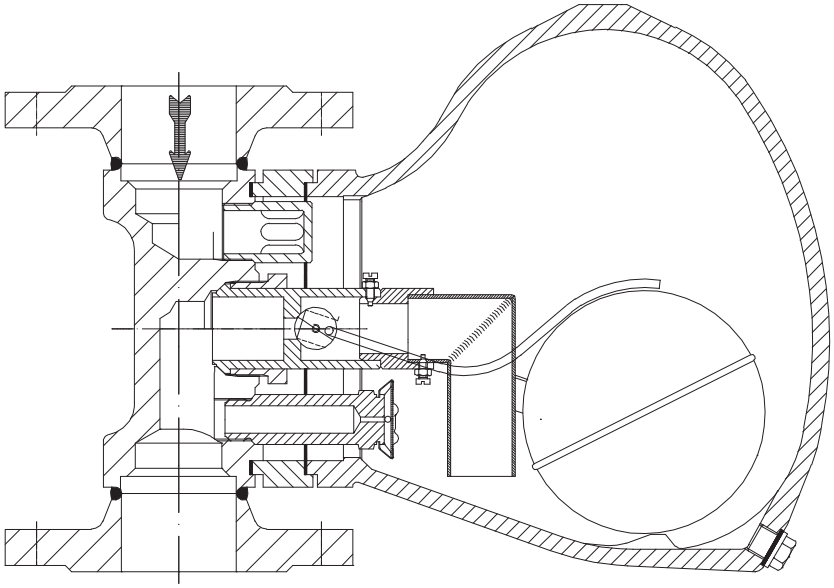
ARMATUREN

Operating and installation instructions

Ball float steam traps
CONA®S (PN40)



PN40
- pilot operated with flanges R4-P (series 633....1)

Contents

Rev. 0040805004 4608 englisch

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

ATTENTION !

. . .

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

ATTENTION !

- *Protect against external force (like impact, vibration, etc.).*
- *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 catalog sheet for weights.*

- 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

Float-type steam traps with level- and thermal control are used for the drainage of steam facilities.

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. 4 page 8)

The steam trap is controlled by a swivel-mounted ball float (Pos. 24.16). An integrated diaphragm capsule (Pos. 4) provides automatic start-up venting when cold.

If the condensate level rises in the body (Pos. 1), the ball float (Pos. 24.16) moves up and the rotary valve (Pos. 24.4) opens an area of flow at the seat (Pos. 24.1) and condensate is able to discharge.

If the amount of condensate decreases or if there is no condensate, the ball float (Pos. 24.16) drops and the rotary valve (Pos. 24.4) closes the seat (Pos. 24.1).

If the steam trap is only acted upon by steam, the condensate-flooded seat (Pos. 24.1) stays shut.

4.3 Diagram

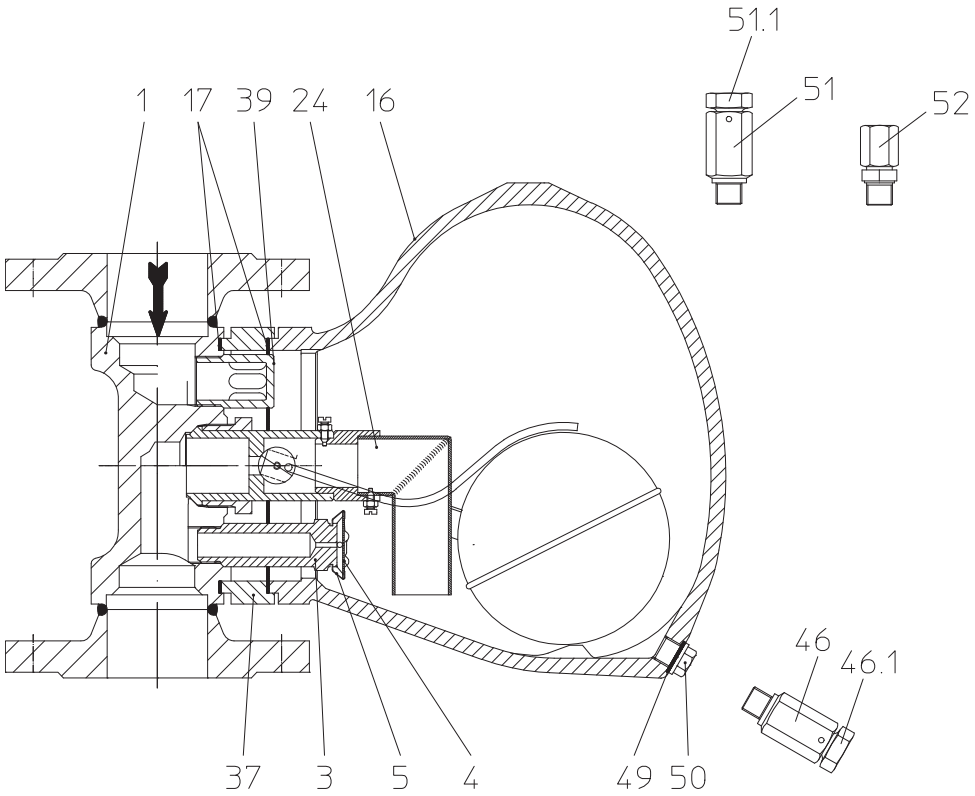


Fig. 1: CONA®S - series 633 PN40
DN40-100 (vertical installation)

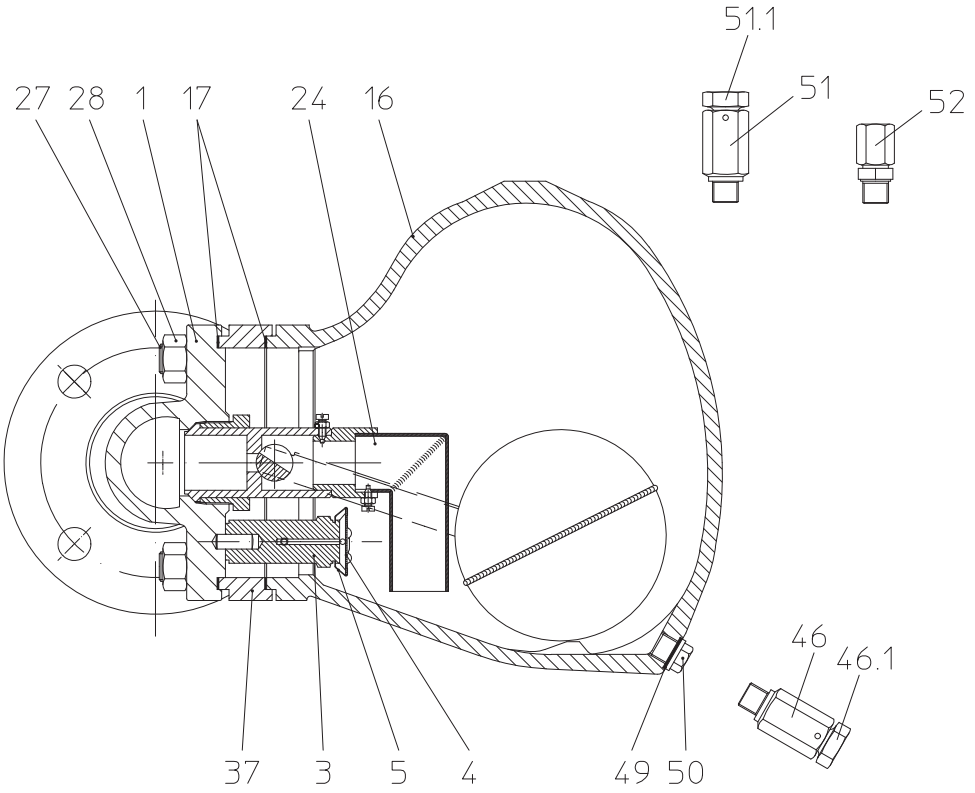


Fig. 2: CONA®S - series 633 PN40
DN40-100 (horizontal installation)

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	Anschrift des Herstellers: siehe Pkt 11.0 Garantie / Gewährleistung
Typ	Type	
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.

- It is possible to install the float steam trap for vertical or horizontal flow. 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 precisely.

- 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. If a system not in operation is in a position susceptible to freezing, we recommend that the drain plug (Pos. 50) on the unpressurised steam trap be unscrewed, the residual condensate drained off, the seal faces cleaned and the plug screwed down again.
The sealing ring (Pos. 49) should be replaced if necessary.
(see Fig. 1 - Fig. 2 page 4 and Fig. 5 page 9)

- Planners / construction companies or operators are responsible for positioning and installing products.
- The valves are designed for application, not influenced from weather.
- For application outside or in adverse environments like corrosion-promoting conditions (sea water, chemical vapours, etc.), special constructions or protective measures are recommended.

5.2 Controller adjustment

The controller is produced in only one pressure stage and does not need changing.

5.3 Steam trap testing through ultrasonic measurement

Testing the operation of the steam trap in the installed state is straightforward with the “ARImetec®-S” mulitfunctional testing device.

Refer to data sheet “ARImetec®-S”.

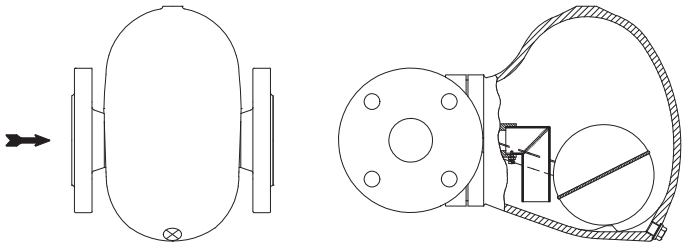
5.4 Installation position

(refer to Fig. 3 and Fig. 4 page 8)

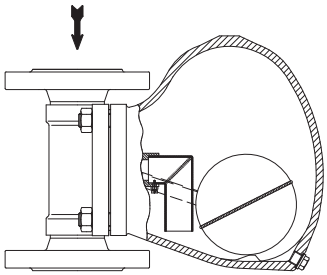
The float steam trap can be installed for vertical or horizontal flow. This should be stated when ordering.
If the installation position is not stated it will be supplied for vertical flow.

It is not possible to change the installation position at a later stage.
Automatic start-up venting is arranged decentrally in the body (Pos. 1) and is made appropriately for the required installation position.

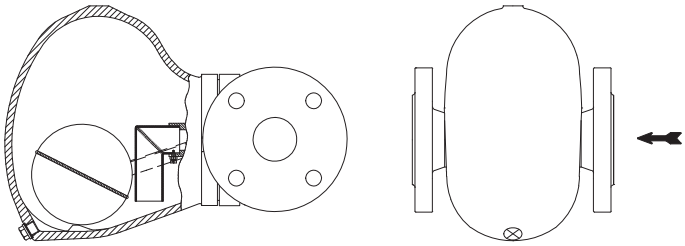
5.4.1 Possible installation positions



Horizontal installation:
Inlet from the left side (ZL)



Vertical installation (standard):
Inlet from the top



Horizontal installation:
Inlet from the right side (ZR)

Fig. 3

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 °C) or low (< 0 °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

Maintanance 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 controller assembly

(refer to Fig. 1 page 4- Fig. 3 page 7 and Fig. 4 page 8)

- Dismantle hood (Pos. 16) and intermediate flange by slackening hexagon nuts (Pos. 29).
- Remove dirt from body (Pos. 1) and hood (Pos. 16); tiny dirt particles can be removed by flushing out the ducts and rinsing the body (Pos. 1).
- If necessary remove the float controller (Pos. 24) and clean separately or change float controller.
- Unscrew hollow-core screw (Pos. 24.10) of float controller (Pos. 24) from body (Pos. 1).
- Pull complete float controller (Pos. 24) out to remove.
- Check lifting force of ball float (Pos. 24.16) by immersing the whole controller (Pos. 24) in a water bath. When immersed in the water bath the ball float (Pos. 24.16) must float. If the ball float (Pos. 24.16) sinks (i.e. goes under) the complete controller (Pos 24) should be replaced.
- Replace sealing rings (Pos. 17).
- Assemble in reverse order (see 7.4).

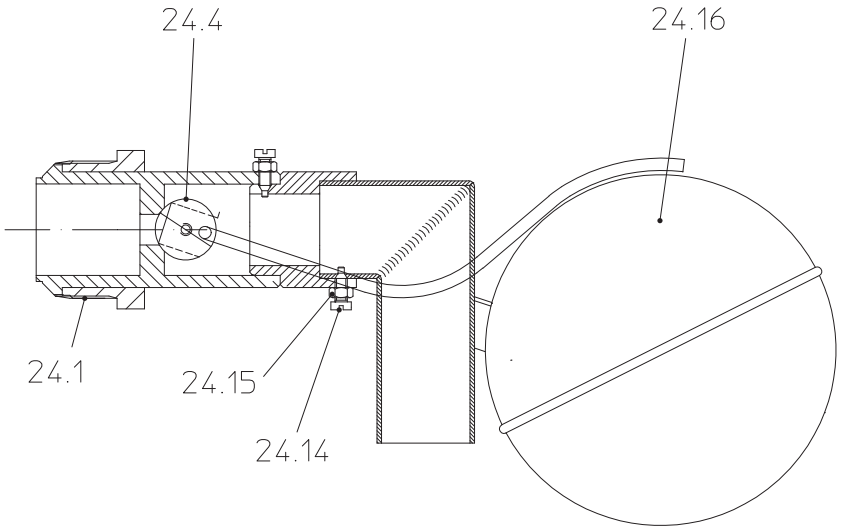


Fig. 4: Controller, cpl.

7.2 Options

(refer to Fig. 1 page 4 and Fig. 4 page 8)

ATTENTION !

Escape of hot medium under pressure!
Observe item 2.2 !

Accumulated dirt and condensate can be removed from the hood (Pos. 16) by opening the pressure screw (Pos. 46.1). When opening, hold against the blow down ball valve (Pos. 46).

Accumulating inert gases can be discharged to the environment with the manual air vent valve (Pos. 51) by opening the pressure screw (Pos 51.1).

It is also possible to return the accumulating gases to the system by connecting a pressure compensation line to the union (Pos. 52).

During operation it is imperative to observe general working safety conditions and possibly fit devices to guard against scalding/injury.

Note section 7.4 when installing and operating the option.

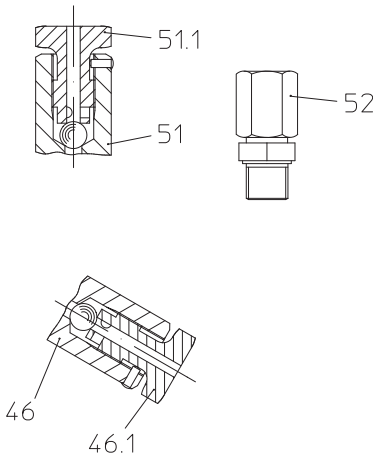


Fig. 5

7.3 Function testing of diaphragm capsule

When the diaphragm capsule is dry an cold, the diaphragm must be in contact with the top part of the wall as shown in „Fig. 6 : Capsule OPEN“.

If the diaphragm is away from the top surface, and/or in contact with the bottom part of the wall as shown in „Fig. 7 : Capsule CLOSED“, the capsule is defective and should be replaced.

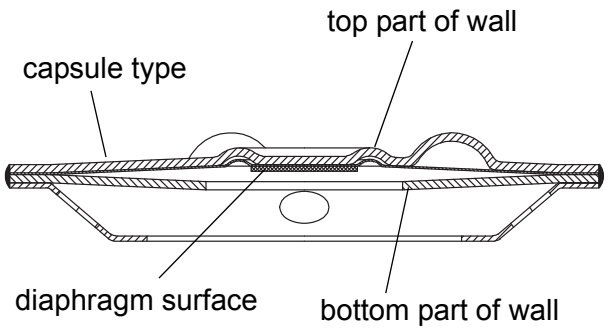


Fig. 6: Capsule OPEN

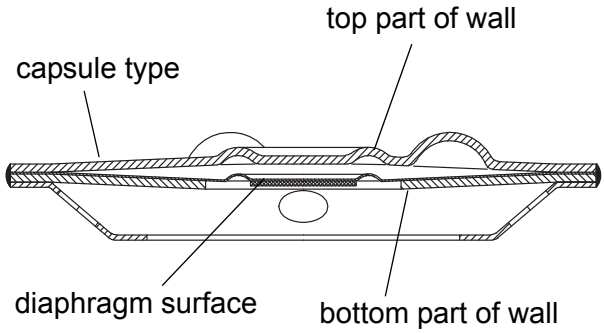


Fig. 7: Capsule CLOSED

7.4 Tightening torques

(refer to Fig. 1 page 4 - Fig. 4 page 8)

Pos.	CONA S PN40	Torque (Nm) DN50-100
24	Controller	100
28	Hex. nut M16	60
50	Plug	50
51	Manual air vent valve	50
51.1	Pressure screw	30
46	Blow down valve	50
46.1	Pressure screw	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.

ATTENTION !
- It is essential that the safety regulations are observed when identifying faults.

If malfunctions cannot be eliminate with the help of the following table "**9.0 Troubleshooting table**", the supplier or manufacturer should be consulted.

9.0 Troubleshooting table

ATTENTION !

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

Fault	Possible cause	Corrective measures
No flow	Installed in wrong flow direction	Fit valve in direction of flow arrow. Note installation position
	Flange covers not removed	Remove flange covers
	Ball float (Pos. 24.16) defective	Check lifting force; refer to item 7.1
Little flow	Wrong installation position	Note installation position. Correct installation position.
	Piping system clogged	Check piping system
	Excessive amount of inert gases in system	Use pressure compensation line option; refer to item 7.2
No closure, or internal leakage	Controller clogged	Clean strainer and controller; refer to item 7.1
	Controller worn out	Change controller; refer to item 7.1
	Controller incorrectly screwed into body	Check seal face between body and controller, tighten controller correctly; refer to item 7.4
	Controller operated above safe operating pressure	Observe operating limits as per data sheet
External leakage	Hood (Pos. 16) not properly tightened with hex. nut (Pos. 28)	Tighten; refer to item 7.4
	Flat gasket (Pos. 17) defective.	Replace sealing; refer to item 7.1

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 relavant 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.

ARMATUREN

Technology for the Future.

GERMAN QUALITY VALVES

ARI-Armaturen Albert Richter GmbH & Co. KG, D-33756 Schloß Holte-Stukenbrock
Telephone (+49 5207) 994-0 Telefax (+49 5207) 994-158 or 159
Internet: http://www.ari-armaturen.com E-mail: info.vertrieb@ari-armaturen.com

12.0 EC declaration of conformity

® AWH ARMATUREN-
WERK HALLE GMBH
a member of the ARI group

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.

Ball float steam trap
CONA® S

Series	Nom. pressure	Material	DN
633	PN 40	1.0460	40-100

Applied standards:

DIN 3840
AD 2000-leaflet
ASME VIII/1

Halle/Saale, 24.03.2004

.....
(Dr. Urbanek, Managing director)