



## Cataloge sheet

# Bypass level indicator With magnetic display Model BNA

WIKA data sheet LM 10.01



for further approvals  
see page 4

## Applications

- Continuous level indication without supply voltage
- Indication of the level proportional to height
- Individual design and corrosion-resistant materials make the products suitable for a broad range of applications
- Chemical industry, petrochemical industry, oil and natural gas extraction (on- and offshore), shipbuilding, machine building, power generating equipment, power plants
- Process water and drinking water treatment, food and beverage industry, pharmaceutical industry

## Special features

- Process- and procedure-specific production
- Operating limits:
  - Operating temperature:  $T = -196 \dots +450 \text{ }^\circ\text{C}$
  - Operating pressure:  $P = \text{Vacuum to } 400 \text{ bar}$
  - Limit density:  $\rho \geq 340 \text{ kg/m}^3$
- Wide variety of different process connections and materials
- Mounting of level transmitters and magnetic switches possible as an option
- Explosion-protected versions

## Description

The model BNA bypass level indicator consists of a bypass chamber which is attached to the side of a tank as a communicating vessel via at least 2 process connections (flange, threaded coupling or weld stub). Through this type of arrangement, the level in the bypass chamber corresponds to the level in the vessel. The float with a built-in permanent magnetic system, which is mounted within the bypass chamber, transmits the liquid level, contact-free, to the magnetic display mounted to the outside of the bypass chamber. In this are fitted, at 10 mm intervals, two-coloured plastic rollers or stainless steel flaps with bar magnets.



**Bypass level indicator, model BNA with level sensor and magnetic switch**

Through the magnetic field of the permanent magnetic system in the float, the display elements, through the wall of the bypass chamber, are turned through  $180^\circ$ . For an increasing level from white to red; for a falling level from red to white. Thus the bypass level indicator clearly displays the level of a vessel without supply voltage.

## Further special features

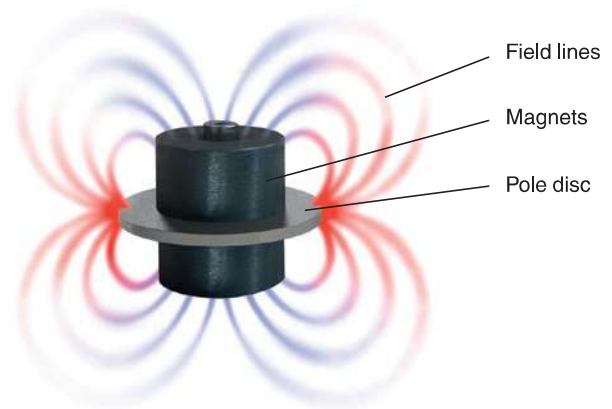
- Simple, robust and solid design, long service life
- Bypass chamber and float from stainless steel 1.4571, 1.4404 or special materials
- Pressure- and gas-tight separation between measuring and display chamber
- Detecting and indicating of the fill level of aggressive, combustible, toxic, hot and highly contaminated media
- The functioning of the magnetic display is guaranteed even in the event of power failures
- Applicable for all industrial applications by using various corrosion-resistant materials
- Continuous detection of levels, independent of physical and chemical changes of the media such as: Foaming, conductivity, dielectric, pressure, vacuum, temperature, vapours, condensation, bubble formation, boiling effects
- Interface-layer level measurement from  $\Delta$  density 100 kg/m<sup>3</sup>
- Special versions: Food-compliant, coatings, liquid gas, heating jacket

## Design and operating principle

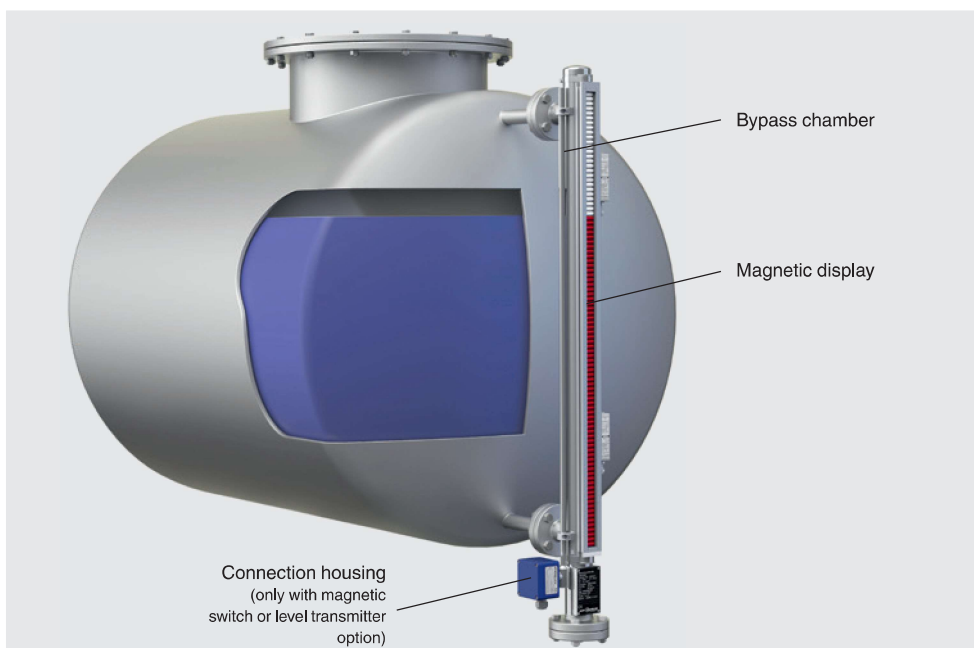
- In a communicating bypass chamber mounted to the side of a vessel a float moves with the level of the medium to be measured.
- The magnetic field of the radial-symmetric magnetic system positioned in the float activates the magnetic display attached to the outside of the bypass chamber as well as the switching and measuring elements.

## Magnetic system

The magnetic system is assembled from a pole disc and various magnets. These can be individually adapted to the different chamber dimensions and for temperatures up to 450 °C.



## Illustration of the principle



## Model overview

Model	Description	Materials	Max. operating pressure in bar	Max. operating temperature in °C
<b>BNA-S</b>	Standard version	<ul style="list-style-type: none"> <li>■ Stainless steel 1.4571 (316Ti)</li> <li>■ Stainless steel 1.4401/1.4404 (316/316L)</li> </ul>	100	-196 ... +450
<b>BNA-C</b>	Compact version	Stainless steel 1.4571 (316Ti)	40	-196 ... +200
<b>BNA-P</b>	Plastic version	<ul style="list-style-type: none"> <li>■ PP</li> <li>■ PVDF</li> </ul>	6	-10 ... +100
<b>BNA-H</b>	High-pressure version	<ul style="list-style-type: none"> <li>■ Stainless steel 1.4571 (316Ti)</li> <li>■ Stainless steel 1.4401/1.4404 (316/316L)</li> </ul>	385	-196 ... +450
<b>BNA-SD</b>	DUPlus version, standard	<ul style="list-style-type: none"> <li>■ Stainless steel 1.4571 (316Ti)</li> <li>■ Stainless steel 1.4401/1.4404 (316/316L)</li> </ul>	100	-196 ... +450
<b>BNA-HD</b>	DUPlus version, high pressure	<ul style="list-style-type: none"> <li>■ Stainless steel 1.4571 (316Ti)</li> <li>■ Stainless steel 1.4401/1.4404 (316/316L)</li> </ul>	160	-196 ... +450
<b>BNA-L</b>	Liquid gas/KOPlus version	<ul style="list-style-type: none"> <li>■ Stainless steel 1.4571 (316Ti)</li> <li>■ Stainless steel 1.4401/1.4404 (316/316L)</li> </ul>	63	-196 ... +450
<b>BNA-X</b>	Special materials	Stainless steel 6Mo 1.4547 (UNS S31254)	250	-196 ... +450
		<ul style="list-style-type: none"> <li>■ Stainless steel 1.4571 (316Ti) with internal coating E-CTFE</li> <li>■ Stainless steel 1.4571 (316Ti) with internal coating PTFE</li> </ul>	16	Depending on medium
		Titanium 3.7035	40	-10 ... +450
		Hastelloy C276 (2.4819)	160	-196 ... +450
<b>BNA-J</b>	Heating jacket version	<ul style="list-style-type: none"> <li>■ Stainless steel 1.4571 (316Ti)</li> <li>■ Stainless steel 1.4401/1.4404 (316/316L)</li> </ul>	64	-60 ... +450

Other materials on request

Note: Always consider the operating pressure and temperature together.

### Design codes available





- AD2000
- ASME B31.3
- EN 13445
- NORSOK

### CE classification

Model	PED	ATEX	CE
<b>BNA-.00</b>	-	-	-
<b>BNA-.A1</b> <b>BNA-.A2</b> <b>BNA-.BD</b> <b>BNA-.GE</b> <b>BNA-.BC</b>	x	-	x
<b>BNA-.00C</b>	-	x	x
<b>BNA-.A1C</b> <b>BNA-.A2C</b> <b>BNA-.BDC</b> <b>BNA-.GEC</b> <b>BNA-.BCC</b>	x	x	x



■ Models BNA-X, BNA-J

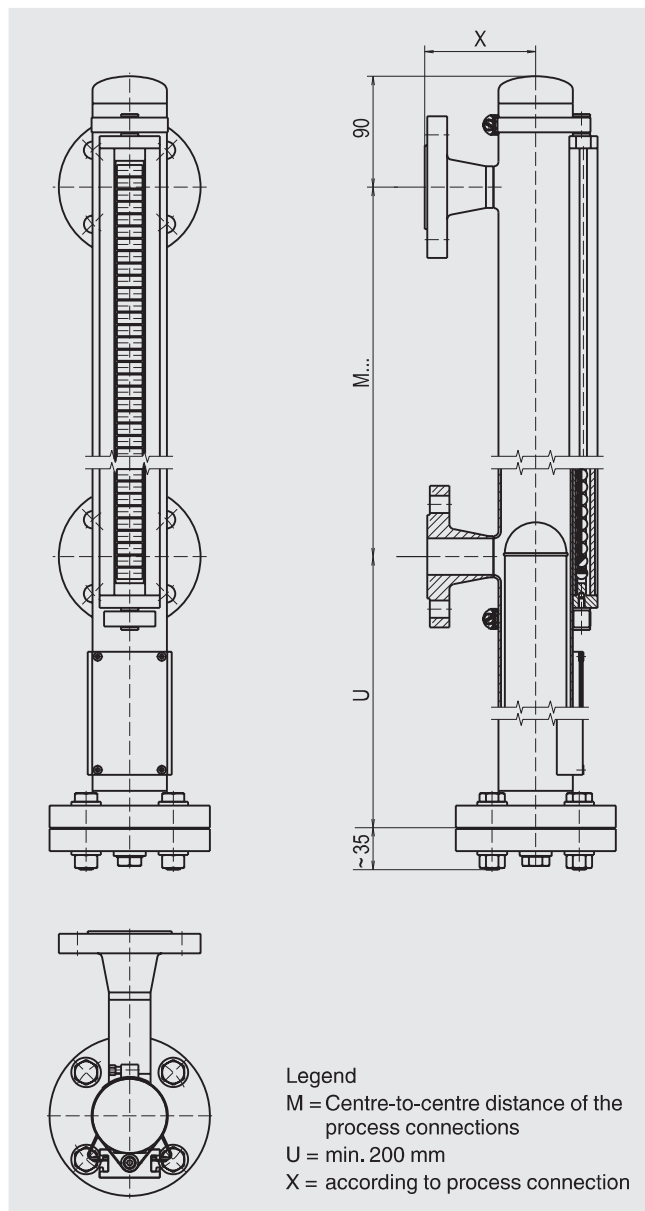
Logo	Description	Country
	<b>EU declaration of conformity</b> ■ Pressure equipment directive ■ ATEX directive (option) Hazardous areas - Ex h Zone 0/1, gas II 1/2 G c T1 ... T6 Zone 0/1, gas <sup>2)</sup> II 1/2G Ex h IIB T6 ... T1 Ga/Gb Zone 2, gas II 3/3G Ex h IIC T6 ... T1 Gc/Gc Zone 0/1, dust <sup>2)</sup> II -/2D Ex h IIIC T68 ... T360°C C-/Db Zone 2, dust II -/3D Ex h IIC T80 ... T440°C -/Dc	European Union
	<b>IECEx (option)</b> Hazardous areas - Ex h Zone 0/1, gas G c T1 ... T6 Zone 0/1, gas <sup>2)</sup> Ex h IIB T6 ... T1 Ga/Gb Zone 2, gas Ex h IIC T6 ... T1 Gc/Gc Zone 0/1, dust <sup>2)</sup> Ex h IIIC T68 ... T360°C C-/Db Zone 2, dust Ex h IIC T80 ... T440°C -/Dc	International
	<b>GOST (option)</b> Metrology <sup>1)</sup> , measurement technology	Russia
	<b>DNV GL (option) - not for version with internal coating</b> ■ Ships, shipbuilding (e.g. offshore) ■ Hazardous areas - Ex c Zone 0/1, gas II 1/2 G c T1 ... T6	International

1) Only in combination with electrical components  
 2) With plastic cover on the display bar

Other approvals on request.  
 Approvals and certificates, see website

## Standard version, model BNA-S

Bypass chamber from stainless steel



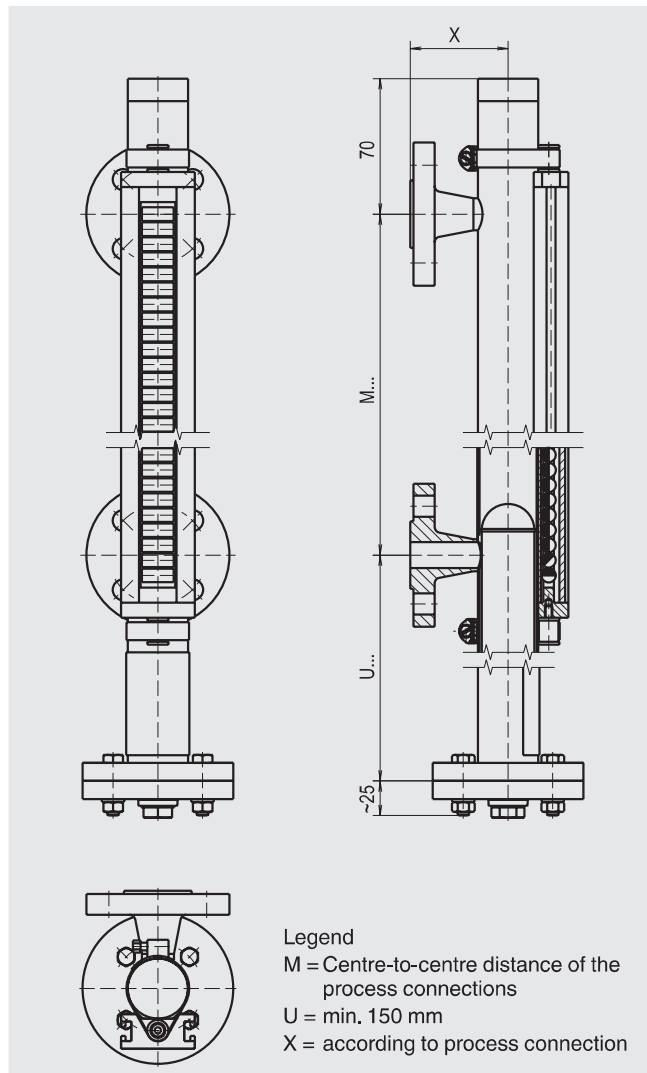
### Specifications

<b>Bypass chamber</b>	<ul style="list-style-type: none"> <li>Ø 60.3 x 2 mm, max. 63 bar</li> <li>Ø 60.3 x 2.77 mm, max. 100 bar</li> </ul>
<b>Chamber end top</b>	Pipe cap or flange connection <ul style="list-style-type: none"> <li>■ Vent screw</li> <li>■ Vent valve</li> <li>■ Vent flange</li> </ul> → Options see page 17
<b>Chamber end bottom</b>	Flange connection <ul style="list-style-type: none"> <li>■ Drain plug</li> <li>■ Drain valve</li> <li>■ Drain flange</li> </ul> → Options see page 17
<b>Process connections</b>	2 x lateral (options see page 18)
Mounting flange	<ul style="list-style-type: none"> <li>■ EN 1092-1, DN 10 ... DN 100, PN 6 ... PN 100</li> <li>■ DIN, DN 10 ... DN 100, PN 6 ... PN 100</li> <li>■ Flange ANSI B 16.5, 1/2" ... 4", class 150 ... class 900</li> </ul>
Weld stub	1/2" ... 1"
Threaded bushing	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
Threaded nipple	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
<b>Centre-to-centre distance</b>	Min. 150 mm to max. 6,000 mm Larger distances on request
<b>Material</b>	<ul style="list-style-type: none"> <li>■ Stainless steel 1.4571 (316Ti)</li> <li>■ Stainless steel 1.4401/1.4404 (316/316L)</li> </ul>
<b>Max. nominal pressure</b>	100 bar
<b>Temperature range</b>	-196 ... +450 °C
<b>Float</b>	<ul style="list-style-type: none"> <li>■ Cylindrical float</li> <li>■ Corrugated float</li> </ul>
<b>Magnetic display</b>	Standard version: < 200 °C High-temperature version: > 200 °C

Special versions on request

## Compact version, model BNA-C

Bypass chamber from stainless steel



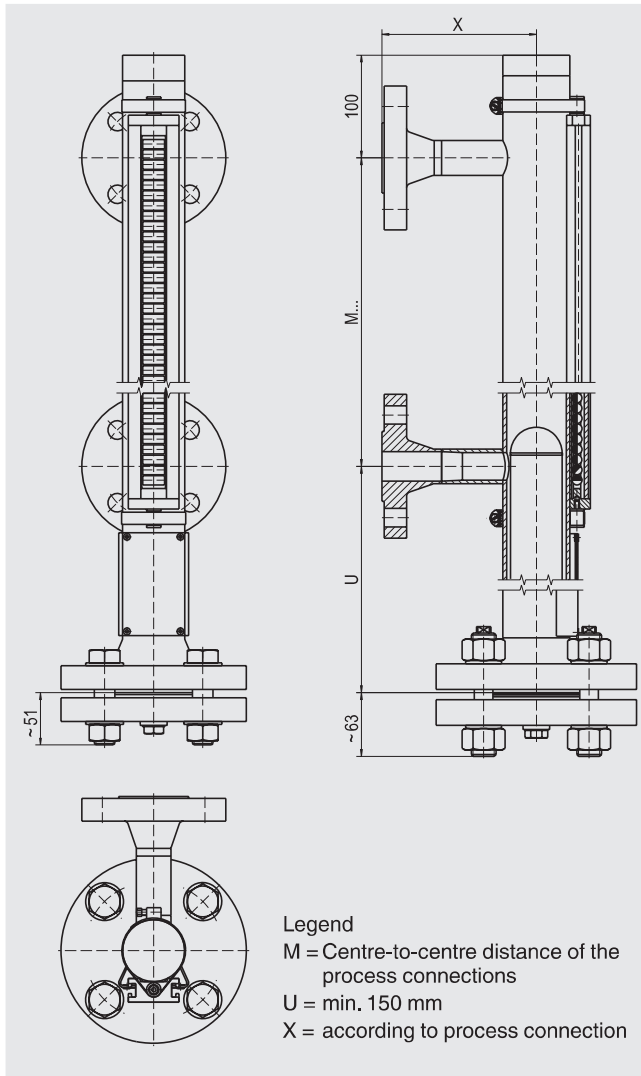
### Specifications

<b>Bypass chamber</b>	Ø 42.2 x 2 mm, max. 40 bar
<b>Chamber end top</b>	Pipe cap, flange or threaded connection <ul style="list-style-type: none"> <li>■ Vent screw</li> <li>■ Vent valve</li> <li>■ Vent flange</li> </ul> → Options see page 17
<b>Chamber end bottom</b>	Flange connection or threaded connection <ul style="list-style-type: none"> <li>■ Drain plug</li> <li>■ Drain valve</li> <li>■ Drain flange</li> </ul> → Options see page 17
<b>Process connections</b>	2 x lateral (options see page 18)
Mounting flange	<ul style="list-style-type: none"> <li>■ EN 1092-1, DN 10 ... DN 50, PN 6 ... PN 40</li> <li>■ DIN, DN 10 ... DN 50, PN 6 ... PN 40</li> <li>■ Flange ANSI B 16.5, 1/2" ... 2.5", class 150 ... class 300</li> </ul>
Weld stub	1/2" ... 1"
Threaded bushing	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
Threaded nipple	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
<b>Centre-to-centre distance</b>	Min. 150 mm to max. 5,000 mm
<b>Material</b>	Stainless steel 1.4571 (316Ti)
<b>Max. nominal pressure</b>	40 bar
<b>Temperature range</b>	-196 ... +200 °C
<b>Float</b>	Cylindrical float

Special versions on request

# High-pressure version, model BNA-H

Bypass chamber from stainless steel



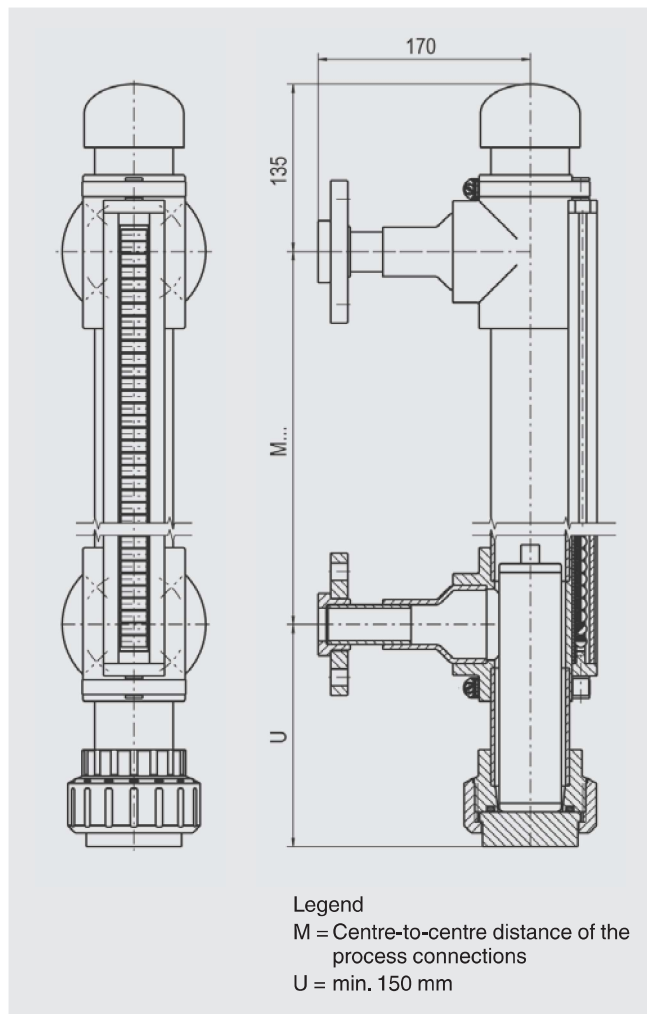
Legend  
M = Centre-to-centre distance of the process connections  
U = min. 150 mm  
X = according to process connection

Specifications	
<b>Bypass chamber</b>	
Stainless steel 1.4571	<ul style="list-style-type: none"> <li>Ø 60.3 x 3.91 mm, max. 160 bar</li> <li>Ø 76.1 x 5 mm, max. 100 bar</li> <li>Ø 71 x 7.5 mm, max. 250 bar</li> <li>Ø 76.1 x 10 mm, max. 385 bar</li> </ul>
Stainless steel 1.4401/1.4404	<ul style="list-style-type: none"> <li>Ø 60.3 x 3.91 mm, max. 160 bar</li> <li>Ø 60.3 x 5.54 mm, max. 250 bar</li> <li>Ø 73 x 7.01 mm, max. 150 bar</li> </ul>
<b>Chamber end top</b>	Pipe cap or flange connection <ul style="list-style-type: none"> <li>■ Vent screw</li> <li>■ Vent valve</li> <li>■ Vent flange</li> </ul> → Options see page 17
<b>Chamber end bottom</b>	Flange connection <ul style="list-style-type: none"> <li>■ Drain plug</li> <li>■ Drain valve</li> <li>■ Drain flange</li> </ul> → Options see page 17
<b>Process connections</b>	2 x lateral (options see page 18)
Mounting flange	<ul style="list-style-type: none"> <li>■ EN 1092-1, DN 10 ... DN 100, PN 63 ... PN 400</li> <li>■ DIN, DN 10 ... DN 100, PN 64 ... PN 400</li> <li>■ Flange ANSI B 16.5, 1/2" ... 4", class 600 ... class 2,500</li> </ul>
Weld stub	1/2" ... 1"
Threaded bushing	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
Threaded nipple	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
<b>Centre-to-centre distance</b>	Min. 150 mm to max. 6,000 mm Larger distances on request
<b>Material</b>	<ul style="list-style-type: none"> <li>■ Stainless steel 1.4571 (316Ti)</li> <li>■ Stainless steel 1.4401/1.4404 (316/316L)</li> </ul>
<b>Max. nominal pressure</b>	385 bar
<b>Temperature range</b>	-196 ... +450 °C
<b>Float</b>	<ul style="list-style-type: none"> <li>■ Cylindrical float</li> <li>■ Ball-segment float</li> <li>■ Foam float</li> </ul>
<b>Magnetic display</b>	Standard version: < 200 °C High-temperature version: > 200 °C

Special versions on request

## Plastic version, model BNA-P

Bypass chamber and float from PVDF or PP



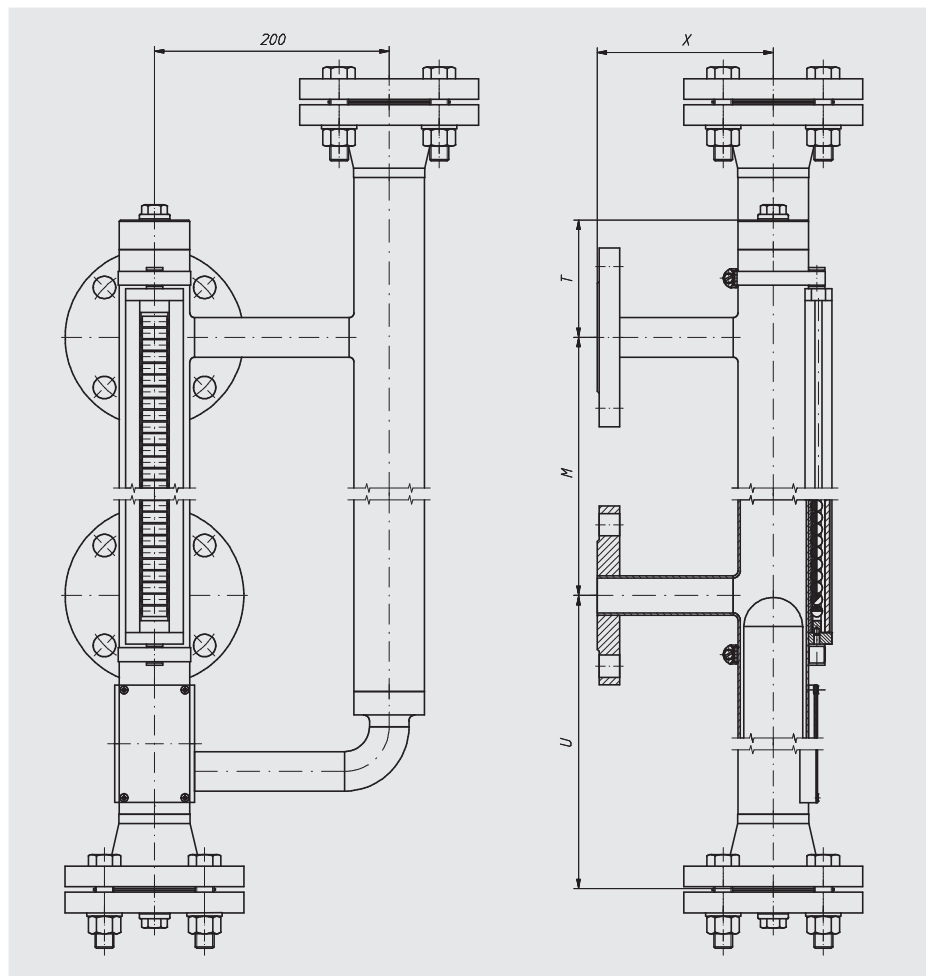
### Specifications

<b>Bypass chamber</b>	Ø 63 x 3 mm, max. 6 bar
<b>Chamber end top</b>	<ul style="list-style-type: none"> <li>■ Pipe cap or threaded connection</li> <li>■ Vent screw</li> <li>■ Vent valve</li> <li>■ Vent flange</li> </ul> → Options see page 17
<b>Chamber end bottom</b>	<ul style="list-style-type: none"> <li>■ Threaded connection</li> <li>■ Drain plug</li> <li>■ Drain valve</li> <li>■ Drain flange</li> </ul> → Options see page 17
<b>Process connections</b>	2 x lateral (options see page 18)
Mounting flange	<ul style="list-style-type: none"> <li>■ EN 1092-1, DN 15 ... DN 50, PN 16</li> <li>■ DIN, DN 15 ... DN 50, PN 16</li> <li>■ Flange ANSI B 16.5, 1/2" ... 2", class 150</li> </ul>
Weld stub	1/2" ... 1"
Threaded bushing	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
Threaded nipple	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
<b>Centre-to-centre distance</b>	Min. 200 mm to max. 4,000 mm Larger distances on request
<b>Material</b>	<ul style="list-style-type: none"> <li>■ PVDF</li> <li>■ PP</li> </ul>
<b>Max. nominal pressure</b>	6 bar
<b>Temperature range</b>	
PVDF	-10 ... +100 °C
PP	-10 ... +80 °C
<b>Float</b>	Plastic float

Special versions on request

# DUPlus version, standard, model BNA-SD

Bypass chamber from stainless steel



### Legend

- M = Centre-to-centre distance of the process connections
- U = min. 150 mm
- X = according to process connection
- T = min. 100 mm

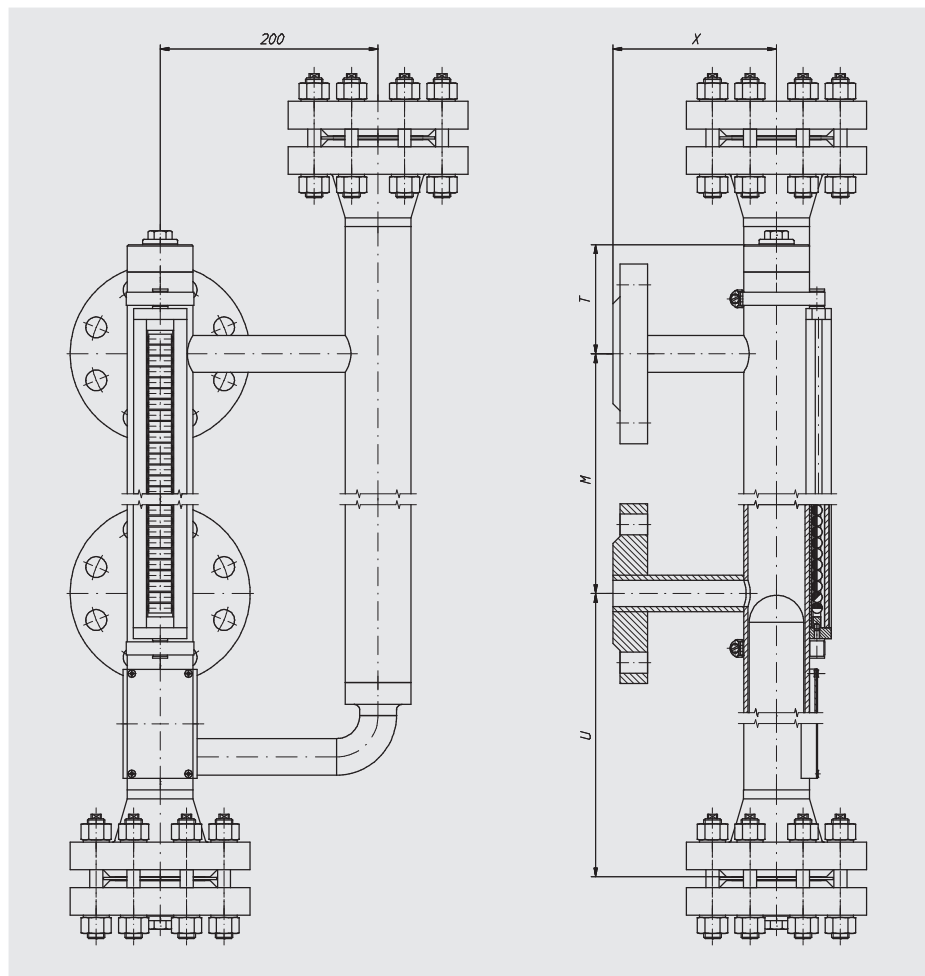
Specifications	
<b>Bypass chamber</b>	<ul style="list-style-type: none"> <li>Ø 60.3 x 2 mm, max. 63 bar</li> <li>Ø 60.3 x 2.77 mm, max. 100 bar</li> </ul>
<b>Chamber end top</b>	<ul style="list-style-type: none"> <li>Flange connection</li> <li>■ Vent screw</li> <li>■ Vent valve</li> <li>■ Vent flange</li> <li>→ Options see page 17</li> </ul>
<b>Chamber end bottom</b>	<ul style="list-style-type: none"> <li>Pipe cap or flange connection</li> <li>■ Drain plug</li> <li>■ Drain valve</li> <li>■ Drain flange</li> <li>→ Options see page 17</li> </ul>
<b>Process connections</b>	2 x lateral (options see page 18)
Mounting flange	<ul style="list-style-type: none"> <li>■ DIN, DN 10 ... DN 100, PN 6 ... PN 64</li> <li>■ Flange ANSI B 16.5, 1/2" ... 4", class 150 ... class 600</li> </ul>
Weld stub	1/2" ... 1"
Threaded bushing	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
Threaded nipple	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>

Specifications	
<b>External sensor connection</b>	
Mounting flange	<ul style="list-style-type: none"> <li>■ EN 1092-1, DN 50, PN 6 ... PN 64</li> <li>■ DIN, DN 50, PN 6 ... PN 64</li> <li>■ ANSI B 16.5, 2" class 150 ... class 600</li> </ul>
Female thread	<ul style="list-style-type: none"> <li>■ G 3/4 ... 2</li> <li>■ 3/4 ... 2 NPT</li> </ul>
<b>Centre-to-centre distance</b>	Min. 150 mm to max. 6,000 mm Larger distances on request
<b>Material</b>	<ul style="list-style-type: none"> <li>■ Stainless steel 1.4571 (316Ti)</li> <li>■ Stainless steel 1.4401/1.4404 (316/316L)</li> </ul>
<b>Max. nominal pressure</b>	100 bar
<b>Temperature range</b>	-196 ... +450 °C
<b>Float</b>	<ul style="list-style-type: none"> <li>■ Cylindrical float</li> <li>■ Corrugated float</li> </ul>
<b>Magnetic display</b>	Standard version: < 200 °C High-temperature version: > 200 °C

Special versions on request

# DUPlus version, high pressure, model BNA-HD

Bypass chamber from stainless steel



### Legend

- M = Centre-to-centre distance of the process connections
- U = min. 150 mm
- X = according to process connection
- T = min. 100 mm

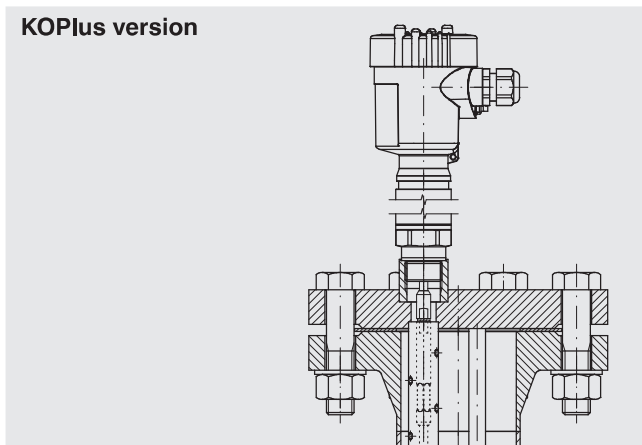
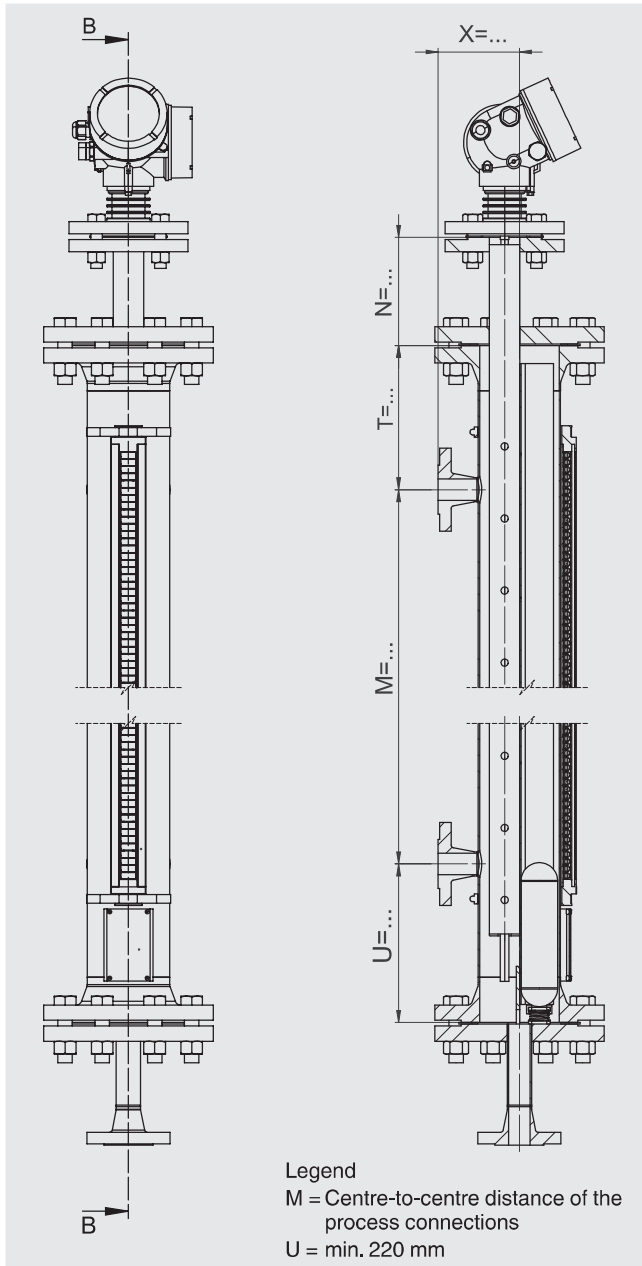
Specifications	
<b>Bypass chamber</b>	Ø 60.3 x 3.91 mm, max. 160 bar
<b>Chamber end top</b>	Flange connection <ul style="list-style-type: none"> <li>■ Vent screw</li> <li>■ Vent valve</li> <li>■ Vent flange</li> </ul> → Options see page 17
<b>Chamber end bottom</b>	Pipe cap or flange connection <ul style="list-style-type: none"> <li>■ Drain plug</li> <li>■ Drain valve</li> <li>■ Drain flange</li> </ul> → Options see page 17
<b>Process connections</b>	2 x lateral (options see page 18)
Mounting flange	<ul style="list-style-type: none"> <li>■ DIN, DN 10 ... DN 100, PN 64 ... PN 160</li> <li>■ Flange ANSI B 16.5, 1/2" ... 4", class 600 ... class 1,500</li> </ul>
Weld stub	1/2" ... 1"
Threaded bushing	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
Threaded nipple	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>

Specifications	
<b>External sensor connection</b>	
Mounting flange	<ul style="list-style-type: none"> <li>■ EN 1092-1, DN 50, PN 6 ... PN 160</li> <li>■ DIN, DN 50, PN 6 ... PN 160</li> <li>■ ANSI B 16.5, 2" class 150 ... class 1,500</li> </ul>
Female thread	<ul style="list-style-type: none"> <li>■ G 3/4 ... 2</li> <li>■ 3/4 ... 2 NPT</li> </ul>
<b>Centre-to-centre distance</b>	Min. 150 mm to max. 6,000 mm Larger distances on request
<b>Material</b>	<ul style="list-style-type: none"> <li>■ Stainless steel 1.4571 (316Ti)</li> <li>■ Stainless steel 1.4401/1.4404 (316/316L)</li> </ul>
<b>Max. nominal pressure</b>	160 bar
<b>Temperature range</b>	-196 ... +450 °C
<b>Float</b>	<ul style="list-style-type: none"> <li>■ Cylindrical float</li> <li>■ Corrugated float</li> </ul>
<b>Float</b>	<ul style="list-style-type: none"> <li>■ Cylindrical float</li> <li>■ Corrugated float</li> <li>■ Ball-segment float</li> <li>■ Foam float</li> </ul>
<b>Magnetic display</b>	Standard version: < 200 °C High-temperature version: > 200 °C

Special versions on request

# Liquid gas/KOPlus version, model BNA-L

Bypass chamber from stainless steel

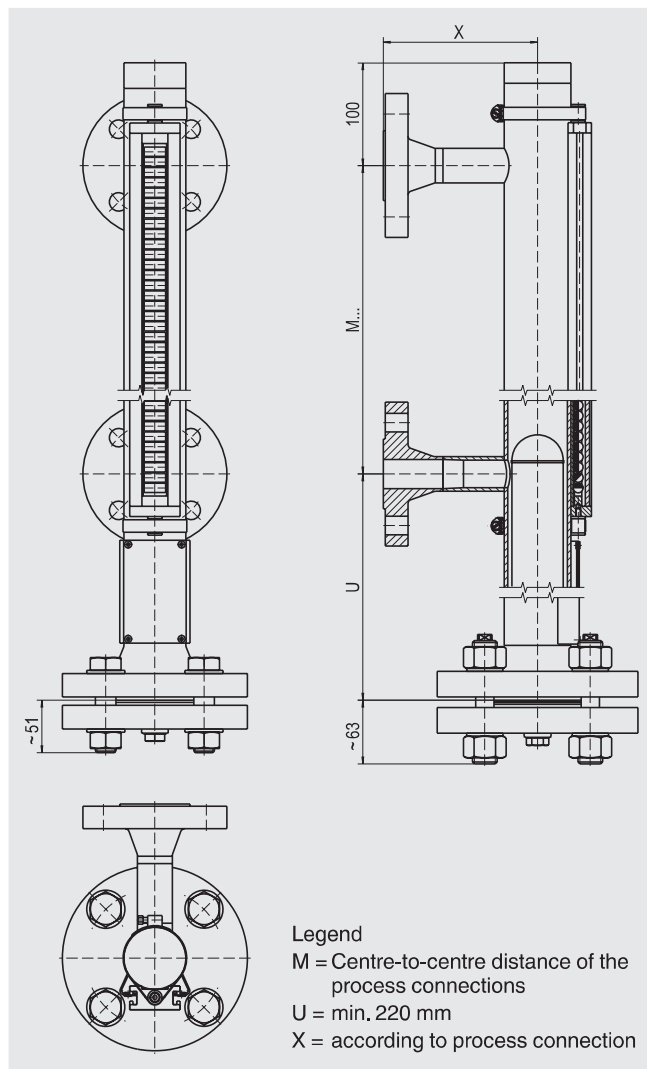


Specifications	
<b>Bypass chamber</b>	
Stainless steel 1.4571	<ul style="list-style-type: none"> <li>Ø 88.9 x 2 mm, max. 40 bar</li> <li>Ø 88.9 x 2.9 mm, max. 40 bar</li> <li>Ø 114 x 2 mm, max. 25 bar</li> <li>Ø 114 x 3.6 mm, max. 40 bar</li> <li>Ø 114 x 4.5 mm, max. 40 bar</li> <li>Ø 114 x 6.3 mm, max. 63 bar</li> </ul>
Stainless steel 1.4401/1.4404	<ul style="list-style-type: none"> <li>Ø 88.9 x 2 mm, max. 40 bar</li> <li>Ø 88.9 x 3.05 mm, max. 40 bar</li> <li>Ø 114 x 2 mm, max. 25 bar</li> <li>Ø 114 x 3.05 mm, max. 40 bar</li> <li>Ø 114 x 6.02 mm, max. 63 bar</li> </ul>
<b>Chamber end top</b>	Flange connection <ul style="list-style-type: none"> <li>■ Vent screw</li> <li>■ Vent valve</li> <li>■ Vent flange</li> </ul> → Options see page 17
<b>Chamber end bottom</b>	Flange connection <ul style="list-style-type: none"> <li>■ Drain plug</li> <li>■ Drain valve</li> <li>■ Drain flange</li> </ul> → Options see page 17
<b>Process connections</b>	2 x lateral (options see page 18)
Mounting flange	<ul style="list-style-type: none"> <li>■ EN 1092-1, DN 10 ... DN 100, PN 6 ... PN 63</li> <li>■ DIN, DN 10 ... DN 100, PN 6 ... PN 64</li> <li>■ Flange ANSI B 16.5, 1/2" ... 4", class 150 ... class 600</li> </ul>
Weld stub	1/2" ... 1"
Threaded bushing	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
Threaded nipple	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
<b>Centre-to-centre distance</b>	Min. 150 mm to max. 6,000 mm Larger distances on request
<b>Material</b>	<ul style="list-style-type: none"> <li>■ Stainless steel 1.4571 (316Ti)</li> <li>■ Stainless steel 1.4401/1.4404 (316/316L)</li> </ul>
<b>Max. nominal pressure</b>	63 bar
<b>Temperature range</b>	-196 ... +450 °C
<b>Float</b>	Cylindrical float
<b>Magnetic display</b>	Standard version: < 200 °C High-temperature version: > 200 °C

Special versions on request

## Special materials, model BNA-X

Bypass chamber from titanium, Hastelloy or stainless steel 6Mo



### Specifications

#### Bypass chamber

Titanium 3.7035	<ul style="list-style-type: none"> <li>Ø 60.3 x 2 mm, max. 16 bar</li> <li>Ø 60.3 x 2.77 mm, max. 40 bar</li> </ul>
Hastelloy C276	<ul style="list-style-type: none"> <li>Ø 60.3 x 2.77 mm, max. 50 bar</li> <li>Ø 60.3 x 3.91 mm, max. 160 bar</li> </ul>
Stainless steel 6Mo 1.4547 (UNS S31254)	<ul style="list-style-type: none"> <li>Ø 60.3 x 2.77 mm, max. 50 bar</li> <li>Ø 60.3 x 3.91 mm, max. 160 bar</li> <li>Ø 60.3 x 5.54 mm, max. 250 bar</li> </ul>

#### Chamber end top

Pipe cap or threaded connection
<ul style="list-style-type: none"> <li>■ Vent screw</li> <li>■ Vent valve</li> <li>■ Vent flange</li> </ul>
→ Options see page 17

#### Chamber end bottom

Flange connection
<ul style="list-style-type: none"> <li>■ Drain plug</li> <li>■ Drain valve</li> <li>■ Drain flange</li> </ul>
→ Options see page 17

#### Process connections

2 x lateral (options see page 18)

#### Titanium 3.7035

Mounting flange
<ul style="list-style-type: none"> <li>■ EN 1092-1, DN 10 ... DN 100, PN 6 ... PN 63</li> <li>■ DIN, DN 10 ... DN 100, PN 6 ... PN 64</li> <li>■ Flange ANSI B 16.5, 1/2" ... 4", class 150 ... class 600</li> </ul>

#### Hastelloy C276

Mounting flange
<ul style="list-style-type: none"> <li>■ EN 1092-1, DN 10 ... DN 100, PN 6 ... PN 400</li> <li>■ DIN, DN 10 ... DN 100, PN 6 ... PN 400</li> <li>■ Flange ANSI B 16.5, 1/2" ... 4", class 150 ... class 2,500</li> </ul>

#### Stainless steel 6Mo 1.4547 (UNS S31254)

Mounting flange
<ul style="list-style-type: none"> <li>■ EN 1092-1, DN 10 ... DN 100, PN 63 ... PN 400</li> <li>■ DIN, DN 10 ... DN 100, PN 64 ... PN 400</li> <li>■ Flange ANSI B 16.5, 1/2" ... 4", class 600 ... class 2,500</li> </ul>

#### Centre-to-centre distance

Min. 150 mm to max. 6,000 mm  
Larger distances on request

#### Material

- PVDF
- PP

#### Max. nominal pressure

Titanium 3.7035	40 bar
Hastelloy C276	160 bar
Stainless steel 6Mo 1.4547 (UNS S31254)	250 bar

#### Temperature range

-10 ... +450 °C

#### Float

- Cylindrical float
- Corrugated float

#### Magnetic display

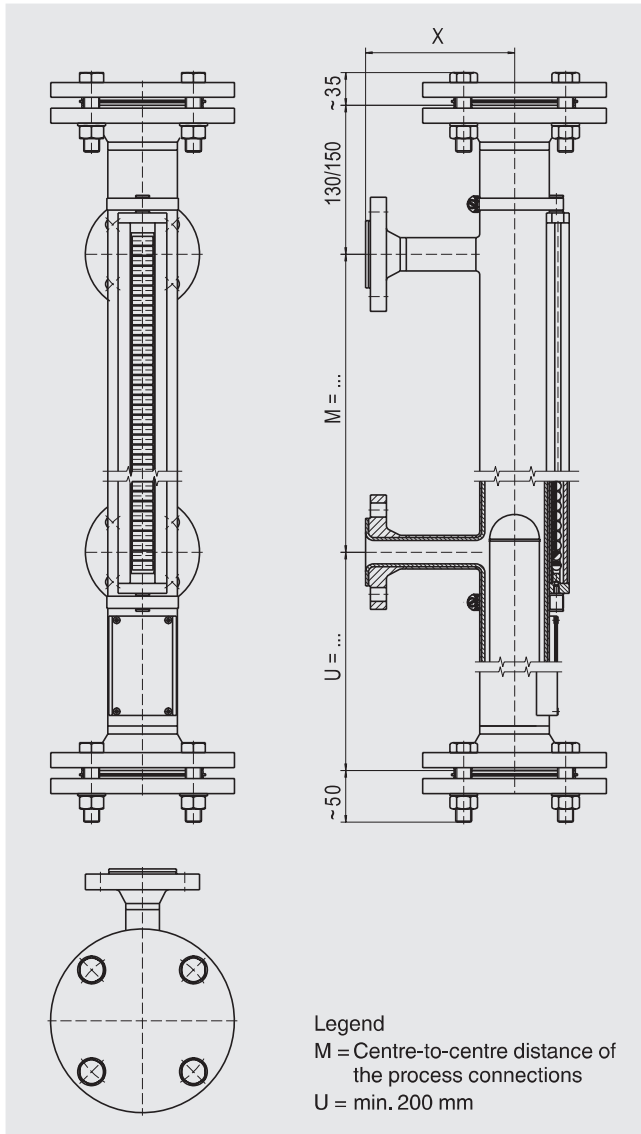
Standard version: < 200 °C  
High-temperature version: > 200 °C

1) Other materials on request

Special versions on request

## Special materials, model BNA-X

Bypass chamber from stainless steel with internal coating E-CTFE



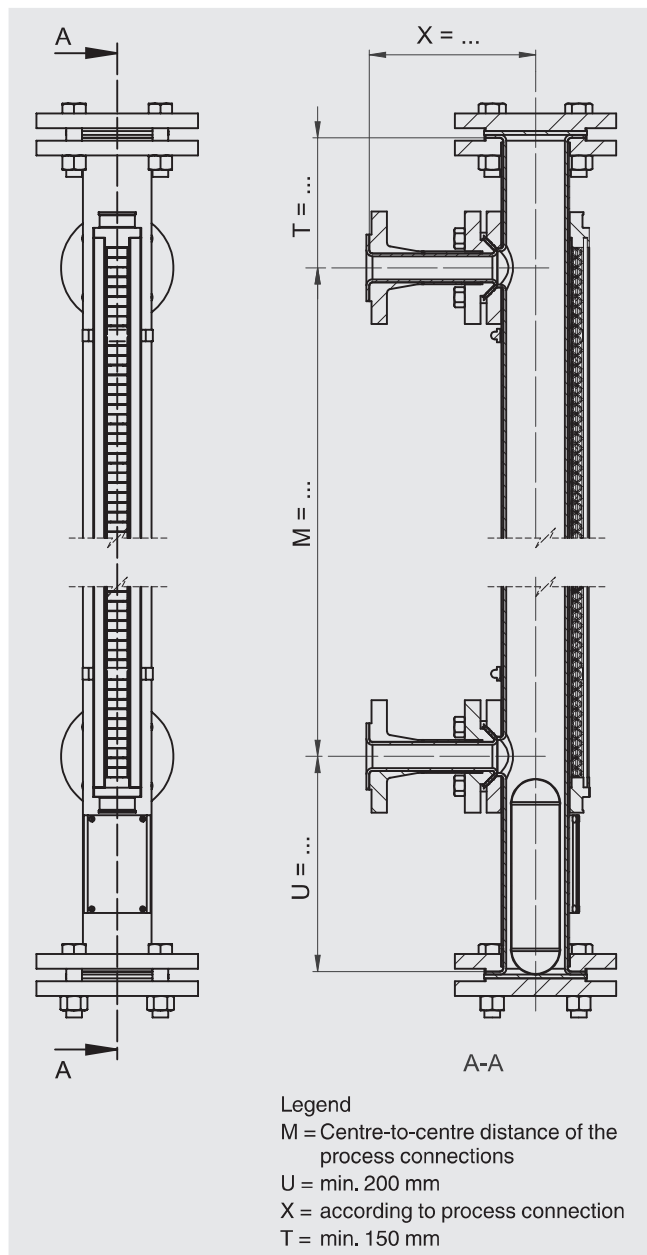
### Specifications

<b>Bypass chamber</b>	Ø 64 x 2 mm, max. 16 bar
<b>Chamber end top</b>	Flange connection <ul style="list-style-type: none"> <li>■ Vent flange</li> </ul> → Options see page 17
<b>Chamber end bottom</b>	Flange connection <ul style="list-style-type: none"> <li>■ Drain flange</li> </ul> → Options see page 17
<b>Process connections</b>	2 x lateral (options see page 18)
<b>Mounting flange</b>	<ul style="list-style-type: none"> <li>■ EN 1092-1, DN 10 ... DN 50, PN 6 ... PN 16</li> <li>■ DIN, DN 10 ... DN 50, PN 6 ... PN 16</li> <li>■ Flange ANSI B 16.5, 1/2" ... 4", class 150 ... class 300</li> </ul>
<b>Centre-to-centre distance</b>	
Overall pipe length < 2,500 mm	Min. 150 mm to max. ... mm
Overall pipe length > 2,500 mm	Bypass chamber separated by flange connection
<b>Material</b>	Stainless steel 1.4571 with internal coating E-CTFE
<b>Max. nominal pressure</b>	16 bar
<b>Temperature range</b>	Depending on medium
<b>Float</b>	Cylindrical float

Special versions on request

## Special materials, model BNA-X

Bypass chamber from stainless steel with internal coating PTFE



### Specifications

<b>Bypass chamber</b>	Ø 70 x 2 mm, max. 10 bar
<b>Chamber end top</b>	Flange connection <ul style="list-style-type: none"> <li>■ Vent flange</li> </ul> → Options see page 17
<b>Chamber end bottom</b>	Flange connection <ul style="list-style-type: none"> <li>■ Drain flange</li> </ul> → Options see page 17
<b>Process connections</b>	2 x lateral (options see page 18)
<b>Mounting flange</b>	<ul style="list-style-type: none"> <li>■ EN 1092-1, DN 10 ... DN 50, PN 6 ... PN 16</li> <li>■ DIN, DN 10 ... DN 50, PN 6 ... PN 16</li> <li>■ Flange ANSI B 16.5, 1/2" ... 4", class 150 ... class 300</li> </ul>

### Centre-to-centre distance

Overall pipe length < 2,500 mm	Min. 150 mm to max. ... mm
Overall pipe length > 2,500 mm	Bypass chamber separated by flange connection

**Material** Stainless steel 1.4571 with internal coating PTFE

**Max. nominal pressure** 10 bar

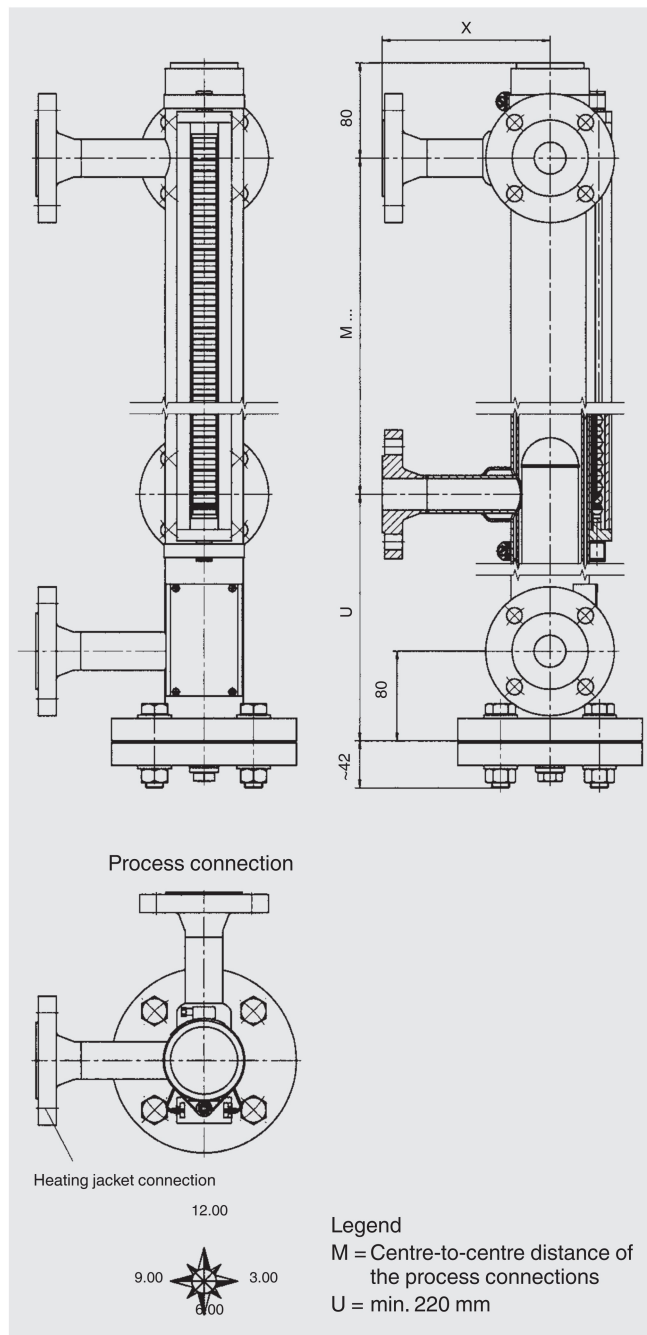
**Temperature range** Depending on medium

**Float** Cylindrical float

Special versions on request

# Heating jacket version, model BNA-J

Bypass chamber and heating jacket pipe from stainless steel

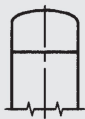


Specifications	
<b>Bypass chamber</b>	<ul style="list-style-type: none"> <li>Ø 60.3 x 2 mm, max. 40 bar</li> <li>Ø 60.3 x 2.77 mm, max. 64 bar</li> </ul>
<b>Heating jacket pipe</b>	Ø 70 x 2 mm
<b>Chamber end top</b>	Pipe cap <ul style="list-style-type: none"> <li>■ Vent screw</li> <li>■ Vent valve</li> <li>■ Vent flange</li> </ul> → Options see page 17
<b>Chamber end bottom</b>	Flange connection <ul style="list-style-type: none"> <li>■ Drain plug</li> <li>■ Drain valve</li> <li>■ Drain flange</li> </ul> → Options see page 17
<b>Process connections</b>	2 x lateral (options see page 18)
Mounting flange	<ul style="list-style-type: none"> <li>■ EN 1092-1, DN 10 ... DN 100, PN 6 ... PN 100</li> <li>■ DIN, DN 10 ... DN 100, PN 6 ... PN 100</li> <li>■ Flange ANSI B 16.5, 1/2" ... 4", class 150 ... class 600</li> </ul>
Weld stub	1/2" ... 1"
Threaded bushing	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
Threaded nipple	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
<b>Heating jacket connection</b>	
Mounting flange	<ul style="list-style-type: none"> <li>■ EN 1092-1, DN 10 ... DN 25, PN 6 ... PN 40</li> <li>■ DIN, DN 10 ... DN 25, PN 6 ... PN 40</li> <li>■ Flange ANSI B 16.5, 1/2" ... 4", class 150 ... class 300</li> </ul>
Threaded bushing	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
Threaded nipple	<ul style="list-style-type: none"> <li>■ G 1/2 ... 1</li> <li>■ 1/2 ... 1 NPT</li> </ul>
<b>Centre-to-centre distance</b>	Min. 150 mm to max. 6,000 mm Larger distances on request
<b>Material</b>	<ul style="list-style-type: none"> <li>■ Stainless steel 1.4571 (316Ti)</li> <li>■ Stainless steel 1.4401/1.4404 (316/316L)</li> </ul>
<b>Max. nominal pressure</b>	64 bar
<b>Temperature range</b>	-60 ... +450 °C
<b>Float</b>	Cylindrical float
<b>Magnetic display</b>	Standard version: < 200 °C High-temperature version: > 200 °C

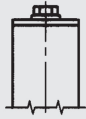
Special versions on request

# Options for chamber ends

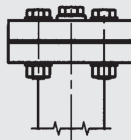
## Chamber end top (examples)



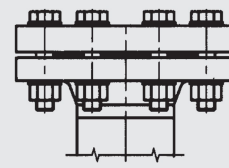
1  
Pipe cap without venting



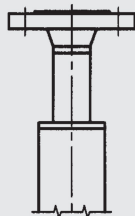
2  
Pipe cap with vent screw G 1/2"



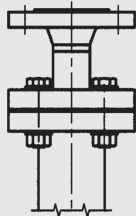
3  
Flange connection with vent screw G 1/2"



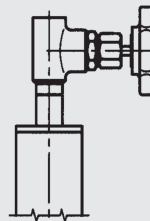
4  
Flange connection e.g. sealing faces groove/tongue per DIN 2512



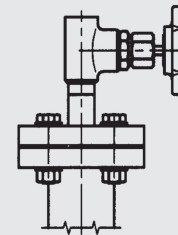
5  
Pipe cap with vent flange



6  
Flange connection Vent flange

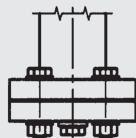


7  
Pipe cap with vent valve

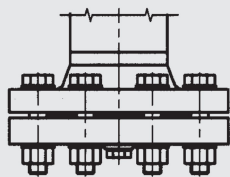


8  
Flange connection with vent valve

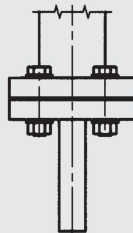
## Chamber end bottom (examples)



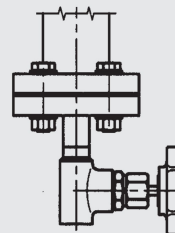
9  
Flange connection with drain plug G/NPT 1/2"



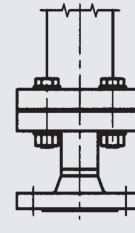
10  
Flange connection e.g. sealing faces groove/tongue per DIN 2512 with drain plug G 1/2"



11  
Flange connection with drain nozzle



12  
Flange connection with drain valve

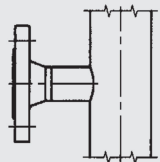


13  
Flange connection with drain flange

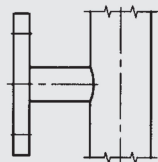
Other options on request

## Option process connection

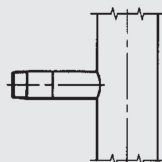
### Process connection (examples)



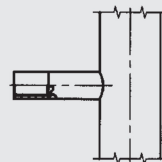
14  
Welding neck flange  
up to DN 25



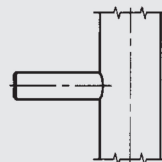
15  
Blind flange  
above DN 32



16  
Threaded coupling GN ...  
(male thread)

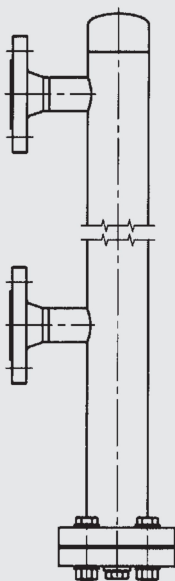


17  
Threaded coupling GM ...  
(female thread)

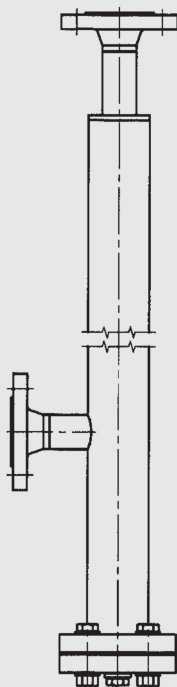


18  
Weld stub S ...

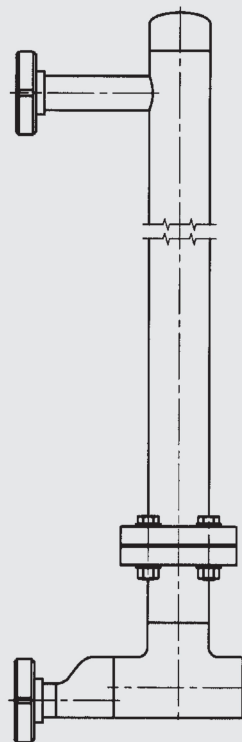
### Complete instrument (examples)



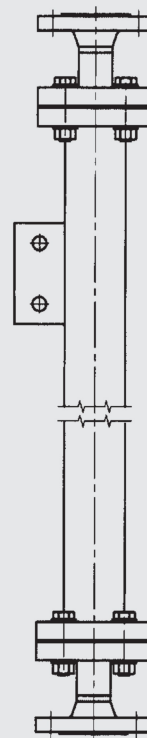
19  
Standard version  
Process connections 2 x lateral



20  
1 lateral process connection  
1 vertical process connection  
(top)



21  
2 process connections per  
DIN 11851  
Lower process connection  
via eccentric reducer



22  
2 vertical process  
connections (top/bottom)  
Option: Support bracket

Other connections on request

## Ordering information

Model / Material / Process specifications (operating temperature and pressure, density) / Process connection / Centre-to-centre distance M ..... / Approvals

For detailed information on floats, magnetic displays, level transmitters (reed chain and magnetostrictive) and magnetic switches see the following data sheets:

- Float; model BFT; see data sheet LM 10.02
- Magnetic display; model BMD; see data sheet LM 10.03
- Reed level transmitter; model BLR; see data sheet LM 10.04
- Magnetostrictive level transmitter; model BLM; see data sheet LM 10.05
- Magnetic switch; model BGU; see data sheet LM 10.06

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# Vibrating level switch

## Hygienic design

### Model TLS-H

WIKA data sheet LM 30.11



For further approvals,  
see page 6

#### Applications

- General purpose vibrating level switch designed to suit all liquids
- Particularly suitable as overflow and dry run protection of pumps, vessels and pipelines
- Food, beverage and pharmaceutical industries

#### Special features

- Easy cleanability due to hygienic design
- Stable and reliable level detection without interference from flow, bubble formation, vibrations, build-up or solids in the medium
- Suitable for SIP and CIP

#### Description

The core element of the vibrating level switch is the tuning fork with integrated vibration drive. When the vibrating tuning fork is immersed in the medium, the resonance frequency of the tuning fork decreases. The frequency change is detected by the electronic circuit and is converted to a switching signal. Irrespective of the mounting position, level changes can be detected very accurately.

The model TLS-H vibrating level switch offers reliable and precise level detection. The instrument has been designed in accordance with the requirements of hygienic processes and enables easy cleaning and maintenance. The TLS-H in hygienic design can be used for CIP (cleaning in place) and SIP (sterilisation in place). It is available with two electrical outputs: TLS-HC with ASC4 connector and TLS-HM with M12 connector – for optimal adaptation to different system configurations.



**Fig. left: vibrating level switch, model TLS-HC**  
**Fig. right: vibrating level switch, model TLS-HM**

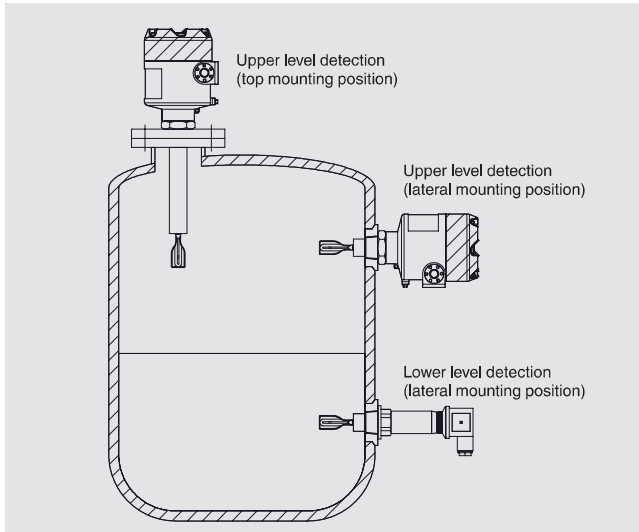
In addition, the TLS-H is available with different surface roughnesses to meet the specific requirements of the respective application. A large number of hygienic process connections enables easy integration into food and pharmaceutical processes.

The vibrating level switches are, depending on the version, suitable for a process temperature of  $-40 \dots +150 \text{ °C}$  [ $-40 \dots +302 \text{ °F}$ ] and an operating pressure of  $-1 \dots +64 \text{ bar}$  [ $-14 \dots +928 \text{ psi}$ ]. The vibrating level switch is suitable for media with a density of  $500 \dots 2,500 \text{ g/cm}^3$  [ $289 \dots 1,445 \text{ oz/in}^3$ ]. The viscosity of the media should be between  $0.1 \dots 10,000 \text{ cP}$  [ $0.24 \text{ und } 21,190 \text{ lb/ft}\cdot\text{h}$ ].

## Application example

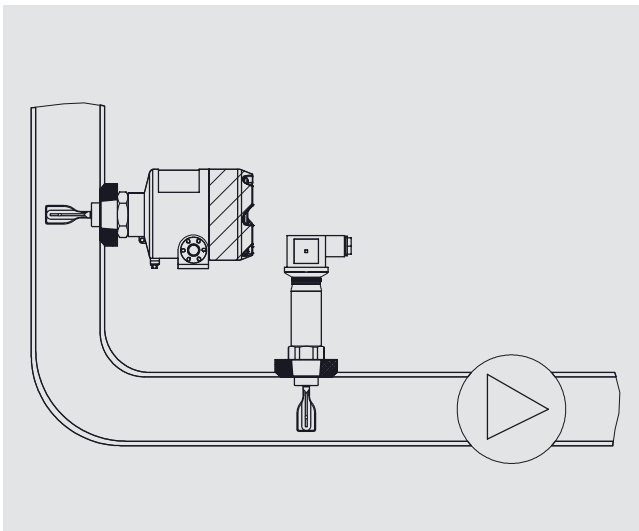
In practice, the WIKA vibrating level switches are mainly used in two areas: Firstly, the level switches are used to detect and control high and low levels in liquid vessels. Secondly, the vibrating level switches are used to detect liquids in pipelines to prevent the pump from running dry.

### Level detection for vessels



The vibrating level switch is usually installed on the side of the tank to detect the upper and lower liquid level. If the vessel has no side openings, the level switch can also be mounted on the tank from above. A pipe extension is then often used to achieve the desired switch point. Installation on the bottom of the tank is also possible.

### Pipeline monitoring



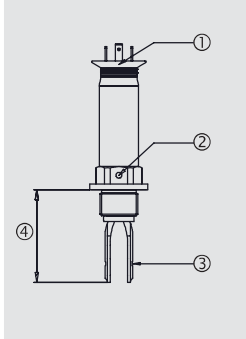
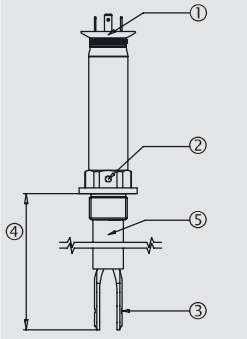
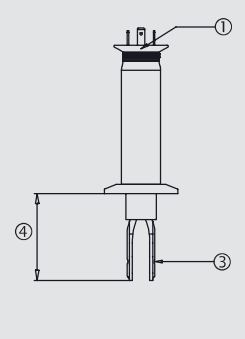
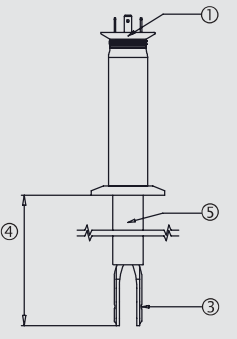
To ensure that a pump does not run dry, there must be sufficient liquid in the intake pipe. The vibrating level switch can detect this and thereby prevent damage to the pump. Since the tuning fork only protrudes 38 mm [1.5 in] into the pipeline, it can be used to measure in small diameter pipelines.

## Overview of versions

Model	Description
TLS-HC	Vibrating level switch, hygienic design with angular connector DIN 175301
TLS-HM	Vibrating level switch, hygienic design with circular connector M12 x 1

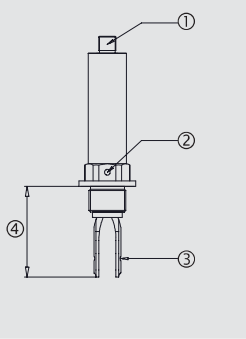
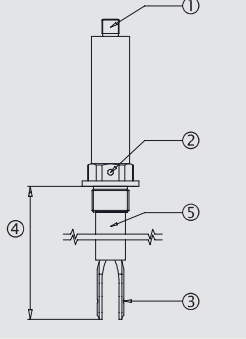
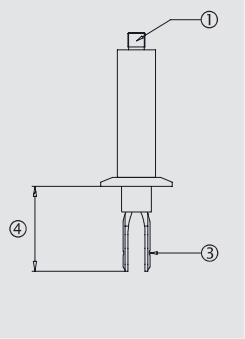
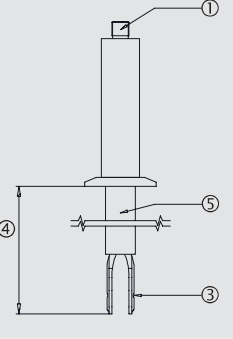
# Vibrating level switch TLS-HC

## Hygienic design with angular connector DIN 175301

	Mounting thread	Mounting thread with extension	Clamp connection	Clamp connection with extension
① Connector ② Direction mark ③ Switch point ④ Insertion length ⑤ Extension				
<b>Electrical connection</b>	<ul style="list-style-type: none"> <li>■ 4-pin per DIN EN 175301-803</li> <li>■ M16 x 1.5</li> </ul>			
<b>Process connection</b>	<ul style="list-style-type: none"> <li>■ G 3/4 ... 2</li> <li>■ 3/4 ... 2 NPT</li> </ul>		<ul style="list-style-type: none"> <li>■ 1" ... 4" per ASME BPE</li> <li>■ DN 25 ... DN 100 per DIN 32676 row A</li> <li>■ DN 1 ... DN 4 per DIN 32676 row C</li> </ul>	
<b>Material</b>				
Connection housing	Stainless steel 1.4404 (316L)			
Process connection	Stainless steel 1.4404 (316L)			
Tuning fork (wetted)	<ul style="list-style-type: none"> <li>■ Stainless steel 1.4404 (316L)</li> <li>■ Stainless steel 1.4404, 1.4435 (316L), electropolished</li> <li>■ Hastelloy C-276</li> <li>■ Hastelloy C-276, electropolished</li> </ul>			
<b>Ambient temperature</b>	-40 ... +60 °C [-40 ... +140 °F]			
<b>Supply voltage</b>	DC 24 V			
<b>Process temperature</b>	-40 ... +100 °C [-40 ... +212 °F]	-40 ... +150 °C [-40 ... +302 °F]	-40 ... +100 °C [-40 ... +212 °F]	-40 ... +150 °C [-40 ... +302 °F]
<b>Hygienic cleaning processes</b>	Suitable for CIP (cleaning in place)	<ul style="list-style-type: none"> <li>■ Suitable for CIP (cleaning in place)</li> <li>■ Suitable for SIP (sterilisation in place)</li> </ul>	Suitable for CIP (cleaning in place)	<ul style="list-style-type: none"> <li>■ Suitable for CIP (cleaning in place)</li> <li>■ Suitable for SIP (sterilisation in place)</li> </ul>
<b>Density of the medium</b>	≥ 500 ... 2,500 kg/m <sup>3</sup>			
<b>Operating pressure</b>	-1 ... +64 bar [-14.5 ... +928 psi]			
<b>Switching output</b>	<ul style="list-style-type: none"> <li>■ SPST relay output</li> <li>■ PNP transistor output</li> </ul>			
<b>Power consumption</b>	< 1 W			
<b>Max. switching power (relay output)</b>	DC 30 V / 3 A			
<b>IP ingress protection</b>	IP65			
<b>Insertion length</b>	64 mm [2.52 in]	64 ... 3,000 mm [2.52 ... 118.11 in]	<ul style="list-style-type: none"> <li>■ 60 mm [2.36 in]</li> <li>■ 43 mm [1.69 in]</li> <li>■ 47 mm [1.85 in]</li> </ul>	60 ... 3,000 mm [2.36 ... 118.11 in]
Switch point	Switch point = insertion length - 13 mm [0.51 in]			
<b>Surface finish quality (wetted)</b>	<ul style="list-style-type: none"> <li>■ Ra ≤ 0.76 μm (SF3 per ASME BPE)</li> <li>■ Ra ≤ 0.38 μm (SF4 per ASME BPE)</li> <li>■ Ra ≤ 0.38 μm electropolished (SF4 per ASME BPE)</li> </ul>			
<b>Tuning fork length</b>	<ul style="list-style-type: none"> <li>■ 42 mm [1.65 in]</li> <li>■ 38 mm [1.50 in]</li> </ul>			

# Vibrating level switch TLS-HM

## Hygienic design with circular connector M12 x 1

	Mounting thread	Mounting thread with extension	Clamp connection	Clamp connection with extension
① Connector ② Direction mark ③ Switch point ④ Insertion length ⑤ Extension				
<b>Electrical connection</b>	M12 coupler connector, 4-pin			
<b>Process connection</b>	<ul style="list-style-type: none"> <li>■ G 3/4 ... 2</li> <li>■ 3/4 ... 2 NPT</li> </ul>		<ul style="list-style-type: none"> <li>■ 1" ... 4" per ASME BPE</li> <li>■ DN 25 ... DN 100 per DIN 32676 row A</li> <li>■ DN 1 ... DN 4 per DIN 32676 row C</li> </ul>	
<b>Material</b>				
Connection housing	Stainless steel 1.4404 (316L)			
Process connection	Stainless steel 1.4404 (316L)			
Tuning fork (wetted)	<ul style="list-style-type: none"> <li>■ Stainless steel 1.4404 (316L)</li> <li>■ Stainless steel 1.4404, 1.4435 (316L), electropolished</li> <li>■ Hastelloy C-276</li> <li>■ Hastelloy C-276, electropolished</li> </ul>			
<b>Ambient temperature</b>	-40 ... +60 °C [-40 ... +140 °F]			
<b>Supply voltage</b>	DC 24 V			
<b>Process temperature</b>	-40 ... +100 °C [-40 ... +212 °F]	-40 ... +150 °C [-40 ... +302 °F]	-40 ... +100 °C [-40 ... +212 °F]	-40 ... +150 °C [-40 ... +302 °F]
<b>Hygienic cleaning processes</b>	Suitable for CIP (cleaning in place)	<ul style="list-style-type: none"> <li>■ Suitable for CIP (cleaning in place)</li> <li>■ Suitable for SIP (sterilisation in place)</li> </ul>	Suitable for CIP (cleaning in place)	<ul style="list-style-type: none"> <li>■ Suitable for CIP (cleaning in place)</li> <li>■ Suitable for SIP (sterilisation in place)</li> </ul>
<b>Density of the medium</b>	≥ 500 ... 2,500 kg/m <sup>3</sup>			
<b>Operating pressure</b>	-1 ... +64 bar [-14.5 ... +928 psi]			
<b>Switching output</b>	<ul style="list-style-type: none"> <li>■ SPST relay output</li> <li>■ PNP transistor output</li> </ul>			
<b>Power consumption</b>	< 1 W			
<b>Max. switching power (relay output)</b>	DC 30 V / 3 A			
<b>IP ingress protection</b>	IP66/68			
<b>Insertion length</b>	64 mm [2.52 in]	64 ... 3,000 mm [2.52 ... 118.11 in]	<ul style="list-style-type: none"> <li>■ 60 mm [2.36 in]</li> <li>■ 47 mm [1.85 in]</li> </ul>	60 ... 3,000 mm [2.36 ... 118.11 in]
Switch point	Switch point = insertion length - 13 mm [0.51 in]			
<b>Surface finish quality (wetted)</b>	<ul style="list-style-type: none"> <li>■ Ra ≤ 0.76 μm (SF3 per ASME BPE)</li> <li>■ Ra ≤ 0.38 μm (SF4 per ASME BPE)</li> <li>■ Ra ≤ 0.38 μm electropolished (SF4 per ASME BPE)</li> </ul>			
<b>Tuning fork length</b>	<ul style="list-style-type: none"> <li>■ 42 mm [1.65 in]</li> <li>■ 38 mm [1.50 in]</li> </ul>			

## EHEDG-certified process connections

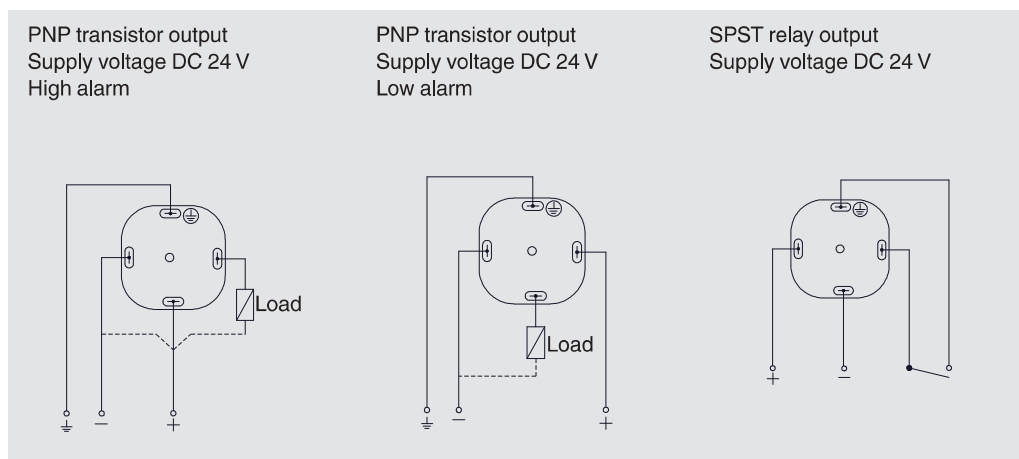
Hygienic process connection	Size DN	EHEDG approval
Clamp DIN 32676	25 ... 100	Yes
Clamp ISO 2852	25 ... 101.6	Yes
Clamp ASME BPE	1" ... 4"	Yes
DIN 11851	25 ... 100	Yes
DIN 11864-1 Form A	25 ... 100	Yes
DIN 11864-2 Form A	25 ... 100	Yes
DIN 11864-3 Form A	25 ... 100	Yes
VARILINE® Form F, Form N	25 ... 100	Yes

## Wiring scheme

→ For details on the wiring scheme, see the model TLS installation and operating instructions

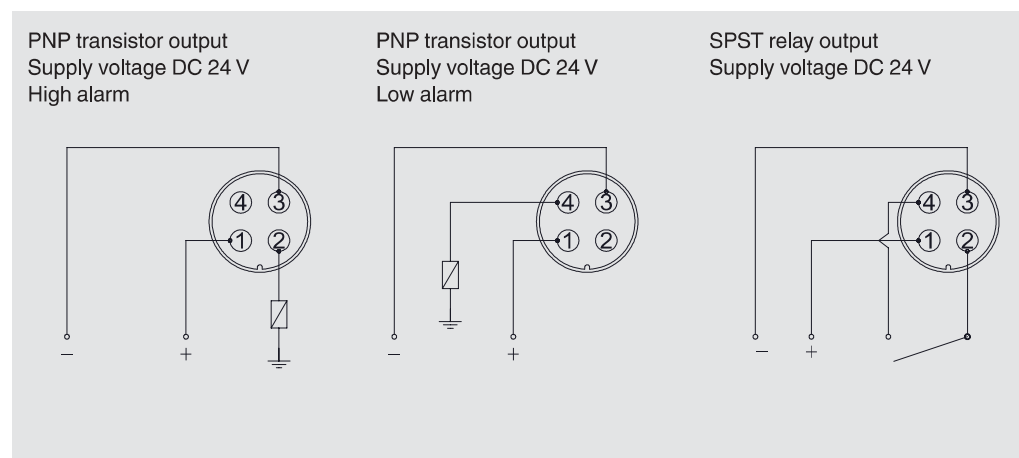
### TLS-HC

4-pin coupler connector per DIN EN 175301-803, with electrical connection M16 x 1.5






### TLS-HM

Circular connector M12 x 1, 4-pin



## Approvals

Logo	Description	Region
	<b>EU declaration of conformity</b>	European Union
	EMC directive EN 61326 emission (group 1, class B) and immunity (industrial environments)	
	RoHS directive	
	<b>UKCA</b>	United Kingdom
	Electromagnetic compatibility regulations	
	Restriction of hazardous substances (RoHS) regulations	
	<b>EHEDG</b> Hygienic design Type EL, Class 1	European Union



## Manufacturer's declaration

Logo	Description
-	Manufacturer's declaration regarding regulation (EC) no. 1935/2004; good manufacturing practice (EC) no. 2023/2006 (GMP)
-	Manufacturer's declaration GB 4806.1-2016 China National Food Safety Standard – good manufacturing practice GB 31603-2015 (GMP)

## Certificates

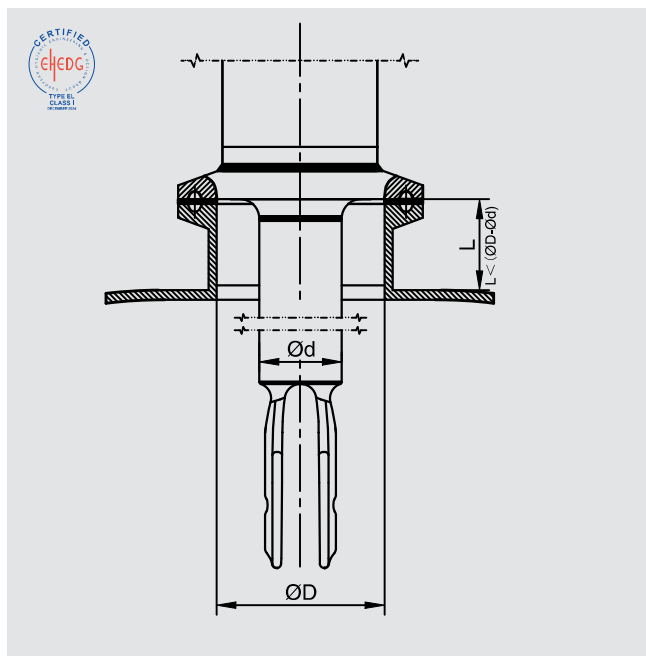
Certificates	
Certificates	<ul style="list-style-type: none"> <li>2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, wetted metal parts free from substances of animal origin (ADI-free))</li> <li>3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metal parts)</li> </ul>

## Accessories

Description	Temperature range	Cable Ø	Order no.
<b>M12 connector with moulded cable</b>			
	-20 ... +80 °C [-4 ... +176 °F]	4.5 mm [0.18 in]	Straight version, cut to length, 4-pin, 2 m [6.6 ft], PUR cable, UL Listed, IP67
			Straight version, cut to length, 4-pin, 5 m [16.4 ft], PUR cable, UL Listed, IP67
			Straight version, cut to length, 4-pin, 10 m [32.8 ft], PUR cable, UL Listed, IP67
	-20 ... +80 °C [-4 ... +176 °F]	4.5 mm [0.18 in]	Angled version, cut to length, 4-pin, 2 m [6.6 ft], PUR cable, UL Listed, IP67
			Angled version, cut to length, 4-pin, 5 m [16.4 ft], PUR cable, UL Listed, IP67
			Angled version, cut to length, 4-pin, 10 m [32.8 ft], PUR cable, UL Listed, IP67

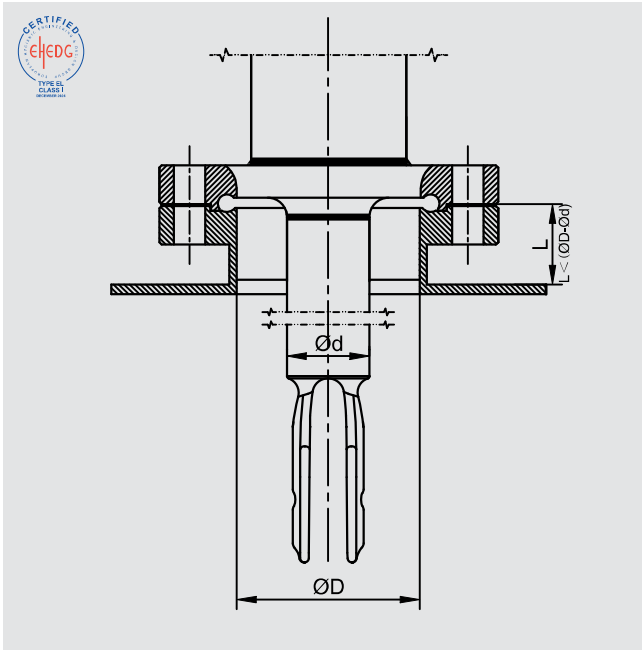
Description	Temperature range	Cable length	Order no.
<b>Connection cable M12 x 1 with integrated LED display</b>			
	-20 ... +80 °C [-4 ... +176 °F]	2 m [6.6 ft]	14252834
		5 m [16.4 ft]	14252835

## Dimensions in mm [in]



Sensors inserted in tanks should be flush with the inside of the tank wall. If, for technical reasons, there is a dead space, it must be ensured that the spray jet from the cleaning appliance can reach all surfaces. To fulfil the EHEDG cleaning criteria, the maximum length of the tank nozzle,  $L_{\max}$ , should be taken into account.

Standard	DN	ØD	$L_{\max} (\text{ØD} - \text{Ød}) \text{ Ød} = 17$	$L_{\max} (\text{ØD} - \text{Ød}) \text{ Ød} = 21,3$
<b>Clamp DIN 32676</b>	25	26	9	-
	32	32	15	10.7
	40	38	21	16.7
	50	50	33	28.3
	65	66	39	44.7
	80	81	54	59.7
	100	100	83	78.7
<b>Clamp ISO 2852</b>	25	22.6	5.6	-
	33.7	31.3	14.3	10
	38	35.6	18.6	14.3
	40	37.6	20.6	16.3
	51	48.6	31.6	27.3
	63.5	60.3	43.3	40
	70	66.8	49.8	45.5
	76.1	72.9	55.9	51.6
	88.9	84.9	67.9	63.6
	101.6	97.6	80.6	76.3
<b>Clamp ASME BPE</b>	1"	22.1	5.1	-
	1,5"	34.8	17.8	13.5
	2"	47.5	30.5	26.2
	2,5"	60.2	33.2	38.9
	3"	72.9	55.9	51.6
	4"	97.38	80.38	76.08



Standard	DN	ØD	$L_{\max} (\text{ØD} - \text{Ød}) \text{ Ød} = 17$	$L_{\max} (\text{ØD} - \text{Ød}) \text{ Ød} = 21,3$
<b>DIN 11851</b>	25	26	9	-
	32	32	15	10.7
	40	38	21	16.7
	50	50	33	28.7
	65	66	39	44.7
	80	81	54	59.7
	100	100	83	78.7
<b>DIN 11864-1 Form A</b>	25	26	9	-
	32	32	15	10.7
	40	38	21	16.7
	50	50	33	28.7
	65	66	39	44.7
	80	81	54	59.7
	100	100	83	78.7
<b>DIN 11864-2 Form A</b>	25	26	9	-
	32	32	15	10.7
	40	38	21	16.7
	50	50	33	28.7
	65	66	39	44.7
	80	81	54	59.7
	100	100	83	78.7
<b>DIN 11864-3 Form A</b>	25	26	9	-
	32	32	15	10.7
	40	38	21	16.7
	50	50	33	28.7
	65	66	39	44.7
	80	81	54	59.7
	100	100	83	78.7

## Ordering information

Model / Operating pressure / Operating temperature / Material / Electrical connection / Process connection (standard and size) / Surface finish quality / Tuning fork length / Switching output / Insertion length / Manufacturer's declaration / Certificates

To order the described product the order number is sufficient.

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