

Installation and operation manual

**Butterfly valves
lug, wafer and double flanged type**

LK product no: see next page



This manual is valid for the following LK product numbers:

Lug type, body in ductile iron EN-JS 1030 (GGG40)			
Pressure rating	Sealing		
	NBR	EPDM	FPM/FKM
PN10/JIS 5K	AB2 disc: 710701 AISI316 disc: 710901	AB2 disc: 711701 AISI316 disc: 711901	AB2 disc: 712701 AISI316 disc: 712901
PN 16/JIS 10K	AB2 disc: 710702 AISI316 disc: 710902	AB2 disc: 711702 AISI316 disc: 711902	AB2 disc: 712702 AISI316 disc: 712902
PN 25/ANSI 150	AB2 disc: 710703 AISI316 disc: 710903	AB2 disc: 711703 AISI316 disc: 711903	AB2 disc: 712703 AISI316 disc: 712903

Wafer type, body in ductile iron EN-JS 1030 (GGG40)			
Pressure rating	Sealing		
	NBR	EPDM	FPM/FKM
PN10/JIS 5K	AB2 disc: 700701 AISI316 disc: 700901	AB2 disc: 701701 AISI316 disc: 701901	AB2 disc: 702701 AISI316 disc: 702901
PN 16/JIS 10K	AB2 disc: 700702 AISI316 disc: 700902	AB2 disc: 701702 AISI316 disc: 701902	AB2 disc: 702702 AISI316 disc: 702902
PN 25/ ANSI 150	AB2 disc: 700703 AISI316 disc: 700903	AB2 disc: 701703 AISI316 disc: 701903	AB2 disc: 702703 AISI316 disc: 702903

Double flange type, body in ductile iron EN-JS 1030 (GGG40)			
Pressure rating	Sealing		
	NBR	EPDM	FPM/FKM
PN10/JIS 5K	AB2 disc: 730701 AISI316 disc: 730901	AB2 disc: 731701 AISI316 disc: 731901	AB2 disc: 732701 AISI316 disc: 732901
PN 16/JIS 10K	AB2 disc: 730702 AISI316 disc: 730902	AB2 disc: 731702 AISI316 disc: 731902	AB2 disc: 732702 AISI316 disc: 732902

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1. General information

This manual shall serve as an instruction for installation and operation of LK Valves butterfly valves. For technical specifications please see valid data sheet found on LK Valves website (www.lkvalves.com).

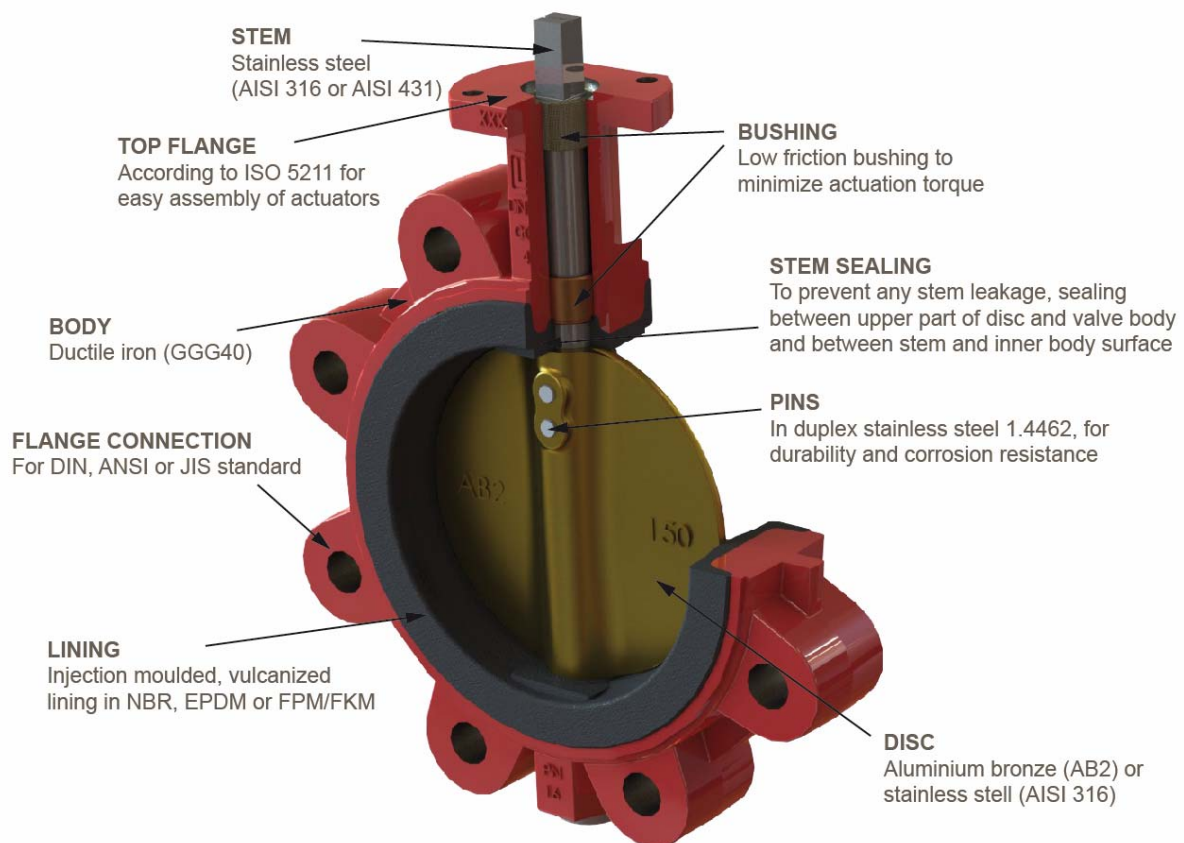
It is the responsibility of the installer to ensure that approved materials are used and that the installation and maintenance work meets applicable rules, regulations and requirements.

In case of problems which cannot be solved from information in this manual, LK Valves shall be contacted for support.

Note that most of the information in this manual concerns safety, so please read carefully before installation of the valve.

2 Valve parts

This section outlines the general structure of the valve.



3. Product marking

Each valve supplied by LK Valves is marked with a name plate and a serial number.



Diameter (DN): Shows the DN rating of valve and corresponding pipes. Please refer to the valid datasheet at LK Valves website (www.lkvalves.com) for a detailed description of the dimensions.

Pressure class (PN): This indicates the maximum working pressure of the system. It is very important that the valve is not installed with a system which operates at higher pressure than this.

FLGE: Shows the flange drilling of the body. Please refer to the valid datasheet at LK Valves website (www.lkvalves.com) for a detailed description of the dimensions.

Body: Shows material of the casted body.

Seat: Shows rubber material used in liner. Please consider system media as well as minimum and maximum temperature.

Shaft: Show the material of the stem.

Disc: Shows material of the disc.

Serial number: Each valve has a stamped serial number, in format NNNN00, located close to the top flange. This is used for traceability and quality assurance.

4 Storage and handling instruction

4.1 Storage

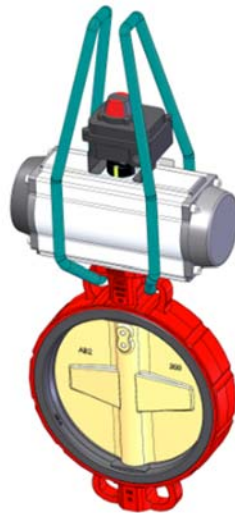
Store the valves indoors in a clean and dry place. Corrosion that occurs during storage will significantly reduce the life span of the valve.

High temperature and direct sunlight will shorten the service life of the rubber liner. Optimal storage condition is in covered pallets with ambient temperature of 5-20°C.

Butterfly valves shall be stored with the disc slightly opened to prevent permanent disc setting deformation.

4.2 Lifting and handling

Be careful when lifting the valve. Never lift by the valve handle, gear operator, hand wheel or actuator. Securely place the rope or hoist around the valve body while handling - see picture below. Consider center of gravity and prevent tilting and rotational forces.



Please consider the following advices in order to prevent damage to the valve:

Scratch to disc edge: The edge of the butterfly valve is hand polished and very easily scratched. If carelessly handled, the valve will leak at the position of the scratch.

Scratches to the rubber liner: Sharp object might scratch the sealing surface inside the valve or on the flanges. If carelessly handled, the valve will leak at the position of the scratch.

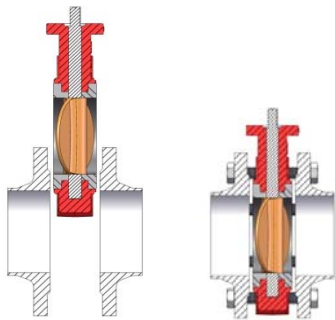
Force applied to top of stem: Mounting a lever, gearbox or actuator onto the butterfly valve is easily made, in case any force is needed be careful not to hit the stem. Great force applied to the top of the stem might cause a permanent imprint in the rubber. Bumping the valve into a hard object might cause the same damage.

5. Installation

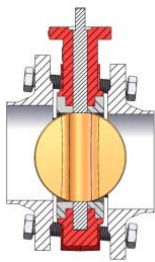
The valves shall never be installed where service conditions could exceed the valve ratings concerning pressure, temperature or operating media. Failure to comply with this warning may result in personal injury or property damage.

5.1 Installation procedure

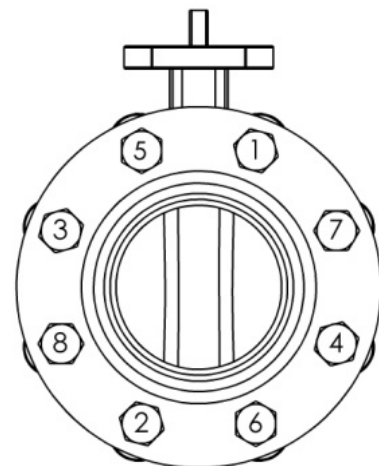
1. Check the valve identification tag to make sure the pressure and valve materials are correct for the application.
2. Make sure the pipe line has sufficient support in order to prevent vibrations and load weight from damaging the valve.
3. Make sure pipes are aligned
4. Make sure the pipe flanges and valve sealing faces are clean from any debris.
5. Spread the flanges enough to allow the butterfly valve to fit with **partly opened disc (5-10 degrees)**.



6. Fix the valve (without any gaskets) with the bolts - without tighten them - open the disc to a fully open position and make sure it will not be in contact with the pipe.



7. Tighten each bolt crosswise according to figure on the right.



5.2 Bolt tightening sequence

Crosswise bolt tightening to ensure a fixed installation, other bolt tightening may affect the installation. Bolt torque is given in chapter 8.

6. Maintenance and repair

LK Valves butterfly valves are designed to be maintenance free, but to guarantee the function it is important for the valve to be in regular use to avoid the disc to stick in the seating. Recommended frequency of use is at least once a week.

If a valve for any reason is removed from the pipe, you need to inspect it before re-installation. If the lining or disc is damaged due to wear and tear or for other reasons, a replacement is necessary.

7. Removing the valve

Prior to any replacement, the valves must be dismantled from the pipe system as follows:

1. Drain and depressurize the pipe on each side of the valve.
2. Ensure that the disc is partially opened (5-10 degrees) before removing the valve.
3. Before removing an automatic actuator ensure that the operating system is not pressurized.

Before re-installation of the valve please look through the installation instructions.

8. Bolt dimensions

Bolt dimensions Lug and double flange valves				
	PN 10		PN 16	
DN	Bolts	No.	Bolts	No.
40	-	-	M16x30	8
50	-	-	M16x35	8
65	-	-	M16x40	8
80	-	-	M16x40	16
100	-	-	M16x40	16
125	-	-	M16x45	16
150	-	-	M20x45	16
200	M20x50	16	-	-
250	M20x55	24	-	-
300	M20x60	24	-	-
350	M20x60	32	-	-
400	M24x70	32	-	-
450	M24x80	40	-	-
500	M24x80	40	-	-
600	M27x90	40	-	-

8.1 Bolt torque

Thread size	8.8	10.9	12.9
M5	5,7	8,1	9,7
M6	9,8	14	17
M8	24	33	40
M10	47	65	79
M12	81	114	136
M16	197	277	333
M20	385	541	649
M24	665	935	1120
M30	1310	1840	2210
M36	2280	3210	3850

UNC	8.8	10.9	12.9
1/4 - 20	11	15	19
5/16 - 18	22	31	38
3/8 - 16	38	54	68
7/16 - 14	61	87	108
1/2 - 13	93	131	163
9/16 - 12	133	187	234
5/8 - 11	183	259	323
3/4 - 10	322	455	568
7/8 - 9	516	729	909
1 - 8	772	1090	1360
1 1/8 - 7	1090	1550	1930
1 1/4 - 7	1530	2160	2690
1 1/2 - 6	2650	3750	4680

9. Contact information

These butterfly valves are designed and manufactured by LK Valves AB with head office in Sweden where you will also get technical and commercial support.

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