

Installation and Maintenance Guide

NIBCO High Performance Butterfly Valves

Series 6822 and 7822



Statements:

The NIBCO high performance butterfly valve, 6822 and 7822 Series have been designed and manufactured for fluid control handling in suitable mechanical systems. It is important to follow the instructions as stated below. Failure to follow these instructions may cause loss of manufacturer's warranty.

1. Application:

- 1.1 The selection of valve design and materials related to the specific service is the responsibility of the end user.
- 1.2 Pay special attention to the corrosive effects of the media, first checking if the material is suitable for your application.
- 1.3 Valves used in processes where erosion can occur should be inspected on a regular basis.
- 1.4 All NIBCO high performance butterfly valves are identified with a nameplate. The maximum operating pressure and temperature ratings are indicated on the nameplate. Do not install valves in any application that exceeds the pressure/temperature ratings of the valve.

2. Storage:

- 2.1 All valves are shipped with flange covers to protect the sealing surfaces and internal parts. These covers should be left on the valve until valve is installed in piping system.
- 2.2 The valves must be stored in a dry environment, protected from temperature extremes and any possibility of damage. Special care should be taken not to damage the disc edge and sealing surfaces.

3. Installation:

- 3.1 Prior to installation the valve should be checked for possible damage from shipping and handling. Inspect the interior of the valve and the adjoining piping for cleanliness. It is very important to verify that the valve is free of any foreign particles that might damage the seats.
- 3.2 When the valve is installed in a place where there may be particles, such as weld slag, metal scale, etc., it is advisable to incorporate a strainer upstream from the valve. The NIBCO 6822 and 7822 Series valves are fully bi-directional. Nevertheless it is preferred to install the valve with the seat ring carrier (20) in the upstream position.
- 3.3 The valve must always be installed with the disc in the closed position. When installing the valve make sure that it is centered between the flanges. For correct operation of the valve, the disc must be able to move freely.
- 3.4 It is important that the valve is installed tightly between the flanges. Take care that the seat ring carrier (20) does not extend past the mating flange raised face.
- 3.5 Due to the double offset design and large surface area of the disc, the differential pressure over the disc could cause sufficient torque to open the valve spontaneously. For this reason it is important with lever-operated valves to make sure that the lever is locked into the throttle plate notches.
- 3.6 To avoid the risk of unexpected valve operation, do not remove the lever operator from the valve with the disc in the closed position while the valve is under pressure.
- 3.7 The NIBCO 6822 and 7822 Series valve bodies are made of carbon steel. In corrosive environments it is important to maintain the painted coating after installation.

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NIBCO 6822 and 7822 Series High Performance Butterfly Valve

4. Actuator or Gear Box Assembly to the Valve:

- 4.1 Make sure that the assembly of an actuator or gearbox occurs using proper installation methods. If not the valve could be irreparably damaged.
- 4.2 Avoid any kind of forced transmission of torque to the valve stem (23). The torque has to be passed to the stem freely during the operation of the valve.
- 4.3 The valve has an internal mechanical stop designed to withstand the torque generated by the disc as a consequence of differential pressure. The stop also indicates the valve open and closed positions. When installing a gearbox or actuator, it is necessary to adjust the individual gearbox or actuator stops to correspond to the internal valve stops. Failure to do so can subject internal valve stops to excessive forces and damage the valve.
- 4.4 It is preferable to assemble the lever, gear or actuator to the valve prior to installing the valve in line. This will give the opportunity to visually check the position of the disc and properly set gear or actuator stops.

5. Maintenance:

- 5.1 Typical maintenance consists of periodic cycling of valve to assure proper function.
- 5.2 Fluid leakage at top of stem can be eliminated by adjusting packing assembly (9). To adjust, equally tighten nuts (3) one-quarter turn at a time until leak stops.
- 5.3 A seal and gasket kit is available for each valve. The kit consists of 1 each PTFE seat (31), 2 each seat gasket (30), 1 set of packings (9) and 1 each plug gasket (17). All seals and gaskets must be replaced when valve is disassembled for rebuild.
- 5.4 All valves are identified by a figure number, which can be found on the nameplate. This number should be referenced for after sale questions and spare part orders.

6. Precautions Prior to Disassembly:

- 6.1 Be sure that the supply line is blocked and pressure has been relieved.
- 6.2 Wear protective clothing if applicable.

7. Disassembly:

- 7.1 Remove the valve from the piping system. Use adequate space for disassembly of the valve.
- 7.2 Unscrew and remove seat ring carrier screws (21). Remove seat ring carrier (20) from body (19). Remove seat assembly and gaskets (29, 30, 31).
- 7.3 Close the valve and remove top plate (2), gland nuts (3) and washers (4). Lift top plate (2) and gland flange (5) assembly from the top of valve body. Remove gland follower (7), gland follower sleeve (8), packing (9) and top-bearing ring (10).
- 7.4 Remove bottom plug assembly (15, 16, 17 and 18) and actuator key (1).
- 7.5 Gently tap the top of stem (23) with a soft hammer or mallet until key (12) is fully exposed in the stem slot. Locate the lifting slot at the back of the key and with a screwdriver or similar tool, push the key out of disc (13) and stem assembly.
- 7.6 Hold disc (13) and make sure that no damage occurs to the seating surface. Pull stem (23) upwards out top of body. Remove disc (13).
- 7.7 Remove top bearing (11) by pushing from the bottom of valve. Remove bottom bearing (14) by pushing from the top of valve.

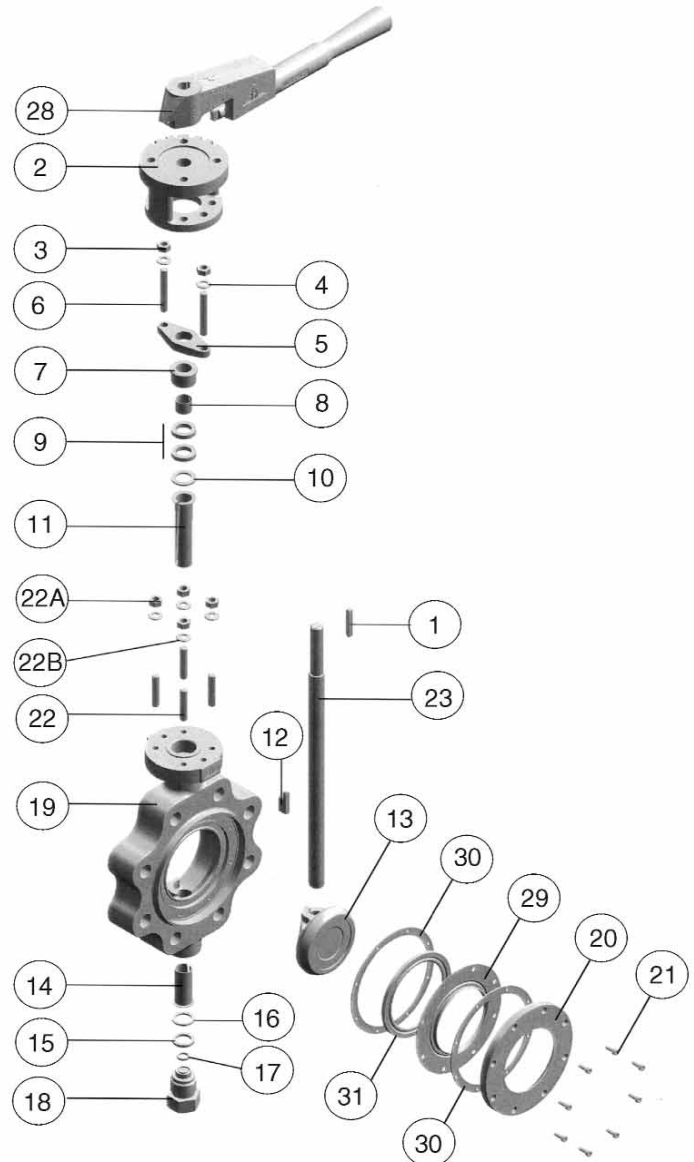
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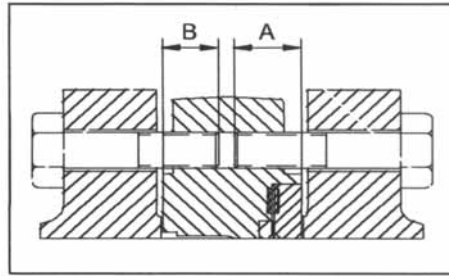
8. Assembly

For replacing seats after a partial disassembly, start at instruction 8.7.

- 8.1 Clean and inspect all of the valve components not to be replaced. Pay special attention to the sealing surface, seating area of the disc, the shaft and the stuffing box parts.
- 8.2 Assemble the top and bottom stem bearings (11,14) into body (19).
- 8.3 Position disc (13) into the body bore between the top and bottom trunnion. Insert stem (23) gently from the top of the body into disc (13). Position both the stem slot and the disc slot together. Insert key (12) into the disc with the small part facing the top of the valve. Gently tap stem (23) from bottom with a soft hammer or mallet until key (12) has traveled to the top of the disc slot.
- 8.4 Install bearing ring (16), thrust washer (15) and gasket (17) into body (19). Apply grease to threads of plug (18) and securely tighten into body.
- 8.5 Install top bearing ring (10), gland packings (9), gland follower sleeve (8) and gland follower (7) over top of stem and into body. Thread stud bolts (6, 22) into and flush with flange bottom. The two longer stud bolts will be used to secure gland flange (5)
- 8.6 Install top plate (2) with gland follower (5) in its center, onto the top of stem (23). Secure top plate (2) on body flange using four washer and nuts (22A, 22B). Secure gland flange (5) to studs using washers and nuts (3, 4).
- 8.7 Fully close valve. Install seat gasket (30) and PTFE seat (31) with the round notch at top into valve body. Install metal seat (29) with the round protruding part facing PTFE Seat (31).
- 8.8 Install the seat gasket (30) into seat ring carrier (20). Assemble the seat ring carrier into body and secure with screws (21). Tighten screws in a cross or star pattern.
- 8.9 Open and close the valve several times in order to check for correct operation.



Cap Screw Requirements NIBCO LCS6822 and LCS7822 High Performance Butterfly Valves



6822 Series

Valve Size	Valve Body Width	Cast Iron Class 125 ANSI B 16.1 Flange Thickness	Steel Class 150 ANSI B 16.5 Flange Thickness	*Cap Screw Length Side B	Quantity Cap Screws Side B	*Cap Screw Length Side A	Quantity Cap Screws Side A	Cap Screw Size
2½	1.87	0.69	0.88	1.50	4	1.50	4	5/8-11 UNC
				1.75	4	1.75	4	
3	1.97	0.75	0.94	1.50	4	1.75	4	5/8-11 UNC
				1.75	4	2.00	4	
4	2.19	0.94	0.94	2.00	8	2.00	8	5/8-11 UNC
5	2.36	0.94	0.94	2.00	8	2.00	8	3/4-10 UNC
6	2.36	1.00	1.00	2.00	8	2.00	8	3/4-10 UNC
8	2.64	1.12	1.12	2.25	8	2.25	8	3/4-10 UNC
10	2.83	1.19	1.19	2.25	12	2.50	12	7/8-9 UNC
12	3.31	1.25	1.25	2.50	12	2.75	12	7/8-9 UNC
14	3.62	1.38	1.38	2.75	12	3.25	12	1-8 UNC
16	4.02	1.44	1.44	3.00	16	3.50	16	1-8 UNC
18	4.49	1.56	1.56	3.00	16	4.00	16	1¼-8 UN
20 @ stem	5.00	1.69	1.69	3.00	16	3.75	16	1¼-8 UN
				2.75	4	3.25	4	
24 @ stem	6.06	1.88	1.88	4.00	16	4.00	16	1¼-8 UN
				3.00	4	3.50	4	

7822 Series

Valve Size	Valve Body Width	Cast Iron Class 250 ANSI B 16.1 Flange Thickness	Steel Class 300 ANSI B 16.5 Flange Thickness	*Cap Screw Length Side B	Quantity Cap Screws Side B	*Cap Screw Length Side A	Quantity Cap Screws Side A	Cap Screw Size
2½	1.87	1.00	1.00	1.75	8	2.00	8	3/4-10 UNC
3	1.97	1.13	1.13	2.00	8	2.00	8	3/4-10 UNC
4	2.19	1.25	1.25	2.25	8	2.25	8	3/4-10 UNC
5	2.36	1.38	1.38	2.50	8	2.50	8	3/4-10 UNC
6	2.36	1.44	1.44	2.50	12	2.50	12	3/4-10 UNC
8	2.99	1.63	1.63	3.00	12	3.00	12	7/8-9 UNC
10	3.39	1.88	1.88	3.50	16	3.50	16	1-8 UNC
12	3.70	2.00	2.00	3.50	16	3.75	16	1¼-8 UNC
14 @ stem	4.61	2.13	2.13	4.00	16	4.00	16	1¼-8 UNC
				3.75	4	3.75	4	
16 @ stem	5.24	2.25	2.25	3.75	16	4.00	16	1¼-8 UNC
				3.50	4	3.75	4	
18 @ stem	5.87	2.38	2.38	4.00	20	4.50	20	1¼-8 UN
				3.50	4	3.75	4	
20 @ stem	6.26	2.50	2.50	4.50	20	4.50	20	1¼-8 UN
				4.00	4	4.00	4	
24 @ stem	7.13	2.75	2.75	5.50	20	5.00	20	1½-8 UN
				4.50	4	4.00	4	

* Recommended Cap Screw Length allows for 1/16" thick flange gaskets on valve.
If using thicker flange gaskets, Review Recommended Cap Screw Length to assure proper thread length engagement for application.