Installation

Introduction:

To guarantee the benefits of the InterApp butterfly valves Bianca, 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. Please consult the InterApp datasheet «Flanges» concerning the allowed flange dimensions. 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 Bianca are according to the technical documentation of the Bianca. If using the valve in explosive atmospheres, please consider the technical documentation "InterApp butterfly valves for use in potentially explosive atmospheres".

Storage:

InterApp butterfly valves Bianca should always be stored in the original package - never expose them to dust.
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.

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)
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.

Gaskets:

There is no need to use gaskets between the flanges and the valve.
However, where the valve has to be mounted between flanges which are uneven or slightly distorted, PTFE-envelope gaskets should be fitted. (Fig. 3)

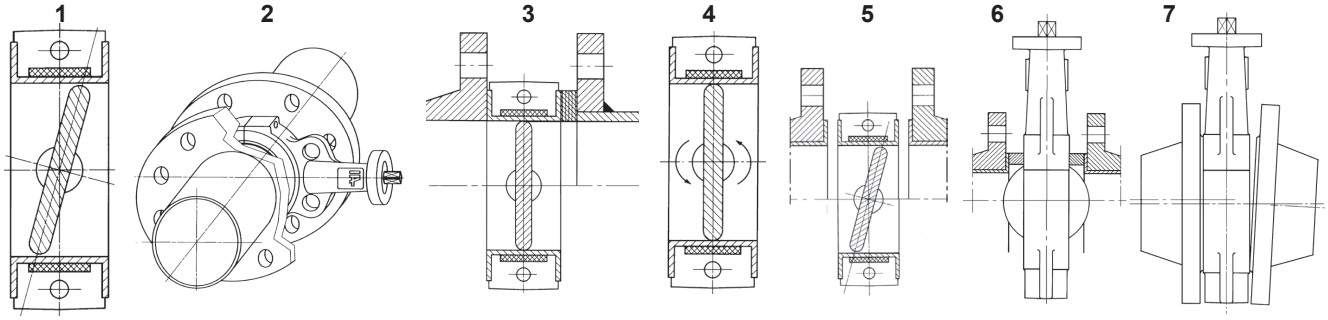
Actuator-Torque:

The PTFE liner, during extended period of storage, has the tendency to deform along the contact line with the valve disc. This will result in an increase of the working torque of the valve. By rotating the disc 360° for several times, after the valve is installed, the liner will regain its original shape and the torque returns to its initial rating. (Fig. 4)

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. (Fig.5)
Bianca butterfly valves, in wafer style design, are suitable for installation between DIN PN10/16 or ANSI 150 flanges. Please consult the InterApp datasheet « Flanges » concerning the allowed flange dimensions. 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.6)
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.7).
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.

1 2 3 4 5 6 7



InterApp

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 Dopt, Dmin, Dmax.

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.

DN	32/40	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	750	800	900
Dmin	31	50	47	74	94	120	148	199	249	298	338	395	444	492	588	692	734	789	885
Dopt	40	50	65	80	100	125	150	200	250	300	339	400	450	500	600	703	750	803	900

When mounting the valve at the end of a line please contact technical department

Flange bolting tightening torques:

PTFE has the tendency to cold-flow. Therefore, it is very important to observe the tightening torques of the flange bolting according to the table below.

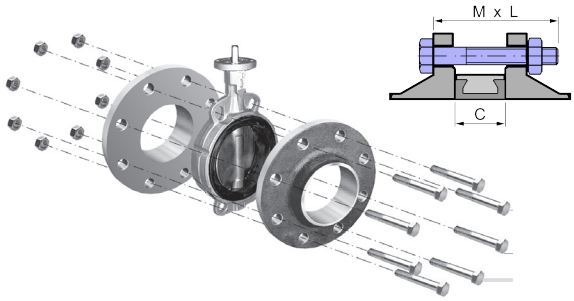
DN		PN10		PN16		ANSI UNC		ANSI metr.	
[mm]	[inch]	[Nm]	[lb-in]	[Nm]	[lb-in]	[Nm]	[lb-in]	[Nm]	[lb-in]
32	**1 ¼"**	40	357	40	357	33	288	31	271
40	**1 ½"**	40	357	40	357	33	288	31	271
50	**2"**	52	460	52	460	52	462	52	460
65	**2 ½"**	52	460	52	460	52	462	52	460
80	**3"**	32	285	32	285	65	573	64	571
100	**4"**	45	396	45	396	45	398	45	396
125	**5"**	55	483	55	483	65	578	68	603
150	**6"**	90	794	90	794	86	760	90	794
200	**8"**	112	993	75	662	107	950	112	993
250	**10"**	116	1028	139	1234	129	1144	127	1124
300	**12"**	137	1209	164	1451	152	1345	149	1321

DN		PN10		PN16		ANSI UNC		ANSI metr.	
[mm]	[inch]	[Nm]	[lb-in]	[Nm]	[lb-in]	[Nm]	[lb-in]	[Nm]	[lb-in]
350	**14"**	142	1255	170	1506	240	2126	227	2009
400	**16"**	160	1414	178	1578	169	1496	160	1414
450	**18"**	183	1620	204	1808	273	2413	255	2259
500	**20"**	188	1664	234	2070	224	1983	210	1857
600	**24"**	249	2200	303	2681	293	2592	277	2453
700	**28"**	275	2436	335	2968	278	2460	263	2327
750	**30"**	-	-	-	-	355	3141	336	2972
800	**32"**	386	3415	462	4085	419	3706	396	3502
900	**36"**	453	4011	542	4797	502	4442	474	4198
1000									
1200									

Bolting:

Wafer + U-section body DN 32 - 400

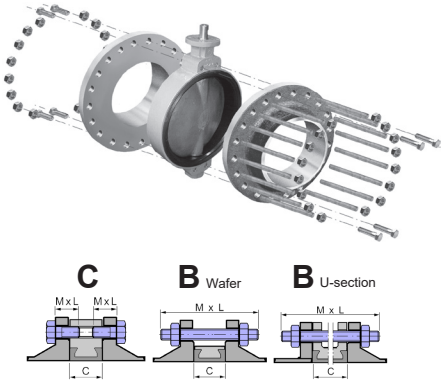
A Bolt with nut



		PN 6		PN 10		PN 16		ANSI 150	
		A		**A**		**A**		**A**	
DN	C	n	M x L	n	M x L	n	M x L	n	UNC x L [Inch]
32	30	4	M12x80	4	M16x100	4	M16x100	4	UNC ½"-13 x 3 ¼"
40	33	4	M12x90	4	M16x100	4	M16x100	4	UNC ½"-13 x 3 ½"
50	43	4	M12x100	4	M16x110	4	M16x110	4	UNC ⅝"-11 x 4"
65	46	4	M12x100	4	M16x110	4(8)	M16x110	4	UNC ⅝"-11 x 4 ½"
80	46	4	M16x110	8	M16x120	8	M16x120	4	UNC ⅝"-11 x 4 ½"
100	52	4	M16x120	8	M16x120	8	M16x120	8	UNC ⅝"-11 x 5"
125	56	8	M16x120	8	M16x130	8	M16x130	8	UNC ¾"-10 x 5"
150	56	8	M16x120	8	M20x140	8	M20x140	8	UNC ¾"-10 x 5 ¼"
200	60	8	M16x130	8	M20x150	12	M20x150	8	UNC ¾"-10 x 5 ½"
250	68	12	M16x140	12	M20x160	12	M24x170	12	UNC ⅞"-9 x 6 ¼"
300	78	12	M20x160	12	M20x170	12	M24x180	12	UNC ⅞"-9 x 6 ¾"
350	78	12	M20x160	16	M20x170	16	M24x190	12	UNC 1"-8 x 7 ¼"
400	102	16	M20x190	16	M24x200	16	M27x220	16	UNC 1"-8 x 8 ¼"

Wafer + U-section body DN 450 - 900

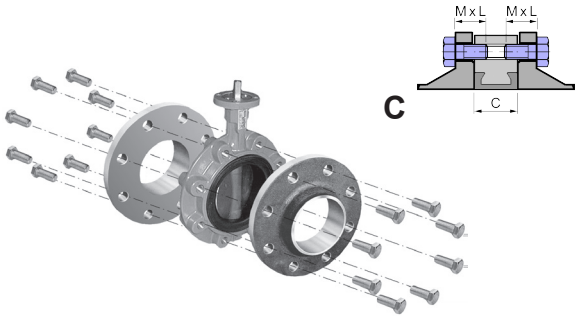
B Stay bolt with 2 nuts + **C** bolt



			PN 10				PN 16				ANSI 150			
			B		C		B		C		B		C	
	DN	C	n	M x L	n	M x L	n	M x L	n	M x L	n	UNC x L [Inch]	n	UNC x L [Inch]
Wafer	450	114	16	M24x240	8	M24x60	16	M27x280	8	M27x80	12	UNC 1 ⅛"-7 x 9"	8	UNC 1 ⅛"-7 x 3 ½"
	500	127	16	M24x250	8	M24x60	16	M30x310	8	M30x90	16	UNC 1 ⅛"-7 x 10"	8	UNC 1 ⅛"-7 x 4"
	600	154	16	M27x290	8	M27x70	16	M33x360	8	M33x100	16	UNC 1 ¼"-7 x 11 ½"	8	UNC 1 ¼"-7 x 4 ½"
U-Section	450	114	14	M24x240	12	M24x60	14	M27x280	12	M27x80	10	UNC 1 ⅛"-7 x 9"	12	UNC 1 ⅛"-7 x 3 ½"
	500	127	14	M24x250	12	M24x60	14	M30x310	12	M30x90	14	UNC 1 ⅛"-7 x 10"	12	UNC 1 ⅛"-7 x 4"
	600	154	14	M27x290	12	M27x70	14	M33x360	12	M33x100	14	UNC 1 ¼"-7 x 11 ½"	12	UNC 1 ¼"-7 x 4 ½"
	700	165	18	M27x310	12	M27x70	18	M33x340	12	M33x90	22	UNC 1 ¼"-7 x 12"	12	UNC 1 ¼"-7 x 5"
	750	190	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	22	UNC 1 ¼"-7 x 16 ½"	12	UNC 1 ¼"-7 x 7"
	800	190	18	M30x340	12	M30x80	18	M36x370	12	M36x90	22	UNC 1 ½"-6 x 16 ½"	12	UNC 1 ½"-6 x 7"
	900	203	22	M30x360	12	M30x80	22	M36x390	12	M36x90	26	UNC 1 ½"-6 x 17"	12	UNC 1 ½"-6 x 7 ½"

LUG type DN 32 - 400

C Bolt



		PN 10		PN 16		ANSI 150	
		C		C		C	
DN	C	n	M x L	n	M x L	n	UNC x L [Inch]
32	30	8	M16X30	8	M16X30	8	UNC ½"-13 x 1"
40	33	8	M16X30	8	M16X30	8	UNC ½"-13 x 1 ¼"
50	43	8	M16x30	8	M16x30	8	UNC ⅝"-11 x 1 ½"
65	46	8	M16x40	8	M16x40	8	UNC ⅝"-11 x 1 ½"
80	46	16	M16x40	16	M16x40	8	UNC ⅝"-11 x 1 ¾"
100	52	16	M16x40	16	M16x40	16	UNC ⅝"-11 x 2"
125	56	16	M16x50	16	M16x50	16	UNC ¾"-10 x 2"
150	56	16	M20x50	16	M20x50	16	UNC ¾"-10 x 2"
200	60	16	M20x50	24	M20x50	16	UNC ¾"-10 x 2"
250	68	24	M20x60	24	M24x60	24	UNC ⅞"-9 x 2 ½"
300	78	24	M20x60	24	M24x60	24	UNC ⅞"-9 x 2 ½"
350	78	32	M20x60	32	M24x60	24	UNC 1"-8 x 2 ¾"
400	102	32	M24x70	32	M27x80	32	UNC 1"-8 x 3 ¼"

n = number of bolts for one 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.

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.

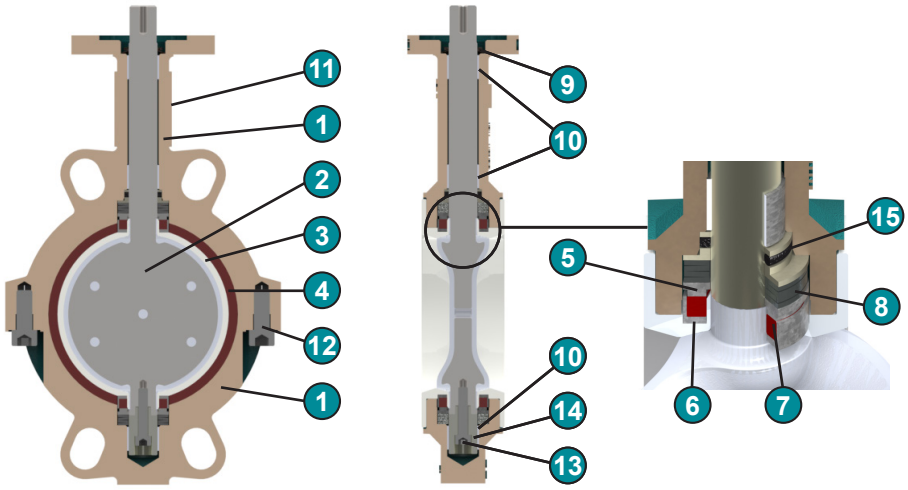
Maintenance

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 BIANCA must be executed by trained staff only. Only original spare parts are to be used.
The Teflon parts of the BIANCA are very fragile and only a small scratch causes already a leaking. Thus, these parts have to be handled very carefully.

The frequency of replacement of the wear parts, is highly dependent on the fluid, cycles, operating conditions, etc. The user should include in its maintenance program a chapter for inspecting the valves to check the wear parts and change them if necessary. In the next paragraph the spare parts are identified. Please contact InterApp to obtain the specific codes and additional information for the recommended spare parts.

1. Parts of a BIANCA



Parts list	
1	2-piece body
2	Disc (PFA-coated/1.4435; AISI 316L)
3	Liner (PTFE)
4	Backliner (2 pieces)
5	Thrust collar (2 pieces)
6	Pressure capsule (2 pieces)
7	Seal (2 pieces)
8	Spring washer (8 pieces)
9	V-Ring
10	Bushing (3 pieces)
11	Label / Tag
12	Bolts of body (2 pieces)
13	Extension screw only for sizes DN50-100
14	Extension only for sizes DN50-100
15	TA-Luft seal (optional)

2. Disassembly

2.1 Disassembly of the body halves:

Important: Before the body is disassembled, mark the body halves. It is important to reassemble the body halves in their original configuration.
Unscrew both body bolts (12) alternately (body halves are spring loaded) and remove them. Pay attention not to loose spring washers or seals. Remove Liner and disc unit. Afterwards remove o-ring and backliners.

3. Reassembly

Actually, you may reassemble the valve in reverse order of disassembly. You should clean all parts before reassembling. It is necessary to replace all seals. Please use the premounted spare part kit including disc/shaft/liner and all seals and springs.

3.1 Reassembly of the liner and disc into the body:

Please stand the top body half on the top flange upside down on a surface or piece of wood with a hole for the shaft. Glue only the end of the backliners onto the body. This will hold the backliner In place during reassembly. Put the 4 spring washers and the thrust collar into the shaft bore of the top body half and following also the thrust collar. Put the pressure capsule and the seal over the long end of the shaft and make sure that the pressure capsule fits right on the liner. Then put the disc/shaft into the top body half. The positon of the backliner has to be controlled before the installation of the bottom body half.

3.2 Assembling of the 2 body halves:

Now you can mount the bottom body half. Note the marks on the body halves. Screw the body bolts alternately in, but keep 3mm between the body halves. From time to time, move the disc 2-3 times. This will insure proper alignment. Afterwards you can compress the body halves. **The disc has to be closed during this process**. Finally, insert the V-ring on the shaft on the actuator mounting flange.

Before using the valve in a piping system, if 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.