

# Bypass level indicator With magnetic display Model BNA

KSR data sheet BNA



## Applications

- Continuous level indication without power supply
- Indication of the level proportional to height
- Individual design and corrosion resistant materials make the products suitable for a broad range of applications
- Chemical, 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 industry, pharmaceutical industry

## Special features

- Process- and system-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 sensors and magnetic switches possible as an option
- Explosion-protected versions

## Description

The bypass level indicator model BNA consists of a bypass chamber, which, as a communicating tube, is connected laterally to a vessel via at least 2 process connections (flanged, threaded or welded). 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

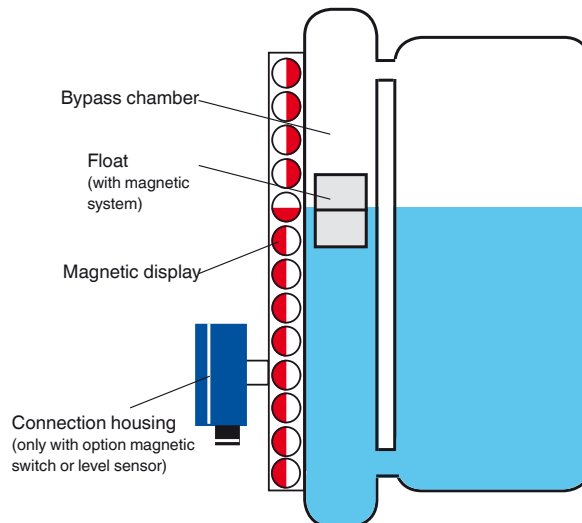
Through the magnetic field of the permanent magnetic system in the float, the display elements, through the wall of the bypass chamber, are turned through  $180^\circ$ . For an increasing level from white to red; for a falling level from red to white.

Thus the bypass level indicator clearly displays the level of a vessel **without power supply**.

## 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
- Measuring and indicating of the level of aggressive, combustible, toxic, hot and contaminated media
- Functioning of the magnetic display guaranteed even in the case of power failures
- By using a variety of corrosion-resistant materials, applicable for virtually all industrial applications
- Continuous measurement of levels, independent of physical and chemical changes of the media such as: Foaming, conductivity, dielectric constant, vapours, bubble formation, boiling effects
- Interface-layer level measurement from  $\Delta$  density  $100 \text{ kg/m}^3$
- Special versions: Food compliant, coatings, liquid gas, heating jacket

## Illustration of the principle

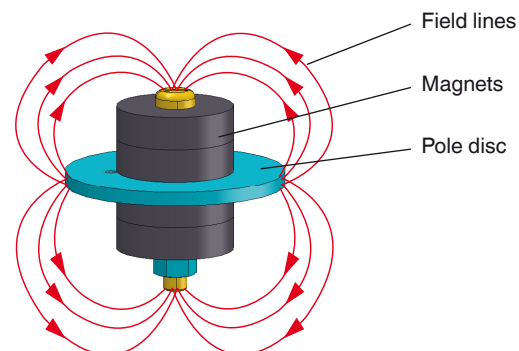


## Design and operating principle

- 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  $450 \text{ }^\circ\text{C}$ .



## Model overview

Bypass level indicator	Approval							Material	Max. pressure in bar	Medium temperature in °C
	with-out	Ex c	Ex c, GL	Ex c, DNV	GL	DNV	ABS			
Compact version, model BNA-C	x	x	x	x	x	x		Stainless steel 1.4571 (316Ti)	40	-196 ... +150
Standard version, model BNA-S	x	x	x	x	x	x	x	Stainless steel 1.4571 (316Ti), 1.4404 (316L), 1.4401/1.4404 (316/316L)	64	-196 ... +450
High-pressure version, model BNA-H	x	x	x	x	x	x		Stainless steel 1.4571 (316Ti), 1.4404 (316L)	400	-196 ... +450
Plastic version, model BNA-P	x							PP, PVDF	6	-10 ... +100
DUPlus version, standard, model BNA-SD	x	x						Stainless steel 1.4571 (316Ti), 1.4404 (316L), 1.4401/1.4404 (316/316L)	64	-196 ... +450
DUPlus version, high pressure, model BNA-HD	x	x						Stainless steel 1.4571 (316Ti), 1.4404 (316L), 1.4401/1.4404 (316/316L)	160	-196 ... +450
Liquid gas/KOPlus version, model BNA-L	x	x						Stainless steel 1.4571 (316Ti), 1.4404 (316L)	25	-60 ... +300
Special materials, model BNA-X	x	x						Stainless steel 6Mo 1.4547 (UNS S31254)	250	-196 ... +450
	x							Stainless steel 1.4571 (316Ti) with internal coating E-CTFE, ETFE or PTFE	16	depending on the medium
	x	x	x	x	x	x		Titanium 3.7035	64	-196 ... +450
	x	x	x	x	x	x		Hastelloy C276 (2.4819)	160	-196 ... +450
Heating jacket version, model BNA-J	x	x	x		x			Stainless steel 1.4571 (316Ti), 1.4404 (316L)	64	-60 ... +450

## Ex approvals

Explosion protection	Ignition protection type	Model	Zone	Approval number
ATEX	Ex c	BNA-S, BNA-H, BNA-C, BNA-SD, BNA-HD, BNA-X, BNA-J	Zone 0/1, gas	KEMA 02 ATEX 2106 X II 1/2 G c T1 ... T6
	Ex c + GL	BNA-S, BNA-H, BNA-C, BNA-X, BNA-J	Zone 0/1, gas	KEMA 02 ATEX 2106 X II 1/2 G c T1 ... T6 + GL - 35 949 - 87
	Ex c + DNV	BNA-S, BNA-H, BNA-C, BNA-X	Zone 0/1, gas	KEMA 02 ATEX 2106 X II 1/2 G c T1 ... T6 + DNV - A-11451

## Type approval

Approval	Model	Approval number
GL	BNA-S, BNA-H, BNA-C, BNA-X, BNA-J	GL - 35 949 - 87 HH
DNV	BNA-S, BNA-H, BNA-C, BNA-X	DNV A-11451
ABS	BNA-S	ABS 07-HG218425-1-PDA
GOST-R	all	0959333

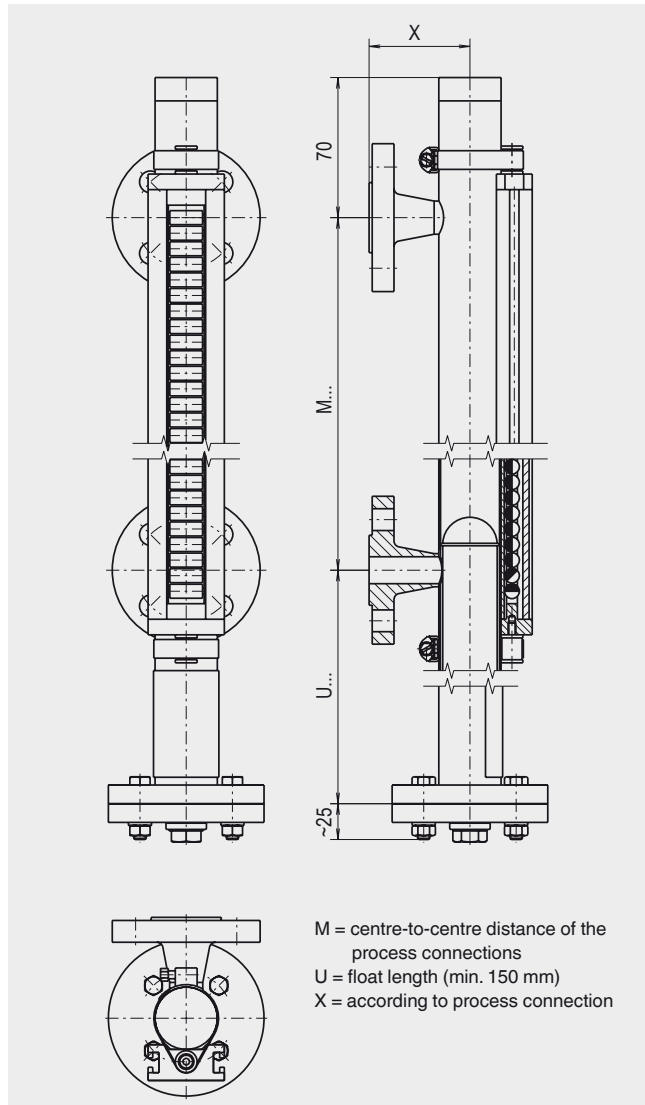
Detailed information on floats, magnetic displays, sensors (reed chains and magnetostrictive) and magnetic switches can be found in the following data sheets:

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

Further approvals on request

# Bypass level indicator, compact version, model BNA-C

Bypass chamber from stainless steel

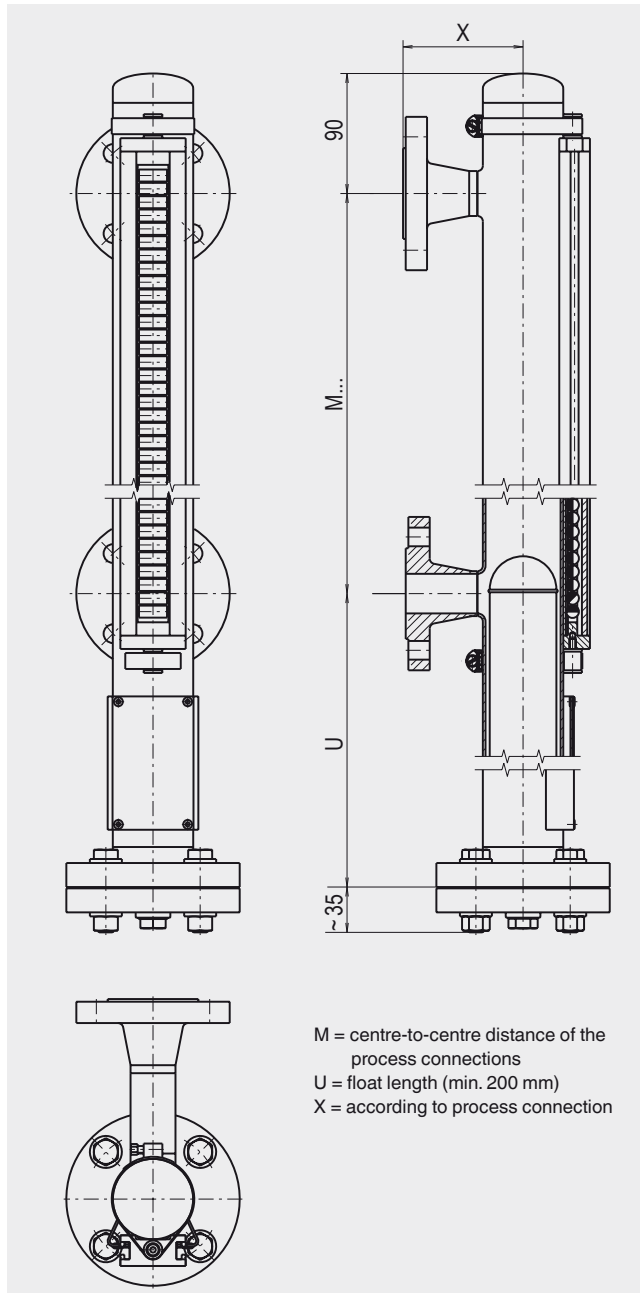


Specifications	
Bypass chamber	Ø 42.2 x 2 mm, max. 40 bar
Chamber end top	Flat top, flange or threaded connection Options: (see page 14) <ul style="list-style-type: none"> <li>■ Vent screw</li> <li>■ Vent valve</li> <li>■ Vent flange</li> </ul>
Chamber end bottom	Flange connection or threaded connection Options: (see page 14) <ul style="list-style-type: none"> <li>■ Drain plug</li> <li>■ Drain valve</li> <li>■ Drain flange</li> </ul>
Process connections	2 x lateral (options see page 15) Flange EN 1092-1, DN 10 - DN 50, PN 6 - PN 40 Flange DIN, DN 10 - DN 50, PN 6 - PN 40 Flange ANSI B 16.5, 1/2" - 2,5", class 150 - class 300 Weld stub 1/2" - 1" Threaded bushing G/NPT 1/2" - 1" Threaded nipple G/NPT 1/2" - 1"
Centre-to-centre distance	Min. 150 mm to max. 5,000 mm
Material	Stainless steel 1.4571 (316Ti)
Nominal pressure	Max. 40 bar
Temperature range	-196 ... +150 °C
Float	Cylindrical float, model BFT-H32, see data sheet LM 10.02
Magnetic display	Magnetic display; model BMD-S; see data sheet LM 10.03
Level sensor	Reed sensor, model BLR, see data sheet LM 10.04 Magnetostrictive sensor, model BLM, see data sheet LM 10.05
Magnetic switches	Magnetic switch, model BGU, see data sheet LM 10.06
Approvals	Ex c, GL, DNV, GOST-R

Special versions on request

# Bypass level indicator, standard version, model BNA-S

Bypass chamber from stainless steel



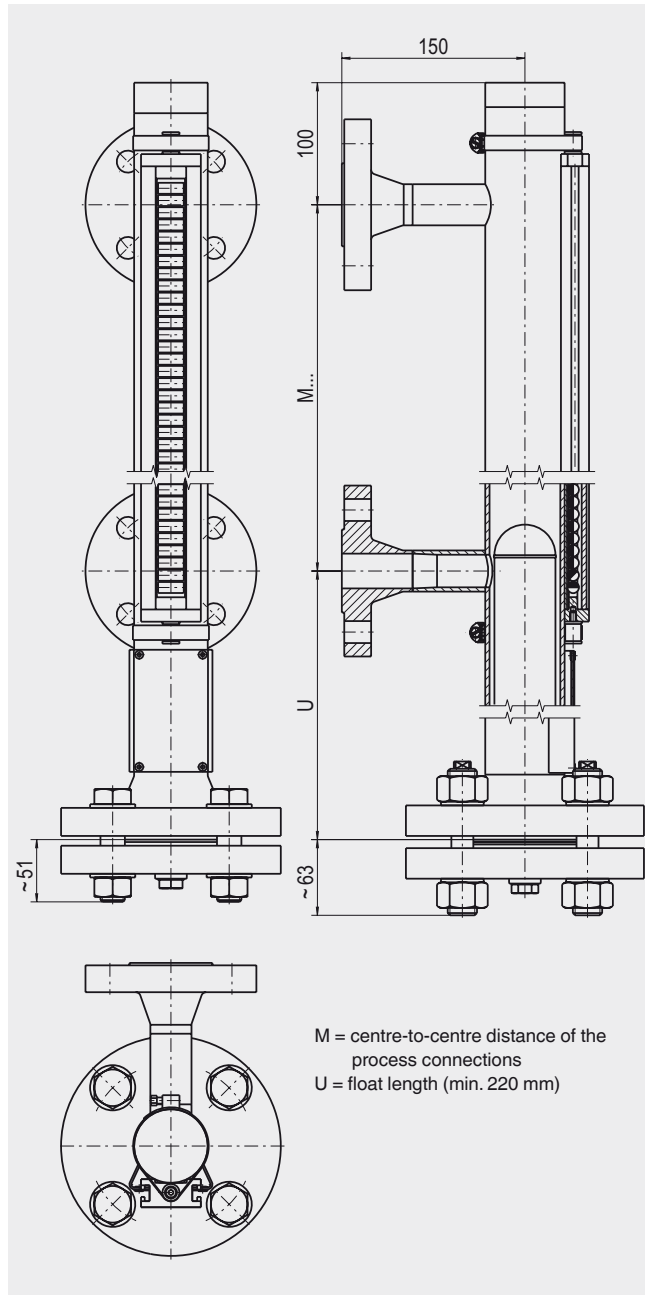
## Specifications

Bypass chamber	Ø 60.3 x 2 mm, max. 40 bar Ø 60.3 x 2.77 mm, max. 64 bar
Chamber end top	Flat top or flange connection Options: (see page 14) ■ Vent screw ■ Vent valve ■ Vent flange
Chamber end bottom	Flange connection Options: (see page 14) ■ Drain plug ■ Drain valve ■ Drain flange
Process connections	2 x lateral (options see page 15) Flange EN 1092-1, DN 10 - DN 100, PN 6 - PN 63 Flange DIN, DN 10 - DN 100, PN 6 - PN 64 Flange ANSI B 16.5, 1/2" - 4", class 150 - class 600 Weld stub 1/2" - 1" Threaded bushing G/NPT 1/2" - 1" Threaded nipple G/NPT 1/2" - 1"
Centre-to-centre distance	Min. 150 mm to max. 6,000 mm (larger distances on request)
Material	Stainless steel 1.4571 (316Ti), 1.4404 (316L), 1.4401/1.4404 (316/316L)
Nominal pressure	Max. 64 bar
Temperature range	-196 ... +450 °C
Float	Cylindrical float, model BFT-H or corrugated float, model BFT-S, see data sheet LM 10.02
Magnetic display	Standard version, model BMD-S: < 200 °C High-temperature version, model BMD-F: > 200 °C, see data sheet LM 10.03
Level sensor	Reed sensor, model BLR, see data sheet LM 10.04 Magnetostrictive sensor, model BLM, see data sheet LM 10.05
Magnetic switches	Magnetic switch, model BGU, see data sheet LM 10.06
Approvals	Ex c, GL, DNV, ABS, GOST-R

Special versions on request

# Bypass level indicator, high-pressure version, model BNA-H

Bypass chamber from stainless steel



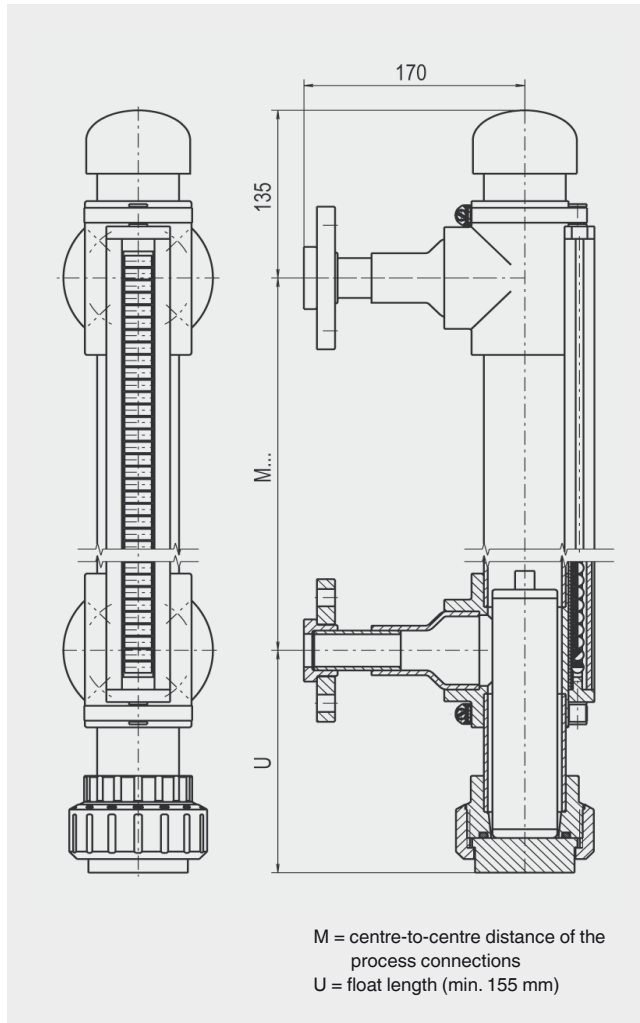
## Specifications

Bypass chamber	<p>Stainless steel 1.4571:  <math>\varnothing</math> 60.3 x 3.91 mm, max. 160 bar  <math>\varnothing</math> 76.1 x 5 mm, max. 160 bar  <math>\varnothing</math> 71 x 7.5 mm, max. 250 bar  <math>\varnothing</math> 76.1 x 10 mm, max. 420 bar</p> <p>Stainless steel 1.4404:  <math>\varnothing</math> 60.3 x 3.91 mm, max. 100 bar  <math>\varnothing</math> 60.3 x 5.54 mm, max. 150 bar  <math>\varnothing</math> 73 x 7.01 mm, max. 150 bar</p>
Chamber end top	<p>Flat top or flange connection                      Options: (see page 14)                      ■ Vent screw                      ■ Vent valve                      ■ Vent flange</p>
Chamber end bottom	<p>Flange connection                      Options: (see page 14)                      ■ Drain plug                      ■ Drain valve                      ■ Drain flange</p>
Process connections	<p>2 x lateral (options see page 15)                      Flange EN 1092-1, DN 10 - DN 100,                      PN 63 - PN 400                      Flange DIN, DN 10 - DN 100, PN 64 - PN 400                      Flange ANSI B 16.5, 1/2" - 4",                      class 600 - class 2,500                      Weld stub 1/2" - 1"                      Threaded bushing G/NPT 1/2" - 1"                      Threaded nipple G/NPT 1/2" - 1"</p>
Centre-to-centre distance	Min. 150 mm to max. 6,000 mm (larger distances on request)
Material	Stainless steel 1.4571 ( $\varnothing$ 60.3 x 3.91 mm, $\varnothing$ 76.1 x 5 mm, $\varnothing$ 71 x 7.5 mm, $\varnothing$ 76.1 x 10 mm) or stainless steel 1.4404 ( $\varnothing$ 60.3 x 3.91 mm, $\varnothing$ 60.3 x 5.54 mm, $\varnothing$ 73 x 7.01 mm)
Nominal pressure	Max. 400 bar
Temperature range	-196 ... +450 °C
Float	Cylindrical float, model BFT-H, ball-segment float, model BFT-K or foam float, model BFT-F, see data sheet LM 10.02
Magnetic display	Standard version, model BMD-S: < 200 °C High-temperature version, model BMD-F: > 200 °C, see data sheet LM 10.03
Level sensor	Reed sensor, model BLR, see data sheet LM 10.04 Magnetostrictive sensor, model BLM, see data sheet LM 10.05
Magnetic switches	Magnetic switch, model BGU, see data sheet LM 10.06
Approvals	Ex c, GL, DNV, GOST-R

Special versions on request

## Bypass level indicator, plastic version, model BNA-P

Bypass chamber and float from PVDF or PP



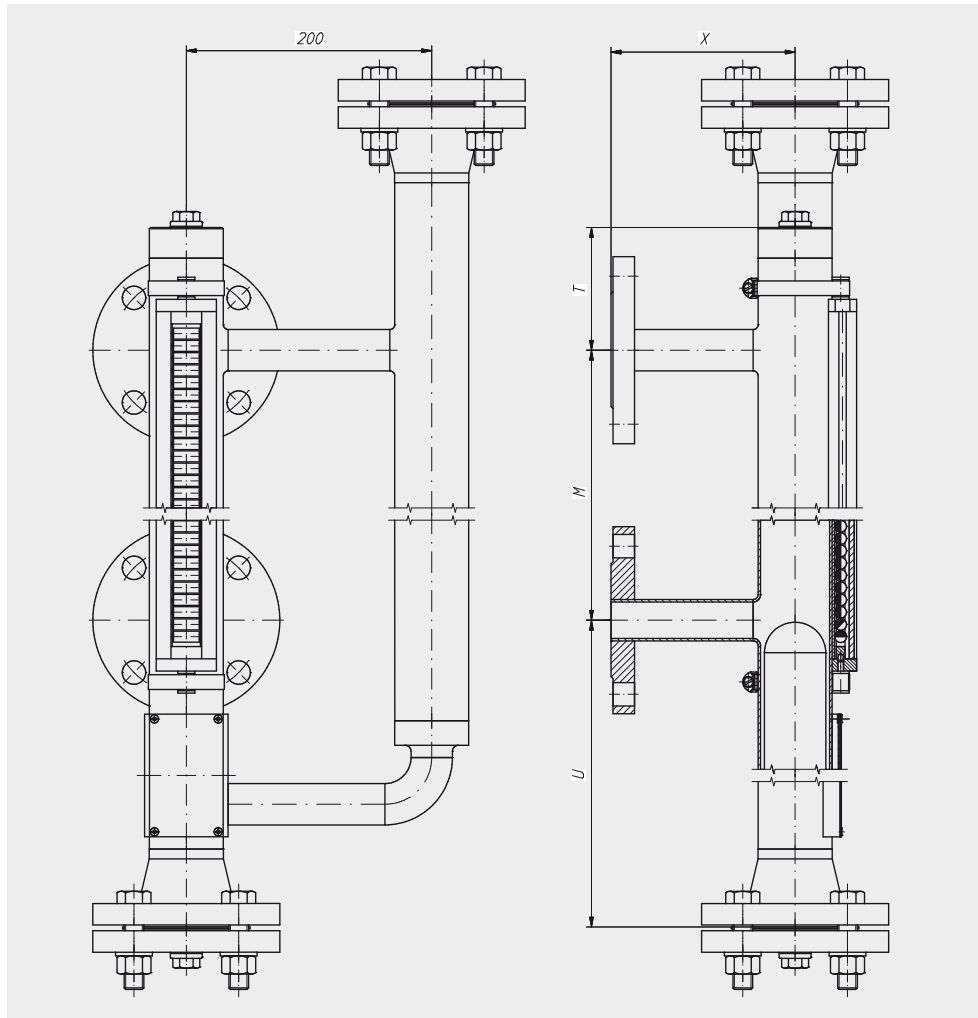
### Specifications

Bypass chamber	Ø 63 x 3 mm, max. 6 bar
Chamber end top	Welding cap, threaded connection Options: (see page 14) ■ Vent screw ■ Vent valve ■ Vent flange
Chamber end bottom	Threaded connection Options: (see page 14) ■ Drain plug ■ Drain valve ■ Drain flange
Process connections	2 x lateral (options see page 15) Flange EN 1092-1, DN 15 - DN 50, PN 16 Flange DIN, DN 15 - DN 50, PN 16 Flange ANSI B 16.5, 1/2" - 2", class 150 Weld stub 1/2" - 1" Threaded bushing G/NPT 1/2" - 1" Threaded nipple G/NPT 1/2" - 1"
Centre-to-centre distance	Min. 200 mm to max. 4,000 mm (larger distances on request)
Material	PVDF or PP
Nominal pressure	Max. 6 bar
Temperature range	PVDF: -10 ... +100 °C PP: -10 ... +80 °C
Float	Plastic float, model BFT-P, see data sheet LM 10.02
Magnetic display	Standard version, model BMD-S, see data sheet LM 10.03
Level sensor	Reed sensor, model BLR, see data sheet LM 10.04 Magnetostrictive sensor, model BLM, see data sheet LM 10.05
Magnetic switches	Magnetic switch, model BGU, see data sheet LM 10.06
Approvals	-

Special versions on request

# Bypass level indicator, DUPlus version, standard, model BNA-SD

Bypass chamber from stainless steel



## Specifications

Bypass chamber	Ø 60.3 x 2 mm, max. 40 bar Ø 60.3 x 2.77 mm, max. 64 bar
Chamber end top	Flange connection Options: (see page 14) ■ Vent screw ■ Vent valve ■ Vent flange
Chamber end bottom	Flat top or flange connection Options: (see page 14) ■ Drain plug ■ Drain valve ■ Drain flange
Process connections	2 x lateral (options see page 15) Flange DIN, DN 10 - DN 100, PN 6 - PN 64 Flange ANSI B 16.5, 1/2" - 4", class 150 - class 600 Weld stub 1/2" - 1" Threaded bushing G/NPT 1/2" - 1" Threaded nipple G/NPT 1/2" - 1"
External sensor connection	Flange EN 1092-1, DN 50, PN 6 - PN 64 Flange DIN, DN 50, PN 6 - PN 64 Flange ANSI B 16.5, 2" class 150 - class 600 Female thread G/NPT 3/4" - 2"

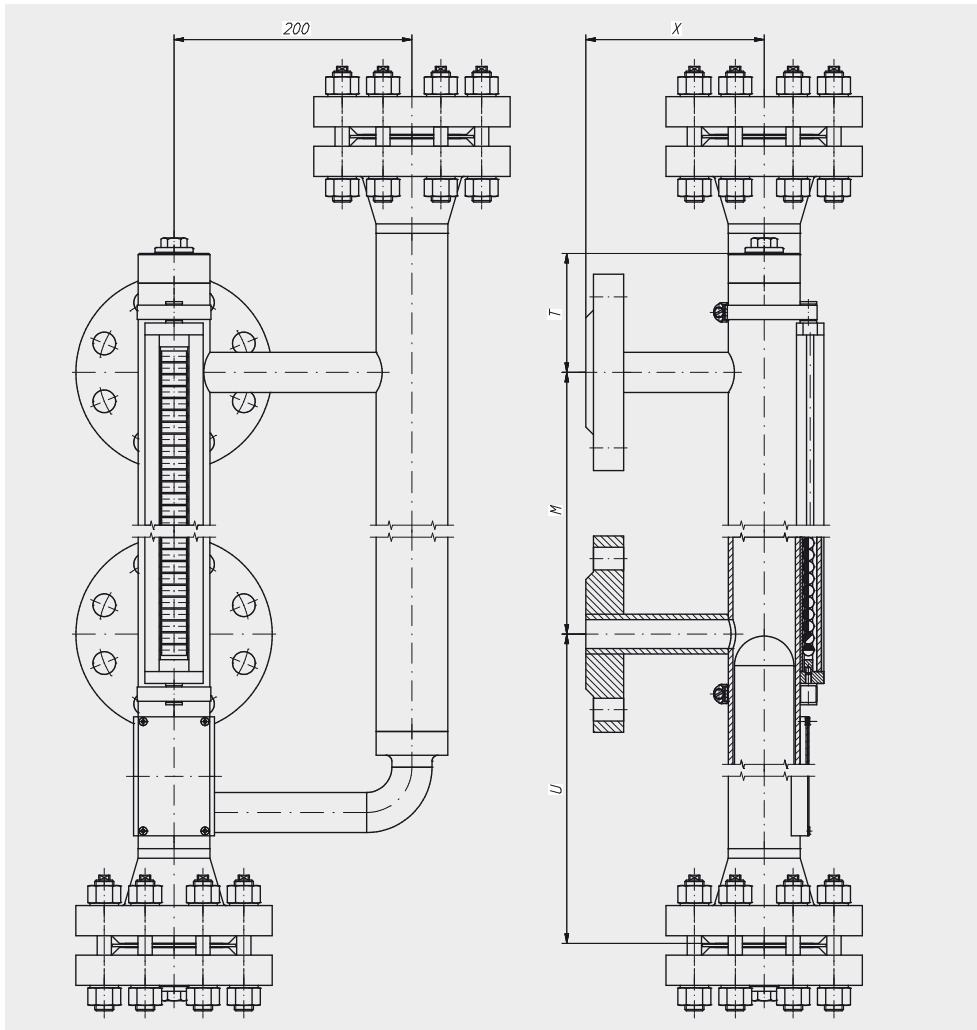
Centre-to-centre distance	Min. 150 mm to max. 6,000 mm (larger distances on request)
Material	Stainless steel 1.4571, 1.4404 or 1.4401/1.4404
Nominal pressure	Max. 64 bar
Temperature range	-196 ... +450 °C
Float	Cylindrical float, model BFT-H or corrugated float, model BFT-S, see data sheet LM 10.02
Magnetic display	Standard version, model BMD-S: < 200 °C High-temperature version, model BMD-F: > 200 °C, see data sheet LM 10.03
Level sensor	Reed sensor, model BLR, see data sheet LM 10.04 Magnetostrictive sensor, model BLM, see data sheet LM 10.05 Guided wave radar, model GTR, see data sheet LM 20.05
Magnetic switches	Magnetic switch, model BGU, see data sheet LM 10.06
Approvals	Ex c, GOST-R

Special versions on request



# Bypass level indicator, DUPlus version, high pressure, model BNA-HD

Bypass chamber from stainless steel



## Specifications

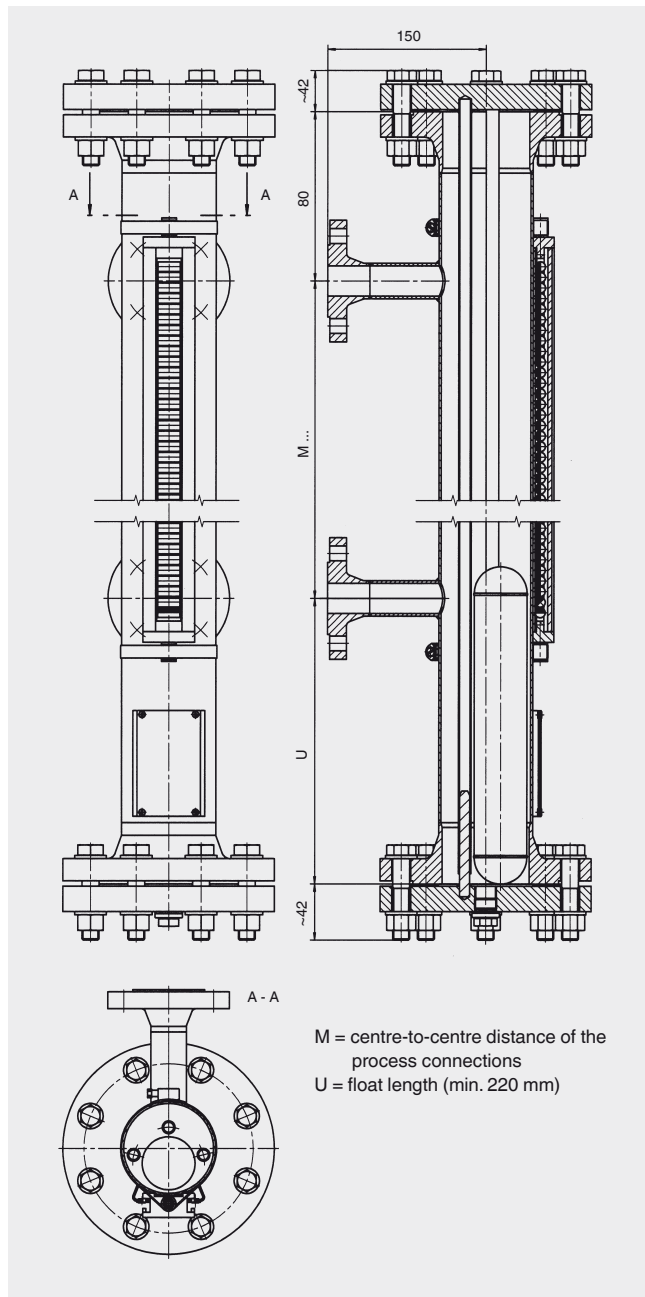
Bypass chamber	Ø 60.3 x 3.91 mm, max. 160 bar
Chamber end top	<ul style="list-style-type: none"> <li>Flange connection</li> <li>Options: (see page 14)                             <ul style="list-style-type: none"> <li>■ Vent screw</li> <li>■ Vent valve</li> <li>■ Vent flange</li> </ul> </li> </ul>
Chamber end bottom	<ul style="list-style-type: none"> <li>Flat top or flange connection</li> <li>Options: (see page 14)                             <ul style="list-style-type: none"> <li>■ Drain plug</li> <li>■ Drain valve</li> <li>■ Drain flange</li> </ul> </li> </ul>
Process connections	<ul style="list-style-type: none"> <li>2 x lateral (options see page 15)</li> <li>Flange 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> <li>Weld stub 1/2" - 1"</li> <li>Threaded bushing G/NPT 1/2" - 1"</li> <li>Threaded nipple G/NPT 1/2" - 1"</li> </ul>
External sensor connection	<ul style="list-style-type: none"> <li>Flange EN 1092-1, DN 50, PN 6 - PN 160</li> <li>Flange DIN, DN 50, PN 6 - PN 160</li> <li>Flange ANSI B 16.5, 2" class 150 - class 1,500</li> <li>Female thread G/NPT 3/4" - 2"</li> </ul>

Centre-to-centre distance	Min. 150 mm to max. 6,000 mm (larger distances on request)
Material	Stainless steel 1.4571, 1.4404 or 1.4401/1.4404
Nominal pressure	Max. 160 bar
Temperature range	-196 ... +450 °C
Float	Cylindrical float, model BFT-H, corrugated float, model BFT-S, ball-segment float, model BFT-K or foam float, model BFT-F, see data sheet LM 10.02
Magnetic display	Standard version, model BMD-S: < 200 °C High-temperature version, model BMD-F: > 200 °C, see data sheet LM 10.03
Level sensor	Reed sensor, model BLR, see data sheet LM 10.04 Magnetostrictive sensor, model BLM, see data sheet LM 10.05 Guided wave radar, model GTR, see data sheet LM 20.05
Magnetic switches	Magnetic switch, model BGU, see data sheet LM 10.06
Approvals	Ex c, GOST-R

Special versions on request

# Bypass level indicator, liquid gas/KOPlus version, model BNA-L

Bypass chamber from stainless steel

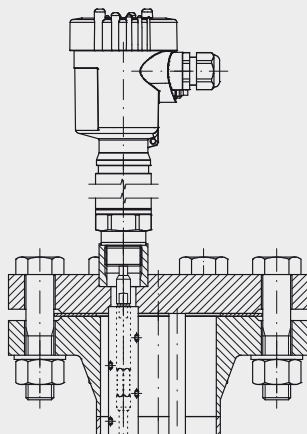


## Specifications

Bypass chamber	Ø 88.9 x 2 mm, max. 25 bar Ø 88.9 x 2.9 mm, max. 40 bar
Chamber end top	Flange connection Options: (see page 14) ■ Vent screw ■ Vent valve ■ Vent flange
Chamber end bottom	Flange connection Options: (see page 14) ■ Drain plug ■ Drain valve ■ Drain flange
Process connections	2 x lateral (options see page 15) Flange EN 1092-1, DN 10 - DN 100, PN 6 - PN 63 Flange DIN, DN 10 - DN 100, PN 6 - PN 64 Flange ANSI B 16.5, 1/2" - 4", class 150 - class 600 Weld stub 1/2" - 1" Threaded bushing G/NPT 1/2" - 1" Threaded nipple G/NPT 1/2" - 1"
Centre-to-centre distance	Min. 150 mm to max. 6,000 mm (larger distances on request)
Material	Stainless steel 1.4571 (316Ti) (Ø 88.9 x 2 mm, Ø 88.9 x 2.9 mm) Stainless steel 1.4404 (316L) (Ø 88.9 x 2 mm)
Nominal pressure	Max. 40 bar
Temperature range	-60 ... +300 °C
Float	Cylindrical float, model BFT-H, see data sheet LM 10.02
Magnetic display	Standard version, model BMD-S: < 200 °C High-temperature version, model BMD-F: > 200 °C, see data sheet LM 10.03
Level sensor	Reed sensor, model BLR, see data sheet LM 10.04 Magnetostrictive sensor, model BLM, see data sheet LM 10.05 Guided wave radar, model GTR (for KOPlus version), see data sheet LM 20.05
Magnetic switches	Magnetic switch, model BGU, see data sheet LM 10.06
Approvals	Ex c, GOST-R

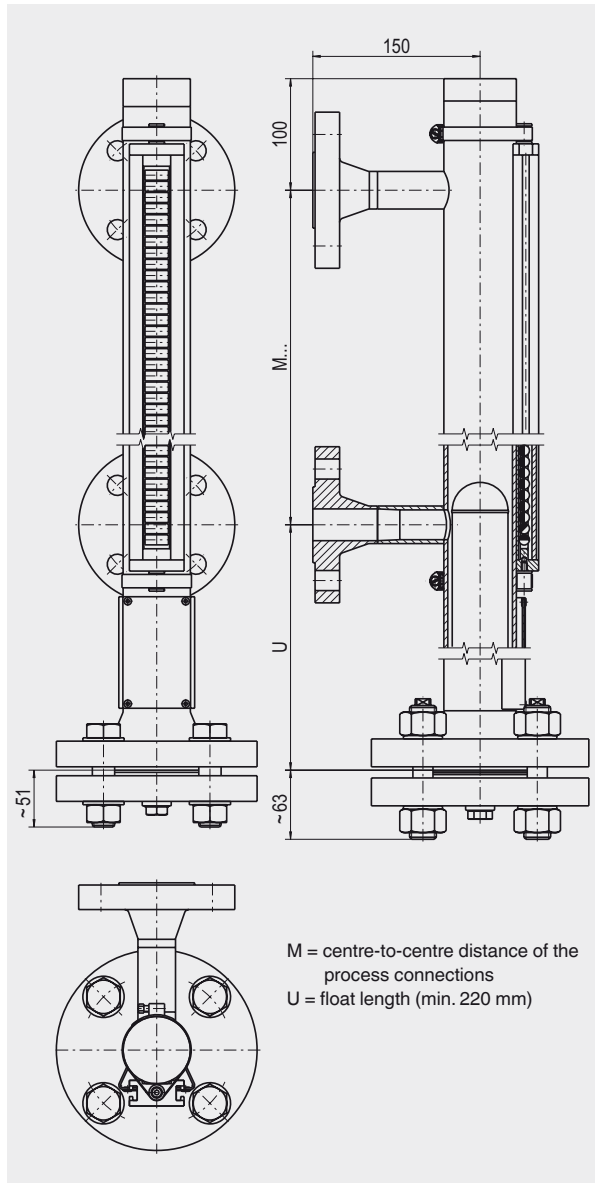
Special versions on request

## KOPlus version



# Bypass level indicator, special materials, model BNA-X

Bypass chamber from Titanium, Hastelloy or stainless steel 6Mo



## Specifications

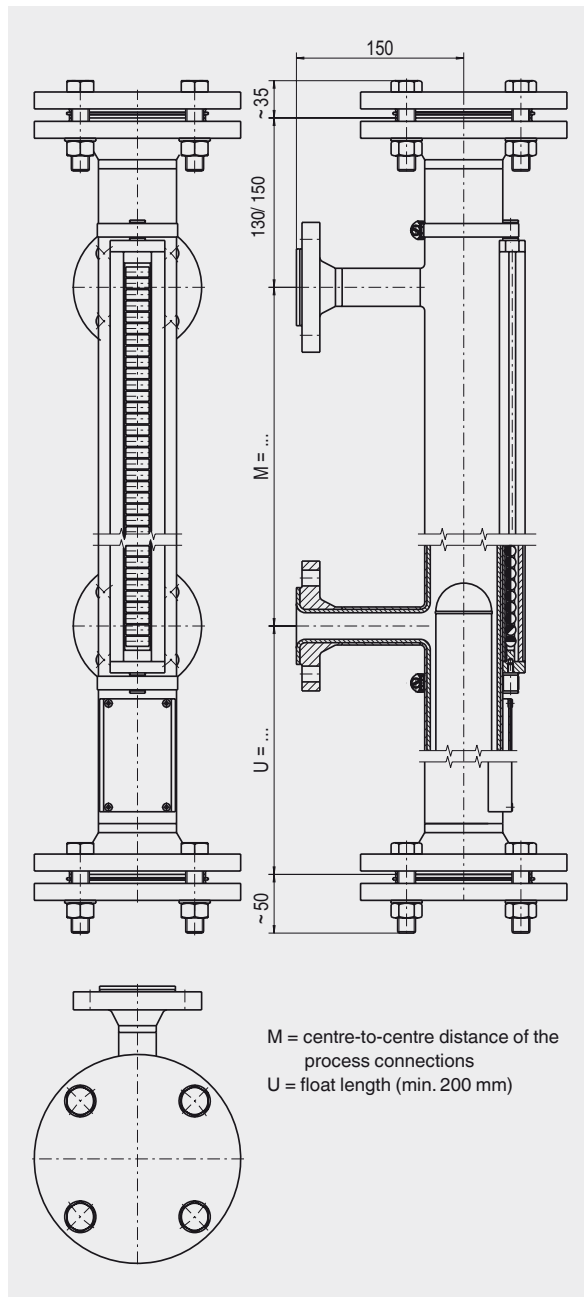
Material <sup>1)</sup>	Titanium 3.7035	Hastelloy C276	Stainless steel 6Mo 1.4547 (UNS S31254)
Bypass chamber	Ø 60.3 x 2 mm, max. 40 bar Ø 60.3 x 2.77 mm, max. 64 bar	Ø 60.3 x 2.77 mm, max. 64 bar Ø 60.3 x 3.91 mm, max. 160 bar	Ø 60.3 x 2.77 mm, max. 64 bar Ø 60.3 x 3.91 mm, max. 160 bar Ø 60.3 x 5.54 mm, max. 250 bar
Chamber end top	Flat top or flange connection Options: (see page 14) <ul style="list-style-type: none"> <li>■ Vent screw</li> <li>■ Vent valve</li> <li>■ Vent flange</li> </ul>		
Chamber end bottom	Flange connection Options: (see page 14) <ul style="list-style-type: none"> <li>■ Drain plug</li> <li>■ Drain valve</li> <li>■ Drain flange</li> </ul>		
Process connections (2 x lateral, options see page 15)	Flange EN 1092-1, DN 10 - DN 100, PN 6 - PN 63 Flange DIN, DN 10 - DN 100, PN 6 - PN 64 Flange ANSI B 16.5, 1/2" - 4", class 150 - class 600	Flange EN 1092-1, DN 10 - DN 100, PN 6 - PN 400 Flange DIN, DN 10 - DN 100, PN 6 - PN 400 Flange ANSI B 16.5, 1/2" - 4", class 150 - class 2,500	Flange EN 1092-1, DN 10 - DN 100, PN 63 - PN 400 Flange DIN, DN 10 - DN 100, PN 64 - PN 400 Flange ANSI B 16.5, 1/2" - 4", class 600 - class 2,500
Centre-to-centre distance	Min. 150 mm to max. 6,000 mm (larger distances on request)		
Nominal pressure	Max. 64 bar	Max. 160 bar	Max. 250 bar
Temperature range	-196 ... +450 °C		
Float	Cylindrical float, model BFT-H or corrugated float, model BFT-S (titanium 3.7035 and stainless steel 1.4547), see data sheet LM 10.02		
Magnetic display	Standard version, model BMD-S: < 200 °C High-temperature version, model BMD-F: > 200 °C, see data sheet LM 10.03		
Level sensor	Reed sensor, model BLR, see data sheet LM 10.04 Magnetostrictive sensor, model BLM, see data sheet LM 10.05		
Magnetic switches	Magnetic switch, model BGU, see data sheet LM 10.06		
Approvals	Ex c, GL, DNV, GOST-R	Ex c, GL, DNV, GOST-R	Ex c, GOST-R

1) Other materials on request

Special versions on request

## Bypass level indicator, special materials, model BNA-X

Bypass chamber from stainless steel with internal coating E-CTFE, ETFE or PTFE



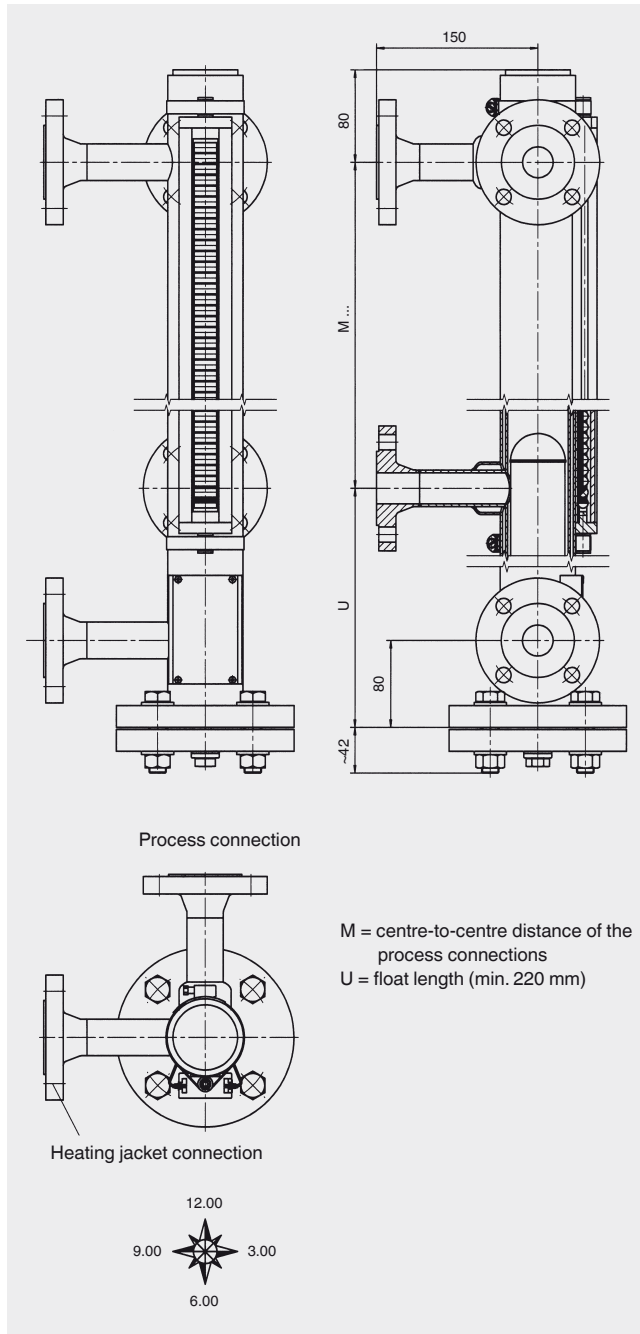
### Specifications

Material	Stainless steel 1.4571 with internal coating		
	E-CTFE	ETFE	PTFE
Bypass chamber	Ø 64 x 2 mm, max. 16 bar	Ø 70 x 2 mm, max. 16 bar	Ø 70 x 2 mm, max. 10 bar
Chamber end top	Flange connection Options: (see page 14) ■ Vent flange		
Chamber end bottom	Flange connection Options: (see page 14) ■ Drain flange		
Process connections	2 x lateral (options see page 15) Flange EN 1092-1, DN 10 - DN 50, PN 6 - PN 16 Flange DIN, DN 10 - DN 50, PN 6 - PN 16 Flange ANSI B 16.5, 1/2" - 4", class 150 - class 300		
Centre-to-centre distance	Min. 150 mm to max. ... mm (overall pipe length max. 2,500 mm) With overall pipe length > 2,500 mm: Bypass chamber separated by flange connection		
Nominal pressure	Max. 16 bar	Max. 16 bar	Max. 10 bar
Temperature range	depending on the medium		
Float	Cylindrical float, model BFT-H, see data sheet LM 10.02		
Magnetic display	Standard version, model BMD-S, see data sheet LM 10.03		
Level sensor	Reed sensor, model BLR, see data sheet LM 10.04 Magnetostrictive sensor, model BLM, see data sheet LM 10.05		
Magnetic switches	Magnetic switch, model BGU, see data sheet LM 10.06		
Approvals	GOST-R		

Special versions on request

# Bypass level indicator, heating jacket version, model BNA-J

Bypass chamber and heating jacket pipe from stainless steel



## Specifications

Bypass chamber	<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>
Heating jacket pipe	Ø 70 x 2 mm
Chamber end top	<ul style="list-style-type: none"> <li>Flat top</li> <li>Options: (see page 14)                             <ul style="list-style-type: none"> <li>■ Vent screw</li> <li>■ Vent valve</li> <li>■ Vent flange</li> </ul> </li> </ul>
Chamber end bottom	<ul style="list-style-type: none"> <li>Flange connection</li> <li>Options: (see page 14)                             <ul style="list-style-type: none"> <li>■ Drain plug</li> <li>■ Drain valve</li> <li>■ Drain flange</li> </ul> </li> </ul>
Process connections	<ul style="list-style-type: none"> <li>2 x lateral (options see page 15)</li> <li>Flange EN 1092-1, DN 10 - DN 100, PN 6 - PN 100</li> <li>Flange DIN, DN 10 - DN 100, PN 6 - PN 100</li> <li>Flange ANSI B 16.5, 1/2" - 4", class 150 - class 600</li> <li>Weld stub 1/2" - 1"</li> <li>Threaded bushing G/NPT 1/2" - 1"</li> <li>Threaded nipple G/NPT 1/2" - 1"</li> </ul>
Heating jacket connection	<ul style="list-style-type: none"> <li>Flange EN 1092-1, DN 10 - DN 25, PN 6 - PN 40</li> <li>Flange DIN, DN 10 - DN 25, PN 6 - PN 40</li> <li>Flange ANSI B 16.5, 1/2" - 4", class 150 - class 300</li> <li>Threaded bushing G/NPT 1/2" - 1"</li> <li>Threaded nipple G/NPT 1/2" - 1"</li> </ul>
Centre-to-centre distance	Min. 150 mm to max. 6,000 mm (larger distances on request)
Material	<ul style="list-style-type: none"> <li>Stainless steel 1.4571 with bypass chamber Ø 60.3 x 2 mm (standard version)</li> <li>Stainless steel 1.4404 with bypass chamber Ø 60.3 x 2.77 mm on request</li> </ul>
Nominal pressure	Max. 64 bar
Temperature range	-60 ... +450 °C
Float	Cylindrical float, model BFT-H, see data sheet LM 10.02
Magnetic display	<ul style="list-style-type: none"> <li>Standard version, model BMD-S: &lt; 200 °C</li> <li>High-temperature version, model BMD-F: &gt; 200 °C, see data sheet LM 10.03</li> </ul>
Level sensor	<ul style="list-style-type: none"> <li>Reed sensor, model BLR, see data sheet LM 10.04</li> <li>Magnetostrictive sensor, model BLM, see data sheet LM 10.05</li> </ul>
Magnetic switches	Magnetic switch, model BGU, see data sheet LM 10.06
Approvals	Ex c, GL, GOST-R

Special versions on request

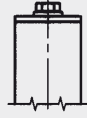
## Option bypass chamber end

### Bypass chamber end top (examples)



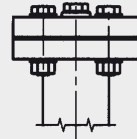
1

Flat top without venting



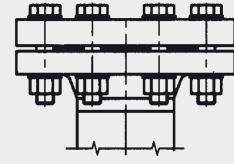
2

Flat top with vent plug G 1/2"



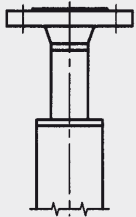
3

Flange connection with vent plug G 1/2"



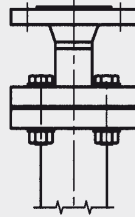
4

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



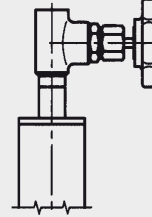
5

Flat top with vent flange



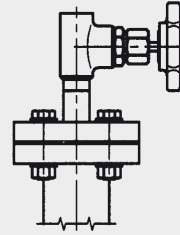
6

Flange connection vent flange



7

Flat top with vent valve

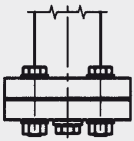


8

Flange connection with vent valve

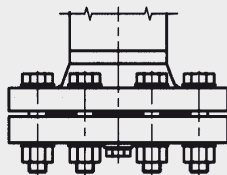
Other ends on request

### Bypass chamber end bottom (examples)



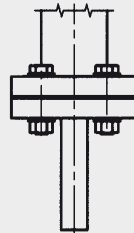
9

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



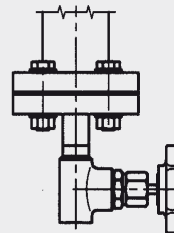
10

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



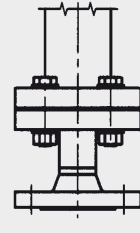
11

Flange connection with drain nozzle



12

Flange connection with drain valve

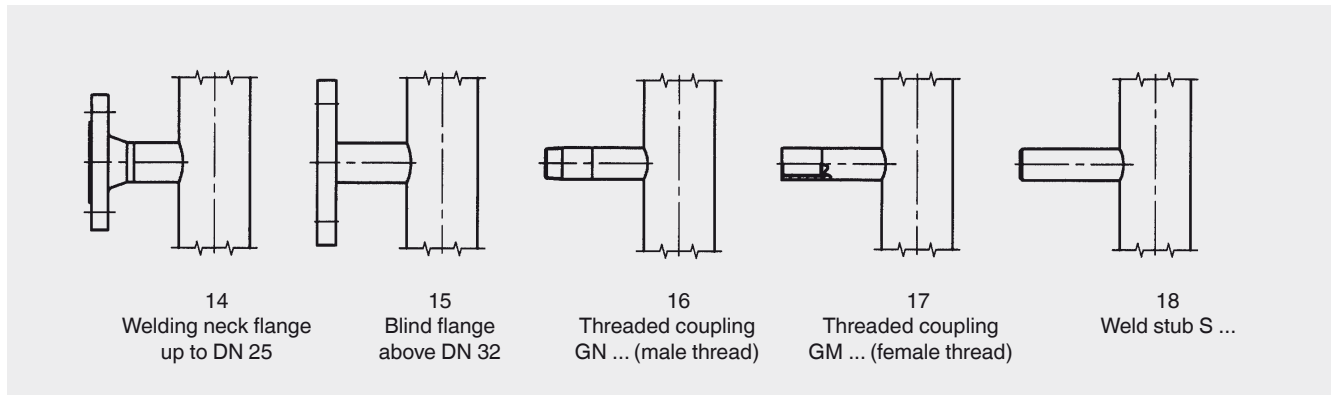


13

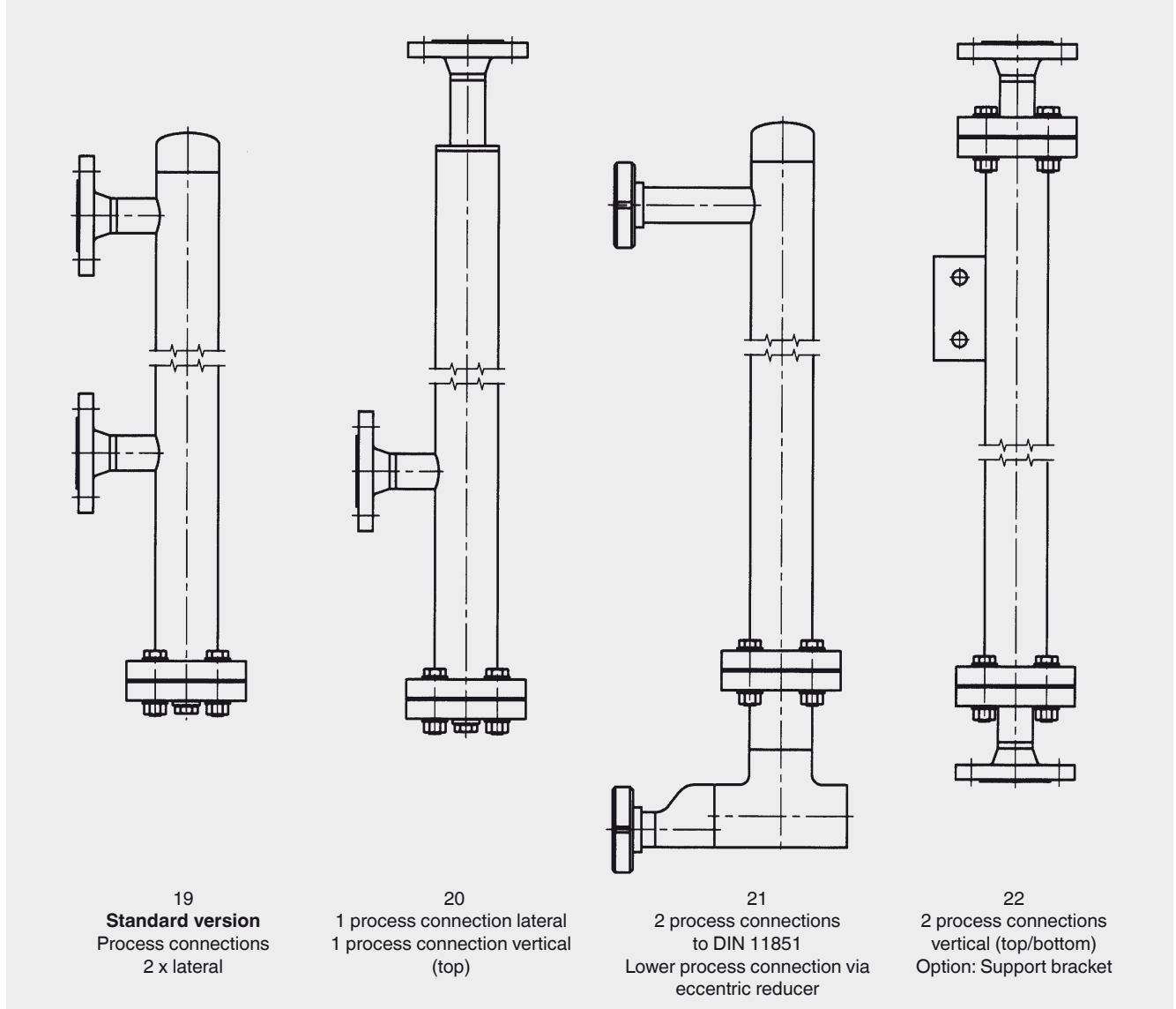
Flange connection with drain flange

Other ends on request

## Option process connection



## Examples



Other connections on request

## CE conformity

### Pressure equipment directive

97/23/EC, pressure accessory

### ATEX directive (option)

94/9/EC, ignition protection type Ex c, zone 0/1, gas

## Approvals

- **GL**, ships, shipbuilding, offshore, Germany
- **DNV**, ships, shipbuilding, offshore, Norway
- **ABS**, ships, shipbuilding, offshore, USA
- **GOST**, national standard for Russia, Kazakhstan and Belarus

Approvals and certificates, see website

## Ordering information

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

Detailed information on floats, magnetic displays, sensors (reed chains and magnetostrictive) and magnetic switches can be found in the following data sheets:

- Float, model BFT; see data sheet LM 10.02
- Magnetic display; model BMD; see data sheet LM 10.03
- Reed sensor; model BLR; see data sheet LM 10.04
- Magnetostrictive sensor; model BLM; see data sheet LM 10.05
- Guided wave radar, model GTR, see data sheet LM 20.05
- Magnetic switch; model BGU; see data sheet LM 10.06

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