PROCESSTECHNIK GMBH
Germaniastraße 28 Postfach 700110
D 44379 Dortmund D 44371 Dortmund
Telefon: +49 (0)231/61009-0 Fax: +49 (0)231/61009-80
E-mail: gefa@gefa.com Internet: www.gefa.com

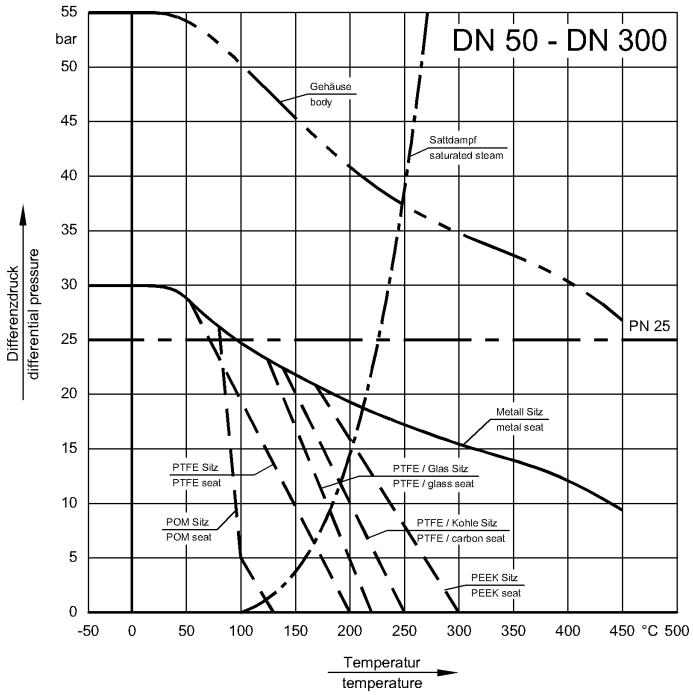
Operating instructions Installation / Operation high performance butterfly valve series HG

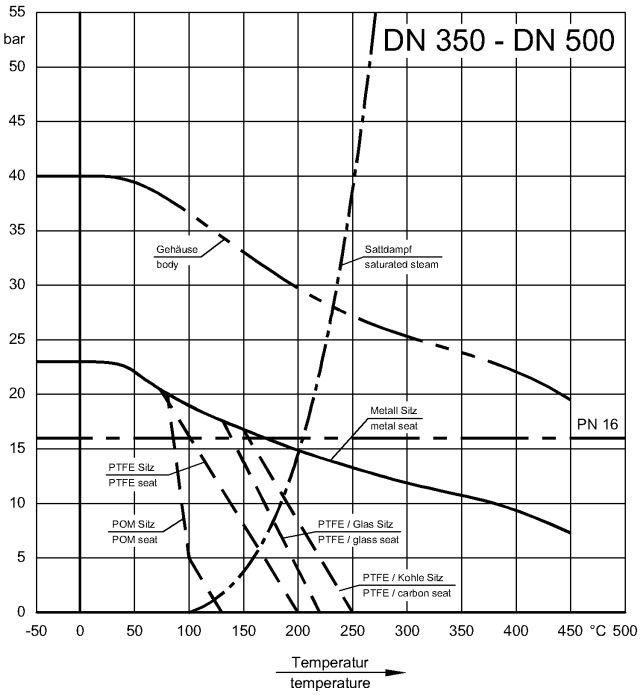
Introduction

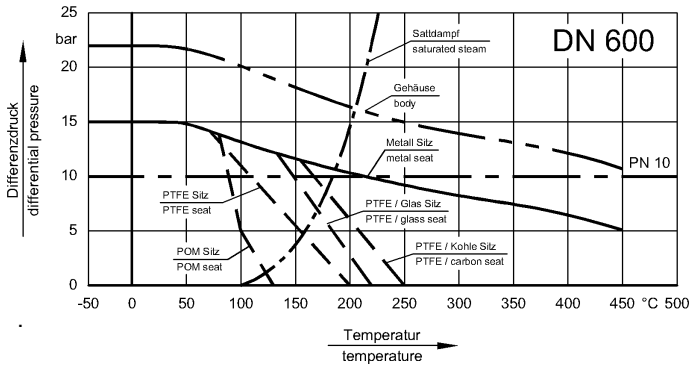
The following information and instructions are important for perfect installation and safe operation of the valve.
Prior to installation and initial use of the valve, the qualified staff in charge of installing and operating the valve has to be instructed according to this information.

Proper use

The high performance butterfly valve series HG may only be used to stop, throttle and control media flows within the permissible pressure/temperature limits.







Metal seat:

Temperature:	> 280 °C	
Seat Leakage:	DIN 3230-BO	> 2
	EN 12266-P12	> B

The maximum differential pressure for PEEK or POM seats is 5 bar if the valve is used against the recommended flow direction.

The suitability of the product-related parts used and their chemical resistance properties have to be clarified before start-up of the plant.
The usual flow rate must not be exceeded.
Vibrations, water hammers and cavitation as well as abrasive components result in damage of the valve and affect its service life.

Valves must not be used to support the pipeline nor as a step-up.
This includes the different kinds of operation like hand levers, gear operators, actuators, feedback and control systems.
When using a hand lever, handwheel and manual emergency operation, take care that there is enough space for a proper operation.

Earthing the valve

If the high performance butterfly valve is supplied with anti-static device and used in potentially explosive zones, the body of the valve must be connected effectively at site with the potential compensation cable before the valve is put into operation.

Transport and storage

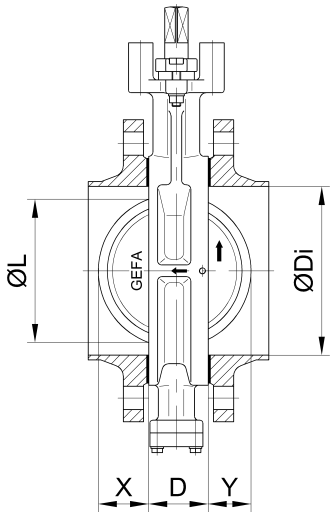
The valve must be transported and stored dry and clean.
In humid rooms, a drying material or heating must be used to avoid condensation.
During transport and intermediate storage the high performance butterfly valve should not be outside a temperature range of -15°C and +30°C.
The transport packaging protects the valve against soiling and damage. Impact and vibrations must be avoided.
If the valves are painted (coated) on the outside, this coating must remain without damage, otherwise the faulty spots must be repaired immediately.
The factory-adjusted basic setting (position of the disc at delivery) must not be changed.

Conditions for mounting the valve

The high performance butterfly valve series HG is installed between pipeline flanges acc. to DIN 2501 or ANSI B16.5.
It should be taken into account, that a valve which is designed for a particular flange standard cannot be normally used for other flanges. If pipeline flanges are to be used which are not in accordance with the specifications of the order, the manufacturer is to be consulted.
Pipelines always have to be run in such a way that damaging shear and bending stresses cannot act on the valve body.
The surfaces of the pipeline flanges between which the valve is installed have to be parallel to one another, the sealing surfaces must be clean and without damage. No cross marks may be visible.
Do not carry out welding work on the flanges and pipelines when the high performance valve has been installed, as this could cause damage to the valve.
The high performance butterfly valve is clamped between two pipeline flanges using two suitable seals.
Screws, nuts and seals are not included in the manufacturer's scope of supply.
All the usual flange seals can be used.

The "clearance" of the mating flanges - including inner coating - has to be sufficient to allow the disc to be fully opened without touching (ØDi ≥ ØL + 6 mm). This must be checked before the valve is installed and compared with the space necessary for the valve according to the table.

DN	D	ØL	X	Y
50	43	46	8	2
65	46	59	13	10
80	46	76	21	15
100	52	93	26	24
125	56	118	38	31
150	56	139	48	41
200	60	190	71	62
250	68	238	93	80
300	78	281	110	95
350	78	321	130	115
400	102	363	139	128
500	127	468	180	168
600	154	542	202	199



Transport packaging

Transport packaging protects the interior of the valve from soiling and damage.
Do not remove the packaging until the valve is going to be installed.

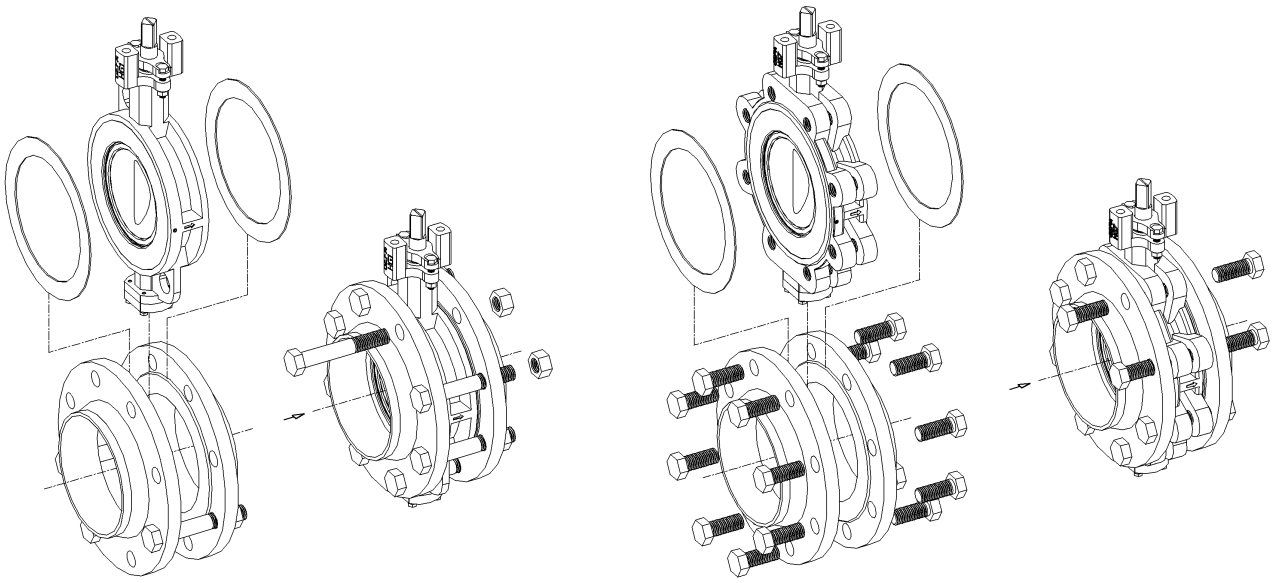
Installation position

Basically the high performance butterfly valve series HG can be installed in any position.
If the concentration of suspended matter is high (e.g. media which are very viscous), it is recommended to mount the high performance butterfly valve with valve shaft in horizontal position and stop boss facing upwards.
For nominal sizes >DN300 it is generally recommended to mount the valve with valve shaft in horizontal position.
The recommended pressure direction (direction of the arrow on the body) guarantees the highest level of tightness.
The GEFA high performance butterfly valve also provides a reliable seal when it is used against the recommended pressure direction.
Consult the manufacturer if the valve is to be used for applications with a frequent change of pressure direction.

Installation

- Prior to the mounting of the valve, flush the pipeline to remove all traces of soiling, welding residues, etc.
- Remove the transport packaging and check whether the flange connections are without damage and clean.
- Check whether the flange clearance is in accordance with the face-to-face dimension of the high performance butterfly valve.
- Before mounting the valve, the flanges are to be sufficiently spread using a suitable tool.
- The valve must be **completely closed**.
- In order to intercept the valve between the flanges during the mounting process, we recommend (depending on the mounting position) to insert the lower flange screws without tightening them. The screw is not to be initially inserted in the centring aid area (rib).

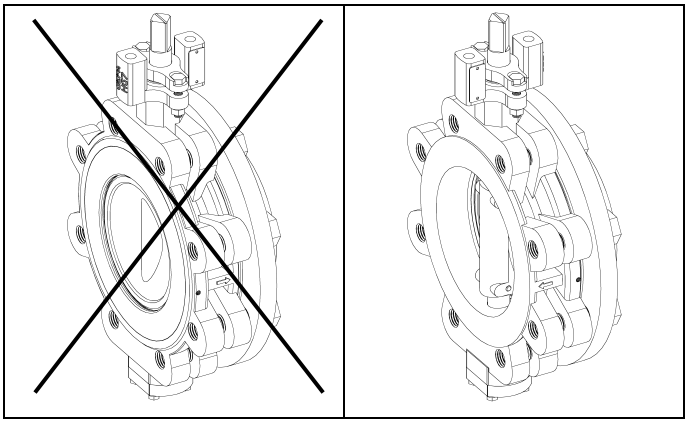
- Insert the high performance valve and the seals between the flanges.
- Insert the flange screws.
- Remove the spreader and hand-tighten the screws.
- Check whether the valve, the seals and the counter-flanges are in true alignment.
- Carefully open and close the valve in order to ensure that the valve disc is not getting in touch with the pipeline. Check that the disc has adequate clearance.
- With the valve disc completely closed, tighten the flange screws crosswise using the stipulated torque. The tightening torque depends on the seals chosen.
  If no specifications are given, the following standard values can be used:
  M16 = 85 Nm M20 = 165 Nm M24 = 285 Nm M27 = 425 Nm M30 = 570 Nm M33 = 780 Nm



DANGER: When installing the butterfly valve with flanged body used in an end-of-line function, the free connection side must be additionally secured by a blind flange or (only for short-term use) the valve must be locked tightly in the "CLOSED" position.
The following safety instructions must be heeded:

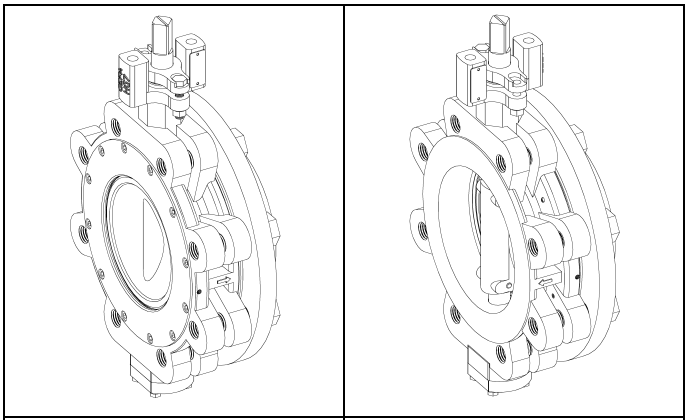
Version "Valve to be flanged off at one side":

DANGER: The valve may be under pressure when the flange in pressure direction is missing.
The valve must not be under pressure when the flange on the insert ring side is missing.
The arrow showing the pressure direction and the plate marking the side where the flange can be taken off must always be heeded.
If the marking is not clear, none of the pipeline flanges may be removed with the system under pressure.
If a pipeline flange is removed, make sure that no damage can be caused by medium spraying out due to a leak in the sealing system.



Version "Valve to be flanged off at both sides":

DANGER: The valve may be under maximum pressure when the flange in pressure direction is missing.
When the flange on the insert ring side is missing, note that the pressure is reduced.
The arrow showing the pressure direction and the plate marking the side where the flange can be taken off must always be heeded.
If the marking is not clear, none of the pipeline flanges may be removed with the system under pressure.
If a pipeline flange is removed, make sure that no damage can be caused by medium spraying out due to a leak in the sealing system.



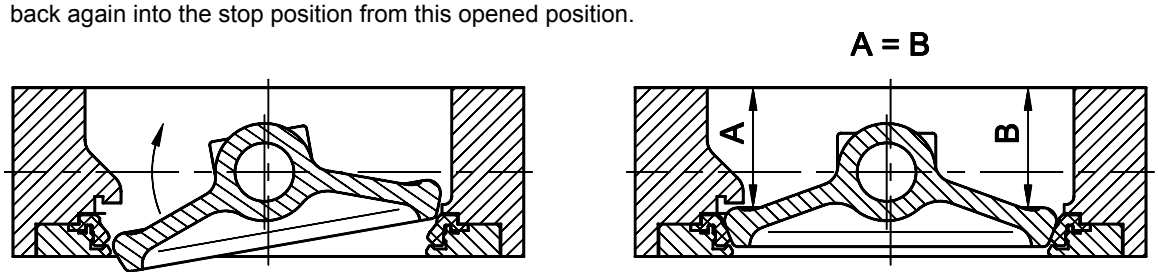
reduced pressure		max. pressure	
DN 50 – DN 300:	16 bar	DN 50 – DN 300:	25 bar
DN 350 – DN 500:	10 bar	DN 350 – DN 500:	16 bar
DN 600:	6 bar	DN 600:	10 bar

Mounting of operating elements

The highest level of tightness can only be achieved when the valve disc is completely closed. In case operating elements (hand levers, gear operators, actuators, etc.) are mounted, the stop position must be exactly adjusted.
The stop boss does not serve the purpose of a limit stop, but merely as an override safety device which ensures that the seat ring is not damaged. The highest level of tightness of the valve is achieved ca. 1°-2° before the stop boss is reached.

If the valve is not installed in the pipeline, the exact stop position can be checked as follows:
The distance from the edge of the body to the valve disc must be measured on both sides at a position offset 90° to the valve shaft. If the distances are identical, the valve is closed exactly.

Care must be taken that the valve is always moved to the stop position from the opened position. This is the only way to guarantee that any play from the actuator (e.g. gear) has no influence on the stop position.
If the exact stop position has been overridden, the valve must be returned to the opened or partly opened position, then moved back again into the stop position from this opened position.



It must be ensured that the actuator is centred on the valve shaft.
The weight of a mounted actuator must not place a one-sided load on the valve shaft.
For this reason, actuators must be supported if necessary - without fixation.
External loads must not be applied to actuators, this can damage or destroy the valve.
If the valve is mounted in the recommended pressure direction, the opening movement of the valve disc is supported by the pressure of the medium, this being design-related (double-eccentric design).
For this reason, when carrying out switching operations using a hand lever, the lever is to be held secure when the star knob is being loosened.
After the switching operation has been completed, the position of the hand lever is to be secured by tightening the star knob.

Initial operation

The high performance butterfly valve has been tested for leakage using air or water. Residues of the test medium may still be on the contact surfaces of the valve. Possible reactions with the operating medium must be observed.
Prior to initial operation, the pipeline must be flushed effectively with the valve fully opened to eliminate soiling and to avoid damage to the sealing surfaces. The valve must not be switched during the flushing process.

During a system pressure test the following pressures must not be exceeded:

1,5 x PN with disc in open position
1,1 x PN with disc in closed position

Impermissible operation

Never operate the butterfly valve without actuating devices and/or locking of the shaft.
Do not operate the valve in the cavitation area.
Do not exceed the pressure/temperature range.
Avoid all foreign particles on the sealing surfaces.

Removing the valve

Before removing the high performance butterfly valve make sure that the pipe section is depressurised and evacuated.
In case of toxic, caustic and other outgasing media the pipe section must also be ventilated.
Safety classification is the responsibility of the system operator.

The high performance butterfly valve is removed by loosening the flange screws and sufficient spreading of the mating flanges.
The valve disc must be closed at an angle within the face-to-face dimension of the valve to prevent damage to the disc.
The position mark on the narrow end of the shaft square or the keyway is parallel to the valve disc.
Actuators either have to be dismounted before the valve is removed or they have to be secured against unauthorized or unintentional operation.

Disposal / repair of the valve

After having removed the valve it has to be disassembled and cleaned to prevent injuries caused by residues of the medium.
If the valve is returned to the manufacturer, a safety data sheet relating to the media must be included.

Subject to modifications without notice.

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