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MWST-Nr. 176 286



Installation and operating instructions for PM-solid ball valve C7Z

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1. Safety instructions



Intended use of the PM-solid ball valve

The PM-solid ball valve may only be used to shut-off or control a flow rate of a medium. Gases, liquids and solids can be conducted as matter either in powder or in granular form.

The medium pressure and temperatures must be observed as per the diagram. In the case of corrosive media, attention must be paid to the corrosion resistance of the materials used in the PM-solid ball valve.

2. Storage and handling



2.1. The PM-solid ball valve should be stored with the ball position fully open (as delivered) in order to avoid any damage to the ball surface and to avoid any uneven loads from the seating ring.

2.2. Only remove the protective caps upon installation so that dirt cannot penetrate inside the valve.



2.3. Risk of injury

Neither an object nor any part of the body (e.g. finger, hand) may be placed inside the valve hole while the ball valve is activated (manually or with an actuator).

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3. Installation and assembly requirements

- 3.1. All work on the PM-solid ball valve may only be carried out by trained specialist personnel.
- 3.2. The PM-solid ball valve closes in a clockwise direction.
-  3.3. In order to assemble the actuator, the PM-solid ball valve must be in an open position and the actuator counter-clockwise up to the stop so that the closing movement of the solid ball valve is clockwise after reassembling the actuator.
- 3.4. Adjust the stroke limiting screws on the actuator so that the open position is accurate, and it can be secured with nuts.
- 3.5. It is imperative to fasten the flange mounting bolts in several sections inside the device with a criss-cross pattern during the installation process.
- 3.6. Do not move the fittings once they have been installed, but thoroughly rinse the pipes instead. Then perform the switching movement in order to check that it functions correctly.
-  3.7. The torque required for operating the PM-solid ball valve, and the maximum permitted torques for the actuators and for the manual operation are available from either Peter Meyer & Co or from Avintos AG.
- 3.8. A flow direction is not compulsory. The side of the seating ring is provided on the housing with a circular arc.
-  3.9. The direction of pressure P1 or P2 can be selected optionally for the ideal process. From DN150, the permitted pressure P1 and P2 is marked on the housing, is labelled with directional arrows, and must not be exceeded.

4. Installation in hazardous areas

- 4.1. The PM-solid ball valve does not include any active sources of ignition.
- 4.2. In order to avoid any electrostatic charge from the PM-solid ball valve, this must be connected electrically to other components (earth).

5. Operation

-  5.1. The specified nominal pressure (PN) should not be exceeded. Any prospective visible temperature limits must be observed.

Failing to comply with this requirement will result in an exponential decrease in the service life of the seating ring, the depository, and the packing gland.
The permitted operating pressure and the permitted operating temperature for the housing are governed by EN 1092-1:2001 (D) standards.
- 5.2. An abrasive medium reduces the service life of the seating ring and of the ball.
This also applies to metallic coated balls and seatings albeit on a much smaller scale.

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6. Cleaning

- 6.1. Apply some detergent under pressure through the pipe once installed, and switch the ball on and off at the same time.

7. Repairs/maintenance

-  7.1. It is imperative that our repair instructions are followed when carrying out repair work.
- 7.2. Completely drain the pipe and the valve before dismantling the valve (perform switching movements).
-  7.3. Only original spare parts should be used during repair or maintenance work.
-  7.4. **All work on the PM-solid ball valve may only be carried out by trained specialist personnel.**


8. Instructions for assembling the actuator or manual transmission on the PM-solid ball valve C7Z

-  • **All work on the PM-solid ball valve may only be carried out by trained specialist personnel.**

8.1. **Assembling the actuator**

For assembly, the actuator must be rotated clockwise into an open position on the stop with a maximum control air of 5 bars. The PM-solid ball valve must also be in an open position. The actuator can now be attached on the valve by using the assembly kit.

The ON position should mirror that of the fitting as closely as possible.

 **In order to assemble the actuator, the PM-solid ball valve must be in an open position and the actuator counter-clockwise up to the stop so that the closing movement of the solid ball valve is clockwise after reassembling the actuator.**

8.2. **Dismantling the actuator**

For dismantling, the actuator must be rotated clockwise into an open position with a maximum control air of 5 bars. Only then may the mounting screws for the valve be loosened.

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8.3. Assembling the manual gear on the PM-solid ball valve

- 8.3.1. Manual gear settings on the type C7Z.
- 8.3.2. The PM-solid ball valve must be open when in position, and the gear must be set anticlockwise to stop when assembling the manual gear, so that the PM-solid ball valve closes when moved in a clockwise direction after the gear has been assembled.
- 8.3.3. Close the PM solid ball valve, and adjust and fix the stop screw (close) inside the gear.
- 8.3.4. The stop screw (open) is then adjusted and fixed so that the ball is set accurately in an open position.

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9. Repair instructions for the PM-solid ball valve Type C7Z



- **All work on the PM-solid ball valve may only be carried out by trained specialist personnel.**



- **Appropriate protective equipment must be worn during repair work, and any tools being used must be in a perfect condition.**



- **It is imperative that our repair instructions are followed when carrying out repair work.**

Dismantling the PM-solid ball valve



- 9.1. Important: Firstly, dismantle the actuator as described in chapter 3. The ball and actuator must also be in an open position.
- 9.2. Remove the socket screws (Pos. 3.1) and take off the body insert flange (Pos. 3). Remove the insert ring (Pos. 10) with the seating ring.
- 9.3. Push the seat ring spring (Pos. 13) and the seat ring (Pos. 14) out of the insertion ring.
- 9.4. Unscrew the gland cover (Pos. 8).
- 9.5. When the ball is shut, tap the ball (Pos. 1) from the bottom using a plastic hammer so that the drive shaft (Pos. 5) is pushed upwards.
- 9.6. Loosen and pull the counter bearing bolts out (Pos. 15), and carefully remove the seal (Pos. 15.1).
- 9.7. Pull the ball (Pos. 1) out of the 2nd level of the drive shaft (Pos. 5). Rotate the actuator shaft (Pos. 90° and tap the ball (Pos. 1) further out of the gland (Pos. 2.1).
- 9.7. Take the ball (Pos. 1) out of the body (Pos. 2).
- 9.8. Push the gland packing (Pos. 7/7.1), the bearing ring (Pos. 7.2), the pressure ring (Pos. 6), the plate springs (Pos. 18) towards the top by using the drive shaft (Pos. 5) and then slide the drive shaft (Pos. 5) down into the valve housing, and pull it out of the spindle.
- 9.9. Remove the O-ring (Pos. 7.3) from the body (item. 2).
- 9.10. Remove the O-ring (Pos. 19) and the counter bearing bushing (Pos. 17) from the ball (Pos. 1).
- 9.11. Remove the body seal (Pos. 3.2) carefully using a blade.
- 9.12. Clean all of the parts and sparkle if required (only with glass)
Be careful not to cause any damage to metallic sealing edges



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Assembling the PM-solid ball valve

- 9.13. Slot the counter bearing bushing (Pos. 17) inside the ball (Pos. 1).
- 9.14. Insert the drive shaft (Pos. 5) from the inside into the housing and slide it right towards the top.
- 9.15. Place the ball (Pos. 1) inside the body (Pos. 2).
- 9.16. Move the drive shaft (Pos. 5) downwards into the ball (Pos. 1).
- 9.17. Screw in and fasten the counter bearing bolts (Pos. 15).
- 9.18. Slide the bearing ring (Pos. 7.2), the packing rings (7.1, 7), and the pressure ring (Pos. 6) over the drive shaft (Pos. 5) in this sequence, and then into the gland (Pos. 2.1) and push them downwards.
- 9.19. Place the plate springs (Pos. 18) with the gland cover (Pos. 8) over the drive shaft (Pos. 5) and tighten them.
- 9.20. Close the ball (Pos. 1).
- 9.19. Measure the centring of the ball (Pos. 1) relative to the body (Pos. 2) inside the axis of the drive shaft (Pos. 5).
- 9.20. Disassemble the ball (Pos. 1) as described in Sections 9.4 to 9.7.
- 9.21. Turn off the counter bearing bushings (Pos. 17) in order to acquire the centring of the ball segments.
- 9.22. Insert the O-ring (Pos. 19) inside the ball (Pos. 1) and the O-ring (Pos. 7.3) inside the gland (Pos. 2.1).
- 9.23. Place the seal (Pos. 19) on the counter bearing bolts (Pos. 15).
- 9.24. Re-assemble everything as specified in sections 9.13 to 9.19.
- 9.25. Open the ball (Pos. 1) fully.
- 9.26. Lubricate and insert the O-ring (Pos. 3.3) and (Pos. 10.1).
- 9.27. Slide the seating ring (Pos. 14) carefully into the insert ring (Pos. 10) from left to right using a twisting motion.
- 9.28. Position the insert ring (Pos. 10) inside the body (Pos. 2) along with the assembled seat ring (Pos. 14) and the lubricated seat ring spring (Pos. 13).
- 9.29. Insert the body seal (Pos. 3.2) inside the body (Pos. 2).
- 9.30. Install the body insert flange (Pos. 3) and fasten all of the screws (Pos. 3.1) in a criss-cross pattern.
- 9.31. Check the PM-solid ball valve with the installed actuator for density (the fittings must close in a clockwise direction).

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Part List:

- 1.00 Ball (Z) coated
- 2.00 Body 1.4404
- 2.10 Gland 1.4404
- 2.20 Counterbearing 1.4404
- 3.00 Body insert flange 1.4404
- 3.10 Socket screws A2
- 3.20 Body gasket graphite
- 3.30 O-ring VITON
- 5.00 Drive shaft 1.4418
- 6.00 Pressure ring PEEK PVX
- 7.00 Packing ring graphite
- 7.10 Packing ring PTFE
- 7.20 Bearing ring PEEK
- 7.30 O-ring VITON
- 8.00 Gland cover 1.4305
- 10.00 Insert ring 1.4404
- 10.10 O-ring VITON
- 13.00 Seat ring spring 1.4568
- 14.00 Seat ring coated
- 15.00 Counterbearing bolts 1.4404
- 15.10 Counterbearing seal graphite
- 17.00 Counterbearing bushing PEEK
- 18.00 Plate spring 1.4310
- 19.00 O-ring VITON

