



**Instruction Manual**

**Floating Ball Valve**

**Series-8100F21**



Dembla

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## 1.0 Foreword

### 1.1 Scope Of Instruction Manual

This Instruction Manual covers information regarding Installation and Maintenance of Dembla's Floating ball Valve.

### 1.2 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 by time without any prior notice. No claim to modification or repair of these valves, which have already been supplied by us, can be made.

### 1.3 Safety Instructions

- 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 Instruction.
- 4) Ensure that before opening the valve for maintenance or repair, wear suitable protection when dealing with hazardous process fluids.
- 5) 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.
- 6) No Liability on Manufacturer for any wrong handling, improper commissioning and wrong assembly.
- 7) No modification / conversions are allowed without written authorization from Dembla Valves Ltd.

## 2.0 Introduction

Dembla's Floating Ball valves are available conforming design as per  
BS – 5351  
EN-17292  
API6D

### 3.0 Installation Of 'O' ball Valve

#### 3.1 Pre-installation Checks: (Before installing any 'O' Ball 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 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 Ball surface and soft seat, excessive torque and damage to ball and soft 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.

(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.

#### 3.2 Operation

Valve closes with clockwise rotation of the valve shaft. The limit position are set in the operators for extreme condition i.e open & close.

#### 3.3 Lubrication

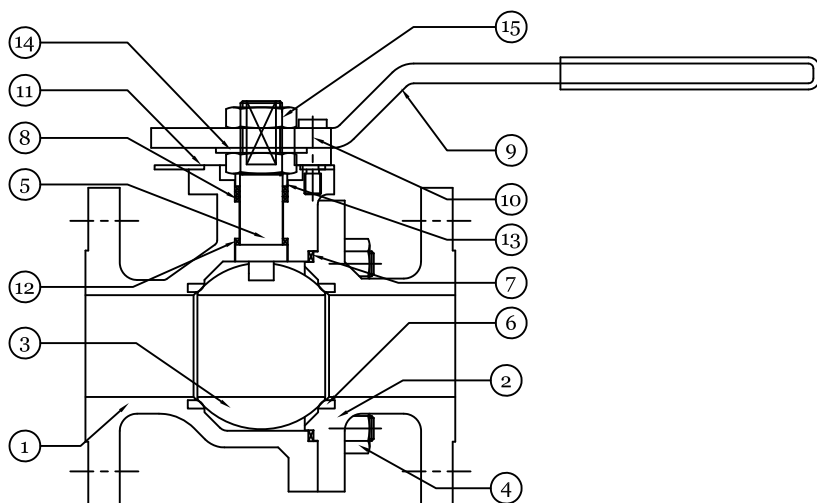
For manual operator, lubrication is required.

### 3.4 Replace Gland Packing & Seat Ring.

- 1) Loosen & remove locknut(15) & lock pins(10).
- 2) Remove lever (9)
- 3) Remove lock washer (14)
- 4) Loosen & remove second lock nut (15)
- 5) Remove lock plate (11) & gland bush (13)
- 6) Remove gland packing (8)
- 7) Loosen & remove body stud nut (4)
- 8) Remove side connection (2) along with soft seat (6)
- 9) Slide the ball (3) outward & remove it.
- 10) Remove valve shaft (5) from inside of valve body (1)
- 11) Remove thrust washer(12)
- 12) Clean all parts & keep in clean & dry space.
- 13) Replace soft seat (6) from both side connection (2)
- 14) For assembly use reverse sequence.

### 4.0 Recommended Spare (for “O” Ball Valve)

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



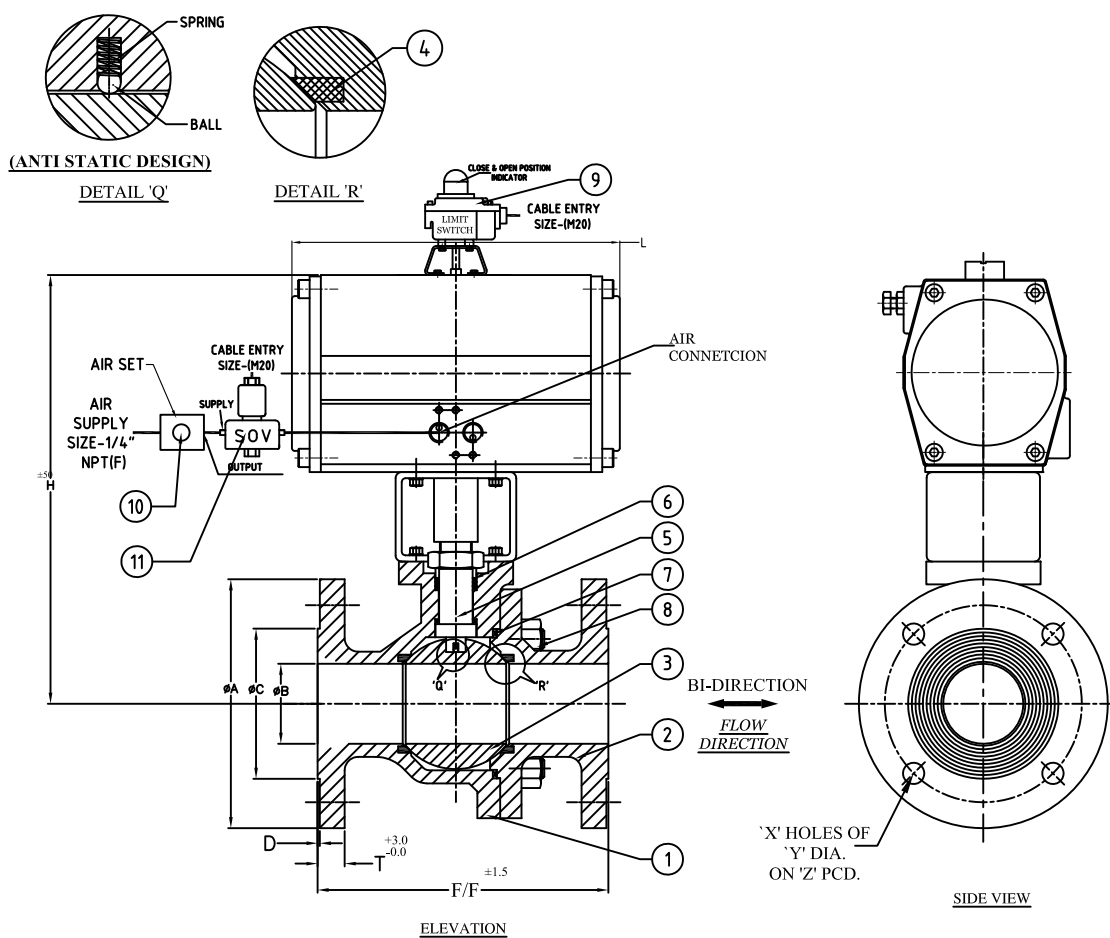
SR. NO.	PART NAME
<b>1</b>	VALVE BODY
<b>2</b>	SIDE CONNECTION
<b>3</b>	BALL
<b>4</b>	BODY STUD / NUT
<b>5</b>	VALVE SHAFT
<b>6</b>	SEAT
<b>7</b>	GASKET
<b>8</b>	GLAND PACKING
<b>9</b>	LEVER
<b>10</b>	LOCK PIN
<b>11</b>	LOCK PLATE
<b>12</b>	THRUST WASHER
<b>13</b>	GLAND BUSH
<b>14</b>	LOCK WASHER
<b>15</b>	LOCK NUT



## 5.0 To Separate Actuator from Valve Body.

### Before starting disassembly.

- Use Bu-pass Valve pr completely shut off the process to isolate the valve from pressure. Drain fluid from both ends of the Valve.
- If the Valve Opens with Pneumatic signal pressure to Actuator, remove air from the Actuator before attempting to remove Valve from line.
- While dismantling the valve, if any port is stuck up, do not use any pressure or force Technique. Use proven methods only.
- Unscrew the Bracket Bolts from valve assembly.
- Unscrew & remove the Mounting Bracket and actuator along with Accessories.
- Remove the Pinion Shaft from Valve Shaft





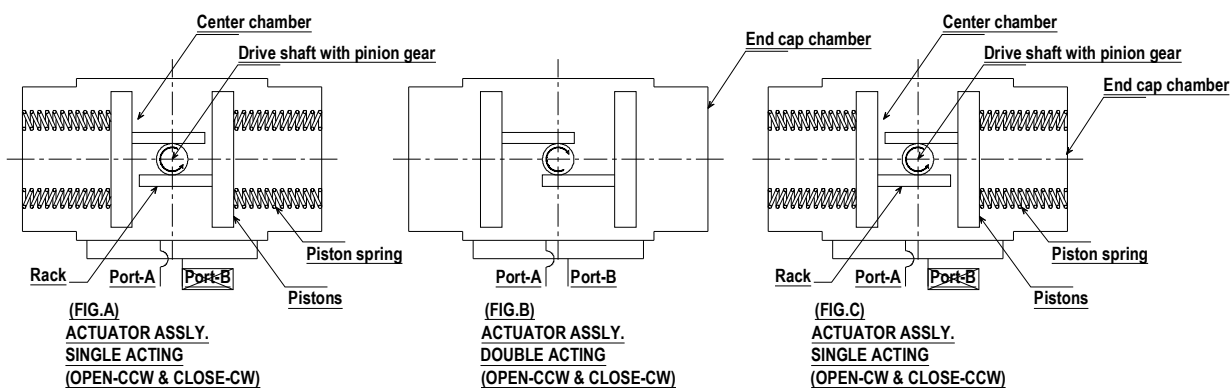
## 6.0 Actuator Operation

The Actuator Drive Shaft rotates through a full 90°. Rotation is accomplished by feeding supply air into the center chamber (through Port A) forcing the two opposing Piston outward, remaining in counter-clockwise rotation of the Drive Shaft to the 'Open' position. (Refer Fig. A)

For closure is accomplished by means of Springs contained in the end cap chambers, which force the Piston inward when the supply air to the center chamber (Port A) is allowed to exhaust. (Refer Fig. A)

For double-acting Actuators, Rotation is accomplished by feeding supply air into the center chamber ( through Port A ) forcing the two opposing pistons outward, resulting in counter-clockwise rotation of the Dive Shaft to the 'Open' position, for closure is obtained by feeding supply air into the end cap chambers (through Port B) which forces the Piston inward, resulting in clock-wise rotation of the Drive Shaft. (refer Fig.B.)

To reverse the stroke direction of the Actuator, remove both Piston, rotate them by 180° and re-install. This will reverse the direction of rotation of the output shaft. (refer Fig. C)





## 7.0 Manual Operation

In the event of air failure, the Actuator can be cycled manually, This is accomplished by applying a wrench to the exposed tap shaft of the Actuator and turning it in the desired direction. This is not recommended on Model PD500/PE280 and larger size of Actuators. For these, Dembla Valves Limited offers optional Manual Over-ride Gear units, with declutch able hand wheels. (Not Shown).

**CARE MUST BE TAKEN TO ENSURE THAT THE ACTUATOR IS NOT OPERATED AUTOMATICALLY THROUGH AIR SUPPLY WHILE MANUAL OPERATION IS BEING PERFORMED!**

## 8.0 Torque for Studs

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

## 9.0 Recommended Spares

Is is recommended to stock the following spares parts for commissioning and routine service.

SR. NO.	PART NAME	RECOMMENDED QUANTITY
1	Seat Ring	One Set for every valve
2	Gasket Body to	One set of 'O' Ring for every five valve
3	Side Connection	One set of 'O' Ring for every five valve
4	Gland Packing	One set of gasket for every five valve



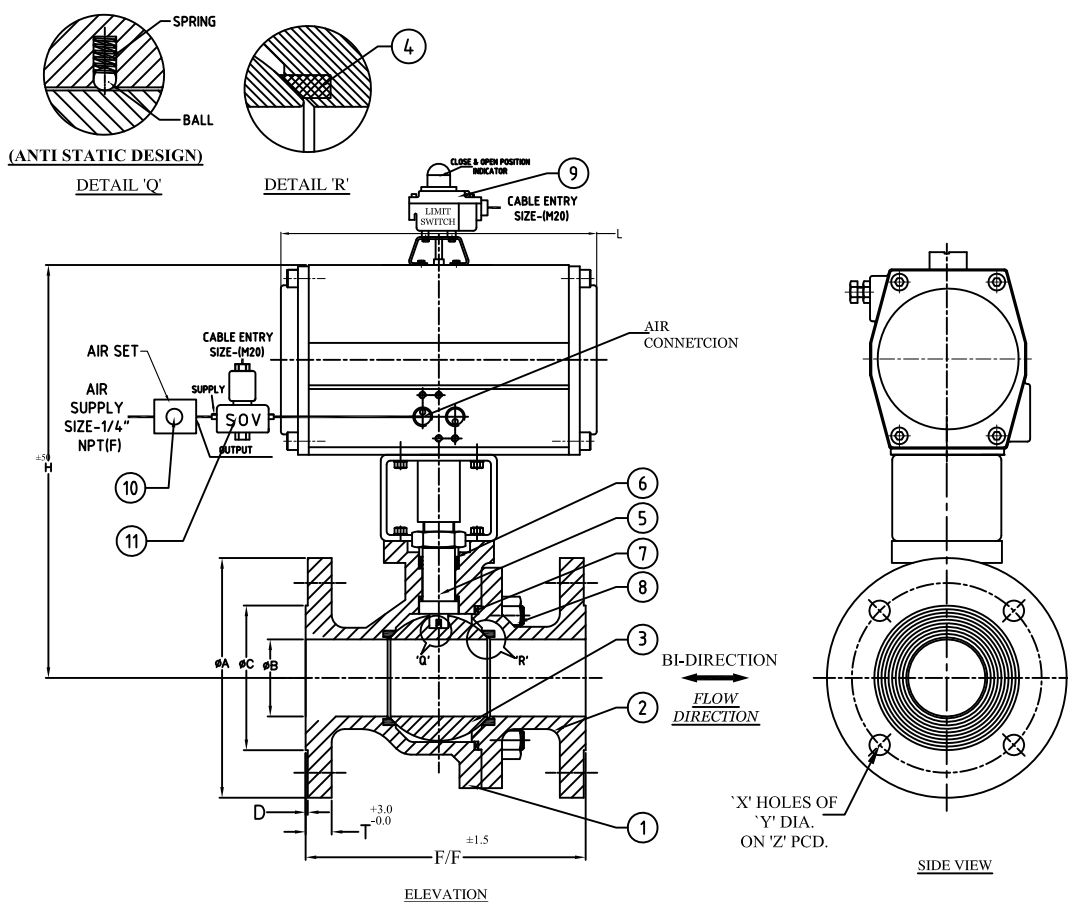
### Note

**Note :** While ordering spares, please do not miss to indicate 'Valve Serial No.' Appearing on nameplate fixed on the actuator Valve Serial No. also appears on the Valve Body dully punched. The Valve serial No. beings with prefix V, eg V-12345.....





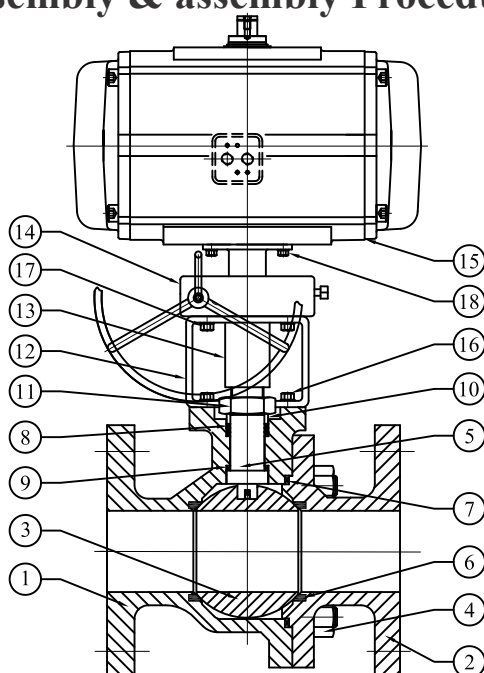
## 10.0 Parts Illustrated (Floating Ball Valve With Rotary Actuator)



SR. NO.	PART NAME	RECOMMENDED QUANTITY
1	Seat Ring	One Set for every valve
2	Gasket Body to	One set of 'O' Ring for every five valve
3	Side Connection	One set of 'O' Ring for every five valve
4	Gland Packing	One set of gasket for every five valve



## 11.00 Disassembly & assembly Procedure of Floating Ball Valve



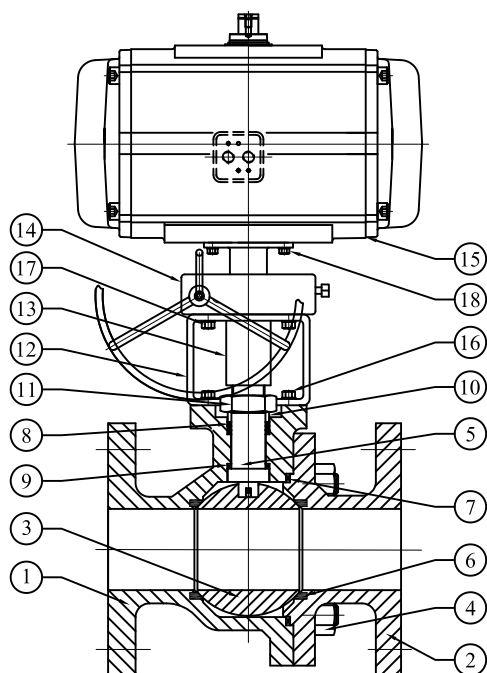
SR. NO.	PART NAME
1	BODY
2	SIDE CONNECTION
3	BALL
4	BODY NUT
5	VALVE SHAFT
6	SOFT SEAT
7	GASKET
8	GLAND PACKING
9	THRUST WASHER
10	GLAND BUSH
11	LOCK NUT
12	BRACKET
13	PINION SHAFT
14	MOR
15	ACTUATOR
16	HEX BOLT (BODY-BRACKET)
17	HEX BOLT (MOR-BRACKET)
18	HEX BOLT (ACTUATOR-MOR)

### Disassembly of Floating Ball Valve:

1. Loosen and remove the Hex Bolts (Actuator-MOR) ⑬.
2. Pull and remove the Actuator ⑮ from top side.
3. Loosen and remove the Hex Bolts (MOR-Bracket) ⑰.
4. Remove MOR ⑭.
5. Remove Pinion Shaft ⑬.
6. Loosen and remove the Hex Bolts (Body-Bracket) ⑯.
7. Remove the Bracket ⑫.
8. Loosen and remove Lock Nut ⑪.
9. Remove Gland Bush ⑩.
10. Remove Gland Packing ⑧.
11. Loosen and remove Body Nut ④.
12. Remove Side connection ② along with Soft Seat ⑥ and Gasket ⑦.
13. Slide the Ball ③ outward and remove it.
14. Remove Valve Shaft ⑤ from inside of Body ①.
15. Remove Thrust Washer ⑨.
16. Clean all parts and keep in clean and dry space.
17. Remove Soft Seat ⑥ from both Side Connection ② if required.



## 11.00 Disassembly & assembly Procedure of Floating Ball Valve



SR. NO.	PART NAME
1	BODY
2	SIDE CONNECTION
3	BALL
4	BODY NUT
5	VALVE SHAFT
6	SOFT SEAT
7	GASKET
8	GLAND PACKING
9	THRUST WASHER
10	GLAND BUSH
11	LOCK NUT
12	BRACKET
13	PINION SHAFT
14	MOR
15	ACTUATOR
16	HEX BOLT (BODY-BRACKET)
17	HEX BOLT (MOR-BRACKET)
18	HEX BOLT (ACTUATOR-MOR)

### Assembly of Floating Ball Valve:

1. Insert Soft seat **6** in both Body **1** and Side connection **2** if removed.
2. Put the Thrust washer **9** on the collar of Valve Shaft **5**.
3. Insert Valve Shaft **5** in Body **1** along with Thrust Washer **9**.
4. Insert Ball **3** in Body **1** and match across flat of ball slot with Valve Shaft's **5** across flat.
5. Insert Gasket **7** in Body **1**.
6. Install Side connection **2** on Body **1**.
7. Insert and tighten Body Nut **4**.
8. Insert Gland Packing **8** on the top of Body **1**.
9. Insert and tighten Lock Nut **11** on Valve Shaft **5**.
10. Keep the Bracket **12** on Body **1**.
11. Insert and tighten Hex Bolts (Body-Bracket) **16**.
12. Keep Pinion Shaft **13** on Valve Shaft **5**.
13. Keep MOR **14** on Bracket **12** by inserting Pinion Shaft **13** in MOR. **14**.
14. Insert and tighten Hex Bolts (MOR-Bracket) **17**.
15. Keep Actuator **15** on MOR **14**.
16. Insert and tighten Hex Bolts (Actuator-MOR) **18**.



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