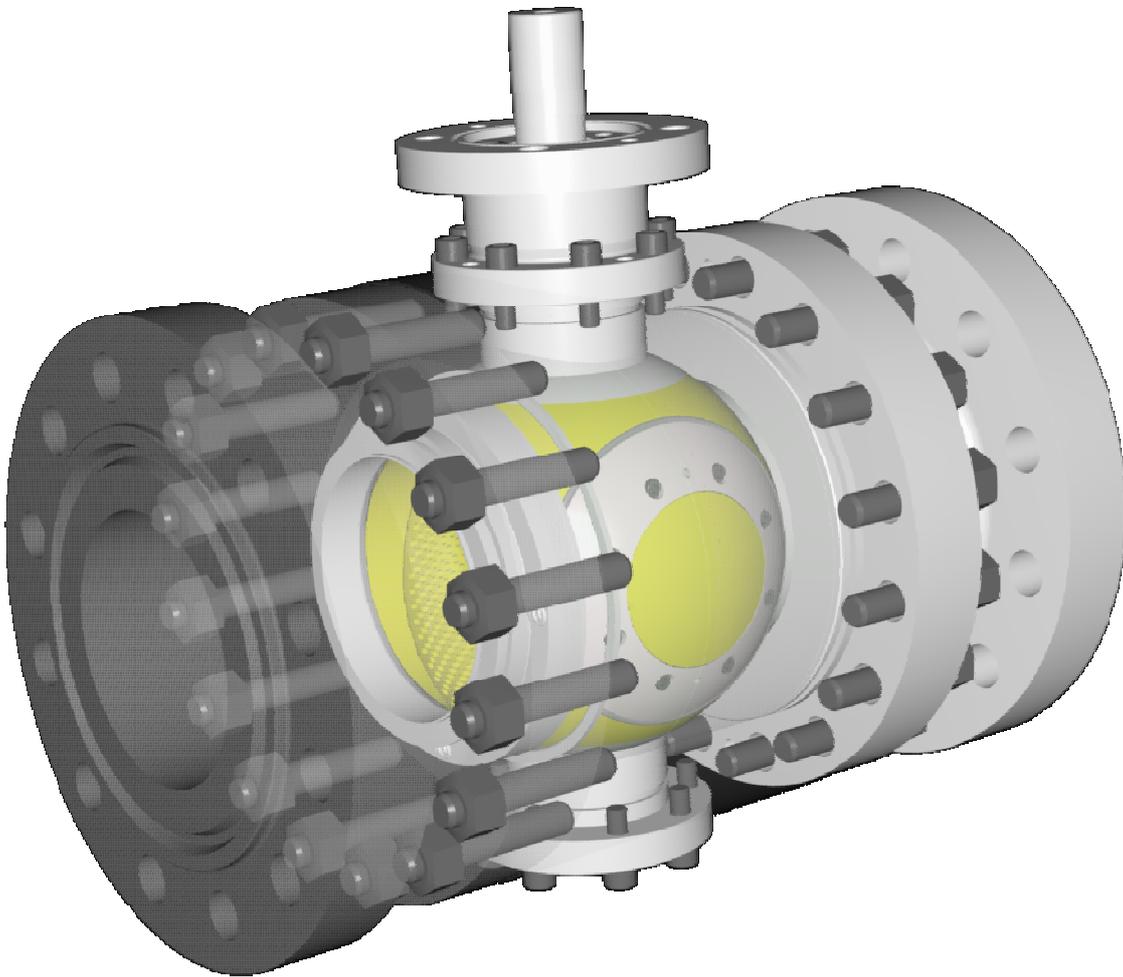




CONTROL VALVE DELTAFLUX



TECHNICAL MANUAL MT100

INSTALLATION, COMMISSIONING AND MAINTENANCE INSTRUCTIONS

MANUAL MT100

PRECAUTIONS

GENERAL PRECAUTIONS

- The apparatus described in this manual is a device subject to pressure installed in systems under pressure;
- the apparatus in question is normally installed in systems for transporting flammable gases (natural gas, for example).

PRECAUTIONS FOR THE OPERATORS

Before proceeding with installation, commissioning or maintenance, operators must:

- examine the safety provisions applicable to the installation in which they must work;
- obtain the authorisations necessary for working when so required;
- use the necessary means of individual protection (helmet, goggles, etc.);
- ensure that the area in which they operate is fitted with the means of collective protection envisaged and with the necessary safety indications.

HANDLING

The handling of the apparatus and of its components must only be carried out after ensuring that the lifting gear is adequate for the loads to lift (lifting capacity and functionality). The apparatus must be handled using the lifting points provided on the apparatus itself. Motorised means must only be used by the persons in charge of them.

INSTALLATION

If the installation of the apparatus requires the application of compression fittings in the field, these must be installed following the instructions of the manufacturer of the fittings themselves. The choice of the fitting must be compatible with the use specified for the apparatus and with the specifications of the system when envisaged.

COMMISSIONING

Commissioning must be carried out by adequately trained personnel.

During the commissioning activities, the personnel not strictly necessary must be ordered away and the no-go area must be properly signalled (signs, barriers, etc.).

Check that the features of the apparatus are those requested.

When commissioning, the risks associated with any discharges into the atmosphere of flammable or noxious gases must be assessed.

In installations in natural gas distribution networks, the risk of the formation of explosive mixtures (gas/air) inside the piping must be considered.

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MAIN FEATURES

Pietro Fiorentini provides complete control ball valve units to solve any customer problems and applications.

The need to transfer large volumetric flows with minimal pressure drop located over the control valve calls for a combination of high capacity and rangeability.

This combination is inherent in ball valve design.

Quarter-turn ball valve constructions have the highest possible Cv/size ratio.

This means smaller external valve dimensions, compact valve solutions, simple pipe configurations, light and easy installation.

The special trims design of DELTAFLUX provides high rangeability, excellent tightness and source treatment for noise and cavitation.

BLOW OUT PROOF STEM

The stem can be assembled only from the internal side of the valve. A stout collar keeps it inside the body. This solution lows to replace the outside gasket on he stern in case it is damaged.

METAL TO METAL SEAT

SPECIFIC TRIM FOR DIFFERENT APPLICATIONS

SUITABLE FOR GAS AND LIQUID APPLICATIONS

REPLACEABLE TRIM

NON CLOGGING, SELF CLEANING AND FLUSHING

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WIDE RANGE OF ACTUATOR TYPE

WIDE RANGE OF CONTROLLERS TYPE

CAVITATION AND VIBRATION FREE

TRUNNION MOUNTED BALL

GOOD TIGHTNESS WITH VALVE CLOSED

LOW PRESSURE DROP

HIGH RELIABILITY

CONSTRUCTION ACCORDING TO STANDARD ASTM -
ASME - NACE - API -ANSI

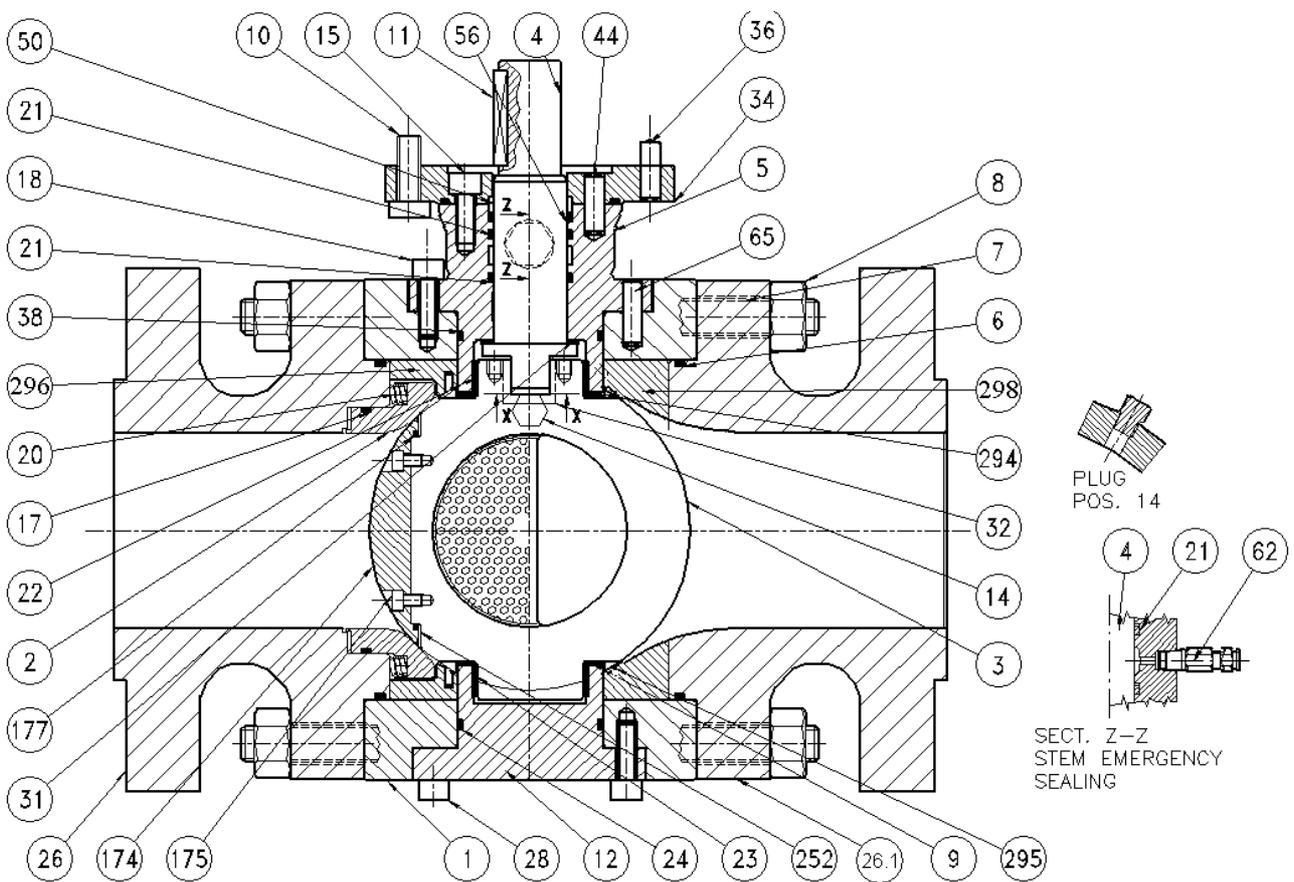
PRESSURE CLASSES: 150 - 300 - 400 - 600 - 900

VALVE SIZE: DN 2" TO 24"

FULL BORE AND REDUCED BORE

ENDS: RAISED FACES OR RING JOINT OR WELDING ENDS

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FLOW DIRECTION

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1	BODY
2	SEAT
3	BALL
4	STEM
5	BONNET UP
6	O-RING
7	STUD BOLT
8	NUT
9	THRUST BEARING
10	CAP SCREW
12	BONNET LOW
14	PLUG
15	CAP SCREW
17	O-RING
18	CAP SCREW
20	SPRING
21	O-RING
22	THRUST BEARING
23	THRUST BEARING
24	O-RING
26	INLET TAIL PIECE
26.1	OUTLET TAIL PIECE
28	CAP SCREW
31	THRUST BEARING
32	BALL THRUST BUSHING
34	ACTUATOR FLANGE
38	O-RING
44	PIN
50	CENTERING RING
62	GREASE NIPPLE
174	RETAINING RING
175	CAP SCREW
177	O-RING
244	DIRECTION FLOW PLATE
252	METAL GASKET
294	CALOTTE
295	ELASTIC RING
296	INLET HOLDER RING
298	OUTLET HOLDER RING

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1. VALVE INSTALLATION

- 1.1 Remove on the end connection the protection caps.
- 1.2 Inspect the valve bore for foreign parts and clean if necessary. Valve are shipped with ends sealed, but during the transit some foreign material may be introduced into the valve bore. The presence of foreign parts between the seat and the ball could damage the seat tightness facing.
- 1.3 Open and close the valve completely in order to check the right operability.
- 1.4 Before installation of the valve on the pipeline provide for cleaning it.
- 1.5 Install the valve on the line; respecting the valve flow direction.

THE VALVE IS NOT BI-DIRECTIONAL.

2. SUBSTITUTION OF THE ACTUATOR FLANGE O-RING (56)

This maintenance operation can be performed without removing the valve from the line.

- 2.1 Unscrew the screws (10) and remove the gear operator.
- 2.2 Unscrew the screws (15) remove the flange (34), the centering ring (50) and the O-ring (56).
- 2.3 Clean and lubricate the seat O-ring. Substitution of the O-ring (56), assembly the centering ring (50), the flange (34) and re-tightening the screws (15).
- 2.4 Assembly the gear operator and re-tightening the screws (10).

* Is suggested to sign the position of the gear operator before remove it and reassemble it on the same position. In case of actuator remember too regulate the limits stops. Eventually see the actuator documentation.

TECHNICAL MANUAL MT100**3. SUBSTITUTION OF THE SEAT O-RING (17), THE GASKET O-RING (177) AND THE INLET TAIL PIECE O-RING (6)**

- 3.1 Turn the valve to fully closed position and bleed off the pressure of the line (upstream and downstream).
- 3.2 Take off the valve from the line and place it over with inlet tail piece (26) on the top.
- 3.3 Loosen the nuts (8).
- 3.4 Remove the tail piece (26), now is possible remove the seat (2) with the springs (20), the O-Ring (6); clean and lubricate the seat pocket.
- 3.5 Clean and lubricate the O-Ring groove. Assembly the new O-Ring (6).
- 3.6 Remove O-ring (17), clean and lubricated the O-ring grove (17). Substitution O-ring (17).
- 3.7 Remove the holder ring (296);
- 3.8 Remove cap screw (175), the retaining ring (174), the O-Ring (177) and the gasket(252); clean and lubricate the O-Ring groove. Install new O-Ring (177) gasket(252) on the ball, the retaining ring (174) and the cap screw (175).
- 3.9 Insert the holder ring (296);
- 3.10 In order to make easier insertion of the seat (2) with the O-Rings (17) do as follows:
- assemble the springs (20) with the grease into the relevant sid,;
 - insert the seat (2) in to the tailpiece (26);
 - Insert the tail piece (26) into the stud bolts (7) in such way that the tail piece enters in the body (1).
- 3.9 At the same time gradually tighten the nuts (8).

* Cleaning can be carryout with a soft cloth in an oil solution.

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4. SUBSTITUTION OF THE OUTLET TAIL PIECE O-RING (6)

- 4.1 Move the valve in the closed position and release pressure from the pipeline.
- 4.2 Remove the valve from the pipe and place it on the workbench with the entrance of the valley (26.1).
- 4.3 Remove the screw (8).
- 4.4 Remove the tail piece (26.1), now is possible remove the O-ring (6); clean and lubricate the seat O-ring (6).
- 4.5 Substitution O-ring (6).
- 4.6 Assembly the tail piece (26.1) into stud bolt (7) in such way that the tail piece enters in the body (1).
- 4.7 At the same time gradually tighten the nuts (8).

* Cleaning can be carryout with a soft cloth in an oil solution.

5. SUBSTITUTION OF THE BALL THRUST BUSHING (32), THRUST BEARING (22), THRUST PLATE (9), STEAM O-RING (21) AND UPPER BONNET O-RING(38)

- 5.1 Turn the valve to fully closed position and bleed off the pressure of the line (upstream and downstream)
- 5.2 Take of the valve from the line and place it over with inlet tail piece (26) on the top.
- 5.3 Loosen the nuts (8)
- 5.4 Remove the tail piece (26) with the seat (2)
- 5.5 Remove the holder ring (296);
- 5.6 Support the ball (3) with a sling, using a suitable lifting system (i.e.jib crane).
- 5.7 Remove the screws (18) and remove the cover (5).
- 5.8 Remove the stem (4) from internal side of upper bonnet.
- 5.9 Remove the O-Rings (21) (38), clean and lubricate the seat with light oil, assemble the new O-Ring (21) (38)
- 5.10 Substitute the thrust bearing (9) (31) and the upper bearing (22).
- 5.11 Mount the upper bearing (22) on cover (5), the thrust bearing (31) on the stem (4), and the thrust bearing (9) on the hub of the sphere.

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- 5.12 After lubricated with a light film of grease, stick the stem (4) from the inside of the lid.
- 5.13 Remove the ball thrust bushing (32). Clean and lubricate the bushing groove, assembly the new bushing (32).
- 5.14 Place the stem (4) with the connecting planes to ball enters into relative planes of hub ball or in the thrust bushing (32) of the ball.
- 5.15 Assemble the upper bonnet (5) into the body and fix the screws (18).
- 5.16 Insert the holder ring (296);
- 5.17 Insert the tail piece (26) into the stud bolts (7) in such way that the tail piece enters in the body (1).
- 5.18 At the same time gradually tighten the nuts (8).
- 5.19 Check the seal tightness and operate the valve in order to verify the right functionality.

* Cleaning can be carryout with a soft cloth in an oil solution.

6. SUBSTITUTION OF THE LOWER CASING O-RING(24), THRUST BEARING (23) AND THRUST PLATE (9)

- 6.1 Turn the valve to fully closed position and bleed off the pressure of the line (upstream and downstream)
- 6.2 Take of the valve from the line and place it over with inlet tail piece (26) on the top.
- 6.3 Loosen the nuts (8)
- 6.4 Remove the tail piece (26) with the seat (2)
- 6.5 Remove the holder ring (296);
- 6.6 Support the ball (3) with a sling, using a suitable lifting system (i.e.jib crane).
- 6.7 Loosen the screws (28), remove the lower bonnet (12), the O-ring (24) and the lower bearing (23) and thrust bearing (9).
- 6.8 Clean and lubricate the O-Ring groove. Assembly the new O-Ring (24), the thrust plate (9), the lower bearing (22) and lubricate with grease.
- 6.9 Assemble the lower bonnet (12) into the body and fix the screws (28).
- 6.10 Insert the holder ring (296);

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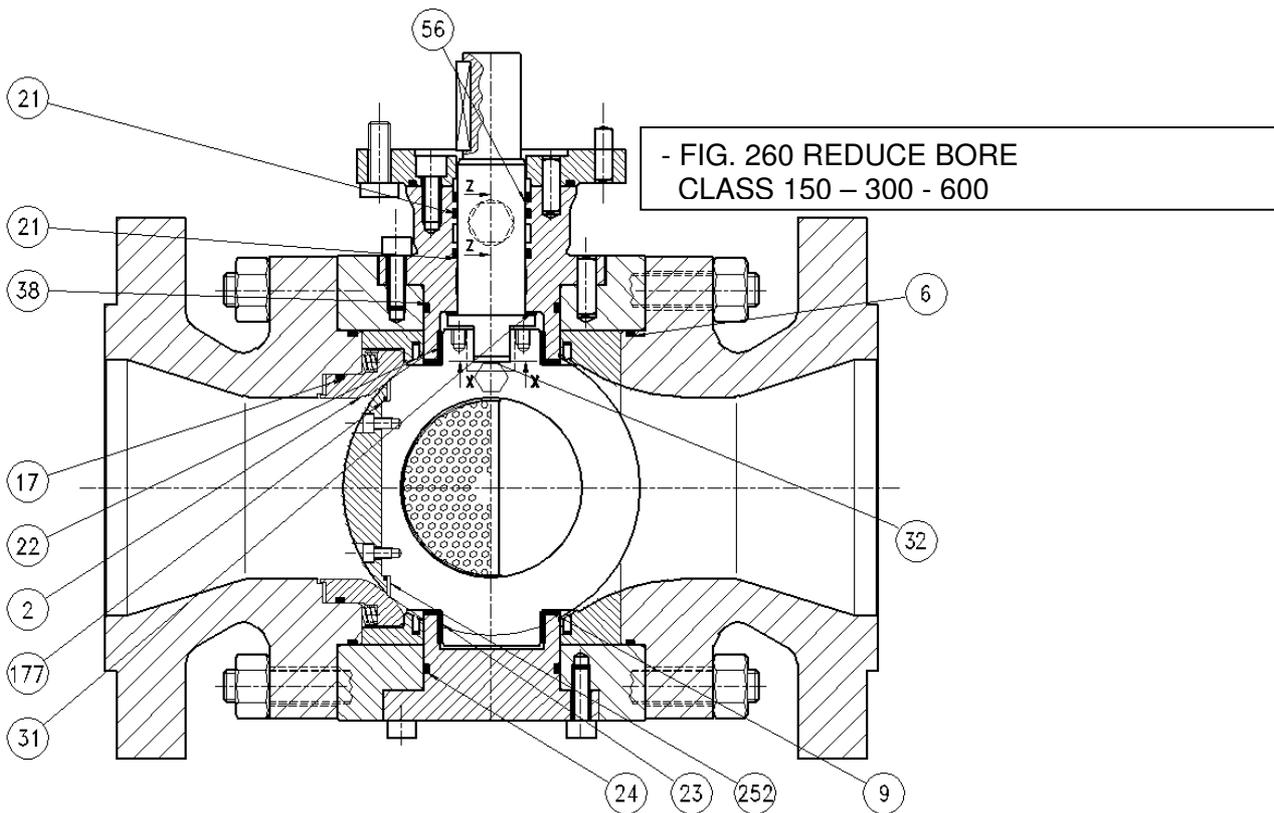
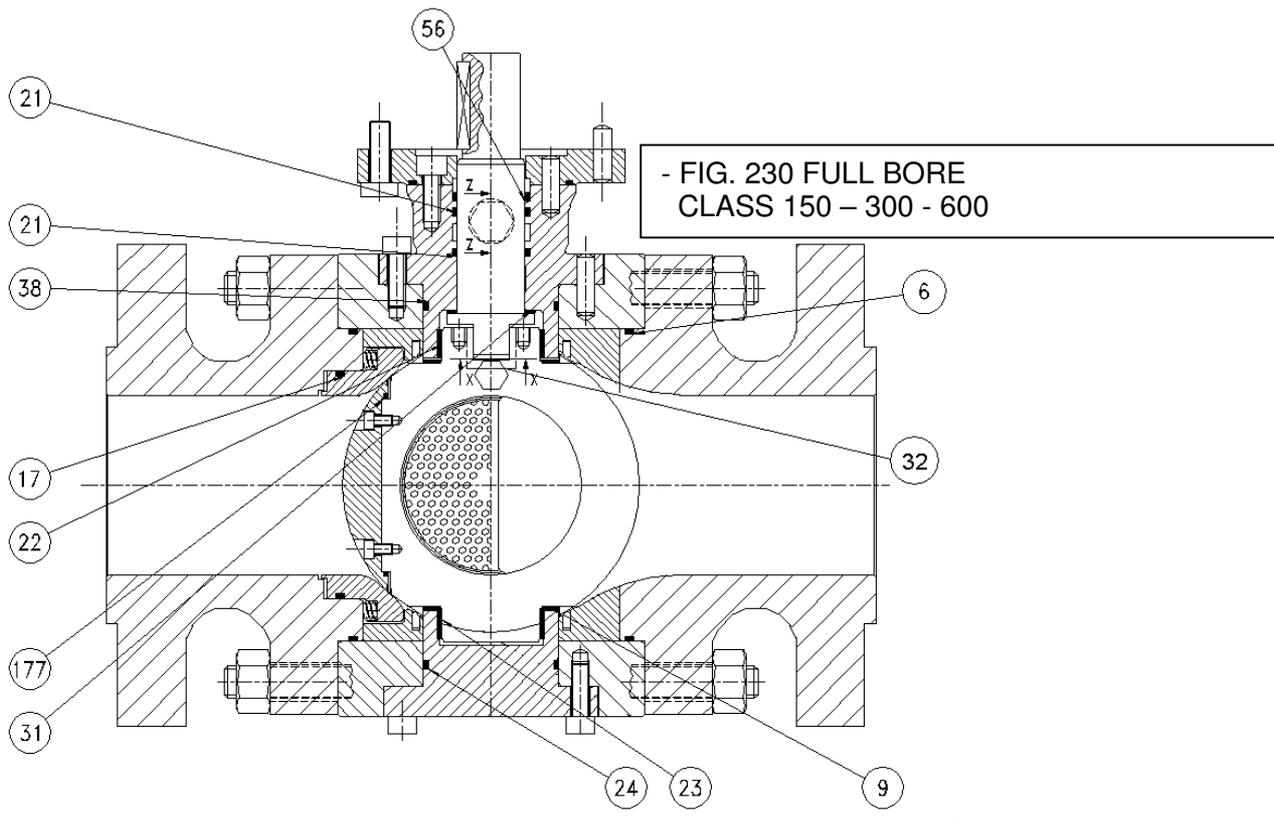
- 6.11 Insert the tail piece (26) into the stud bolts (7) in such way that the tail piece enters in the body (1).
- 6.12 At the same time gradually tighten the nuts (8).
- 6.13 Check the seal tightness and operate the valve in order to verify the right functionality.

7. LUBRICATION

For lubricate all the components of the valve during the assembly is suggested the use of TECNOLUBE SEAL POLYMER 1000 or similar equivalent see relative data sheet.

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8. RECOMMENDED SPARES



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ITEM	DESCRIPTION	PIECES NR.
6	O-Ring	2
9	Thrust bearing	2
17	O-Ring	1
21	O-Ring	2
22	Upper bearing	1
23	Lower bearing	1
24	O-Ring	1
31	Thrust bearing	1
38	O-Ring	1
56	O-Ring	1
177	O-Ring	1
32	Ball thrust bushing	2

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The data are not binding. We reserve the right to make modifications without prior notice.

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