W-DPBV-16Q Series

Differential pressure balancing valves

Technical Data Sheet

Watts.eu

Description

The Series **W-DPBV** differential pressure-balancing valve is designed to keep constant differential pressure between supply pipes and return pipes of a bypass, control valve or terminal equipment in air-conditioning or heating system. It avoids hydraulic disturbances resulting from variations in system differential pressure.

W-DPBV-16Q

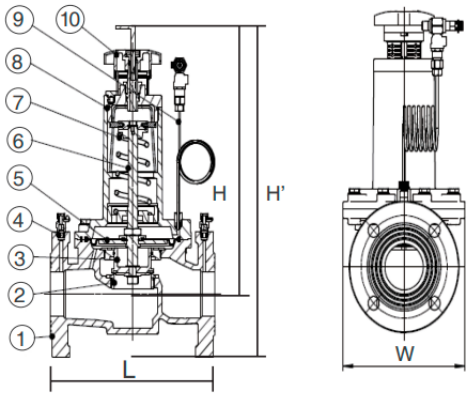
Differential pressure-balancing valve **with flanged connections** for heating and cooling systems. Self-acting differential pressure control, no external power needed. On-site setting of differential pressure. Wide controllable range of differential pressure. Handwheel equipped with differential pressure indicator. Able to be shut off by handwheel. Self-sealing measuring points to protect against leakage. Equipped with measuring points and air vent. Equipped with three-way measuring connector. High-pressure guide tube with ball valve.

- Nominal Pressure: PN16
- Temperature Range: -10°C÷120°C
- Patent No: ZL 2016 2 0992099.2

Type	Part No.	DN	ΔP Control (kPa)	Kvs (m^3/h)	Weight (kg)
W-DPBV065S-16Q	61180040E	65	20-80	60	26.5
W-DPBV080S-16Q	61180041E	80	20-80	80	33.5
W-DPBV100S-16Q	61180042E	100	20-80	110	47
W-DPBV125S-16Q	61180043E	125	20-80	180	69.5
W-DPBV150S-16Q	61180044E	150	20-80	250	102
W-DPBV065L-16Q	61180045E	65	40-150	60	26.5
W-DPBV080L-16Q	61180046E	80	40-150	80	33.5
W-DPBV100L-16Q	61180047E	100	40-150	110	47
W-DPBV125L-16Q	61180048E	125	40-150	180	69.5
W-DPBV150L-16Q	61180049E	150	40-150	250	102

Technical features	
Nominal pressure	PN16
Fluids	Water (liquid), Water + glycol (liquid) Not suitable for: Gases (Group 1 & 2) and liquids of Group 1 as defined in PED 2014/68/EU. The fluid must remain single-phase (no flashing) under all operating conditions. Not for steam/superheated water.
Maximum glycol content	50%. Higher percentages only on request and subject to Watts approval
Operating temperature	-10°C÷120°C Fluid temperatures below 0°C and above 100°C allowed only for water with anti-freezing or anti-boiling additives. For temperatures above 100°C, the vapor pressure of the selected fluid must be < 0,5 bar(g)
Connection standard	EN 1092-2
Control accuracy	±8%
Maximum Working Differential Pressure:	≤ 400 kPa
CE Marking	No CE marking (Falls under art. 4.3 of Pressure Equipment Directive)

Pos.	Component	Materials
1	Body	Ductile Iron
2	Seat	Stainless Steel (SS304)
3	Core	Stainless Steel (SS304)
4	Measuring Points	CW602N
5	Diaphragm	HNBR
6	Stem	Stainless Steel (SS304)
7	Spring	Stainless Steel (SS304)
8	Sealing	EPDM/FKM
9	Pressure Pipe	T2M
10	Handwheel	PA66



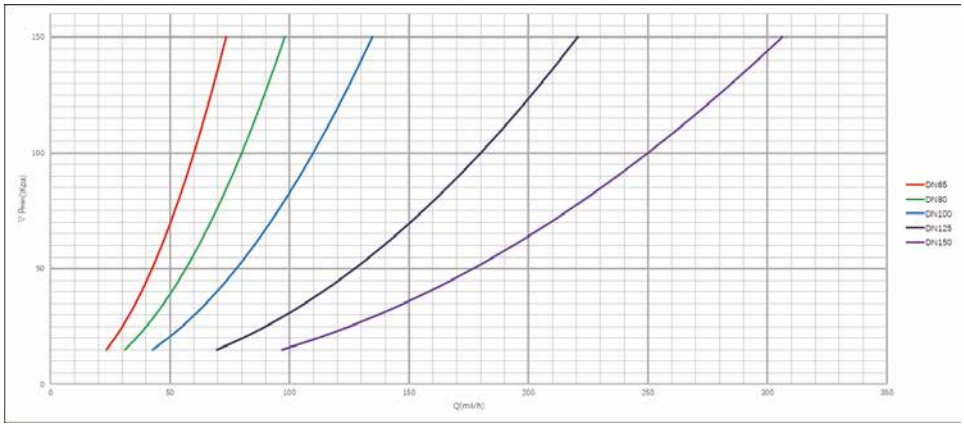
Application

Heating and cooling systems.

Working Principle

When the service pressure difference of the system pipe increases, relying on the pressure change of its high and low pressure, the dynamic differential pressure balancing valve's chambers re-balance the forces acting on both sides of the diaphragm, at the same time, it drives the valve stem to move, reduces the valve opening, absorbs the increased utility pressure difference, and ensures the constant pressure difference at the controlled side.

Working Differential Pressure Range



Turns	ΔP (kPa)					
	DN65		DN80		DN100	
	20-80 kPa	40-150 kPa	20-80 kPa	40-150 kPa	20-80 kPa	40-150 kPa
0	20	40	22	44	22	40
1	24	46	25	50	26	46
2	30	54	30	56	30	54
3	35	62	36	62	34	62
4	40	70	42	70	38	70
5	45	78	48	78	42	77
6	50	86	52	87	46	85
7	56	96	58	96	50	94
8	62	108	65	106	55	105
9	68	120	72	118	60	118
10	74	134	80	136	66	126
11	80	150	88	154	72	138
12					79	145
13					85	156

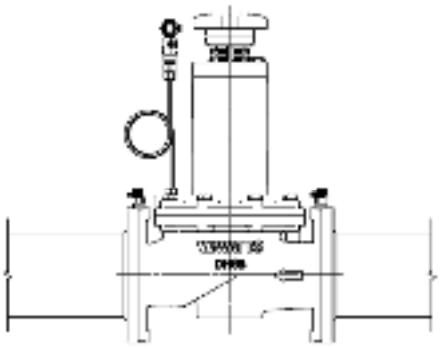
Turns	ΔP (kPa)			
	DN125		DN150	
	20-80 kPa	40-150 kPa	20-80 kPa	40-150 kPa
0	21	42	24	41
1	26	48	32	48
2	30	55	37	53
3	34	64	41	59
4	38	67	43	64
5	45	75	48	70
6	48	84	53	78
7	51	93	58	86
8	61	100	59	94
9	64	106	63	102
10	71	116	66	111
11	76	124	70	123
12	80	135	78	135
13	85	157	82	146

Type Selection

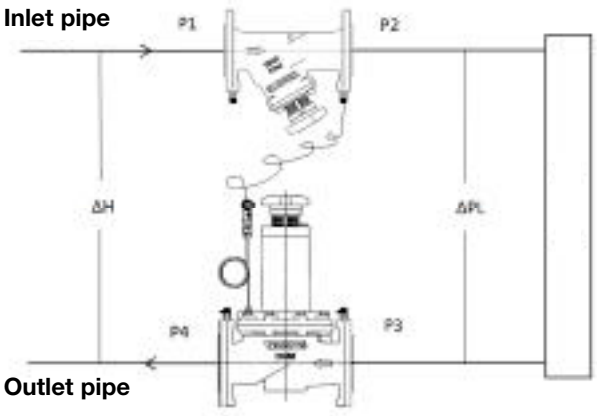
1. The controlled differentiated pressure should be set in the range of DPBV differential pressure (20-80 kPa or 40-150 kPa)
2. Pick the valves, which have the same outlet size to the pipes.
3. The maximum flow rate value of pipe system should be less than the maximum flow rate of DPBV.

Installation Instruction

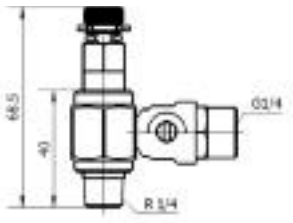
1. Be careful about the flow direction when installing the DPBV



2. Tee test head is set in the outlet or inlet side of static valve according to requirements



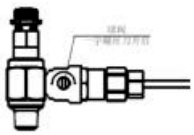
3. If working with the other brands' static valves, pay attention to tee test head size. Our tee test head thread size is R1/4



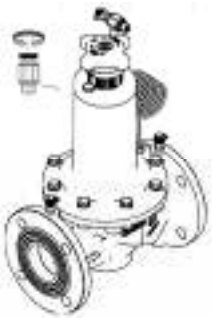
To prevent damage to inner parts of valves, tee test head should be opened during the pipe pressure test and flushing.
Notice: The pressure difference between upstream and downstream of valve should be less than 3 bar.

Test Instruction

1. Connect Tee test head, open ball valve.



2. Open the plug of valve vent hole, and close the plug after air exhaust complete.

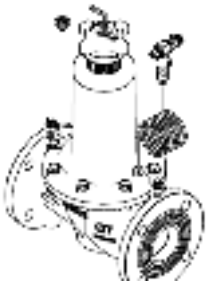


Handwheel up installation

Handwheel down installation

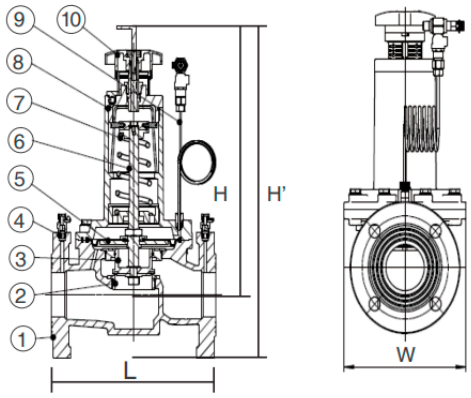
3. Adjust the handwheel and set the pressure difference.

4. Close valve by clockwise tightening



Overall Dimensions (mm)

W-DPBV-16Q



DN	L	H	H'	W
65	290	360	453	205
80	310	392	492	225
100	350	470	581	255
125	400	519	644	293
150	480	592	735	371

Specification text

W-DPBV-16Q Series

Variable orifice balancing and control valve **W-DPBV-16Q Series** with flanged connections DN65-150 for heating and cooling systems. Self-acting differential pressure control, no external power needed. On-site setting of differential pressure. Wide controllable range of differential pressure. Handwheel equipped with differential pressure indicator. Able to be shut off by handwheel. Self-sealing measuring points to protect against leakage. Equipped with measuring points and air vent. Equipped with three-way measuring connector. High-pressure guide tube with ball valve. Ductile iron body, diaphragm HNBR. Nominal pressure 16 bar. Connection standard EN1092-2. Fluid: water (max glycol content 50%). Operating temperature range: from -10°C to 120°C.

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