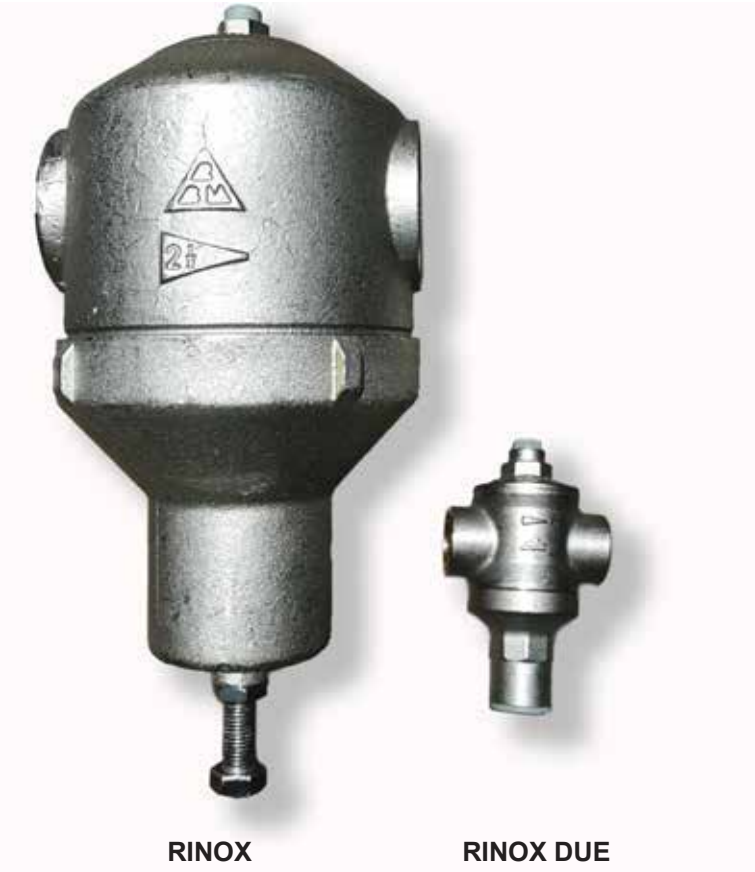
valcontrol

rbm

RINOX
RINOX DUE

PRESSURE REDUCING VALVES

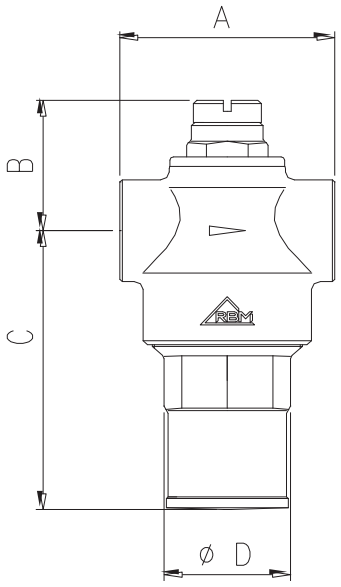


RINOX **RINOX DUE**

Lorem ipsum

CONSTRUCTION CHARACTERISTICS

Body:	Brass CW 617N UNI EN 12165
Shutter seal seat:	Stainless steel AISI 303
N° of shutter seal seats:	1
Rod:	Brass CW614N UNI EN 12164
Seals:	NBR nitrile elastomer
Plastic parts:	Nylon 6 with 30% fibreglass
Gauge attachment connection:	F G 1/4"
Maximum working temperature:	80ºC



CODE	SIZE	A [mm]	B [mm]	C [mm]	ø D [mm]
VRP667015	1/2" F	60	41,5	89	47
VRP667020	3/4" F	60	41,5	89	47
VRP667025	1" F	86	60,5	91,5	61
VRP667032	1"1/4 F	91	64,5	93	61
VRP667040	1"1/2 F	91	64,5	98	61
VRP667050	2" F	91	69,5	101	61
VRP667065	2"1/2 F	180	103	274,5	186
VRP667080	3" F	188	103	274,5	186
VRP667100	4" F	202	103	274,5	186

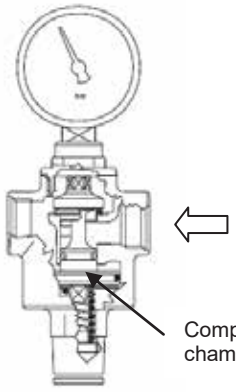
Code	Size	Connection	P_{max} Inlet	P Outlet
VRP667015	G 1/2"	UNI-EN-ISO 228 FF	2500 KPa [25 bar]	50÷700 kPa [0,5÷7 bar]
VRP667020	G 3/4"			
VRP667025	G 1"			
VRP667032	G 1"1/4			
VRP667040	G 1"1/2			
VRP667050	G 2"			
VRP667065	G 2"1/2			80÷700 kPa [0,8÷7 bar]
VRP667080	G 3"			
VRP667100	G 4"			

OPERATION

The RBM pressure reducing valve bases its operation on balancing between the antagonist force of the spring and the thrust pressure of the fluid on the diaphragm. In fact, the spring tends to open the reducing valve shutter while the pressure exerted on the useful surface on the piston tends to close the shutter itself.

Pressure still at regulation value of 3 bar

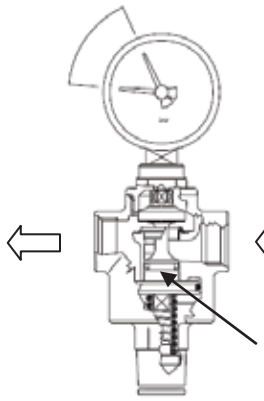
Outlet: Uses closed



When the uses to be served are closed, the downstream pressure increases, pushing the reducer piston downwards. In this way, the shutter closes the passage section of the reducer maintaining the setting value set on the spring constant; in fact, the minimum pressure difference across the shutter permits the perfect closing of this latter.

Pressure loss P<3 bar

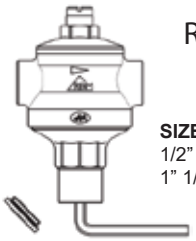
Outlet: Uses open



When the uses are opened downstream, the pressure exerted on the piston is lessened in favour of the force exerted by the spring on the shutter permitting it to open with the constant passage of the fluid.
As the water demand from the user network increases the pressure on the piston decreases and more water passes.

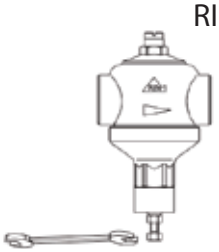
PRESSURE REDUCING VALVE CALIBRATION

RINOX DUE



SIZES:
1/2" - 3/4" – 1"
1" 1/4 – 1" 1/2 – 2"

RINOX



SIZES:
2" 1/2 – 3" – 4"
DN65 – DN80 – DN100

The final calibration of the pressure reducing valve must be performed with the hydraulic circuit completely full and with all the uses closed, otherwise false values would be obtained owing to the fact that the downstream pressure reduces in relation to the necessary flow rate, during any supply.
The pressure reducing valve can be calibrated using the internal lock-ring or the external screw: screw clockwise to increase the value, anticlockwise to reduce it.

Calibration operations:

- Close the interception valve after the pressure reducing valve.
- Calibrate the pressure reducing valve using a spanner appropriate for the model.
- The calibration operation is considered to be complete when the desired pressure is read on the gauge.

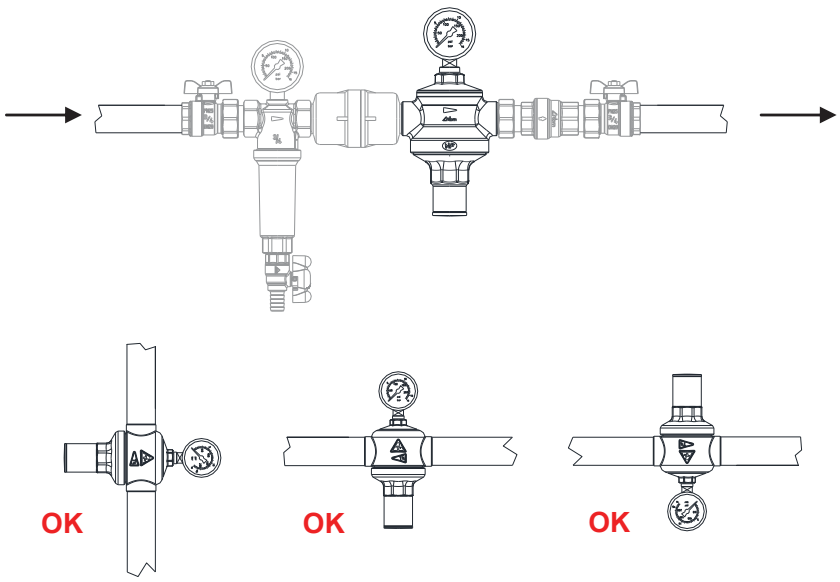
Warnings:

- Perform several discharge actions to check the stability of the calibration.
- With the system operating, the pressure read at the gauge could be falsified by the overpressure of the thermal system; any correction made should always be performed with the system at a standstill and at ambient temperature.

FITTING

Fitting precautions:

- Always fit a filter before the system.
- Perform ordinary filter maintenance.
- Respect the direction indicated by the flow direction arrow on the body.
- Use interception valves to permit eventual maintenance work.
- Clean the pipes before and after the pressure reducing valve to prevent damage to the same.
- The pressure reducing valve can be fitted vertically, horizontally or facing downwards.

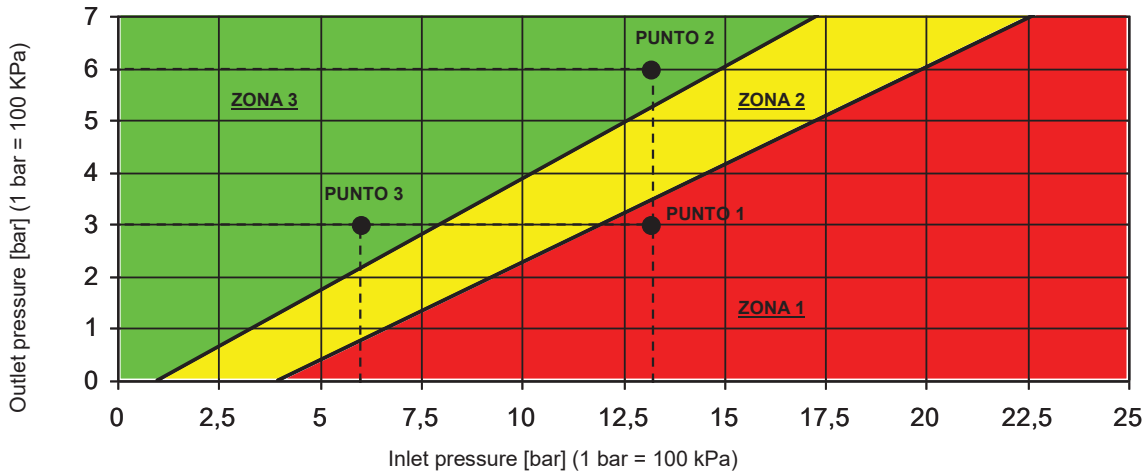


RECOMMENDATIONS REGARDING ALLOWED WAYS OF CONNECTING THREADED FITTINGS:

To correctly seal threaded joints and fittings of hydraulic, hygienic, sanitary and industrial systems, we recommend using mastic, paste and/or products suitable for sealing these types of connections. It is not allowed to use flat and/or taper-seal type or any other type of gaskets.

SIZING THE PRESSURE REDUCING VALVE

CAVITATION DIAGRAM *



In order to avoid cavitation phenomena and therefore excessive component noise, we recommend choosing the number of pressure reducing valves necessary for a determinate pressure differential, according to the information in the "CAVITATION DIAGRAM".
The cavitation diagram shows the three operating zones of the pressure reducing valve in function to the inlet and outlet pressures:

- **ZONE 1**: Malfunctioning zone. The cavitation phenomena are clearly and present inside the pressure reducing valve. We recommend against using the pressure reducing valve at these pressures.
- **ZONE 2**: Critical zone. The possible occurrence of cavitation phenomena inside the pressure reducing valve is evidenced. We recommend against using the pressure reducing valve at these pressures.
- **ZONE 3**: Operating zone. The pressure reducing valve operates in optimum conditions and there is no cavitation. This is the optimum interval of pressure values for the operation of the pressure reducing valve.

In order to avoid cavitation phenomena, we recommend making the pressure reducing valve operate inside ZONE 3, and also, to prevent the ratio between the maximum inlet pressure and the regulation outlet pressure of the pressure reducing valve from exceeding the value of 2.5.

DIMENSIONING
If we want to make a pressure reducing valve work between the following pressure values:
- Inlet P: P_M = 13 bar
- Outlet P: P_V = 3 bar

As we can see in the diagram, (POINT 1) the pressure reducing valve runs into certain cavitation phenomena at these work pressures.
In order to avoid these phenomena and considering that the ratio between the maximum inlet pressure and the outlet regulation pressure must not exceed the values of 2.5, we could take recourse to introducing a second pressure reducing valve in series, so as to obtain the same pressure differential, via two distinct pressure differentials.

The suggested solution is therefore to use two pressure reducing valves in series which must both work in ZONE 3 of the diagram, to divide the pressure difference over two reduction differentials and where the pressure ratio does not exceed 2.5.

Possible solution:

Pressure reducing valve A [POINT 2]:
- Inlet P: P_{MA} = 13 bar
- Outlet P: P_{VA} = 6 bar

Pressure ratio: 13/6 = 2,17 < 2,5

Pressure reducing valve B [POINT 3]:
- Inlet P: P_{MB} = 6 bar
- Outlet P: P_{VB} = 3 bar

Pressure ratio: 6/3 = 2 < 2,5

N.B.: The reducer inlet pressure must never be higher than the maximum operating temperature of the components downstream from the pressure reducing valve, so as to avoid damaging them or malfunctioning.-

Apart from acting on the pressure differential, the cavitation phenomena of the pressure reducing valve can also be controlled by choosing an optimum speed value of the fluid passing through it.
We therefore recommend choosing the diameter of the pressure reducing valve so that the speed of the fluid passing through it is between the following values:

- For water: V = 0,7 ÷ 1,5 m/s (residential use)
  V = 1 ÷ 3,5 m/s (industrial use)

N.B: The cavitations diagram is only intended to supply technicians with a rapid, guide reference for associating the chosen component with a given size of system. The values shown in the table are not binding and do not therefore represent the performance limits of the components.

valcontrol
229962916 212749980
geral@valcontrol.pt valcontrol.pt