

Pressure Reducing Valve - Model M1

MAIN CHARACTERISTICS

The M1 model is self-operated bellows sealed pressure reducing valve.

This series of regulators is suitable for steam, compressed air, non-hazardous gases and liquids.

Very quick response to the demand.

Globe valve, single seat, outlet pressure compensated by diaphragm and inlet pressure by compensated gasket (from DN65).

Stem sealed by bellow of double layer in stainless steel.

To avoid any damage on the bellows M1 series is provided of anti rotation system.

Actuator mounts diaphragm with intermediate reinforced lining.

Regulation range between 0,1 and 16 barg with different actuators.

Fluids

Liquids, compressed air, neutral gases and steam.

Max. inlet pressure 40 barg (DN15 to DN50)
25 barg (DN65 to DN150)

Sizes DN15 to DN150

Body material Nodular Iron GGG40.3
Carbon steel A216 WCB
Stainless steel A351 CF3M
Bronze RG10, on request

Connections Flanged DIN PN16-PN40
Flanged ANSI 150 / 300
Threaded BSP / NPT

Trim material Stainless steel Aisi 316L

Diaphragm Material EPDM -40°C to 125°C
EPDM + PTFE 125°C to 250°C

Seal material Graphited PTFE
NBR, PEEK, EPDM, ...

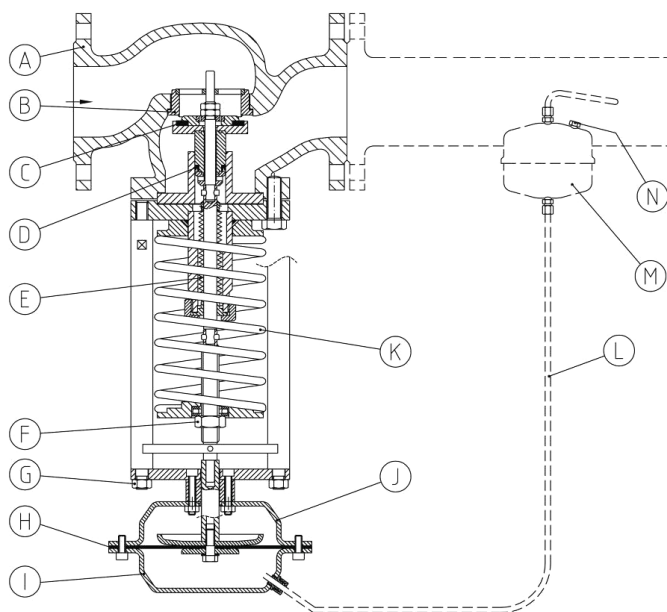


Other configurations:

- Kv or CV reduced.
- Trim material in Stainless steel Aisi 316 / Monel or Bronze
- A control line kit for pressure tapping directly at the body is available on request (optionally with or without condensation tank) for set points > 1 bar.
- Condensation tank (pot) is available and necessary for steam or fluid upper to 125 °C, to protect the diaphragm against excessive temperature.
- Pressure relief valve (see S1 model).

Technical data

Nominal pressure	PN16-PN25-PN40 or CLASS 150-CLASS 300		
Nominal size	DN15 to DN50	DN65 to DN80	DN100 to DN150
Max. permissible differential pressure Δp	25 bar	20 bar	16 bar
Max. permissible temperature: body	Refer to technical sheet HT-101		
Max. permissible temperature: plug	metal: 250°C PTFE+GR: 220°C PEEK: 250°C EPDM: 125°C FPM: 150°C NBR: 80°C	metal: 220°C PTFE+GR: 220°C PEEK: 250°C EPDM: 125°C FPM: 150°C NBR: 80°C	
Max. permissible temperature: actuator	Diaphragm EPDM till 125°C Diaphragm EPDM+PTFE and condensation tank till 250°C		



- A – Body valve
- B – Seat (replaceable)
- C – Seal
- D – Compensation gasket
- E – Bellows
- F – Adjusting nut
- G – Nut
- H – Diaphragm
- I – Actuator casing (Upper)
- J – Actuator casing (Lower)
- K – Springs
- L – Impulse pipe
- M – Tank
- N – Coupling

HOW DOES IT WORKS

When the downstream demand increases, downstream pressure will drop. The pressure on the diaphragm drops, allowing the regulator to open further. Because of the unbalance of the measuring element and the loading element, the restricting element will move up to allow passage of more flow.

When the downstream demand for flow decreases, downstream pressure increases. In this case, unbalance causes the restricting element to move up to pass less flow or lockup.

When the pipeline is full filled we have to match the required outlet pressure (Set) acting on the adjusting nut (F).

If this pressure overcomes set value, the valve will close proportionally to maintain outlet pressure.

Starting from size DN65 valve is provided with a compensation gasket (D) to regulate inlet pressure.

RECOMMENDATIONS

This series must be used only as a pressure reducing valve because any variation will be absorbed by the diaphragm and compensated.

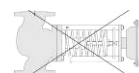
Valve close when outlet pressure increases.



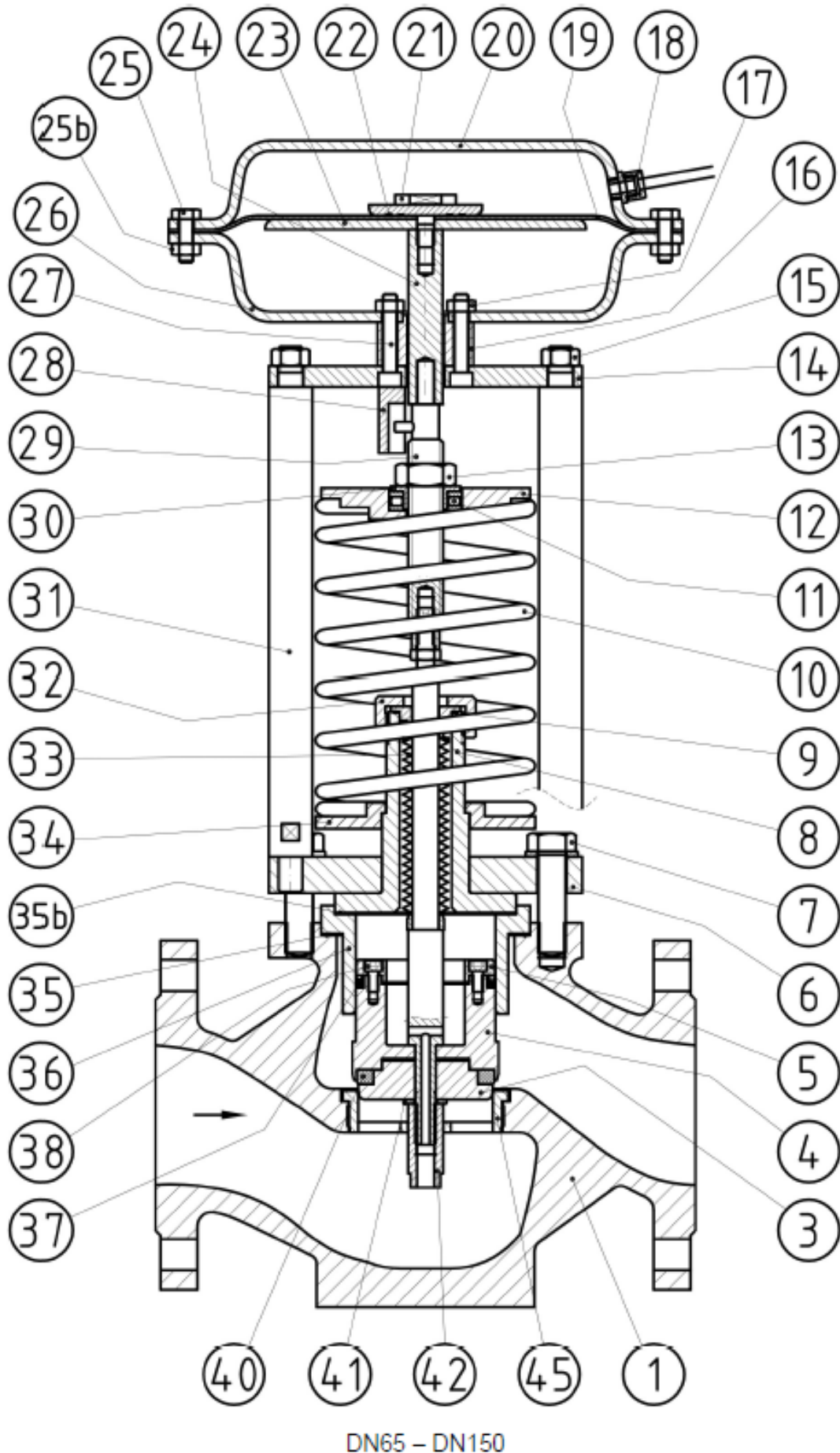
Standard installation when temperature is upper 0°C

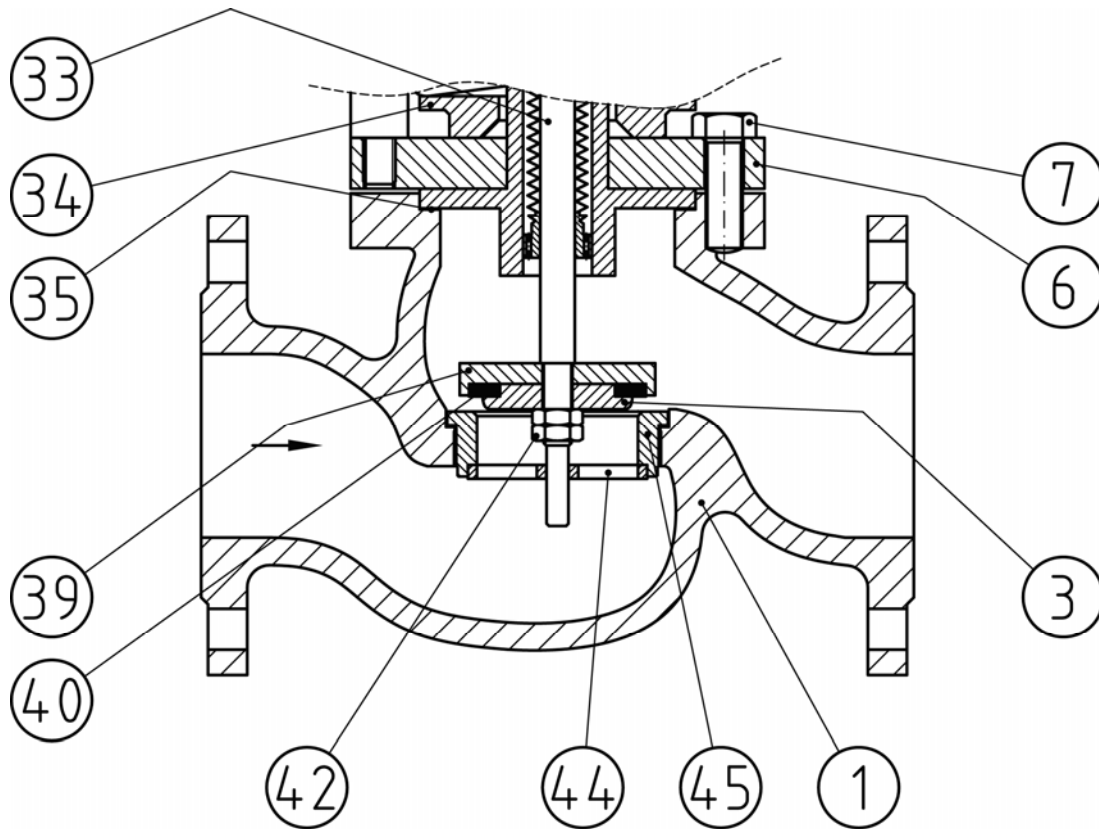


Another option for liquids and neutral gases until 80 °C

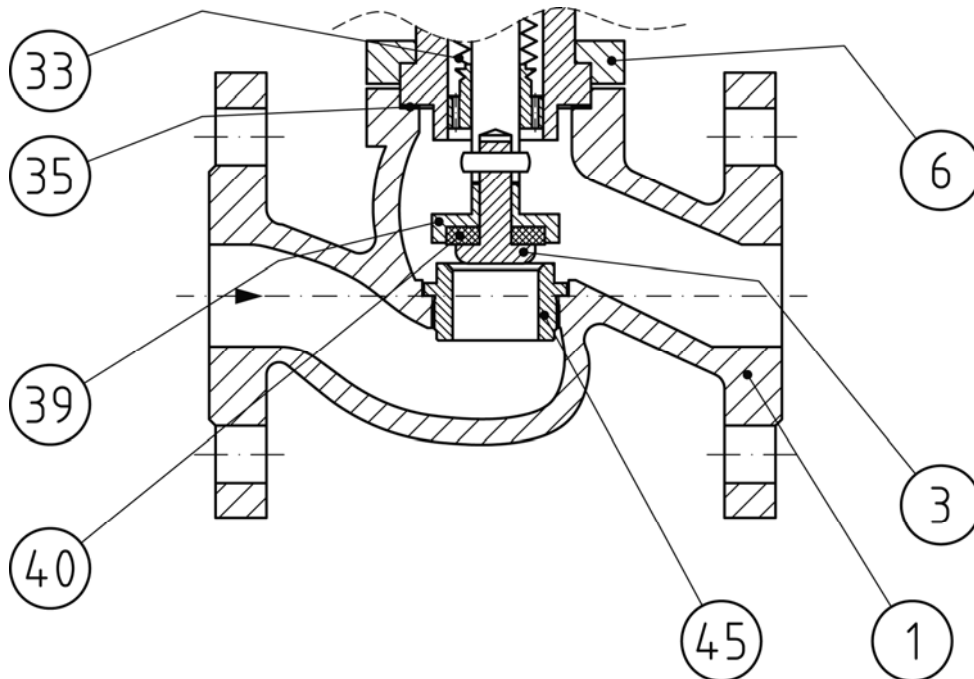


This position is not admitted





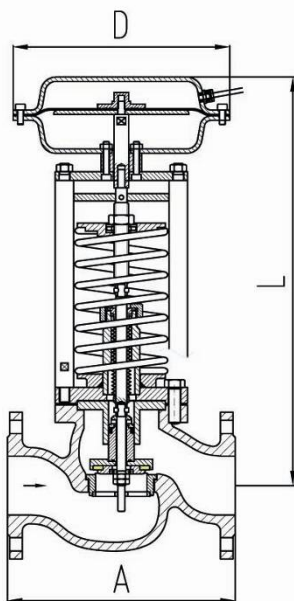
DN40– DN50



DN15 – DN32

Ref	Description	Material	
1	Body	Nodular Iron EN-JS1049 (GGG40.3), Bronze RG10, Carbon Steel 1.0619 (GSC-25N), Stainless steel 1.4408 (AISI 316)	
3	Lower support seal	1.4404 - SS 316L	
4	Bush	1.4404 - SS 316L	
5	Washer guide stem	1.4404 - SS 316L	
6	Cover	1.1191 - Carbon steel	1.4404 - SS 316L
7	Screw	8.8 - Carbon steel	A-2 Stainless St. (A-4 optionally)
8	Bellow guide	1.0570 or 1.1191 - Carbon steel	1.4404 - SS 316L
9	O-ring	Viton or Graphite+SS304	
10	Springs	1.0904 (Spring Carbon steel 55 Si 7)	
11	Ball bearing	1.3505 (Bearing steel 100 Cr 6)	
12	Upper support springs	1.1191 - Carbon steel	
13	Adjusting nut	8.8 - Carbon steel	
14	Support plate	1.1191 - Carbon steel	
15	Nut M12	8.8 - Carbon steel	
16	Support screws M8	8.8 - Carbon steel	
17	Nut M8	8.8 - Carbon steel	
18	Coupling	Brass / Stainless steel	
19	Diaphragm	EPDM, EPDM+PTFE, NBR, VITON, ...	
20	Actuator casing (upper)	1.0335 (Steel sheet with epoxy paint) or Stainless steel sheet AISI 316	
21	Diaphragm screw	1.4301 (Stainless steel AISI 304)	
22	O-ring	Viton	
23	Diaphragm plate	1.1191 - Carbon steel	
24	Diaphragm stem	1.1191 - Carbon steel	
25	Hexagonal screw	A-2 Stainless steel	
25b	Hexagonal Nut	A-2 Stainless steel	
26	Actuator casing (lower)	1.0335 (Steel sheet with epoxy paint) or Stainless steel sheet AISI 316	
27	Allen screw	8.8 - Carbon steel	
28	Antirotation system	1.1191 - Carbon steel	
29	Regulation stem	1.4301 (Stainless steel AISI 304)	
30	Guide ball bearing	1.4307 (Stainless steel AISI 304L)	
31	Column	1.1191 - Carbon steel	
32	Nut guide bellow	1.1191 - Carbon steel	1.4404 (Stainless steel AISI 316L)
33	Bellow	1.4404 (Stainless steel AISI 316Ti)	
34	Lower support springs	1.1191 - Carbon steel	
35	Body Gasket	Graphite with SS304	
35b	Guide Gasket	Graphite with SS304	
36	Bush guide	1.4404 - SS 316L	
37	Balancing Gasket	Graphited PTFE	
38	Allen screw	A-2 Stainless steel	
39	Support seal	1.4404 - SS 316L	
40	Seal	Graphited PTFE (Consult for others)	
41	Washer	A-2 Stainless steel	
42	Nut	1.4404 - SS 316L	
45	Seat	1.4404 - SS 316L	

Dimensions, weight and Kv value



DN	15	20	25	32	40	50	65	80	100	125	150
Kv (m³/h)	3.5	5	9	13.5	22	32	57	82	115	190	240
A EN (mm)	130	150	160	180	200	230	290	310	350	400	450
A ANSI150 (mm) (inches)	○	○	184 7,25"	-	222 8,75"	254 10"	276 10,9"	298.5 11,75"	352.5 13,88"	-	451 17,75"
A ANSI300 (mm) (inches)	○	○	197 7,76"	-	235 9,25"	267 10,51"	292 11,5"	317.5 12,50"	-	-	-
L (mm)	440	445	450	455	463	475	560	560	575	600	640
Weight (kg.)	20	22	24	28	32	35	52	57	68	85	105

○ available on request

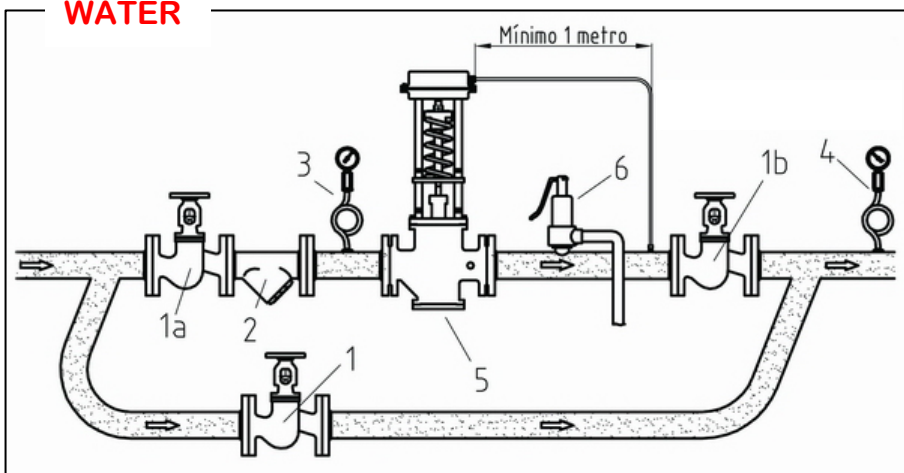
Approx. Downstream pressure ranges (D)

Range (bar g)	DN15 DN20	DN25 DN32	DN40 DN50	DN65	DN80	DN100	DN125	DN150
0,1 - 1,5	295	295	295	295	350	350	-	-
1 - 3	255	255	255	255	295	295	350	350
2 - 5	230	230	230	230	255	255	255	295
4 - 8	195	195	195	195	230	230	230	255
7 - 15	175	175	175	175	195	195	195	230

Approximate diameter of the recommended actuator (mm)

Typical installation

WATER



- 1.- Check valve
- 2.- Filter
- 3.- Pressure gauge (inlet pressure)
- 4.- Pressure gauge (outlet pressure)
- 5.- Reducing valve M1
- 6.- Safety valve
- 7.- Tank

STEAM

