

## USER MANUAL

**GATE VALVE zGAT**

**Fig. 108**

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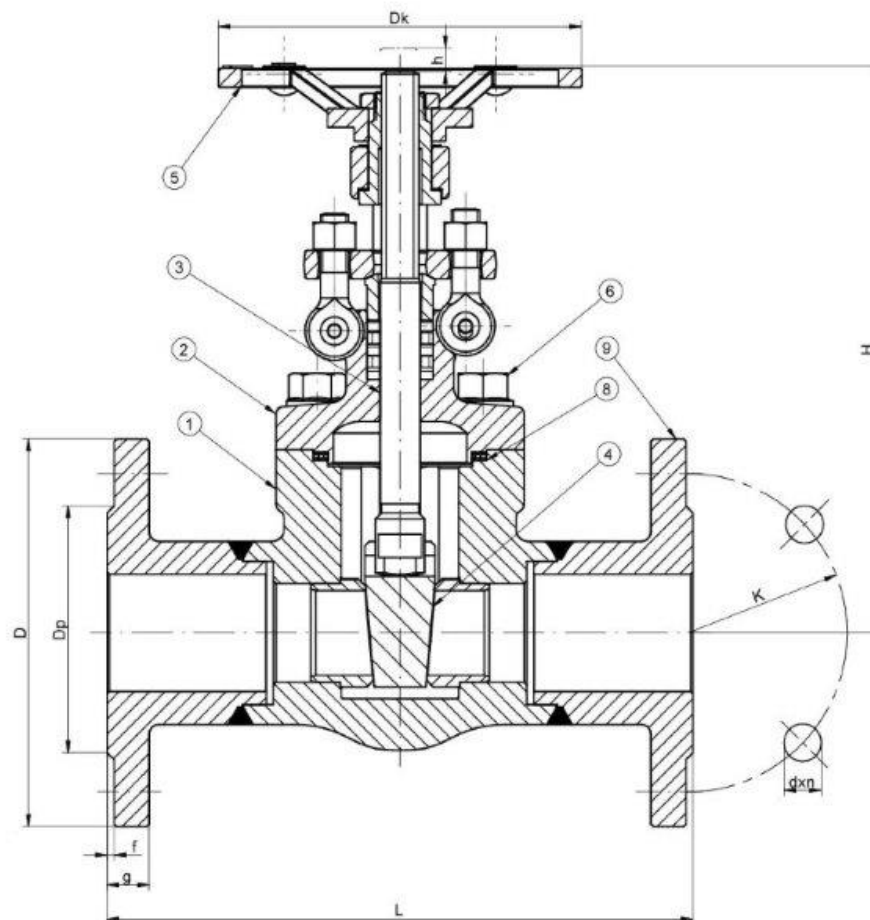
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### 1. PRODUCT DESCRIPTION

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 recommended.

Fig.108 DN15-50



	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),
- body and bonnet material marking,
- arrow indicating medium flow direction,
- manufacturer marking,
- 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. If during valve operation heat parts of the valve, for example handwheel, body or bonnet parts could cause burn, user is obliged to protect them against touch.

## 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 cut off the flowing medium. They are adapted to the two-way flow of the medium.

## 5. APPLICATION

- industry, shipbuilding industry, chemical industry
- heating
- power engineering
- refrigeration, air conditioning
- industrial water
- steam
- compressed air
- diathermic oil,
- glycol
- neutral fluids

The working medium causes the command or prohibition of the use of certain materials. Valves were designed for normal working conditions. In the case that working conditions exceed these requirements (for example for aggressive or abrasive medium) user should ask manufacturer before placing an order.

Working pressure should be adapted to maximum medium temperature according to the table as below.

		Temperature [° C]						
Material	Pressure	-29 < do <38	100	200	300	350	40	425
A105N	Class150 [bar]	17,3	15,4	13,8	10,2	8,4	6,5	5,6
	Class300 [bar]	45,3	40,1	36	29,8	27,8	25,7	22,2
	Class600 [bar]	90,5	80,2	72	59,7	55,5	51,4	31,5
	PN40	40	37,1	35,2	27,6	25,7	23,8	18,4
	PN100	100	92,8	83,3	69	64,2	59,5	46,1

## 6. ASSEMBLY

During the assembly following rules should be observed:

- to evaluate before an assembly if the gate valves were not damaged during the transport or storage,
- make sure that the gate valves used are appropriate for the operating parameters and media in a given installation,
- to take off dust caps if the valves are provided with them,
- during welding work, the valves should be protected against spatter, a użycie tworzywa przed nadmierną temperaturą,
- steam lines must be routed in such a way as to prevent the accumulation of wóter;to prevent wóter hammer □ condensate separator should be used



**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 valve stem should be protected,
- gate valves can be assembled in any position,
- during valve operation, hot valve parts, such as body or bonnet parts, may cause burns. If necessary, the user should put up insulating covers and warning plates,
- before starting the system, and in particular after repairs, flush the pipeline system with the valve fully open to remove solids or welding spatter harmful to the sealing surfaces,
- installing a strainer before the valve increases the certainty of its proper functioning,
- the valves have been designed for applications independent of external conditions.

If there is a risk of corrosion caused by external conditions (weather, aggressive vapours, gases, etc.), special anti-corrosion protection or special design of the valves is recommended.



**The designer of the installation, the contractor of construction works and the user are responsible for the correct selection of the valve to the conveyed medium and working conditions, as well as its arrangement and assembly.**

## 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 handwheel clockwise when looking from above the handwheel (according to arrow direction marked on the handwheel),



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

- performance of fitted valves can be checked by multiple closing and opening. If leaks appear on the valve stem, tighten

the valves with moderate force until the leakage stops, the two nuts on the bolts pressing the packing through the gland.

- in the case of necessity to replace packing rings, it should be done without overpressure inside the valve, when the valve is completely open.
- in order to refill packing rings of valves unscrew the nuts on T-bolts, move the gland into handwheel direction, working under lifted gland refill cut - packing rings in the stuffing box, then press again these cut packing rings.



**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.**

## 8. MAINTENANCE 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:

- decrease pressure to 0 bars , valve temperature to ambient temperature,
- to use personal health protectives in pursuance of existing threat,
- each time after removing the valve cover, clean the surfaces for the gasket and use a new gasket of the same type as the previously installed one,
- tightening screw joints of the covers should be made with the gate valve open,
- the screws should be tightened evenly and crosswise with a torque wrench,
- when reassembling the gate valve, it is necessary to check its function and tightness of all connections before putting it back into operation.

## 9. REASONS OF OPERATING DISTURBANCES AND REMEDY

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

<b>Fault</b>	<b>Possible reason</b>	<b>Remedy</b>
No flow	Armatura zamknięta	Open the valve
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 disc 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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