



DelTech Controls, LLC.

DelVal Flow Controls Private Limited

(A DIVISION OF DelTech CONTROLS LLC, USA)

DelVal® SERIES 60/61/62/63

Industrial Process Ball Valves

Sizes 1/2"-12" / DN 15 - DN 300

ASME Class150 & Class 300 Full and Reduced Bore

**INSTALLATION,
OPERATION AND
MAINTENANCE MANUAL**

ENGINEERING DATA SHEET

E.D.S. NO – EDS 555

ISSUE DATE : NOVEMBER 2006



(Please read the entire instructions carefully before installation or servicing.)

Guarantee :

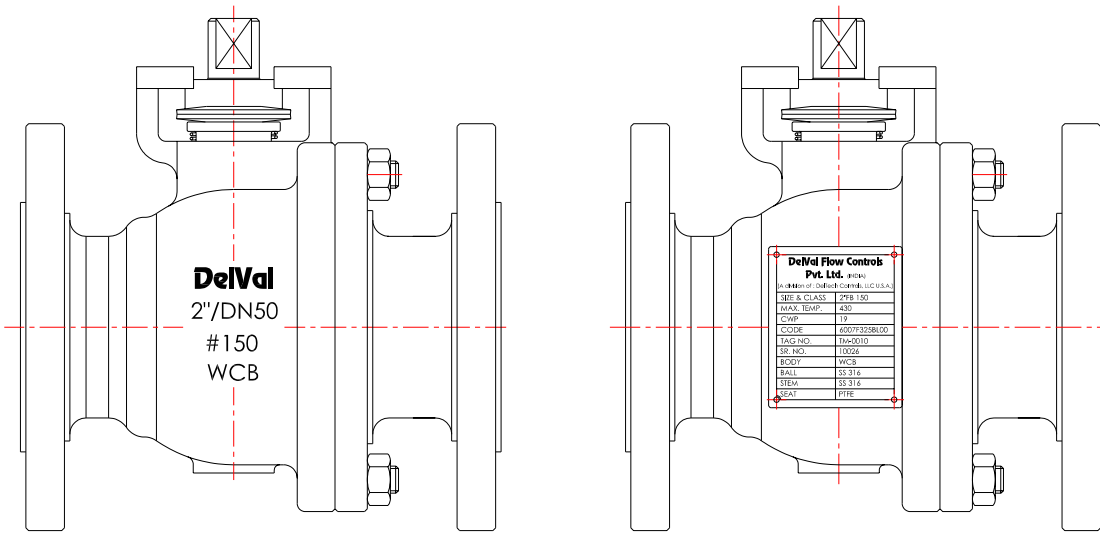
“Our liability, with respect to any defect or failure of the goods supplied or for any loss, injury or damage attributable onward, is limited to replacement or repair of the defects which under proper use appear therein and arise solely from faulty materials and workmanship. This guarantee is for a period of 18 calendar months after the original goods were first shipped or within 12 calendar months from the date of installation, whichever is earlier, provided that such defective parts are returned without charge to our factory for examination. No other warranty is either expressed or implied.”

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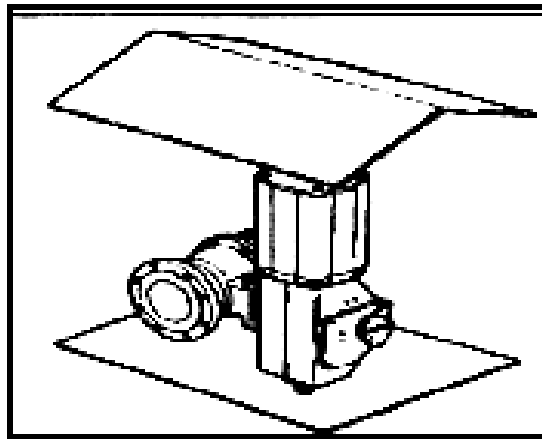
1. INTRODUCTION

The purpose of this manual is to ensure proper installation, operation and maintenance for the Ball valves manufactured and supplied by DelVal Flow Control Pvt. Ltd. The valves are identified by nameplate on body.



2. TRANSPORTATION, RECEPTION AND STORAGE

While loading & unloading check for any “arrow” mark on as indicating upward position.
Always place the valve preferably on rubber sheets layed on ground.
Ensure that all valves ends are covered with protective end caps.
Always store the valve under roof, in a dry and clean atmosphere, protected from rain and storm.
Before installation of stock valves, it is advisable to conduct hydrostatic/pneumatic test.



2.1 Storing the Valve

3. DO'S AND DON'T

DO'S

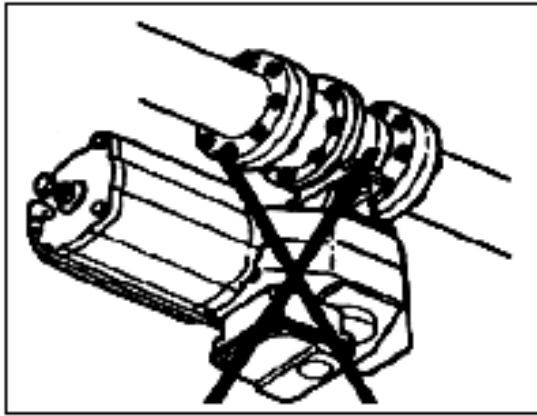
- Use specified MOC for specified application.
- Before installation of "DeIVal" made standard valve it is advised for user to ascertain the compatibility of the material.
- Periodically ensure the tightness of Body joint bolting, operability and the electrical conductivity of the valve.
- Always use dry, moisture free air while opening the valve with pneumatic actuator or for cleaning purpose.
- Always wear warm clothes while working with cryogenic liquids.
- Ensure the through ventilation is provided while working on the close equipment for oxygen transfer.
- Ensure that the end protections are removed before installation of valve in line.

DON'T

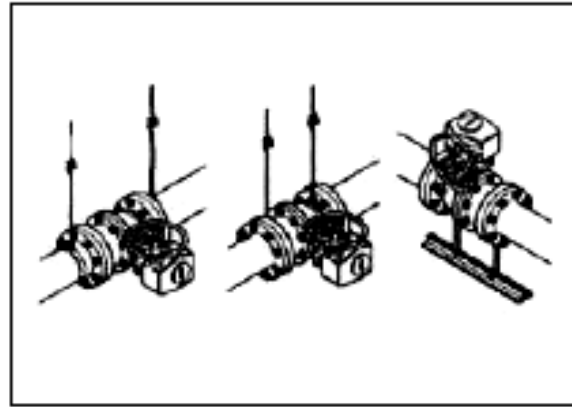
- Do not drag the valve on bare floor.
- Do not try to rectify the valve leakage by reworking of seats. Leaking seats have to be replaced with the DeIVal genuine seats.
- Do not allow any such process which may generate spark particularly working in H₂ or O₂ service line on any such inflammable fluids
- Do not allow any dirt, scales, oil or grease to flow through valve and pipeline for oxygen services.
- Do not allow to replace (even temporarily) the pressure-relieving device, which is installed, for its intended use by a threaded build plug.
- Do not inhale the cold gases/fumes for long duration while working with cryogenic liquids.

4. INSTALLATION

- Before installation, ensure that the valve end protectors are removed and gasket is placed for flanged end valves.
- Clean the valve ends and bore using methylene chloride or trichloroethylene or as per the customer's specification.
- Clean the pipeline to avoid damage of the soft seat due to debris, scaling etc.
- Keep the valve in fully open condition.
- Never install the valve with the actuator on the underneath side in the pipeline.



4.1 Avoid this mounting position.



4.2 Supporting the valve

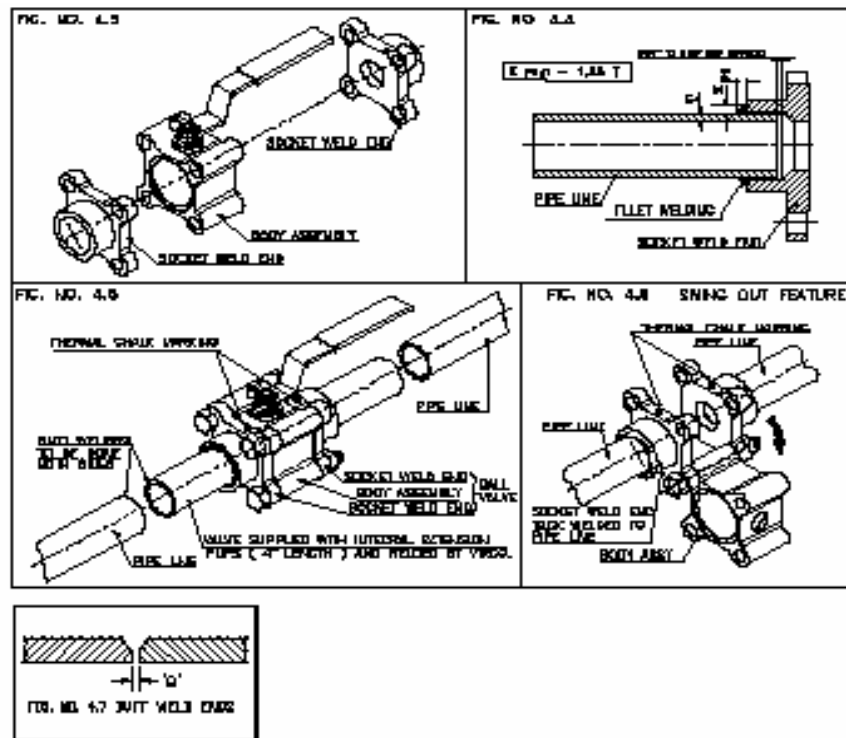
WHILE INSTALLING FOR:

1. Flanged End Valves: Don't over tighten the joints bolting, refer tightening torques table on page 7 of 8.

2. Weld End Valves: Don't allow temperature of the valve body seat area to exceed 200° F (94°C). To check the temperature, use thermal chalks.

A) Butt Weld End Valves: A proper alignment and gap 'G' as shown in fig. To get full penetration of weld up to root.

B) Socket-Weld End Valves: Ensure for proper alignment and a minimum gap of 1.6 mm between the pipe end face and socket weld ends as shown in fig.



5. OPERATION OF THE VALVE

Ensure that the force applied on the hand wheel of gearbox or lever shall not exceed 360N.
Clockwise rotation of hand wheel closes the valve and anti-clockwise rotation open the valve for gear operated valves.

For lever-operated valves if the position of the lever is in line with pipeline then the valve is in close condition when lever is perpendicular to pipe axis.

Do not disturb the gearbox open/close adjustment bolts setting, unless and until it is required.

6. PREVENTIVE MAINTENANCE

Periodically check for any damage to valve seats, ball and stem of valve.

While doing periodic checks, it is recommended that genuine spares should be used to replace the seats, gaskets, seals and packing.

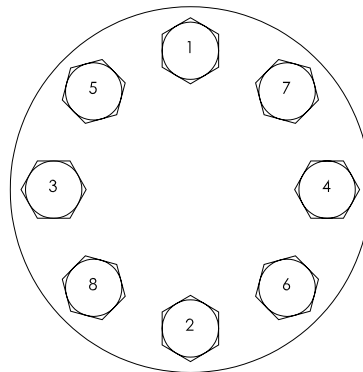
A repaired valve is always subjected to set of tests before installation.

Ensure periodical lubrication of gearbox with suitable grease.

7. TROUBLE SHOOTING

The following table lists the possible malfunctions that might occur after prolonged use

Symptom	Possible fault	Actions
Leakage through a closed valve	Damaged ball surface	Replace the ball
	Damaged seats	Replace seats
	Ball might not be closed fully	Check ball open/close settings
Irregular ball movement	Impurities between the ball and seats or ball body cavity and ball seats	Flush the ball from inside
		Clean the sealing surfaces and seats
Valve too hard to operate/valve torque too high	Damaged seats	Replace the seats
	High application pressure/temperature	Confirm the application pressure/temperature rating
	Foreign particles in valve	Clean the internals
Water hammer or noisy operation	Error in valve sizing or flow of fluid with high velocity	Confirm valve sizing with respect to flow
Leakage through stem	Gland nut loose	Tighten gland nut
	Damaged stem, stem sealing surface	Replace the stem
	Damaged stem seal	Replace the stem seal
Leakage through body end connector joint	Breakage of body gasket	Replace body gasket
	Relaxation of studs due to gasket creep	Retighten of studs evenly in crisscross manner



RECOMMENDED BOLT TIGHTENING SEQUENCE FOR FLANGE TIGHTENING

8. ORDERING THE SPARES

When ordering for spare parts, always convey the following information.

Size of valve
Valve rating -
Sr. No / Batch No.
Mfg. Date

} Available on nameplate or body of valve

Part No.
Name of the part
Number of pieces required
P.O. Number

} Available on name plate or body of valve

9. GENERAL INSTRUCTIONS FOR DISASSEMBLY & REASSEMBLY (LEVER/HANDLE OR GEAR OPERATED)

CAUTION:

Pipeline and valve must be depressurized by shutting off the valves & bleed the line, cycling the valve once & leaving it half open to relieve the pressure from body cavity.

A) DISASSEMBLY

1. Valve shall be positioned vertically by resting body side flanges on clean ground surface (preferably covered with rubber sheet).
2. Remove the handle, lever or gearbox.
3. Open the end connector joint by loosening the nuts in crisscross pattern.
4. Remove the body gasket from the end connector and body gasket from the body.
5. Remove the ball from body & the seats from body & end connector.
6. Remove the stem by removing stem-holding devices as applicable.
7. Push stem into Body cavity & take it out.
8. All the components should be stored in a clean place.

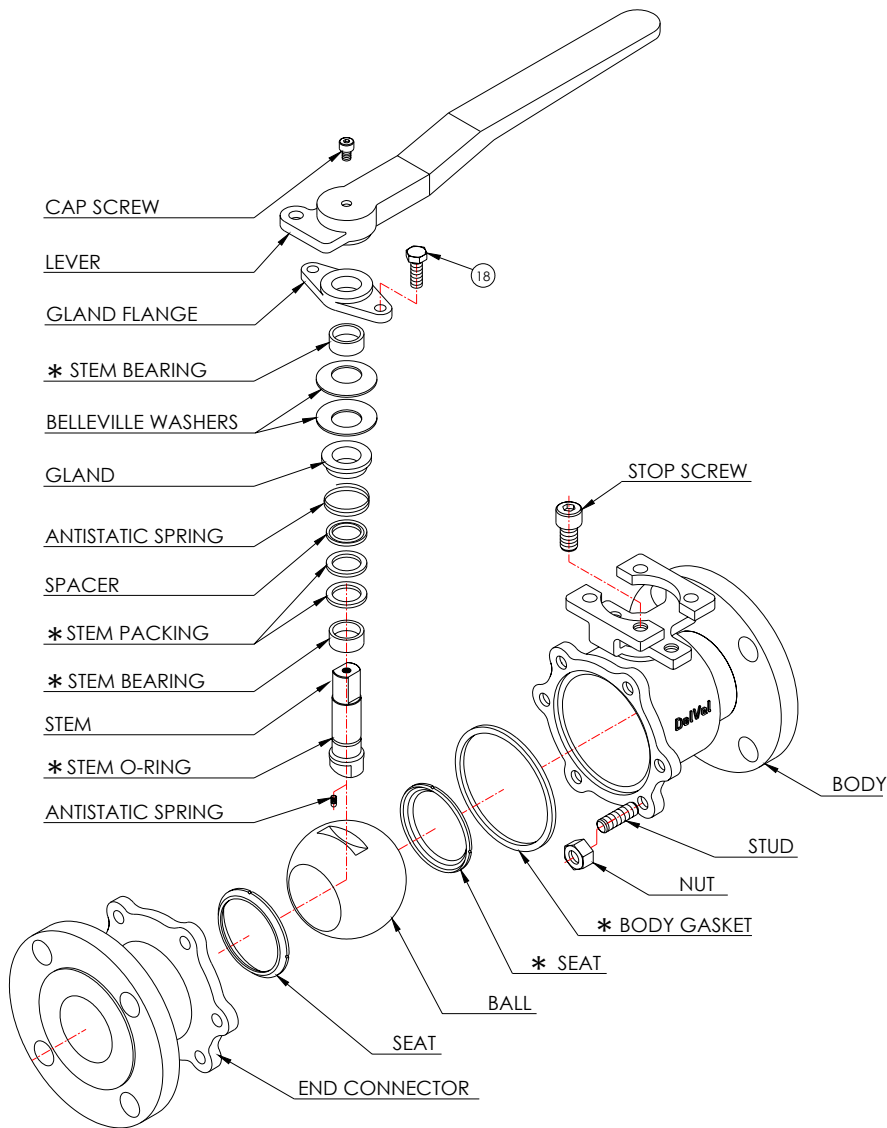
B) ASSEMBLY

Before reassembly, inspect the valve for any damage on Body-End connector & all internals.

Damaged internals to be replaced by a genuine & with recommended parts only.

1. Follow the same step as mentioned in A) 1.
2. Apply suitable coat to bolting to prevent from corrosion.
3. Insert the stem in position.
4. Insert the top stem seal bottom & the stem 'o' rings on the stem & install the stem from inside body.
5. Insert the top stem seal, the spacer, and the disc spring or stem bush into the stem as applicable.
6. Ensure proper locking of stem with lock nuts, washer or mounting plate as applicable.
7. Align stem A/F parallel with the body bore.
8. Gently slide the ball over the stem A/F.
9. Place seal & seat in end connector.
10. Position the gasket with the body & position studs.
11. Assemble the valve by putting end connector on the body & tighten the body nuts in a crisscross pattern.
12. Put the operating member i.e. lever/handle or G.O. in position into body & tighten them.
13. Ensure smooth operation of valve during opening and closing.

14. EXPLODED VIEW



RECOMMENDED TIGHTENING TORQUES, Kg.m (Nm)			
Thread Size	Property Class 8.8	Property Class 10.9	B7/B7M
M8	2 (20)	2.9 (28)	2 (18)
M10	4 (40)	5.7 (56)	3 (30)
M12	7 (69)	10 (98)	5 (51)
M14	11.3 (111)	15.9 (156)	11 (103)
M16	17.2 (168)	24.2 (237)	12 (121)
M18	24.4 (239)	34.3 (336)	20 (194)
M20	33.5 (329)	47.2 (463)	24 (236)
M24	57.9 (568)	81.5 (799)	42 (408)
M27	87.5 (858)	123 (1207)	61 (597)
M30	115.9 (1137)	163 (1599)	83 (814)

Note: Ensure that all the Nuts/Bolts are tightened to the Torque Values as specified in this Table. For B8/B8M consider Tightening Torques 20% less than above values.

* Recommended spare parts.

• **Ball Valves Installation, Operation & Maintenance Manual**

Customer	
Project	
Consultant	
P. O. No. and Date	
Work Order No.	
Date of Last Dispatch	
Date of Commissioning	

Caution!

DeVal does not assume responsibilities for any liabilities/damages arriving out of wrong application of its Valves or imprudent operations carried out by inexperienced operators, or which does not comply with this Manual, or instructions provided by DeVal.

The valves shall be appropriately used for the purpose they are built, or applications they are supplied. Use Of standard valves for special applications is not recommended unless it has been communicated and Agreed to by DeVal.

Valves shall be operated and maintained strictly in accordance with the procedures. Operation or Maintenance outside these procedures constitutes abuse of the product and voids all warranty and claims.

All statements, technical information and recommendations in the bulletin are for general use only. DeTech is not responsible for suitability or compatibility of these products in relation to system requirements. Consult DeTech distributors or factory for the specific requirements and material selection for your intended application. DeTech reserves the right to change or modify product design or product without prior notice. DeVal® - Registered trademark of DeTech Controls.

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