

Vacuum Gate Valve DN 500 water cooled

WER Dok.E.00000099

1.	Introduction/Safety Instructions
2.	Description
3.	Technical Data
4.	Installation instructions
5.	Actuator
6.	Maintenance Instructions
7.	Spare Parts
8.	Warranty conditions



1. Introduction/Safety Instructions

This documentation should be carefully read before installation and operation of this vacuum gate valve, in order to avoid harm to personnel or damage to materials. All statutory rules and regulations must be observed.

2. Description

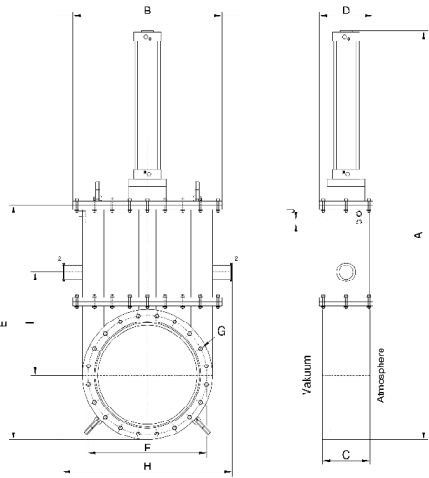
These valves are very compact sealing units that leave the flow area free, when they are completely open. This gives particularly high flow values. An additional advantage of is the use of disks as seals. The specially designed sealing mechanism operates so that the disk is only pressed against the sealing surface, when it reaches its end-position in the direction of turning. Also the disk is first removed from its sealing position, before it is moved sideways.

The valves are actuated by a double operating pneumatic cylinder, controlled by a 5/2 way control valve (Impulse control). If there is a power failure, the valve disk stays where it is (If it has started moving, it completes the operation).

Applications: - Rough, fine and high Vacuum
- Vacuum pumping units and vacuum plants to build up material locks
- Sealing unit for the suction side of a diffusion pumps

Model: The gate valve disk is water cooled, to reduce radiant heat.

3. Technical Data

	<p>Operating pressure.: 10^{-3} mbar_{abs} bis 0,5 bar_ü</p> <p>Max. Allow. differential pressure.: ¹: 1,5 bar</p> <p>Leak tightness - body: $< 1 \times 10^{-4}$ [mbar * l/s]</p> <p>Leak tightness - disk: $< 1 \times 10^{-5}$ [mbar * l/s]</p> <p>Max. Allowable Temperature:</p> <ul style="list-style-type: none"> • Housing \leq 120 °C • Drive \leq 60 °C • Control valve \leq 50 °C <p>Material – valve disk : SS 304L</p> <p>Material – valve disk seal : VITON</p> <p>Surface outside: Stainless steel gate valves are shot blasted mild steel gate valves are sand blasted, prepared and painted, RAL 7035 or colour to customer request.</p>
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Heating and cooling rate: ≤ 30 °C/hour

Diameter DN	mm	500
Dimension A	mm	2069
Dimension B	mm	750
Dimension C	mm	240
Dimension D	mm	270
Dimension E	mm	1188
Dimension F	mm	600
Dimension G	mm	20 x M20 – 20 deep
Dimension J	mm	G 1/2"
Weight	kg	429
Part Number	Mild steel	WER 00000099
Part Number	Stainless steel	follows

Options: O-Ring grooves in the connection flange und dimension F/G can be made to customer request

¹ from both sides ² Option: Nozzle \varnothing 63 ISO-K Dimension H = 885 mm, Dimension I = 520 mm

4. Installation instructions

The installation position of the disk is very important and care should be taken to make sure that the vacuum area to be sealed lays over the valve disk. The installation should only be carried out under clean conditions of a level that is usual for vacuum technology.

If installation is carried out in an incorrect, dirty way and this causes unsatisfactory operation we will accept no responsibility under guarantee.

Torque for the flange screws

Diameter DN	Torque
500	~ 70 – 90 Nm

The flange screws must be tightened equally and in a crosswise manner. Higher torques can deform the housing so much that the valve can no longer be properly operated or the valve seat may leak.

Outside effects

Additional effects such as those caused by items attached to the valve are to be avoided. Connection by items such as bellows is to be avoided.

Max. Allowable effects

Diameter DN	Axial pull-/pushing effect	Bending moment
500	~ 1000 N	70 Nm

If both effects happen together, the values given are invalid.

Compressed air

Only clean, dry and lightly oiled compressed air should be used !

Pressure range: 4 – 10 bar_g / 58 – 145 psig



Compressed air should only be connected, when the valve is built into the vacuum system and when the valve disk or other moving parts can no longer be moved.

Cooling water

Pressure range: 4 – 6 bar_g / 58 – 87 psig

5. Actuator

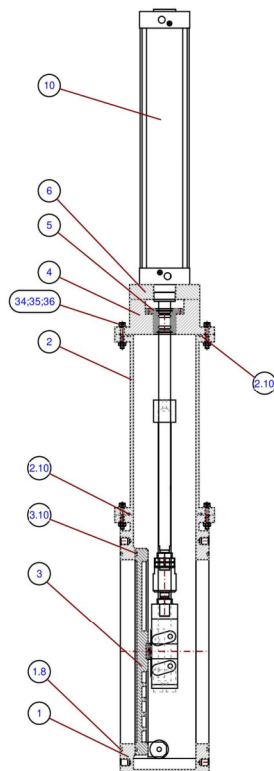
Item 10 (complete drive), Item Number WER 00000099.10

Maintenance free, double-operating, pneumatic standard cylinder:

Standard Cylinder		WER 00000099.10
Proximity switch		WER 00000099.12
Flex-coupling		WER 00000099.14
Magnetic valve		WER 00000099.15
Magnet spool		WER 00000099.16
Indicating connector		WER 00000099.17
One way restrictor		WER 00000099.18
Noise damper		WER 00000099.20

6. Maintenance Instructions

To protect the internals the disassembly must in a vertical position, means cylinder Pos. 10, carried out in a vertical position.
Care must be taken to provide appropriate underlay.



1. 1. Changing the valve disk seal

- Disassemble of the upper- and lower part (Pos. 1 und 2) by loosening the positions 34,35,36 and position 32 (dowel pin)
- Replacement of the seals which are included in the seal set (Position 1.8, 2.1 und 3.10)
- Assemble the top and bottom parts

2. Changing the seal in the pressure housing

- Dismantling upper and lower part, on a suitable stand off, Attention! Do not damage the support plate
- Dismantle cylinder (Pos.10) with cover (Pos.4) from Pos.2
- Dismantle valve plate (Pos. 3)
- Dismantle cylinder (Pos.10) with adapter flange from Pos. 4
- replacement of the seals in the pressure stage housing
- If necessary, replacement of the remaining seals
- Reassemble in the opposite way

Maintenance can also be carried out by WERNIG Maschinen- und Apparatebau GmbH & Co. KG. Please contact us.

7. Spare parts

	Diameter 500	
Disk seal set	WER DS01.00000099	
Pressure housing seal set	WER DS02.00000099	
Set coolant hoses	WER 00000099.22_23	
Sliding plate coolant hoses	WER 00000118.01	
Further spare parts on request.		

8. Warranty conditions

1. The manufacturer assumes the guarantee for all manufacturing or assembly defects on the product for a period of 12 months after commissioning, maximum 15 months after delivery (delivery date is decisive).
2. Parts and assemblies that are not from the supplier are subject to the supplier's warranty
3. The warranty covers only defective parts. All other costs (travel, labor costs, transportation, loading and unloading, penalties, etc ...) shall be borne by the operator.
4. If the manufacturer considers this to be appropriate, the product must be transported to the company for the purpose of diagnosis and repair with the appropriate means
5. The manufacturer rejects any legal liability for damages or accidents that are directly or indirectly attributable to our materials, regardless of the guarantee period.
6. The warranty expires if:
 - The product is rebuilt in a manner not approved by the manufacturer, replacement parts not supplied by the manufacturer, or an unauthorized workshop on the product.
 - The product is used without having previously read the documentation
 - The product is operated outside the limits of use (temperature / pressure, etc.)
 - The product is damaged by excessive use.
 - The product is negatively affected by contamination
 - The copy of this warranty has not been duly completed and sent to WERNIG Maschinen- und Apparatebau GmbH & Co. KG
7. The operator declares that the documentation has been read and understood before commissioning.
8. Defective parts or spare parts covered by the warranty are made available to the customer. Free of charge will only take place if the faulty parts or spare parts have been received by the manufacturer for inspection.
9. Transport: Complaints of damages during transport are not accepted, these are to be addressed to the transport company.

ATTENTION. THIS WARRANTY APPLIES ONLY IF A COPY OF THIS DOCUMENT IS SIGNED TO THE MANUFACTURER.

Product: _____

Part number: _____

Serial number: _____

Operator: _____

Date: _____

Printed Name: _____

Signature: _____