BA 249e00/12.00 51505894

**Operating Instructions** 

Ball-Valve Assembly with Probe

7900 KHE

# 51503660



## List of contents

1Safety instructions 3
21ntroduction 4
3Mounting of ball-valve assembly 5
46 4
5Removal of probe from the ball-valve assembly 8
610
7Spare parts list
8Annex
Dimension sheets 3584.01/1 to /4 (Installation drawings for bolt end nipples and ball-valve assembly for diverse probe types)

## 1. Safety instructions

 Installation, putting into operation, handling, maintenance and repairs are only to be carried out by authorized technical personnel. The relevant safety instructions for mechanical engineering and electro-techniques must be applied, especially norm EN 292.

#### ATTENTION: Inappropriate handling may cause material damage and personal injury!

- Before mounting or dismounting of the probe, the pressure in the pipeline has to be reduced to less than 2 bar.
- Any cable connections have to be laid to prevent mechanical damage and interference by other lines.
- The probes are measuring technical devices. Especially concerning type SAM-T/E please note that the four measuring windows made of plastic are not damaged by mechanical impact or beat. For transport please use the yellow cover.

Generally for all probe types we would like to point out that heavy scratches or soiling of the measuring windows may impair the measuring performance.

## 2. Introduction

Continuous measurement of turbidity and suspended solids in pipelines. **Mounting information** 

- Select the measuring point according to a representative measurement.
- Install the system at an easily accessible location in order to avoid danger to the personnel (e.g. for setup or maintenance works).
- Installation or removal of the sensor requires sufficient mounting clearance.
- All cable connections have to be properly laid in order to avoid mechanical damage and interferences by other lines.

#### **Functional information**

- NOTE: Proper instrument functioning can only be guaranteed if the device is operated according to these Operating Instructions.
- Depressurise the system pressure in the pipe to less than 1 bar before sensor installation or removal.
- The sensors are measuring devices. Do not damage the measuring windows., e.g. by welding beads.
- Severe scratches or soiling of the measuring windows can impair the measuring capability of the sensor.

#### Maintenance information

#### Every 4 weeks:

- Clean the sensor with a natural bristle brush and soapy water. ATTENTION: Do not damage the measuring windows (scratches)!
- The cleaning cycle can be extended depending on the application (pragmatical values).
- Grease the o-ring on the inside of the ball-valve assembly regularly.

#### 3. Mounting of the ball-valve assembly

- 3.1 Adjust bolt end nipple depending on pipe diameter and probe type:
  - Outline must be adapted depending on pipe diameter and wall thickness of the pipe, in order to ensure correct built-in depth of the probe.
  - Angular tilt must be 80°, 90°, 100° or 110° depending on probe type.
  - Erection drawings with the necessary dimensions and templates for the adjustment to different pipe diameters are enclosed with delivery of the assembly or probe and they are additionally contained in the annex.
  - When installing the assembly, deviations of measures may later cause falsified measuring results.

The indicated measures, angles and tolerances must therefore be absolutely observed.



3.2 Weld nipple duly into the pipe.

If necessary remove welding globules.

- 3.3 Untwist ball-valve on the bolt end nipple with sealing compound (e.g. Loctite 511) and tighten firmly with fork spanner tool SW 55 noticing the correct position of the ball-valve. (Operability with probe must also be ensured.)
- 3.4 Control correct installation of ball-valve flange:
  - Sealing gasket to ball-valve: 1 x O-ring 50 x 2.5
  - Sealing gasket for probe: 1 x O-ring 38 x 3
- 3.5 Completely close ball-valve before the pipe is filled with liquid.

### 4. Mounting of probe into the ball-valve assembly

- 4.1 Pipe pressure must not exceed 1 bar.
  - otherwise the probe cannot be inserted by hand.
  - A 10m water column equals 1 bar pressure in the line
  - at a pressure of 1 bar: necessary force 120 N
  - Take a safe position. (Do not stand on a ladder)
  - Do not mount the probe above your head.
  - Mount the probe approx. breast-high.



- 4.2 Open air valve at the side.
- 4.3 Prepare fitting screws M 12 x 30.
- 4.4 Insert probe into the ball-valve by axially turning until O-rings are surmounted.
- 4.5 Already when inserting the probe, align it to the flow direction in the pipe depending on type of probe. Please keep to the corresponding erection drawings. Should the occasion arise, a marking at the rear front side of the probe pipe indicates the required flow direction.

Using a fork spanner tool SW 24 or a pair of pliers the probe pipe can be twisted in the probe flange for accurate alignment. Please make sure that the nut (SW 50) at the back end of the probe pipe does not come off.

- 4.6 Insert both stop poles through the intended borings into the probe flange. Slide lock up washers and o-rings onto the pole-ends in the order outlined above and secure with one nut each.
- 4.7 Close air valve again.



- 4.8 Slowly open ball-valve in order to prevent pressure pulsation.
- 4.9 Slide in probe until safety bolts at the probe flange engage into the corresponding borings at the ball-valve flange.
- 4.10 After that, immediately screw in the two securing bolts M 12 x 30 and tighten them with allen screw key size 10.



- 4.11 After the assembly is done, pressure in the pipeline may be increased.
- 4.12 Connect probe cable with amplifier.
- 4.13 Turn on the instrument.

#### 5. Removal of probe from the ball-valve assembly

- e.g. for cleaning of the probe
- 5.1 Turn off the amplifier
- 5.2 Disconnect probe cable to the amplifier
- 5.3 Take a safe position (do not stand on a ladder!)
  - no demounting above your head
  - remove probe approx. chest-high, if possible.
- 5.4 Reduce pressure in the pipeline below 1 bar.
  - A 10 m water column equals 1 bar pressure in the line.
  - In any case control if both stop poles are equipped with lock up washers and O- rings on both ends and if they are secured with nuts.
  - Safety bolts must also be engaged.



- 5.5 Unscrew fitting screws M12 x 30 with allen screw key size 10.
- 5.6 Pull out the probe on both hand rails (black balls).
  - Probe may first be rough due to soiling. We suggest to turn the probe axially.
  - After that the probe can be pushed out by the pressure in the pipeline. A reacting force of up to 120 N at 1 bar line pressure must be expected.



- 5.7 When the probe is maximally pulled out (distance is limited by stop poles):
  - close ball-valve.
- 5.8 Slowly open air valve.



- 5.9 Release both stop poles and push them out of the probe flange in direction of the pipeline.
- 5.10 Pull out probe from the ball-valve assembly.
- 5.11 Clean the probe.

Reinstallation of probe is described in chapter 4.

#### 6. Necessary tools

6.1 For mounting and removal of probe:

-	Stop poles:	Fork spanner SW 13
		(when loosening the nuts use a fork spanner SW 8 or
		a pair of pliers as counter tool).
-	Screwings:	allen screw key size 10.

- 6.2 For mounting and removal of ball-valve:
  - Fork spanner SW 55
  - Sealing compound (Loctite 511)

### 7. Spare parts list

- Sealing flange connection piece:
- Sealing connection piece ball-valve:
- Sealing probe pipe ball-valve:
- Sealing probe flange ball-valve flange:
- Damping / fixing of stop pole:
- fitting screws:

1	O-ring (72NBR)	50 x 2,5 (po	os.1)
1	O-ring (83KFM592)	48 x 2	(2)
2	O-ring (83KFM592)	38 x 3	(3)
1	O-ring (83KFM592)	38 x 3	(4)
4(8) 4(8) 2(4)	O-ring (72NBR) disk, stainless nut, stainless	10 x 3 A 10 M 8	(5) (6) (7)
2	cyl. screw, stainless	M 12 x 30	(8)



### 8. Annex

Installation drawings for ball-valve and bolt end nipple including templates

M3584.01 / 1 for probe type: SAH

M3584.01 / 2 for probe type: SAM

M3584.01 / 3 for probe type: SSN

M3584.01 / 4 for probe types: SRH, SRM and SAV

M3584.02 / 5 for probe types: SWN











# Insertion probes with water flush nozzle

SAH-E



SAM-E



SAV-E



ISI Europa P.O. Box 10 01 54 D-70826 Gerlingen Tel. +49-71 56-2 09-2 18 Fax +49-71 56-2 65 71



BA 249e00/12.00 Printed in Germany / WW 98 / DT