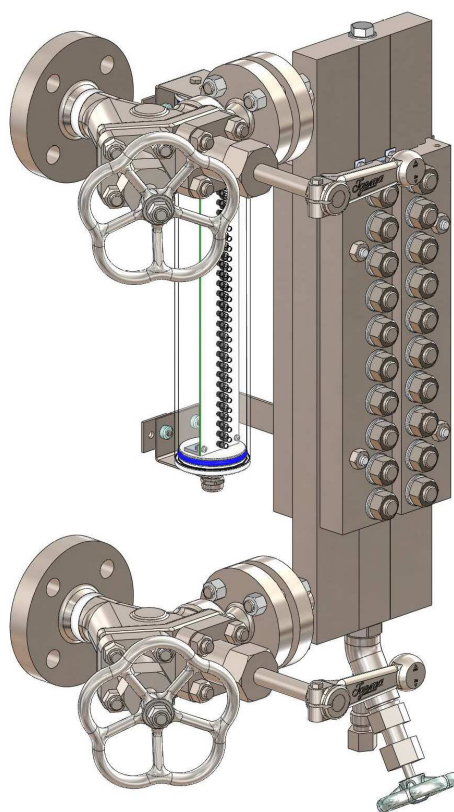


**IGEMA GmbH**  
*Measuring and control systems*

## Mounting and operating instructions

### Transparent level gauge

- type mica  
with LED tube light



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# Safety instructions



## General health and safety instructions

### 1. Avoidance of danger for persons and property

- Only use unit for intended purpose.
- No additional mountings and modifications on the unit without our approval.
- Adhere to the standards for prevention of accidents and to the plant specific safety regulations.
- Read and observe installation and operating instructions.

### 2. Application limits

Only use this unit according to these operating instructions and to the parameters agreed upon in the delivery contract (see identification plate) including the agreed operating conditions.

### 3. Avoidance of danger and damages

- Distribute these mounting and operating instructions to appropriate department "arrival of goods, works transport, mounting, commissioning and maintenance".
- When passing the unit to a third party, these mounting and operating instructions must be enclosed in the national language of this third party.
- Only skilled and qualified personnel with special work order may work on the unit, which must be free of pipeline stress!
- Carefully read, observe and preserve these mounting and operating instructions.
- **Observe and adhere to the precautions marked in bold characters in the sections of these mounting and operating instructions!**
- Avoid shocks and impacts during transport, which could damage the unit.
- In case of intermediate storage take care for a dry and appropriate place where the unit cannot be damaged.

### 4. Marking

In these mounting and operating instructions, the safety instructions are specially marked with the following symbols:



Danger

means danger to life and/or serious property damage in case of non-observance. Never ignore!



Attention

means that you must pay special attention to the technical relationships.

### Unit-specific safety instructions

- ⇒ The fitting is under pressure during operation!  
If flange connections, screw plugs or stuffing boxes are unfixed, hot water and steam will escape.
- ⇒ Carry out assembly and maintenance works only if plant is completely pressureless!
- ⇒ The fitting is hot during operation!  
Severe burns on hands and arms are possible.  
Wait until the unit has cooled before carrying out assembly and maintenance works!
- ⇒ Severe burns and scaldings on the whole body are possible!
- ⇒ Wait until the unit has cooled. In case of opening and disassembling the unit, residual medium can escape. Further evaporation is also possible on pressureless plant.
- ⇒ Sharp-edged interior parts can cause cutting damages on the hands!  
Always wear work gloves when exchanging packing, valve seat and valve cone!
- ⇒ Information: Depending on the size and version of the level gauge the customer has to arrange a sufficient brace support (eg. spring suspension etc.).

### Exclusion of liability

The IGEMA GmbH Mess- und Regelsysteme does not accept liability when a/m regulations, instructions and warning indications are not observed and adhered to. The operator is responsible for modifications on a unit of IGEMA (if they are not explicitly specified in the mounting and operating instructions).

## 2. Important information

## 2.1 Intended use

### Transparent level gauge:

The transparent level gauge type mica is a direct water level gauge with illumination which can be used for steam boilers and containers.

Applied rules as per TRD/AD2000 or ASME-Boiler.

## 3. Explanations

### 3.1 Scope of supply

#### Mica:

The level gauge is delivered in 2 units (A and B). (see page 9)

Unit A consists of:

- upper shutoff valve (2)
- mica holder (1)
- lower shutoff valve (3)
- drain valve (4)

Unit B consists of:

- illumination device (6)

### 3.2 System description

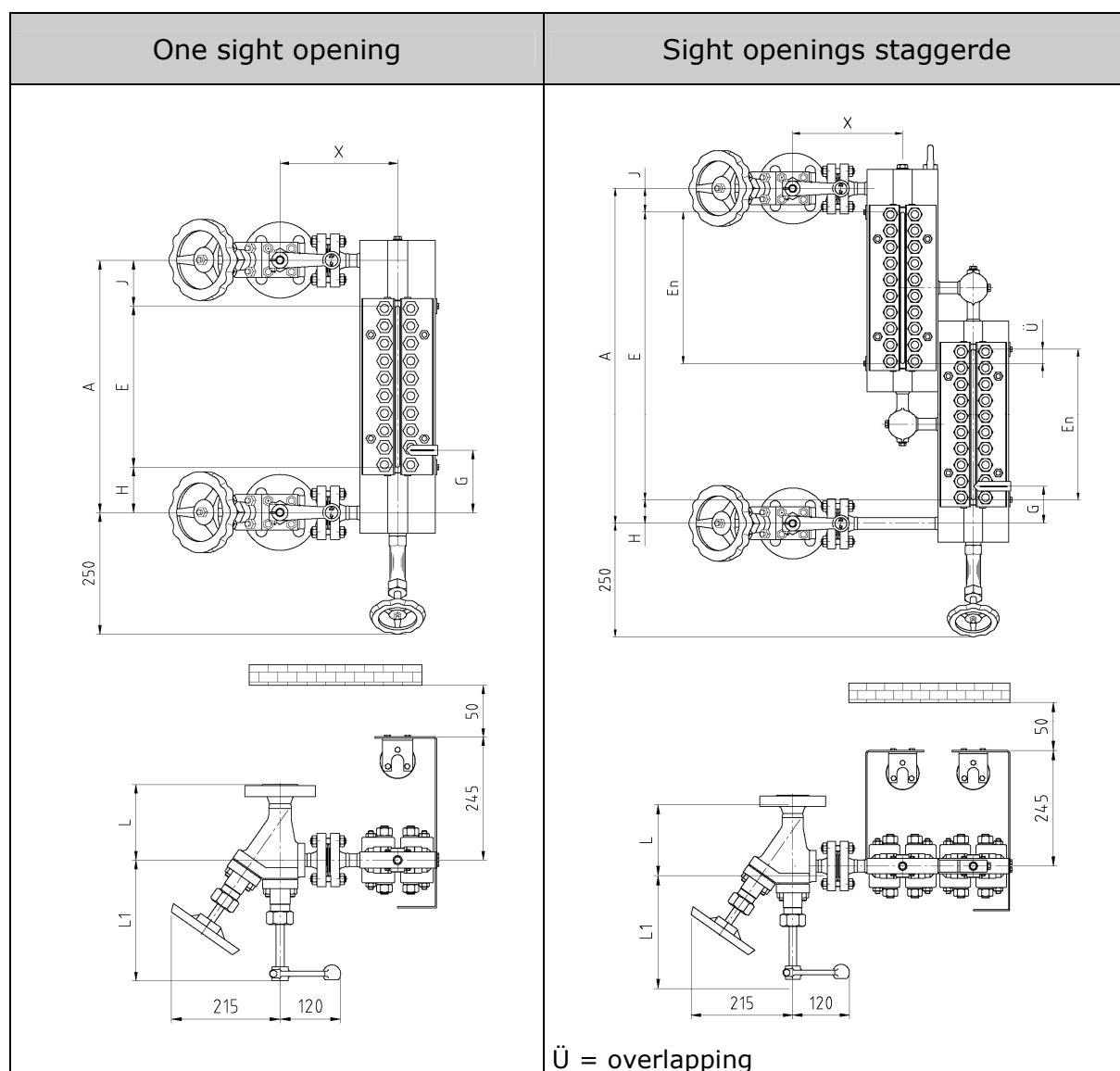
The transparent level gauge in different versions is used to detect the water level of steam generators or containers.

### 3.3 Function

The level gauge works according to the physical law of the communicating tubes. The water level is visible due to the illumination of the water-steam space from the back. In the sight opening, the water level is visible at the interface between water and steam.

## 4. Technical data

## 4.1 Versions



### Sight openings:

Size	7	8	9	10	11
Single sight length En	260	290	320	340	380

other sizes on request n= number of sight openings

One sight opening  $\Rightarrow E = E_n$   
 Sight openings staggered  $\Rightarrow E = n \times E_n - (n-1) \times \ddot{U}$

### Size marking for several sight openings:

E	n	v
Size of sight opening	Number of sight openings	Version: v = staggered

e.g. 7/2v

### Valves:

Valve	Type
Shutoff valve	A220, A240
Drain valve	AV500, AV520, AV540, AV550, AV56_, AV57_

## 4.2 Type of connection

Standard : flanges according to DIN

On request : flanges according to ASME  
Welding end or Socket Welding according to DIN or ASME

### 4.3 Materials

Parts in contact with the medium: C steel or stainless steel according to DIN or ASME.

Pressure holding components: C steel or stainless steel according to DIN or ASME.


### 4.4 Application limits

### 4.5 Corrosion resistance

Max. all. pressure <b>PS</b>	[bar]	32	50	80	100	160	200
Max. all. temperature <b>TS</b>	[°C]	239	265	296	312	348	367

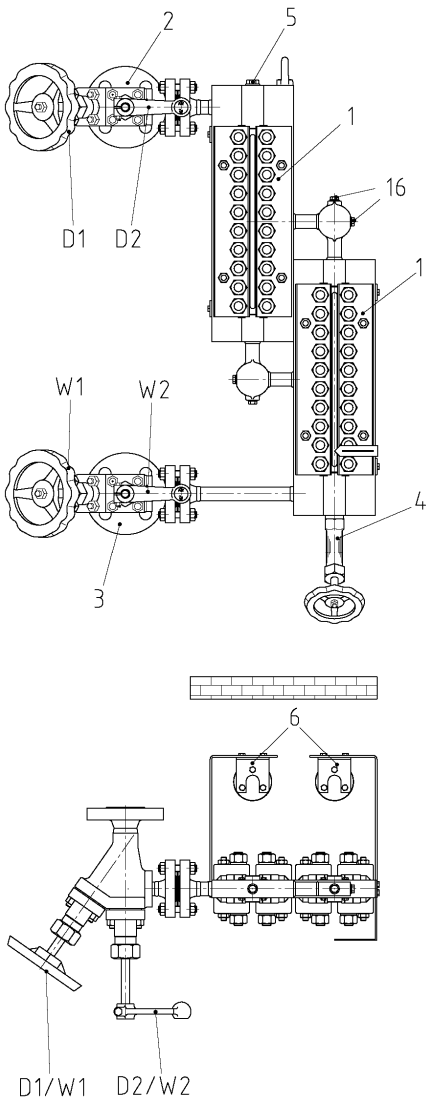
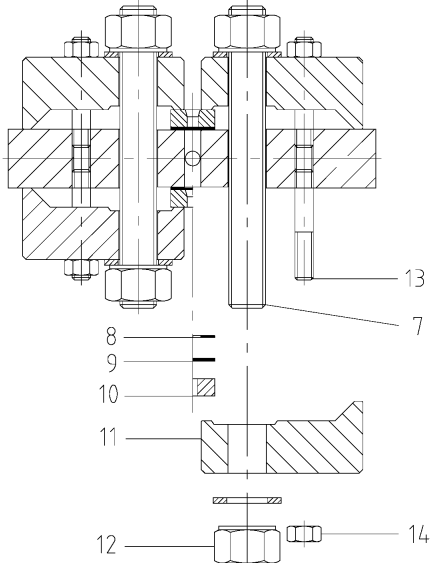
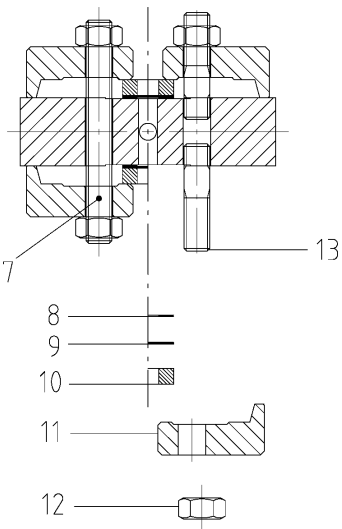
The safety of the unit is not influenced by corrosion if it is used as intended.

### 4.6 Identification plate / Marking

 IGEMA GmbH Mess- und Regelsysteme Zieglerstraße 10-16 Germany - 52078 Aachen  made by LECOS GmbH a company of the IGEMA group  See installation instructions	Built <b>A</b>		Type <b>B</b>	
	PS <b>C</b> bar		TS <b>D</b> °C	
	PN <b>E</b>	DN <b>F</b>		

- A** Date of manufacture
- B** Type of unit
- C** Max. all. pressure
- D** Max. all. temperature
- E** Nominal pressure (not listed)
- F** Nominal diameter

## 5. Construction

<b>Lateral connection</b> PS=32-200 bar	<b>Cross section level gauge</b> PS=80-200 bar
 <p>At PS=32-50 bar the coever screws and holding screws ar in one row. The holding screws are always the second from top and from bottom.</p>	
	<b>Cross section level gauge</b> PS=32-50 bar 

- |                          |   |
|--------------------------|---|
| (1) Mica holder          | (9) Mica shield                               |
| (2) Upper shutoff valve  | (10) Pressure plate                           |
| (3) Lower shutoff valve  | (11) Cover rail                               |
| (4) Drain valve          | (12) Hexagon nut                              |
| (5) Plug G $\frac{1}{2}$ | (13) Stud (holding screw)                     |
| (6) Illumination         | (14) Hexagon nut                              |
| (7) Cover screw          | (15) Plug G $\frac{1}{4}$ (staggered version) |
| (8) Sealing              |   |

## 6. Assembly

## 6.1 Version with flange

- Respect installation position!
- Remove protection caps from connection flanges. Caps only serve as transport protection.
- Ensure that sealing surfaces are clean and undamaged.
- Mount transparent level gauge.

## 6.2 Version with welding end

- Respect installation position!
- Remove protection caps from connection flanges. Caps only serve as transport protection.
- Assembly only by using welding process 111 and 141.

## 6.3 Heat treatment of weldseams

Supplementary temper tests of weldseams are not required.

## 6.4 Drain piping

- Close valves (D1, D2, W1, W2) after mounting.
- Mount drain piping on drain valve (4) (to be provided by the customer).



Ensure that drain piping has free outlet to atmosphere and is protected from pressure peaks!

## 6.5 Illumination device



Only use the lamp in *explosion-proofed* rooms!  
Only skilled and qualified electricians may carry out assembly and connection of the lamps!  
Never insulate illumination devices!

Mount the illumination device with the fixing elements on the level gauge.

# 7. Commissioning

## 7.1 Commissioning of unit together with the boiler

*Check specifications of material, pressure and temperature!*

- Close drain valve (4).
- Fully open shutoff devices (D1, D2, W1, W2).

## 7.2 Commissioning of unit if boiler is already in operating condition

- Close shutoff device (D2, W2).
- Fully open shutoff device (D1,W1) and drain valve (4).
- Slightly open upper shutoff device (D2), carefully heat up mica holder with flowing-in steam until operating temperature is reached.
- Close drain valve (4).
- Slowly open upper (D2) and lower shutoff device (W2) to the fully open position.  
Wait for alignment of water level.  
(If water level is not visible, see 9.1: General information and operating instructions "self-closing ball")

## 7.3 Re-tightening of screws

### All bolts except cover screws

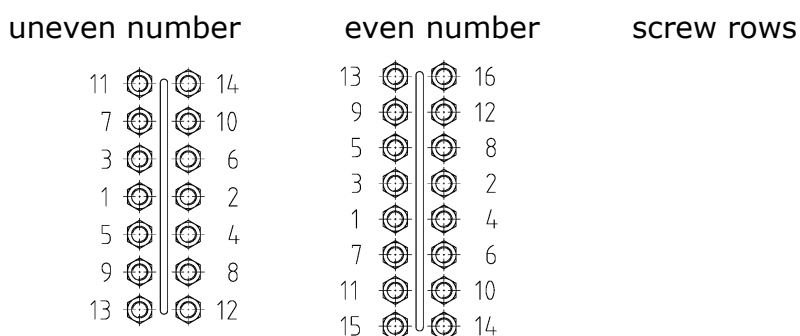
- Check all bolts before commissioning: plugs, valve and flange connections, clamping bolts as well as screw caps of shutoff valves and drain valve and re-tighten if necessary.
- We recommend to observe if level gauge shows any leakages especially during first days after commissioning.
- Re-tighten corresponding screws where leakages appear.

### Cover screws

- The combination cover/holding screws up to PS=50 bar (7, 13) as well as the cover screws starting from PS=80 bar (13) have been tightened in our factory with the corresponding tightening torques (see table 1) and checked. Do not re-tighten cover screws during assembly/commissioning.
- Observe if level gauges shows any leakages especially during the first days after commissioning.

### Leakage

- In case of leakage, close upper and lower shutoff valve (2, 3) and slowly open drain valve (4) a little.
- Fully open drain valve if noise of escaping pressure is no longer audible.
- Tighten the combination cover/holding screws up to PS=50 bar (7, 13) as well as the cover screws starting from PS=80 bar (13) in several steps using successively opposite diagonal tightening from top to bottom (see table chapter 8.6) until tightening torque **Md<sub>max</sub>** is reached.



## 8. Maintenance

### 8.1 Leckagen

Re-tighten corresponding screws in case of leakages.  
See point 7.3 (Re-tightening of screws).

Replace sealing if necessary and check sealing surface.



Severe burns and scaldings on the whole body are possible!  
Before replacing the sealings, level gauge has to be pressureless and empty!

## 8.2 Cleaning of mica shields

During first commissioning or re-commissioning of a boiler, oil and grease residues can deposit on the inside of the mica shields.

In such cases:

- close shutoff valves (2, 3).
- remove plug (5, 15) and clean mica shields as well as channel inside of the indicator body with a circular brush.

## 8.3 Cleaning and purging of level gauge

- Close upper and lower shutoff devices (D1, D2, W1, W2).
- Open drain valve (4). Unit is drained. Normally, cleaning is finished now.
- For commissioning, see chapter 7.

### ***If cleaning was not sufficient:***

- Close upper and lower shutoff device (D2, W2).
- Open upper and lower shutoff device (D1, W1) and drain valve (4). Slowly open upper shutoff device (D2). The steam flowing through the unit cleans the mica shields.
- Close upper shutoff device (D2) and drain valve (4) again.
- For commissioning, see chapter 7.

Replace glasses and mica shields if cleaning was not sufficient.

## 8.4 Exchange of mica shields

### ***Always use new mica shields and sealings!***

- Close shutoff devices (D1, D2, W1, W2).
- Open drain valve (4). Unit is drained.
- Remove nuts (12,14) of cover screws (7) and holding screws (13) (every second nut from top and bottom).
- Remove cover rails (11) pressure plate (10) mica shields (9) and sealing (8).
- Completely remove sealing residues.
- Clean sealing surface of indicator body and supporting surface of pressure plate.

## 8.5 Assembly

***Place mica packets (surface with mark "Wasserseite" (water side) towards the medium)!***

- Grease cover and holding screws (12,15) with suitable lubricant.
- For installation order see cross section of level gauge.
- Tighten the combination cover/holding screws up to PS=50 bar (7, 13) as well as the cover screws starting from PS=80 bar (13) in several steps using successively opposite diagonal tightening from top to bottom (see table chapter 8.6) until tightening torque **Md<sub>max</sub>** is reached.
- For commissioning, see chapter 7.

## 8.6 Tightening torques

Allowable pressure <b>PS</b> [bar]	Tightening torque Md → <b>Md<sub>max</sub></b> [Nm]					
	in steps					
	1	2	3	4	5	6
20-50	35	60	<b>65</b>	-	-	-
80-100	50	80	110	140	160	<b>180</b>
160-200	70	110	160	200	240	<b>280</b>

## 9. Shutoff valve

### Type marking:

A	2	20, 40
Shutoff valve	Number of shutoff possibilities	Serial no.

### 9.1 General information and operating instructions

IGEMA valves are mostly maintenance-free and easy to handle. All IGEMA valves are equipped with metal gaskets and hand operation. Sealing of valve spindle is made with a gland packing.

*Turn handlever/handwheel clockwise to close the valve.*

*Turn handlever/handwheel counterclockwise to open the valve.*

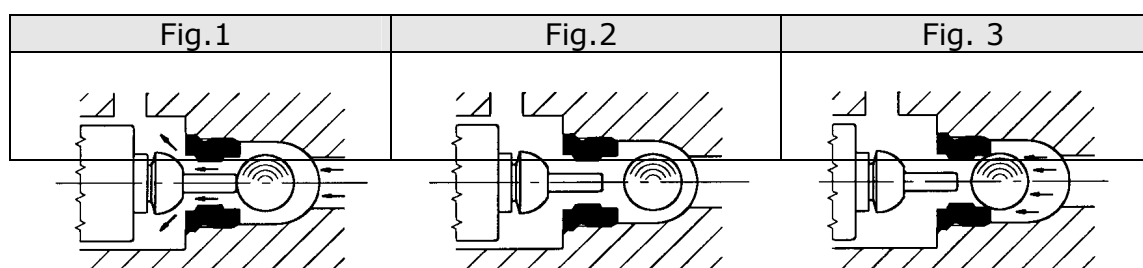
#### Tools to increase hand torque are not permitted.

Turn valve spindles counterclockwise as far as it will go (open position) for backseat, i.e. gland packing is released.

The standard shutoff device is equipped with self-closing ball.

The self-closing ball is a safety facility which automatically closes valve passage of shutoff valve if level gauge is damaged accidentally (mica break).

Residuals in piping and fitting (dirt, welding beads etc.) inevitably lead to leakages (seat/cone).



Ball position during commissioning or flushing/purging	Ball position during normal operation	Ball position during glass break or incorrect commissioning

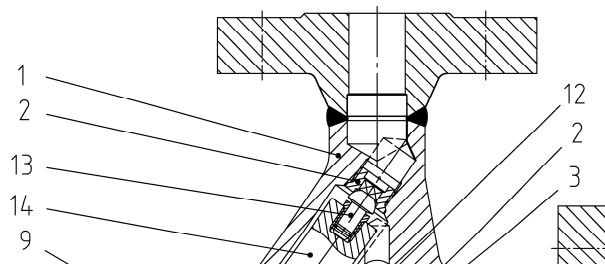
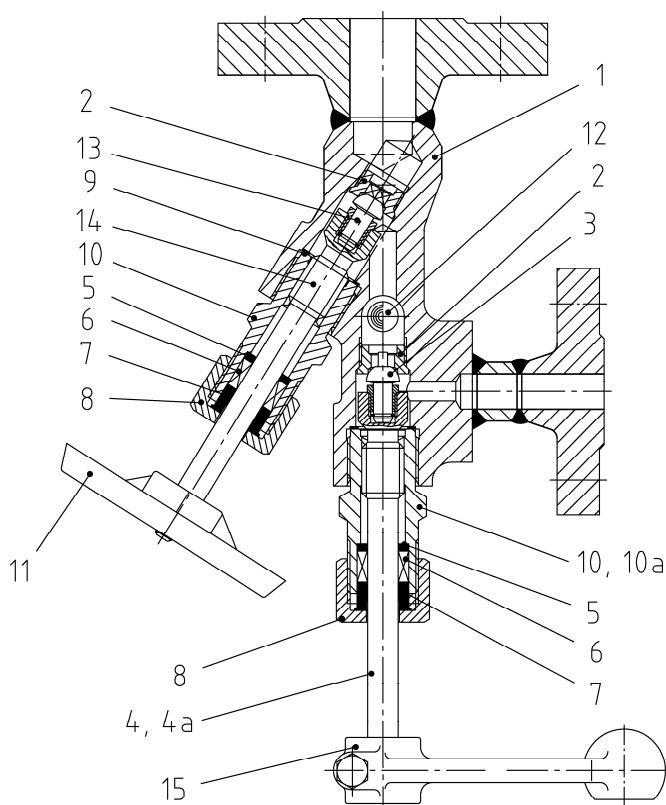


Functioning of self-closing ball is only guaranteed if valve is fully opened. Residuals (dirt, welding beads etc.) can set self-closing ball out of service.

## 9.2 Construction

### A220

- Lateral connection flange
- Straight valve part always with self-closing ball and handlever
- Lateral valve part always with handwheel
- On request: straight valve part with quick closing spindle



## **A240**

- Lateral connection flange
- Straight valve part always with self-closing ball, handlever and quick-closing spindle
- Lateral valve part always with handwheel

- (1) Valve housing
- (2) Seat
- (3) Cone set with stud
- (4) Valve spindle
- (4a) Quick closing valve spindle
- (5) Base ring
- (6) Gland packing
- (7) Stuffing box
- (8) Screw cap

- (9) Sealing ring
- (10) Upper part
- (10a) Upper part (quick closing)
- (11) Handwheel
- (12) Ball
- (13) Cone set without stud
- (14) Valve spindle (inclined part)
- (15) Handlever
- (16) Hexagon nut

### **9.3 Commissioning**



Before every commissioning, re-commissioning, repair or conversion, ensure proper completion of all installation/assembly works and that valve has correct functioning position.

Check specifications of material, pressure and temperature!

- Open shutoff device of valve without self-closing ball on steam and water holding boiler studs counterclockwisely as far as it will go (backseat).
- Slightly open shutoff device of valve with self-closing ball on steam and water holding boiler studs counterclockwisely to prevent that ball closes valve passage (see fig. 1). Fully open spindle after accomplished pressure balance (backseat).
- Compare function of level gauge and water level height with the other safety fittings.

### **9.4 Maintenance**



Carry out maintenance works and disassembly only if boiler and level gauge are empty and pressureless.



Observe that lubricant is suitable for medium and operating temperature. Keep spindle thread always greased.

### ***Leakages on spindle (4, 4a, 14)/gland packing (6)***

- Re-tighten screw cap (8) gradually.  
Life of valve can be increased by regular control on tightness.

### ***Replacement of seat (2), cone set (3, 13) and ball (12)***

- Screw out upper part of valve (10, 10a) with valve spindle (4, 4a, 14) and remove from valve housing (1).
- Unfasten screw cap (8) and remove valve spindle (4, 4a, 14) from upper part of valve (10, 10a).
- Remove and replace cone set (3, 13).
- Screw out seat (2) with socket wrench (SW10).
- Remove ball (12), check and replace if necessary.
- Grease thread of new seat (2) and screw in.  
Tightening torque **Md= 70 Nm**
- For assembly see chapter 9.5.

### ***Replacement of packing set [base ring (5), gland packing (6), stuffing box (7)]***

- Screw out upper part of valve (10, 10a) with valve spindle (4, 4a, 14) and remove from valve housing (1).
- Unfasten handwheel (11) / handlever (15).
- Unfasten screw cap (8) and screw out valve spindle (4, 4a, 14) from upper part of valve (10, 10a).
- Push out packing set (5, 6, 7).
- Carefully remove deposits on valve spindle (4, 4a, 14).
- For assembly see chapter 9.5.

## **9.5 Assembly**

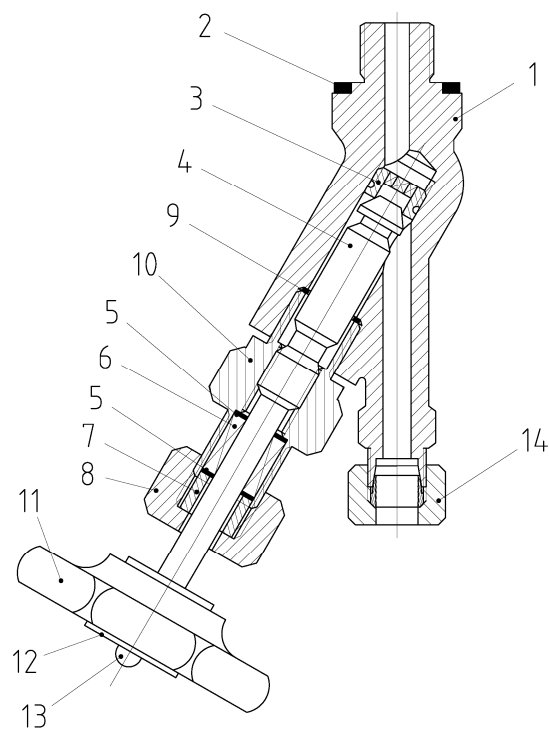
1. Grease thread of valve spindle (4, 4a, 14) and screw in valve spindle in upper part of valve (10, 10a) as far as it will go.
2. Insert base ring (5), gland packing (6) and stuffing box (7).
3. Screw on screw cap (8) and tighten gradually.  
- *spindle has to stay movable* -
4. Screw in complete upper part of valve (10, 10a) with new sealing ring (9) into valve housing (1) with tightening torque  **$M_d \text{ max} = 280 \text{ Nm}$**  or for valves A240 with hex nuts (16) and tightening torque  **$M_d \text{ max} = 65 \text{ Nm}$** .
5. Fix handwheel (11) / handlever (15).
6. Close shutoff device.

## 10. Drain valve

### 10.1 Construction

#### **AV500, AV520**

- Male thread G $\frac{1}{2}$  on input side
- Output side with cutting ring connection  $\varnothing 12$  as per DIN 2353 – DS12

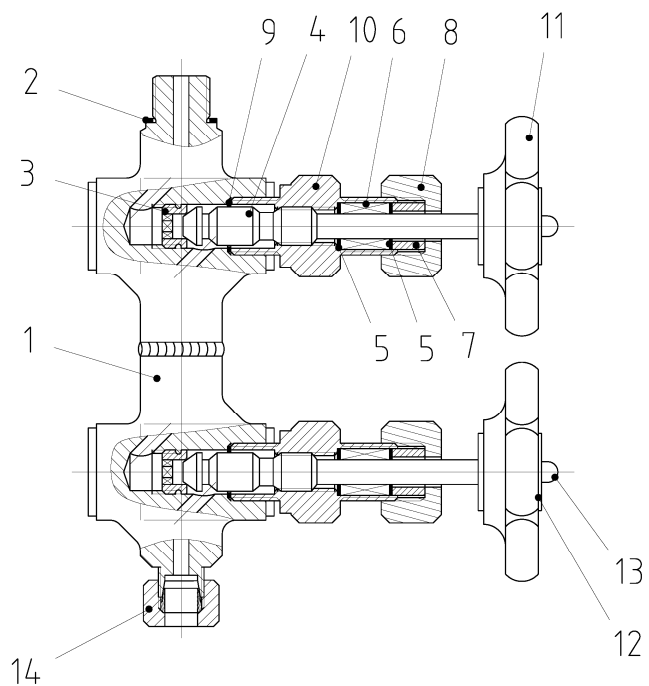


### **AV540, AV550**

- Male thread G $\frac{1}{2}$  on input side
- Output side with welding end
- On request other connections possible

### **AV56x, AV57x**

- Male thread G $\frac{1}{2}$  on input side
- Output side with cutting ring connection  $\varnothing 12$  as per DIN 2353 – DS12
- On request other connections possible



- (1) Valve housing
- (2) Sealing ring
- (3) Seat
- (4) Valve spindle with cone
- (5) Scraper rings
- (6) Gland packing
- (7) Stuffing box

- (8) Screw cap
- (9) Sealing ring
- (10) Upper part of valve
- (11) Handwheel
- (12) Plate OPEN-CLOSED (AUF-ZU)
- (13) Cap nut
- (14) Drain connection

## **10.2 Assembly**



Ensure that drain piping has free outlet to atmosphere and is protected from pressure peaks.

- Firmly screw on drain valve with sealing ring (2) on existing unit.
  - Cutting ring connection: Assemble drain piping (tube  $\varnothing$  12x1 material St 35.8) on provided drain connection (14) as per DIN 2353 (SW24) (on the part of the builder).
- Welding end: weld on  
Flange: screw on

### 10.3 Commissioning

Rust, sand or similar impurities inside of the medium or during first flushing can cause leakage if they remain in the area of the seat.

#### ***Purging of valve:***

- Fully open valve for purging. The pre-pressed gland packing can lose its denseness due to a longer storage (see chapter 10.4)
- Close valve.

### 10.4 Maintenance



Before carrying out maintenance works on drain valve, unit has to be pressureless and empty!  
Severe burns and scaldings on the whole body are possible!

#### ***Re-tightening of gland packing:***

- If a valve is leaky, tighten screw cap (8) with open-end wrench (SW27) clockwise until valve is tight. Spindle (4) has to stay movable.
- Replace gland packing if re-tightening of packing was not successful.

#### ***Replacement of packing:***

- Screw off cap nut (13) and remove handwheel (11).
- Unscrew upper part of valve (10).
- Remove screw cap (8) and stuffing box (7).
- Remove spindle with cone (4) upwards.
- Push out gland packing (6) with scraper rings (5) from top and clean packing space.

#### ***Assembly:***

- Grease spindle thread, insert from top and firmly tighten screws.
- Place new greased packing with scraper rings (5).
- Insert stuffing box (7).
- Tighten screw cap (8).
- Insert new sealing ring (9).
- Grease thread of upper part of valve (10), screw in and tighten with tightening torque  **$M_d = 220 \text{ Nm}$** .
- Place handwheel (11) and tighten cap nut (13).

### **Replacement of complete upper part:**

- For dismounting of component parts see "Replacement of packing"
- Unscrew seat (3) with hexagon socket wrench SW11.
- Grease seat thread, screw in and tighten with tightening torque  $M_d = 55 \text{ Nm}$ .
- Replace complete upper part.
- Place new spindle.
- For assembly of component parts see above.

## **11. Case of damage**



Provide security in the danger zone.  
Severe burns and scaldings on the whole body are possible!

- Check if no further steam escapes at the damaged place.
- **Set boiler pressureless!**  
Close valves as follows:
  - Close shutoff device without self-closing ball on steam and water holding stud.
  - Close shutoff device with self-closing ball on steam and water holding stud.
  - Slowly open drain valve. Level gauge becomes pressureless and water is drained.
  - For commissioning with new spare parts see chapter 9.3.

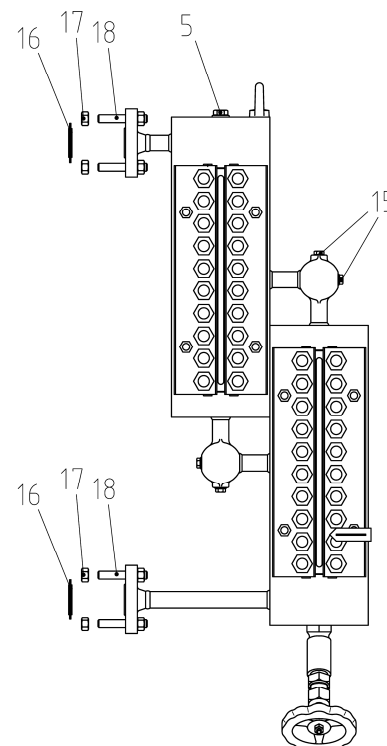
## **12. Spare parts**

Always indicate article no. and serial no. (indicated on the identification plate) in case of spare parts order!

## 12.1 Transparent level gauge

n = number of sight openings

Pos. no.	Designation	DIN 2690 DIN 2697 ASME B16.5	Article-no.		Quantity
			DIN	ASME	
16	Sealing ring	PN25 - PN40	40-00156		2
18	Bolt		40-00350		8
17	Hex nut		40-00583		16
16	Sealing	PN63 - PN100	40-00206		2
18	Bolt		40-00352		8
17	Hex nut		40-00583		16
16	Sealing	PN160	40-00206		2
18	Bolt		40-00352		8
17	Hex nut		40-00583		16
16	Sealing	PN250 - PN320	40-00207		2
18	Bolt		40-00381		8
17	Hex nut		40-00723		16
16	Sealing	Class 300		40-01536	2
18	Bolt			40-01713	8
17	Hex nut			40-00741	16
16	Sealing	Class 600		40-01536	2
18	Bolt			40-01540	8
17	Hex nut			40-00741	16
16	Sealing	Class 900 - Class 1500		40-01591	2
18	Bolt			40-01467	8
17	Hex nut			40-01471	16
16	Sealing	Class 2500		40-01664	2
18	Bolt			40-01686	8
17	Hex nut			40-01471	16
5	Plug G $\frac{1}{2}$	PN40 - PN320	40-00329		1
	Sealing		40-00099		1
15	Plug G $\frac{1}{4}$	PN40 - PN320	40-00316		4
	Sealing		40-00114		4



**For PS=32-50 bar:**

Pos. no.	Designation	Qty.	Article-no.						
			Size						
			5	6	7	8	9	10	11
8	Sealing	nx2	40-00254	40-00255	40-00256	40-00257	40-00258	40-00259	40-00260
9	Mica shield	nx2	40-00966	40-00967	40-00968	40-00969	40-00970	40-01320	40-00971
10	Pressure plate	nx2	25-00094	25-00095	25-00096	25-00097	25-00098	25-00099	25-00100
11	Cover rail	nx4	25-00826	25-00827	25-00828	25-00829	25-00830	25-00831	25-00832
					25-04431				
13	Stud	nx8	40-00323						
			40-01602						

Pos. no.	Benennung		Art.-no.	Quantity						
				Size						
				5	6	7	8	9	10	11
7	Cover screw	DIN	40-00354	nx10	nx12	nx14	nx16	nx18	nx20	nx22
		ASME	40-02385	nx10	nx12	nx14	nx16	nx18	nx20	nx22
12	Hexagon nut	DIN	40-00583	nx28	nx32	nx36	nx40	nx44	nx48	nx52
		ASME	40-01369	nx28	nx32	nx36	nx40	nx44	nx48	nx52

**For PS=80-100 bar:**

Pos.	Designation	Qty.	Article-no.
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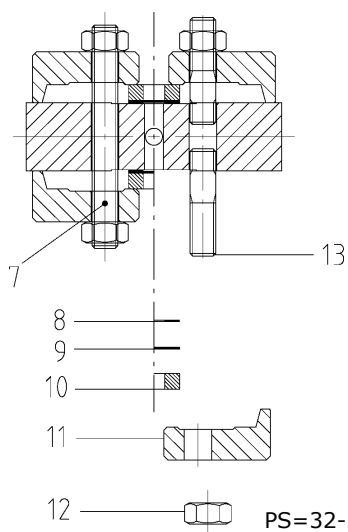
no.				Size						
				5	6	7	8	9	10	11
8	Sealing		nx2	40-00277	40-00278	40-00279	40-00280	40-00281	40-00282	40-00283
9	Mica shield	PS=80bar	nx2	40-00966	40-00967	40-00968	40-00969	40-00970	40-01320	40-00971
		PS=100bar		40-00973	40-00974	40-00975	40-00976	40-00977	40-00978	40-00979
10	Pressure plate		nx2	25-00067	25-00068	25-00069	25-00070	25-00071	25-00072	25-00073
11	Cover rail	DIN	nx4	25-00833	25-00834	25-00835	25-00836	25-00837	25-00838	25-00839
		ASME				25-01980	25-03312	25-03366	25-03913	25-04785

Pos. no.	Designation	Art.-no.	Quantity							
			Size							
7	Cover screw	DIN	40-00387	nx12	nx14	nx16	nx18	nx20	nx20	nx22
		ASME	40-02385	nx12	nx14	nx16	nx18	nx20	nx20	nx22
12	Hexagon nut	DIN	40-00725	nx24	nx28	nx32	nx36	nx40	nx40	nx44
		ASME	40-01379	nx24	nx28	nx32	nx36	nx40	nx40	nx44

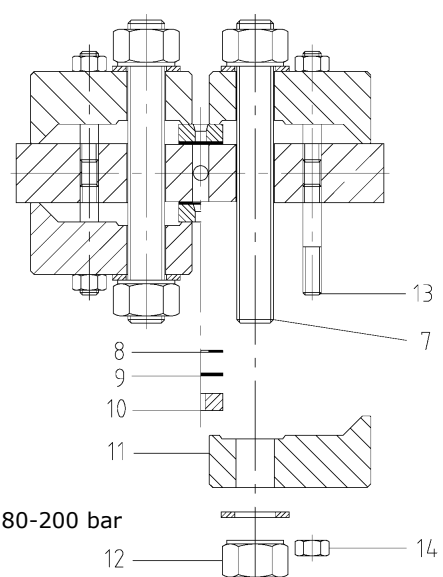
**For PS=160-200 bar:**

Pos. no.	Designation	Qty.	Article-no.							
			Size							
8	Sealing	nx2	40-00277	40-00278	40-00279	40-00280	40-00281	40-00282	40-00283	
9	Mica shield	PS=160bar	nx2	40-00981	40-01196	40-01197	40-00982	40-00983	40-00984	40-00985
		PS=200bar		40-01585	40-01534	40-01479	40-00986	40-01198	40-01532	40-02377
10	Pressure plate	nx2	25-00077	25-00078	25-00079	25-00080	25-00081	25-00082	25-00083	
11	Cover rail	DIN	nx4	25-00840	25-00841	25-00842	25-00843	25-00844	25-00845	25-05435
		ASME				25-01980	25-01125	25-04259	25-01640	25-05435

Pos. no.	Designation	Art.-no.	Quantity							
			Size							
7	Cover screw	DIN	40-00394	nx10	nx12	nx14	nx14	nx16	nx16	nx18
		ASME	40-01378	nx10	nx12	nx14	nx14	nx16	nx16	nx18
12	Hexagon nut	DIN	40-00731	nx20	nx24	nx28	nx28	nx32	nx32	nx36
		ASME	40-01393	nx20	nx24	nx28	nx28	nx32	nx32	nx36



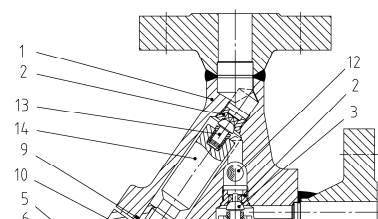
PS=32-50 bar



PS=80-200 bar

## 12.2 Shutoff valve

Pos.	Designation	Article no.
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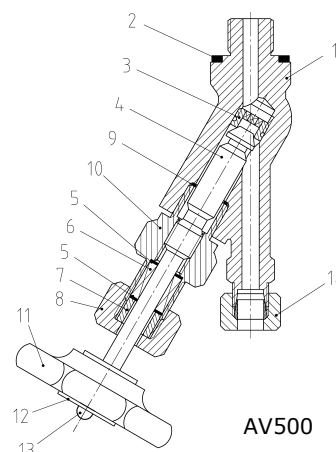


no.		A220	A240
2	Seat	15-00115	15-00115
3	Cone set with stud		
12	Ball		
2	Seat	15-00114	15-00114
13	Cone set without stud		
4	Valve spindle	25-00126	25-00654
4a	Quick closing valve spindle	25-00553	
14	Valve spindle (inclined part)	25-00652	25-00653
9	Sealing ring	40-00117	40-00119
5	Base ring	15-00113	15-00112
6	Gland packing		
7	Stuffing box		
8	Screw cap	25-00008	25-00662
11	Complete handwheel	15-00237	15-00419
15	Complete handlever	15-00338	15-00324
16	Hexagon nut		40-00583

A240

## 12.3 Drain valve

Pos. no.	Designation	Max. Pressure PS [bar]	Article no.	
			AV500, AV520	AV540, AV550, AV56x, AV57x
-	Complete valve	32	40-01803	On request
-	Complete valve	200	40-01845	On request
3	Seat	-	40-01864	40-01953
9	Sealing ring	-		
4	Spindle with rolled cone	-	40-01866	40-04135
5	Scraper rings	-	40-01867	
6	Gland packing	-		
7	Stuffing box	-		
9	Sealing ring	-		40-01873
2	Sealing ring	-		40-00099



## 13. Decommissioning



Severe burns and scaldings on the whole body are possible!

Before detaching flange connections, screws of stuffing box cover screws or screw plugs, all connected lines must be pressureless (0 bar) and cooled off to ambient temperature (20°C)!

### 13.1 Disposal

Dismount unit and separate waste products.

When disposing the unit, observe legal regulations for waste disposal.

## 14. Supplement

### 14.1 Warranty

We accord a warranty period of 24 month on our products. A condition for that is the appropriate treatment according to these mounting and operating instructions. The warranty for wear and spare parts is restricted to material defects and construction faults.

The mica shields and sealings installed in the bicolour level gauge are wear parts and are **not** included in the warranty.

The sealings/gland packing installed in the valves are **not** included in the warranty.



This high quality IGEMA product has been developed, manufactured and inspected in accordance with a quality management system according to DIN EN ISO 9001:2000.

If on receipt of this unit you notice damage in transit or another cause for complaint despite our final quality inspection, please contact immediately our customer service, phone no. +49 (0) 241-56 87-0.