

USERS MANUAL

Ball valve

zBAL

Fig.565

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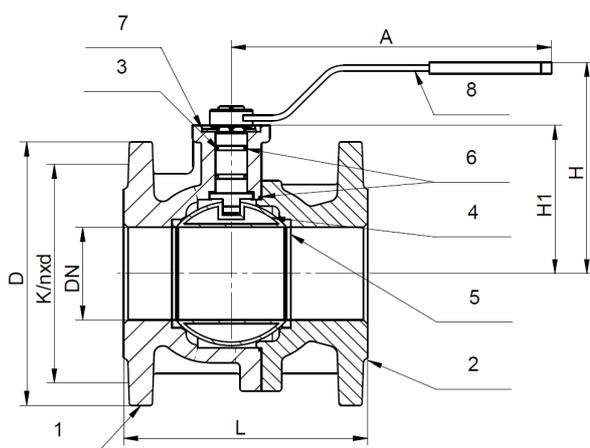
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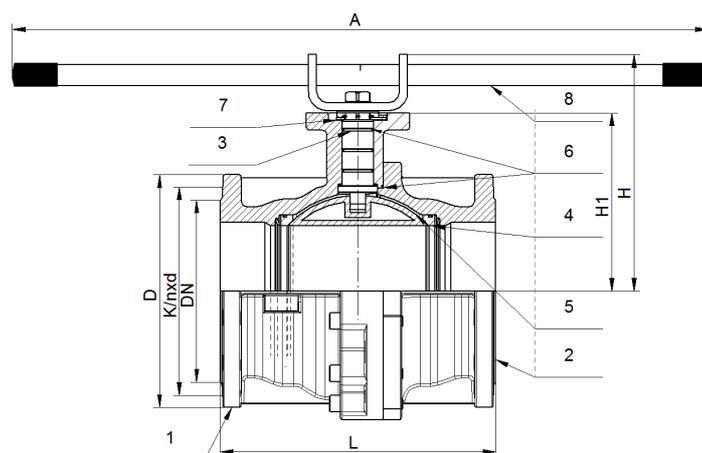
1. PRODUCT DESCRIPTION

Ball valves are designed as stop valves.

DN15-150



DN200-250



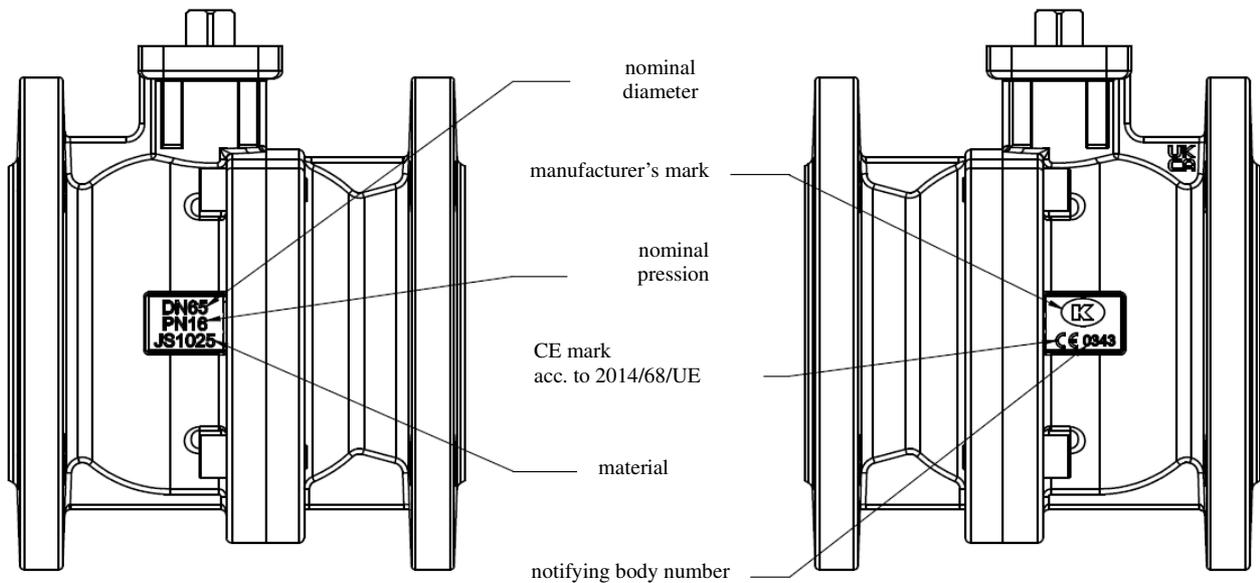
	Body material	A	C	I
	Type	09	09	09
1	Body	EN – GJL-250 5.1301 (ex. JI 1040)	EN – GJS-400– 18LT 5.3103 (ex. JS 1025)	X5CrNiMo17-12-2 1.4401
2	Ends	EN – GJL-250 5.1301 (ex. JI 1040)	EN – GJS-400– 18LT 5.3103 (ex. JS 1025)	X5CrNiMo17-12-2 1.4401
3	Stem	X20Cr13 1.4021		X5CrNiMo17-12-2 1.4401
4	Ball	X5CrNi18-10 1.4301		X5CrNiMo17-12-2 1.4401
5	Ball seat	PTFE		PTFE
6	O-ring	EPDM*		FKM
7	Opening limiter	Steel		Steel
8	Lever	Steel		Steel
Max. temperature		150°C**		150°C

* upon special request – FKM

** for FKM

Ball valves are provided with casted marking according to requirements of PN-EN19 standard. The marking facilitates technical identification and contains:

- diameter nominal DN (mm),
- pressure nominal PN (bar),
- body material marking,
- arrow indicating medium flow direction,
- manufacturer's mark,
- heat date,
- CE marking, for valves subjected 2014/68/UE directive. CE marking starts from DN32



2. REQUIREMENTS FOR MAINTENANCE STAFF

The staff assigned to assembly, operating and maintenance tasks should be qualified to carry out such jobs. If the valve is provided with mechanical actuators, operating manual of actuator should be obeyed.

3. TRANSPORT AND STORAGE

Transport and storage should be carried out at temperature from -20° to 65°C , and valves should be protected against external forces influence and destruction of painting layer as well. The aim of painting layer is to protect the valves against rust during transport and storage. Valves should be kept at unpolluted rooms and they should be also protected against influence of atmospheric conditions. There should be applied drying agent or heating at damp rooms in order to prevent condensate formation. The valves should be transported in such a way to avoid hand lever and valve stem damage.



It is not allowed to fit lifting devices to connecting holes.

4. FUNCTION

Ball valves are used to shut off medium flow and designed for two operation positions: entirely open or completely closed. Do not use ball valves as throttling valves.

5. APPLICATION

- installations of industrial cold and hot water

- steam
- compressed air installations
- glycol
- industrial oils
- neutral media depending on the materials - they can be either gases or liquids of group 1 and 2 according to Regulation EC No 1272/2008, resulting from the practice of application.
- industrial technologies, heating, refrigeration, air conditioning.

Working medium requires or prohibits the use of certain materials. The ball valves are designed for normal conditions of use. In the case that working conditions exceed these requirements, e.g. in the case of aggressive or abrasive factors, a user should make an inquiry to the manufacturer before ordering.

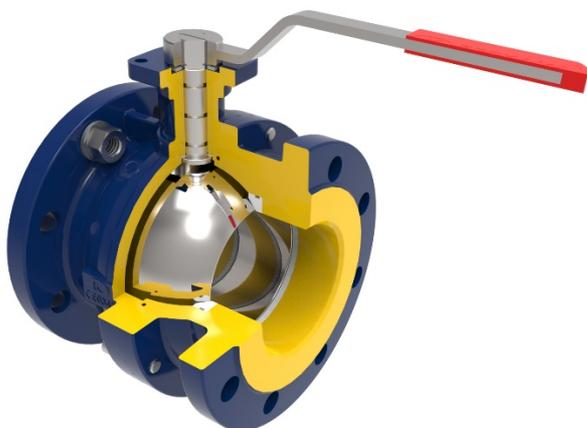
Working pressure should be adjusted to the maximum temperature of the medium, as shown in the tables below.

	PN		-10°C÷120°C	150°C
EN-GJL-250	10	bar	10	9,0
EN-GJL-250	16		16	14,4
EN-GJS-400-18LT	16		16	15,5
X5CrNiMo17-12-2	16		16	16,0

6. ASSEMBLY

During the assembly of ball valves following rules should be observed:

- to evaluate before an assembly if the valves were not damaged during the transport or storage,
- to make sure that applied valves are suitable for working conditions and medium used in the plant,
- to take off dust caps if the valves are provided with them,



- to protect the valves during welding jobs against splinters and used plastics against excessive temperature,



Pipeline where the valves are fitted should be conducted and assembled in such a way that the valve body is not subjected to bending moment and stretching forces.

Bolted joints on the pipeline must not cause additional stress resulted from excessive tightening, and fastener materials must comply with working conditions of the plant,

- during pipeline painting valve stem should be protected,
- valves can be assembled in any position, however it is recommended to install the valve with hand lever upwards, and valves with actuator– actuator upwards



It should be take note of medium flow direction, marked with an arrow on the body,

- before plant startup, especially after repairs carried out, flash out the pipeline through entirely open valve, in order to avoid solid particles or welding splinters which may be harmful for sealing surfaces,
- steam pipelines should be lead in a way that prevents the accumulation of water,
- strainer (wire mesh filter) installed before the valve increases certainty of its correct action,
- **the responsibility for correct selection of the valve to the operating conditions, distribution and installation is borne by system designer, contractor and user.**

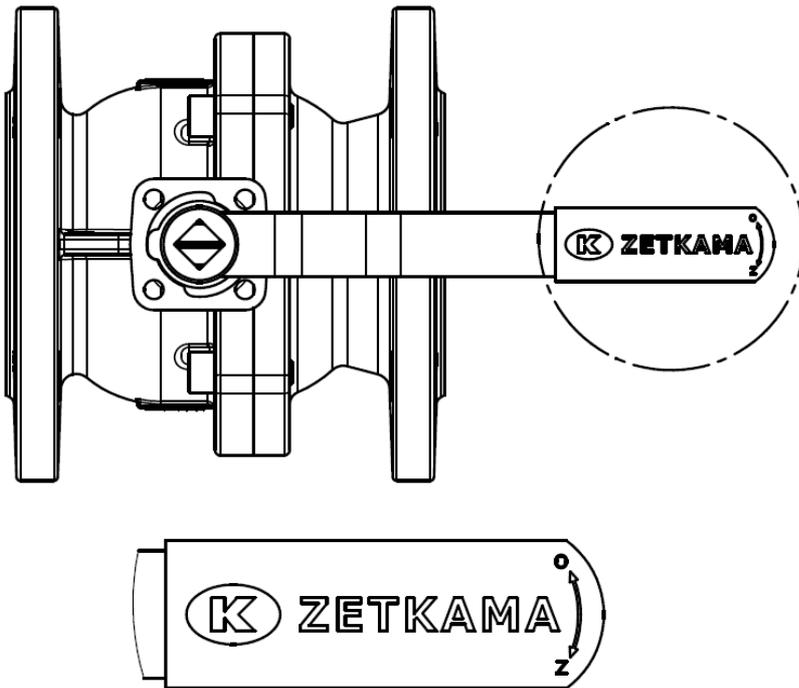
The ball valves are designed for applications independent of external conditions.

Where there is a risk of erosion caused by external conditions (weather, aggressive vapors, gases, etc.), we recommend a special corrosion protection or the use of specially designed ball valves after discussion with the manufacturer.

7. MAINTENANCE

During maintenance following rules should be observed:

- startup process – sudden changes of pressure and temperature should be avoided when starting the plant,
- valve is closed by turning the hand lever clockwise looking down on the hand lever. Hand lever position parallel to valve axis indicates that valve is open. Shut off is done by turning hand lever 90°. When changing hand lever position from open into close and inversely remember that turn limiters have established strength which should be not exceeded .
- valve is open by turning the hand lever counter-clockwise,



- performance of fitted valves can be checked by multiple closing and opening
- if during valve operation heat parts of the valve, for example hand lever or body could cause burn, user is obliged to protect them against touch



maximum working temperature of ball valve must be not exceeded, in the other case stem leakage could appear soon and it would be necessary to shut down the valve and replace the sealings.



In order to assure safety performance, each valve (especially rarely used) should be surveyed on regular basis.

- if the ball valve provided with actuator was assembled, operating manual of actuator (attached to the actuator) should be obeyed during operation,
- in the case of break of actuator power supply, emergency valve control by actuator handwheel is possible,
- during pipeline painting actuator components should be protected.

8. SERVICE AND REPAIR

All service and repair jobs should be carried out by authorized staff using suitable tools and original spare parts. Before disassembly of complete valve from the pipeline or before service, the pipeline should be out of operation. During service and repair jobs it is necessary to:

- decrease pressure to 0 bars, valve temperature to ambient temperature,
- use personal health protectives in pursuance of existing threat,
- after valve disassembly it is necessary to replace flange connection gaskets between valve and pipeline,
- before valves re-assembly in the pipeline it is necessary to check valve operation and tightness of all connections. Tightness test should be carried out with water pressure of 1,5 nominal pressure of the valve.

9. REASONS OF OPERATING DISTURBANCES AND REMEDY

- When seeking of valve malfunction reasons safety rules should be strictly obeyed

Fault	Possible reason	Remedy
No flow	Valve closed	Open the valve
	Flange dust caps were not removed	Remove dust caps on the flanges
Poor flow	Dirty filter	Clean or replace the screen
	Clogged pipeline	Check the pipeline
Stem leakage	Damaged sealing O-rings	Remove the valve from pipeline. Replace sealing O-rings
Seat leakage	Damaged sealing PTFE rings	Replace sealing PTFE rings
	Damaged ball	Replace the ball
	Medium polluted with solid particles	Clean the valve. Fit strainer before the valve. Replace seats.
Broken connecting flange	Bolts tighten unevenly	Replace the valve with new one

10. VALVE SERVICE DISCONTINUITY

All obsolete and dismantled valves must not be disposed with household waste. ZETKAMA valves are made of materials which can be re-used and should be delivered to designated recycling centres.

11. WARRANTY TERMS

ZETKAMA grants quality warranty with assurance for proper operation of its products, providing that assembly of them is done according to the users manual and they are operated according to technical conditions and parameters described in ZETKAMA's catalogue cards. Warranty period is 18 months starting from assembly date, however not longer than 24 months from the sales date.

Warranty claim does not cover assembly of foreign parts and design changes done by user as well as natural wear.

Immediately after detection, the user should inform ZETKAMA about hidden defects of the product
A claim should be prepared in written form.

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