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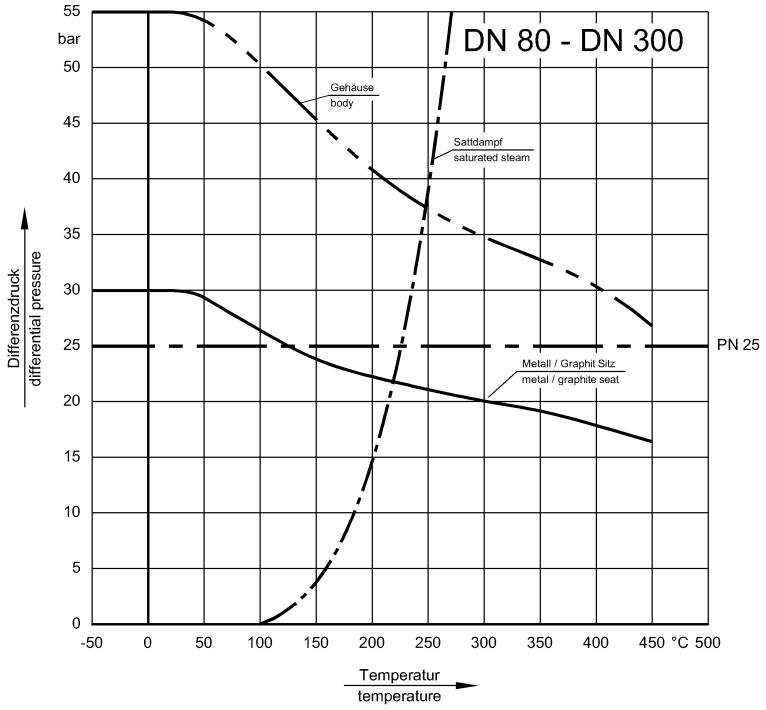
Operating instructions Installation / Operation triple offset butterfly valve series HGT

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 triple offset butterfly valve series HGT may only be used to stop, throttle and control media flows within the permissible pressure-/temperature limits.



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 gear operators, actuators, feedback and control systems.
When using a handwheel and manual emergency operation, take care that there is enough space for a proper operation.

Earthing the valve

If the triple offset butterfly valve series HGT 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

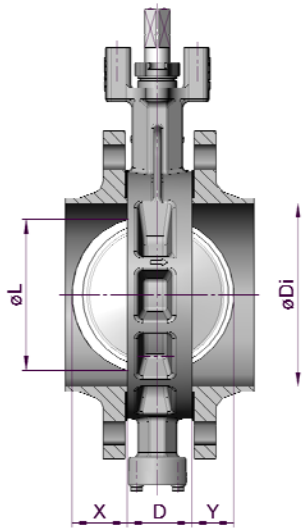
The valve must be transported and stored dry and clean.
In humid rooms, a drying material or heating must be used to avoid condensation.
During transport and intermediate storage the triple offset butterfly valve should not be outside a temperature range of -15°C and +30°C.
The transport packaging protects 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 triple offset butterfly valve series HGT 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 triple offset butterfly valve has been installed, as this could cause damage to the valve.
The triple offset 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
80	46	80	23	8
100	52	98	28	18
125	56	121	39	26
150	56	141	48	37
200	60	190	71	56
250	68	239	93	74
300	78	285	112	90



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 triple offset butterfly valve series HGT 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 triple offset butterfly valve with valve shaft in horizontal position.

Recommended pressure direction and tightness requirements

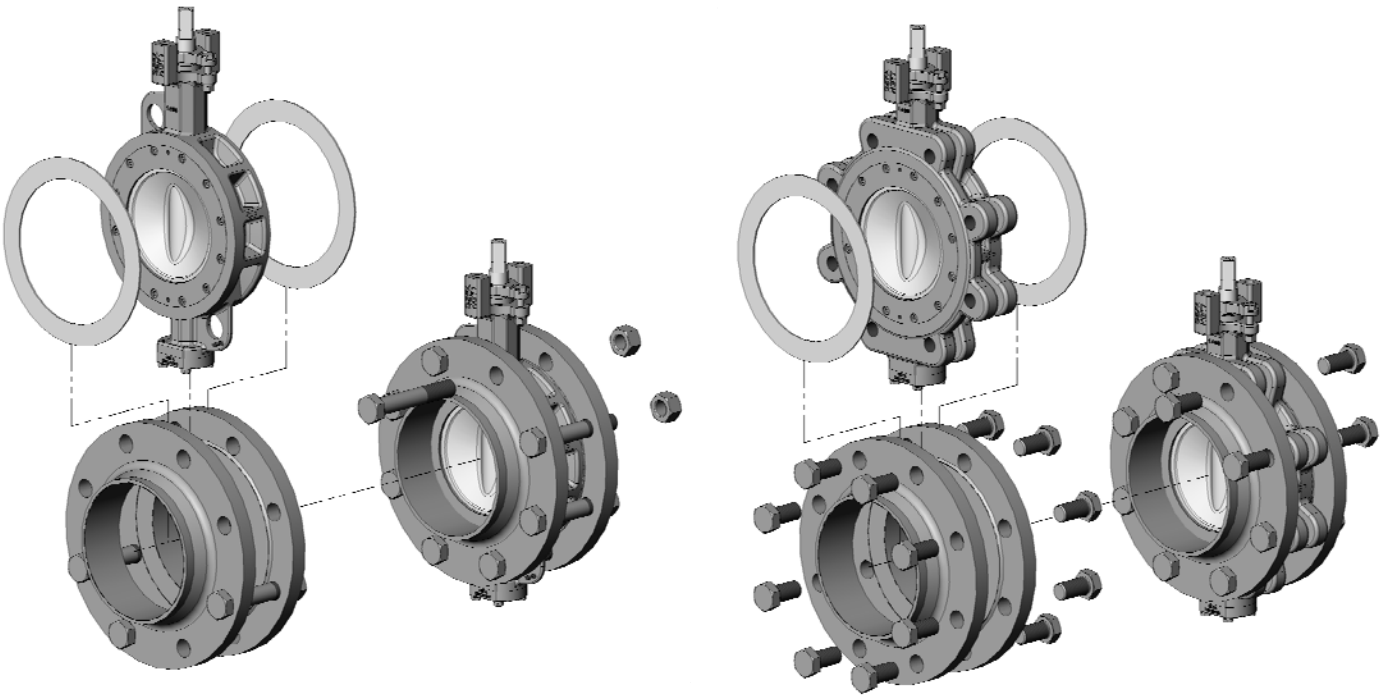
The recommended pressure direction (direction of the arrow on the body) guarantees the highest level of tightness.
Using the recommended mounting position the valve disc is pressurized from the stem side by the pressure of the medium.

Consult the manufacturer if the valve is to be used for applications with a frequent change of pressure direction.
Important: The operating torque influences the seat tightness. The triple offset butterfly valve series HGT is torque-seated (it is not closed in the seat in a stroke-dependent way).
The actuator torque is constantly used to ensure contact pressure between the seating surfaces – see chapter ‘Mounting of operating elements and actuators’.

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 triple offset 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 triple offset butterfly 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. Only manual operations that are self-locking like gear operators for valves are allowed. Hand levers with notch plates do not fulfil this function!
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.

Mounting of operating elements and actuators

The highest level of seat tightness is only achieved if the valve disc is permanently pressed into the seat. This is realized by the actuating torque, ensuring a constant pressure in the CLOSED position. Only manual operations are allowed that are self-locking (gear operators for valves). Hand levers with notch plates do not fulfil this function!
Actuators (pneumatic, electric and hydraulic) need to be equipped with a stroke adjustment in the CLOSED position, allowing to set the CLOSED position by an overtravel, adjustable by approx. 3°. The stroke adjustment has to be unscrewed to allow the disc to close torque-seated. The adjustable final stroke (CLOSED position) must not limit the actuator's pivoting angle. This ensures that the valve disc is constantly pressed into the seat by the actuator's torque (closing torque).

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 against the recommended pressure direction, the opening movement of the valve disc is supported by the pressure of the medium, this being design-related (eccentric design).

If operational elements and actuators are subsequently added by someone who is not a member of our technical staff, we assume no liability for the proper function of the valve.

Initial operation

The triple offset 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 triple offset 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 triple offset 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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