NEOTECHA NEOSEAL BUTTERFLY VALVE

INSTALLATION AND MAINTENANCE INSTRUCTIONS

Before installation these instructions must be fully read and understood

1 GENERAL INFORMATION ON THE INSTALLATION AND MAINTENANCE INSTRUCTIONS

These installation and maintenance instructions contain the information necessary for safe and correct installation and operation of the fitting. If any difficulties are encountered during installation or operation which cannot be solved with the aid of the installation and maintenance instructions, please contact the supplier/manufacturer for more information.
These installation and maintenance instructions comply with the relevant applicable EN safety standards.
When installing the fitting, the operator or the person responsible for the design of the installation must ensure that applicable national regulations are complied with.
The manufacturer reserves all rights to make technical changes and improvements at any time.
The use of these installation and maintenance instructions assumes that the user is qualified to 'Qualified Personnel' level.
Operating staff must be given appropriate training in the operating and maintenance instructions.

2 SAFETY

Please also read through these notes carefully.

2.1 General potential danger due to:

a. Failure to observe the instructions
b. Improper use
c. Insufficiently qualified personnel

2.2 Correct use

2.2.1 Area of application

Neoseal valves are fittings that are used for the isolation, throttling and regulation of corrosive and non-abrasive liquids, together with gases, pastes and powdery products in pipelines, vessels, apparatus etc.
The area of application of the fitting is the responsibility of the system designer. Special characteristics of the fitting must be taken into account.
A very wide selection of product-wetted components parts is available which allows suitable combination for the optimal solution to your specific application.
Always consult the manufacturer when the fitting is to be used with media that require or preclude the use of certain materials.

2.2.2 Method of operation

The valve is opened or closed by turning the flap spindle. The angle of rotation is 90°.

2.2.3 Performance data

Pressure (bar)	Liner	DN 40-150	DN 200-600	DN 700/800-900	DN 750
10	PTFE/TFM	-40 +180 °C	-40 +160 °C		
	Butyl	-30 +120 °C	-30 +120 °C		
	Carboxyl nitril	-20 +120 °C	-20 +120 °C		
	EPDM	-30 +140 °C	-30 +140 °C		
	Hypalon	-20 +140 °C	-20 +140 °C		
	Silicone	-30 +180 °C	-30 +120 °C		
	FKM	-20 +160 °C	-20 +160 °C		
	UHMWPE	-40 +80 °C	-40 +80 °C		
6	PTFE/TFM	-40 +200 °C	-40 +180 °C	-20 +100 °C	
	Silicone	-30 +200 °C	-30 +180 °C		
4	PTFE/TFM	-40 +200 °C	-40 +200 °C	-20 +150 °C	
	Silicone	-30 +200 °C	-30 +200 °C		
2.5	PTFE/TFM	-40 +200 °C	-40 +200 °C	-20 +150 °C	-20 +100 °C
1.5	PTFE/TFM	-40 +200 °C	-40 +200 °C	-20 +150 °C	-20 +150 °C

2.2.4 Usage restrictions
The product-wetted components must be classified as resistant to the product to be conveyed. Refer to appropriate literature or consult the manufacturer or distributor for advice on this.

2.2.5 Modification prohibition
Mechanical modifications to the valves or the use of other manufacturers' parts for repair purposes is not permissible. Safety is not guaranteed if this requirement is disregarded. Repair work must only be carried out by the manufacturer's trained personnel.

2.2.6 Warning about foreseeable misuse
Valves and their accessories (e.g. operating elements) must not be misused as climbing aids.

2.2.7 Duty to comply with the instructions for operation, maintenance and servicing
These instructions form part of the delivery package and must be kept clean and made accessible to the user.

2.3 Sources of danger
2.3.1 Chemical external
The valve body has a 2-part polyester coating. The coating can be attacked externally by strong solvents, leading to corrosion of the body. If damage of this nature occurs, the effects of the environment should be investigated and the damage to the coating made good.

2.3.2 Mechanical
When using the hand lever, it should be ensured that there is still sufficient clearance for the hands at the end position of the handle, so that there is no risk of trapping.
Excessive oscillation and vibration should be avoided, to prevent the bolts loosening.

2.3.3 Electrical
If static charges can lead to explosions, the valve must be earthed by means of the earthing accessory and mount it to the valve by using the screw on the valve body neck. In addition, we recommend the use of valves with electrically conductive linings. Please contact your supplier!

2.3.4 Thermal
Due to the range of operating temperatures between -40°C and +200°C, surface temperatures from -20°C to over +85°C can be present on the valve body. Suitable precautions should be taken to protect against burns due to high or freezing temperatures. In particular, insulated gloves should be worn when using the hand lever, for example.
In case of fire, the mechanical strength of the PTFE ring bellows is no longer guaranteed above 200°C.

2.4 Requirements for the operator
This means people who are familiar with the erection, installation, commissioning, operation and maintenance of the product and have appropriate qualifications relating to their activities and functions, such as e.g.:
- Instruction in and duty to comply with all installation-related, regional and internal works regulations and requirements.
- Training or instruction in accordance with the Safety Standards for personal care and use of appropriate safety equipment and protective workgear, like e.g. personal protection equipment (e.g. insulated gloves), suitable for the operating conditions.

Furthermore, these people must have read and understood these instructions.

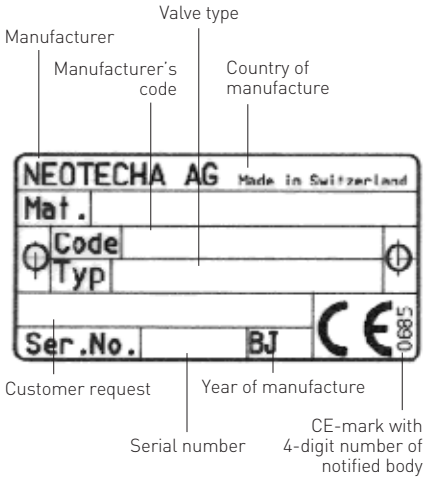
3 TRANSPORT/STORAGE

The valve is supplied with protective covers. Do not remove the protective covers until immediately prior to installation. They protect the PTFE surface from dust and mechanical influences.

3.1 Transport
- Transport temperature -20°C to +65°C.
- Protect against external force(impact, shock, vibration).
- Do not damage the coating.

3.2 Storage
- Storage temperature -20°C to +65°C, dry and dust-free.
- A drying agent or heating is required in damp storage areas to protect against condensation.
- Keep the valve disc in a slightly open position (5-10°).

3.3 Handling prior to installation
- With versions with protective covers, only remove the covers immediately prior to installation!
- Protect against the effects of weather, e.g. dampness (or else use a drying agent).
- Proper treatment prevents damage.



4 IDENTIFICATION

Additional identification on the valve in accordance with DIN 19, such as: DN, PN, manufacturer's logos of the Neotecha AG company and . The valve body material is cast onto the valve.

5 DIMENSIONS AND WEIGHTS

Refer to the product documentation for dimensions and weights.

6 INSTALLATION

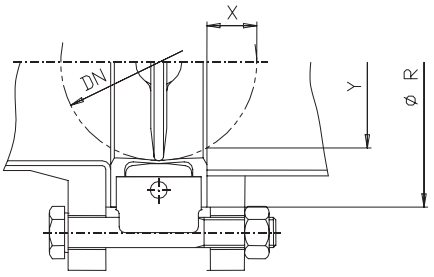
6.1 Preparation for installation

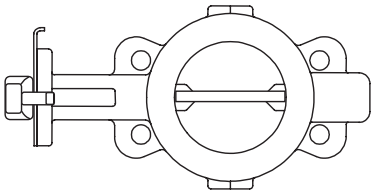
The dimensions of the NeoSeal valve have been chosen so that, in the case of a wafer body, it can be clamped between all current DIN, ANSI and JIS flanges of the appropriate size. Principal dimensions of the valves: refer to the catalog page for data.
The flanges must meet the following requirements (see table below).

- Cleaned and undamaged mating surface.
- The internal diameter of the mating flange must have the following dimensions: Minimum: Y-dimension of the valve plus sufficient clearance for the valve disc. Maximum: if the flanges have a raised face, the outside diameter of the raised face must not be less than dimension 'R' of the butterfly valve.
- The appropriate flange bolt hole arrangements in the various flange standards and diameters allow the valve to be centered by passing the flange bolts through the holes in the mounting plate of the valve.
- The flange bolts must be centrally aligned in the holes in the valve mounting plate.

FLANGES REQUIREMENTS

DN		øR	X	øY
mm	inches	mm	mm	mm
40	1.5	80	4.5	23
50	2	95	5.0	31
65	2.5	120	11.5	52
80	3	132	18.5	69
100	4	153	26.0	90
125	5	183	35.5	114
150	6	209	48.5	143
200	8	259	72.5	196
250	10	309	92.5	244
300	12	364	112.5	293
350	14	412	126.0	321
400	16	475	149.0	387
450	18	525	162.0	423
500	20	578	186.0	484
600	24	680	218.0	570
700	28	780	272.0	686
750	30	728	280.0	728
800	32	887	305.0	783
900	36	1000	349.0	879





6.2 Installation in the pipeline
With the NeoSeal, the flow can be in any direction. The recommended installation position is with the spindle horizontal, with the lower sealing strip opening in the direction of flow.

A butterfly valve is not a crowbar! Please do not use it to force the flanges apart, as this would lead to damage to the ring bellows and seat. To avoid damage to the disc and bellows, the protective covers should only be removed immediately prior to installation.
The valve can be installed either with the drive mounted above or without a drive, assuming that the drive allows the valve to be installed in such a way that the sealing strip of the valve disc is positioned a minimum of 5 to 10 mm within the body.

It is not advisable to use the valve for positioning pipelines in new systems. Sparks which occur during spot welding can damage the seat. Use adjusting pieces instead. Final welding of the flange with the valve in position will lead to severe damage to the valve seat due to the high temperature.

Always use all flange bolts, even on low pressure systems. The valve should never be pressurized if one of the four flange bolts that align the shaft axis is missing. If a pipe lined with an unattached material (e.g. PTFE) is used, it must be ensured that the temperature-related expansion of the lining does not restrict the movement of the valve disc or damage the area of the seat.

6.3 Body variants

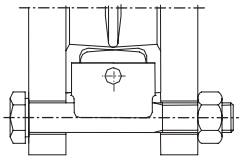
Wafer body	NeoSeal DN 40-300 (1½"-12")
Lugged flange body	NeoSeal DN 40-300 (1½"-12")
Double flanged body	NeoSeal DN 350-900 (14"-36")

Refer to the product documentation for bolt sizes to be used for the installation.

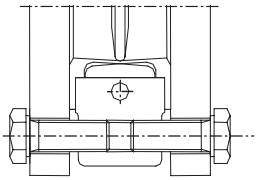
6.4 Step-by-step valve installation
1. Check that the distance between flanges matches the installation length of the butterfly valve. Before installing the valve, spread the flanges apart sufficiently using a suitable tool.
2. Close the valve until the sealing strip of the valve disc is 5 to 10 mm within the body.
3. Slide the butterfly valve between the opened flanges and insert the flange bolts through the adjusting holes.
4. Fully open the valve. The valve is open when the flat sections on the shaft are parallel to the pipeline. With nominal diameters above DN 125, the marking on the face of the control shaft should be observed. If these are parallel to the pipeline, the valve is open.
5. Tighten the flange bolts hand-tight as the tool holding the flanges apart is gradually removed. Make sure that the flanges remain correctly aligned.
6. Slowly close the valve disc and check that the Y measurement is less than the internal diameter of the pipe and also has adequate clearance.
7. When the disc is in the 'open position', tighten the flange bolts in opposite pair sequence. Refer to following table for tightening torques.

When used as an end of line valve, it must be secured in such a way that access to the valve is restricted when in service.
It should also be noted that when a valve is used as the end valve of a pressurized system, the valve must be installed with a blind flange.

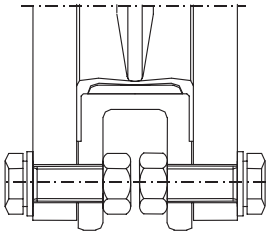
WAFER BODY



LUGGED FLANGE BODY



DOUBLE FLANGED BODY



RECOMMENDED TIGHTENING TORQUES (Nm) OF BOLTED CONNECTIONS FOR INSTALLING BUTTERRFLY VALVES

DN		Torque
mm	inches	Nm
40	1.5	35
50	2	50
65	2.5	70
80	3	50
100	4	60
125	5	65
150	6	70
200	8	95
250	10	100
300	12	115
350	14	140
400	16	170
450	18	190
500	20	220
600	24	280
700	28	275
750	30	-
800	32	386
900	36	453

6.5 Final checks

Inspection of the valve position as far as the fully open position.
Cleaning and flushing the pipeline before the first closure.
Repeated opening and closing of the valve to ensure unrestricted movement of the valve disc.

7 NOTES ON DANGERS DURING INSTALLATION, OPERATION AND MAINTENANCE

Safe operation of the valve is only guaranteed if it has been correctly installed, commissioned and maintained by qualified personnel (see 'Qualified Personnel'), taking into account the warning information of these installation and maintenance instructions. In addition, compliance with the general installation and safety regulations for the pipeline or plant construction, together with the correct use of tools and protective equipment, must be ensured.

The installation and maintenance instructions must be strictly followed when any work is carried out on the valve or when handling the valve. Non-observance can result in injuries or damage to property. When the valve is used as a final termination, a safety measure e.g. a blank or dummy flange is recommended when carrying out maintenance work. If the valve is operated as an end of line valve, the information given in DIN EN 294 point 5 must be observed.

8 COMMISSIONING

8.1 General commissioning

Before commissioning, the information relating to material, pressure and temperature should be checked against the installation diagram of the pipeline system.
Tools for increasing the lever or handwheel torque are not allowed.
Any debris left in the pipeline and valves (dirt, welding beads, etc.) will inevitably lead to leakage.

Before each commissioning of a new system or re-commissioning of a system after repair or modification, it must be ensured that:
- *All installation and assembly work has been completed in accordance with the regulations!*
- *Commissioning is only undertaken by 'Qualified Personnel'.*
- *The valve is in the correct operating position.*
- *New protective equipment is installed or existing protective equipment repaired.*

8.2 Mounting additional modules

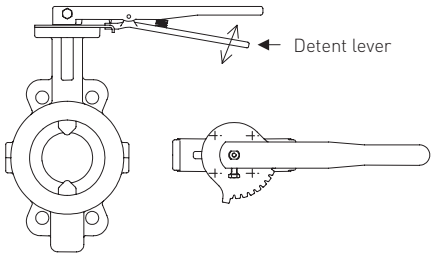
Where valves are fitted with additional options (limit switches etc.), these should be connected according to their operating mode in line with the installation diagram.

9 OPERATION (HAND LEVER)

Model variants
Nominal diameter 40-150 (1½"-6")
Hand lever with notched plate with 10° divisions, range 90°
Operating element: detent lever

The hand lever and graduated lever must not be modified.
The locking function will otherwise be adversely affected.
Damaged hand levers should be exchanged.
The butterfly valve should be mounted so that operating staff can operate the valve without danger.

When drives or gear units are used, the instructions of the particular manufacturer are applicable.



10 SERVICING AND MAINTENANCE

No routine maintenance or lubrication is required. However, for systems with high temperatures, an inspection for leakage at the flanges should be carried out shortly after installation. The different coefficients of expansion and temperature expansions can cause settlement of the PTFE. Tightening the bolts once again will remedy this. This process may possibly have to be repeated several times. We recommend that the valve be operated at least once a month.

11 CAUSE AND REMEDY OF OPERATING FAULTS

If the valve function or operating action is faulty, a check should be made to ensure that the assembly and installation work has been carried out and completed in accordance with the installation and maintenance instructions. The information relating to material, pressure, temperature and direction of flow should be compared with the installation diagram of the pipeline system. Furthermore, a check should be made on whether the installation conditions correspond to the technical data given in the data sheet or on the rating plate.

The safety regulations must always be observed when troubleshooting.

12 DECOMMISSIONING

Removal of the valve for repair or servicing is often carried out carelessly, as the valve has to be repaired or replaced. However, it is recommended that the valve is removed with care, without damaging the PTFE, so that the possible cause of damage can be determined after removal.

ATTENTION!
Check that the pipe is depressurized and drained. With corrosive, inflammable, aggressive or toxic media, ventilate the pipeline system.

1. Only allow assembly work to be carried out by qualified personnel (see Section 2.2).
2. Almost completely close the butterfly valve (the disc is in line with the flat faces of the operating shaft).
3. Loosen all flange bolts and withdraw them until the valve can be removed.
4. Spread the flanges apart using a suitable tool and withdraw the valve.

13 DISPOSAL

Hand in the correctly cleaned valve to the scrap material recycling plant.

Badly cleaned valves can cause severe burning of the hands and other parts of the body.

If the valve is passed on to a third party, the manufacturer does not guarantee the safety of the valve.