

High pressure forged gate valves are the one solution to a wide range of challenging application problems related to severe conditions like high temperature and pressure ratings.



# HIGH PRESSURE FORGED GATE VALVE TYPE P / TYPE K



Flexible split wedge gate valve (type K)

#### **Technical Data**

Sizes	: DN 50 - DN 1000
Construction	: EN / DIN / PED / ASME
Pressure	: Up to 640 bar
Temperature	: Up to 650°C
Туре К	: Fully flexible wedge
Туре Р	: Parallel slide flexible wedge

#### Basic design and application

All gate valves are designed as split wedge gate valves type K or parallel slide gate valves type P and are designed for all pressure and temperature ranges as applied in today's Power Plant Applications. The basic design has been applied for over 50 years in the Power Industry both in Germany and worldwide.

The valves are tailor made, in accordance with German and European standards. All our gate valves feature fully flexible trims (see page 3). Our long experience assures a high level sophisticated design, most suitable for heavy duty power plant applications.

#### Construction

The pressurised parts consist of forgings. The body has only one circumferential weld between the body head and the main housing and thus the body weld is not affected by the piping forces.

The circumferential body weld seam enables the exact testing by X-rays, ultrasonic and other methods.

The valve is sealed by means of a pressure seal cover, in which graphite packing rings are used to realize the sealing.

The yoke on top of the valve allows the application of electric actuators or an handwheel with or without gearbox. The stem nut already is incorporated in the yoke, enabling the actuator removal under full operating pressure.

For special applications also hydraulic or pneumatic actuators may be applied.

The spindle thrust is absorbed by heavy duty axial ball bearings and a radial ball bearing which are fitted in the upper part of the yoke.

The spindle surface is grinded and additionally treated by super finishing. This ensures the optimal sealing conditions and reduces the stem friction substantially.

The yoke on top of the valve is connected to the body by means of a twopart clamp which can easily be disconnected when dismantling or assembling. With the exception of the gland, there are no bolted connections in the wetted parts.

On delivery all metallic parts are protected against corrosion. The external surface of the valve is painted.

### Design features

- Body made of high quality forged steel according DIN/EN or ANSI standards
- Fully flexible wedge
- Proven pressure seal design
- Hardfaced stellited seating with excellent corrosion/erosion resistance and high temperature hardness
- Complete range of acuatating possibilities including electric, hydraulic and pneumatic
- Stem nut incorporated in yoke.....
- Graphite stem and cover sealing
- Optional bypass valve
- Dual flow direction on request
- Floor stands with extension stem optional
- Class VI tightness

# Fully flexible split wedge

The split wedge sealing plates are suspended in a self-aligning plate support (see illustration). The pressure is transmitted by a hardened ball segment and a ball cup that are inserted in the sealing discs. Absolutely tight sealing can be achieved by minimum contact pressure. The gate valve therefore can be operated with little effort.

The spacing of the sealing plates (e. g. after grinding/machining the sealing surface) simply by inserting shims behind the ball segments. In this way the wedge can be aligned perfectly with the sealing surface.

# Parallel slide

The sealing plates are sliding over the seat sealing surface over the whole stroke range. The sealing is achieved by the system pressure rather than the wedge shape.

Aspring arrangement is forseen between the plates to keep them in contact with the seat surface.





Reliable body guided wedge holder with bayonet connection for fully flexible and self aligning plate assembly

# HIGH PRESSURE FORGED GATE VALVE MATERIALS

Materials are chosen to suit the pressure and temperature ranges. The stem is made of corrosion resistant chromium and chrome molybenum steels and of high temperature chromium.

Other materials are on request (e.g. inconel 716, 1.4910, 1.4913)

Graphite rings are used for cover sealing and stem packing. The sealing surfaces of the trim are stellited and lapped to class VI tightness.

The valves also can be supplied for throttling service or as parallel slide valve, where heat resistant springs maintain the required contact pressure of the plates.



#### Standard Materials

Part	Description	1	2	3	4	5	6		
1	Body	1.5415	WB 36	1.7335	1.7383	1.4903	1.4901		
2	Cover	1.5415	WB 36	1.7335	1.7383	1.4903	1.4901		
3	Ring 4-part	1.5415	WB 36	1.7335	1.7383	1.4903	1.4901		
4	Press ring	1.5415	WB 36	1.7335	1.7383	1.4903	1.4901		
5	Seat	1.5415 + Stellite	WB 36 + Stellite	1.7335 + Stellite	1.7383 + Stellite	1.4903 + Stellite	1.4901 + Stellite		
6	Plug	1.5415 + Stellite	WB 36 + Stellite	1.7335 + Stellite	1.7383 + Stellite	1.4903 + Stellite	1.4901 + Stellite		
7	Stem shaft	1.4922							
8	Base ring		1.4923 - 1.4980						
9	Stuffing box		1.4923 - 1.4980						
10	Packing set complete	RG 99,8%							