

Installation

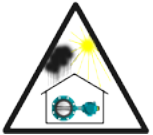
Introduction:

To guarantee the benefits of the InterApp butterfly valves DESPONIA + DESPONIA plus, proper procedures and compliance with the installation instruction are essential. The installation has to be carried out according to the state of the art and only by qualified personnel. InterApp reserves the right to decline responsibility for damage or premature failure if the recommendations contained in this instruction are not being followed. Consult the corresponding valve datasheet concerning the installation of a valve at the end of the line. Dimension, material and application range of the butterfly valves DESPONIA + DESPONIA plus are according to the technical documentation.



Storage:

InterApp butterfly valves DESPONIA + DESPONIA plus should always be stored free from dust and humidity. The valve is supplied with the disc in a slightly open position and should remain so until the installation is completed. (Fig. 1).



Butterfly valves supplied with a single acting spring closing pneumatic actuator should be stored with disassembled actuator, this to avoid a lasting deformation of the liner.

The actuator should be mounted only after the installation of the valve in the piping.

Precautions to be taken prior to installation:

Please make sure that the valve intended for installation is suitable for the service conditions prevailing. The responsibility about the used fluids (corrosion resistance, pressure, temperature, etc.) lies by the user of the plant.

Call your supplier or InterApp if you need any assistance.

Please consider that turbulences (i.e. created by piping bow) generate hydro dynamic forces increasing the operating torque of the valve. We recommend installing the valve minimum 5 x DN after pipe fittings.



Check before installation:

Positioning:

For the installation of valves in horizontal pipelines, we recommend to install the valves with their shaft in a horizontal position.

Please ensure that the lower edge of the disc opens with the direction of the flow. This prevents deposition of slurries and contamination in the shaft sealing area. (Fig. 2)



Gaskets:

Never use gaskets nor grease. (Fig. 3)

Installation:

Flange facings must be smooth and clean. Rust, welding scores, rests of paint, dirt, etc. must be removed in order to prevent damage of the valve gasket.

DESPONIA + DESPONIA plus butterfly valves, in wafer style design, are suitable for installation between DIN PN10/16 or ANSI150 flanges. For the installation of valve between flanges of other standards consult InterApp or its authorised distributors.

The valve should not be mounted in pipes, where the actual bore diameter is less than the nominal bore dimension of the valve. In that case, spacer rings should be fitted between flanges and valve to prevent damage to the disc on opening. (Fig.4)

The valve should never be installed between flanges which are not parallel to each other.

Make sure that pipes and valves are installed concentric. The disc of a misaligned valve may be damaged. (Fig.5).

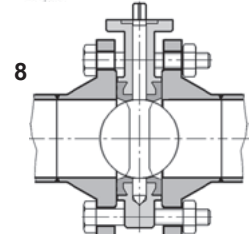
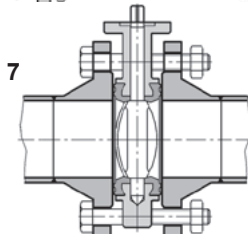
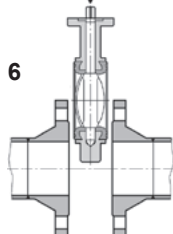
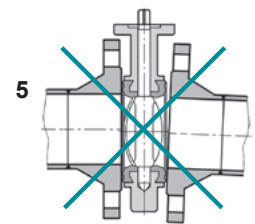
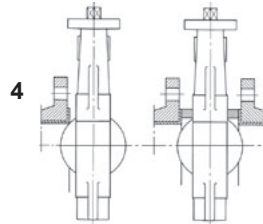
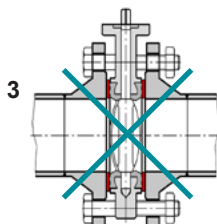
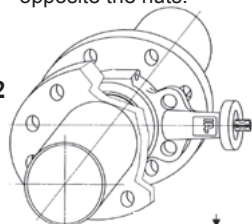
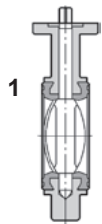
Furthermore, it is absolutely inadmissible to carry out any welding on the piping while the valve is between the flanges. This would destroy the liner of the valve.

The flanges have to be spread in order to ease the installation of the valve and the disc must be partially open (Fig. 6).

Misspread flanges may damage or roll the liner outside the body flanges.

Set all stay-bolts by keeping the disc slightly open and do not tighten the nuts (Fig. 7).

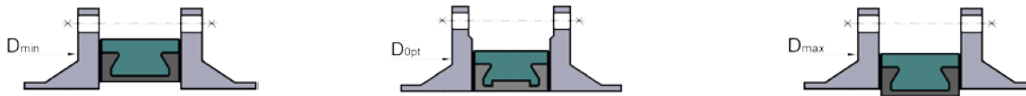
By tightening the stay-bolts when the disc is closed, the liner will be compressed in a wrong position. An excessive closing torque and leakage will result. Open completely the disc (Fig. 8). Ensure that the piping is aligned. Tighten diagonally opposite the nuts.





Flange inside diameter:

The InterApp butterfly valve has to be mounted between flanges without gasket. It has bidirectional tightness. Consult the corresponding valve datasheet concerning the installation of a valve at the end of the line. It is centered by stay-bolts or by screws. The diameter of the flange should be in accordance with the stated values D_{opt}, D_{min}, D_{max}.



D_{min} Minimum diameter of the flange enabling to move the disc (in case of a perfectly centered valve).

D_{opt} Diameter of the flange for optimal mounting.

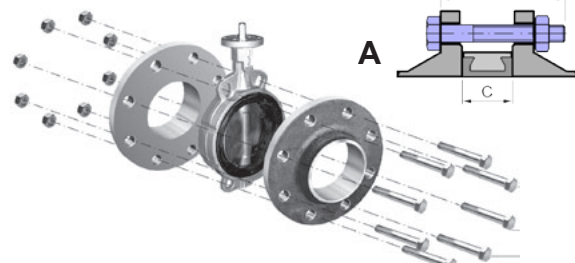
D_{max} Maximum diameter of the flange.

DN	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400	1600
D _{min}	19	32	35	53	74	93	119	147	198	247	297	340	384	425	490	585	680	790	880	980	1175	1348	1560
D _{opt}	34	42	53	68	83	103	128	153	202	253	303	345	395	453	505	605	696	810	900	997	1195	1387	1602
D _{max}	47	57	68	87	104	126	154	174	226	277	328	370	421	462	514	617	715	817	918	1019	1225	1430	1640

Bolting::

Wafer + U-section body DN 25 - 400

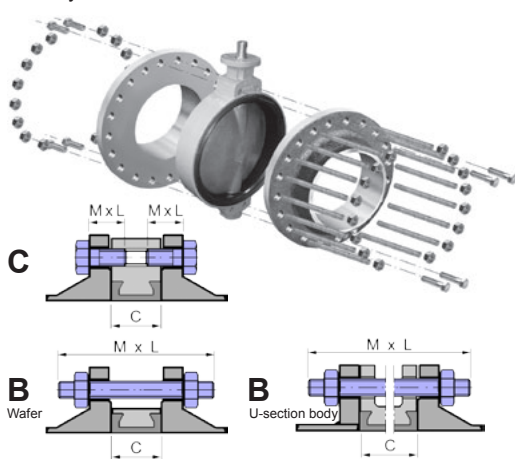
A Bolt with nut



DN	C	n	PN 6		PN 10		PN 16		ANSI 150	
			A	n	A	n	A	n	A	n
25	30	4	M10x80	4	M12x90	4	M12x90	4	UNC 1/2"-13 x 3"	
32	30	4	M12x80	4	M16x100	4	M16x100	4	UNC 1/2"-13 x 3 1/4"	
40	33	4	M12x90	4	M16x100	4	M16x100	4	UNC 1/2"-13 x 3 1/2"	
50	43	4	M12x100	4	M16x110	4	M16x110	4	UNC 5/8"-11 x 4"	
65	46	4	M12x100	4	M16x110	4(8)	M16x110	4	UNC 5/8"-11 x 4 1/2"	
80	46	4	M16x110	8	M16x120	8	M16x120	4	UNC 5/8"-11 x 4 1/2"	
100	52	4	M16x120	8	M16x120	8	M16x120	8	UNC 5/8"-11 x 5"	
125	56	8	M16x120	8	M16x130	8	M16x130	8	UNC 3/4"-10 x 5"	
150	56	8	M16x120	8	M20x140	8	M20x140	8	UNC 3/4"-10 x 5 1/4"	
200	60	8	M16x130	8	M20x150	12	M20x150	8	UNC 3/4"-10 x 5 1/2"	
250	68	12	M16x140	12	M20x160	12	M24x170	12	UNC 7/8"-9 x 6 1/4"	
300	78	12	M20x160	12	M20x170	12	M24x180	12	UNC 7/8"-9 x 6 3/4"	
350	78	12	M20x160	16	M20x170	16	M24x190	12	UNC 1"-8 x 7 1/4"	
400	102	16	M20x190	16	M24x200	16	M27x220	16	UNC 1"-8 x 8 1/4"	

Wafer + U-section body DN 450 - 1600

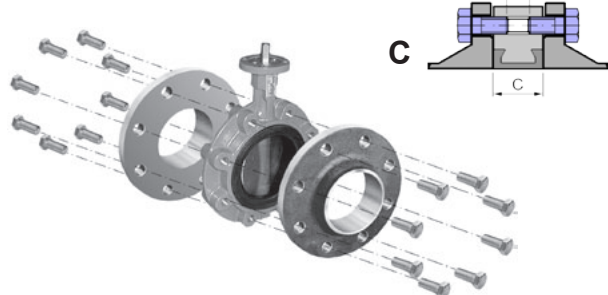
B Stay bolt with 2 nuts + **C** bolt



DN	C	n	PN 10		PN 16		AISI 150						
			B	C	B	C	B	C					
450	113	16	M24x240	8	M24x60	16	M27x280	8	M27x80	8	UNC 1 1/8"-7 x 9"	12	UNC 1 1/8"-7 x 3 1/2"
500	126	16	M24x250	8	M24x60	16	M30x310	8	M30x90	8	UNC 1 1/8"-7 x 10"	16	UNC 1 1/8"-7 x 4"
600	153	16	M27x290	8	M27x70	16	M33x360	8	M33x100	8	UNC 1 1/4"-7 x 11 1/2"	16	UNC 1 1/4"-7 x 4 1/2"
700	165	20	M27x310	8	M27x70	20	M33x340	8	M33x90	8	UNC 1 1/4"-7 x 12"	24	UNC 1 1/4"-7 x 5"
800	190	20	M30x340	8	M30x80	20	M36x370	8	M36x90	8	UNC 1 1/2"-6 x 16 1/2"	24	UNC 1 1/2"-6 x 7"
900	203	24	M30x360	8	M30x80	24	M36x390	8	M36x90	8	UNC 1 1/2"-6 x 17"	28	UNC 1 1/2"-6 x 7 1/2"
1000	218	24	M33x380	8	M33x80	24	M39x420	8	M39x100	8	UNC 1 1/2"-6 x 18"	32	UNC 1 1/2"-6 x 8"
1100	218	28	M33x380	8	M33x80	28	M39x420	8	M39x100	8	UNC 1 1/2"-6 x 18 1/2"	36	UNC 1 1/2"-6 x 8"
1200	254	28	M36x440	8	M36x90	28	M45x490	8	M45x120	8	UNC 1 1/2"-6 x 20 1/2"	40	UNC 1 1/2"-6 x 9"
1400	280	32	M39x480	8	M39x100	32	M45x520	8	M45x120	8	UNC 1 3/4" x 23"	44	UNC 1 3/4" x 10"
1600	318	36	M45x600	8	M45x140	36	M52x680	8	M52x180	-	-	-	-

LUG type DN 50 - 600

C Bolt

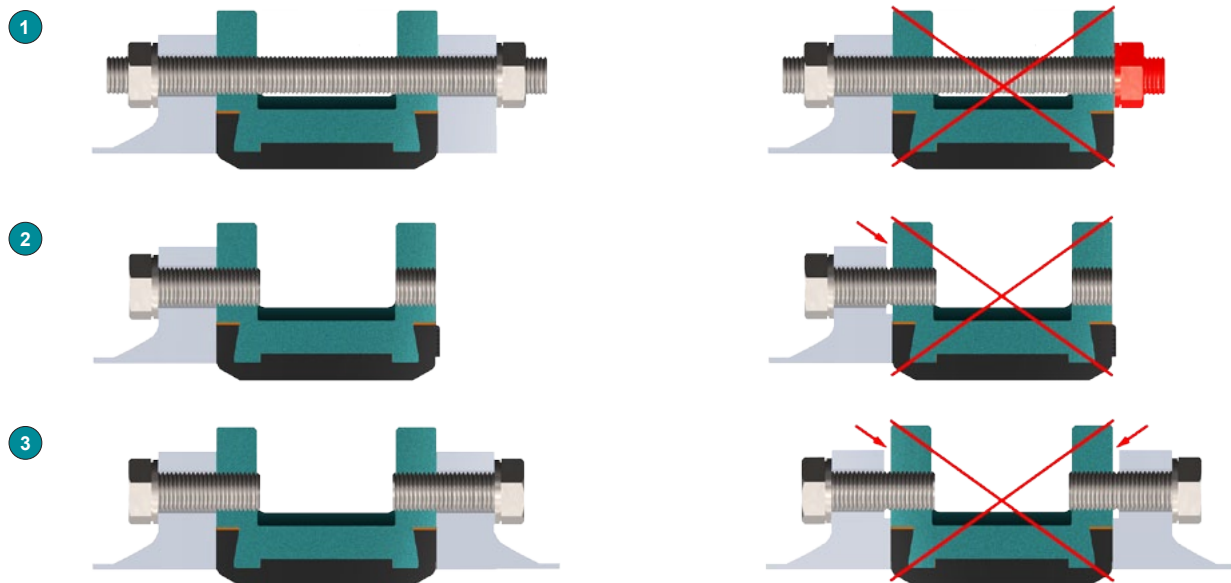


DN	C	n	PN 10		PN 16		AISI 150	
			C	n	C	n	C	n
25	30	8	M12X30	8	M12X30	8	UNC 1/2"-13 x 1"	
32	30	8	M16X30	8	M16X30	8	UNC 1/2"-13 x 1"	
40	33	8	M16X30	8	M16X30	8	UNC 1/2"-13 x 1 1/4"	
50	43	8	M16x30	8	M16x30	8	UNC 5/8"-11 x 1 1/2"	
65	46	8	M16x40	8	M16x40	8	UNC 5/8"-11 x 1 1/2"	
80	46	16	M16x40	16	M16x40	8	UNC 5/8"-11 x 1 3/4"	
100	52	16	M16x40	16	M16x40	16	UNC 5/8"-11 x 2"	
125	56	16	M16x50	16	M16x50	16	UNC 3/4"-10 x 2"	
150	56	16	M20x50	16	M20x50	16	UNC 3/4"-10 x 2"	
200	60	16	M20x50	24	M20x50	16	UNC 3/4"-10 x 2"	
250	68	24	M20x60	24	M24x60	24	UNC 7/8"-9 x 2 1/2"	
300	78	24	M20x60	24	M24x60	24	UNC 7/8"-9 x 2 1/2"	
350	78	32	M20x60	32	M24x60	24	UNC 1"-8 x 2 3/4"	
400	102	32	M24x70	32	M27x80	32	UNC 1"-8 x 3 1/4"	
450	113	40	M24x60	40	M27x70	32	UNC 1 1/8"-7 x 3 1/2"	
500	126	40	M24x60	40	M30x80	40	UNC 1 1/8"-7 x 4"	
600	153	40	M27x70	40	M33x90	40	UNC 1 1/4"-7 x 4 1/2"	

n = number of bolts for one valve

Mounting the valve at the end of a line:

When installing of the valve at the end of a line please note:	
Fluid	Only neutral liquids, temperature 10 - 80°C
Body material	Ductile iron GGG 40 / EN-GJS-400-15, carbon steel 1.0619 or stainless steel 1.4408
Flange bolting	Tightening torque values according to the supplier of the bolting you are using



Body type	Picture	Mounting end of line	DN	Max. working pressure
Wafer D1	--	not allowed	--	--
Lug D3	--	possible without counter flange	DN 25 - 600	valve PN 16 = 10 bar, valve PN 10 = 6 bar
		with flanges on both sides	DN 25 - 600	nominal pressure of the valve
Flanged D4	1	only with counter flange using passing through bolts	DN 150 - 1600	nominal pressure of the valve
	2	possible without counter flange; use flat face flange only and valve with special code -081, for flanges PN 10 and PN 16 only. All other flange ratings on request	DN 700 - 1600	valve PN 16 = 10 bar, valve PN 10 = 6 bar
	3	Flanged installation using flat face flanges and valve with special code -081	DN 700 - 1600	nominal pressure of the valve



Function test:

Prior starting to use the installation, we recommend to make a function test. Therefore the valve must be opened and closed at least once in order to check that the disc doesn't touch the flanges and that the valve is tight through the passage and toward outside.

If a pressure test of the complete piping system is being carried out, it is very important that the testing pressure is not higher than the nominal pressure of the valve. An overpressure could destroy the valve. In order to ensure a reliable function of the butterfly valves, we recommend to operate these at least once monthly.



Cleansing of the piping:

When cleansing the piping system it is very important to assure that the cleaning products and devices are harmless for the valve. Not convenient products and devices might destroy the valve.

Removal:

Before removing the valve from the pipe consider that dangerous fluids might leak. Corresponding measures of precaution have to be applied.

When removing the valve from the pipe please take care not to damage the disc and the liner of the valve.



Disposal:

Please notice that some residues could remain in the inner of the valve and that they might be dangerous for people or the environment. Therefore, the butterfly valve has to be handled with the corresponding caution. After its use, the butterfly valve has to be disposed of according to the state of the art and under consideration of the environment.

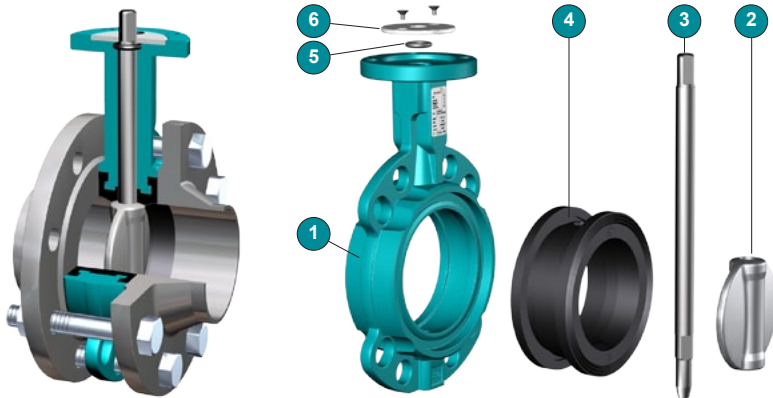
Maintenance



Introduction:

Please notice that fluid residues inside the butterfly could be dangerous for humans and the environment. The butterfly valve must be handled accordingly and be cleaned carefully prior to the maintenance. Maintenance is made at the own risk of the user. Maintenance on a DESPONIA must be executed by trained staff only. Only original spare parts are to be used.

1. Parts of a DESPONIA:



Parts list	
1	Body
2	Disc
3	Shaft
4	Liner
5	O-ring
6	Retaining washer + 2x screws

2. Valve removal from the line:

Before removing the valve from the pipe consider that dangerous fluids might leak. Corresponding measures of precaution have to be applied. When removing the valve from the pipe please take care not to damage the disc and the liner of the valve.

- 2.1 Do not close the valve completely.
- 2.2 Loosen all bolts and remove the valve.
- 2.3 Use flange spreaders and remove the valve

3 Disassembly:

- 3.1 Open the valve completely.
- 3.2 Remove the actuator.
- 3.3 Unlock screws and remove the retaining washer
- 3.4 Remove the shaft (either by using an extractor or by tightening the square of the shaft in a vise).
- 3.5 Remove the disc.
- 3.6 Loosen the liner at a point, squeeze until it is heart-shaped and then remove the liner.

4. Reassembly:

- 4.1 Clean all parts. Use, if possible, a silicone spray or similar to ease the handling.
- 4.2 Ensure that the bigger hole of the liner is on the top side of the valve (the shaft diameter on the upper side is bigger than this on the lower side).
- 4.3 Insert the heart-shaped liner. Set the upper part facing the shaft hole (use the shaft to center the liner), let the liner expand and adapt with the body.
- 4.4 Replace the disc. Ensure that the square is at the lower part (opposite the top of the valve). Take care not to damage the liner.
- 4.5 Introduce the shaft through the liner and the disc, by rotating the disc in an alternated movement to ease the operation.
- 4.6 Properly align the axis of the shaft square with the axis of the disc. Completely insert the shaft, evacuating air from the lower shaft housing (slightly lift the liner using a screwdriver).
- 4.7 Remount the actuator.



Before using the valve in a piping system, it is required to make a tightness test (e.g. EN 12266-1) or similar as well as a function test. Afterwards, put the disc in a slightly open position, so that the disc edge doesn't surpass the flange surface. This position must be kept until the valve is being installed.