

## KLEIN

### Designed for applications involving hazardous media

#### General applications

Model 1700 is designed for heat transfer fluids up to 300°C (572°F) and other hazardous fluids such as gaseous chemical and petrochemical applications.

Model 1700 is particularly recommended when solidification, polymerization problems, etc. are encountered. It is commonly used on secondary circuits using synthetic and mineral thermal oils, i.e. polymer fibers and polymer-related processes such as polyethylene, polypropylene, PVC and PET units. And on any other applications involving Volatile Organic Compounds (VOC's), Hazardous Air Pollutants (HAP), etc.

Model 1700 is also widely used for:

- Saturated steam
  - Medium pressure superheated steam
- Selection of the most appropriate valve design depends upon many factors including local and international standards and regulations. It should also include service conditions, maintenance, safety and emission monitoring requirements.



#### PED compliance

With module H, cat. III, Pressure Equipment Directive (PED) 97/23 EC.

#### ATEX certification

Valves can also be delivered in conformity with ATEX 94/9/CE, group II, cat. 2. directive upon request.

#### Quality Assurance

Design and manufacturing are ISO 9001 approved.

**Features**

**Ease of operation**

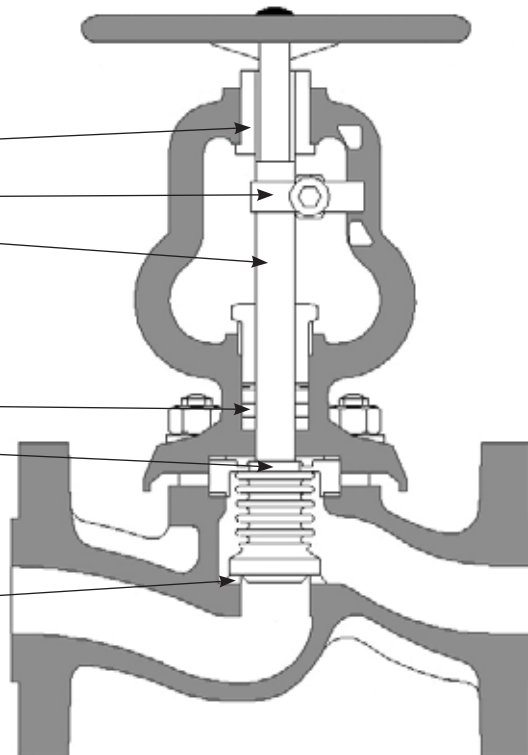
- Yoke bushing with needle bearings
- Position indicator, torsion limiter
- One-piece, non-rotating stem with OS&Y external threading

**Zero emission**

- Secondary stem sealing by additional safety packing
- Stem sealing by multi wall hydroformed bellows
- Bellows exposed to the fluid flow for self cleaning

**Zero seat leakage**

- Metal/metal seating
- HTSS High Temperature Soft Sealing (optional)
- Integral seat



**Bellows to eliminate fugitive emissions**

Metal bellows welded to the stem provides a continuous metallic barrier between the process fluid and the atmosphere to achieve zero emissions.

For added security there is also a safety packing for secondary sealing.

The bellows is multiwalled, hydroformed and guaranteed for 10 000 full O/C cycles at the maximum design pressure of the valve at 20°C.



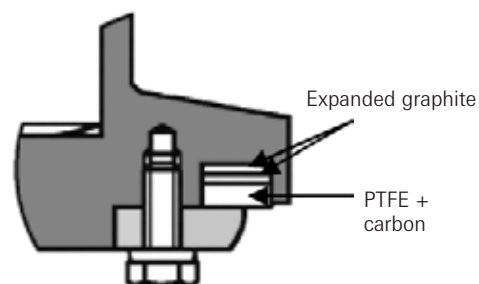
**HTSS technology for tight shut-off**

The unique HTSS (High Temperature Soft Sealing) double sealing technology can be provided on Model 1700.

This technology is the answer to the requirements for complete tight shut-off in case of high temperature, up to + 240°C (+464°F).

The HTSS disc arrangement is made of one PTFE carbon reinforced ring, backed up by two graphite rings. This arrangement provides the advantages of both metallic and soft seats, giving constant compression and keeping elastic memory.

The soft ring is renewable for easy maintenance.



### Manufacturing range

We classify our manufacturing range as follows

Class A – standard products – finished valves, raw materials and semi finished components always available

Class B – made to order products – these are products adapted to meet specific requirements, they may use alternative materials, have accessories fitted (e.g. limit switches), have minor design changes (e.g. special flange drilling) or have special tests and controls.

### Standard range – Class A

Straight valves – Carbon Steel range

		Rating	DN15	20	25	32	40	50	65	80	100	125	150
Cast body	Flanges	ISO PN40											
		ISO PN50 - Class 300											
	BW	ISO PN40											
		ISO PN50 - Class 300											
Forged body	SW/BW	ISO PN40											
	Threaded	ISO PN50 - Class 300											

### Additional range - Class B products

- Parabolic disc
- Special end connections
- Other materials

For superior dimensions, please refer to Model 1900 valve documentation.

### Face to face dimensions

Manufactured to international standards: ISO 5752 – ANSI B16.10 – NF EN558 – BS 2080 – DIN 3202 – JIS B2002.

Face to face for threaded and welded end valves are manufacturer's standard.

Dimensions are available on our technical datasheets.

### Material selection

The range is based upon the most widely used materials, Class A Bill of Materials (BoM).

Additionally, we offer a class B materials selection to fulfill customers specific needs.

#### Standard materials - Class A

	Carbon steel - Type 20	
	ASTM	EN
Body/bonnet - cast	A216 WCB	EN 1.0625
Body/bonnet - forged	A105	EN 1.0565
Gasket	Graphite	Graphite
Bolts & nuts	A193.B7	EN 1.7225
Packing	Graphite	Graphite
Bush drive	AISI 410	EN 1.4406
Disc seating	AISI 316L	EN 1.4404
Bellows	AISI 316 Ti	EN 1.4571
Handwheel	CS / GGG. 50	EN JG 400

#### Class B material selection

- Body/bonnet : low temperature carbon steel
- Bellows : Hastelloy®, Inconel®
- Gasket & packing : customer's selection

### Tests

All valves are tested according to different international standards such as ISO 5208, API 598, DIN 3230, BS 6755...

Special testing such as helium test can be performed upon request.

Valves are systematically delivered with EN 10204 2.2. conformity certificate.

EN 10204 3.1.B material body/bonnet certificate can be supplied upon request.

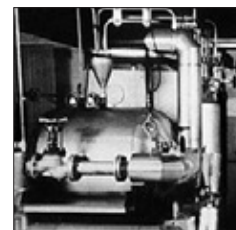
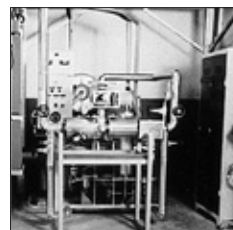
### In-house thermal oils and high temperature test

Our testing equipment includes:

- a thermal oil boiler with a circulating pump with a maximum capacity of 6 bar/+330°C (90 psig/+626°F)
- a testing bench using steam with a maximum capacity of 30 bar/+ 236°C (435 psig/+ 457°F)

We can therefore:

- qualify designs and materials at engineering stage
- provide customer with testing under real service conditions.



### Disc options

Standard model 1700 is supplied with a metal/metal or HTSS seat.

Other disc options are also available.



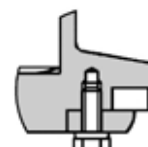
#### B option

Parabolic disc available with conical or conical stellited seating



#### CS option

Conical stellited disc



#### TM option

PTFE soft seat up to +180°C (+356°F)