

## USER MANUAL

**GATE VALVE**

**Fig. 113, 118**

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### 1. PRODUCT DESCRIPTION

Gate valves are designed for two-position operation, they are used to open and close the flow of the working medium. The use of gate valves to regulate the flow is not permitted.

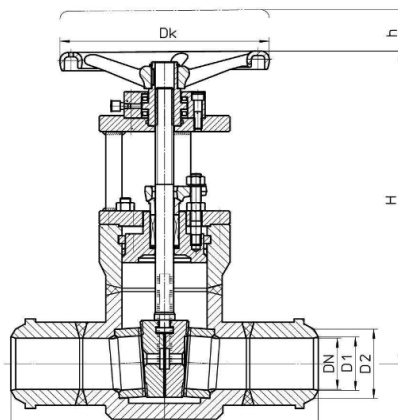


Fig. 118



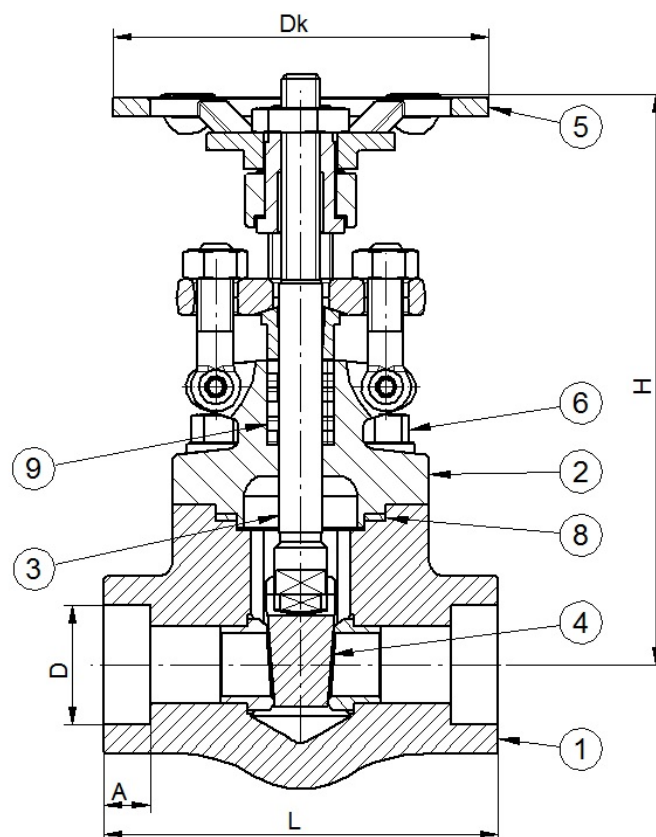
Fig. 113

Fig.118 DN50-100 PN250



	Body material	G	Q	Q
	Type	01	01	01
	PN	250		
1	Body	P245GH	13CrMo4-5	11CrMo9-10
2	Seat ring	X17CrNi16-2Ni 16-2	Stellite	Stellit
3	Bonnet	P265GH	13CrMo4-5	11CrMo9-10
4	Wedge	X30Cr13	Stellite	Stellit
5	Stem	X30Cr13	X39CrMo17-1	X39CrMo17-1
6	Gasket		graphite	
Max. temperature		450°C	550°C	580°C

Fig.113 DN15-50 class800



	Body material	G
	Type	01
1	Body	A105N
2	Bonnet	A105N
3	Stem	A182 F6a
4	Wedge	A182 F6a
5	Hand-wheel	A197
6	Screw	A193 B7
8	Cover gasket	spiral wound gasket (steel + graphite)
9	Gland packing	Graphite
Max. temperature		425°C

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

- nominal diameter DN (mm),
- nominal pressure PN (bar),
- identification of the body and cover material,
- symbol of the manufacturer,
- heat number,
- CE marking, for valves subjected 2014/68/EU 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  $-20^{\circ}\text{C}$  to  $65^{\circ}\text{C}$ , 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 handwheel and valve stem damage.

#### 4. FUNCTION

Gate valves are used to shut off the flowing medium. They are adapted to two-way flow of the medium.

#### 5. APPLICATION

- industry, shipbuilding, chemical industry
- heating
- power engineering
- refrigeration and air conditioning
- cold and hot industrial water installations
- steam
- compressed air installations
- oil installations
- neutral fluids in relation to the materials used

The working fluids causes the use of certain materials or not. The valves are designed for normal conditions of use. In the case of operating conditions exceeding these requirements, e.g. in the case of aggressive or abrasive agents, the user should ask the manufacturer before placing an order.

The working pressure should be adapted to the maximum temperature of the medium in accordance with the table below.

	PN		-10°C ÷ <100°C	100°C ÷ 300°C	400°C	450°C	500°C	510°C	520°C	530°C	550°C	580°C
P245GH	250	bar	250	250	216	132	-	-	-	-	-	-
13CrMo4-5			250	250	231	227	193	164	125	120	69	-
11CrMo9-10			250	250	250	250	250	234	190	188	138	62

#### 6. ASSEMBLY

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

- to check before an assembly if the gate valves were not damaged during the transport or storage,
- to make sure that applied gate 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 gate valves during welding jobs against splinters and used plastics against excessive temperature,
- steam pipelines should be fitted in such a way to avoid condensate collection; in order to avoid water hammer steam trap should be applied



**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.**

- during pipeline painting gate valve stem should be protected,
- gate valves can be assembled in any position,
- hot valve parts, e.g. fuselage or bonnet parts, may cause burns during operation. If necessary, the user should put up insulating covers and warning plates,
- before starting the installation, and in particular after the repairs, rinse the pipe system with the gate valve fully open to remove solids or welding spatter harmful to the sealing surfaces,
- installing the strainer in front of the valve increases the certainty of its proper functioning,
- gate valves are designed for applications independent of external conditions. If there is a risk of corrosion caused by external conditions (weather, aggressive vapors, gases, etc.), special anti-corrosion protection or special design of the valves is recommended



The system designer, building contractor and user are responsible for the correct selection of the gate valves for the medium and working conditions, as well as for the arrangement and assembly.

## 7. MAINTENANCE

During maintenance following rules should be observed:

- the process of starting or stopping operation should be carried out in a way that eliminates sudden changes in temperature and pressure
- the gate valve is closed by turning to the right, looking at the wheel from above (in the direction marked on the wheel), opening is by turning to the left



**It is prohibited to use additional lever when turning the handwheel**

- operation of the installed gate valves can be checked by opening and closing multiple times. If leaks occur on the valve stem, tighten the two nuts on the gland bolts with moderate force until the leak stops.
- when it is necessary to refill the packing, this operation should be made with no pressure in the gate valve, with a cooled medium, with the valve fully open,
- to complement the packing, unscrew the nuts on the hammer bolts, move the gland towards the wheel and fill the throttle chamber under the raised gland with an open packing disc, and then tighten the packing of the packing again.



**In order to assure safety performance, each valve (especially rarely used) should be surveyed on regular basis. Inspection frequency should be laid down by user, but not less than one time per month.**

## 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 gate 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 , gate valve temperature to ambient temperature
- to use personal health protectives in pursuance of existing threat
- after gate valve disassembly it is necessary to replace flange connection gaskets between valve and pipeline
- everytime when valve bonnet was disassembled sealing surface should be cleaned, during assembly it should be applied new gasket of the same type as previously used
- body-bonnet bolt connections should be tighten when the gate valve is at open position
- the bolts should be tighten evenly and crosswise by torque wrench
- before gate valves re-assembly in the pipeline it is necessary to check valve operation and tightness of all connections

## 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	Valve is not open enough	Open the valve
	Dirty filter	Clean or replace the screen
	Clogged pipeline	Check the pipeline

Control difficulties	Dry stem	Grease the stem
	Gland packing tighten too much	Slightly slacken gland nuts. Put attention to keep stuffing box tightness
Stem leakage	Too much loose on the gland	Tighten the gland until tightness will be reached
		If necessary add packing rings in stuffing box. Keep special caution.
Seat leakage	Shut off not correct	Tighten the handwheel without any auxiliary tools
	Seat or wedge damage	Replace the valve and contact supplier or manufacturer
	Medium polluted with solid particles	Clean the valve. Fit strainer before the valve.

## 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 centers.

## 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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