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Dembla

## Instruction Manual

### Resilient Seated Butterfly Valve Series 7200





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## 1.0 Foreword

### 1.1 Introduction

Dembla Resilient Line Butterfly Valves are available in Wafer type Designs. The Disc construction is Single Offset. Shafts are guided by bearing. Resilient seat are available.

### 1.2 Scope of Instruction Manual

This Instruction Manual covers information regarding Installation and Maintenance of Dembla's Resilient Line Butterfly Valve Wafer type, Series 7200.

No person may Install, Operate or Maintain Dembla Valve without 1) being fully trained and qualified in Valve, Actuator and Accessory Installation, Operation and Maintenance 2) Carefully reading and understanding the contents of this manual. If you have any questions about these instructions contact your Dembla Sales Office before proceeding.

### 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 position 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. Protect it from shock & lifting damage.



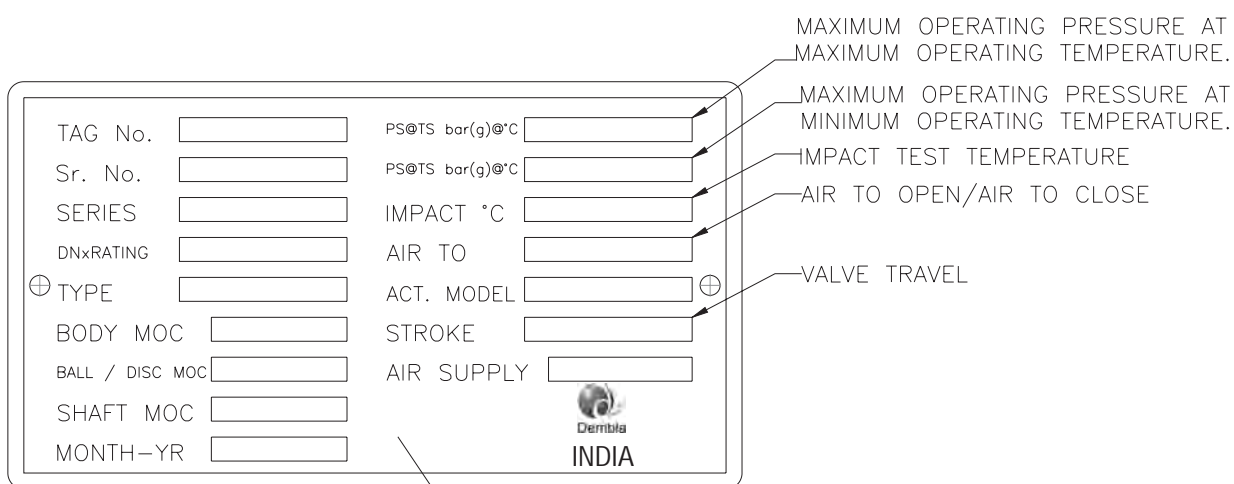
If hoisting the Valve, use a nylon sling to protect the surface. Carefully position the sling to prevent damage to Actuator tubing and any Accessory. Also, take care to prevent people from being injured in case the hoist or rigging slips unexpectedly. For Valve weight refer Valve Packing slip.



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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 is also without CE mark.



Name plate for Series:-7200 Valves



## 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) 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.
- 11) Valve must be protected from earthquake loading, traffic & wind.
- 12) No Modification / Conversions are allowed without written authorization from Dembla Valves Ltd.

## 5.0 Unpacking

### For Carton

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

### For Wooden Box

- α Keep Wooden Box in Position ( upside of Wooden Box should not be down ).
- α Cut iron strip properly which is tied around Wooden Box & remove it.
- α Remove nail properly from top cover with proper equipment.
- α Loosen and remove Valve fixing nut (from inside of Box).
- α 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).







 **Warning**

- α Always wear protective gloves, clothing, and eye ware when performing any Installation operation to avoid personal injury.
- α 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.
- α 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.
- α Our Valves can not be used for Defence, Nuclear, Telecommunication, Marine, Railway and Laboratory & Mines.
- α Our Valve is valid for atmospheres having pressure ranging for 0.8 bar to 1.1 bar and temperatures ranging for -20°C to +60°C
- α Earthing facility must be provided by the end user before operating the Valve.
- α Valve should not be used for dead end service

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

- 1) Check all air lines and fitting to the Valve Actuator & Accessories for air Leaks.
- 2) 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.

 **Caution**

- α In case of Leak, presence of high temperature may be dangerous to the person's life.
- α 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) No 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) Connect the Valve in pipe line with the standard connections.

### 7.2 Operation

Valve closes with clockwise rotation of the Valve Shaft. Valve is fully closed.

### 7.3 Lubrication

The Valve does not require any routine lubrication. However Valve operator may require lubrication.



## 8.0 Maintenance

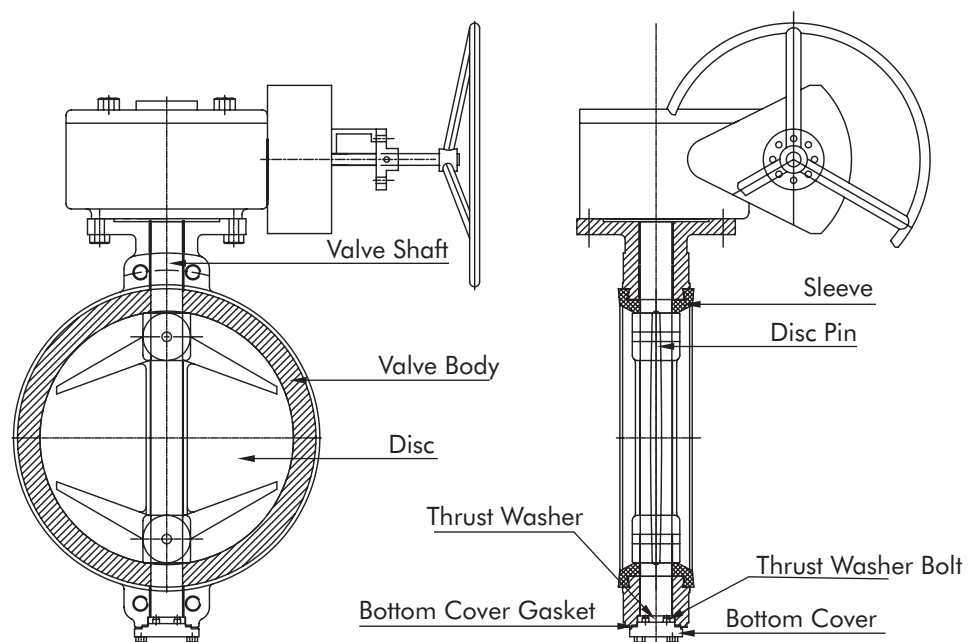
- α Avoid personal injury or damage to process system from sudden release of pressure of process fluid.
- α Before starting dis-assembly Use by-pass Valve or completely shut off the process to isolate the Valve from process pressure. Drain fluid from both ends of the Valve.
- α Disconnect all operating lines providing air pressure, electric power or a control signal to the actuator.
- α Any Gasket once removed should be replaced by a new one upon re-assembly. This is necessary to ensure a good seal since the used Gasket may not seal properly.
- α Earthing facility and Valve parts (Bush) should be checked periodically by the end user.
- α Equipment should be cleaned regularly.

## 9.0 Gland Packing :

In Resilient Butterfly Valve sleeve itself create packing effect with shaft (No. stuffing Box required)

### Disassembly-

- 1) Clamp valve properly along with disc
- 2) Remove disc pins for disc
- 3) Loosen and remove bottom cover bolts.
- 4) Remove Bottom Cover along with gasket.
- 5) Loosen and remove thrust washer bolts (for higher sizes above 20 )
- 6) Remove thrust washer. (for higher sizes above 20 )
- 7) Remove valve shaft from top side of valve.
- 8) Remove disc from valve body.
- 9) Remove Valve Resilient from Valve Body.
- 10) Now slowly remove the Guide Bush by slightly hammering by a pusher tool avoiding scratches in the valve body.
- 11) Replace the guide bush with new one.





### Assembly Valve

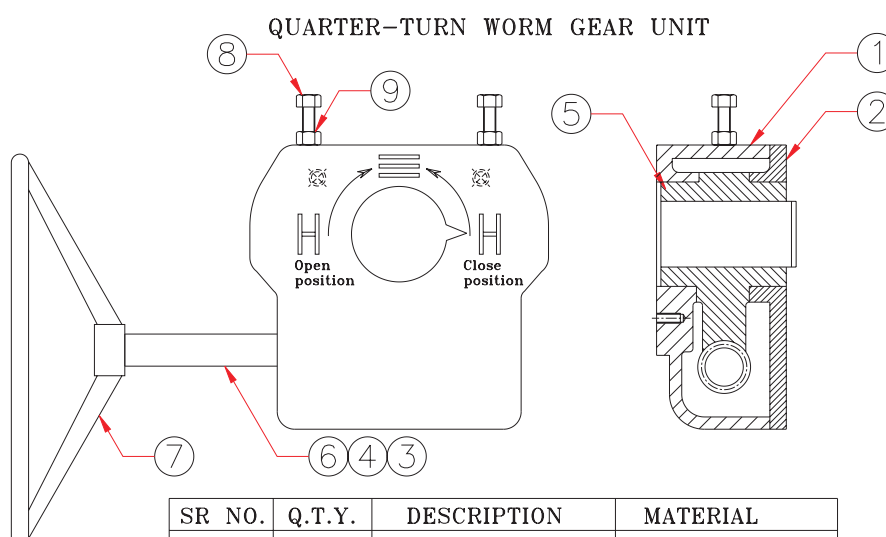
- i) Insert valve sleeve in valve body as shown in Fig 1 .
- ii) Insert valve disc in valve body.
- iii) Insert valve shaft in valve body and disc. as shown in fig.
- iv) Insert disc pin in Valve disc and shaft.
- v) Bolt thrust washer with valve shaft for both side (for high sizes above 20 )
- vi) Insert bottom cove gasket for both side of valve.
- vii) Insert Bottom Cove from bottom side of valve body and bolt it.

## 10.0 Trouble Shooting

Sr. No.	Condition	Possible Cause	Corrective Action
1	Gland Leakage	Worn out Sleeve	Replace Sleeve
2	Seat Leakage	Limit stop for Closed position stop got disturbed	Adjust limit stop of Gear operator
		Worn out Sleeve	Replace Sleeve
		Valve pressurized to high pressure	Reduce line pressure to rated pressure
3	Valve does not Open / Close fully	Limit stop got disturbed	Adjust limit stop
		Foreign object got stuck up between Disc and Sleeve	Open the Valve and clean the line / Valve to remove foreign object
		Disc to shaft connection failed	Replace Disc Pins and/or Shaft
4	Opening / Closing torque excessive	Shaft , Bearings or seat worn out	Replace the worn out components

## 11.0 Gear Box Type Manual Operator

**Series 'MOR'** quarter turn Gear operators offer simple and reliable Manual positioning of the Butterfly Valves for 0 to 90° operation. These operators consist of single stage worm and worm wheel arrangement housed in a robust weather-proof cast iron housing. Adjustable mechanical stoppers are provided to the operator within  $\pm 5\%$  of the extreme positions. A mechanical position Indicator is provided on these units to show the Valve position. Units are grease filled in the factory and does not require further lubrication. Thrust bearings provided takes axial thrust in operation. Sturdy design provides long life and maintenance free services. The high Gear ratios enable the minimum input efforts for high torque conditions.



SR NO.	Q.T.Y.	DESCRIPTION	MATERIAL
1	1	MAIN HOUSING	CI GR.FG 260
2	1	COVER	CI GR.FG 260
3	1	INPUT SHAFT	En8
4	1	WORM	En8
5	1	WORM WHEEL	S.G.IRON
6	2	THRUST BEARING	STD
7	1	HAND WHEEL	M.S.
8	2	STOPPER	M.S.
9	2	LOCK NUT	M.S.

DRG No.2

### 11.1 Operation

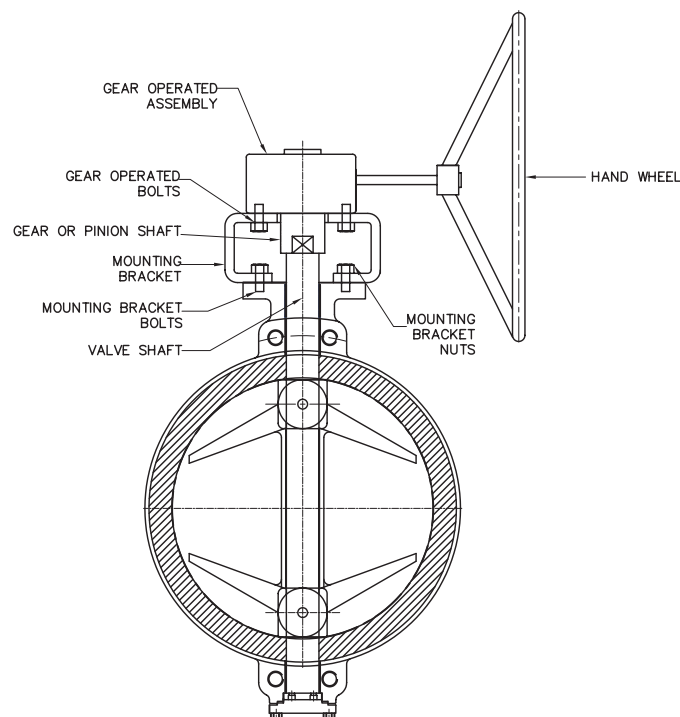
To close the Valve, Rotate Gear operator handwheel clockwise.

To open the Valve, Rotate Gear operator handwheel anti-clockwise.

## 11.2 Setting of Gear Box Type Operator

The Open and Closed position stops prevent the operator from rotating beyond the open and closed position of the Valve respectively. Each stop is adjustable. If the operator is factory-mounted on the Valve, the stops are preset, and do not require any further adjustment.

If the operator is not factory mounted on the Valve, or if the operator has been removed, the stop will require adjustment as described below.



### To adjust closed position stop : ( Refer Drg.No.2)

- (1) Loosen the Lock Nut by rotating it anti-clockwise on closed position stop screw (stopper) to about 2 turns.
- (2) Turn the hand wheel so that the Valve is in the closed position.
- (3) Turn the Closed position stop screw (stopper) clockwise until it touches the Gear inside of the operator.
- (4) Hold the Closed position stop screw (stopper) head from turning, and tighten the Lock Nut by rotating it clockwise.

### To adjust the Open position stop: (Refer Drg.No.2)

- (1) Loosen the lock nut by rotating it anti-clockwise on Open position stop screw (stopper) to about 2 turns.
- (2) Turn the Hand Wheel so that the Valve is in the open position.
- (3) Turn the Open position stop screw (stopper) clockwise until it touches the Gear inside of the operator.
- (4) Hold the Open position stop screw (stopper) head from turning, and tighten the Lock Nut by rotating it clockwise.

## 12.0 Installation of Manual Operator

### 12.1 Fixing / Mounting Hand Lever on Body Set

- (1) Insert the Mounting Bracket in the Shaft.
- (2) Align the Hand Lever on the top of the Valve Shaft by using Lever slot exactly sit in the Valve Shaft square provided.
- (3) Insert and then tighten the Grub Screw to fix up the Hand Lever with the Valve Shaft.
- (4) Tighten the Dial Screw.
- (5) Place Lever operator and Valve in closed position.
- (6) Mount the Mounting Brackets on the Valve Body by the using Mounting Bracket Bolts.
- (7) Check Open and closed positions of the Hand Lever without the flow and pressure.

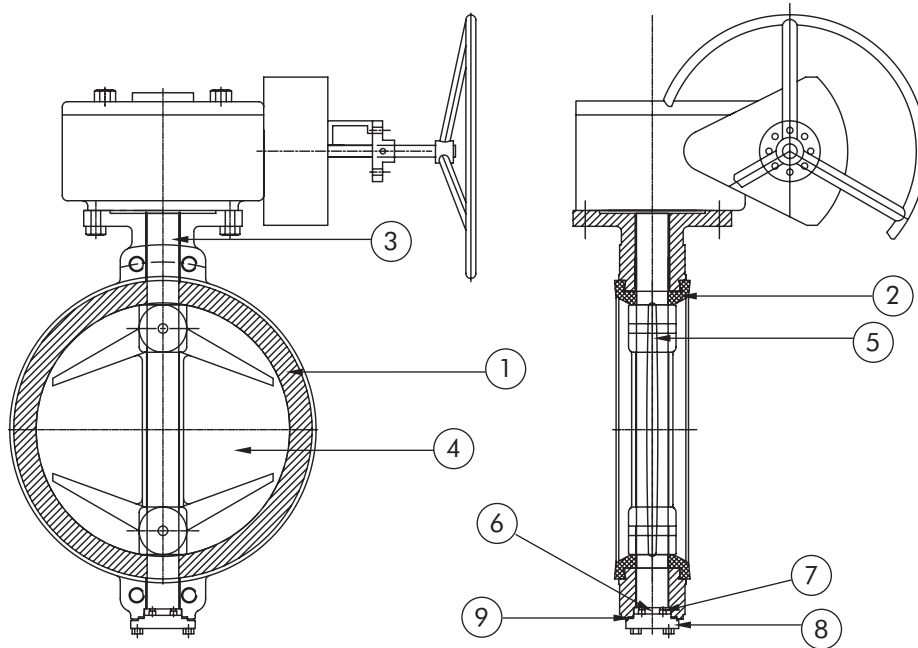
### 12.2 Fixing / Mounting Gear Box Type Operator on Body Set

- (1) Fix up the Pinion Shaft with Gear operator by using Key.
- (2) Place the Gear operator along with the Pinion Shaft on the Mounting Bracket.
- (3) Align & fix the Valve Shaft with Pinion Shaft accurately.
- (4) Fix the Gear operator with Bracket by using Bolts.
- (5) Fix the Gear operator along with Mounting Bracket by using Bolts on Valve Body.



## 13.0 Parts Illustrated

### 13.1 Butterfly Valve Assembly Wafer Type



Sr No	Part Name
1	Valve Body
2	Sleeved
3	Valve Shaft
4	Disc
5	Disc Pin
6	Thrust Washer
7	Thrust Washer Bolt
8	Bottom Cover
9	Bottom Cover Gasket

## 14.0 Torque For Studs

	Torque Nm
	5
	7
	30
	50
	170

## 15.0 Recommended Spare Parts

It is recommended to stock following Spare Parts for commissioning and routine service:

No.	PART NAME	RECOMMENDED QUANTITY
3	Sleeved	One for every Five identical or One minimum.
9	Guide Bush	One set for every Five identical or One set minimum. (front & rear)

### Note

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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**Valve Disposal Detail :** After the complete use of valve. Dispose the valve with accessories as per your local laws.



**Dembla**

### **Sales Office:**

M/S. Dembla Valves Ltd.  
C-30, Jai Matadi Compound, Kalher  
Village, Thane-Bhiwandi-Agra Raod -  
421302,  
Maharashtra, India.  
Tel - +91-9292234790 - 97  
E-mail - expo@dembla.com  
[More info - www.dembla.com](http://www.dembla.com)

### **Works:**

M/S. Dembla Valves Ltd.  
A/8, Arahm Logistic, Valshind Village,  
Mumbai -Nashik Highway  
(NH3), Bhiwandi  
Thane - 421302. Maharashtra (India)

