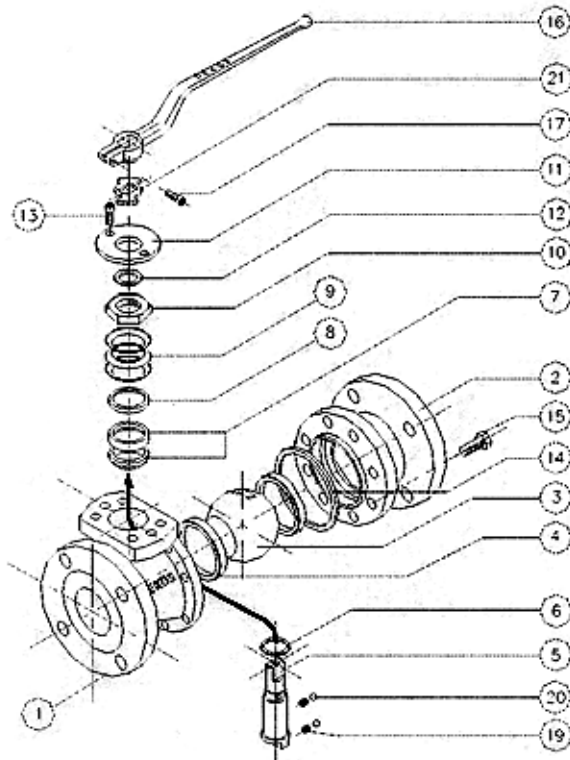
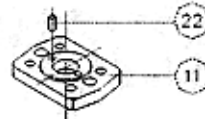


For Storage, Installation, Operation and Maintenance of Pekos Ball Valves PN 10 - PN 40, DIN 15 - DIN 300



Valves
DN 15 up to DN 32



Guided ball valves
DN150-200 (PN25-40)
DN250-300 (PN10-40)

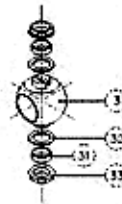


Table 1

Pos.	Quant.	Description
1	1	Body
2	1	Body adapter
•• 3	1	Ball
• 4	2	Seat
•• 5	1	Stem
• 6	1	Stem washer
• 7	1	Packing ring
8	1	Gland packing
• 9	3	Spring washer
•• 10	1	Stem nut
11	1	Cover
12	1	Cover ring
13	2	Cover bolt
• 14	1	Body seal
15	-	Body bolt
16	1	Handle
17	1	Handle bolt
•• 19	2	Spring
•• 20	2	Ball
21	1	Stop washer
22	2	Stop pin
• 31	2	Bearing
• 32	2	Bearing disk
33	2	Support bearing

- Start-up: 5% of ordered quantity
- Suggested materials after 2 years service
- Suggested materials after 5 years service

Table 2

Tightness values in Nm (bolt Nr 15)

DN	Bolt	Material		
		8.8	A2-70	A4-70
15 - 40	M 8	20	25	30
50 - 65	M 10	45	50	50
80 - 125	M 12	50	70	70
150 - 200	M 16	140	200	180
250 - 300	M 20	-	-	250

1. SCOPE

This manual is intended as a guide to assist customers or end-users in the correct storage, installation and maintenance of PEKOS ball valves.

2. APPLICABILITY

This manual is applicable to PEKOS two way Full Bore ball valves according to DIN type.

3 STORAGE

3.1 Supplying conditions

Cast iron and carbon steel ball valves are supplied with a phosphated treatment to protect against corrosion. Stainless steel ball valves are supplied with a passivated treatment to ensure body is protected against the adhesion of ferritic particles.

3.2 Maintenance during the storage

- a. Stainless steel and carbon steel valves should be stored separately, to protect the stainless steel against corrosion.
- b. Valves must remain in open position with plastic end covers fitted.
- c. If possible it would be advisable to leave the ball valves in their own packing cases.
- d. Valves to be stored for a long time shall be checked by the quality control personnel every 6 months.

3.3 Environment conditions

- a. Valves shall be stored in dry conditions. Other corrosive environment conditions must be also avoided.
- b. Valves must be protected against ambient dust.

4 INSTALLATION

- a. Verify that valves have not been damaged during transit. Inspect inside of the valves and the pipeline of the installation to be able to verify there are no strange particles.
- b. It is advisable to use protective filters during the installation and check-in period while the possibility of dirt or even oxidation of the pipes exists. They have to be used until pipes are absolutely free of particles in suspension.
- c. If possible, valve shall be mounted in such way to allow periodic inspections.
- d. Valves are bidirectional, so fluid can run in both directions.
- e. Valves can be mounted in any position but it is advisable to mount the valves with the stem in vertical position.
- f. It is necessary to obtain correct alignment and parallelism to avoid any kind of stress.
- g. Once the installation is completed, valve must be operated for at least one opening and closing action to ensure perfect operation.
- h. After cleaning, protective filters could be removed.
- i. Protective filters should remain installed on dirty applications.

5. MAINTENANCE

5.1 Valves revision

If correctly used PEKOS ball valves require no lubrication and stem packing requires no adjustment.

Seats (4), packing ring (7), body seals (14), ball (3) and stem (5) can be replaced using standard tools and basic fitting techniques.

Recommended spare parts are shown at the bottom of table 1 on page 1.

Prior to carrying out work on valves the pipeline must be completely evacuated, including the ball valve body cavity by half opening valve to allow any pressure build up to escape.

Care must be taken to avoid contact with dangerous or toxic chemical products. The valves must be thoroughly cleaned, in particular the body cavity, before handling and dismantling.

5.2 Stem leakage

The stem packing system in PEKOS DIN ball valves is designed for long life with spring loaded stainless steel washers compensating for seal wear. There is no way to avoid leakage tightening the stem nut (10), because it has already been tightened to maximum. If leakage happens then stem packing should be replaced as it is shown:

- a. *Stop washer (21) and handle (16)* can be removed by loosening *bolt (17)*.
- b. Remove *cover (11)* and *cover ring (12)* by loosening *cover bolts (13)*.
- c. Undo *stem nut (10)* by using suitable wrench.
- d. Remove *spring washers (9)*, *gland packing (8)* and *packing ring (7)* and replace.
- e. Assemble the pieces accordingly as it is indicated in point 6.

5.3 Body leakage

PEKOS DIN ball valves are split body; body fasteners should be checked for tightness if leakage occurs and if necessary body gaskets should be replaced as it is shown:

- a. Make alignment marks on *body (1)* and *adapter (2)* flanges prior to separating to ensure correct reassembly. Remove *body bolts (15)* and disassemble *adapter (2)*.
- b. Substitute *body seal (14)*.
- c. Assemble the pieces accordingly as it is indicated in point 6.

5.4 Seat leakage

In case of *seats (4)* leakage, it should be advisable to replace them as it is shown :

- a. Maintain the valve in the closed position, split the valve body (see 5.3) in order to inspect *seats (4)* and *ball (3)*. Remove *ball (3)*, if necessary tap out with soft wooden tool.
- b. Inspect all components for corrosion and erosion damage replacing as required and if necessary replace body bolts.
- c. Assemble the pieces accordingly as it is indicated in point 6.

6. RE-ASSEMBLY

- a. Prior to re assembly all components and body cavity should be cleaned of any incrustation, dirt, rust etc.
- b. Replace *seats (4)* into their housing in *body (1)* and *body adapter (2)*. Ensure that they are fitted squarely and carefully pushed completely into their recesses.
- c. Put the *stem washer (6)* onto the *stem (5)*. Check the antistatic devices (pos. 19, 20).
- d. Assemble the *stem (5)* into the valve from inside to outside, as it is indicated by the arrow in the main figure.
- e. Mount the following spare parts on the stem: *packing ring (7)*, *gland packing (8)*, *spring washer (9)*, *stem nut (10)*. Hold the stem nut (10) end to maintain the stem in the closed position.
- f. In guided ball valves place the *bearing (31)* into their *support bearing (33)*. Place the *bearing disk (32)* and the *support bearing (33)* on the trunnion of the *ball (3)*.
- g. Carefully, put the *ball (3)* into the *body (1)* aligning the ball groove with the stem.
- h. Place the *body seal (14)* into its housing in the *body (1)*.
- i. Maintain the valve in its closed position and present *body adapter (2)* to *body (1)* ensuring that alignment marks are matched. Assemble *body bolts (15)* and evenly tighten in diagonal using a torque wrench and the values indicated in table 2 of page 1.
- j. Place the *cover ring (12)* on the *cover (11)* and place both on the *stem (5)*, replace the *cover bolts (13)* and tighten them.
- k. Put the *stop washer (21)* on the *stem (5)*. In case the valve should be mounted with an actuator, the *stop washer (21)* should not be assembled.
- l. Assemble *handle (16)* onto *stem (5)* and tighten *bolt (17)*.
- m. Carefully cycle the valve once to ensure bedding in of seats and ball.
- n. Valve operation should be checked. Stem should rotate smoothly offering resistance as indicated by the manufacturers torque figures. Tests should be carried out according to DIN normative of the P.N. corresponding to the valve before reinstallation.