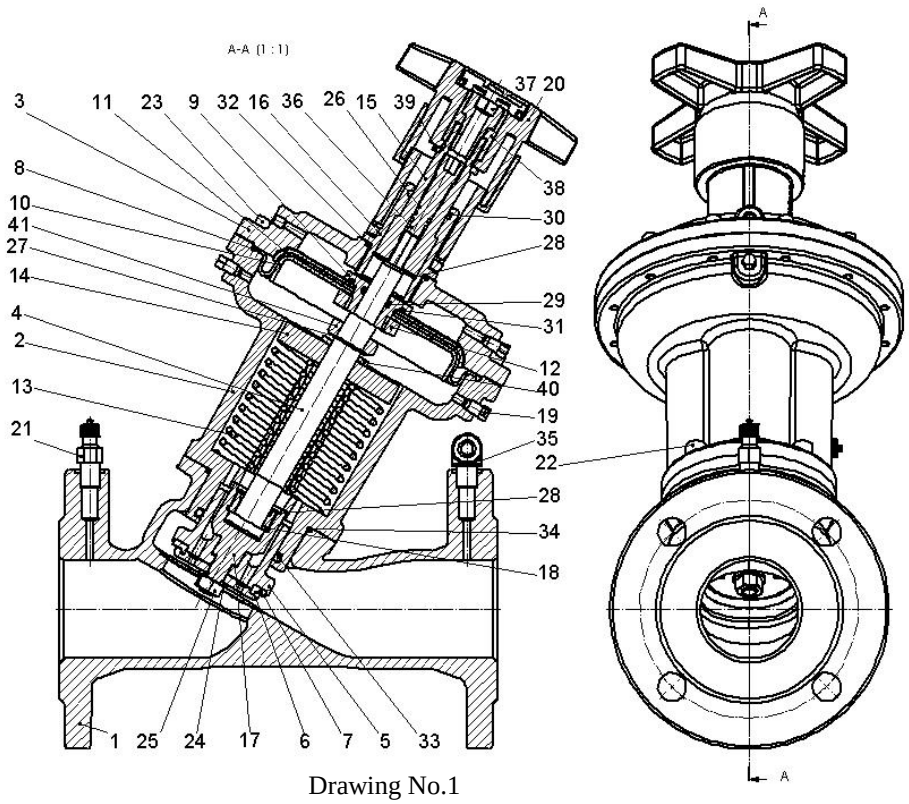
ZETKAMA

USER MANUAL		
DIFFERENTIAL PRESSURE REGULATING VALVE	**Fig. 224**	**Version: 1/2017** **Data: 01.01.2017**

TABLE OF CONTENS

1. PRODUCT DESCRIPION

figure	224
type ends	flanged Y-type



Drawing No.1

Materials from which the valve is made contains tables 1.

Tables 1

	body material	A
	type	56,66
1	body	EN-GJL-250 (JL1040)
2	top cover	EN-GJL-250 (JL1040)
3	bottom cover	EN-GJL-250 (JL1040)
4	stem	CuZn36Pb2As
5	disc	PPS
6	retaining ring	X5CrNi18-10
7	seal of the disc	EPDM
8	diaphragm	EPDM
9	sleeve diaphragm	X5CrNi18-10
10	bottom bracket of diaphragm	X5CrNi18-10
11	top bracket of diaphragm	X5CrNi18-10
12	nut	X5CrNi18-10
13	spring	X17CrNi16-2
14	nut of spring	X5CrNi18-10
15	top stem	CuZn36Pb2As
16	bush	CuZn36Pb2As
17	jointing sleeve	CuZn36Pb2As
18	screw	CuZn36Pb2As
19	korek G1/16”	CuSn5Zn5Pb5
20	pokrętło	POLIAMID PA6.6
21	measuring nipples	CuZn36Pb2As
22-23	screw	8.8 A2A
24	washer	A2
25	nut	A2
26	o-ring	EPDM
27-28	expanding ring	A2
29-34	o-ring	EPDM
35	screwed elbow	CuZn36Pb2As
36	screw	A2
37	screw of hand wheel	A2
38	bush	CuZn39Pb2
39	washer	CuZn40Pb2
40	washer	CuZn36Pb2As
41	nut of stem	CuZn40Pb2
max.temperature		120°

DPRV valve F.224 are manufactured in two pressure difference of ranges:

ΔP_{instal} = 20 – 70 kPa

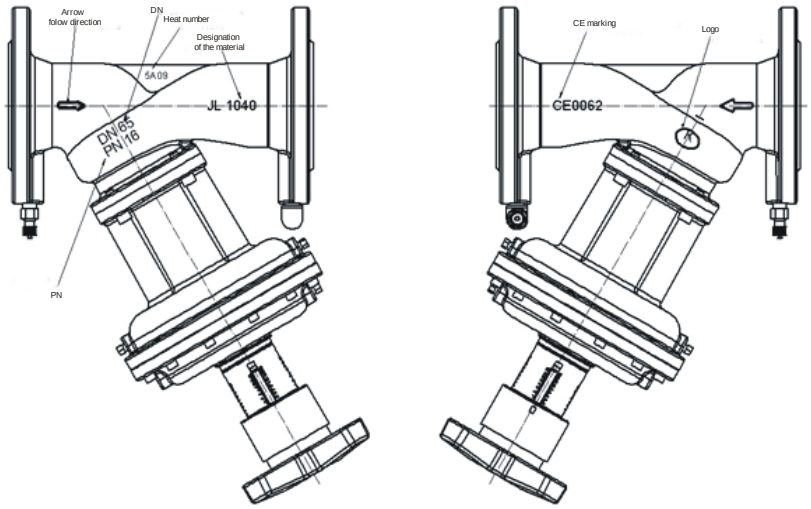
ΔP_{instal} = 40 – 160 kPa

Tmax. - 120°C
Tmin - - 10°C

Valves produced by ZETKAMA, including DPRV , have a permanent marking compliant with the requirements of PN-EN19. The marking facilitates technical identification and contains:

- Nominal diameter DN (mm),
- Nominal pressure PN (bar),
- Designation of the material of which the body and cover are made,
- Arrow indicating the direction of flow,

- manufacturer,
- heating number,
- CE marking accordin PED Directive 2014/68/UE for ≥ 65.



2. REQUIREMENTS FOR MAINTENANCE STAFF

The staff assigned to assembly, operating and maintenance shall be qualified to perform this work.
During valve operation heat parts of the valve, e.g. body or cover parts could cause burn.If necessary the user should fit insulation shields and warning signs.

3. TRANSPORT AND STORAGE

Transport and storage should be carried out at a temperature from -20°C to 65°C, and valves should be protected against external forces.Valves must be stored free from contaminants and protected against the weather. In humid areas drying agent or heating should be applied to prevent the formation of condensation. The valves should be transported in a manner that does not damage the handwheel.

It is not allowed to fit lifting devices to connecting holes and handwheel

4. FUNCTION

Differential pressure controller maintains a constant differential pressure adjustable at a given flow. The regulation is accurate and stable so that there is less risk of noise from control valves.
Controls are mounted on pipes return.
It is possible to shutting off the flowc by closing the regulator, using the allen key 8mm3 The key is to put the knob socket screws pos. 36 (Drawing 1) - rotate in the direction of clockwise.- Turn the knob in the clockwise direction until closing.

5. APPLICATION

- heating
- refrigeration and air conditioning
- industrial water
- neutral fluids
- compreesed air

Working medium requires or prohibits the use of certain materials.The valves are designed for normal conditions of use. In the case that working conditions exceed these requirements, e.g. in the case of aggressive or abrasive factors, a user should make an inquiry to the manufacturer before ordering.

Working pressure should be adjusted to the maximum temperature of the medium, as shown below.

DPRV Valve F.224

EN 1092-2		Temperature [º C]
Material	PN	-10 to 120
EN-GJL250	16	16 bar

The responsibility for correct selection of the valve is borne by designer

6. INSTALATION

At the assembly of DPRV valves, observe the following rules:

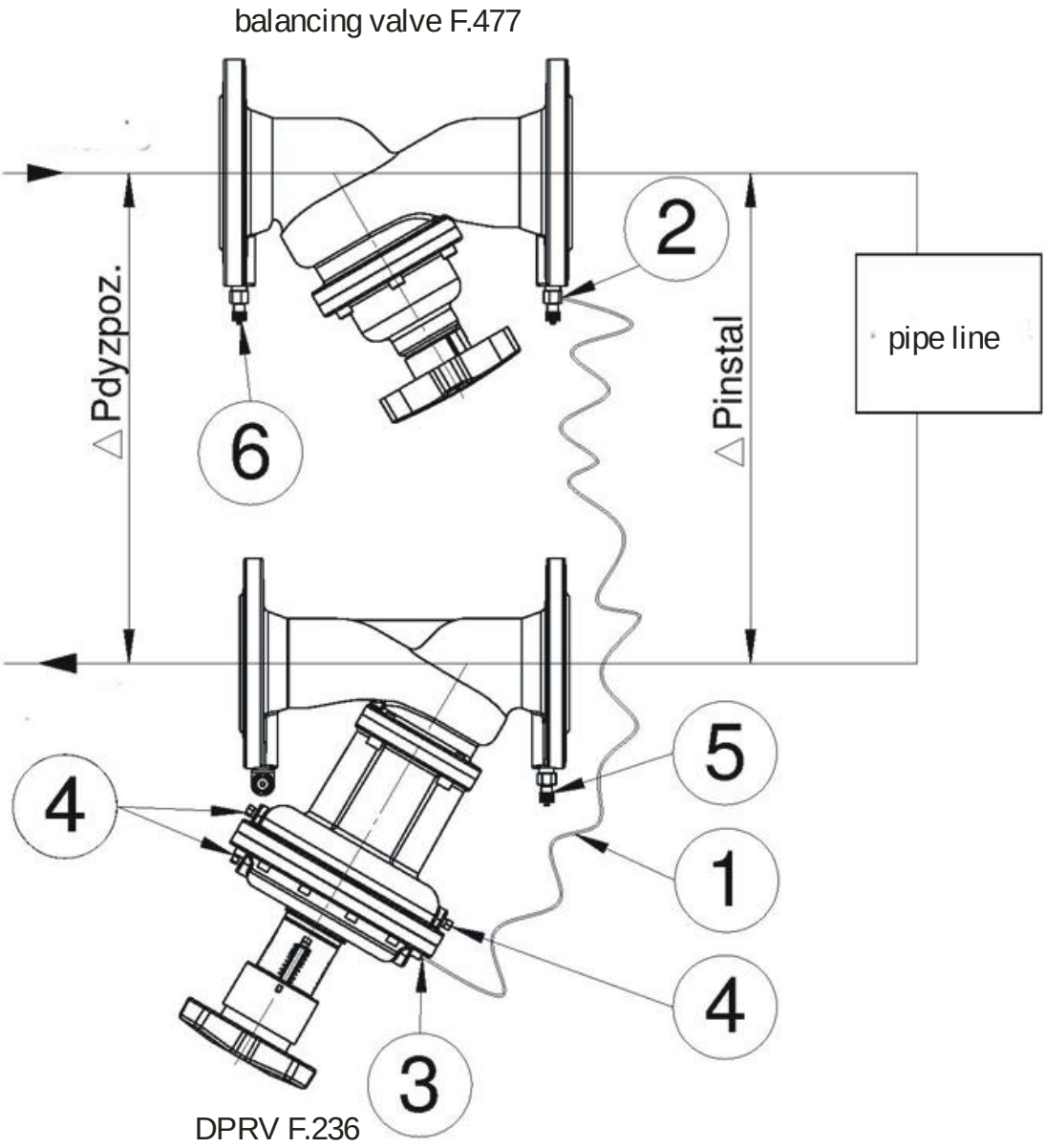
- before an assembly evaluate if the valves were not damaged during transport or storage, and make sure that applied valves are suitable for working conditions and the media in the system,
- remove caps if the DPRV valves are provided with them
- check if the interior of valve is free of foreign matter,
- protect valves during e.g. welding, against splinters and used plastics against excessive temperaturę

Pipeline, on which valves are mounted, should be arranged and mounted so the valve body is not transmitting bending moment and is not extended.

- use compensators in order to reduce the impact of thermal expansion of pipeline

Install the valve so that flow direction comply with an arrow placed on the body.

- correct operation of the valve requires suitably long straight sections: 5 x DN up and 2 x DN downstream and 10 x DN if before the DPRV valve is mounted pump.
- during pipeline painting valve. parts made of plastic and scale of the valve must be protected,
- valves can be mounted in any position, recommend position of the valve is wheel down,
- before starting the installation, especially after repairs, the pipeline should be flushed through with the fully opened valve,
- installation of strainer before the valve increases certainty of its correct functioning
- connect impulse pipe (pos. 1) between a balancing valve in the supply (item 2) and the feed opening of the diaphragm regulator (item 3) mounted on the return
- vent the upper and lower part and impulse pipe by loosening (item. 3) until water flows
- make a test the DPRV valve with cold water



7. Setting the DPRV with the presetting valves :

1. Fully open all balancing valves
2. Set all valves at the end receivers on the design flow.
3. Set the differential pressure using of hand-wheel - number of rotations is given in Table 2.
4. Measure the pressure difference $_{\Delta pinstal}$ - using the Balancing Measuring Device T550, connecting it to the measuring nipples in Fig.447, item. 2, and the measuring nipples item. 5 of DPRV.
5. If the flow rate on a balancing valve Fig.447 is different from the design value, reset ΔP_{instal} to get on the valve in Fig.447 design value of flow rate. Because the installation has of the inertia, wait a few minutes to read the measured values.

TABLES 2

ΔP_{instal} [kPa]	Turn	
	20-70 kPa	40-160 kPa
20	0,0	
25	1,5	
30	3,0	
35	4,5	
40	6,0	0,5
45	7,5	1,1
50	9,0	1,7
55	10,5	2,3
60	12,0	2,9
65	13,5	3,5
70	15,0	4,1
75		4,7
80		5,3
85		5,9
90		6,5
95		7,1
100		7,7
105		8,3
110		8,9
115		9,5
120		10,1
125		10,7
130		11,3
135		11,9
140		12,5
145		13,1
150		13,7
155		14,3
160		14,9

To ensure the safe operation of each valve and the regulator should be checked regularly.

8. MAINTENANCE AND REPAIR

DPRV valves Fig.223 do not require any maintenance provided that they are used in accordance with their intended use

Before taking up any maintenance actions, make sure that you have cut off the flow of medium in the pipe, the pressure was reduced to ambient pressure, medium was removed and the system was cooled down.

– all maintenance and repair work should be performed by qualified personnel using suitable tools and original spare parts.
– during the maintenance and repair work personal protection measures appropriate for the risk involved should be used,
– after removing the valve there is a need to replace the sealing, with which the valve is connected to the pipeline,
– each time when the cover is removed, clean the valve sealing surface and apply new gasket of the same type as previously used
– tightening the cover to the body must be made with the valve opened (plug in the upper position)
- before reassembling the valve in the pipeline it is necessary to check valve operation and tightness of all connections. Tightness test should be carried out with water pressure of 1,5 x nominal press ure of the valve

9. CAUSES OF OPERATING DISTURBANCES AND THEIR ELIMINATION

When searching for the malfunctioning of the valve safety rules must be observed

DISTURBANCE	POSSIBLE CAUSE	HOW TO REMOVE
No flow	Valve closed	Open the valve
	The caps not remove	Remove the caps
Low flow	Valve not sufficiently open	Open the valve
	Contaminated filter	Clean or replace the strainer
	Clogged pipeline system	Check the pipeline
Leakage on the spindle	Contaminated O-rings	Replace the O-rings
Leakage on the seat	Demaged the seat or plugs ring	Replace the valve.Contact the supplier or manufacturer
	Medium contaminated with solid objects	Clean the valve. Install the filter before the valve
The crack of the flange	Uneven tightening the screws	Replace the valve

10. DECOMMISSIONING

After decommissioning and dismantling, valves must not be disposed of with household waste.The valves are made of materials that can be recycled.To do this, deliver them to a recycling point.

11. TERMS OF WARRANTY

ZETKAMA guarantees the quality with assurance for proper operation of its products, when installed in accordance with the instruction manual and the operation according to technical conditions and parameters described in the data sheets of ZETKAMA. The warranty period is 18 months from the date of installation, but not longer than 24 months from the date of sale.

The warranty does not cover assembly of foreign parts and design changes made by the user as well as natural wear. You should inform ZETKAMA about hidden defects of the product immediately after detection.

Complaint must be in writing.

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