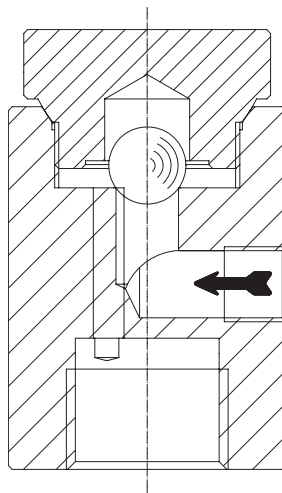


Operating and installation instructions

Vacuum breaker

(PN40)



PN40
- with system connection (series 655....2)

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1.0 General information on operating instructions

These operating instructions provide information on mounting and maintaining the fittings. Please contact the supplier or the manufacturer in case of problems which cannot be solved by reference to the operating instructions.

They are binding on the transport, storage, installation, start-up, operation, maintenance and repair.

The notes and warnings must be observed and adhered to.

- Handling and all work must be carried out by expert personnel or all activities must be supervised and checked.

It is the owner's responsibility to define areas of responsibility and competence and to monitor the personnel.

- In addition, current regional safety requirements must be applied and observed when taking the fittings out of service as well as when maintaining and repairing them.

The manufacturer reserves the right to introduce technical modifications at any time.

These Operating Instructions comply with the requirements of EU Directives.

2.0 Notes on possible dangers

2.1 Significance of symbols



Warning of general danger.

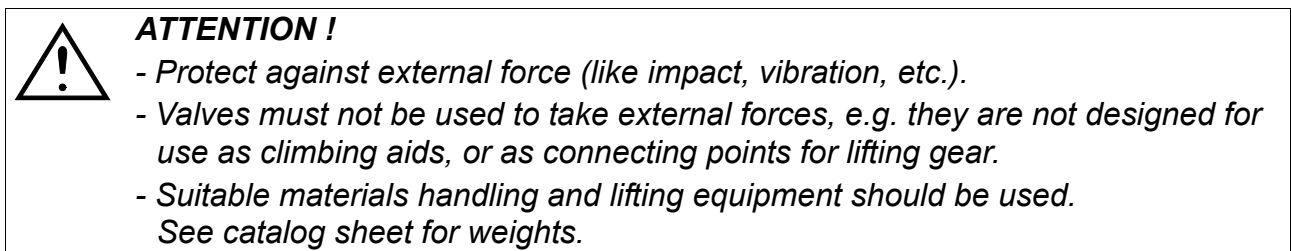
2.2 Explanatory notes on safety information

In these Operating and Installation Instructions dangers, risks and items of safety information are highlighted to attract special attention.

Information marked with the above symbol and "**ATTENTION!**" describe practices, a failure to comply with which can result in serious injury or danger of death for users or third parties or in material damage to the system or the environment. It is vital to comply with these practices and to monitor compliance.

All other information not specifically emphasised such as transport, installation, operating and maintenance instructions as well as technical data (in the operating instructions, product documentation and on the device itself) must also be complied with to the fullest extent in order to avoid faults which in turn can cause serious injury to persons or damage to property.

3.0 Storage and transport



- At -20°C to +65°C.

- The paint is a base coat to protect against corrosion during transportation and storage. Do not damage paint protection.

4.0 Description

4.1 Scope of applications

Vacuum breakers are used for the venting of systems where the pressure should not drop below atmospheric pressure.



ATTENTION !

- Refer to the data sheet for applications, limits on use and possibilities.
- Certain media require or preclude the use of special materials.
- The valves are designed for standard operating conditions. If conditions exceed these requirements, e.g. aggressive or abrasive media, the operator should state the higher requirements when ordering.
- Valves made from grey cast iron are not authorised for use in systems subject to TRD 110.

The information complies to the Pressure Equipment Directive 97/23/EC.

It is the responsibility of the machine planner to ensure compliance.

The special markings on the valve must be taken into account.

Refer to the catalogue sheet to see which materials are used in standard versions.

Please contact the supplier or the manufacturer if you have any questions.

4.2 Operating principles

(refer to Fig. 1 page 4)

If system pressure drops below atmospheric pressure, the ball (Pos. 3) is lifted from the seat chamfer in the body (Pos. 1), allowing air to enter the system.

If system pressure rises above atmospheric pressure, the ball (Pos. 3) seals the seat chamfer in the body (Pos. 1).

4.3 Diagram

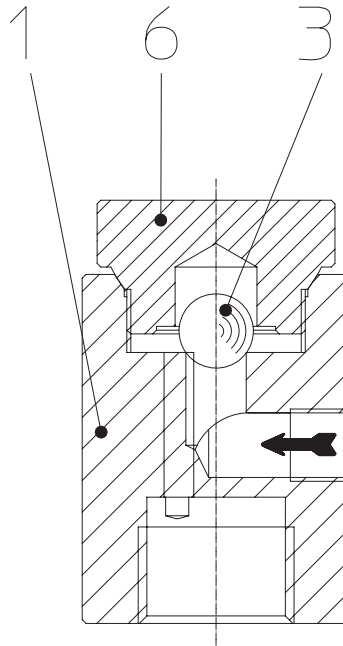


Fig. 1: Vacuum breaker - series 655 PN40
with system connection Rp 1/2"

Refer to the data sheet for information about materials with designations and figure numbers.

4.4 Technical data - remarks

for

- Principal dimensions,
- Pressure-temperature-ratings, operating limits,
- Valves with different types of connection , etc.
refer to datasheet.

4.5 Marking

AWH Manufacturer

Address of manufacturer:

Typ Type

refer to item 11.0 Warranty / Guarantee

Bj. Year of manufacture

According to the Pressure Equipment Directive appendix 2 diagram 7 valves acc. to article 1 paragraph 2.1.2 (pipes) only show the CE-marking from DN40 onwards.

5.0 Installation

5.1 General notes on installation

The following points should be taken into account besides the general principles governing installation work:



ATTENTION !

- Remove flange covers if present.
- The interior of valve and pipeline must be free from foreign particles.
- Install at highest point of pipeline system, media supply always from below. Note installation position with reference to flow, see mark on valve.
- Steam line systems should be designed to prevent water accumulation.
- Lay pipelines so that damaging transverse, bending and torsional forces are avoided.
- Protect valves from dirt during construction work.
- Connection flanges must mate exactly.
- Valves must not be used to take external forces, e.g. they are not designed for use as climbing aids, or as connecting points for lifting gear.
- Suitable materials handling and lifting equipment should be used. See data sheet for weights.
- Centre gaskets between the flanges.
- Precautions against freezing should be taken in any facilities susceptible to frost.

- Planners / construction companies or operators are responsible for positioning and installing products.

5.2 Steam trap testing through ultrasonic measurement

Testing the operation of the steam trap in the installed state is straightforward with the "ARImetec[®]-S" multifunction tester.

Refer to data sheet „ARImetec[®]-S“.

5.3 Installation position

(refer to Fig. 1 page 4)

The venting valve is operated in a vertical installation position (system connection vertically downwards). The arrow on the side of the cover (pos. 6) marks the direction of flow.

6.0 Putting the valve into operation



ATTENTION !

- Before putting the valve into operation, check material, pressure, temperature and direction of flow.
- Regional safety instructions must be adhered to.
- Residues in piping and valves (dirt, weld beads, etc.) inevitably lead to leakage.
- Touching the valve when it is operating at high ($> 50\text{ °C}$) or low ($< 0\text{ °C}$) media temperatures can cause injury.
Affix warning notice or protective insulation as appropriate!

Before putting a new plant into operation or restarting a plant after repairs or modification, always make sure that:

- All works has been completed!
- The valve is in the correct position for its function.
- Safety devices have been attached.

7.0 Care and maintenance

Maintenance and maintenance-intervals have to be defined by the operator according to the requirements.



ATTENTION !

- refer to item 10.0 and 11.0 prior to dismantling and repair work!
- refer to item 6.0 before restarting the plant !

Prior to installation, threads and seal faces should be coated with temperature-stable lubricant (e.g. "OKS Anti-Seize Paste" white/metal-free for PN16-40 or "Rivolta" lubricant and parting agent silver for PN63 onwards).

7.1 Cleaning / replacing venting valve

(refer to Fig. 1 page 4)

- Unscrew screw cap (pos. 6) from body (Pos. 1).
- Remove ball (pos. 2) from seat.
- Clean body interior, thread, bores, screw cap (Pos. 6) and ball (Pos. 3).
- Check seat chamfer in body (Pos. 1) and ball (Pos. 3) for possible wear.
- If wear is found, replace the complete unit.
- If no wear is found the ball (Pos. 3) can be placed on the seat bore.
- Tighten screw cap (Pos. 6) (see 7.3).

7.2 Option drip pipe with union joint

It is possible to install a drip pipe (Pos. 53/54) on the air inlet side to collect and safely discharge any escaping liquid leakage.

Note section 7.3 when installing the option.

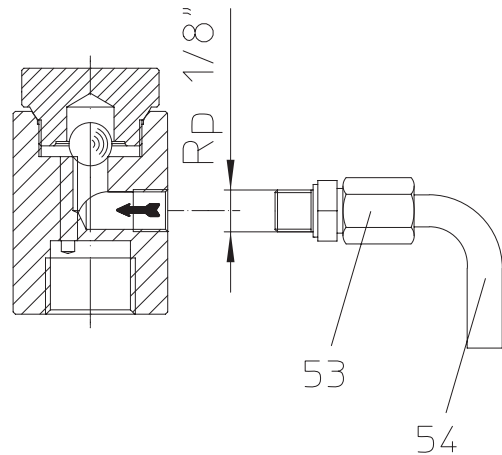


Fig. 2


7.3 Tightening torques

(refer to Fig. 1 page 4 - Fig. 2 page 7)

Pos.	Vacuum breaker PN40	Torque (Nm)
		Rp 1/2
6	Screw cap	90
53	Union joint for drip pipe	30


8.0 Troubleshooting

In the event of malfunction or faulty operating performance check that the installation and adjustment work has been carried out and completed in accordance with these Operating Instructions.

	<p>ATTENTION !</p> <p>It is essential that the safety regulations are observed when identifying faults.</p>
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If malfunctions cannot be eliminated with the help of the following table "9.0 troubleshooting table", the supplier or manufacturer should be consulted.

9.0 Troubleshooting table

	<p>ATTENTION !</p> <p>- refer to item 10.0 and 11.0 prior to dismantling and repair work!</p> <p>- refer to item 6.0 before restarting the plant !</p>
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Fault	Possible cause	Corrective measures
External leakage	Screw cap (Pos. 6) not properly tightened	Tighten; refer to item 7.3
	Ball/seat chamfer worn	Replace venting valve
	Incorrect installation position	Note installation position; refer to item 5.3. Correct installation position

10.0 Dismantling the valve or the body



ATTENTION !

The following points must be observed:

- *Pressureless pipe system.*
- *Medium must be cool.*
- *Plant must be drained.*

11.0 Warranty / Guarantee

The extent and period of warranty cover are specified in the "Standard Terms and Conditions of Albert Richter GmbH & Co. KG" valid at the time of delivery or, by way of departure, in the contract of sale itself.

We guarantee freedom of faults in compliance with state-of-the-art technology and the confirmed application.

No warranty claims can be made for any damage caused as the result of incorrect handling or disregard of operating and installation instructions, datasheets and relevant regulations.

This warranty also does not cover any damage which occurs during operation under conditions deviating from those laid down by specifications or other agreements.

Justified complaints will be eliminated by repair carried out by us or by a specialist appointed by us.

No claims will be accepted beyond the scope of this warranty. The right to replacement delivery is excluded.

The warranty shall not cover maintenance work, installation of external parts, design modifications or natural wear.

Any damage incurred during transport should not be reported to us but *rather* to the competent cargo-handling depot, the railway company or carrier company immediately or else claims for replacements from these companies will be invalidated.



Technology for the Future.

GERMAN QUALITY VALVES

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12.0 EC declaration of conformity



**AWH Armaturenwerk Halle GmbH,
Turmstrasse 118, D-06110 Halle/Saale**

EC declaration of conformity
as defined by
the Pressure Equipment Directive 97/23/EC

We hereby declare,

that pursuant to the aforementioned Pressure Equipment Directive the products listed below were executed and classified in accordance with Directive 97/23/EC (Article 3, paragraph 3).

Pursuant to Article 3, paragraph 3 these products should not carry a CE mark.


Vacuum breaker

Series	Nom. pressure	Material	DN
655	PN 40	1.4301	Rp 1/2"

Applied standards:

DIN 3840
AD 2000-leaflet
ASME VIII/1

Halle/Saale, 25.03.2004


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(Dr. Urbanek, Managing director)