

## USER MANUAL

**CONTROL VALVE**  
**zCON**

**Fig. 227**

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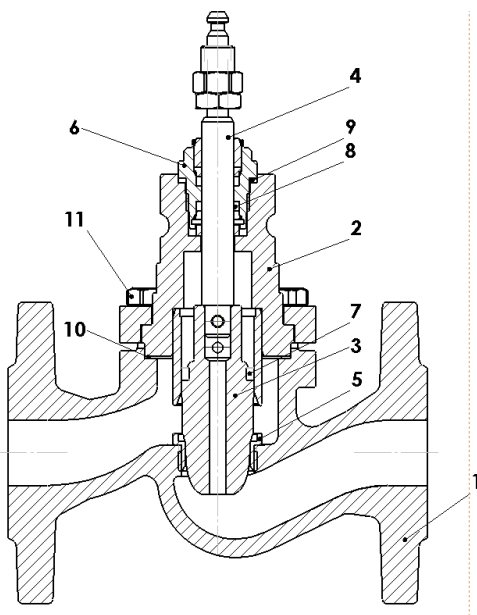
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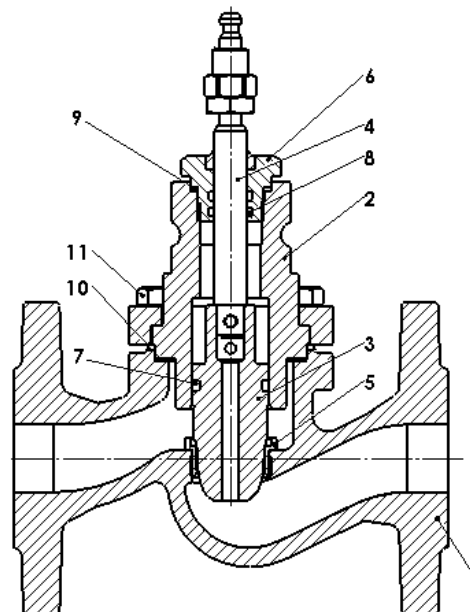
### 1. Product description

The valves are designed to control the medium flow.

Valve design 81



Valve design 80

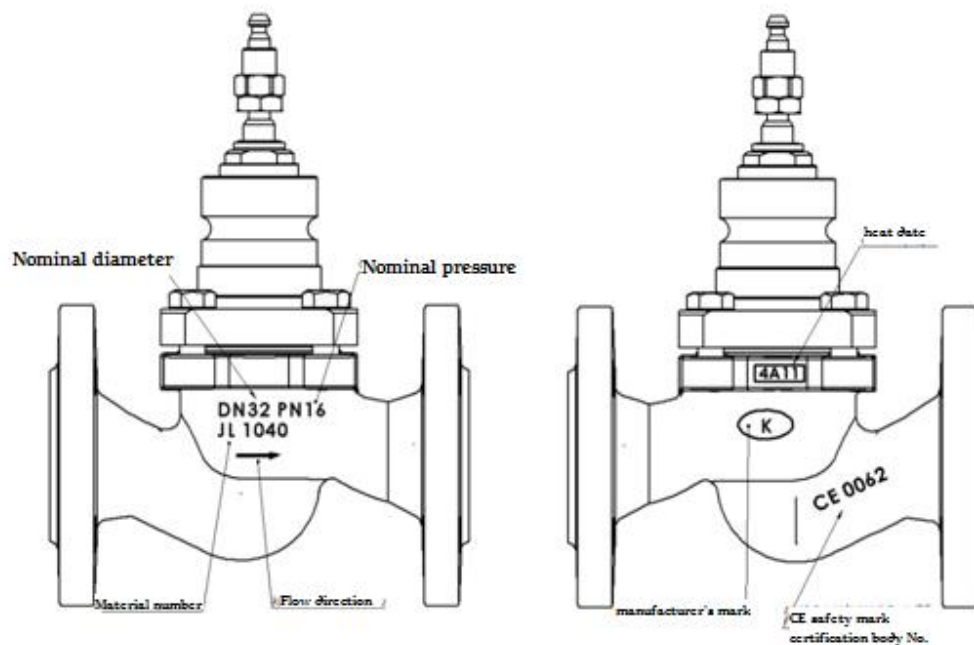


No.	Element	Material	
		Design80	Design81
1	Body	EN-GJL250	
2	Cover	X20Cr13	
3	Plug	X20Cr13	
4	Stem	X20Cr13	
5	Seat ring	X20Cr13	
6	Nut	brass	X20Cr13
7	Plug sealing	EPDM	Elastomer
8	Stem sealing	EPDM	Elastomer
9	Seal	Elastomer	
10	Seal	Graphite	
11	Hexagon screw	8.8	

Valves are provided with casted marking according to the requirements of 19 standard.

The marking facilitates technical identification and contains:

- diameter nominal DN (inch),
- pressure nominal PN (bar),
- body and cover material marking,
- arrow indicating the direction of flow,
- manufacturer marking,
- heat number,
- CE marking, for valves covered by Directive 2014/68/UE. CE marking starts from DN32.



## 2. REQUIREMENTS FOR MAINTENANCE STAFF

The staff assigned to assembly, operating and maintaining tasks should be qualified to carry out such jobs. In the event that this requirement is not fulfilled, it is necessary to train and check by the designated supervisor if the staff knows and understands the instructions.

## 3. Transport and storage

Transport and storage should be carried out at a temperature from -20o to 65°C, and vent 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 corrosion 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 drying agent or heating at damp rooms in order to prevent condensate formation. If the valve is equipped with actuator, observe the instructions of the manufacturer of the actuator.

**It is unacceptable to fit lifting devices to connecting holes.**

## FUNCTION

The valves are designed to continuously control the medium flow. The characteristics of hydraulic valves is provided in data sheet.

## 5. APPLICATION

- installations of industrial water, cold and hot
- 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, industrial air conditioning.

Working medium requires or prohibits the use of certain materials. The 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.

**Tightness class 1 according to PN-83 / M-74201**

**The maximum permissible operating temperature of valve 80 operation is 150°C while for design 81 200°C.**

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

		Temperature [°C]			
Material	PN	-10 to 120	150	180	200
EN-GJL250	16	16 bar	14,4 bar	13,4 bar	12,8 bar

The valves are fitted as standard by the manufacturer with the Belimo or Regada actuator.

**Accessories and parameters of each actuator should be agreed between the client and the manufacturer of the valve.** The standard actuator parameters are given in the data sheet of the valve.

## 6. ASSEMBLY

At the assembly of valves, observe the following rules:

- evaluate before an assembly if the vent valves were not damaged during transport or storage,
- make sure that applied vent valves are suitable for working conditions and medium in the plant,
- take off the caps if the vent valves are provided with them,
- protect valves during e.g. welding, against splinters and used plastics against excessive temperature,
- pipeline, on which valves are mounted, should be arranged and mounted so the valve body is not transmitting bending moment and is not extended,
- screw connections on the pipeline cannot introduce additional stress resulted from excessive tightening, and connection materials must be adapted to the operating parameters of the installation,
- during pipeline painting, valve stem and actuator must be protected,
- valves should be mounted in the pipeline according to the manufacturer of the actuator. It is recommended to position the valve actuator up,
- if the valve was provided without the actuator, install its actuator following the guidelines of the instructions provided with the actuator,
- attention should be paid to the flow direction, indicated by an arrow on the seat,
- steam pipelines should be lead in a way that prevents the accumulation of water;
- use compensators in order to reduce the impact of thermal expansion of pipelines.
- correct operation of the valve requires suitably long straight sections: 5x DN before and 2 x DN after the valve.
- during valve operation hot parts of the valve, e.g. body or cover parts could cause burn. if necessary the user should fit insulation shields and warning signs.
- before starting the installation, especially after repairs, the pipeline should be flushed through with the fully opened valve to remove solids or spatter from welding harmful to the sealing surfaces.
- installation of settling tank - strainer before the valve increases certainty of its correct functioning,
- **The responsibility for correct selection of the valve to the operating conditions, distribution and installation is borne by system designer, contractor and user.**

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

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

## 7. MAINTENANCE

During operation the following rules should be observed:

- process of starting up – commissioning should be conducted in a manner that eliminates the occurrence of sudden changes in temperature and pressure,
- in case of power failure in the actuator power supply, it is possible to control the valve in emergency mode with the actuator knob (see the actuator manual)
- observe the operating instructions for actuators provided with the valve with the actuator.
- operation of installed valves can be checked by repeated opening and closing
- to ensure the safe operation of each valve, especially of the ones that are rarely used, they should be regularly monitored.

## 8. SERVICE AND REPAIR

All service and repair jobs should be carried out by authorised staff using suitable tools and original spare parts. Before disassembly of a complete valve from the pipeline or before service works, the particular part of the pipeline should be excluded from the operation. During maintenance and repair:

- reduce the pressure and the temperature of the valve to a safe level,
- personal protection in pursuance of existing threat should be used,
- after valve disassembly it is necessary to replace gaskets between the valve and the pipeline,
- each time when the cover is removed, clean the valve sealing surface and apply new gasket of the same type as previously used.
- tightening of the screw connections of covers must be made with the valve opened,
- during valve re-assembly in the pipeline it is necessary to check valve operation and tightness of all connections before its restarting. Tightness test should be carried out with water pressure of 1,5 x nominal pressure of the valve.

## 9. REASONS OF OPERATING DISTURBANCES AND REMEDY

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

<b>Fault</b>	<b>Possible cause</b>	<b>Remedy</b>
No flow	Flanges caps have not been removed	Remove the flanges caps
Low flow	Contaminated filter before the valve	Clean or replace the strainer
	Clogged pipeline system	Check the pipeline
Leakage on the seat	Damaged seat or plug	Replace the valve. Turn to the supplier or manufacturer
	Medium contaminated with solid objects	Clean the valve. Install the filter before the valve.
Leakage on the spindle	Damage to the seals	In design 80 change the sealing rings pos. 8. In design 81 change the entire screw plug set pos. 8.
Noisy valve operation	Strong turbulent flow	Check again the project, make the necessary corrections, apply flow throttling
	Valve installed too close to the pump or after the elbow	
	No compensators or lack of straight sections for stabilization of the flow before and after the valve	
	Improperly chosen nominal diameter of the valve to the volume of flow	Select the appropriate diameter DN, apply flow throttling
Improper operation of the actuator	Damage to the actuator	Follow the instructions contained in the actuator manual
Broken connecting flange	Bolts fastening flanges tighten unevenly or too hard	Replace the valve with new one

## **10. Valve service discontinuity**

All obsolete and dismantled valves must not be disposed of with household waste. The valves are made of materials which can be re-used. To do this, deliver them to a recycling point.

## **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 user manual and they are operated according to technical conditions and parameters described in ZETKAMA's catalogue cards. The warranty period is 18 months from assembly date, however not longer than 24 months from 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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