

USER MANUAL

CHECK VALVE zCHE

Fig. 287, 288

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Fig.287

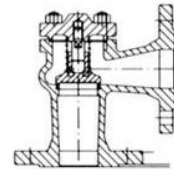
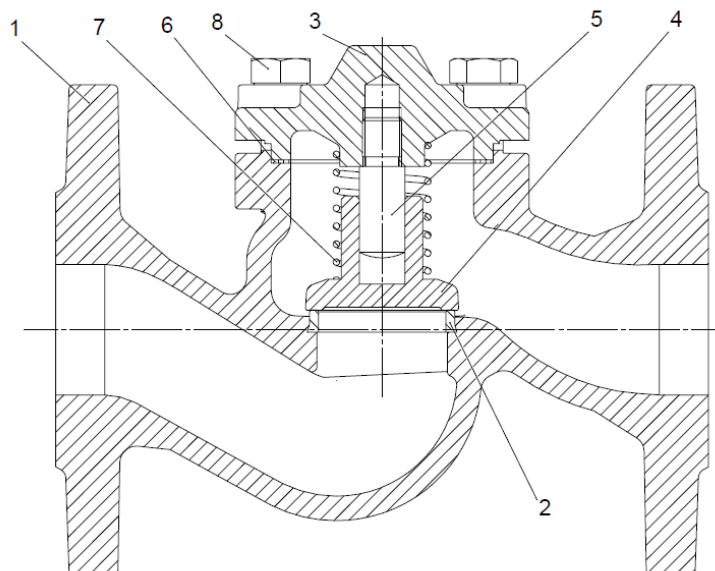


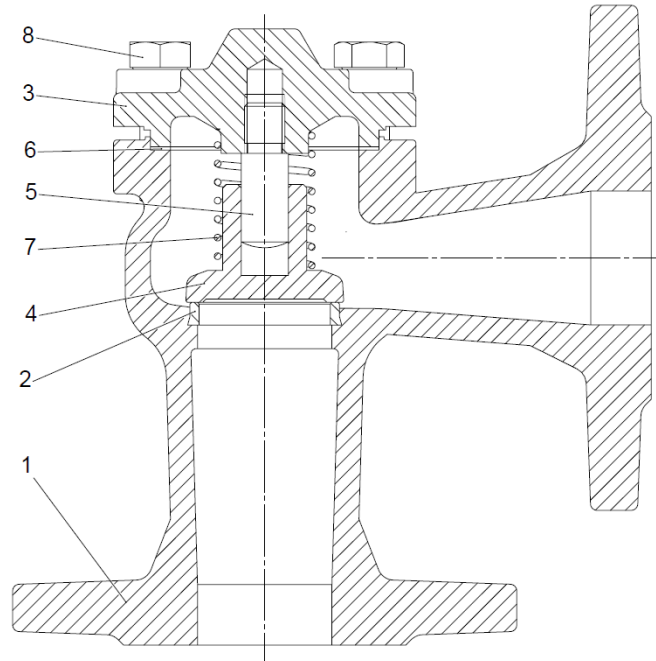
Fig.288

1. Product description

Check valves protect against reverse flow of the medium.



Valve No. Fig. 287

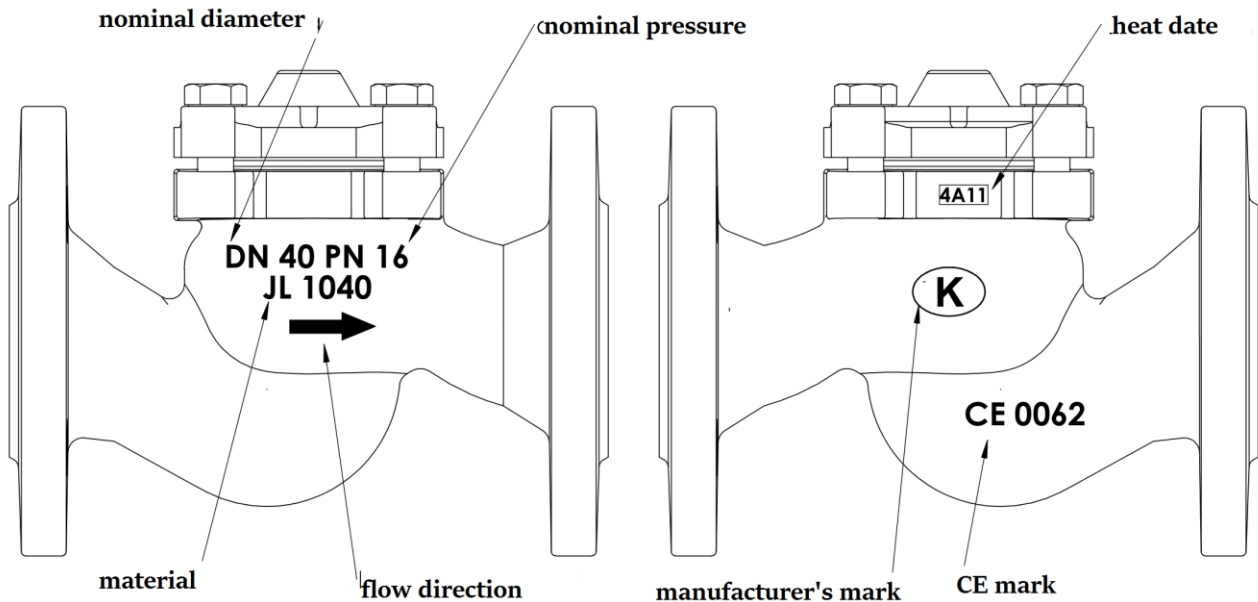


Valve fig. 288

No.	Element	Material		
1	Body	EN-GJL250	EN-GJS400-18LT	GP240GH
2	Seat ring	X20Cr13		Stainless steel padding weld
3	Cover	EN-GJL250	EN-GJS400-18LT	GP240GH
4	Plug	X20Cr13		
5	Stem	X20Cr13		
6	Seal	Graphite		
7	Spring	Stainless steel		
8	Screw	8.8	A2-70	25CrMo4

Valves are provided with casted marking according to the requirements of PN-EN19 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.

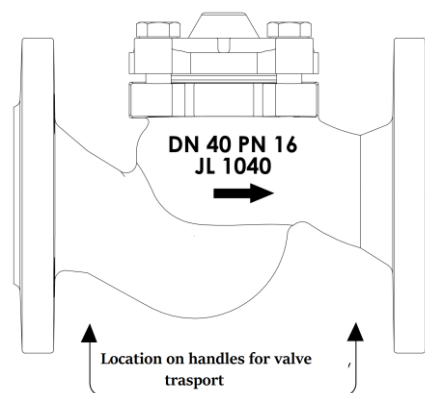
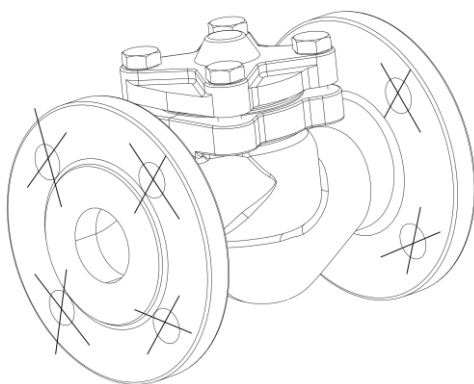


REQUIREMENTS FOR MAINTENANCE STAFF

The staff assigned to assembly, operating and maintaining tasks should be qualified to carry out such jobs.

TRANSPORT AND STORAGE

Transport and storage should be carried out at a temperature from -20° 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 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 drying agent or heating at damp rooms in order to prevent condensate formation.



It is unacceptable to fit lifting devices to connecting holes.

4. FUNCTION

Check valves are used for one-way flow of medium and also prevent backflow.

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, 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.

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

As for EN 1092-2		Temperature [° C]						
Material	PN	-10 to 120	150	180	200	230	250	300
EN-GJL250	16	16 bar	14,4 bar	13,4 bar	12,8 bar	11,8 bar	11,2 bar	9,6 bar

		Temperature [°C]					
Material	PN	-10 to 120	150	200	250	300	350
EN-GJS400-18-LT	16	16 bar	15,5 bar	14,7 bar	13,9 bar	12,8 bar	11,2 bar
	25	25 bar	24,3 bar	23 bar	21,8 bar	20 bar	17,5 bar

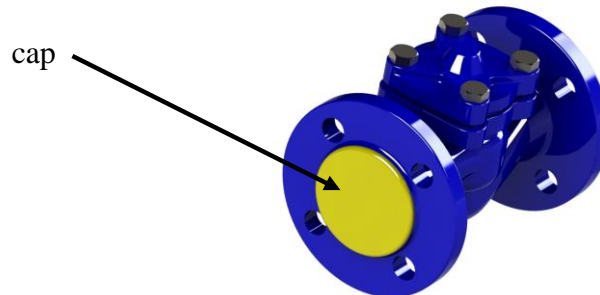
Return valve Fig. 287

		Temperature [° C]								
Material	PN	-20	-10 do 50	100	150	200	250	300	350	400
GP240GH	40	30 bar	40 bar	37,1 bar	35,2 bar	33,3 bar	30,4 bar	26,7 bar	25,7 bar	23,8 bar

6. ASSEMBLY

At the assembly of check valves, observe the following rules:

- evaluate before an assembly if the vent valves were not damaged during transport or storage, and make sure that applied valves are suitable for working conditions and the media in the system,
- take off the caps if the check valves are provided with them,



- check if the vent valve body is free of solid particles,
- steam pipelines should be lead in a way that prevents the accumulation of water;
- during e.g. welding, protect valves 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 moments and is not extended.



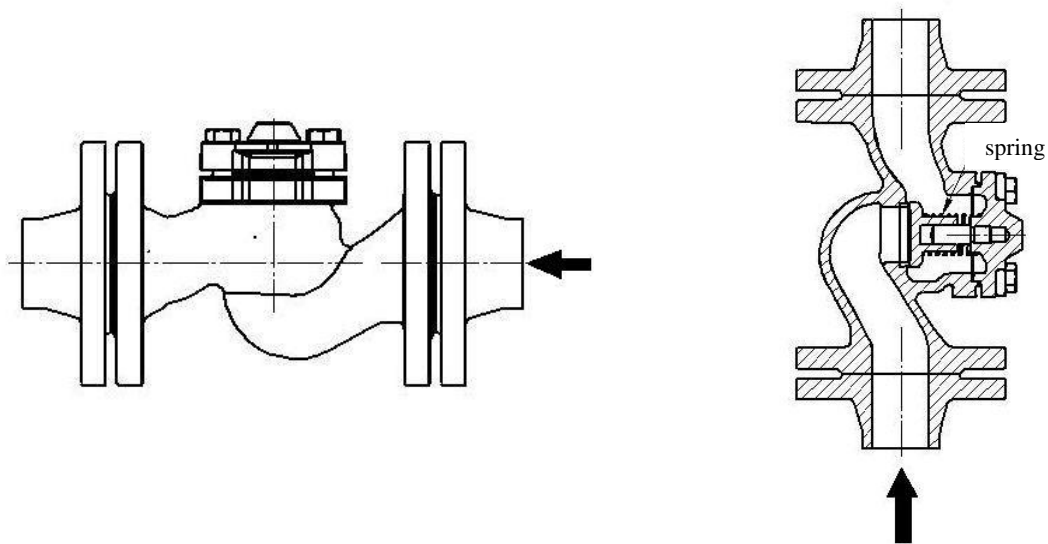
Screw connections on the pipeline cannot introduce additional stress resulted from excessive tightening, and connection materials must be adapted to the operating parameters of the installation.

- use compensators in order to reduce the impact of thermal expansion of pipelines,



Install the valve so that flow direction comply with an arrow placed on the body.

- Check valves should be installed in horizontal pipelines cover up, and in vertical pipelines provided that the spring valve is used,
- Downstream and upstream there should be straight section of the pipeline with a length of min. 5xDN,
- During valve operation heat 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 system should be flushed
- installation of settling tank - strainer before the valve increases certainty of its correct functioning
- **The responsibility for correct selection of the valve to the medium, 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,
- valves work automatically and require no maintenance during operation

⚠ To ensure the safe operation of each valve, especially of the ones that are rarely used, they should be regularly monitored. Inspection frequency should be determined by the user.

8. SERVICE AND REPAIR

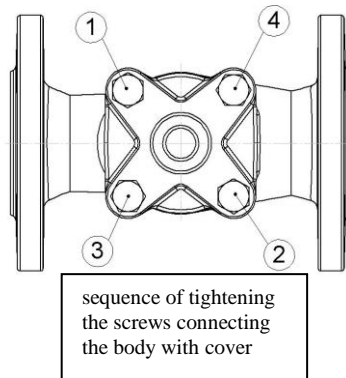
⚠ Before taking up any service jobs make sure that the flow of medium in the pipeline was cut off, the pressure was reduced to ambient pressure, medium was removed and the plant was cooled down..

- 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 service and repair work personal health protection in pursuance of existing threat should be used,
- after valve disassembly it is necessary to replace flange connection 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

⚠ Act with caution when touching seals located between the body and valve cover. A stainless steel strip located inside may cause injury.

- bolts should be tighten and crosswise by torque wrench.



- tightening torques of screws

Screw	Torque
M8	15-20 Nm
M10	35-40 Nm
M12	65 – 70 Nm
M16	140 -150
M20	150-200
M24	350-400

- before valve 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 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

Fault	Possible cause	Remedy
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.
	Improperly mounted globe valve without spring	Install the valve properly or replace the valve spring
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
Broken connecting flange	Bolts fastening flanges tighten unevenly	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 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 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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