PRESSURE REDUCING VALVE

SERIES 536

All Valve INDUSTRIES

AS 1357.2
WM-40299

Gauge Included

PRESSURE CONTROL FOR HIGH RISE BUILDINGS AND STAGED PRESSURE APPLICATIONS

FUNCTION AND FEATURES

- **Quiet Operation**
  Internal design optimised for smooth fluid characteristics to achieve quiet operation.
- **Robust Construction**
  Full brass and stainless construction, with brass piston diaphragm for reliable operation.
- **High and Low Pressure Springs**
  Low pressure spring range of 100-600kPa or High pressure spring range of 600-1,000kPa
- **Removable Cartridge**
  Features a replaceable cartridge and is serviceable inline.
- **Designed for Demanding Applications**
  Suitable for use in staging high inlet pressures as commonly experienced in high rise buildings
- **Long Service Life**
  PTFE coated components reduces friction and increases service life of the device.

PRODUCT SPECIFICATIONS

GENERAL

The 536 series pressure reducing valve is a high performance valve made specifically for applications where high inlet pressures are present and where extraneous noise and maintenance activities are to be avoided. The internal layout, designed to obtain the optimum fluid dynamic characteristics, has made it possible to achieve a low noise level in all the tests carried out and thanks to this quality, Caleffi reducing valves are approved to the acoustic group I, in compliance with the EN 1567 European standard. The zone exposed to the upstream pressure is constructed in such a way that it can operate at high pressure. Thanks to the PTFE anti-extrusion rings on the compensating piston, the valve can be used in continuous service with upstream pressures of up to 2,000kPa. For ease of inspection and maintenance, a removable internal cartridge and strainer, containing all the regulating components, can be accessed through the top of the valve.

INSTALLATION CONSIDERATIONS

PRESSURE REDUCTION RATIOS

Due to the numerous factors and variable conditions experienced such as system pressure, water temperature, air presence, flow rate and velocity, which may affect the behavior of the pressure reducing valve, it is advisable that the pressure ratio between the upstream pressure and the downstream set pressure is kept ideally to a value 2:1 and no greater than a value of 3:1. (For example, upstream 1000 kPa, set pressure 500 kPa, the pressure ratio = 1000/500 = 2:1). In these conditions, the possible risk of cavitation and malfunctioning is minimised, however this does not exclude the possible effects of the many other variables within the system under operating conditions. The 536 is available with a high pressure spring and is adjustable between 600 - 1,000kPa which is particularly suited to high rise buildings where lower zones require staged pressure reduction. For example from 1,600kPa to 800kPa and then a second stage reduction from 800kPa to 400kPa with the Caleffi 536 model PRV.

VALVE SIZE SELECTION

With the nominal flow rate required, select a valve size that intersects the flow rate within 1-2 m/s on the water velocity chart. This range is advisable for good pressure control within the valve's optimum flow rate range. Sometimes there is a choice in terms of valve size within the acceptable water velocities; at that point you can decide if you want a better control at reduced flow rates with higher velocity and higher pressure loss at nominal flow rates (selecting the smaller size) or vice versa. The corresponding pressure loss graph may then be used to determine the fall-off pressure expected at a particular flow rate. If the minimum flow rate expected is less than around 0.3 m/s on the main PRV, then install a bypass line with a smaller valve where the minimum flow rate ideally falls within a velocity of 1-2 m/s of the valve.

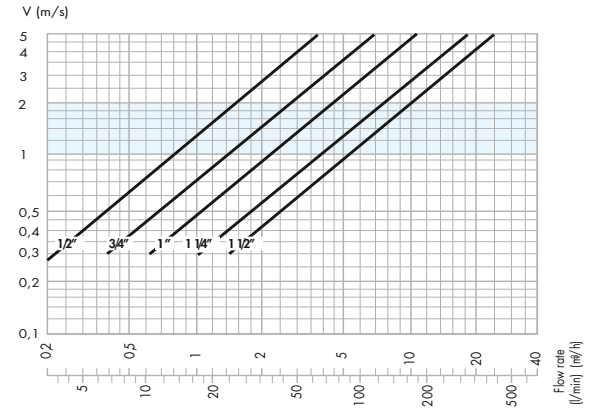
BYPASS PRV FOR LOW & HIGH FLOW APPLICATIONS

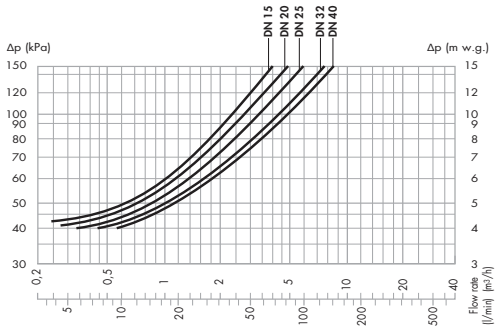
Do not size only for a maximum flow requirement. During low flow demand, an oversized valve will operate in a nearly closed position causing premature wear and an undesirable noise may occur. If normal flow requires a line size PRV, a smaller PRV piped parallel to the main PRV should be considered. Adjusting the smaller bypass PRV at 50-70kPa higher than the main PRV will ensure that the smaller bypass PRV will handle the lower flow demands and prevent premature wear and possible noise of the larger valve.

THERMAL EXPANSION

When water is heated it expands. This is most commonly seen on a hot water heater, but can also occur where large volumes of water is contained in the pipework and is slowly heated from environmental conditions. Since water is not compressible, the extra volume created by expansion must go somewhere. During no-flow periods in a system, pressure reducing valves, backflow preventers, and other one-way valves are closed, thus eliminating a path for expanded water to flow back to the system supply thereby increasing system pressure. If thermal expansion is a risk, then consideration must be made to accommodate the increased water pressure / volume through the use of relief valves, expansion vessels, system design or other methods to ensure unnecessary strain is not put on the system.

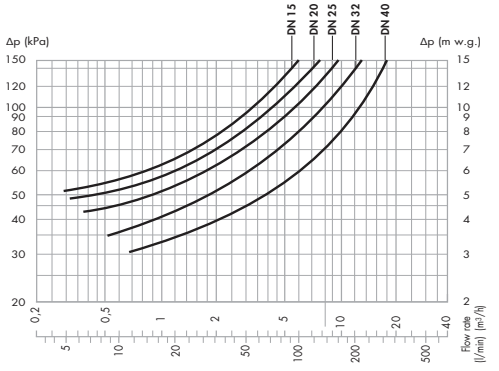
FLOW SELECTION AND PRESSURE LOSS CHART





PRESSURE LOSS CHART
High pressure spring
600 - 1,000kPa (1st stage)

Chart Reference Conditions
Inlet pressure: 1,600kPa
Outlet set pressure: 800kPa



PRESSURE LOSS CHART
Low pressure spring
100 - 600kPa (2nd stage)

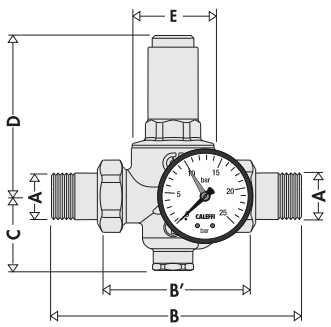
Chart Reference Conditions
Inlet pressure: 800kPa
Outlet set pressure: 300kPa

TECHNICAL SPECIFICATIONS	
PRESSURE SETTING RANGE	100 - 600 kPa (LP) 600 - 1,000 kPa (HP)
FACTORY SET PRESSURE	300kPa (LP) 800kPa (HP)
MAX. INLET PRESSURE	2000kPa
MAX. TEMPERATURE	80°C
PRESSURE GAUGE - RANGE	0 - 1000kPa (LP) 0 - 2500kPa (HP)
GAUGE PORT SIZE	8mm

LP = low pressure setting range. **HP** = high pressure setting range

LP CODE	536042	536052	536062	536072	536082
HP CODE	536043	536053	536063	536073	536083
A	1/2" (15mm)	3/4" (20mm)	1" (25mm)	1-1/4" (32mm)	1-1/2" 40mm
B	140	160	180	200	220
B'	76	90	95	110	120
C	53.5	54	54	63	63
D	89	115	115	135	135
E	Ø 51	Ø 60	Ø 60	Ø 72	Ø 72
WEIGHT	1.5 kg	2 kg	2.3 kg	3.4 kg	4 kg

LP = low pressure setting range. **HP** = high pressure setting range



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200426-02

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