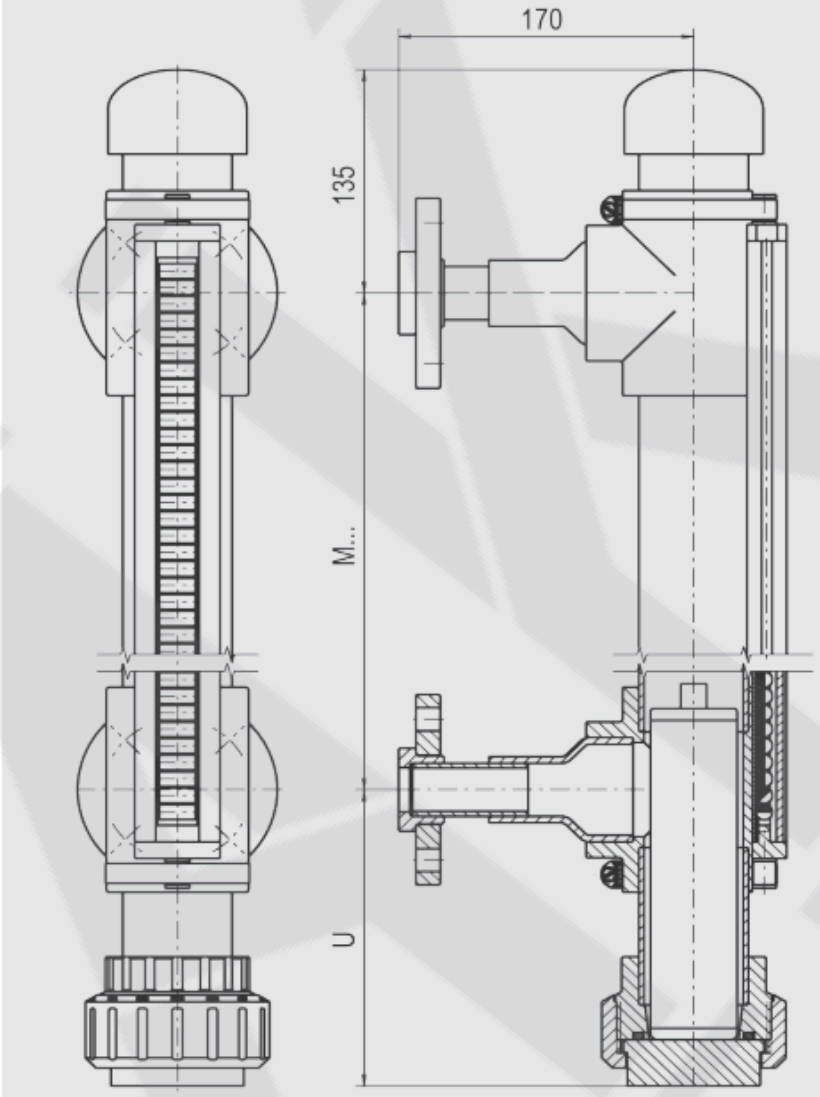
Bypass level indicator, plastic version, model BNA-P

Bypass chamber and float from PVDF or PP



M = centre-to-centre distance of the process connections
U = float length (min. 155 mm)

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

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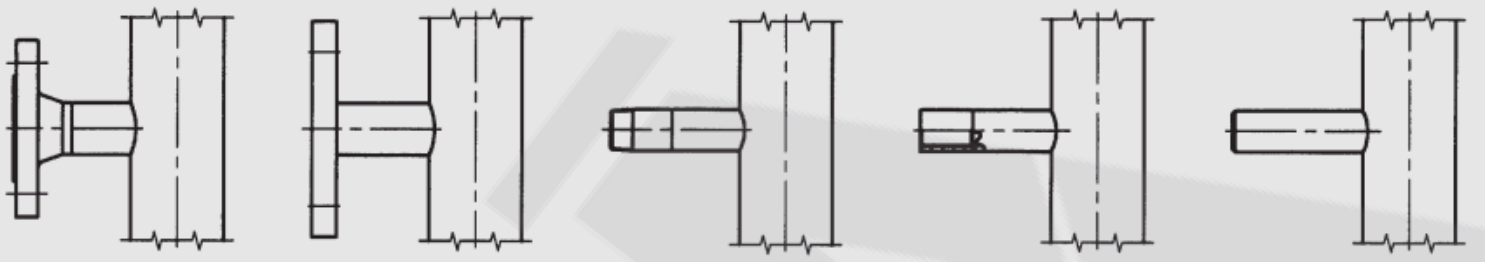
Option process connection



14
Welding neck flange
up to DN 25

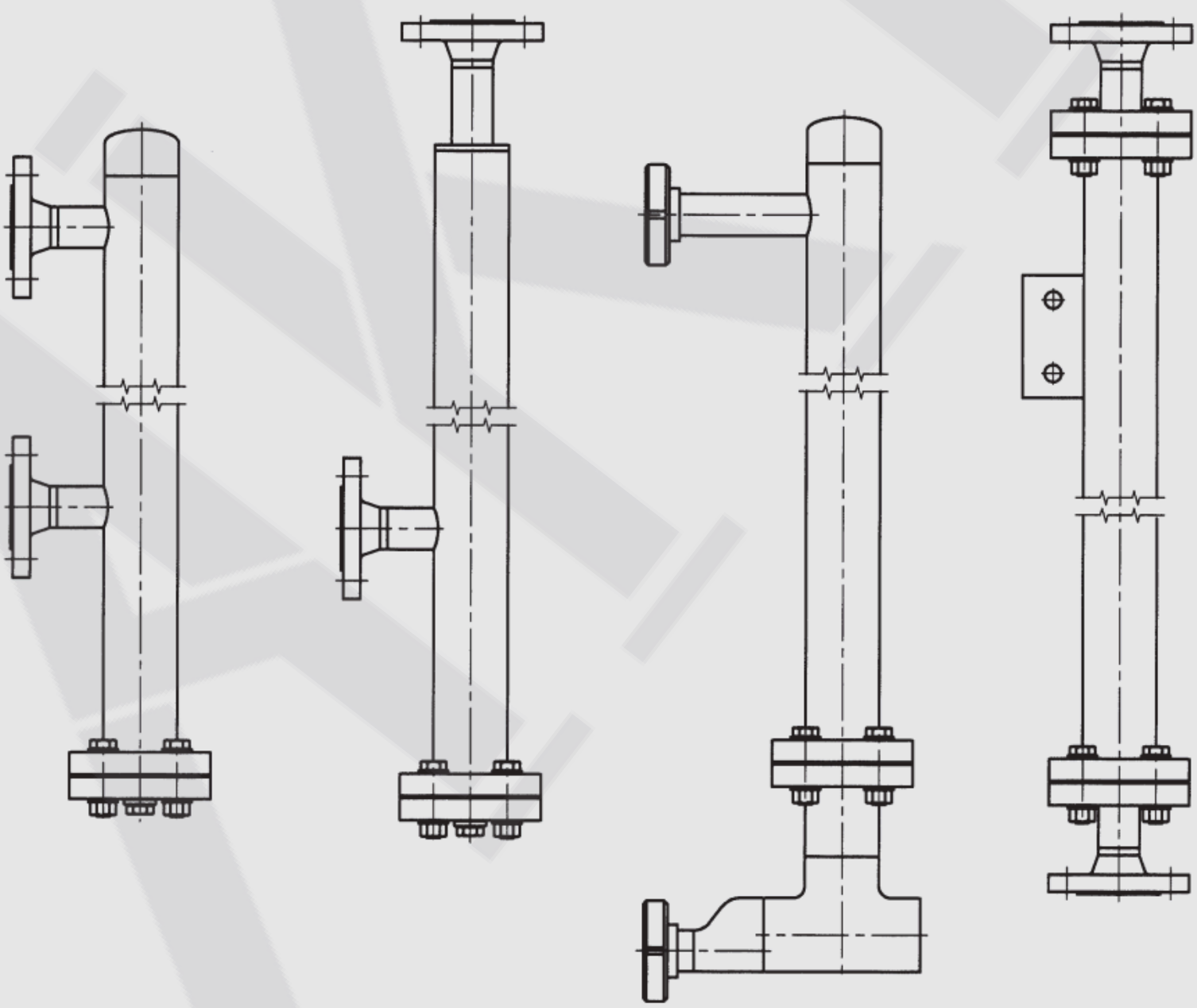
15
Blind flange
above DN 32

16
Threaded coupling
GN ... (male thread)

17
Threaded coupling
GM ... (female thread)

18
Weld stub S ...

Examples



19
Standard version
Process connections
2 x lateral

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

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

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

Other connections on request

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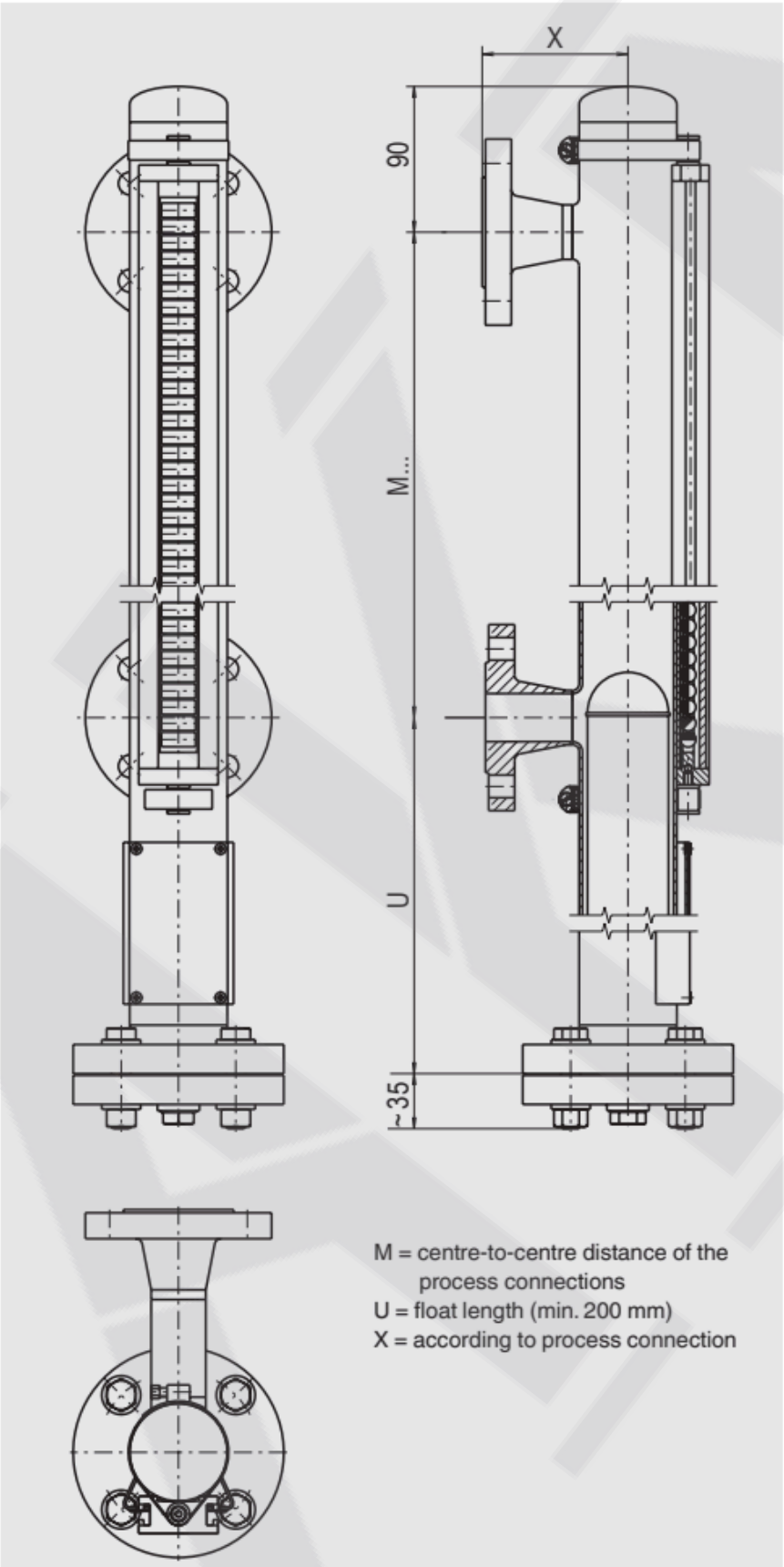

M = centre-to-centre distance of the process connections
U = float length (min. 200 mm)
X = according to process connection

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

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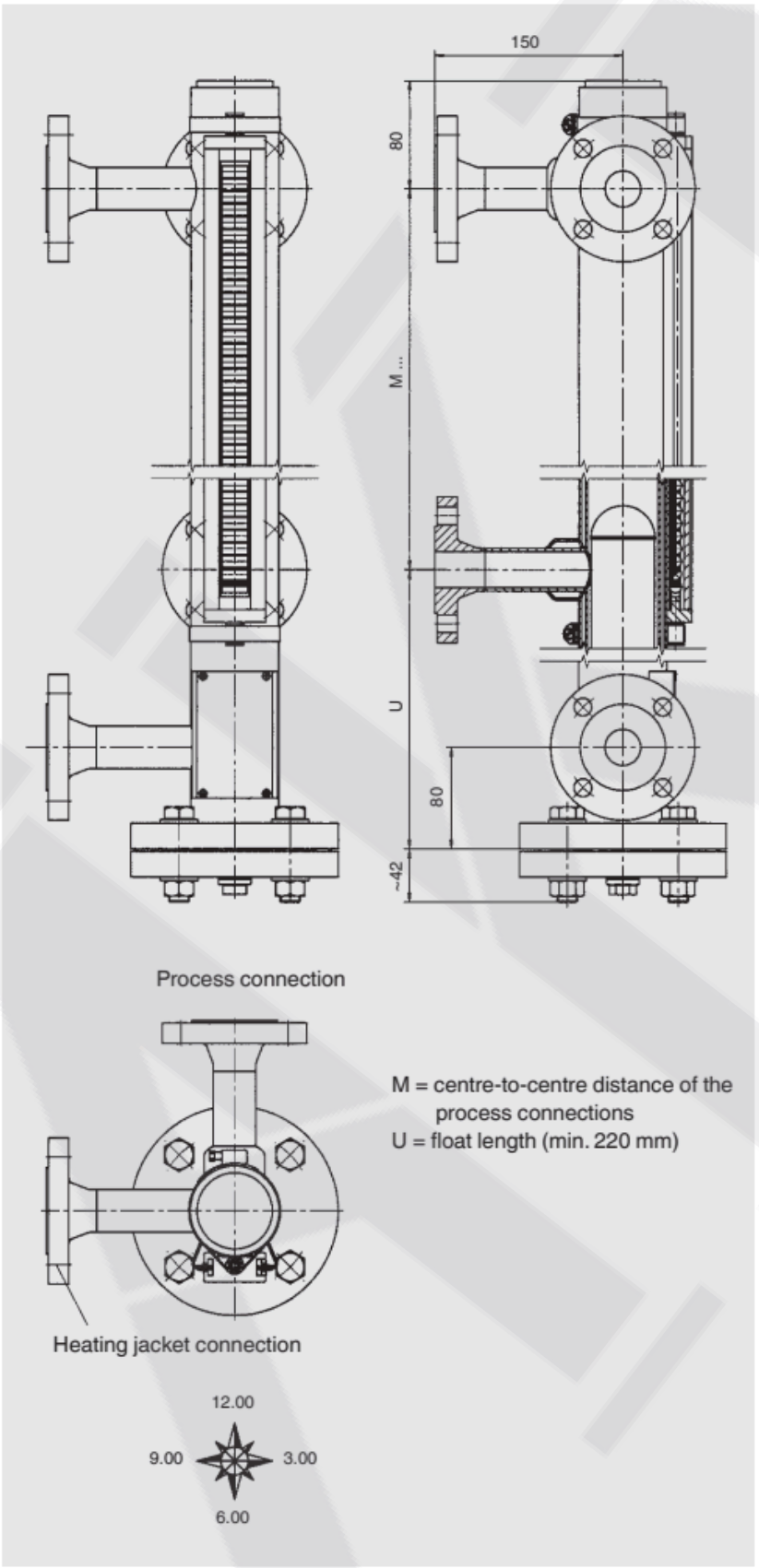

Specifications

Bypass chamber	Ø 60.3 x 2 mm, max. 40 bar Ø 60.3 x 2.77 mm, max. 64 bar
Heating jacket pipe	Ø 70 x 2 mm
Chamber end top	Flat top 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 100 Flange DIN, DN 10 - DN 100, PN 6 - PN 100 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"
Heating jacket connection	Flange EN 1092-1, DN 10 - DN 25, PN 6 - PN 40 Flange DIN, DN 10 - DN 25, PN 6 - PN 40 Flange ANSI B 16.5, 1/2" - 4", class 150 - class 300 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 with bypass chamber Ø 60.3 x 2 mm (standard version) Stainless steel 1.4404 with bypass chamber Ø 60.3 x 2.77 mm on request
Nominal pressure	Max. 64 bar
Temperature range	-60 ... +450 °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
Magnetic switches	Magnetic switch, model BGU, see data sheet LM 10.06
Approvals	Ex c, GL, GOST-R

Special versions on request

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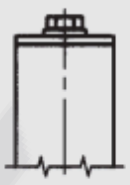
Option bypass chamber end

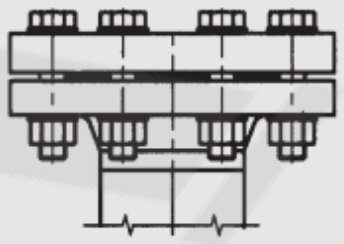
Bypass chamber end top (examples)

1
Flat top without venting

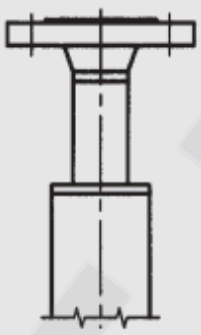


2
Flat top with vent plug G 1/2"

3
Flange connection with vent plug G 1/2"

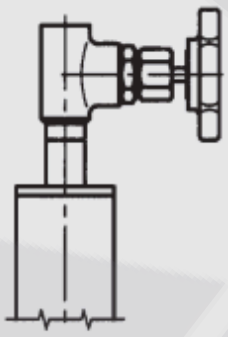


4
Flange connection e.g. sealing faces groove/tongue per DIN 2512

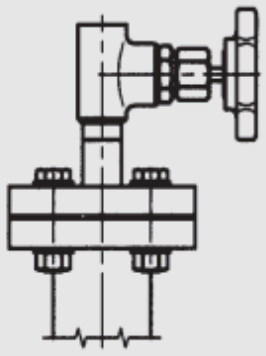


5
Flat top with vent flange

6
Flange connection vent flange



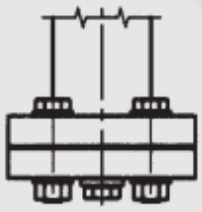
7
Flat top with vent valve



8
Flange connection with vent valve

Other ends on request

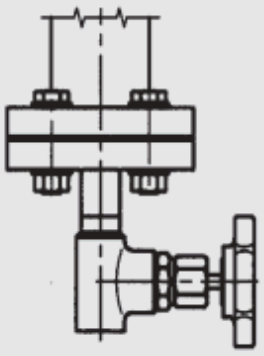
Bypass chamber end bottom (examples)



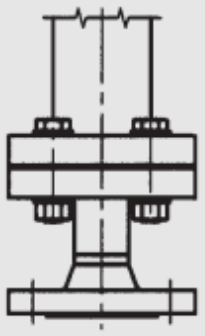
9
Flange connection with drain plug G/NPT 1/2"

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

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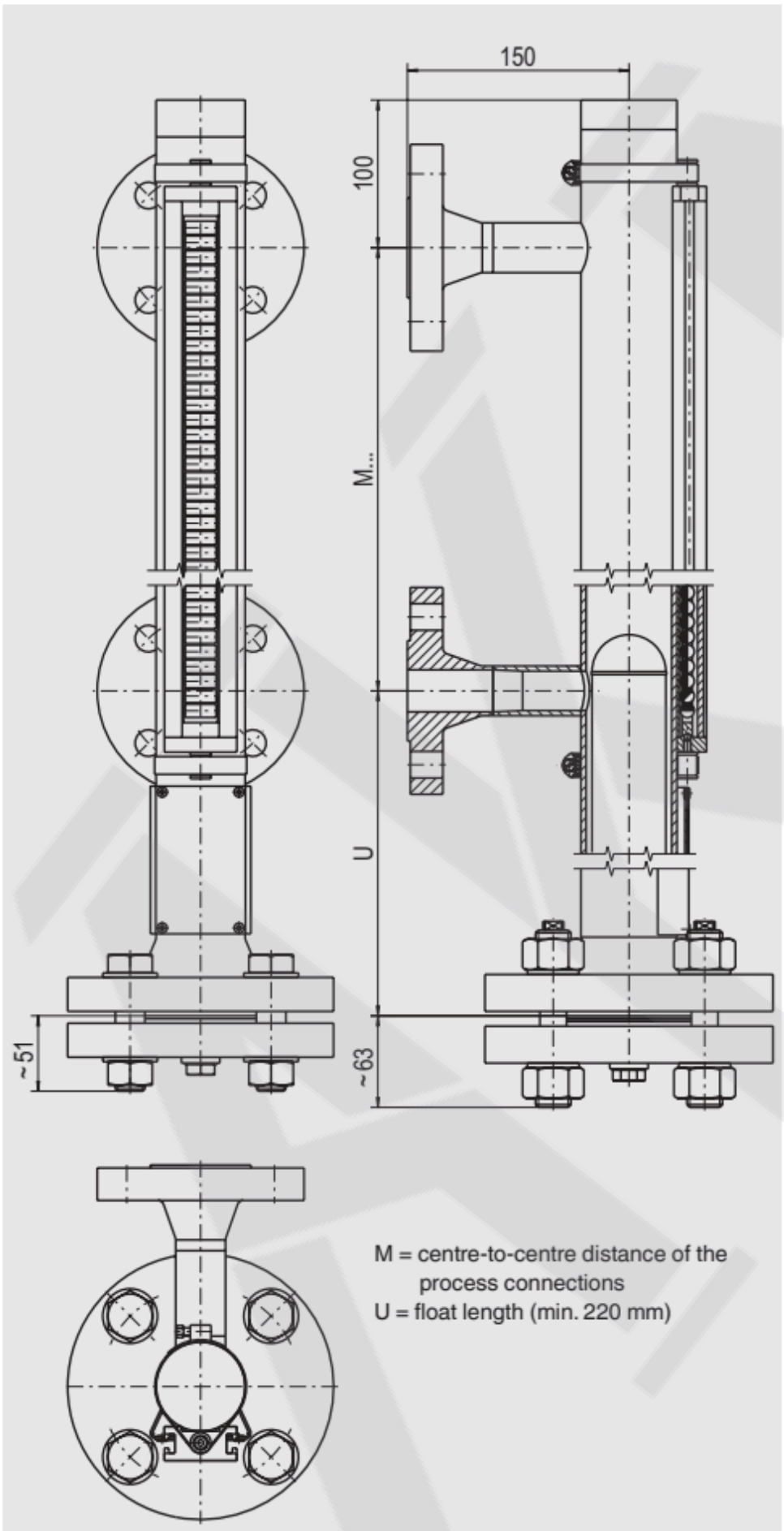

M = centre-to-centre distance of the process connections
U = float length (min. 220 mm)

Specifications

Bypass chamber	Stainless steel 1.4571: Ø 60.3 x 3.91 mm, max. 160 bar Ø 76.1 x 5 mm, max. 160 bar Ø 71 x 7.5 mm, max. 250 bar Ø 76.1 x 10 mm, max. 420 bar Stainless steel 1.4404: Ø 60.3 x 3.91 mm, max. 100 bar Ø 60.3 x 5.54 mm, max. 150 bar Ø 73 x 7.01 mm, max. 150 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 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"
Centre-to-centre distance	Min. 150 mm to max. 6,000 mm (larger distances on request)
Material	Stainless steel 1.4571 (Ø 60.3 x 3.91 mm, Ø 76.1 x 5 mm, Ø 71 x 7.5 mm, Ø 76.1 x 10 mm) or stainless steel 1.4404 (Ø 60.3 x 3.91 mm, Ø 60.3 x 5.54 mm, Ø 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

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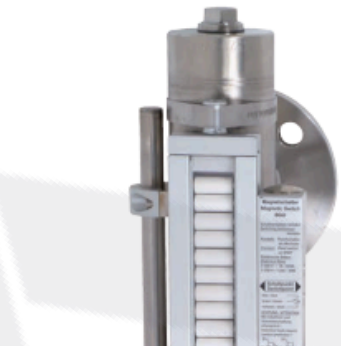
Applications

- 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 ... +450 °C
  - Operating pressure: P = vacuum to 400 bar
  - Limit density: $\rho \geq 340$ kg/m³
- Wide variety of different process connections and materials
- Mounting of level sensors and magnetic switches possible as an option
- Explosion-protected versions



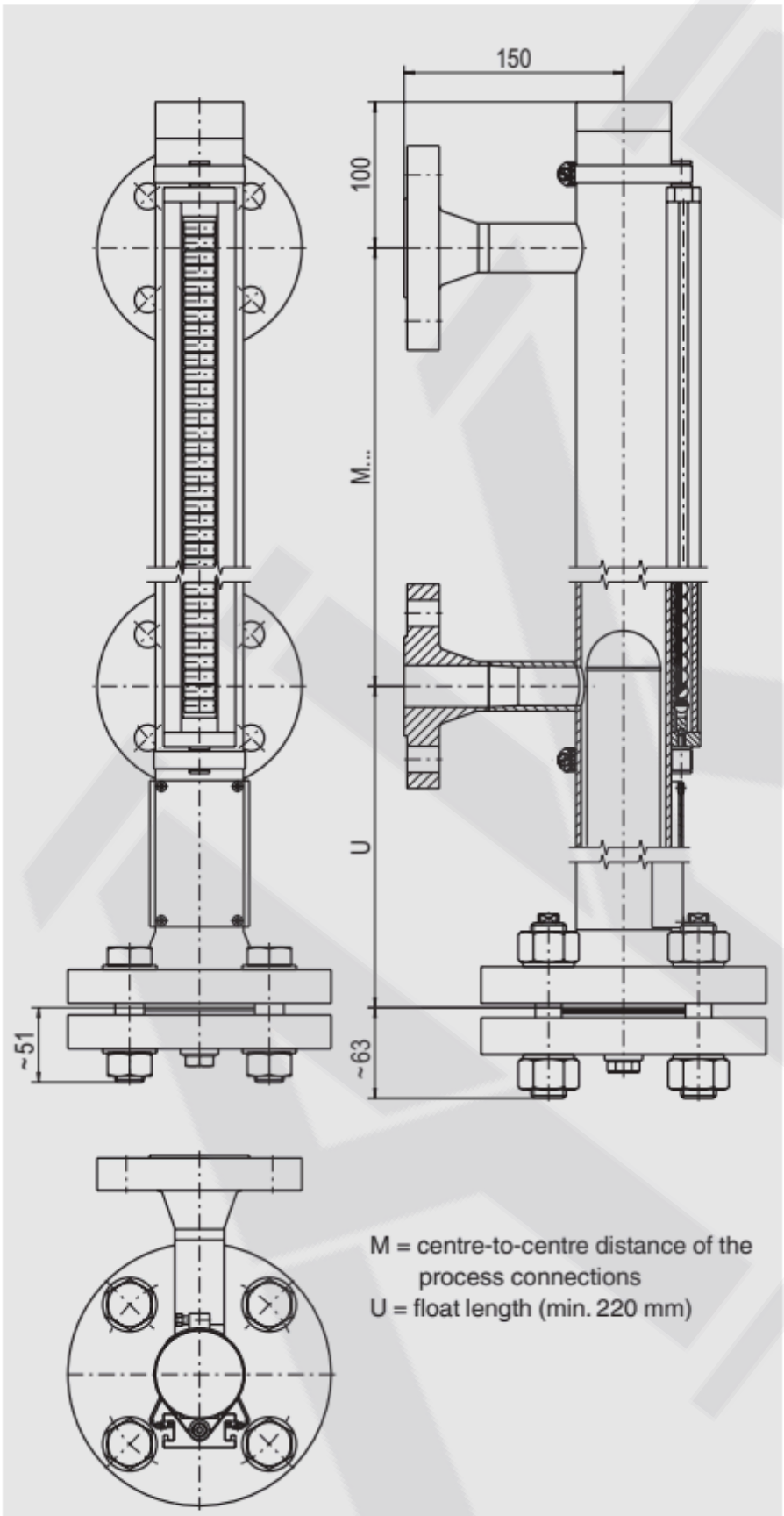
Bypass level indicator, model BNA with level sensor and magnetic switch

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.

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°. 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**.

Data sheets showing similar products and accessories:
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



M = centre-to-centre distance of the process connections
U = float length (min. 220 mm)

Specifications

Material [1]	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) ■ 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	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

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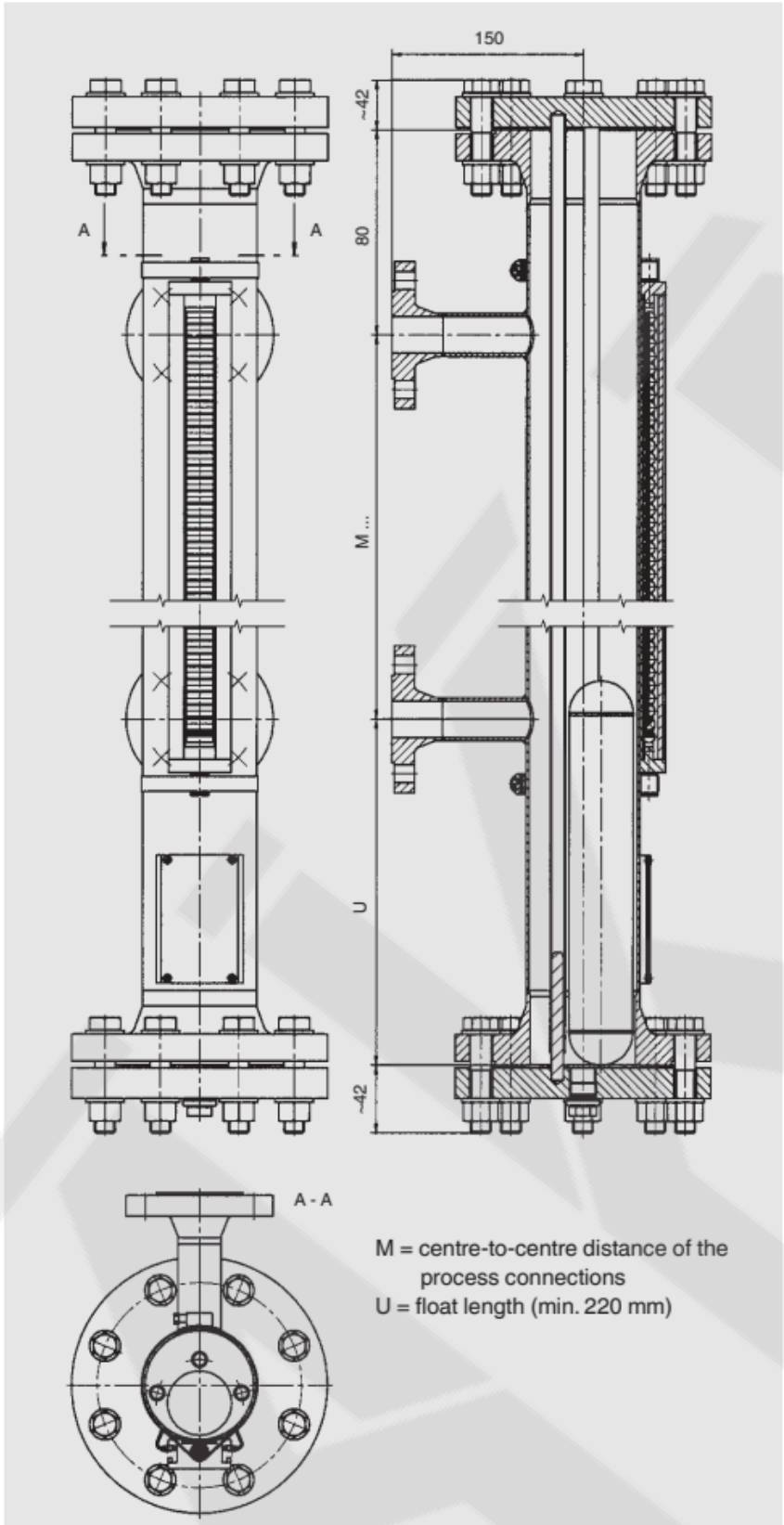


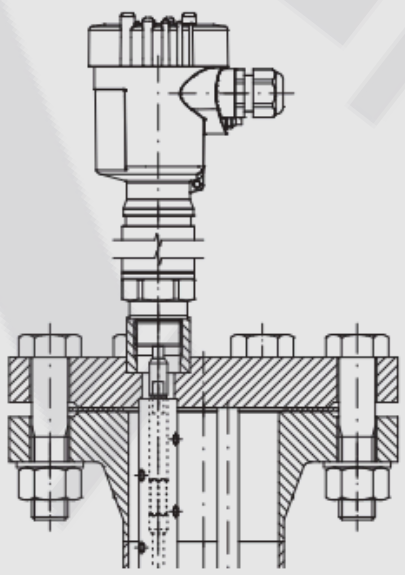
M = centre-to-centre distance of the process connections
U = float length (min. 220 mm)

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



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