

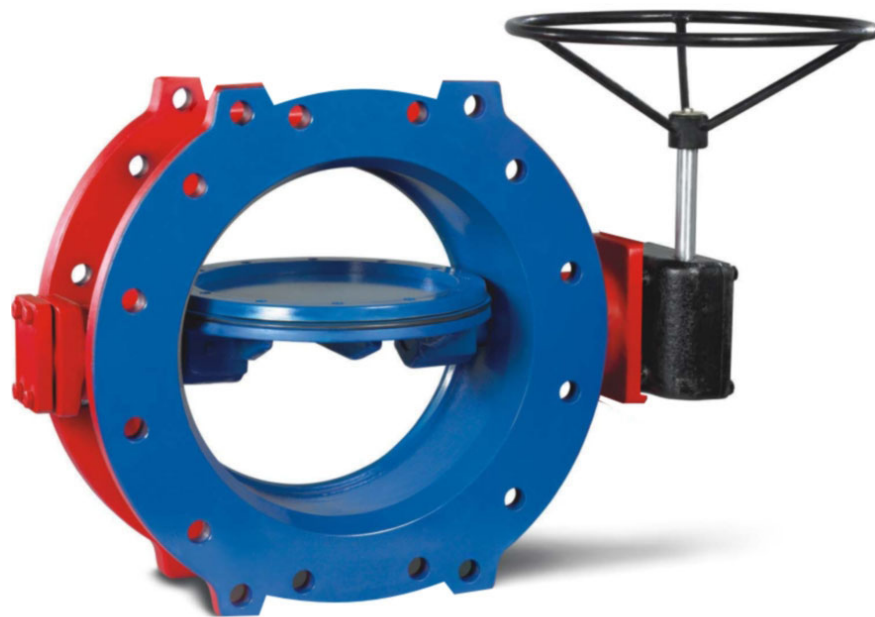


Dembla

# Instruction Manual

## Manual Butterfly Valves

### Series 7500



1Feb 2009

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## 1.0 Foreword

### 1.1 Introduction

Dembla's High Performance Butterfly Valves are available in Wafer and Lug type designs conforming to API 609 standard. The Disc construction is Double Offset. Shafts are guided by bearings. Various seat options are available.

### 1.2 Scope of Instruction Manual

This Instruction Manual covers information regarding Installation and Maintenance of Dembla's double offset High Performance Butterfly Valves, Series 7500, Valve sizes 3" (DN50) to 72" (DN1800)

### 1.3 Copyrights and Modification Rights Reservation

Dembla Valves Ltd. retains the Copyright on the contents of this Instruction Manual.

The Total content of this Instruction Manual described here corresponds to the information during preparation of the instruction manual. It is user's responsibility to refer the latest version.

All data, specifications and Illustrations here are subjected to Technical Modifications and improvements and hence Modification can be done by us at any time without any prior notice. No claim to Modification or repair of these Valves, which have already been supplied by us, can be made.

## 2.0 Storage & Preservation

All Valves are dispatched in the closed/open position as ordered and it is recommended that they are left in this position during storage. All protective packing should remain in position until the Valve is to be installed. Valve should be stored in a clean and dry environment, without disturbing company setting. (e.g. gland, seat etc.) Protect it from shock & lifting damage.

### **Caution**

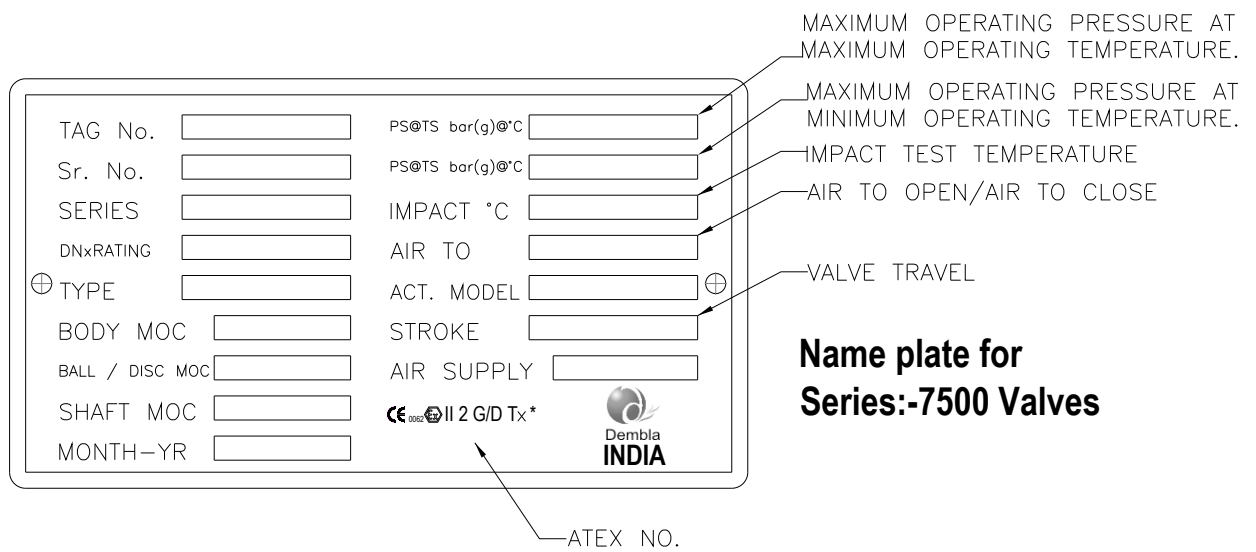
If hoisting the Valve, use a nylon sling to protect the surface. Carefully position the sling to prevent damage to Actuator tubing and any accessory. Also, take care to prevent people from being injured in case the hoist or rigging slips unexpectedly. For Valve Weight refer Valve Packing Slip.



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### 3.0 Valve Marking

- 1) Valve name plate attached on Valve by riveting carrying all Valve Identification Information.
- 2) Markings like Valve Size, Rating, Material etc. are as cast on Valve Bodies.
- 3) Valve serial no. punched on Valve Body Flange for Valve Traceability.
- 4) If the product is not CE marked, Then name plate also without CE mark.



## 4.0 Health & Safety

- 1) Before attending to Valve Installation / Maintenance, the Instruction Manual must be compulsorily read and understood properly.
- 2) Valve must be operated by qualified personnel.
- 3) Ensure that the operator handling these Valves must follow Safety and Accident Prevention Rules and Regulations.
- 4) Follow the Safety Instructions before Installation, Maintenance or removing the Valve.
- 5) Always wear protective gloves, clothing and eyewear when performing any installation operations to avoid personal injury.
- 6) All Safety Messages such as Cautions, Warnings and Notes are highlighted in this Instruction Manual which must be strictly followed to avoid any possibility of arising danger / risk of damage to the equipment/person's life
- 7) No Liability on Manufacturer for any wrong handling, improper commissioning and wrong assembly.
- 8) Line must be fully drained and de-pressurized before installation or maintenance of Valve.
- 9) Never handle Valves that have been used on harmful substances unless they have been completely decontaminated and certified safe to handle.
- 10) Due to the large physical Size and Weight of some Size of this product, always use correct lifting methods and equipment when installing , removing and maintaining the product:
  - Use lifting lugs on the Body, wherever provided.
  - Valve without lifting lugs-use chains or slings wrapped around the Body.
  - Do not attempt to lift the Valve using the Sealant Fittings, Gear Unit, Handwheel, Actuator, or the Valve Stem.
- 11) If the processes or environments that the products are used in are likely to cause temperature (high or low) that may cause injury to person if touched, then adequate insulation / protection must be fitted.
  - It is recommended that the insulation allows easy access for maintenance, to the Sealant Fittings, and to the Valve operator.
- 12) Valve must be protected from earthquake loading, traffic & wind.
- 13) No Modification / Conversions are allowed without written authorization from Dembla Valves Ltd.

### **Warning**

Rise in temperature on surface of Valve Body depend on working media. End user must be maintaining the surface temperature & it should not go beyond marking temperature on Valve (Name Plate).

## 5.0 Unpacking

### For Carton

- Keep Carton in position (Carton 'up side' should not be 'down').
- Cut plastic strip properly which is tied around Carton & remove it. (White in colour).
- Cut cello tape properly which is stuck on Carton opening.
- Open Carton properly.
- Remove foam properly along with polythene wrapping.
- Lift the Valve properly & keep on clean & dry place

### For Wooden Box

- Keep Wooden Box in Position ('upside' of Wooden Box should not be 'down').
- Cut iron strip properly which is tied around Wooden Box & remove it.
- Remove nail properly from top cover with proper equipment.
- Loosen and remove Valve fixing Nut (from inside of Box).
- Lift the Valve properly as shown in figure 1

## 6.0 Lifting Details

Valve should be lifted by using chain or bearer cables as shown in figure 1. (Take care that Valve should not damage while handing).

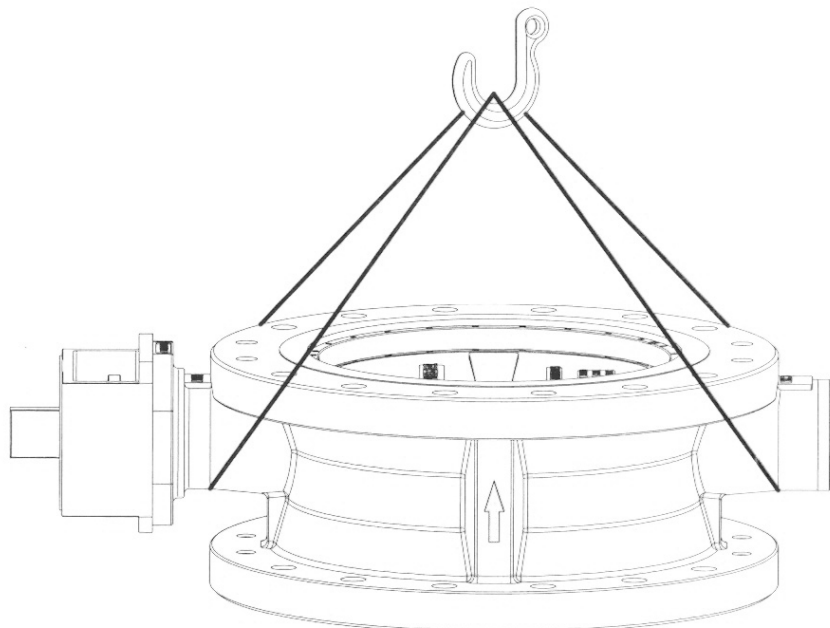


Fig .1



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- Always wear protective gloves, clothing, and eye ware when performing any Installation operation to avoid personal injury.
- Valve should be used by End-user with same pressure & temperature rating which was given in Valve Marking (Name Plate) If there is any change please contact Dembla Sales Office.
- Avoid personal injury or property damage caused by components dropping .With the Valve or actuator upside, components may drop during disassembly or assembly. Be careful not to position yourself below the Valve in the path of falling parts.
- Personal injury could result from Packing Leakage. Valve Packing was tightened prior to shipment, but should there be any Gland Leakage after Installation, further tightening, just enough to stop Gland Leak is required. Excessive tightening will disturb Valve Calibration.
- Earthing facility must be provided by the end user before operating the Valve.
- Equipment should not be used for dead end service

After the Valve has been Installed, make a final check of the following :-

- 1) An occasional cleaning of Valve Stem will prevent dirt or grit being carried away into the Packing.
- 2) Vary air lines and fitting to the Actuator to ascertain Actual Travel Scale Indication.
- 3) Check all air lines and fitting to the Valve Actuator & Accessories for air leaks.
- 4) Ensure that the combined action of Controller, Positioner and Valve provide the desired Valve Stem Movement. Also ensure the required fail safe position of Control Valve.



- In case of leak, presence of high temperature may be dangerous to the person's life.
- Equipment to be used as per intended and not misused / improperly used to avoid dangerous effects such as over load ,over heating ,stress corrosion cracking, etc.



## 7.0 Installation of Butterfly Valve

### 7.1 Pre-Installation Checks: (Before installing any Butterfly Valve)

- (1) Inspect it for any shipment damage and for foreign material that might have collected during Packing and shipment.
- (2) Blow out all pipelines to remove pipe scale-chips, welding-slag, and other foreign materials.
- (3) Install the Valve using accepted piping practices.
- (4) Install the Valve according to flow direction marked on the Valve.
- (5) Use self centering Gasket.
- (6) Install the Control Valve preferably in a straight run of pipe away from bends or sections of abnormal velocity.
- (7) Incorrect pipe alignment will cause interference between the disc edge and line flange face, excessive torque and damage to disc and seat, resulting into Seat Leakage.
- (8) Do not try to install Valve between line Flanges having inadequate gap. This may cause damage to some Valve parts. If Valve is in fully open position, it will impact the flanges and damage the disc edge.
- (9) Butterfly Valve should be attempted to install when disc in open condition. The Butterfly Valve can be inserted between line Flanges in fully close position.
- (10) Glands are factory tightened and checked for Leakage however if there is any Gland Leak in Valves, the Gland may be further tightened just enough to stop Leakage. Excessive tightening should be avoided
- (11) Before installing the Valve, make sure that pipeline flow is in the same direction as the arrow on the side of the Valve.
- (12) Connect the Valve in pipe line with standard connections.
- (13) Valve should not be used for dead end service.

### 7.2 Operation

Valve closes with clockwise rotation of the Valve Shaft. Valve is fully closed when disc is parallel to Seat Ring. The limit positions are set in the operators for extreme conditions i.e. open and closed.

### 7.3 Lubrication

The Valve Body set does not require any routine lubrication. However valve operator may require lubrication which is to be referred in the Part-II Manual Operator Section of this Instruction Manual.



## 15.0 Torque For Studs

Studs	Torque Nm
5/16"	5
3/8"	7
1/2"	30
5/8"	50
3/4"	170

## 16.0 Recommended Spare Parts

It is recommended to stock following spare parts for commissioning and routine service:

No.	PART NAME	RECOMMENDED QUANTITY
3	Soft Seat	One for every Five identical or One minimum.
9	Guide Bush	One set for every Five identical or One set minimum. (front & rear)
12	Gland Packing	One Set for every Two identical or One Set minimum.

While Ordering Spares, Please do not miss to indicate 'Valve Serial No.' appearing on Nameplate provided on the operator Yoke or on Valve Body Flange. The Valve Serial No. begins with alphabet 'V' followed by numbers, for e.g. V-12345....

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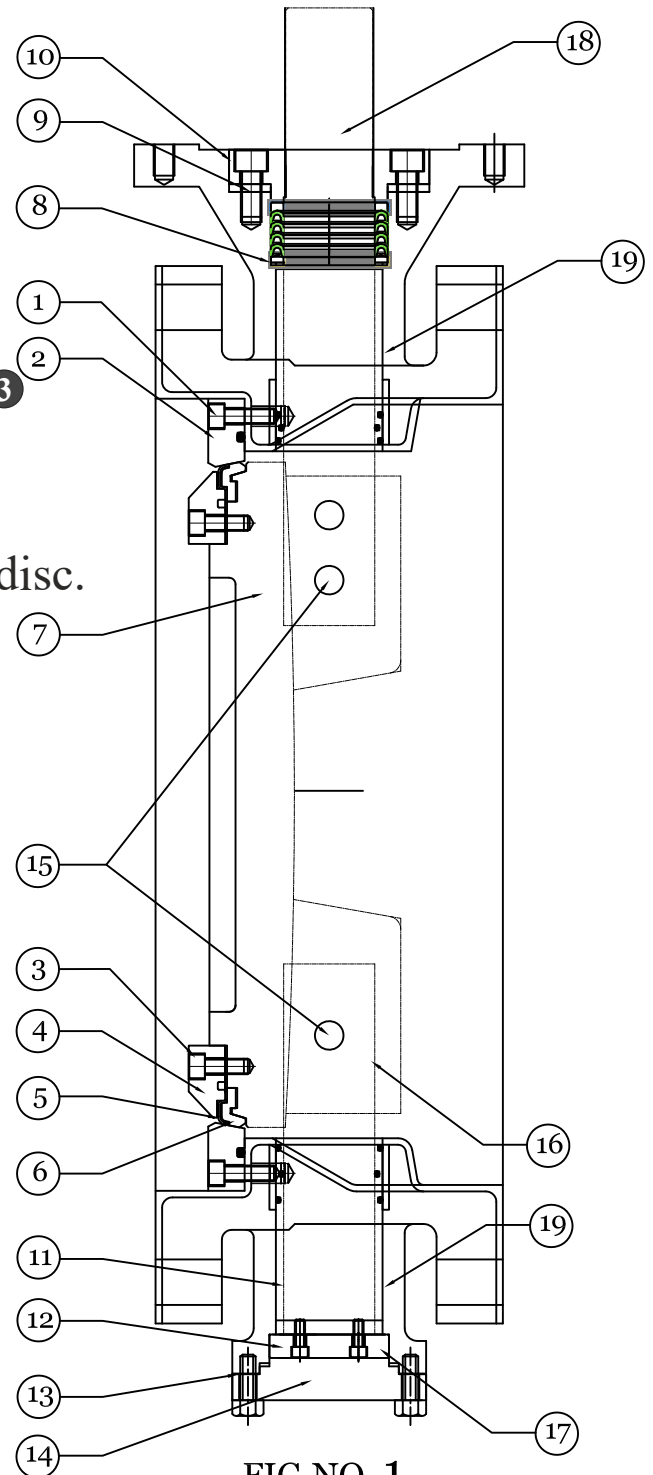
**Procedure for Disassembly & Assembly  
Disc Seat Ring ( Soft Seat & Metal Seat)  
Series :- 7500**



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**DISASSEMBLY PROCEDURE**

1. Clamp Valve Properly.
2. Rotate disc 90° ⑦
3. Mark on disc retainer ④ and disc ⑦ of the maintaining the proper position.
4. Loosen & remove body seat bolts. ①
5. Remove body seat along with 'O' ring. ②
6. Loosen & remove the disc retainer bolts. ③
7. Remove disc seat retainer along with 'O' ring. ④
8. Remove seat ring metal ⑤ & ⑥ soft from disc.
9. Loosen & remove gland flange bolt. ⑨
10. Remove Gland flange. ⑩
11. Remove gland packing. ⑧
12. Loosen & remove disc pin from disc (Upper side 2 Nos.) ⑮
13. Loosen & remove disc pin from disc (Bottom side 1 No.) ⑮
14. Loosen bottom cover bolt.
15. Remove bottom cover along with gasket. ⑭
16. Clamp disc properly for top side on valve body.
17. Pull & remove valve shaft from bottom side of valve body.
18. Remove disc from body. ⑮
19. Loose & remove thrust washer bolts from thrust washer (if required)
20. Remove thrust washer from valve shaft (if required).
21. Pull & remove guide bush ⑰ from valve body ⑱ (if required).



**FIG.NO. 1**

**Procedure for Disassembly & Assembly  
Disc Seat Ring ( Soft Seat & Metal Seat)  
Series :- 7500**



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## ASSEMBLY PROCEDURE

1. Insert guide bush on the valve body ⑩ 2 Nos. as show in Fig.1 (if removed).
2. Place the thrust washer ⑰ on valve shaft from bottom side & bolt it properly.
3. Insert the disc in the body & maintain it position.
4. Insert valve shaft (Bottom) ⑯ in the valve body from bottom side along with thrust washer.
5. Make sure valve shaft properly inserted in the disc also.
6. Insert the valve shaft (top) in the body from top side.
7. Make sure valve shaft ⑱ properly inserted in the disc also.
8. Insert the disc pins ⑮ in the disc throughout shaft for the bottom & top bolt & tighten properly.
9. Insert the bottom cover in the body along with gasket. ⑭
10. Insert the bottom cover bolts ⑬ in the bottom cover ⑭ & tighten it.
11. Insert the gland packing set in the valve body from the top side as shown in fig. (Gland packing set consist 1 lower spreader, 4 nos. v-ring, 1 no. upper spreader) ⑧
12. Insert the gland flange in the valve body from top side ⑩
13. Insert the gland bolts in the gland flange & tighten it ⑨
14. Insert the seat ring metal ⑤ & soft ⑥ in the disc.
15. Please refer fig.1 to maintain the position & sequence.
16. Insert disc retainer in the disc along with 'O' ring & maintain the position as mark. ⑦
17. Insert & tighten the bolts in disc retainer. ③
18. Rotate the disc 90°.
19. Insert the body set retainer ② in the body along with 'O' ring.
20. Insert the bolts in the body set & tighten it. ①
21. If found any difficulties in closing or opening of disc. Loosen the disc retainer bolts & retighten it properly.

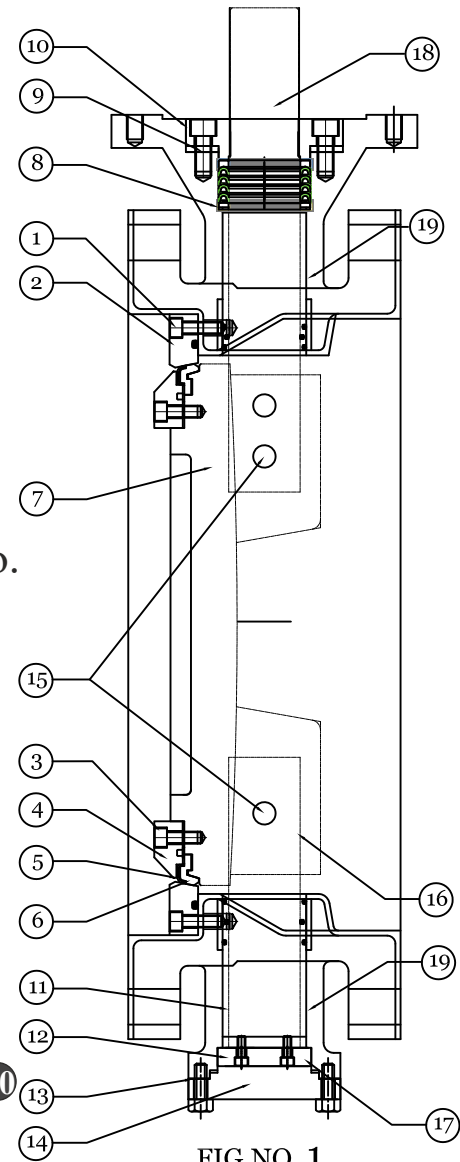


FIG.NO. 1

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Note- Valve Disposal Detail - After the complete use of valve . Dispose the valve with accessories as per your local law.



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