



GORTER
CONTROLS



the **specialist** in the **efficient,**
sustainable and **safe**
distribution of **gasses**

high pressure regulators R200 series



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general

R200 and R286

R200

The R200 series pilot-operated pressure reducing regulator is designed for natural gas transmission/distribution systems and industrial/commercial applications. The R200 provides smooth, quiet operation, tight shut-off and long life. It's internally actuated metal-plug eliminates disadvantages associated with boot-style regulators. The specially designed valve seat is protected from possible erosion caused by gas-flow contaminants. The R200 pressure reducing regulator can be converted into a high-pressure relief valve or backpressure regulator by simply changing the pilot. An optional inlet-strainer prevents large particles from entering the main valve. A pilot supply filter can also be added to keep pipeline debris from entering the pilot.

R286

The R286 is a R200 regulator equipped with a slam shut device, the HSV086. The HSV086 series consists of a number of effective safety shutoff valves for use in gas transmission systems, gas distribution networks and industrial gas pressure regulating systems. The HSV086 has proven its reliability for decades. The HSV086 can provide either overpressure or combined over- and underpressure protection by completely shutting off the flow of gas to the downstream system.

features

>> Tight shutoff

The type R200 uses a metal plug, eliminating the disadvantages of common boot style regulators. The proven design of the valve seat provides long life due the erosion-free protection of the seat seal. The R200 features bubble-tight shut off, even at low temperatures.

>> Quiet operation

Using patented techniques and a noise-reduction cage the R200 can reduce noise production to an acceptable minimum. Noise reduction of up to 40dB(A) is possible depending on the user's environment. Noise reduction is achieved by both multiple stage and multiple flow path techniques resulting in an exceptionally quiet regulator.

>> Low maintenance costs

The unique design of the R200 with its actuated valve plug eliminates the common problems with booth or diaphragm wear and tear. This in combination with a flow path which allows flow through the regulator without seat impingement assures long maintenance intervals.

>> O-ring design

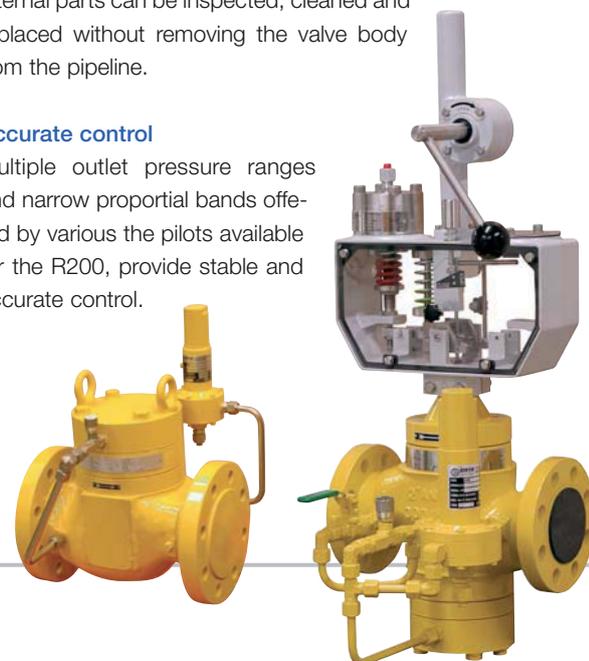
The type R200 uses elastomer O-rings instead of gas-kets, reducing maintenance and assembly time.

>> Easy maintenance

Top entry design reduces maintenance time. Internal parts can be inspected, cleaned and replaced without removing the valve body from the pipeline.

>> Accurate control

Multiple outlet pressure ranges and narrow proportional bands offered by various the pilots available for the R200, provide stable and accurate control.





operation R200

As long as the outlet pressure is above the pilot outlet pressure setting, the pilot plug remains closed. Seat load from the main spring and the inlet pressure bleeding through the restrictor provide a downward pressure to keep the valve tightly shut off.

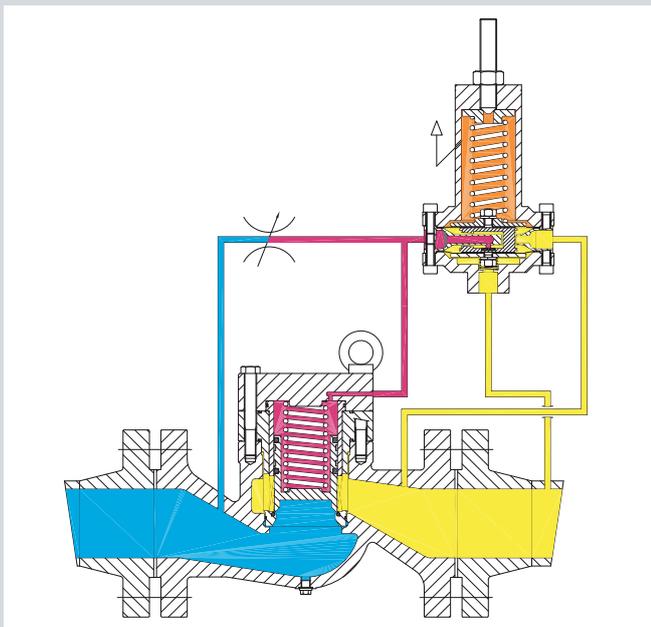
When the outlet pressure decreases below the pilot outlet pressure sensing, the pilot plug opens. Loading pressure bleeds downstream through the pilot faster than it can be replaced through the restrictor. This reduces loading pressure on top of the valve plug and lets inlet pressure unbalance open the valve plug.

As outlet pressure rises toward the pressure setting, it presses the pilot diaphragm against the pilot control spring and lets the

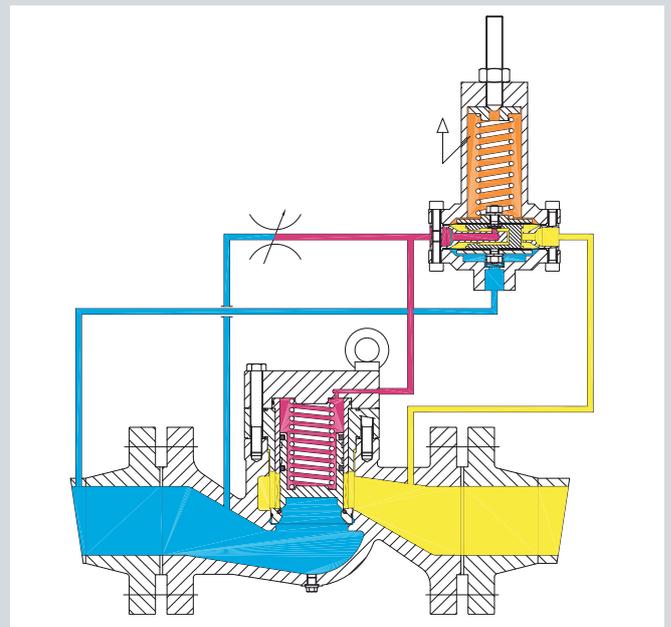
pilot valve spring shut the pilot valve plug. Then loading pressure again builds up to close the plug.

The R200 can also be used as a pilot operated pressure relief valve or back-pressure regulator.

In backpressure mode the sense of the pilot is connected upstream with the pilot seat in reserved position. If the upstream pressure exceeds the spring setting, then the pilot opens and reliefs both inflow and seat load of the main line valve. This opens the plug until upstream pressure drops below pilot pressure spring setting (pilot valve closes and seat load builds up to close the plug).



Pressure reducing regulator



Back pressure regulator

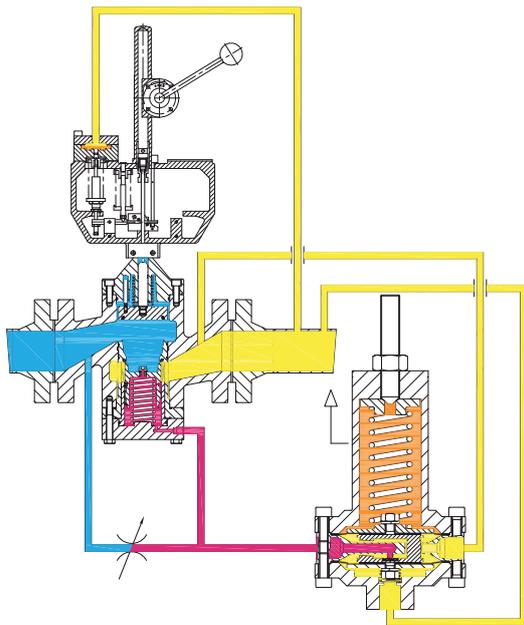
operation R286

The R286 is a R200 regulator equipped with a slam shut device, the HSV086.

The HSV086 safeguards against exceeding a maximum pressure and falling beneath a minimum pressure. The protection against under pressure also serves as a protection against a diaphragm rupture. When the downstream pressure in the sensing element exceeds the or drops below the set trip value, the slam shut valve will close completely. In closed position, the pressure behind the closing member will be reduced to the out-

let pressure the resulting pressure difference between inlet and outlet pressure provides an additional closing force to the closing member. Tight shut off is provided by the encapsulated seal ring which closes on the seat ring. The slam shut valve can be reset manually after equalisation across the closing member.

Pressure equalization facilitated with an integral bypass valve. Maximum and minimum set points are separately adjustable and a wide range of sensing elements and adjusting springs are available.



Operation R286

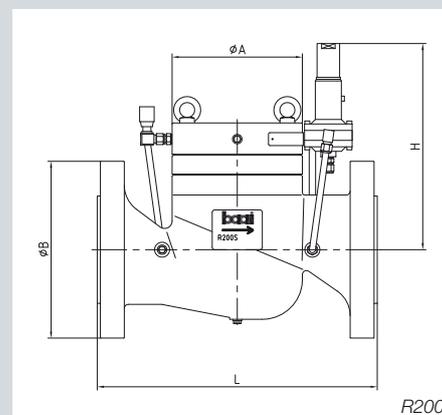


technical specifications

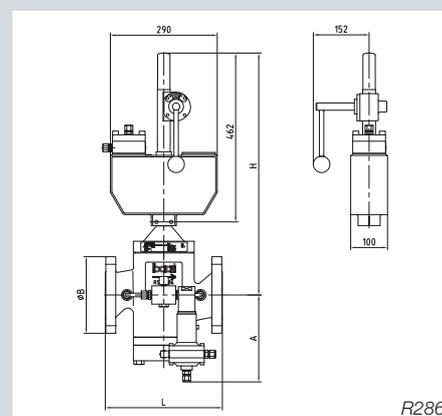
| General | |
|-----------------------------|---|
| Type | R200 Series |
| Pressure class | ANSI 150, ANSI 300 and ANSI 600 |
| Inlet pressure range | 3 to 19 bar ANSI 150, 3 to 50 bar ANSI 300, 100 bar ANSI 600 |
| Outlet pressure range | 0,5-19 bar ANSI 150, 0,5-50 bar ANSI 300, 0,5-60 bar ANSI 600* |
| Operating temperature range | -20°C to + 60°C |
| Ambient temperature range | -30°C to + 60°C |

* Actual range depending on pilot.

| Flow coefficient | | | | | |
|------------------|-----|------------|-----------------|------------|-----------------|
| Nominal size | | Cg value | | | |
| Inches | mm | R200/R200M | R200S/R200(S)-M | R286/R286M | R286S/R286(S)-M |
| 2" | 50 | 2000 | 1210 | 1860 | 1125 |
| 3" | 80 | 4000 | 2800 | 3720 | 2600 |
| 4" | 100 | 6760 | 4970 | 6280 | 4620 |
| 6" | 150 | 14400 | 10100 | 13400 | 9390 |



R200



R286

Dimensions (mm) and weights (kgf) of the R200

| Nominal size | | ANSI150/300/600 | | ANSI 150 | | | ANSI 300 | | | ANSI 600 | | |
|--------------|-----|-----------------|-----|----------|-----|--------|----------|-----|--------|----------|-----|--------|
| Inches | mm | øA | H | øB | L | Weight | øB | L | Weight | øB | L | Weight |
| 2" | 50 | 130 | 290 | 152 | 267 | 30 | 165 | 267 | 35 | 165 | 292 | 41 |
| 3" | 80 | 165 | 325 | 191 | 318 | 52 | 210 | 318 | 57 | 210 | 356 | 63 |
| 4" | 100 | 195 | 350 | 229 | 356 | 78 | 254 | 356 | 86 | 274 | 432 | 106 |
| 6" | 150 | 260 | 415 | 279 | 445 | 157 | 318 | 445 | 157 | 356 | 559 | 207 |

Dimensions (mm) and weights (kgf) of the R286

| Nominal size | | ANSI150/300/600 | | ANSI 150 | | | ANSI 300 | | | ANSI 600 | | |
|--------------|-----|-----------------|-----|----------|-----|--------|----------|-----|--------|----------|-----|--------|
| Inches | mm | A | H | øB | L | Weight | øB | L | Weight | øB | L | Weight |
| 2" | 50 | 212 | 627 | 152 | 292 | 55 | 165 | 292 | 60 | 165 | 292 | 65 |
| 3" | 80 | 238 | 662 | 191 | 356 | 85 | 210 | 356 | 90 | 210 | 356 | 95 |
| 4" | 100 | 270 | 677 | 229 | 432 | 147 | 254 | 432 | 155 | 274 | 432 | 165 |
| 6" | 150 | 336 | 737 | 279 | 559 | 282 | 318 | 559 | 290 | 356 | 559 | 310 |

Materials specifications (Standard)

| Regulator part | Material | Slam shut part | Material |
|-----------------|-----------------------|-----------------------------|------------------------------|
| Body | A352-LCC(QT) or equal | Sensing element | S355 or equal |
| Bonnet Flange | S355 or A352-LCC(QT) | Diaphragm sensing element | NBR with nylon reinforcement |
| Plug | SS | Control mechanism internals | SS |
| Guiding bush | SS | Valve plug | S355 or equal |
| Pilot body | S355 or equal | Valve stem | SS |
| Silencer | Metal foam (CrNi) | Seat ring | SS |
| Dynamic O-rings | Viton | Dynamic O-rings | Viton |
| Static O-rings | NBR | Static O-rings | NBR |



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