

# assembly and operating instruction for ball valves

## 1 general information

- 1.1 The ball valve can be used for the interception of media flows. The valve consists of the following parts:
  1. body: This is the external part of the valve in which the shaped connections are machined for mounting the valve on the pipe.
  2. shutter (ball): This is the effective interception device of the valve. The tightness is obtained by means of the compression of two soft material seats against the ball.
  3. stem: This is the connection between the shutter (ball) and the actuation.
  4. actuation: This is the device for switching (OPEN / CLOSE) of the valve. Usually this is done by means of hand lever, manual gearbox or a actuator.

## 2 mounting

- 2.1 The protection caps must be removed before installation.
- 2.2 The ball valve should always be mounted in the open position.
- 2.3 The pipeline must be depressurized during assembly and should have ambient temperature.
- 2.4 The down- and up-stream pipe has to be connected with the valve without generating tensions during or after the assembly.
- 2.5 After installation, a thorough cleaning of the complete system with opened valves should be done. This will remove all residue that could damage the ball or seals.
- 2.6 Then check all connections for leaks.
- 2.7 For ball valves made of steel used in corrosive environments an external protective coating should be applied after the installation.

## 3 ball valves with thread connection

- 3.1 The assembly on the pipeline is made by means of the two threaded ends machined into the body of the valve.
- 3.2 The two threaded ends are manufactured according to international standards; also the fittings or the pipeline must comply to the same ones in order to fit properly with the valve.
- 3.3 To guarantee the tightness of the connection, appropriate seal materials may be used by putting them on the threads of the pipe. The entire sealing surface should be used.
- 3.4 No residues of sealing should enter between the seat and ball.
- 3.5 For mounting use only suitable tools.
- 3.6 Avoid excessive force, which could deform the body or cause damage and leaks.
- 3.7 Fixing tool to tighten only on the respective socket end, which is screwed in.

## 4 ball valves with flange connection

- 4.1 The assembly on the pipeline is made by means of the flanges on the body of the valve.
- 4.2 The two flanged ends are manufactured according to international standards and also the flanges to which they have to be fixed, must comply with the same ones.
- 4.3 The tightness between the flanges must be guaranteed by means of a gasket whose choice and assembly has to be made by the installer.
- 4.4 Before installation, the exact alignment and parallel alignment of the flange pairs must be examined (valve/pipe). Assemble only with perfectly aligned connection.
- 4.5 The screw and/or nut must be tightened in two steps.
  1. First lightly tightening all connections.
  2. Then tighten crosswise all screws and/or nuts.

## 5 ball valves with weld connection

- 5.1 The two butt weld connections are usually manufactured according to international standards, also the fittings or the pipeline must comply to the same ones in order to fit properly with the valve.
- 5.2 During welding, make sure that the middle part of the valve is not too hot, otherwise the seals will be damaged.
- 5.3 It is advisable first to spot-weld the valve, then for security reason, where possible, dismount the middle part of the valve.
- 5.4 Assemble a spacer between the end connection corresponding to the length of the middle part.
- 5.5 For the reliable sealing the weld around the entire has to be applied uniformly.

## 6 operation

- 6.1 All wetted materials must be suitable / resistant for the flowing medium.
- 6.2 Maximum operating pressure and operating temperature can be seen in the corresponding datasheets.
- 6.3 Operating pressure and media temperature must not exceed the maximum value given in the technical data sheets.
- 6.4 A compensation hole in the ball is required for application with changing media temperatures and fast-expanding medias. For some ball valve series this is standard. For some ball valve series this special version is available on request.
- 6.5 It is recommended to use the valve only in fully opened or closed position (Intermediate positions considerably reduce the life time).

## 7 maintenance

- 7.1 The valve has to be periodically checked to make sure of its proper operation.
- 7.2 Shorter testing intervals are recommended if the valve operates under extreme conditions.
- 7.3 For proper operation, it is recommended to actuate the valve at least twice a year (OPEN / CLOSED).

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