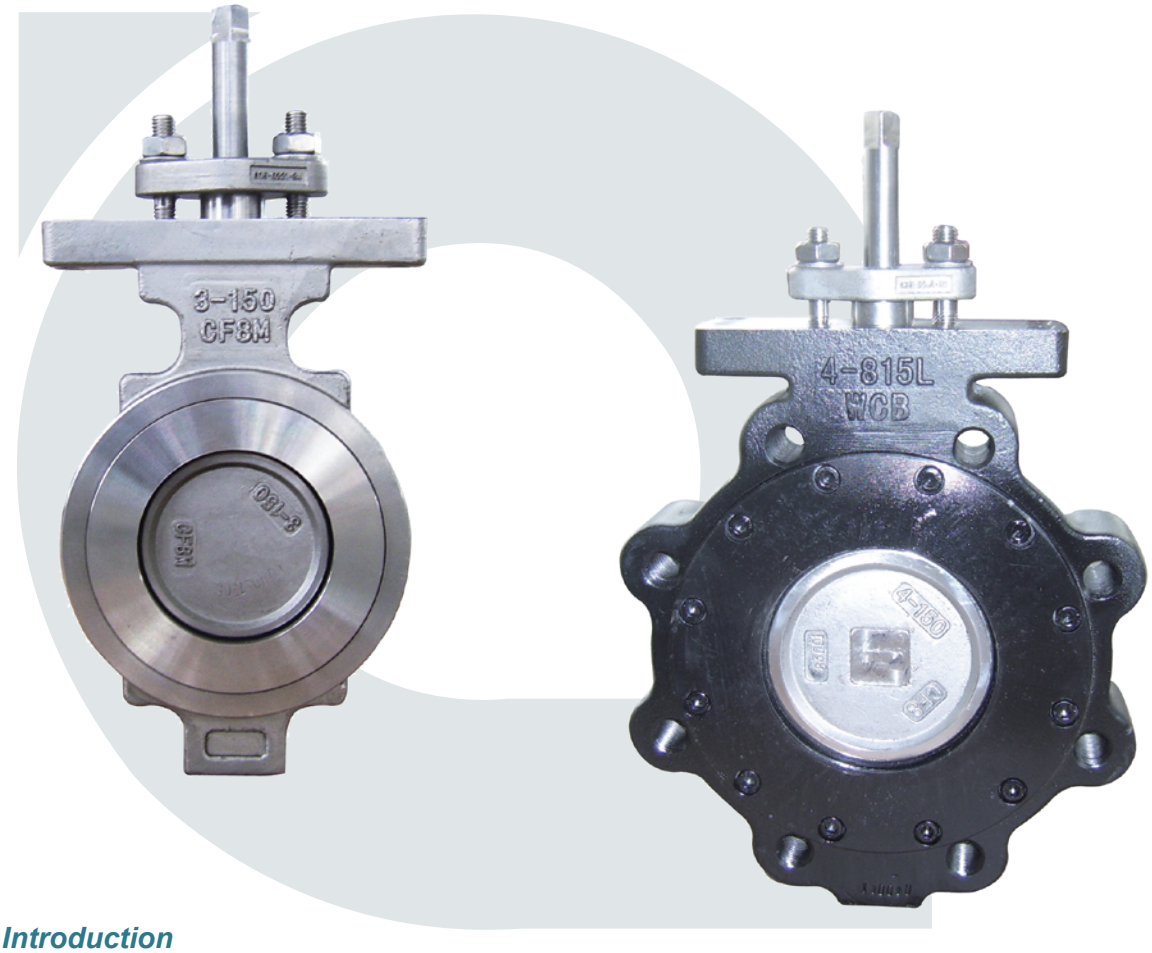
Coreline **Installation-Operation-Maintenance Manual**

High performance butterfly valves

Fig.263

English



Introduction

In order to benefit from the excellent properties of the Coreline butterfly valves, it is necessary to follow the instructions of this user manual carefully. For errors resulting from improper installation, the manufacturer or Distributer can not be held responsible. Consult the applicable standards for allowable flange dimensions. Dimensions, materials and applicability of the valves should be derived from the technical datasheets and documentation, which can be found in our latest catalogue from our website - www.coreline.dk .

Requirements for the maintenance staff

The staff assigned to assembly, operating and maintenance tasks, should be qualified to carry out such jobs and in any circumstance, ensure personal safety.

www.coreline.dk

1. Transportation and storage

Valves shall be well protected and gently transported to avoid scratches, damage and enviroment damage.
All valves are dispatched in the position as ordered and it is recommended that they are left in this position during storage.
Stock the valves indoors in dark and cool places.

2. Confirmation of valve working conditions

Before installing the valve, check that the specification on the identification plate meets the requirements regarding pressure, temperature and media. The valve shall not be installed in environment that may cause corrosion or damage to the valve.

3. Pre-installation checks

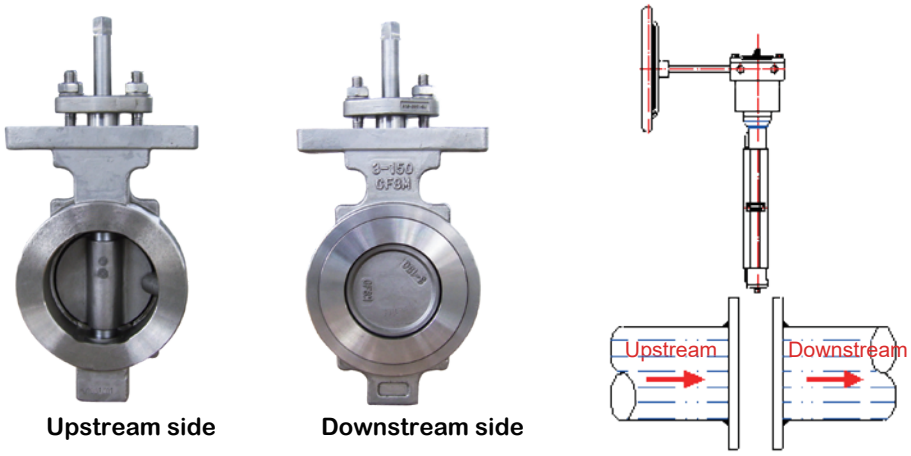
3.1. Check and remove all transport stops, protective plugs or protection covers, and check the inside of the valve body to ensure that there are no foreign objects that might have collected during transportation and storage.
3.2. Clean all pipelines to remove pipe dirt, metal chips, welding slag and other foreign objects.
3.3. Check the flange surface of the pipe to ensure that there is a smooth surface.
3.4. Install the valve using accepted piping practices.
3.5. Install the valve with recommend flow direction (See details in 4.3).
3.6. Use self centering gasket.
3.7. Install the control valve preferably in a straight run of pipe away from bends or sections of abnormal velocity.
3.8. Incorrect pipe alignment will cause interference between the disc edge and line Flange face, excessive torque and damage to disc and seat, resulting into seat leakage.
3.9. Do not try to install valve between line flanges having inadequate gap. This may cause damage to some valve parts. If valve is in fully open position, it will impact the flanges and damage the disc edge.
3.10. No butterfly valve should be attempted to install when disc in open condition. The butterfly valve can be inserted between line flanges in fully close position.
3.11. Glands are factory tightened and checked for leakage. However if there is any gland leak in valves, the gland may be further tightened just enough to stop leakage. Excessive tightening should be avoided.
3.12. Connect the valve in pipe line with the standard connections.

4. Installation

The valve must be installed so that pipeline stresses are not transmitted to the valve body as it might cause problems for operation/performance.
4.1. All valves must be in full closed position during installation or removal.
OBS: Mounting of a Normal Open valve:
4.1.1. Remove the actuator from the valve,
4.1.2. Turn the valve shaft clockwise with proper tooling until the valve is in Full Close postion.
4.1.3. Carefully put the free shaft closed valve between the mounting flanges/flange washers, then properly mount the valve in pipeline.
4.1.4. Turn the valve shaft anti-clockwise with proper tooling until the valve is in Full Open position.
4.1.5. Properly mount the actuator back to the valve to make sure the NO valve function well.
It is not necessary to torque seat the valve, but the disc travel must be restricted to prevent damage.

4.2. Please be sure there is no foreign material and clean inside of the pipe and valve.

4.3. The visible shaft side of the disc is considered the high-pressure side of the valve, meaning the best closure performance is obtained on this side of the valve, and a determination as to the best installation should be made, to utilize this feature. Therefore the shaft side is recommended to be mounted on upstream, while the disc side to be mounted on downstream. This may not necessary be the normal flow direction of the system (Fig.1).



Upstream side **Downstream side**

Fig.1 Recommend mounting direction

4.4. Install the valve stem horizontally (Fig.2), thus could prevent sand and some chips collect around bottom bushing and seat and damage the valve.

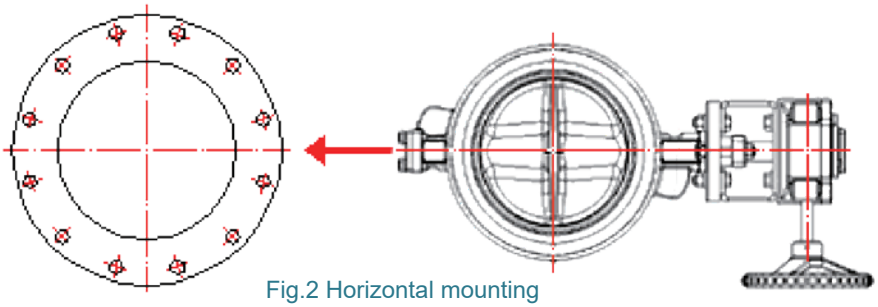


Fig.2 Horizontal mounting

4.5. Install valve and gaskets into pipeline as Fig.3.

4.6. Make sure the valve to installed between flanges and concentrically with flanges, thus could prevent the disc damaged by the interfering with flange and pipeline (Fig.4).

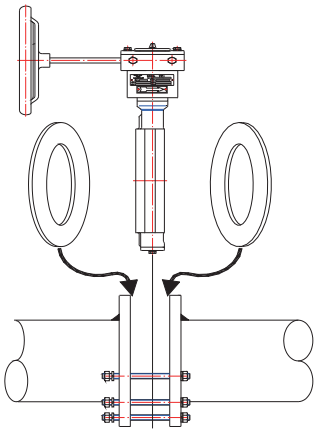


Fig.3

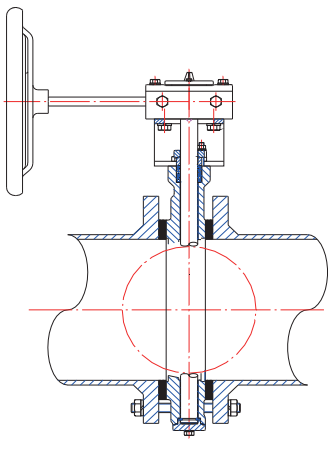


Fig.4

4.7. The typical installation for the butterfly valve connected to an elbow would be to align the shaft axis to allow equal flow on each side of the shaft, minimizing dynamic torque requirements for the valve Fig.5.

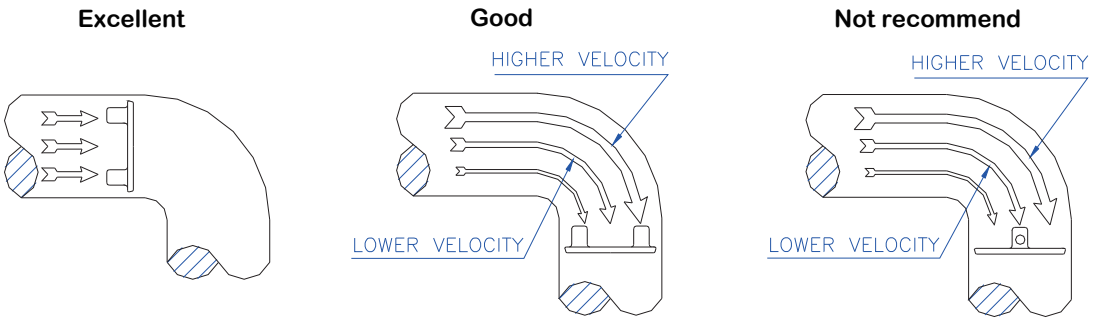


Fig.5

4.8. Using an extension tube between wafer check valve and butterfly valve, never connect them directly (Fig.6)

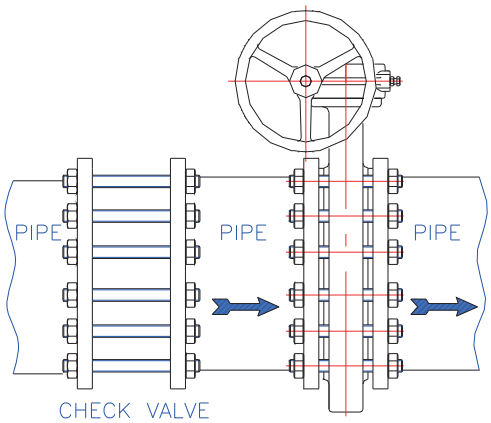


Fig.6

5. After installation

5.1. An occasional cleaning of valve stem will prevent dirt or grit being carried away into the packing.

5.2. Vary air lines and fitting to the actuator to ascertain actual travel scale indication.

5.3. Check all air lines and fitting to the valve actuator & accessories for air leaks.

5.4. Ensure that the combined action of controller, positioner and valve provide the desired Valve stem movement. Also ensure the required fail safe position of valve.

6. Operation

Valve closes with clockwise rotation of the valve shaft. Valve is fully closed when disc surface is parallel and has direct contact to seat ring surface.

OBS: In case of leakage, presence of high temperature may be dangerous to the person's life.

Do not use improper equipment so as to avoid dangerous effects such as over load ,over heating ,stress corrosion

7. Use and maintenance

The use of the valve shall be carried out in accordance with the instruction manual, and shall not exceed the design parameters. The operator must go through on-the-job training to understand the basic operationprinciple of the valve. Prevent incorrect opening and closing of valves. The operator should clearly understand the role of each valve and its position in the process pipeline to prevent misuse. It should be ensured that the valve can be opened and closed at least twice within a week to prevent the valve from being stuck due to long-term inactivity. After the valve has been installed, welding and other unproper operations near the pipeline are not allowed.

Valves should be inspected regularly, at least every three months, or in accordance with the corresponding laws and regulations, or on-site process conditions to set the frequency of maintenance. Regularly check the valve connections for looseness and tighten in time. Check whether the valve leaks or malfunctions. If leaks or malfunctions occur, the valves and pipelines should be repaired in time on the premise of ensuring safety.

If there is an actuator, attention should be paid to the actuator and its connecting mechanism during valve maintenance. Maintenance should be carried out according to the instruction manual of the actuator.

Important: Replacing the seat

For maintenance or replacement of seat, the bracket need not be dismantled.

The seat must be replaced once it is dismantled to achieve the best performance.

(1) Isolate the valve from line pressure and release the pressure.

(2) Remove the complete valve from the pipe line.

(3) Loose the seat retainer.

For sizes ≥ DN350, unscrew and remove the seat retainer screws;

For sizes ≤DN300, when the valve is in full close position, then turn valve shaft 180° clockwise until the disc is totally seperated from the seat ratainer. Use a flat head screwdriver to carefully loose the edge of the retainer. Remember not to take out the circlip in the body because it will make it difficult to re-assemble the seat afterwards.

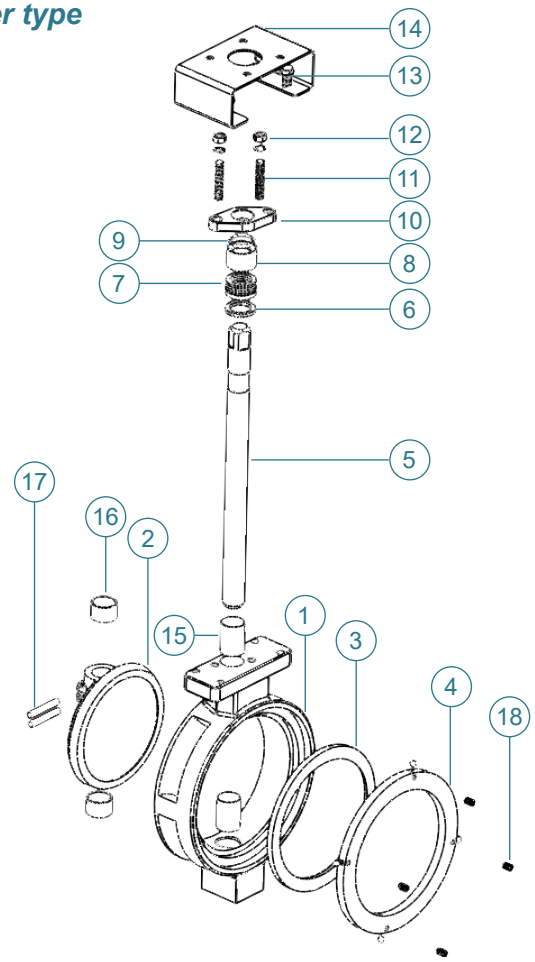
(4) Take out the seat retainer and the seat.

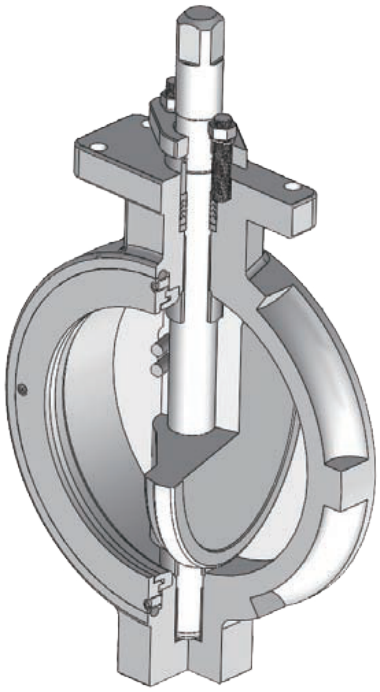
(5) Replace the seat with new one and re-install the seat retainer.

8. Trouble shooting

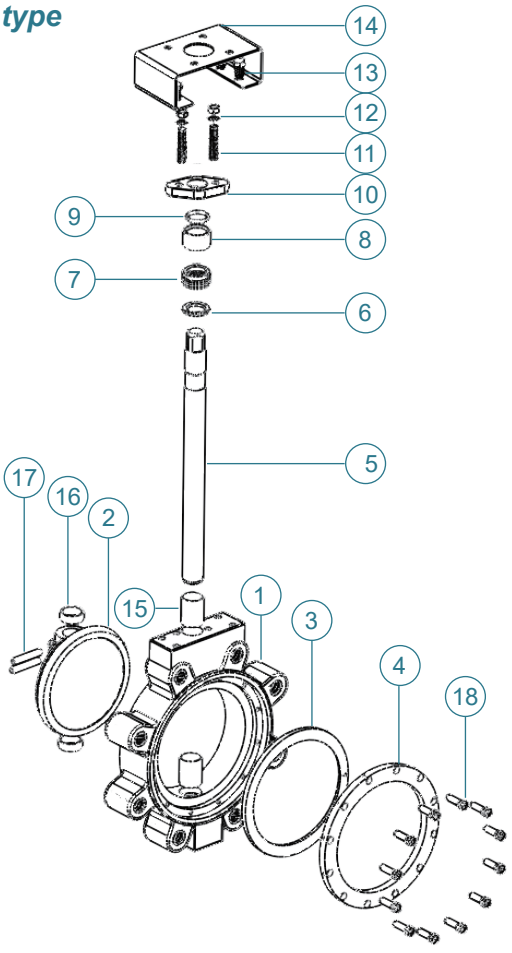
No.	Problem	Possible cause	Correction action
1	Gland leakage	Gland nut loose	Adjust gland nut
		Worn out packing	Replace gland packing
2	Seat leakage	Limit stop for Closed position stop got discurbed	Adjust limit stop
		Sealing edge of seat damaged	Replace seat
		Valve pressurized to high pressure	Reduce line pressure to rated pressure
		Fluid is abrasive and eroding away the components	Replace the worn out component of valve with material suitable for abrasive media
3	Valve does not Open / Close fully	Limit stop got disturbed	Adjust limit stop
		Foreign object got stuck up between disc and seat	Open the valve and clean the line and the valve to remove foreign object
		Disc to shaft connection failed	Replace disc pins and/or shaft
4	Opening / Closing torque excessive	Excessive dirt accumulated at the components	Clean the components
		Shaft , bearings or seat worn out	Replace the worn out components

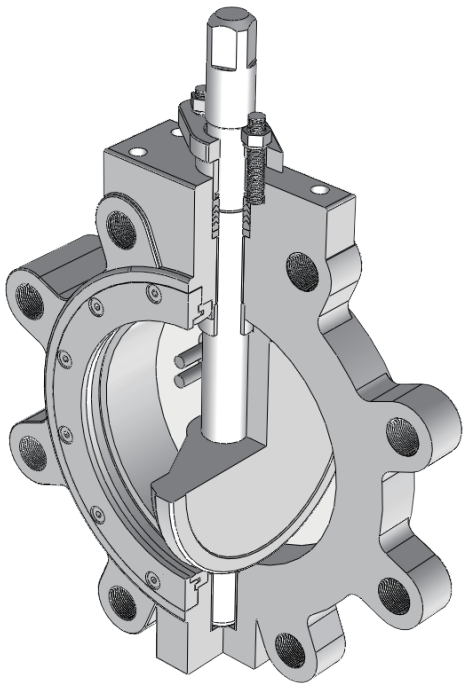
9. Part list for Fig.263 wafer type



Item No.	Part name	Structure
1	Body	
2	Disc	
3	Seat	
4	Seat retainer	
5	Stem	
6	Spacer	
7	V-packing	
8	Gland bearing	
9	Preventing ring	
10	Gland flange	
11	Gland stud	
12	Nut+spring washer	
13	Bracket bolt	
14	Bracket	
15	Bearing	
16	Thrust bearing	
17	Pin	
18	Screw	

10. Part list for Fig.263 lug type



Item No.	Part name	Structure
1	Body	
2	Disc	
3	Seat	
4	Seat retainer	
5	Stem	
6	Spacer	
7	V-packing	
8	Gland bearing	
9	Preventing ring	
10	Gland flange	
11	Gland stud	
12	Nut+spring washer	
13	Bracket bolt	
14	Bracket	
15	Bearing	
16	Thrust bearing	
17	Pin	
18	Retainer bolt	

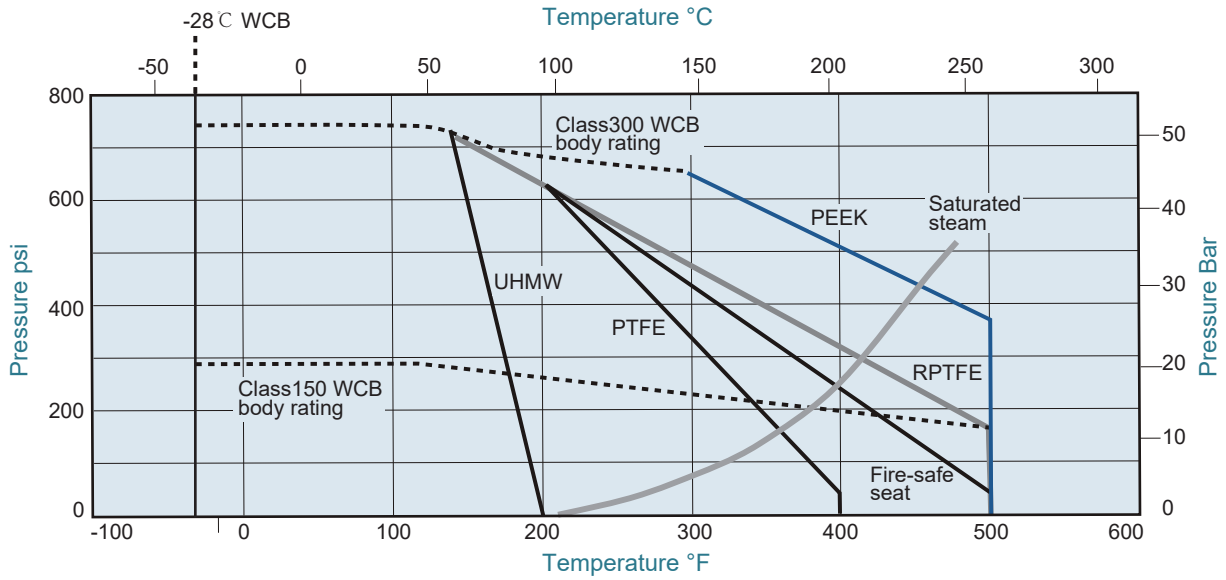
11. Body rating [bar] - Class150,

Temp. / ℃	WCB	SS316	Alloy 20	Monel
-29 to 38	19.6	19	15.9	15.9
100	17.7	16.2	13.5	13.7
150	15.8	14.8	12.3	13.1
200	13.8	13.7	11.3	12.8
250	12.1	12.1	10.4	11.9
Test pressure / bar	30	29	24	24

12. Body rating [bar] - Class300,

Temp. / ℃	WCB	SS316	Alloy 20	Monel
-29 to 38	51.1	49.6	41.4	41.3
100	46.6	42.2	35.3	36.2
150	45.1	38.5	32	34.1
200	43.8	35.7	29.4	33.1
250	41.9	33.4	27.2	32.8
Test pressure / bar	77	75	63	63

13. Seat rating



DN350-DN600 Class150 valves equipped with SS316 or Alloy 20 shafts are rated for a maximum differential pressure of 10.35 bar.
DN80-DN600 Class300 valves with SS316 or Alloy 20 shafts are rated for a maximum differential pressure of 20.7bar.
These values are just for general service. Previous experience in a process or new developments and alternative seat materials may allow applications with ratings above those values above mentioned.

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