



# Direct Pressure Reducing DOROT valves



## MAIN FEATURES

The pressure reducing valve maintains, by varying its pressure drop, the outlet pressure at a constant value, when inlet pressure or the flow-rate are varying.

The Direct-acting PRV are used:

- in water networks- to maintain a requested pressure in the supply main.
- in sanitary appliances: to maintain the water pressure constantly below the max. permissible value.
- in water networks- to save water. By controlling the pressure of the taps, excessive withdrawal of water and is avoided. Undetected Leakages are reduced.
- in compressed air systems: to keep the constant air pressure in the main, regardless of fluctuations in pressure supplied by the compressors;
- To reduce and stabilize the pressure in the main, downstream of tanks or storage cylinders.

## GENERAL

The **DOROT** pressure reducing valves Series DPR, DPR-F are of the balanced seat type. The inlet pressure, when acting on the two openings A and B with the same section, is compensated, and does not exert any force on the pin-plug system when the degree of valve opening changes. Two forces act on the diaphragm: The outlet pressure creates a force that tends to close the plug, and is opposed by the spring mechanical force that tends to open the plug.

This results in the pressure reducing valve acting like a balanced seat type, where the outlet pressure almost- unaffected by variations in inlet pressure.



### DPR

Diaphragm pressure reducing valve with single balanced seat. Ensures min. pressure drops with high flow rates. Downstream pressure set by means of the setting screw (4) and is locked with lock nut (3)

#### Models SIZE

DPR-1/2	1/2"	12mm
DPR-3/4	3/4"	20mm
DPR-1	1"	25mm
DPR-11/4	1 1/4"	32mm
DPR-11/2	1 1/2"	40mm
DPR-2	2"	50mm



### DPR-P

Like DPR, but with pressure gauge Ø50 for reading downstream pressure

#### Models SIZE

DPR-P-1/2	1/2"	15mm
DPR-P-3/4	3/4"	20mm
DPR-P-1	1"	25mm
DPR-P-11/4	1 1/4"	32mm
DPR-P-11/2	1 1/2"	40mm
DPR-P-2	2"	50mm

## SIZING

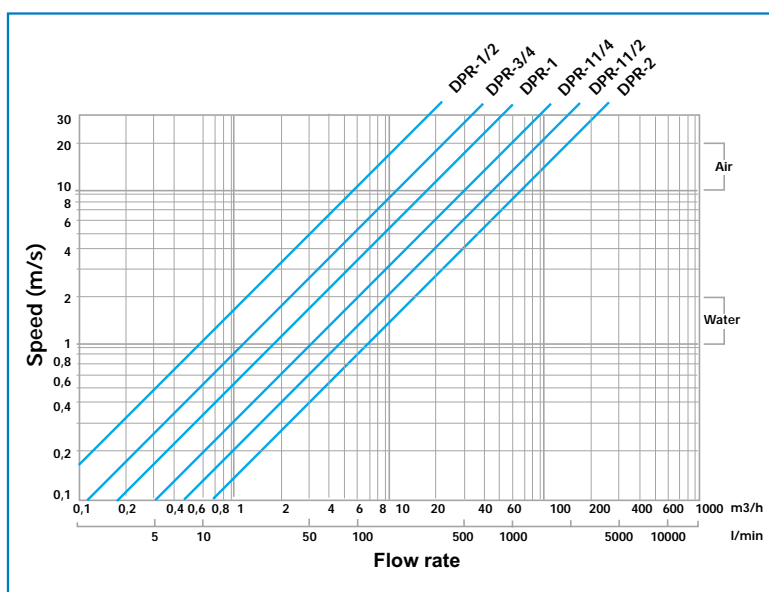
Excessive flow velocity generates too-high pressure drop and noisy performance.

Hence, it is very important that the valve size will be selected properly, considering the maximal flow rate the valve is supposed to regulate.

The diagrams at the right side, allow the selection of the valve size according to the flow velocity, that is caused by the flow rate (bottom axis).

It is recommended to select the valve that operates at flow velocity of 1-2m/s (water systems) and 10-20m/s (air systems).

Flow rate/speed diagram DPR,DPR-P,DPR-N,DPR-N-P,DPR-U



## EXAMPLES OF SIZING

### Example 1 (cavitation- see next page)

Operating conditions:

Inlet pressure P1 = 14 bar

Outlet pressure P2 = 3 bar

The cavitation diagram indicates that the valve works constantly in the red zone.

To avoid rapid deterioration, two valves can be used, connected in serial configuration:

Upstream valve: pressure difference 14 to 6 bar (green zone)

Downstream valve: pressure difference 6 to 3 bar (green zone).

### Example 2 (flow rate-see next page)

Pressure reducing valve DPR/N with:

Inlet pressure (min.) P1 = 8 bar

Outlet pressure P2 = 4 bar

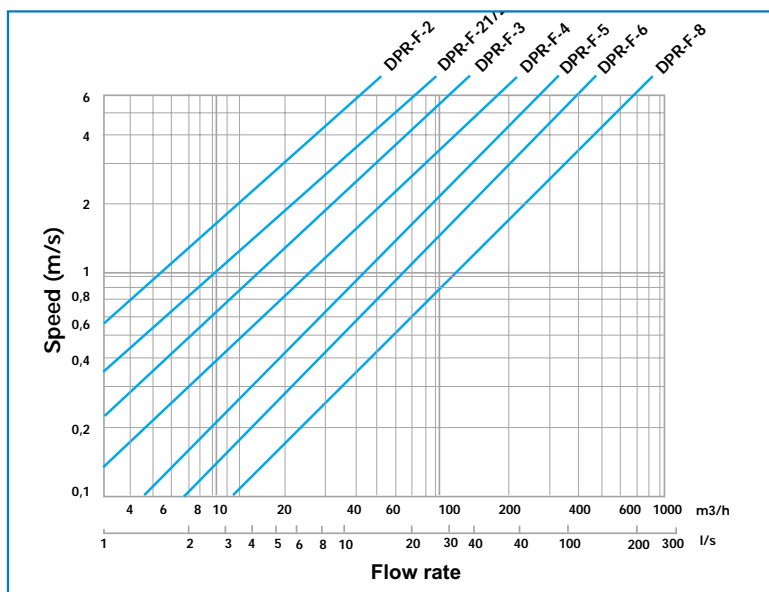
Max. flow rate Q = 50 l/min

The flow rate / speed diagram indicates that a diameter of 20 or 25 can should be used. The pressure drop diagram (next page) indicates the minimal DP:

DPR-3/4 Q = 50 l/min DP = 1.1 bar

DPR-1 Q = 50 l/min DP = 0.68 bar

Flow rate/speed diagram DPR-F



## CAVITATION

The cavitation diagram shows three zones of valve operation in relation to the upstream and downstream pressures, namely:

zone C: normal duty, no cavitation

zone B: medium duty, possible cavitation

zone A: heavy duty, the valve cavitates.

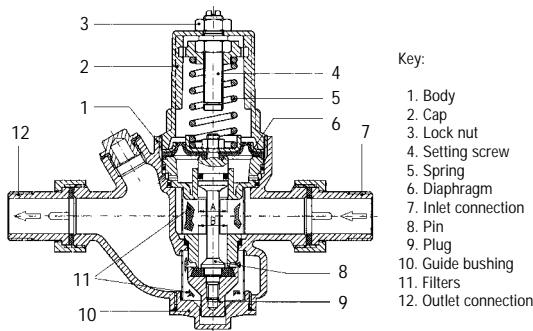
Continuous operation in the red cavitation zone causes rapid deterioration of the internal parts. If the pressure reducing valve is to be used in the red zone, please contact DOROT Engineering Department.

## APPLICATION

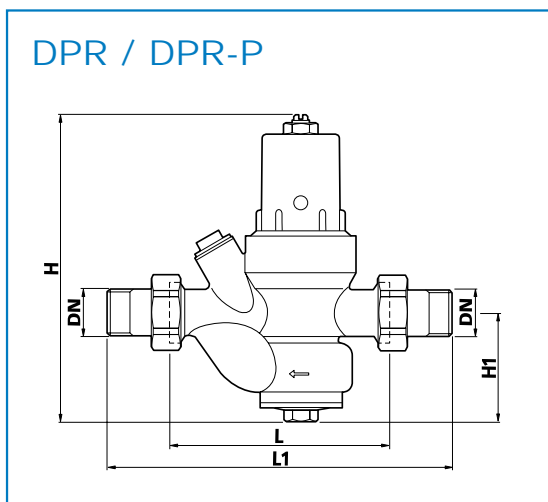
Water, air and neutral (non aggressive) gases.

## APPROVALS

- DVGW approval (Arbeitsblatt W 375)
- LGA approval (DVR15 to 32) according to DIN 4109 class I (noise below 20 dB)
- SVGW approval (W/TPW101).
- TIN approval (Poland)
- CSTB approval (NF P 43-006) (DRV15, DRV20).
- KTW certification for all materials in contact with water.

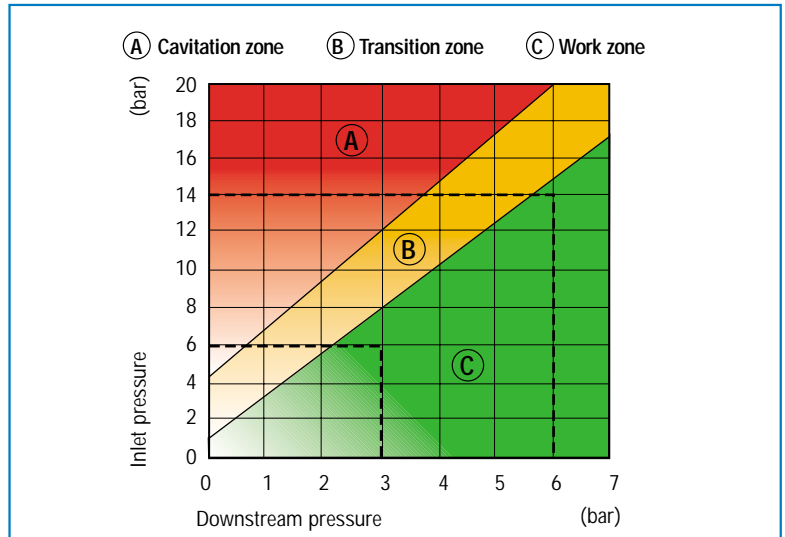


## Overall dimensions (mm)



SIZE	L	L1	H	H1
1/2"	97	152	135	48
3/4"	110	171	155	58
1"	120	191	182	66
1.1/4"	140	211	227	75
1.1/2"	160	246	255	82
2"	175	261	262	88

## Cavitation diagram



## TECHNICAL CHARACTERISTICS

Max. upstream pressure	25 bar
Downstream pressure (outlet)	1.5 to 6 bar
Connections	M to M Union connections
Downstream pressure adjustment (screw 4)	Clockwise rotation: increasing pressure Anti-clockwise pressure: decreasing pressure
Downstream pressure gauge (DPR-P only)	Pressure gauge Ø50, scale 0 to 6 bar
Max. operating temperature	70° C

## DESIGN FEATURES

Body	Shot-blasted brass OT58
Cap	Shot-blasted brass OT58
Plug	Brass OT58
Inlet / outlet connections	Brass OT58
Diaphragm	NBR with nylon fabric
Seal and O-ring	NBR
Spring	Galvanized steel
Setting screw and lock nut	Brass OT58
Filters	Stainless steel

## Flow rate - Pressure drop diagram

