GENERAL

The WATTS Cazzaniga pressure reducing valves **Series DRV**, **DRVN** and **DRVD** are of balanced seat type.
This means that the inlet pressure, when acting on the two openings A and B with the same section, is compensated. Therefore it does not exert any force on the pin-plug system when the degree of valve opening changes.
Instead, the outlet pressure acts on the diaphragm and hence on the pin-plug system which, therefore, is subjected to two opposing forces, namely: the force exerted by the outlet pressure tending to close the plug, and the pressure exerted by the spring tending to open it.
This results in the pressure reducing valve acting like a balanced seat type having the outlet pressure almost unaffected by variations in upstream pressure.

SETTING

The difference between the downstream pressure P2 measured with zero flow rate and the same pressure measured with a general flow rate Q represents the pressure drop DP across the pressure reducing valve. It depends on the flow rate as shown in the pressure drop diagrams.

If it is required for the upstream pressure not to exceed a given value P2, this should be adjusted to value P2 when the flow rate is zero. At flow rate Q, the downstream pressure will be below the value P2 by an amount equal to pressure drops DP.
When the pressure reducing valve is installed to ensure that the downstream pressure reaches a given value P2 at a certain flow rate Q, this pressure should be adjusted to value P2 + DP when the flow rate is zero. At flow rate Q the downstream pressure will be equal to P2.

SIZING

The valve selection criterion consists in determining the diameter so that the speed of the fluid does not reach excessive levels, at nominal flow rate, thus causing excessive pressure drops and noisy effluent which are transmitted to the supply main. The flow rate-speed diagrams provide a guide for selecting the valve diameter in the case of liquids (see water) or gases with pressures of 8 to 10 bar (see air).

EXAMPLES OF SIZING

Example 1 (cavitation)
Pressure reducing valve with:
Inlet pressure P1 = 14 bar
Outlet pressure P2 = 3 bar
From the cavitation diagram it can be seen that the pressure reducing valve works constantly in the red zone. To avoid rapid deterioration, two valves can be used, one connected upstream to the other.
Upstream valve: pressure change from 14 to 6 bar (green zone)
Downstream valve: pressure change from 6 to 3 bar (green zone).

Example 2 (flow rate)
Pressure reducing valve DRV/N with:

Inlet pressure (min.)	P1 = 8 bar
Outlet pressure	P2 = 4 bar
Max. flow rate	Q = 50 l/min

From the flow rate-speed diagram it can be seen that a diameter of 20 or 25 can be used. The pressure drop diagram shows that in the two cases:

DRV20/N Q = 50 l/min	DP = 1.1 bar
DRV25/N Q = 50 l/min	DP = 0.68 bar

DRV

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)

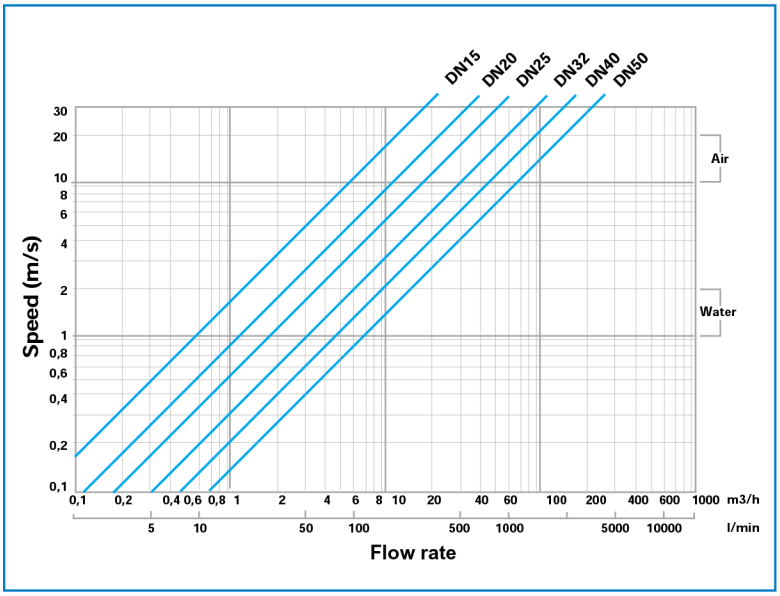
Part No.	SIZE
0501115	1/2"MM
0501120	3/4"MM
0501125	1"MM
0501132	1.1/4"MM
0501140	1.1/2"MM
0501150	2"MM

DRVM

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

Part No.	SIZE
0501315	1/2"MM
0501320	3/4"MM
0501325	1"MM
0501332	1.1/4"MM
0501340	1.1/2"MM
0501350	2"MM

Flow rate/speed diagram DRV - DRVN



Flow rate/speed diagram DRVD