



Choke valve



Materials

Component	Component
Body	AISI 4130 ASTM A350 LF2 ASTM A182 (Alloy & Stainless Steel, Duplex & Super Duplex)
Bonnet	As above
Disk stack	Solid tungsten carbide
Seat housing/insert	17-4PH/Solid tungsten carbide
Plug/Cage	Solid tungsten carbide
Stem	17-4PH, AISI 410, Inconel 718
Seals	PTFE, Viton, Graphite
Body to bonnet seal	Buna, Viton, Metallic

Other materials available upon request

Options

- Low noise trim design
- Large capacity trim
- Special flow characteristic
- Filter cage for polluted fluids
- Tungsten-carbide wear sleeve
- Hammer union bonnet
- Steam service design with Belleville springs to absorb thermal expansion
- Fugitive emission design
- Grafoil packing for high temperature
- Packing gland for packing adjustment
- Cladding on internal parts

General Description

Today's Oil & Gas harsh environment means higher wellhead pressures with aggressive fluids with entrained sand and other solid particles. A conventional single stage choke valve might not be suitable for this kind of service. The need to maintain production rates means that frequent choke repair or replacement is no longer acceptable.

HP faced this need developing its advanced severe service choke valve. The choke uses a combination of proven trim design to control flow velocity and to reduce noise and the best grades of tungsten carbide material used in the industry to provide long trim life and precise process control.

Typical Applications

HydroPneumatic choke valves are typically the perfect solution for:

- Wellheads
- Drilling
- Water Injection
- Blowdown
- Production
- Heater Bypass

Features

- API 6A and ASME design
- Positive, Rotative Disk, Needle, Plug & Cage, External Sleeve design
- Pressure rating from ANSI 150 through API 15k Psi
- Flanged from 1" through 16" ANSI (other ends connection available upon request)
- Flanged from 1" 13/16 through 11" API (other ends connection available upon request)
- Customized end to end dimensions
- PSL 1-4
- PR1-2
- API 6FA
- API material classes from AA through HH
- API temperature classes from P/L through U
- Material for H₂S and CO₂ service in accordance with NACE MR01-75 latest edition
- Extensive Range of Body/Trim Materials
- Forged bodies for maximum safety and reliability
- Tungsten Carbide wear resistant Trim
- Equipercantage, linear or modified characteristic
- Actuation: Manual, single & double acting Pneumatic and Hydraulic, Stepping, Electric and Electro-hydraulic actuator

Benefits

- One single piece body with integral flanges for long service life - no welding
- Heavy duty design to withstand service life
- Suitable for contaminated and corrosive fluids and high sand content
- Resistant against high pressure drops
- Flashing and cavitation resistance
- Low noise design
- High seat tightness
- Fluid control with guaranteed fixed CV value
- High calibration
- Fire resistance
- Easy maintenance design
- Low life cycle costs





The Complete range

HYDROPNEUMATIC manufactures severe service choke with the aim to provide engineered products, to give the best value and the lowest life cycle costs. Combining the state of the art design, technology and extensive field experience, HP valves provide solutions for the most severe and demanding flow control applications.

Chokes are manufactured in different design, from Positive to Adjustable, from rotative to reciprocating, in pressure rating up to 15,000 PSI, with different styles of end connections and materials.

Adjustable Chokes series

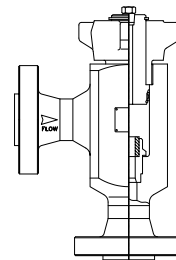
They are meant for variable flow; they have externally controlled indicator showing orifice size; the variation in choke size is achieved by rotating hand wheel or operating the related actuation system to obtain desired flow rate at downstream side. They are available in different style: **Rotative and Reciprocating**.

Rotative Choke

The working principle consists of two circular disks, each with eccentric orifice, which rotate on each other to vary the flow passage.

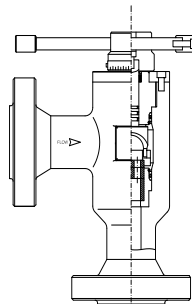
Positive Choke P1H range

They are meant for fixed flow; the dissipation of the well energy is obtained in the hardened and replaceable beans to meet downstream pressure limitation.



Rotative Choke A2H range

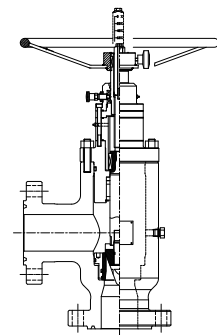
Two disks with multiple ported holes, the one at the bottom fixed, while the top plate disk can rotate in order to vary the size of the orifice; resistant to sand and well debris.



Reciprocating Chokes T2H and VR range

The stem with the plug moves to vary the area of the flow passage; various choke design are available:

- T2H Needle
- VR - PC Plug & Cage
- VR - ES External Sleeve
- VR - LN Low Noise

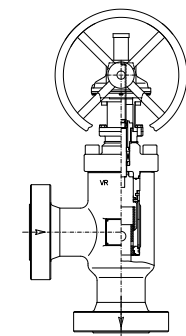
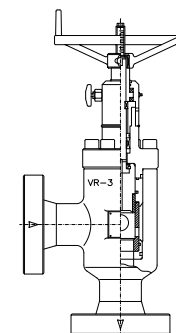


Needle Choke T2H range

NE design: a tapered movable plug controls the orifice size and adjusts it to the required bean size; advisable when gradual flow halt is required and when small flow rates are desired.

Plug & Cage Choke VR-PC range

PC design: a guided plug inside a solid cage for high capacity and erosion control; noise and vibrations are kept under control, with flashing and speed reduction.



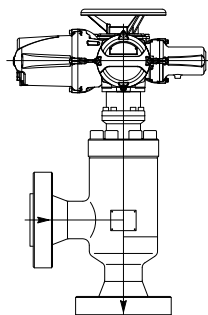
External Sleeve Choke VR-ES range

ES design: a guided plug outside a solid cage in order to deviate the flow towards its centre, away from the body, protecting the valve from erosion and with the sealing surface outside of the cage.

Low Noise VR-LN range

LN design: fluid velocity, high pressure drop and poor control can generate noise and vibration that conventional choke cannot mitigate. Special trim designs to achieve velocity control and noise reduction are the only solution.

VR-LN range provides the right solution with the correct trim design to address these issues. Please contact our Sales Office for a customized solution.



HP Chokes have the following features

- Interchangeability of main parts to construct from a positive an adjustable choke
- Extensive range of Body/Trim materials suitable for API material and temperature classes, and Nace MR01-75
- Rugged body and bonnet, normally integrally forged
- Built-in safety features which release residual pressure in the choke valve body before the bonnet is fully removed. The inside of the choke body is vented to atmosphere after the bonnet is partially removed
- Interchangeability of component parts for a particular pressure range
- Tungsten Carbide cage, needle and seat for maximum wear resistance (Stainless steel / Ceramic lining needle and seat, also available for different service applications)
- Different end connections (API / ANSI, Flanged / Threaded / Clamped) choke are available upon request with customized end to end dimensions
- Different actuation systems

