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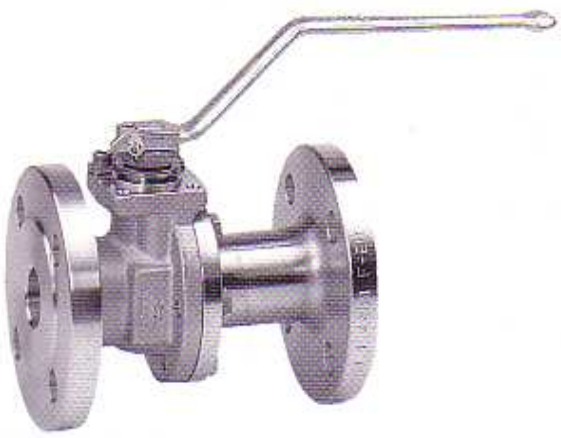
Rev. 05 - 01/2017



Operating instructions
VH – ball valves
Series TOPI

TOPI - Series

TOPI						
210	220	211	215	510	610	310
Standard-		metalseated	springloaded.	Compact.-	control	multiport
V14… V15… V16… V17… V18… V19…	V25… V26…	V1637	V15E2 V16E2	V56…	V66R2	V37…
90°-angle						

Contents

1. Declaration of Conformity

1.1 Declaration Module „A2“

Declaration
acc annex. IV Directive 2014/68/EU

We, the manufacturer

VH Armaturen GmbH
Ringstrasse 22

67245 Lambsheim, Germany

declare in sole responsibility that the product

ballvalve	DN32 to DN150	PN16/40
Type:	Serie TOPI 200	
Serial-No.:	see markings on valve	

on which this declaration refers, with Directive 2014/68 / EU
has undergone the following conformity assessment procedures

- Module „A2“ (internal manufacturing control)

(internal manufacturing control with supervision of testing acc. to directive 2014/68/EU)

Technical specification: AD-2000 Regulations

Person in charge for documentation: Schottek, Thomas
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e-mail: schottek@vh-armaturen.de

Name of notified body:
TÜV Süd Industrie Service GmbH,
Dudenstrasse 28, 68167 Mannheim, Germany

ID number of notified body:
CE 0036

Lambsheim, 09.01.2017

Edwin Günther
General Manager

VH Armaturen GmbH
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1.2 Declaration of conformity Module „B“ EC-Type examination (Type) and Module „C2“ (conformity of desgn)

Declaration

Conforming to annex. IV directive 2014/68/EU

We, the manufacturer

VH Armaturen GmbH
Ringstrasse 22

67245 Lambsheim, Germany

declare in sole responsibility that the product

ballvalve	DN32 to DN150	PN16/40
Type:	Serie TOPI 200	
Serial-No.:	see markings on valve	

on which this declaration refers, with Directive 2014/68 / EU
has undergone the following conformity assessment procedures:

- Module „B“ and „C2“

Module „B“ EC type examination (type) and Module „C2“ (conformity with design)

Technical specification: AD-2000 Regulations

Person in charge for documentation: Schottek, Thomas Tel.: 06233 – 512-121
Fax: 06233 – 512-110
e-mail: schottek@vh-armaturen.de

Name of notified body: ID number of notified body:

TÜV Süd Industrie Service GmbH, Dudenstrasse 28, 68167 Mannheim, Germany **CE 0036**

Lambsheim, 09.01.2017

Edwin Günther
General Manager

2. General

These operating instructions apply to VH ball valves of the TOPI series.

Correct installation and maintenance or repair will ensure trouble-free operation of the valve.

The manufacturer assumes no responsibility for these valves if these operating instructions are not observed.

The valves are in accordance with DIN EN 19 (ISO 5209); Nominal diameter (DN), nominal pressure (PN), housing material, manufacturer and / or trademark; if necessary marked with flow direction arrow, permissible operating temperature (° C) and permissible operating pressure (bar).

DANGER The valves must not be operated beyond the specified limits or other instructions operating instructions / contractual documentation / data sheet. The use outside of the above conditions leads to overstress, which the valves do not withstand.

⚠ Failure to heed this warning may result in personal injury and property damage,, e.g..

- Injuries due to escaping media (cold / hot, poisonous, under pressure, ...) impairment of the function or destruction of the valve.

The descriptions and instructions in this operating manual refer to the standard versions, but apply equally to variants.
These operating instructions do not take into account::

- - Random events that may occur during assembly, operation and maintenance.
  - the site-specific safety regulations, for the compliance of which - also on the part of the installation personnel - the operator is responsible.

For automated valves, the prescribed connection values as well as the installation and maintenance instructions - including the operating instructions belonging to the actuator - must be strictly adhered .

DANGER Prerequisite for handling the valve is the use of technically trained personnel. Personnel for operation, inspection and assembly must be aware of the interactions between the valve and the system.

Faulty operation of a valve can lead to serious consequences for the entire system, e.g.

- - Outflow of the medium
  - Standstill of a plant / machine
  - Impairment / reduction / increase of the effect / function of a plant / machine

If you have any questions, please contact VH Armaturen GmbH.

For further inquiries and reorders, especially when ordering spare parts, we ask you to indicate the model series and type designation and, if possible, the year of manufacture

The technical data (operating data) of the valves are listed in the technical documentation (data sheet) of the respective valve (see section 5)

In the case of a return transport, proceed according to section 4. Transport.

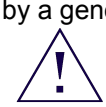
3. Safety

These operating instructions contain basic instructions that must be observed during installation, operation and maintenance. For this reason, these operating instructions must always be read by the installer and the responsible specialist / operator prior to installation and commissioning and must always be available at the place of use of the valve.

In addition to the general safety instructions listed in this main item "Safety", the special safety instructions listed in the other main points must also be observed.

3.1 Marking of notes in the operating instructions

The safety instructions contained in this operating manual, which can cause danger to persons if ignored, are indicated by a general danger symbol



Safety mark according to DIN 4844 - W9,

warning of electrical voltage with

Safety mark according to DIN 4844 - W8

For safety instructions whose non-observance can cause dangers for the valve and its functions is the word

DANGER

inserted

Information attached directly to the valve (such as nominal pressure) must be strictly observed and kept in a fully legible condition.

3.2 Personnel Qualification and Training

The personnel for operation, maintenance, inspection and assembly must have the appropriate qualifications for this work. The area of responsibility, liability and supervision of the personnel must be precisely regulated by the operator. If the personnel do not have the necessary knowledge, this must be trained and instructed. If required, this can be done on behalf of the valve operator by the manufacturer / supplier. Furthermore, the operator must ensure that the contents of the operating instructions are fully understood by the personnel

3.3 Dangers due to non-observance of the safety instructions

Nonobservance of safety instructions can endanger persons as well as the environment and the valve. Nonobservance of safety instructions may result in the loss of any claim for damages

- In particular, non-compliance may, for example, result in the following hazards:

  - Failure of important functions of the valve / system
  - Failure of prescribed methods of maintenance and servicing
  - Danger to persons due to electrical, mechanical and chemical influences
  - endangering the environment through leaks of hazardous substances
-

3.1 Safety-conscious work

The safety instructions in this operating manual, the existing national accident prevention regulations and any internal operating, operating and safety regulations of the operator must be observed.

3.2 Safety instructions for the operator

- If hot or cold valve parts (for example housing parts or hand lever) lead to dangers, these parts must be secured against contact by the operator on site.
- Leakage (e.g.at stem seals) of hazardous media (such as explosive, toxic, hot) must be handeled in a way not to endanger people or the environment. Legal regulations must be observed.
- Hazards due to electrical energy has to be excluded (for details see, for example, regulations of the VDE and the local energy supply companies).
- Contact protection for moving parts (eg coupling between actuator and valve) must not be removed when the components are in operation.

3.3Safety instructions for maintenance, inspection and installation

The plant operator must ensure that all maintenance, inspection and installation work is carried out by authorized and qualified specialist personnel who have sufficiently informed themselves by thoroughly studying the operating instructions..

Generally, work on the valve should only be carried out in a pressureless and cooled state., the inside temperature of the valve must bebelow evaporation temperature of the medium
.

Generally, work on (automated) valves should only be carried out at standstill. The shutdown procedure described in the operating instructions must be observed. Valves in contact with hazardous media must be decontaminated.

Immediately after completion of the work, all safety and protection equipment must be reinstalled or put into operation. Before recommissioning, the points listed in section 7. Commissioning must be observed.

3.4 Unauthorized modification and production of individual parts

Unauthorized modification or changes to the valve are not permitted. Original spare parts and manufacturer-authorized accessories are for safety. The use of other parts disclaims liability for the consequences thereof.

3.5Illegal modes of operation

The operational safety of the delivered valve is only guaranteed if it is used as intended according to section 1. "General information of the operating instructions". The limit values specified in the technical documentation must under no circumstances be exceeded.

4. Transport and intermediate storage

4.1Transport

The valves are delivered in „open“ position [1)] with protective caps at the connection flange.
The valves are delivered ready for use.
.

DANGER	For transport and intermediate storage, always keep the valves in the open state1) and close the connection openings with suitable means (such as covers, foils) to avoid damage..

DANGER The valve must not be suspended at the hand lever or (if automated) at the actuator during transport in order to avoid damage.

The weights of the valve are to be taken from the manufacturer's documentation (data sheet).

After delivery or before installation, the valve must be checked for transport damage.

3.1 Interim storage

The storage / intermediate storage of the valves must be carried out in a way to preserve the proper function of the valve even after prolonged storage. Therefor it is necessary to:

- storage in open position1) (for protection against damage to the sphere)
- take measures against pollution, frost and corrosion (for example through foils and caps).

When storing soft-sealing valves (seat and / or spindle seals made of elastomers), the guidelines for the storage of elastomers (DIN 7716) must be observed:

- The store room should be dry, dust-free and moderately ventilated. The temperature should not exceed + 25 ° C.
- Existing stocks should first be used up in order to achieve the shortest possible storage times.

[1)] Exception:: For valves with a single-acting actuator (eg pneumatic actuators with spring return, or similar), in which the position "closed" is required as the end position in the pressure-free state of the actuator, the valves can be delivered in closed position

4. Description / Related documents
5.

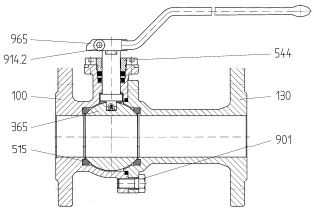
The sectional diagrams below are examples of the general setup of the valves. Detailed information related to specific series can be found in the corresponding data sheets.

5.1 Overview of related documents

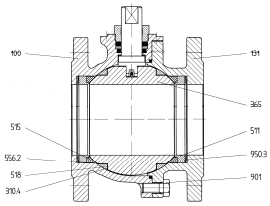
Typ	PN	DN	description	datasheet-No.
TOPI 210	10 - 40	15 -150	softseated	8220.1
TOPI 211	16 - 40	15; 25; 40; 50; 80; 100; 150	metalseated	8223.1
TOPI 220	10 - 40	80 - 200	softseated; trunnionball	8221.1
TOPI 215	10 - 40	15 - 150	softseated; one side springloaded	8222.1
TOPI 510	10 - 40	15; 25; 40; 50	softseated; Compact	8225.1
TOPI 610	10 - 40	25; 50; 80	softseated control ball	8226.1
TOPI 310	10 - 40	25; 40; 50; 80; 100	softseated; 3 ways/ multiport/	8210.1

5.2 Teileverzeichnis

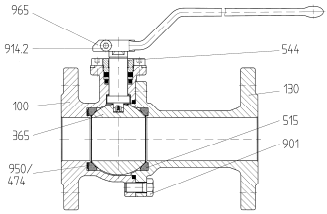
Part -Nr.	Designation	Part-Nr.	Designation
100	Body	515	Seat ring
130	Body component F17	518	Bearing ring for ball
131	Body component F18	542	sealing sleeve
139	Screw part	544	Stuffingbox screw
161	Cap	556	Sliding disc
210	Stem	560	Antistatic device - as
310	lower control shaft bearing	755	throttle piece
330	Bearing bracket	901	Hexagon head bolt
365	Ball	902	Pin screw
411	Gasket	914	Hexagon socket bolt
413	Wedge-facing ring	920	Nut
416	Cup seal	931	Safety plate
474	Thrustring	950	Disc spring
503	Edge ring	965	Handle
511	Back-up ring for ball seat		



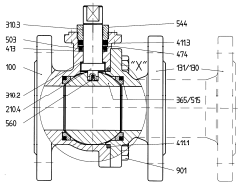
TOPI 210

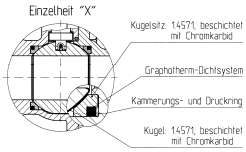


TOPI 220

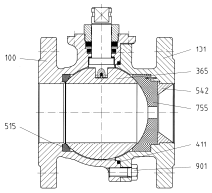


TOPI 215 – one side spring loaded

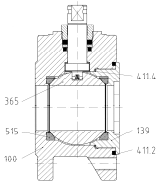




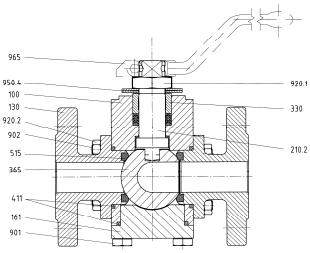
TOPI 211 – metalseated



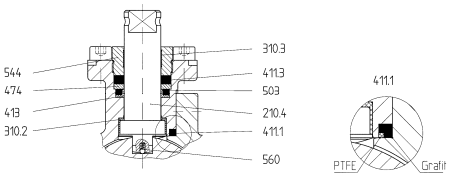
TOPI 610 – controlball



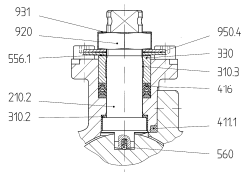
TOPI 510
Compact length



TOPI 310 - Multiport



stem sealing Variante 3
Fire safe-version



stem sealing Variante 1
pure PTFE sealings

5.3 Mode of operation

5.3.1 General

The pressure-carrying parts of the ball valves are the housings (100, 130 and 131, respectively). body (100) and body parts (130 or 131) are connected to one another by hexagonal screws (901) and sealed to the outside with a sealing ring (411). The ball valves of the series TOPI 200 and TOPI 600 are designed in 2-part design.
The ball valves of the TOPI 300 series are multi-way ball valves. The pressure-bearing parts of the TOPI 300 series are the body (100), the body parts (130) and the caps (161).
The compact ball valves of the TOPI 500 series are one-piece fittings. The pressure-carrying parts are the body (100) and the screw cap (139). The screw cap (139) is screwed into the body (100) and sealed by means of sealing rings (411) to the outside.
The shut-off device is the ball (365), as floating (TOPI 210, 211, 215, 310, 510 and 610) or guided ball (TOPI 220).

5.3.1.1 TOPI 210, 215, 220, 310 and 510 - soft-sealing ball valves

5.3.1.2 TOPI 210, TOPI 220, TOPI 510

5.4

The sealing at the ball take over the both sides of the ball arranged seat rings (515). The soft-sealing ball valves are opened or closed by a 90 ° movement.
Intermediate positions are not permitted. (Damage to the seat rings)!

5.4.1.1 TOPI 215

Type TOPI 215 ball valves are equipped with a seat ring (515) one side spring loaded. It is recommended to connect the ball valves in the piping “flow direction in direction of not springloaded seatrin (515)! Intermediate positions are not permitted. (Damage to the seat rings)!

5.4.1.2 TOPI 310

Ball valves type TOPI 310 are designed in non-overlapping design. This means that during the switching process, all the pipe connections that are shut off from each other are temporarily interconnected. The ball (365) can be equipped with an L or T-bore. The possible switch positions can be found in data sheet 8210.1. Intermediate positions are not permitted. (Damage to the seat rings)! In special cases, the L-bore can be designed in a way that a connection is arranged perpendicular to the ball valve longitudinal axis and can be installed as needed two to four connections in the horizontal plane of the ball valve (distributor function / mixing function).

5.4.2 TOPI 211 - metal-sealing ball valves

The sealing on the ball are metallic seat rings (515), which are lapped on the ball. The metallic sealing ball valves are opened or closed by a 90 ° movement. Intermediate positions are possible, but should be avoided, especially in the case of medium containing solids or crystallizing media. (Lifetime of the metallic sealing system)!

5.4.3 TOPI 610 - Ball valves with control characteristics

On the standard ball a standard seat ring (515) is arranged on one side in the housing (100). On the second side, in the housing part (130, 131), there is a control diaphragm (755) made of PEEK. Depending on the input signal at the positioner, the ball (365) is moved by the drive via the selector shaft (210) to a corresponding control position between 0 ° and 90 °. The flow should be via the control panel (755) in the ball (365). The floating arranged ball (365) is thereby supported in the seat ring (515). (Reduction of the switching torque in the control process due to the lower coefficient of friction in PTFE compared to PEEK)!

5.4.4 Stem sealing, stuffing box

Two variants are available for sealing the selector shaft:

Variant 1: cup seal (PTFE), grafite free
Variant 3: Fire-Safe version with profile ring

In variant 1, the disc springs are used to preload the gasket seals.

Variant 3 Fire Safe approved sealing acc. to British Standard 6755 (compliance with ISO / DIS 10 497).
.
In addition to the standard materials, modifications are available.
Both variants described meet the requirements of TA-Luft of 24.07.2002,
Paragraph 5.2.6.4 and Directive VDI 2440, Nov. 2000 edition, paragraph 3.3.1.3.
The versions of the shaft seals are maintenance-free and can not be tightened

6. Installation

6.1 General

DANGER	harmful thrust and bending forces from the pipeline on the valves should be avoided to prevent leakage or breakage of the housing.

DANGER	Immediately before installation remove the cover caps at the connection openings. The sealing surfaces of the connection flanges must be clean and undamaged.

The sealings on the connection flanges must be well centered.
connection and sealing elements must be made of permissible materials. All flange holes must be used for the flange connection..

If construction work is still in progress, the valves must be protected from dust, sand and building material (covering with suitable means).
The hand levers of the valves must not be used as steps.

Valves and piping that are operated at high (> 50 ° C) or low (<0 ° C) temperatures must be protected against contact by insulation, or warning signs must be used to show the risk of contact.

DANGER

In the case of condensation or the risk of icing in air conditioning, or refrigeration systems, professional, diffusion-proof insulation of the complete valve, evtl.including the hand lever, is necessary. In case of icing there is a risk of blocking the actuation of the valve

If a ball valve is used in a pipeline as an end valve, the valve should be secured by suitable measures against unauthorized or unintentional opening in order to avoid property damage and / or personal injury.

Installation position

The installation position of the ball valves is not mandatory. The flow direction is arbitrary, the ball valves can also be used with changing flow direction

DANGER

Exceptions are the ball valves TOPI 215 and TOPI 610! The recommended or prescribed directions of flow must be observed
For ball valves with prescribed flow direction this is indicated by an arrow.

6.3 Valves with actuator

The connection of electric cables may only be carried out by qualified persons

The regulations according to VDE 0100 and VDE 0165 (explosion protection) must be observed!
All electrical equipment such as actuators, control box, solenoid valve, limit switch, etc. must be installed in dry rooms protected against flooding.

Voltage and frequency must be as specified on the nameplate.

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7. Commissioning / shutdown

7.1 Commissioning

7.1.1 General

Prior to commissioning, the material, pressure and temperature specifications of the valves should be compared with the operating conditions of the piping system in order to check material resistance and load capacity

Possible pressure surges (water hammer) should not exceed the permissible pressure limit. Protective measures must be provided..

For new installations and especially after repairs, the piping system must be flushed with the valves fully open so that for the sealing surfaces harmful solids or welding beads are removed.

7.1.2 Operation

The "open - close" valves are, closed by right pivoting of the hand lever and opened by turning the left hand lever.(viewed from above)

DANGER — The use of additional levers when operating the hand lever is not permitted in order to avoid damage due to excessive forces

For 3-way ball valves, the direction of the switchover is given by specific in P&I diagram.(piping and instrumentation).

7.1.3 Functioncheck

The shut-off function of the installed valve must be checked before start-up by repeated opening and closing.
.

7.1.4 Valves with actuator

For valves with electric / pneumatic / hydraulic actuator, the travel ranges / forces must be limited.

Please observe the operating instructions of the actuator!

8 Decommissioning

During longer standstill periods, liquids that change state by changing the concentration, polymerization, crystallization, solidification, or the like, must be drained from the line system. If necessary, flush the piping and valves.

8 Maintenance / service

8.1Safety

Maintenance and repair work may only be carried out by technically trained personnel

During all maintenance and repair work on the valves, the following safety instructions and the general instructions in section 3. Safety must be observed..

DANGER! — In any case, suitable spare parts and tools must be used, even in the event of emergencies, otherwise proper functioning of the valve is not guaranteed

8.1.1 Disassembly of valves

Before removing the complete valve from the pipeline or before repairs and maintenance work on the valve itself

the valve must be depressurised and cooled down at least below evaporation temperature of the medium to avoid scalding..

When opening valves under pressure there is danger to life!

If toxic or highly flammable or corrosive media damage have been inside, the valve must be emptied and flushed or aerated

If necessary, wear protective clothing and protective mask!

Due to the installation position, it may be necessary to collect and dispose residual liquid

Before any transport, the valves must be thoroughly rinsed and emptied.

When returning the ball valves, they must be delivered in decontaminated condition!
The decontamination declaration must be enclosed by the customer.

For any questions contact VH Armaturen GmbH.

8.1.2 Disassembly of actuators

If actuators powered by external energy (electric, pneumatic, hydraulic) must be removed from the valve or even dismantled, the foreign energy must be switched off before starting work and the instructions in sections 3., 8.1.1 and the operating instructions for the actuator must be observed

Pneumatic and hydraulic pipelines to the actuator must be depressurised before released !

8.2.1 Maintenance

The valves are largely maintenance-free. However, for operational safety and to reduce repair costs, all valves - especially those rarely operated or difficult to access - should be checked regularly.
The operator is responsible for setting reasonable inspection and maintenance intervals in relation to the use of the valves.

Safety instructions in sections 3., 8.1 and the instructions in section 9 must be observed..

8.3 Installation

After reassembly and before commissioning, the valves are subject to a leak test
acc. to DIN EN 12266-1.

9. Malfunctions and removal of disturbance

9.1 General

All repair and maintenance work must be carried out by technically trained personnel using suitable tools and original spare parts.

The safety instructions must be observed!

9.2 Malfunctions and removal of disturbance

Leakage at the passage
Renewal of seat rings (complete set).
- Leakage at the body joint
> Renewal of the joint ring
- Leakage at the shaft seal
> Renewal of the shaft seal (complete set).

Danger

Before fitting the new seals, the sealing surfaces must be carefully cleaned.

For any questions, please contact VH Armaturen GmbH