

JFLOW
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The Right Valve • The Right Application • Right now!

**JFLOW SERIES VALVES
(633/623 HIGH PERFORMANCE SERIES)
THREE PIECE BALL VALVE
INSTALLATION – MAINTENANCE MANUAL**

**3-PIECE BALL VALVE, 6000 PSI/ CLASS 2500, WITH LOCKING DEVICE
623/633 SERIES/ PED Category II**

623/633 User Manual

Document No: 623/633

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REVIEWED BY _____ DATE _____

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www.jflowcontrols.com sales@jflowcontrols.com	J Flow Controls 4665 Interstate Dr. Cincinnati, OH 45246 Toll Free: 866-95-JFLOW (53569) Local: 513-330-6354 Fax: 513-731-6939	623/633 Series Ball Valve Installation – Maintenance Manual Document #: IM-623/633-01 Rev Date: 2010-02-01
Installation & Maintenance for J Flow 623/633 Series Ball Valve		

General Information

The J Flow 623/633 series ball valve features include:

1 Feature

- a. Full Bore
- b. High performance design for 6000 PSI
- c. Blow-out proof stem design
- d. Anti-static devices for ball-stem-body.
- e. Fire safe design (when required)
- f. Heavy-duty body & end cap construction with traceable heat number.
- g. Pressure self-relief seat to prevent pressure built up.

Product specification

The scope of product specifications are as following

PN	Art.3 Para3 of PED	Category I	Category II
PN413	No CE Marking	---	DN 32, 40, 50

J Flow Controls is committed to providing The Right Valve for the Right Application, Right Now.

General Precautions

Material Selection:

The possibility of material deterioration in service and the need for periodic inspections is depended on the contained fluid. Carbide phase conversion to graphite, oxidation of ferrite materials, decrease in ductility of carbon steels at low temperature (even in applications above -29°C) are among those items. Even information about corrosion data is provided in this user manual, the user is requested to take attention or consideration to determine the suitability of material in their application.

Pressure-Temperature rating:

The Pressure-Temperature rating is considered for static pressure. Please refer to P & T rating section on page 9 for working precaution. The allowable temperature is between -20°C and 90°C for Delrin seat do not exceed the temperature range to avoid accidents

Static electric effect:

The ball valves are provided with anti-static devices for ball-stem-body when required. When service conditions require electrical continuity to prevent static discharge, the user is responsible for specifying static grounding.

Fire safe condition:

We offer fire safe design valves when required.

Liquids with high fluid velocity:

When ball valves must be operated frequently on liquids with very high velocity, a check shall be made with the valve distributor or manufacturer for appropriate advice to minimize the possibility of seat deformation, especially when they are highly pressurized on high-temperature line. Delrin (POM) and PEEK are both available, but Delrin is for temperature under 90°C.

Throttling service:

Ball valves are generally not recommended for throttling service, where both the fluid flow and the leading edge of the ball can damage or deform the resilient ball seats causing leakage. High fluid velocity or the presence of solid particles in suspension will further reduce seat life in throttling applications. The worst case scenario would be that the seats are pulled out & cut off by the ball.

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Do not open the bonnet or cap when bearing pressure. Valve is not equipped with pressure access device. User should check it by other method through its piping system.

Do not touch the surface of valve on high temperature.

Not allowed for unstable fluid, otherwise specified with category III in Declaration of conformity or/and in this user manual.

Lock design on the handle to avoid the valve operated by non-related people.

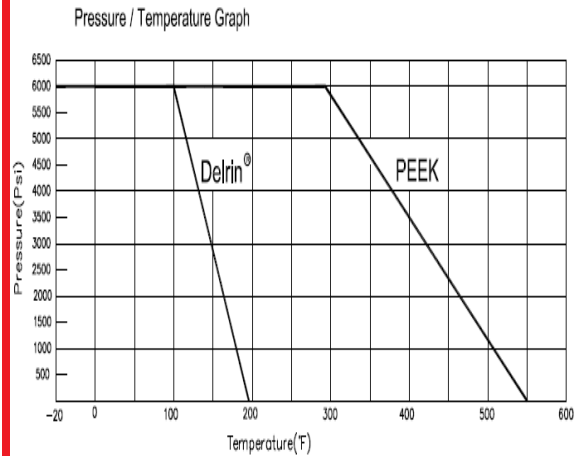
Design Specification

Items	Standards/ Codes
Standards of Design (P-T rating)	ANSI B16.34
Testing	API 598
Material of Casting (Body, Cap, Ball)	ASTM A351
Mounting Pad	NA
Bolt and Nut	ISO-3506 (A2-70)

Pressure Temperature Ratings:

The pressure-temperature rating of ball valves are determined, not only by valve shell materials, but also by sealing materials used for ball seats, stem packing, and body seal. Sealing materials may be high molecule, elasticity and hardness, however, the choice is limited by the characteristics of the service fluid, temperature, pressure, velocity of fluid, frequency of valves operation and sizes of ball valves etc.

Below is the general rating chart for non-shock fluid service for floating ball valves distinguished by sizes and seating materials, please refer to section 1, General precautions



Delivery Condition and Storage:

- Packing condition: Check to see if there are any damages that occurred during the transportation.
- The bolts of cap and yoke: Check to make sure the bolts have not loosened upon arrival.

Installation and Operation:

- Handling:
During the ball valve installation, it must follow the procedure to handle at the both side of the bodies. If using cable for larger size valve, be make sure the cable is strong enough to ensure the safety during the installation.

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Cleaning:

Even if the valves were transported under a clean environment, operator must check if there are any foreign body or dust particles inside the bore. If yes, clean it before installation. Operator may clean the valves by water, compression air, or steam (automation valve shall be cleaned only with water or steam, the compression air is not allowed.) For cleaning operation, first step is put the valve bore perpendicular to the ground and clean, ensure all the dust particles can be removed from the bore. The second step is to check and clean all the connecting pipe bore and connection areas. Do not flush rust and foreign bodies to avoid blockage and leakage.

Valve Installation (Install to the pipeline system)

- a. Direction

Most of the valves do not restrict the flow direction.

- b. End caps

For 623/633, 3-piece ball valve with welded ends (SW or BW) operator should dismantle and weld to the pipe line first. After the temperature cools down, assemble the complete valve. This will prevent the soft kits such as gasket, seats, stem packing, thrust washer from damaging by the high temperature while welding. Most of time the new gaskets are required to prevent from leaking. For AISI 1045 body material, we offer threaded ends only.

- c. Position

The body, cap and gasket are in the connection area of ball valve and pipeline. The bear weight ability and gradient are very important to the pipe installation. Do not make the pressure from the pipeline and stress to concentrate on the connecting area of body and cap. It will cause deformity and leakage, and the ball, seat, and stem will stick causing leakage, and damage.

Systems hydrostatic test:

Before delivery, valves are tested 1.5 times the allowable pressure at ambient temperature. After installation, the piping system may be subject to system tests, as the condition is not to exceed the above mentioned pressure.

Put into service:

After install to the pipeline, it is necessary to check the function of the product. Thus, operate the valve about 3 times to ensure the function.

The whole pipeline system may be tested with a proper pressure. User shall take care that the testing pressure shall not exceed 1.5 times the allowed working pressure.

After pressure testing, user shall operate the valve again about 3 times to ensure the function.

Dangers of inappropriate use:

- a. Never use the product to exceed its allowed condition, such as pressure, temperature and fluid.
- b. If the product has any inappropriate use, the product will be damaged however there will be no signs of damage occurring immediately. User shall change the product to avoid danger in the future.

Maintenance:

- a. Maintenance frequency

The maintenance frequency is determined upon the application of ball valve. User shall consider the time intervals depending on the kinds of fluid, flow velocity, operation frequency, high-pressure effect and high-temperature effect etc.

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Disassembly:

The user should check the availability for repair kit for 623/633, if not, do not disassemble the valve, contact manufacturer for repair kit. (suggestion: every time dismantle the ball valve, we suggest replacing the new seals and seats of the valve to prevent from leaking before assembling)

- a. To dismantle the valve user must follow the procedure and drawings as mentioned below.
- b. It doesn't matter where the valve is located, usually it will contain the sealed up fluid, so operator must be very careful when removing the valve on the pipe. User must operate the ball a little and release the fluid slowly, user will also need to watch out for any poisonous and flammable objects if there are any.
- c. To dismantle the valve body, release the end cap carefully. User must take care to dismantle the ball to avoid the seat retainer falling down from end cap.

To lift the ball by hoist, user must protect the corner to avoid the ball getting damaged by metal contact. The right position for storing the valve is putting the open end on the ground. This procedure is protecting the surface of the ball.

Parts inspection, maintenance and replacement:

- a. Check the surface of ball if it is scraped? It may use the PT for inspection if necessary. If there is any damage on the surface, than find out the cause such as the dirt, fluid...etc. User must avoid the damage factors as much as possible.
- b. If there is damage to the ball surface, to gauge damage determine if is located on the contacting area of ball and ball seat? If this is the case, than the ball must take a fine milling. If there is heavy damage, than it must be welded and re-machined again. If it cannot be repaired then replace with a new ball.
- c. If the scraped area is not at the location described in the item above, then user must re-fine milling on the damaged area again. Otherwise, the ball will damage the soft seat during the open and close operation or it will dig out the ball seat and cause a heavy damage to ball and seat.
- d. Check the wall thickness of valve body and cap. The minimum thickness shall be maintained in according to EN12516-1 table 10.
- e. To inspect the surface of the soft seat, check to see if it has any scrape marks, concave, dust particles (including weld dregs, iron bit, sands...etc.), abrasion, abnormal press scrape, or any tiny scrapes. Usually, the scrape mark and damage by dust particles will occur the same time as ball is damaged. It will be the root cause for leakage. If leakage occurs before repairing, than we suggest to change a new soft seat (TFM1600 or DELRIN). The marks from pressing or a fine scrape will happen in an abnormal operation pressure. User should reconsider to choose a right valve for the application.

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f. The stem packing may be replaced with the new parts after dismantling the valve. User shall make sure that your distributor is able to provide the same packing of your valve if you do not have a repair kit. To tighten the gland nut, please see Section for torque data.

g. To do the final inspection for a valve, user must operate 10 times to ensure all the parts are assembled correctly to ensure the torque is same value during the open/close operation. If the torque is not the same in operation, than it may have some parts in a not correctly positioned or interference is present. User must dismantle and re-assemble valve. Otherwise, it will be easy to damage if the valve operates on a pipeline under higher pressure.

h. Assembly:

For assembly process, it takes the opposite way of dismantle process. The stopper must be located at the right place, otherwise, the operation will be opposite.

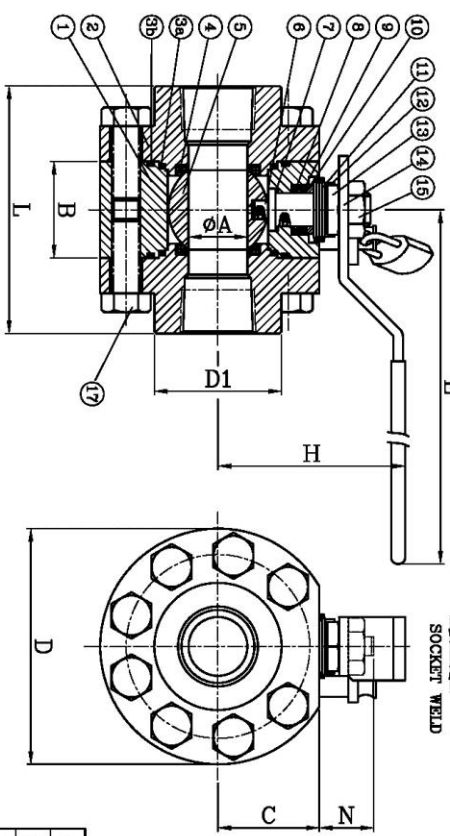
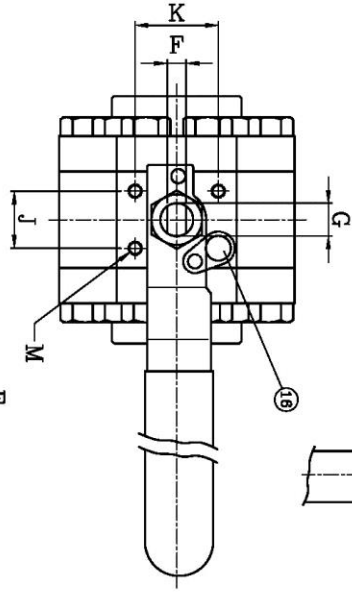
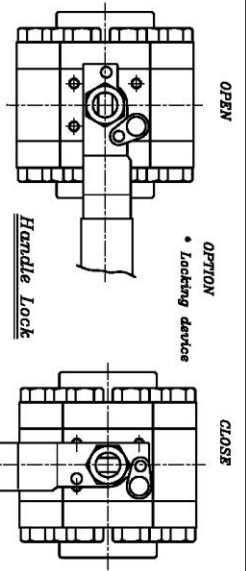
Torque Data:

Stem nut, body & end bolt (Nm)

The bolt torque on body & stem nut are tightened to metal to metal.

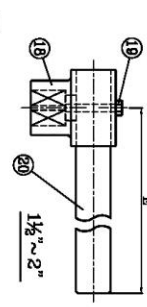
TORQUE (in/lbs) VALUES FOR SERIES 633 623

SIZE \ PSI	0	1000	2000	3000	4000	5000	6000
1/4"-1/2"	101.775	101.775	101.775	115.05	123.9	132.75	141.6
3/4"	221.25	230.1	230.1	230.1	274.35	318.6	389.4
1"	398.25	415.95	486.75	495.6	575.25	672.6	823.05
1-1/4"	708	743.4	867.3	893.85	1026.6	1194.75	1460.25
1-1/2"	1062	1106.25	1300.95	1354.05	1531.05	1796.55	2106.3
2"	1593	1770	1814.25	1858.5	1947	1991.25	2124

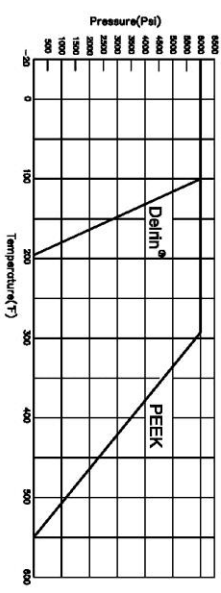


SPECIFICATION

- Available in stainless steel or carbon steel
- Self adjusting stem packing
- Full port design
- Blow-out proof stem design
- Anti-static device



- 100% air tested under water at 80-100 psi
- Class range : 6000psi (Class 2500)
- End connection : threaded socket weld butt weld
- Value construct and end thickness meet ANSI B16.34 standard.



SIZE	A	B	C	D	D1	E	F	G	H	N	L	J	K	M	S	T	ØD	ØD	ØD	ØD	
1/4"	80.8	58	78	58	176	6.3	3/8	70	16	66	13	87	M5	14.8	11.1	13.8	7.8	-	-	-	
3/8"	124.5	80.8	98	78	228	17.6	5/8	70	16	66	13	87	M5	17.6	11.1	17.8	10.8	-	-	-	
1/2"	16	88.6	98	78	271	17.6	5/8	70	16	66	13	87	M5	21.8	15.7	24.4	13.8	11.4	11.7	-	
3/4"	20	92	98	94	40	195	8	M15	60	21	62	19	90	M5	27.1	15.0	26.7	16.8	26.7	18.5	-
1"	26	41	43	104	63.8	200	9.7	M14	68	21	106	30	97.8	M5	33.8	15.0	33.4	24.3	33.4	26.8	-
1 1/2"	38	66	68.4	140	75	650	13.0	200	134	57	140	40	43	M5	48.8	15.0	48.5	38.0	48.5	34.1	-
2"	50	72	72	189	88.3	650	13.0	200	148	57	170	50	50	M5	61.1	15.0	62	48.3	62	42.8	-

NO.	NAME OF PARTS	MATERIALS
1	Body	Stainless St. 316 / Carbon St. A1045
2	End Cap	Stainless St. 316 / Carbon St. A1045
3a	Gasket	Graphite / TFM
3b	Secondary Gasket	TFM
4	Ball Seat	PEEK / Dehlin *
5	Ball	Stainless St. 316
6	Stem	SS 17-4PH
7	Thrust Washer	PEEK
8	Stem Packing	Graphite / TFM
9	Packing Protector	PEEK
10	Gland Housing	SS 304
11	Disk Washer	SS 301
12	Nut Stop	SS 304
13	Stem Nut	SS 304
14	Handle Nut	SS 304
15	Stop Pin	SS 304
16	Ball Pin	SS 304
17	SET BOLT	SS 304(BB)
18	SET BOLT	SS 304
19	LEVER HEAD	CFR
20	LEVER	STEEL PIPE

NAME	3PC-6000PSI Ball Valve	DWG. NO.	KUIN	DATE	NOV.15.2013
TYPE	316T - 1/4"~2"	DWG. NO.	316-000-F01-1E	DATE	
ZIPSON STEEL INDUSTRIAL					