

BYPASS LEVEL INDICATOR

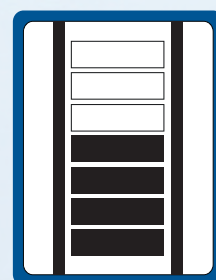
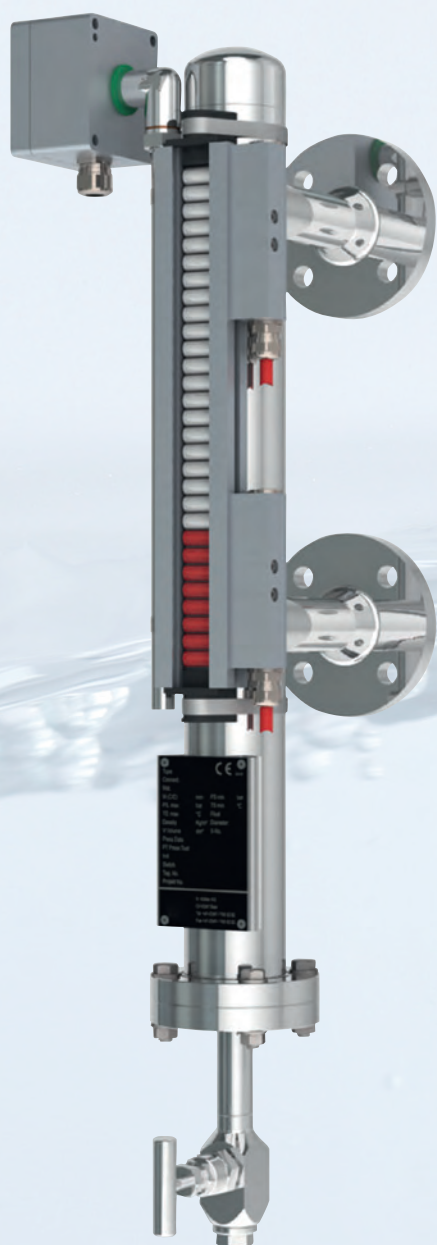


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Functional description



Bypass level indicators form an integral part of the pressure vessel. Via two process connections a standpipe (bypass) is mounted to the side of a tank or vessel. Due to the direct connection the filling level in the bypass will always correspond exactly to the filling level in the vessel (communicating display).



In the bypassing pipe a cylindrical float with a built-in magnetic system is contained. The concentrated magnetic field of the permanent magnet corresponds exactly to the filling level of the liquid in the bypass. In a contactless way the magnetic field transmits itself through the wall of the standpipe onto externally mounted displaying, recording and switching elements.

Design limits

Specific gravity:	$\geq 350 \text{ kg/m}^3$
Design pressure:	-1 bar ... 300 bar
Design temperature:	-196°C ... 400°C

Bypass Level Indicator / Type key

Code 1

Key 1

... -

Version

BNA ¹	Bypass level indicator
BMG ¹	Bypass level indicator with Level transmitter
ACS1A ¹	Bypass complete solution for GWR system, chamber ≤ DN50 / 2"
ACS1B ¹	Bypass complete solution for GWR system, chamber DN65 / 2.5"
ACS1C ¹	Bypass complete solution for GWR system, chamber DN80 / 3"
ACS1D ¹	Bypass complete solution for GWR system, chamber ≥ DN100 / 4"
ACS2 ¹	Bypass complete solution for GWR system
ACS3 ¹	Bypass complete solution for GWR system
ACS4 ¹	Bypass complete solution for GWR system

Code 2

Key 1 (for process connection flange)

... -

Flange connection

FE ¹	Flange according to EN
FA ¹	Flange according to ANSI
F ¹	Flange according to ...
FS ¹	Flange according to drawing

Key 1 (for process connection other)

... -

Other process connection

GM ¹	Female thread G
NPTM ¹	Female thread NPT
GN ¹	Male thread G
NPTN ¹	Male thread NPT
SE ¹	Welding stub end
OS ¹	Without process side connections (Code 3 not applicable)

Code 3

Key 1.1 (only for flange)

... / ... / ... -

Flange connection

...	Flange nominal bore
-----	---------------------

Key 1.2 (only for flange)

... / ... / ... -

Flange connection

...	Flange pressure rating
-----	------------------------

Key 1.3 (only for flange)

... / ... / ... -

Flange connection

...	Flange facing
-----	---------------

Code 3

Key 1 (for process connection other)

... -

Size

...	Threaded connection size
...	Welding stub end size

Example

Code	1	2	3	4	5	6	7	8
Key	1	- 1	- 1.1 / 1.2 / 1.3	- 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8	- 1	- 1	- 1 / 2 / 3	- 1 -
Example	BMG	- FE	- 25 / 16 / B1	- ALE / TP43B / V / K15 /	EXIAG	- DU	- M... - V / 60 / 2	- -

Black = not possible according to Atex / Blue = possible according to Atex Exia / Blue¹ = possible according to Atex Exia and Exd / Black¹ = possible according to Atex Exd

Code 4

Key 1 ... / ... / ... / ... / ... / ... / ... - Electrical connection level transmitter		Key 2 ... / ... / ... / ... / ... / ... / ... - Control unit		Key 3 ... / ... / ... / ... / ... / ... / ... - Level transmitter tube material quality	
ALE	Aluminium terminal box 64 x 58 x 34 mm (only without control unit)	TP43A ¹	TP5343A	V ¹	Stainless steel
ALF	Aluminium terminal box 80 x 75 x 57 mm	TP43B ¹	TP5343B Ex		
ALDA ¹	Aluminium terminal box Ø 95 x 84 mm	TD35A ¹	TD5335A		
AVA	Stainless steel terminal box Ø 82 x 110 mm	TD35B ¹	TD5335D Ex		
AVDA ¹	Stainless steel terminal box Ø 82 x 110 mm	TP50AP ¹	TP5350AP / PROFIBUS® PA		
AVM	Stainless steel terminal box Ø 50 x 117 mm	TP50BP ¹	TP5350BP Ex / PROFIBUS® PA		
AVDM ¹	Stainless steel terminal box Ø 169 x 117 mm	TP50AF ¹	TP5350AF / FOUNDATION™ Fieldbus		
DAAVDM ¹	Stainless steel terminal box with LED display Ø 169 x 117 mm	TP50BF ¹	TP5350BF Ex / FOUNDATION™ Fieldbus		
APA	Polyester terminal box 80 x 75 x 55 mm	TMT181A ¹	TMT181		
APB	Polyester terminal box 80 x 75 x 55 mm / Exm	TMT181B ¹	TMT181 Ex		
ABA	ABS terminal box 80 x 82 x 55 mm	ZMU ¹	XT42SI Ex		
K	Connection cable	TAMX ¹	Other control unit		
K68	Connection cable IP 68 (≥ G 3/8")	MST ¹	Magnetostrictive / 4 ... 20 mA		
DAALA	Aluminium terminal box with LED display Ø 82 x 100 mm	MSTB ¹	Magnetostrictive / 4 ... 20 mA / Ex		
DAAVDA ¹	Stainless steel terminal box with LED display Ø 82 x 100 mm	MSTH ¹	Magnetostrictive / HART®-Protocol		
		MSTHB ¹	Magnetostrictive / HART®-Protocol / Ex		

Code 4

Key 4 ... / ... / ... / ... / ... / ... / ... - Accuracy		Key 5 (only for connection cable) ... / ... / ... / ... / ... / ... / ... - Length of cable		Key 6 (only for connection cable) ... / ... / ... / ... / ... / ... / ... - Connection cable	
K5 ¹	Accuracy 5 mm / -30 ... 130°C	...	Length of cable in meter	PVC ¹	PVC connection cable
K5HTF ¹	Accuracy 5 mm / -30 ... 200°C			PVCB ¹	PVC connection cable with blue coating
K5HT ¹	Accuracy 5 mm / -40 ... 250°C			SIL ¹	Silicone connection cable
K10 ¹	Accuracy 10 mm / -30 ... 130°C			PUR ¹	PUR connection cable
K10HTF ¹	Accuracy 10 mm / -30 ... 200°C			RAD ¹	Radox connection cable
K10HT ¹	Accuracy 10 mm / -40 ... 250°C				
K15 ¹	Accuracy 15 mm / -30 ... 130°C				
K15HTF ¹	Accuracy 15 mm / -30 ... 200°C				
K15HT ¹	Accuracy 15 mm / -40 ... 250°C				
K1 ¹	Accuracy 0.2 mm / -40 ... 125°C				
K1HT ¹	Accuracy 0.2 mm / -40 ... 250°C				
K1HHT ¹	Accuracy 0.2 mm / -40 ... 450°C				

Code 4

Key 7 (only for connection cable) ... / ... / ... / ... / ... / ... / ... - Connection cable option		Key 8 ... / ... / ... / ... / ... / ... / ... - Approvals level transmitter	
KA ¹	Shielded	EXIAG	Acc. to Exia, atmosphere gas
KB ¹	Shielded / oil-resistant	EXIAGD	Acc. to Exia, atmosphere gas and dust
KC ¹	Shielded / oil-resistant / halogen-free	EXDGD ¹	Acc. to Exd, atmosphere gas
KD ¹	Oil-resistant	EXDGD ¹	Acc. to Exd, atmosphere gas and dust
KE ¹	Oil-resistant / halogen-free	EXIADG ¹	Acc. to Exia and Exd, atmosphere gas
KF ¹	Halogen-free	EXIADGD ¹	Acc. to Exia and Exd, atmosphere gas and dust

Example

9		10					11					12		13															
1	2	3	-	1	2	3	4	5	6	7	-	1	2	3	4	5	6	-	1	2	-	1	2	3					
MRB	/	SA1	-	3	/	BGU	/	N	/	1	/	PVCB	/	KA	/	EXIAG	-	ZVS	/	250	/	20	/	B152	-	-	EX	/	PED

Black = not possible according to Atex / Blue = possible according to Atex Exia / Blue¹ = possible according to Atex Exia and Exd / Black¹ = possible according to Atex Exd

Bypass Level Indicator / Type key

Code 5

Key 1

... -

Electrical connection position of the level transmitter

DO¹ Electrical connection top mounted
DU¹ Electrical connection bottom mounted

Code 6

Key 1

... -

Centre distance / Length of instrument

M...¹ Centre distance in mm
L...¹ Length of instrument in mm (only for instrument without process side connections)

Code 7

Key 1

... / ... / ... -

Bypass chamber material quality

Key 2

... / ... / ... -

Bypass chamber outside diameter

Key 3

... / ... / ... -

Bypass chamber wall thickness

V ¹	Stainless steel	32	Ø 32.00 mm (P)	... ¹	Bypass chamber wall thickness in mm (see the relevant catalog page or by calculation)
VP ¹	Stainless steel electropolished / Ra ca. 0,8µm (not attestable)	60 ¹	Ø 60.30 mm (V / VP / TI / CS)		
		61 ¹	Ø 60.33 mm (V / VP / MO / HC / CS)		
TI ¹	Titanium	63	Ø 63.00 mm (P / PP / PF)		
HC ¹	Alloy C	63 ¹	Ø 63.50 mm (V / VP / VEEG / VPFA / VETF)		
MO ¹	6Mo	73 ¹	Ø 73.03 mm (V / VP / MO / TI / HC / CS)		
CS ¹	Steel (only ACS..)	76 ¹	Ø 76.10 mm (V / VP)		
VEEC ¹	Stainless steel ECTFE coated	88 ¹	Ø 88.90 mm (V / VP / CS)		
VPFA ¹	Stainless steel PFA coated	114 ¹	Ø 114.30 mm (V / VP / CS)		
VETF ¹	Stainless steel ETFE coated				
P	PVC				
PP	Polypropylene				
PF	PVDF				

Code 8

Key 1

... -

Bypass chamber additional design

HM76¹ Steam tracing system with outer tube Ø 76.10 x 2.00 mm
DK¹ Differential compensated
ZK1¹ 2-chamber system with G / BSP socket (only for bypass level indicator ACS2)
ZK2¹ 2-chamber system with NPT socket (only for bypass level indicator ACS2)

Example

Code	1	2	3	4	5	6	7	8
Key	1	- 1	- 1.1 / 1.2 / 1.3	- 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8	- 1	- 1	- 1 / 2 / 3	- 1
Example	BMG	- FE	- 25 / 16 / B1	- ALE / TP43B / V / K15 /	EXIAG	- DU	- M...	- V / 60 / 2 -

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Code 9

Key 1 ... / ... / ... - Magnetic roller indicator		Key 2 ... / ... / ... - Scale		Key 3 ... / ... / ... - Mag. roller indicator sight extension	
MRA	Magnetic roller indicator MRA	SAK	Scale in Aluminium with adhesive foil	PV ¹	Acryl glass extension
MRB ¹	Magnetic roller indicator MRB (Ex)	SA0 ¹	Scale in Aluminium without engraving		
MRAN	Mag. roller indicator MRAN over-roll-protected	SA1 ¹	Scale in Aluminium with engraving in %		
MRBN ¹	Mag. roller indicator MRBN over-roll-prot. (Ex)	SA2 ¹	Scale in Aluminium with engraving in cm		
MRK ¹	Magnetic roller indicator MRK	SA3 ¹	Scale in Aluminium with engraving in inch.		
MRKN ¹	Magnetic roller indicator MRKN over-roll-prot.	SA4 ¹	Scale in Aluminium with engraving acc. to customized table		
MNA	Magnetic roller indicator MNA	SVO ¹	Scale in Stainless steel without engraving		
MNB ¹	Magnetic roller indicator MNB (Ex)	SV1 ¹	Scale in Stainless steel with engraving in %		
MNAN	Magnetic roller indicator MNAN over-roll-prot.	SV2 ¹	Scale in Stainless steel with engraving in cm		
MNBN ¹	Mag. roller indicator MNBN over-roll-prot. (Ex)	SV3 ¹	Scale in Stainless steel with engraving in inch.		
MNAV	Magnetic roller indicator MNAV	SV4 ¹	Scale in Stainless steel with engraving acc. to customized table		
MNBV ¹	Magnetic roller indicator MNBV (Ex)				
MNAVN	Magnetic roller indicator MNAVN over-roll-protected				
MNBVN ¹	Magnetic roller indicator MNBVN over-roll-prot. (Ex)				
MNKV ¹	Magnetic roller indicator MNKV				
MNKVN ¹	Magnetic roller indicator MNKVN over-roll-protected				

Code 10

Key 1 ... / ... / ... / ... / ... / ... - Number of magnetic switches		Key 2 ... / ... / ... / ... / ... / ... - Magnetic switch		Key 3 ... / ... / ... / ... / ... / ... - Magnetic switch option	
...	Number of magnetic switches	BGU	Magnetic switch BGU	R22 ¹	Switch protective circuit with 22 ohm / 0.21 W resistor
		BGUD ¹	Magnetic switch BGU	N ¹	Switch protective circuit according to NAMUR EN 60947
		BGUALE	Magnetic switch BGUALE		
		BGUASQ	Magnetic switch BGUASQ		
		BGUASMA	Magnetic switch BGUASMA		
		ALFU	Magnetic switch ALFU		
		ALFI	Magnetic switch ALFI (inductive)		
		ALEU	Magnetic switch ALEU		
		APAVU	Magnetic switch APAVU		
		APBVU	Magnetic switch APBVU		
		RU60	Magnetic switch RU60		
		RUV60	Magnetic switch RUV60		
		RUVD60	Magnetic switch RUVD60		
		RU73	Magnetic switch RU73 (for chamber ≥ Ø 73 mm)		
		RUV73	Magnetic switch RUV73 (for chamber ≥ Ø 73 mm)		
		RUVD73	Magnetic switch RUVD73 (for chamber ≥ Ø 73 mm)		
		ALDAU ¹	Magnetic switch ALDAU		
		PS32	Magnetic switch PS32		
		PO32	Magnetic switch PO32		
		PU32	Magnetic switch PU32		
		PU32ASH	Magnetic switch PU32ASH		

Code 10

Key 4 ... / ... / ... / ... / ... / ... - Length of cable		Key 5 ... / ... / ... / ... / ... / ... - Connection cable		Key 6 ... / ... / ... / ... / ... / ... - Connection cable option	
...	Length of cable in meter	PVC ¹	PVC connection cable	KA ¹	Shielded
		PVCB ¹	PVC connection cable with blue coating	KB ¹	Shielded / oil-resistant
		SIL ¹	Silicone connection cable	KC ¹	Shielded / oil-resistant / halogen-free
		PUR ¹	PUR connection cable	KD ¹	Oil-resistant
		RAD ¹	Radox connection cable	KE ¹	Oil-resistant / halogen-free
				KF ¹	Halogen-free

Example

9	10	11	12	13
1 / 2 / 3 - 1 / 2 / 3 / 4 / 5 / 6 / 7 - 1 / 2 / 3 / 4 / 5 / 6 - 1 / 2 - 1 / 2 / 3				
MRB / SA1	- 3 / BGU / N / 1 / PVCB / KA / EXIAG	- ZVS / 250 / 20 /	B152 -	- EX / PED

Black = not possible according to Atex / Blue = possible according to Atex Exia / Blue¹ = possible according to Atex Exia and Exd / Black¹ = possible according to Atex Exd

Bypass Level Indicator / Type key

Code 10

Key 7

... / ... / ... / ... / ... / ... / ... -

Approvals magnetic switch

EXIAG	Acc. to Exia, atmosphere gas
EXIAGD	Acc. to Exia, atmosphere gas and dust
EXDG ¹	Acc. to Exd, atmosphere gas
EXDGD ¹	Acc. to Exd, atmosphere gas and dust
EXIADG ¹	Acc. to Exia and Exd, atmosphere gas
EXIADGD ¹	Acc. to Exia and Exd, atmosphere gas and dust

Code 11

Key 1

... / ... / ... / ... -

Float

Key 2

... / ... / ... -

Float length

Key 3

... / ... / ... -

Magnetic system

ZVSS ¹	Float in Stainless steel	...	Acc. to float table on page 264 - 266 / 38 / 271	...	Acc. to float table on page 264 - 266 / 38 / 271
ZVEECSSA ¹	Float in Stainless steel E-CTFE coated				
ZVEECSSB ¹	Float in Stainless steel E-CTFE coated				
ZVPFASSA ¹	Float in Stainless steel PFA coated				
ZVPFASSB ¹	Float in Stainless steel PFA coated				
ZTIKS1 ¹	Float in Titanium				
ZTIKS2 ¹	Float in Titanium				
ZTIKS3 ¹	Float in Titanium				
ZPSS24	Float in PVC (Page 254)				
ZPSS	Float in PVC				
ZPPSS	Float in Polypropylene				
ZPFSS	Float in PVDF				

Code 11 (only protocol float)

Key 1

... / ... / ... / ... / ... -

Float

Key 2

... / ... / ... / ... / ... / ... -

Float length

Key 3

... / ... / ... / ... / ... / ... -

Design pressure

ZVS ¹	Float in Stainless steel	...	Acc. to float table on page 267 - 269 / 272 - 273	...	Acc. to float table on page 267 - 269 / 272 - 273
ZTIS ¹	Float in Titanium				
ZHCS ¹	Float in Alloy C				
ZTIEECSSA ¹	Float in Titanium E-CTFE coated (on request)				
ZTIEECSSB ¹	Float in Titanium E-CTFE coated (on request)				
ZTIPFASA ¹	Float in Titanium PFA coated (on request)				
ZTIPFASB ¹	Float in Titanium PFA coated (on request)				
ZGS	Float in Glass (on request)				
ZCES	Float in Cevalite Eccolite (on request)				

Code 11 (only protocol float)

Key 4

... / ... / ... / ... / ... -

Design temperature

Key 5

... / ... / ... / ... / ... -

Specific gravity 1

Key 6 (only interface float)

... / ... / ... / ... / ... / ... -

Specific gravity 2

...	Acc. to float table on page 267 - 269 / 272 - 273	...	Acc. to float table on page 267 - 269 / 272 - 273	...	Acc. to protocol
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Example

Code	1	2	3	4	5	6	7	8
Key	1	- 1	- 1.1 / 1.2 / 1.3	- 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8	- 1	- 1	- 1 / 2 / 3	- 1
Example	BMG	- FE	- 25 / 16 / B1	- ALE / TP43B / V / K15 /	EXIAG	- DU	- M... - V / 60 / 2	-

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Code 11 (only protocol float)

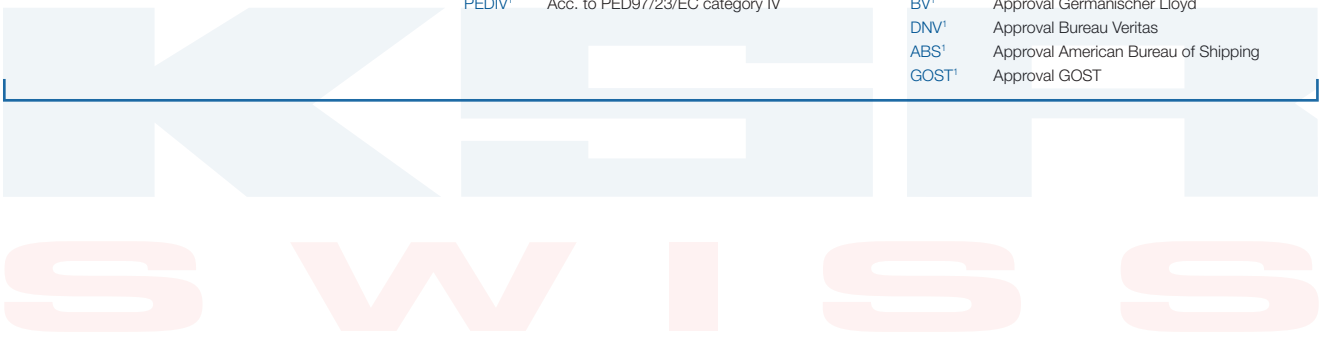
Key 7 ... / ... / ... / ... / ... / ... / ... - Magnetic system
... Acc. to float table on page 267 - 269 / 272 - 273

Code 12

Key 1 ... / ... - Instrument isolation	Key 2 ... / ... / ... - Electrical heat tracing
AIT Armaflex isolation AIT AHT Armaflex isolation AHT SW Rock-wool isolation	H75A Electrical heat tracing 75°C H75B Electrical heat tracing 75°C acc. to EExe H150A Electrical heat tracing 150°C H150B Electrical heat tracing 150°C acc. to EExe

Code 13

Key 1 ... / ... / ... - Approvals / 1	Key 2 ... / ... / ... - Approvals / 2	Key 3 ... / ... / ... - Approvals / 3
EX Acc. to Ex	PEDI ¹ Acc. to PED97/23/EC category II PEDIV ¹ Acc. to PED97/23/EC category IV	GL ¹ Approval 3A Sanitary Standard BV ¹ Approval Germanischer Lloyd DNV ¹ Approval Bureau Veritas ABS ¹ Approval American Bureau of Shipping GOST ¹ Approval GOST



Example

9	10	11	12	13
1 / 2 / 3 - 1 / 2 / 3 / 4 / 5 / 6 / 7 - 1 / 2 / 3 / 4 / 5 / 6 - 1 / 2 - 1 / 2 / 3				
MRB / SA1	- 3 / BGU / N / 1 / PVCB / KA / EXIAG	- ZVS / 250 / 20 /	B152 -	- EX / PED

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Bypass Level Indicator / Stainless steel PN 16

Type BNA-...-...-M...-V/6...-MR...-Z..S/..

Material quality: 1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
 Centre distance M: 150 ... 25000 mm**
 Specific gravity: $\geq 400 \text{ kg/m}^3$
 Design pressure: -1 bar ... 16 bar
 Design temperature: -196°C ... 400°C

Design

Chamber: $\varnothing 60.30 \times 2.00 \text{ mm}$
 $\varnothing 60.33 \times 2.77 \text{ mm / NACE}$
 $\varnothing 63.50 \times 2.00 \text{ mm}$
 Process connection: Type key page 236
 Chamber end top: Page 292 - 293
 Chamber end bottom: Page 294 - 295
 Float: Page 266 - 267

Option magnetic roller indicator / Page 274

Aluminium or Stainless steel / Pocan -40°C ... 200°C
 Aluminium or Stainless steel / Ceramic -40°C ... 400°C

Option scale / Page 275

Aluminium / Stainless steel With adhesive foil / Engraving / Blank

Option magnetic switch / Page 282 - 289

Aluminium / Stainless steel -60°C ... 300°C

Option level transmitter / Page 276 - 280

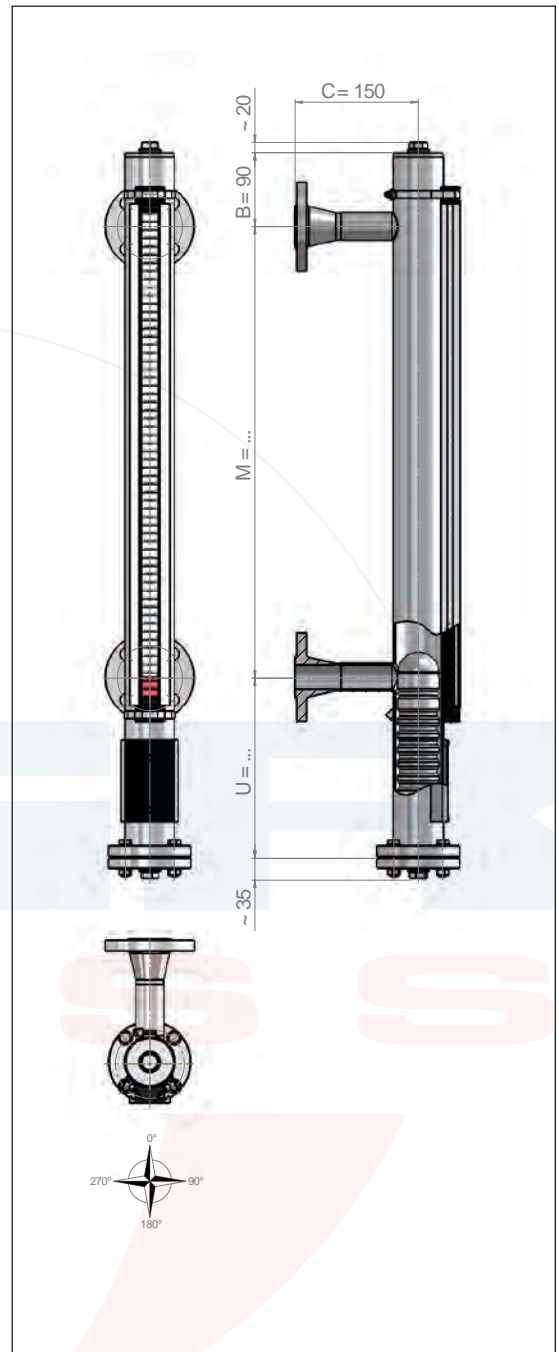
Accuracy / Reed contacts: 5 / 10 / 15 mm
 Accuracy / Magnetostrictive: 0.2 mm
 Control unit:
 - Programmable
 - Hart-programmable / SIL2
 - Profibus PA
 - Foundation Fieldbus

Option electrical heat tracing / Page 290

Holding temperature: $\sim 10^\circ\text{C}$ / Frost protection

Option instrument isolation / Page 290 - 291

Isolation: Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*

II 1G2D/2GD c

II 2GD c

Liquid temperature Ex max. 300°C

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

* = The approval is dependent on the equipment combination

** ATEX-design = if measuring range $\geq 4000 \text{ mm}$ please choose different material quality for chamber and float

Type **BNA-.../.../...-M...-V/6...-MR...-Z...S/..**

Material quality: 1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
 Centre distance M: 150 ... 25000 mm**
 Specific gravity: $\geq 480 \text{ kg/m}^3$
 Design pressure: -1 bar ... 40 bar
 Design temperature: -196°C ... 400°C

Design

Chamber: $\varnothing 60.30 \times 2.00 \text{ mm}$
 $\varnothing 60.33 \times 2.77 \text{ mm / NACE}$
 $\varnothing 63.50 \times 2.00 \text{ mm}$
 Process connection: Type key page 236
 Chamber end top: Page 292 - 293
 Chamber end bottom: Page 294 - 295
 Float: Page 268

Option magnetic roller indicator / Page 274

Aluminium or Stainless steel / Pocan -40°C ... 200°C
 Aluminium or Stainless steel / Ceramic -40°C ... 400°C

Option scale / Page 275

Aluminium / Stainless steel With adhesive foil / Engraving / Blank

Option magnetic switch / Page 282 - 289

Aluminium / Stainless steel -60°C ... 300°C

Option level transmitter / Page 276 - 280

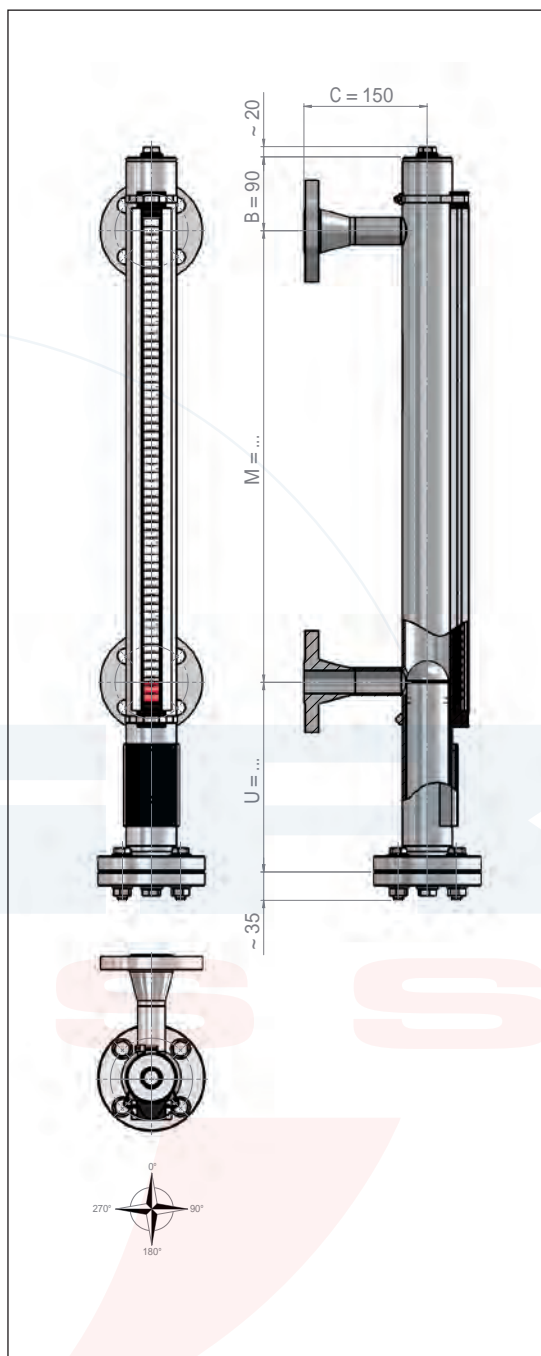
Accuracy / Reed contacts: 5 / 10 / 15 mm
 Accuracy / Magnetostrictive: 0.2 mm
 Control unit:
 - Programmable
 - Hart-programmable / SIL2
 - Profibus PA
 - Foundation Fieldbus

Option electrical heat tracing / Page 290

Holding temperature: $\sim 10^\circ\text{C}$ / Frost protection

Option instrument isolation / Page 290 - 291

Isolation: Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*

II 1G2D/2GD c

II 2GD c

Liquid temperature Ex max. 300°C

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

* = The approval is dependent on the equipment combination

** ATEX-design = if measuring range $\geq 4000 \text{ mm}$ please choose different material quality for chamber and float

Bypass Level Indicator / Stainless steel PN 63

Type BNA-...-...-...-M...-V/6...-MR...-Z...S/..

Material quality: 1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
 Centre distance M: 150 ... 25000 mm
 Specific gravity: $\geq 480 \text{ kg/m}^3$
 Design pressure: -1 bar ... 63 bar
 Design temperature: -196°C ... 400°C

Design

Chamber: $\text{Ø } 60.30 \times 2.00 \text{ mm}$
 $\text{Ø } 60.33 \times 2.77 \text{ mm / NACE}$
 $\text{Ø } 60.30 \times 3.00 \text{ mm}$
 Process connection: Type key page 236
 Chamber end top: Page 292 - 293
 Chamber end bottom: Page 294 - 295
 Float: Page 270 - 271

Option magnetic roller indicator / Page 274

Aluminium or Stainless steel / Pocol -40°C ... 200°C
 Aluminium or Stainless steel / Ceramic -40°C ... 400°C

Option scale / Page 275

Aluminium / Stainless steel With adhesive foil / Engraving / Blank

Option magnetic switch / Page 282 - 289

Aluminium / Stainless steel -60°C ... 300°C

Option level transmitter / Page 276 - 280

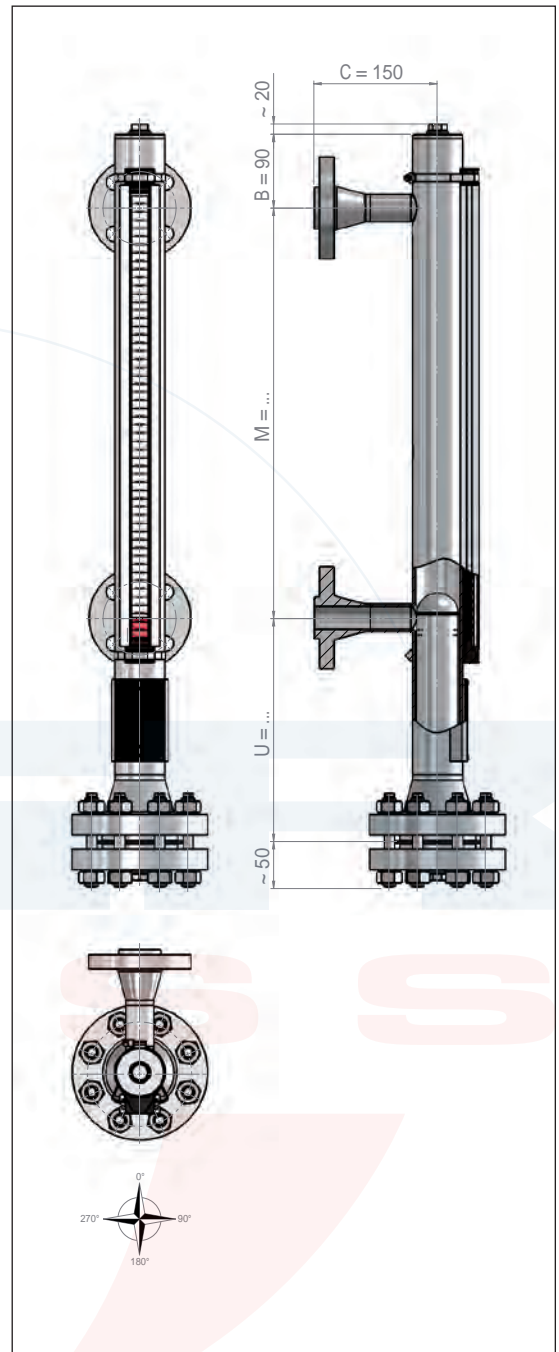
Accuracy / Reed contacts: 5 / 10 / 15 mm
 Accuracy / Magnetostrictive: 0.2 mm
 Control unit:
 - Programmable
 - Hart-programmable / SIL2
 - Profibus PA
 - Foundation Fieldbus

Option electrical heat tracing / Page 290

Holding temperature: $\sim 10^\circ\text{C}$ / Frost protection

Option instrument isolation / Page 290 - 291

Isolation: Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*

II 1G2D/2GD c

II 2GD c

Liquid temperature Ex max. 300°C

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

* = The approval is dependent on the equipment combination

Type **BNA-.../.../...-M...-V/...-MR...-Z..S/..**

Material quality: 1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
 Centre distance M: 150 ... 25000 mm
 Specific gravity: $\geq 390 \text{ kg/m}^3$
 Design pressure: -1 bar ... 100 bar
 Design temperature: -196°C ... 400°C

Design Chamber: $\text{Ø } 60.33 \times 2.77 \text{ mm / NACE}$
 $\text{Ø } 60.30 \times 3.00 \text{ mm}$
 $\text{Ø } 73.03 \times \dots \text{ mm / NACE}$
 $\text{Ø } 76.10 \times \dots \text{ mm}$
 Process connection: Type key page 236
 Chamber end top: Page 292 - 293
 Chamber end bottom: Page 294 - 295
 Float: Page 270 - 271

Option magnetic roller indicator / Page 274

Aluminium or Stainless steel / Pocan -40°C ... 200°C
 Aluminium or Stainless steel / Ceramic -40°C ... 400°C

Option scale / Page 275

Aluminium / Stainless steel With adhesive foil / Engraving / Blank

Option magnetic switch / Page 282 - 289

Aluminium / Stainless steel -60°C ... 300°C

Option level transmitter / Page 276 - 280

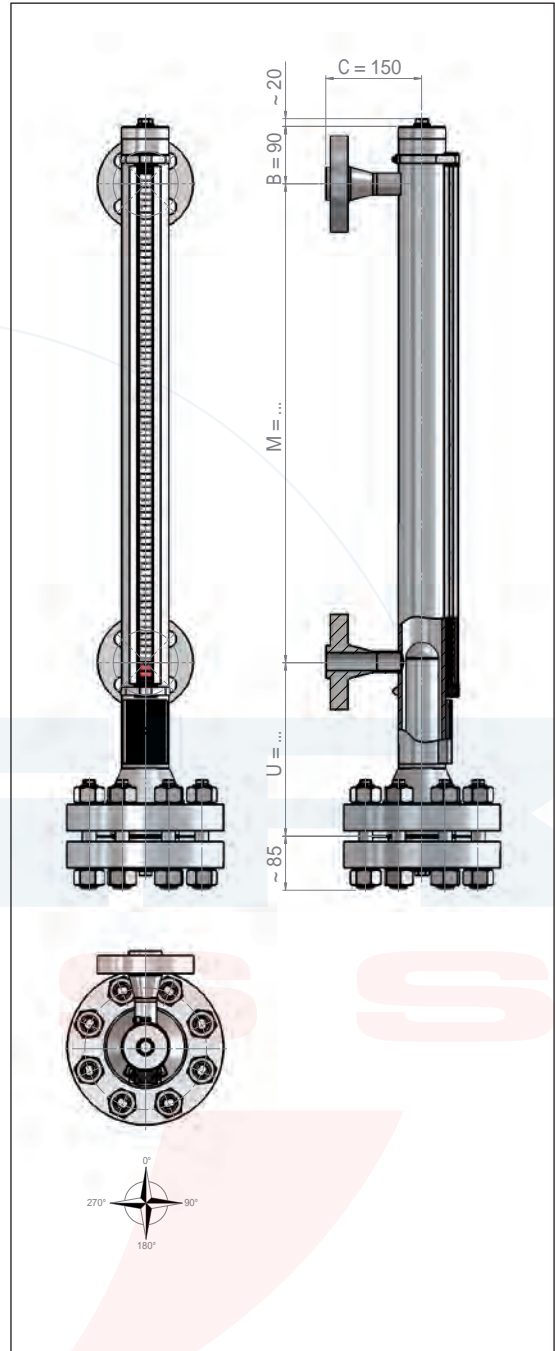
Accuracy / Reed contacts: 5 / 10 / 15 mm
 Accuracy / Magnetostrictive: 0.2 mm
 Control unit:
 - Programmable
 - Hart-programmable / SIL2
 - Profibus PA
 - Foundation Fieldbus

Option electrical heat tracing / Page 290

Holding temperature: $\sim 10^\circ\text{C}$ / Frost protection

Option instrument isolation / Page 290 - 291

Isolation: Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*
 II 1G2D/2GD c II 2GD c
 Liquid temperature Ex max. 300°C

The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

* = The approval is dependent on the equipment combination

Bypass Level Indicator / Stainless steel PN 160

Type

BNA-...-...-...-M...-V/7...-MR...-Z...S/..

Material quality:	1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
Centre distance M:	150 ... 25000 mm
Specific gravity:	≥ 480 kg/m ³
Design pressure:	-1 bar ... 160 bar
Design temperature:	-196°C ... 400°C

Design

Chamber:	Ø 73.03 x .. mm / NACE Ø 76.10 x .. mm (.. wall thickness acc. to calculation)
Process connection:	Type key page 236
Chamber end top:	Page 292 - 293
Chamber end bottom:	Page 294 - 295
Float:	Page 270 - 271

Option magnetic roller indicator / Page 274

Aluminium or Stainless steel / Pocan	-40°C ... 200°C
Aluminium or Stainless steel / Ceramic	-40°C ... 400°C

Option scale / Page 275

Aluminium / Stainless steel	With adhesive foil / Engraving / Blank
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Option magnetic switch / Page 282 - 289

Aluminium / Stainless steel	-60°C ... 300°C
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Option level transmitter / Page 276 - 280

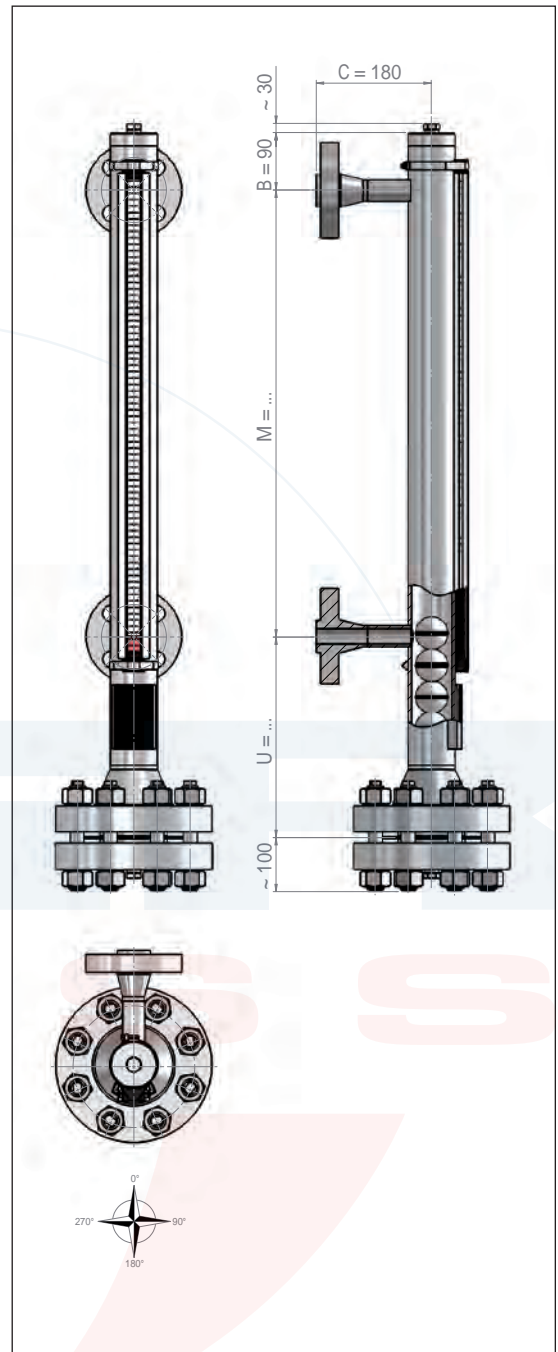
Accuracy / Reed contacts:	5 / 10 / 15 mm
Accuracy / Magnetostrictive:	0.2 mm
Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Foundation Fieldbus

Option electrical heat tracing / Page 290

Holding temperature:	~10°C / Frost protection
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Option instrument isolation / Page 290 - 291

Isolation:	Armaflex isolation / Rock-wool isolation
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Approvals / Certificates



ATEX*

II 1G2D/2GD c

II 2GD c

Liquid temperature Ex max. 300°C

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

* = The approval is dependent on the equipment combination

Type **BNA-.../.../...-M...-V/7...-MR...-Z...S/..**

Material quality: 1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
 Centre distance M: 150 ... 25000 mm
 Specific gravity: $\geq 690 \text{ kg/m}^3$
 Design pressure: -1 bar ... 250 / 400 bar
 Design temperature: -196°C ... 400°C

Design
 Chamber: $\varnothing 73.03 \times \dots \text{ mm}$ / NACE
 $\varnothing 76.10 \times \dots \text{ mm}$
 (.. wall thickness acc. to calculation)
 Process connection: Type key page 236
 Chamber end top: Page 292 - 293
 Chamber end bottom: Page 294 - 295
 Float: Page 271

Option magnetic roller indicator / Page 274

Aluminium or Stainless steel / Pocan -40°C ... 200°C
 Aluminium or Stainless steel / Ceramic -40°C ... 400°C

Option scale / Page 275

Aluminium / Stainless steel With adhesive foil / Engraving / Blank

Option magnetic switch / Page 282 - 289

Aluminium / Stainless steel -60°C ... 300°C

Option level transmitter / Page 276 - 280

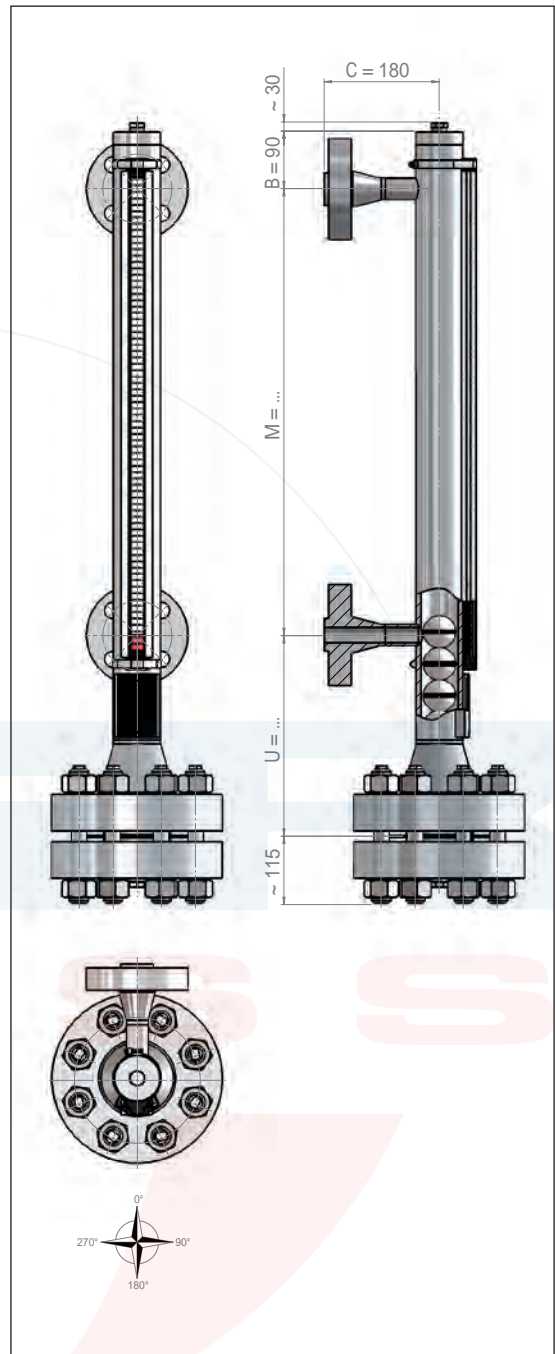
Accuracy / Reed contacts: 5 / 10 / 15 mm
 Accuracy / Magnetostrictive: 0.2 mm
 Control unit:
 - Programmable
 - Hart-programmable / SIL2
 - Profibus PA
 - Foundation Fieldbus

Option electrical heat tracing / Page 290

Holding temperature: $\sim 10^\circ\text{C}$ / Frost protection

Option instrument isolation / Page 290 - 291

Isolation: Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*
 II 1G2D/2GD c II 2GD c
 Liquid temperature Ex max. 300°C

The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

* = The approval is dependent on the equipment combination

Bypass Level Indicator / without process side connections

Type **BNA-OS-L...-V/60/..-MR..-Z..S/..**

Material quality: 1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
 Length of instrument L: 150 ... 25000 mm**
 Specific gravity: $\geq 400 \text{ kg/m}^3$
 Design pressure: -1 bar ... 40 bar
 Design temperature: -196°C ... 400°C

Design

Chamber: $\varnothing 60.30 \times 2.00 \text{ mm}$
 $\varnothing 60.33 \times 2.77 \text{ mm / NACE}$
 $\varnothing 63.50 \times 2.00 \text{ mm}$
 Process connection: -
 Chamber end top: Page 292 - 293
 Chamber end bottom: Page 294 - 295
 Float: Page 266 - 268

Option magnetic roller indicator / Page 274

Aluminium or Stainless steel / Pocol -40°C ... 200°C
 Aluminium or Stainless steel / Ceramic -40°C ... 400°C

Option scale / Page 275

Aluminium / Stainless steel With adhesive foil / Engraving / Blank

Option magnetic switch / Page 282 - 289

Aluminium / Stainless steel -60°C ... 300°C

Option level transmitter / Page 276 - 280

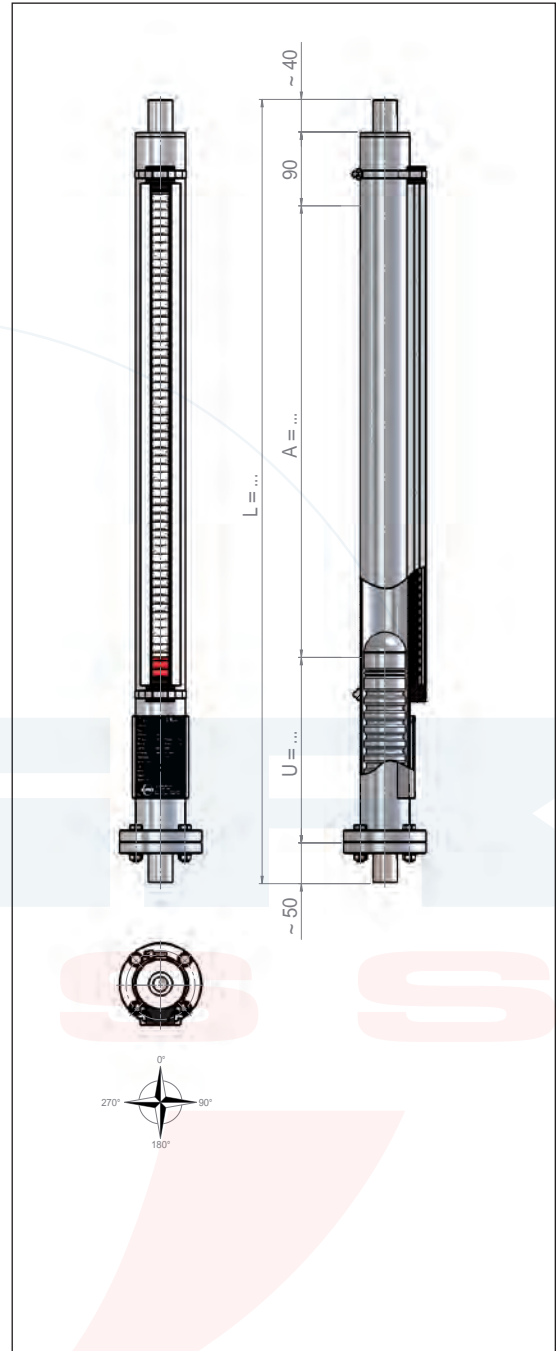
Accuracy / Reed contacts: 5 / 10 / 15 mm
 Accuracy / Magnetostrictive: 0.2 mm
 Control unit:
 - Programmable
 - Hart-programmable / SIL2
 - Profibus PA
 - Foundation Fieldbus

Option electrical heat tracing / Page 290

Holding temperature: $\sim 10^\circ\text{C}$ / Frost protection

Option instrument isolation / Page 290 - 291

Isolation: Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*

II 1G2D/2GD c

II 2GD c

Liquid temperature Ex max. 300°C

The bypass level indicator are based on a modular design and can be arranged individually.

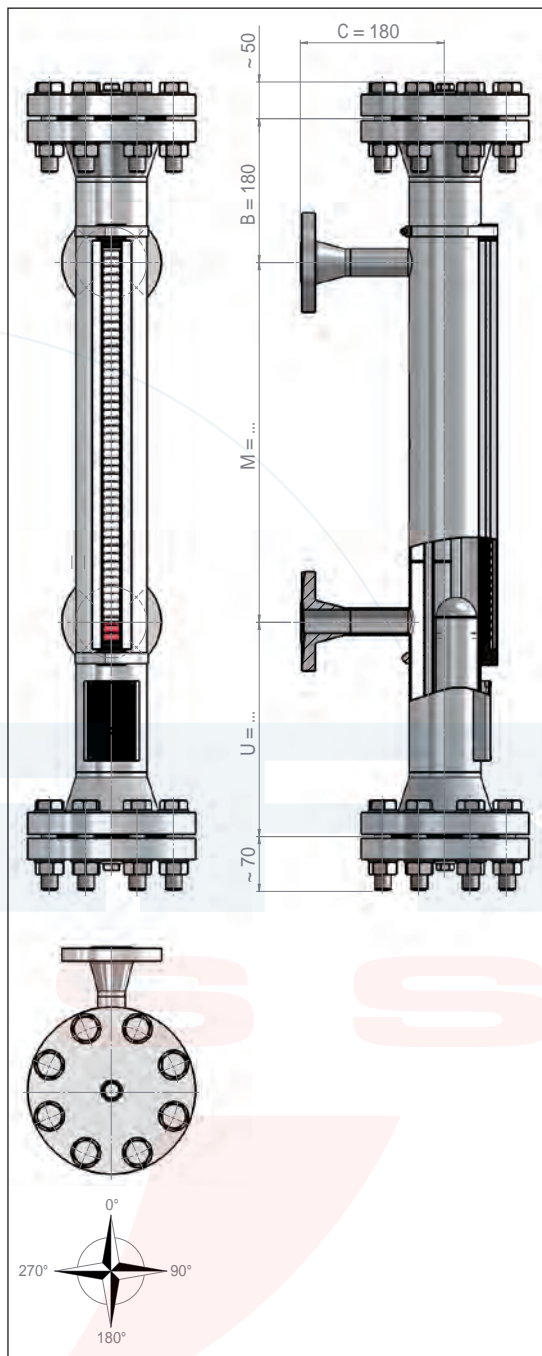
Type key page 236 - 241

* = The approval is dependent on the equipment combination

** ATEX-design = if measuring range $\geq 4000 \text{ mm}$ please choose different material quality for chamber and float

Type **BNA-.../.../...-M...-V/88/...-MR...-Z...S/..**

Material quality:	1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
Centre distance M:	150 ... 25000 mm**
Specific gravity:	≥ 460 kg/m ³
Design pressure:	-1 bar ... 40 bar
Design temperature:	-196°C ... 400°C
Design	
Chamber:	Ø 88.90 x 2.00 mm Ø 88.90 x 2.60 mm Ø 88.90 x 3.05 mm / NACE
Process connection:	Type key page 236
Chamber end top:	Page 292 - 293
Chamber end bottom:	Page 294 - 295
Float:	Page 266 - 268
Option magnetic roller indicator / Page 274	
Aluminium or Stainless steel / Pocaan	-40°C ... 200°C
Aluminium or Stainless steel / Ceramic	-40°C ... 400°C
Option scale / Page 275	
Aluminium / Stainless steel	With adhesive foil / Engraving / Blank
Option magnetic switch / Page 282 - 289	
Aluminium / Stainless steel	-60°C ... 300°C
Option level transmitter / Page 276 - 280	
Accuracy / Reed contacts:	5 / 10 / 15 mm
Accuracy / Magnetostrictive:	0.2 mm
Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Foundation Fieldbus
Option electrical heat tracing / Page 290	
Holding temperature:	~10°C / Frost protection
Option instrument isolation / Page 290 - 291	
Isolation:	Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*	
II 1G2D/2GD c	II 2GD c
Liquid temperature Ex max. 300°C	

The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

* = The approval is dependent on the equipment combination ** ATEX-design = if measuring range ≥ 4000 mm please choose different material quality for chamber and float

Bypass Level Indicator / with steam tracing system

Type

BNA-...-...-...-M...-V/60/..-HM76-MR...-Z..S/..

Material quality: 1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
 Centre distance M: 150 ... 25000 mm**
 Specific gravity: $\geq 460 \text{ kg/m}^3$
 Design pressure: -1 bar ... 40 bar
 Design temperature: -196°C ... 400°C

Design

Chamber: $\varnothing 60.30 \times 2.00 \text{ mm}$
 $\varnothing 60.33 \times 2.77 \text{ mm / NACE}$
 $\varnothing 63.50 \times 2.00 \text{ mm}$
 Process connection: Type key page 236
 Chamber end top: Page 292 - 293
 Chamber end bottom: Page 294 - 295
 Float: Page 272 - 273

Option magnetic roller indicator / Page 274

Aluminium or Stainless steel / Pocom -40°C ... 200°C
 Aluminium or Stainless steel / Ceramic -40°C ... 400°C

Option scale / Page 275

Aluminium / Stainless steel With adhesive foil / Engraving / Blank

Option magnetic switch / Page 282 - 289

Aluminium / Stainless steel -60°C ... 300°C

Option level transmitter / Page 276 - 280

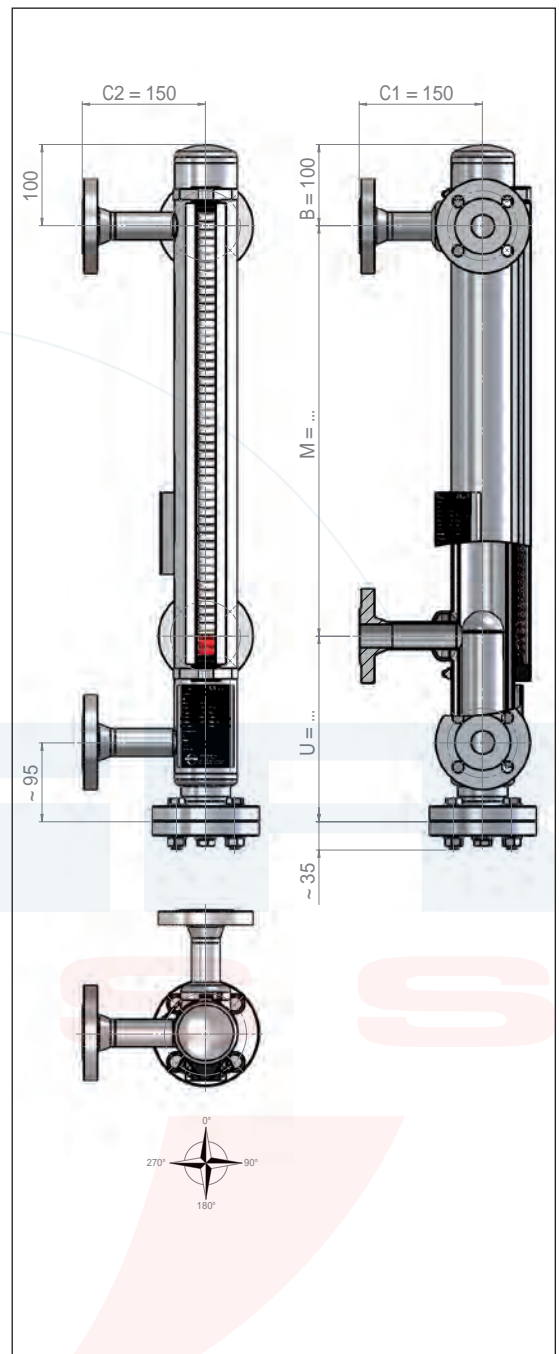
Accuracy / Reed contacts: 5 / 10 / 15 mm
 Accuracy / Magnetostrictive: 0.2 mm
 Control unit:
 - Programmable
 - Hart-programmable / SIL2
 - Profibus PA
 - Foundation Fieldbus

Steam tracing system

Steam tracing system chamber: $\varnothing 76.10 \times 2.00 \text{ mm}$

Option instrument isolation / Page 290 - 291

Isolation: Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*

II 1G2D/2GD c

II 2GD c

Liquid temperature Ex max. 300°C

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

* = The approval is dependent on the equipment combination

** ATEX-design = if measuring range $\geq 4000 \text{ mm}$ please choose different material quality for chamber and float

Type **BNA-.../.../...-M...-V/...-DK-MR...-Z...S/..**

Material quality:	1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
Centre distance M:	150 ... 25000 mm**
Specific gravity:	≥ 350 kg/m³
Design pressure:	-1 bar ... 250 bar
Design temperature:	-10°C ... 400°C

Design Chamber:	Ø 60.30 x 2.00 mm Ø 60.33 x 2.77 mm / NACE Ø 73.03 x .. mm / NACE Ø 76.10 x .. mm
Process connection:	Type key page 236
Chamber end top:	Flanged connection with tube cap
Chamber end bottom:	Page 294 - 295
Float:	Acc. to protocol

Option magnetic roller indicator / Page 274	
Aluminium or Stainless steel / Pocan	-40°C ... 200°C
Aluminium or Stainless steel / Ceramic	-40°C ... 400°C

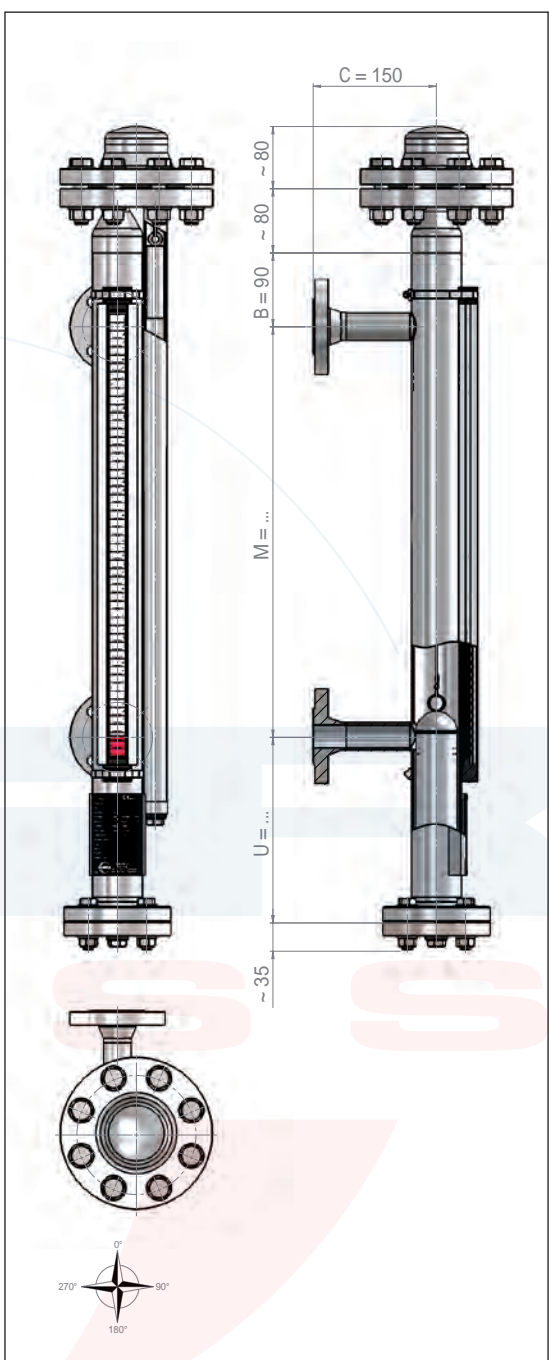
Option scale / Page 275	
Aluminium / Stainless steel	With adhesive foil / Engraving / Blank

Option magnetic switch / Page 282 - 289	
Aluminium / Stainless steel	-60°C ... 300°C

Option level transmitter / Page 276 - 280	
Accuracy / Reed contacts:	5 / 10 / 15 mm
Accuracy / Magnetostrictive:	0.2 mm
Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Foundation Fieldbus

Option electrical heat tracing / Page 290	
Holding temperature:	~10°C / Frost protection

Option instrument isolation / Page 290 - 291	
Isolation:	Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*	
II 1G2D/2GD c	II 2GD c
Liquid temperature Ex max. 300°C	

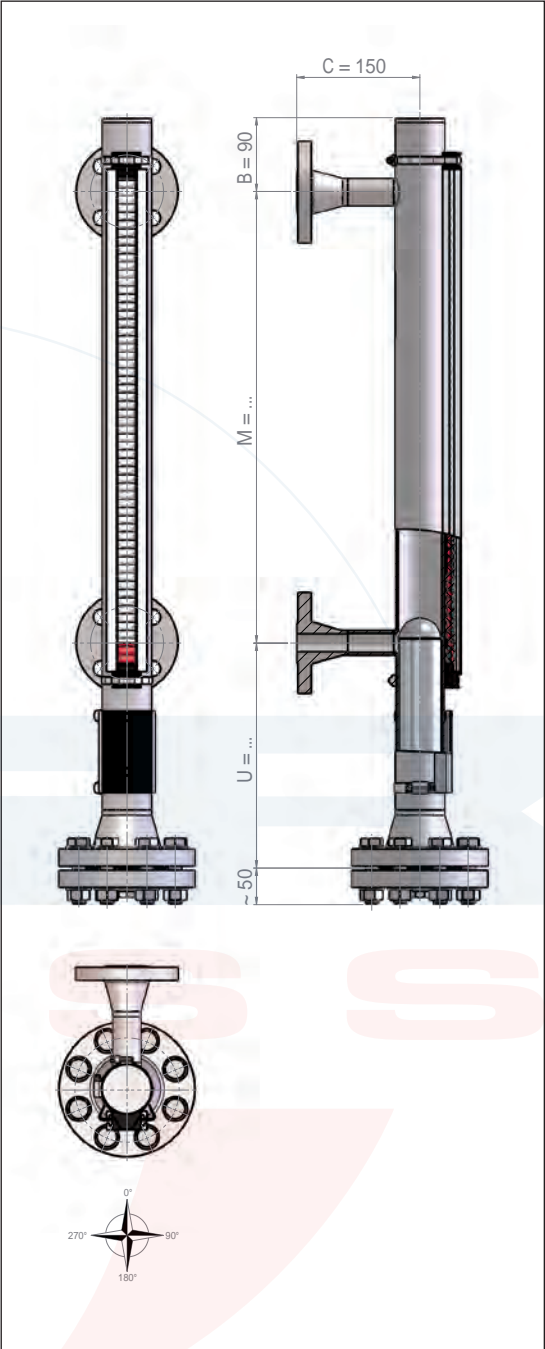
The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

* = The approval is dependent on the equipment combination ** ATEX-design = if measuring range ≥ 4000 mm please choose different material quality for chamber and float

Bypass Level Indicator / Titanium PN 16 - 40

Type BNA-...-.../...-M...-TI/60/2.77-MR...-Z..S/..

Material quality:	Titanium
Centre distance M:	150 ... 25000 mm
Specific gravity:	≥ 400 kg/m ³
Design pressure:	-1 bar ... 40 bar
Design temperature:	-10°C ... 400°C
Design	
Chamber:	Ø 60.30 x 2.77 mm
Process connection:	Type key page 236
Chamber end top:	Page 292 - 293
Chamber end bottom:	Page 294 - 295
Float:	Page 267 / 268
Option magnetic roller indicator / Page 274	
Aluminium or Stainless steel / Pocan	-40°C ... 200°C
Aluminium or Stainless steel / Ceramic	-40°C ... 400°C
Option scale / Page 275	
Aluminium / Stainless steel	With adhesive foil / Engraving / Blank
Option magnetic switch / Page 282 - 289	
Aluminium / Stainless steel	-60°C ... 300°C
Option level transmitter / Page 276 - 280	
Accuracy / Reed contacts:	5 / 10 / 15 mm
Accuracy / Magnetostrictive:	0.2 mm
Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Foundation Fieldbus
Option electrical heat tracing / Page 290	
Holding temperature:	~10°C / Frost protection
Option instrument isolation / Page 290 - 291	
Isolation:	Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*

II 1G2D/2GD c

II 2GD c

Liquid temperature Ex max. 300°C

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

* = The approval is dependent on the equipment combination

Type **BNA-.../.../...-M...-HC/60/2.77-MR...-Z...S/..**

Material quality:	Alloy C
Centre distance M:	150 ... 25000 mm
Specific gravity:	≥ 610 kg/m ³
Design pressure:	-1 bar ... 40 bar
Design temperature:	-196°C ... 200°C

Design	
Chamber:	Ø 60.33 x 2.77 mm
Process connection:	Type key page 236
Chamber end top:	Page 292 - 293
Chamber end bottom:	Page 294 - 295
Float:	Page 267 / 269

Option magnetic roller indicator / Page 274	
Aluminium or Stainless steel / Pocan	-40°C ... 200°C
Aluminium or Stainless steel / Ceramic	-40°C ... 400°C

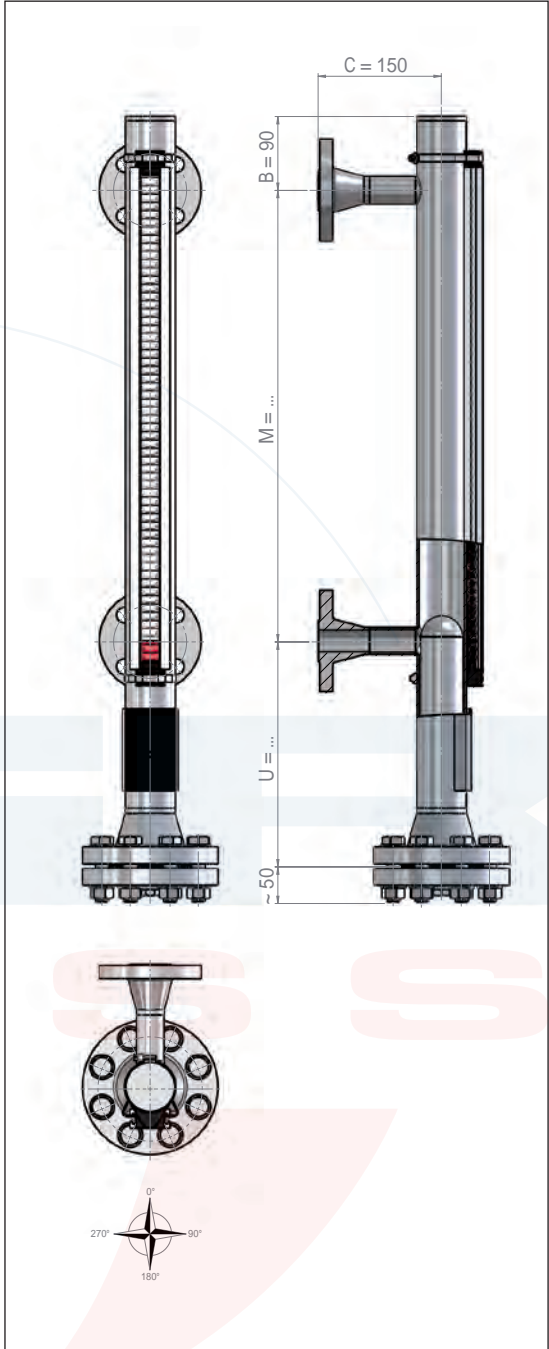
Option scale / Page 275	
Aluminium / Stainless steel	With adhesive foil / Engraving / Blank

Option magnetic switch / Page 282 - 289	
Aluminium / Stainless steel	-60°C ... 300°C

Option level transmitter / Page 276 - 280	
Accuracy / Reed contacts:	5 / 10 / 15 mm
Accuracy / Magnetostrictive:	0.2 mm
Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Foundation Fieldbus

Option electrical heat tracing / Page 290	
Holding temperature:	~10°C / Frost protection

Option instrument isolation / Page 290 - 291	
Isolation:	Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*	
II 1G2D/2GD c	II 2GD c
Liquid temperature Ex max. 200°C	

The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

* = The approval is dependent on the equipment combination

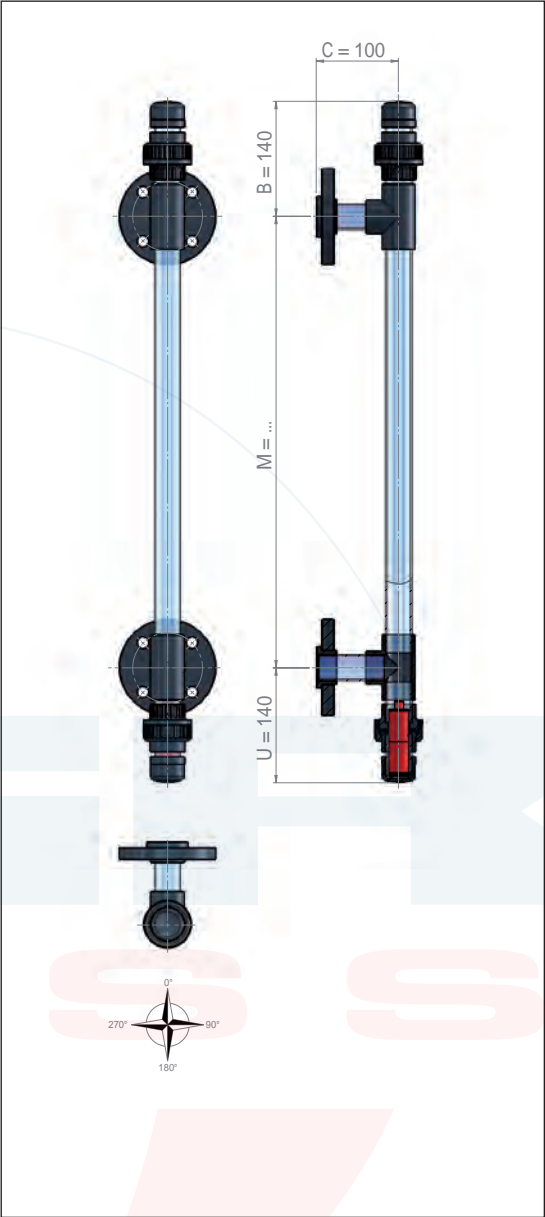
Bypass Level Indicator / PVC

Type **BNA-.../.../...-M...-P/32/1.8-ZPSS/24/.../M2**

Material quality:	PVC transparent
Centre distance M:	200 ... 4000 mm
Specific gravity:	≥ 600 kg/m ³
Design pressure:	-1 bar ... 1 bar
Design temperature:	-15°C ... 60°C

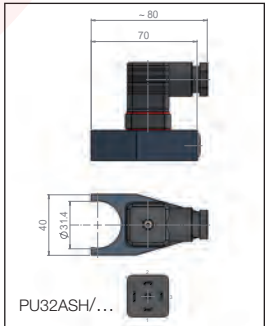
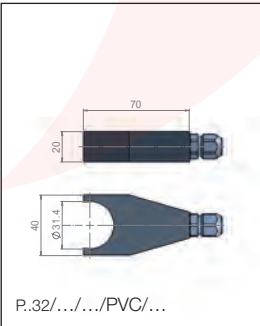
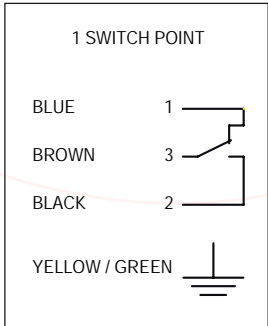
Design	
Chamber:	Ø 32.0 x 1.8 mm
Process connection:	Type key page 236
Chamber end top:	Screwed connection
Chamber end bottom:	Screwed connection
Float:	ZPSS24/80/M2 ≥ 900 kg/m ³ ZPSS24/120/M2 ≥ 600 kg/m ³

Option magnetic switch	
PS32/.../.../PVC/...	
Electrical connection:	PVC connection cable
Function:	Normally open
Switch behaviour:	Bistable
Switching capacity:	230 V / 0.5 A / 40 VA
PO32/.../.../PVC/...	
Electrical connection:	PVC connection cable
Function:	Normally closed
Switch behaviour:	Bistable
Switching capacity:	230 V / 0.5 A / 40 VA
PU32/.../.../PVC/...	
Electrical connection:	PVC connection cable
Function:	Change over
Switch behaviour:	Bistable
Switching capacity:	230 V / 0.5 A / 40 VA
PU32ASH/...	
Electrical connection:	Connector Hirschmann DIN 43650
Function:	Change over
Switch behaviour:	Bistable
Switching capacity:	230 V / 0.5 A / 40 VA



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Approvals / Certificates

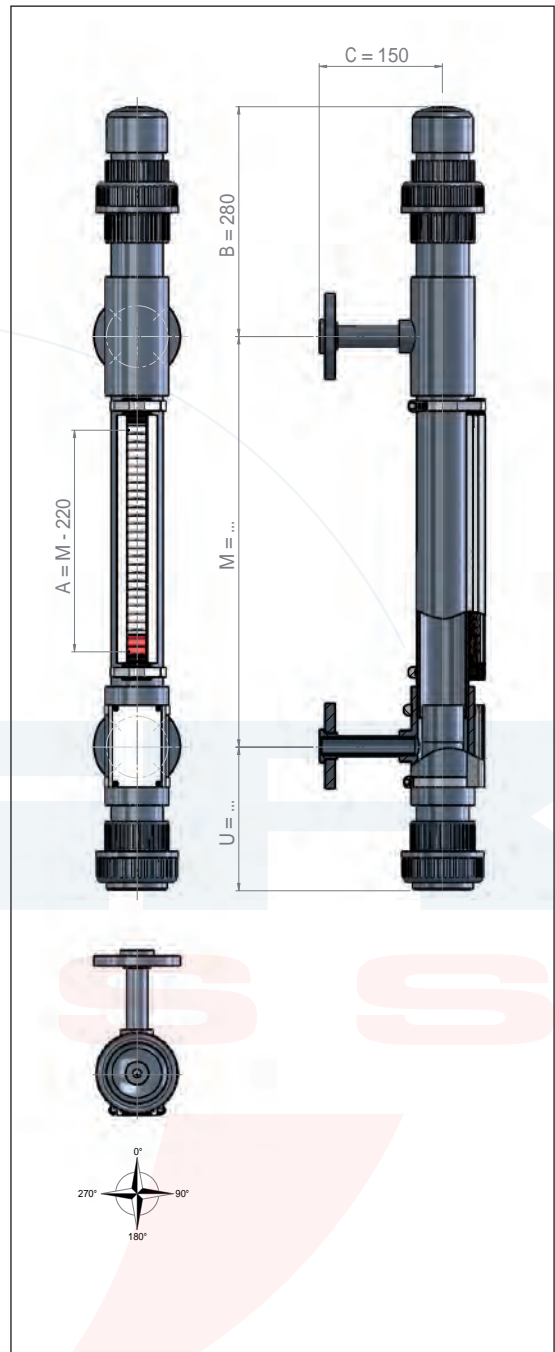


The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

Type **BNA-.../.../...-M...-P/63/3-MR..-ZPS/..**

Material quality:	PVC
Centre distance M:	300 ... 4000 mm
Specific gravity:	$\geq 740 \text{ kg/m}^3$
Design pressure:	-1 bar ... 4 bar
Design temperature:	-15°C ... 40°C
Design	
Chamber:	$\text{Ø } 63.00 \times 3.00 \text{ mm}$
Process connection:	Type key page 236
Chamber end top:	Screwed connection
Chamber end bottom:	Screwed connection
Float:	Page 264
Option magnetic roller indicator / Page 274	
Aluminium or Stainless steel / Pvcan	-40°C ... 200°C
Aluminium or Stainless steel / Ceramic	-40°C ... 400°C
Option scale / Page 275	
Aluminium / Stainless steel	With adhesive foil / Engraving / Blank
Option magnetic switch / Page 282 - 289	
Aluminium / Stainless steel	-60°C ... 300°C
Option level transmitter / Page 276 - 280	
Accuracy / Reed contacts:	5 / 10 / 15 mm
Accuracy / Magnetostrictive:	0.2 mm
Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Foundation Fieldbus



Approvals / Certificates



The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

Bypass Level Indicator / Polypropylene

Type

BNA-.../.../...-M...-PP/63/3.6-MR...-ZPPS/..

Material quality:	Polypropylene
Centre distance M:	300 ... 4000 mm
Specific gravity:	$\geq 640 \text{ kg/m}^3$
Design pressure:	-1 bar ... 4 bar
Design temperature:	-10°C ... 60°C

Design

Chamber:	$\text{Ø } 63.00 \times 3.60 \text{ mm}$
Process connection:	Type key page 236
Chamber end top:	Screwed connection
Chamber end bottom:	Screwed connection
Float:	Page 264

Option magnetic roller indicator / Page 274

Aluminium or Stainless steel / Pocer	-40°C ... 200°C
Aluminium or Stainless steel / Ceramic	-40°C ... 400°C

Option scale / Page 275

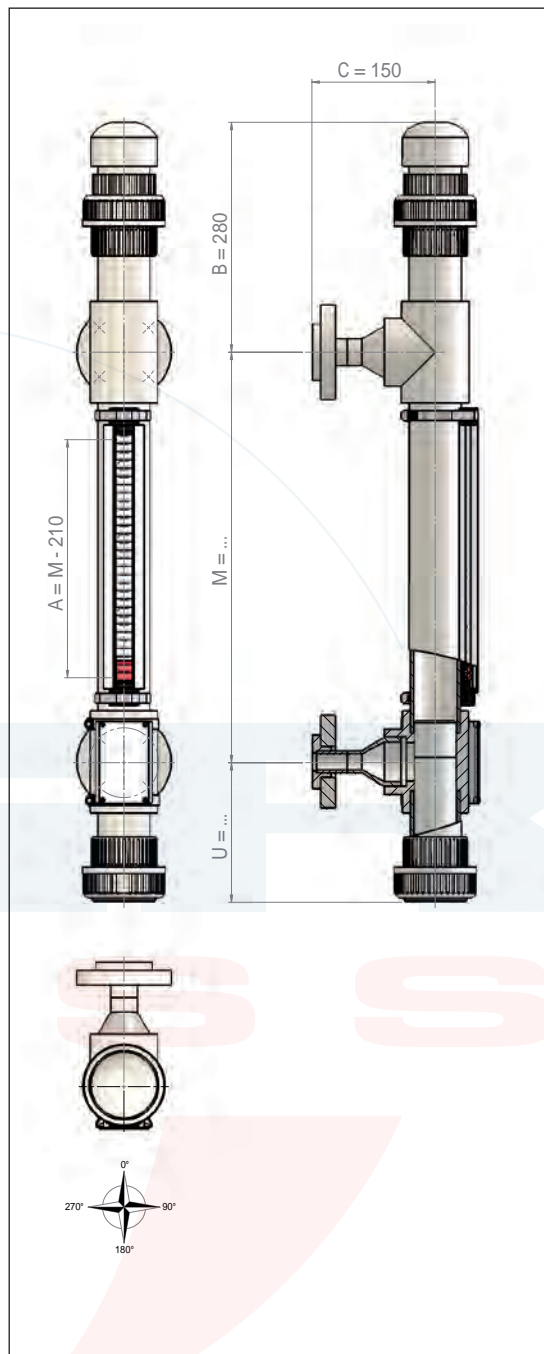
Aluminium / Stainless steel	With adhesive foil / Engraving / Blank
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Option magnetic switch / Page 282 - 289

Aluminium / Stainless steel	-60°C ... 300°C
-----------------------------	-----------------

Option level transmitter / Page 276 - 280

Accuracy / Reed contacts:	5 / 10 / 15 mm
Accuracy / Magnetostrictive:	0.2 mm
Control unit:	<ul style="list-style-type: none"> - Programmable - Hart-programmable / SIL2 - Profibus PA - Foundation Fieldbus



Approvals / Certificates

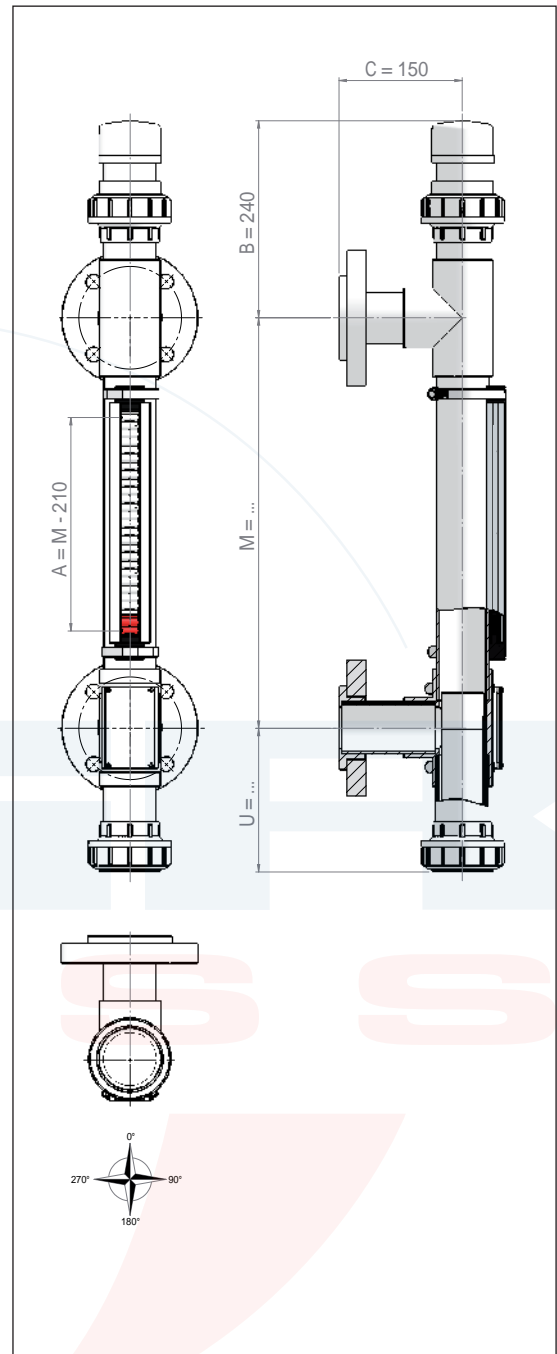


The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

Type **BNA-.../.../...-M...-PF/63/3-MR...-ZPFS/..**

Material quality:	PVDF
Centre distance M:	300 ... 4000 mm
Specific gravity:	$\geq 750 \text{ kg/m}^3$
Design pressure:	-1 bar ... 4 bar
Design temperature:	-10°C ... 80°C
Design	
Chamber:	$\text{Ø } 63.00 \times 3.00 \text{ mm}$
Process connection:	Type key page 236
Chamber end top:	Screwed connection
Chamber end bottom:	Screwed connection
Float:	Page 265
Option magnetic roller indicator / Page 274	
Aluminium or Stainless steel / Pocom	-40°C ... 200°C
Aluminium or Stainless steel / Ceramic	-40°C ... 400°C
Option scale / Page 275	
Aluminium / Stainless steel	With adhesive foil / Engraving / Blank
Option magnetic switch / Page 282 - 289	
Aluminium / Stainless steel	-60°C ... 300°C
Option level transmitter / Page 276 - 280	
Accuracy / Reed contacts:	5 / 10 / 15 mm
Accuracy / Magnetostrictive:	0.2 mm
Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Foundation Fieldbus



Approvals / Certificates



The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

Bypass Level Indicator / Stainless steel - ECTFE coated

Type

BNA-.../.../...-M...-VEEC/63/2-MR...-ZVEECSSA/.../B152

Material quality:	Stainless steel ECTFE coated
Centre distance M:	150 ... 3000 mm
Specific gravity:	≥ 690 kg/m ³
Design pressure:	-1 bar ... 16 bar
Design temperature:	-78°C ... 150°C

Design

Chamber:	Ø 63.50 x 2.00 mm
Process connection:	Type key page 236
Chamber end top:	Flanged connection
Chamber end bottom:	Flanged connection
Float:	Page 266

Option magnetic roller indicator / Page 274

Aluminium or Stainless steel / Pocolan	-40°C ... 200°C
Aluminium or Stainless steel / Ceramic	-40°C ... 400°C

Option scale / Page 275

Aluminium / Stainless steel	With adhesive foil / Engraving / Blank
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Option magnetic switch / Page 282 - 289

Aluminium / Stainless steel	-60°C ... 300°C
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Option level transmitter / Page 276 - 280

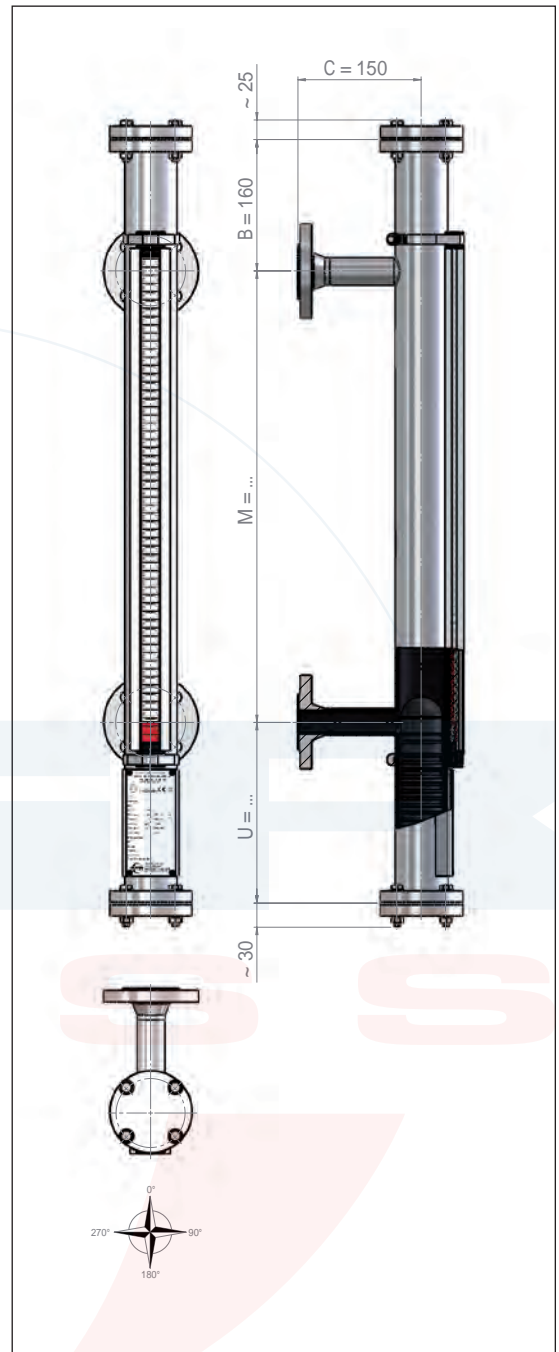
Accuracy / Reed contacts:	5 / 10 / 15 mm
Accuracy / Magnetostrictive:	0.2 mm
Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Foundation Fieldbus

Option electrical heat tracing / Page 290

Holding temperature:	~10°C / Frost protection
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Option instrument isolation / Page 290 - 291

Isolation:	Armaflex isolation / Rock-wool isolation
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Approvals / Certificates



ATEX*

II 1G2D/2GD c

II 2GD c

Liquid temperature Ex max. 150°C

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

* = The approval is dependent on the equipment combination

Type **BNA-.../.../...-M...-VPFA/63/2-MR...-ZVPFASSA/.../B152**

Material quality: Stainless steel PFA coated
 Centre distance M: 150 ... 3000 mm
 Specific gravity: $\geq 715 \text{ kg/m}^3$
 Design pressure: -1 bar ... 16 bar
 Design temperature: -100°C ... 250°C

Design

Chamber: $\text{Ø } 63.50 \times 2.00 \text{ mm}$
 Process connection: Type key page 236
 Chamber end top: Flanged connection
 Chamber end bottom: Flanged connection
 Float: Page 266

Option magnetic roller indicator / Page 274

Aluminium or Stainless steel / POCAN -40°C ... 200°C
 Aluminium or Stainless steel / Ceramic -40°C ... 400°C

Option scale / Page 275

Aluminium / Stainless steel With adhesive foil / Engraving / Blank

Option magnetic switch / Page 282 - 289

Aluminium / Stainless steel -60°C ... 300°C

Option level transmitter / Page 276 - 280

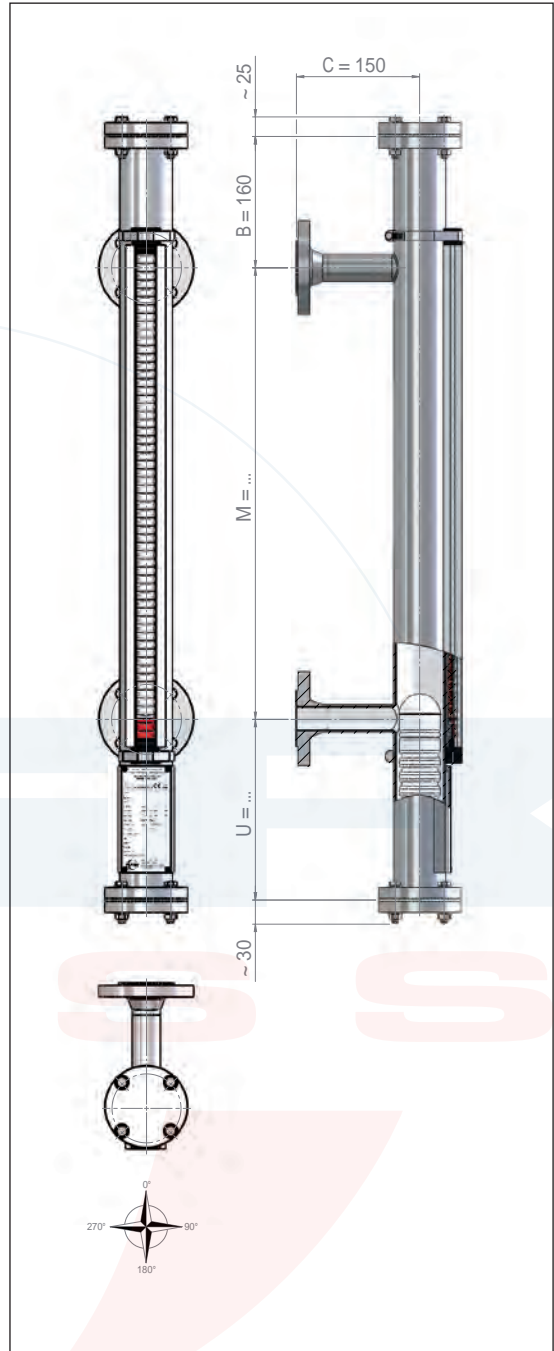
Accuracy / Reed contacts: 5 / 10 / 15 mm
 Accuracy / Magnetostrictive: 0.2 mm
 Control unit:
 - Programmable
 - Hart-programmable / SIL2
 - Profibus PA
 - Foundation Fieldbus

Option electrical heat tracing / Page 290

Holding temperature: $\sim 10^\circ\text{C}$ / Frost protection

Option instrument isolation / Page 290 - 291

Isolation: Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*
 II 1G2D/2GD c II 2GD c
 Liquid temperature Ex max. 250°C

The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

* = The approval is dependent on the equipment combination

Bypass Chamber for guided wave radar (GWR) / ACS1..

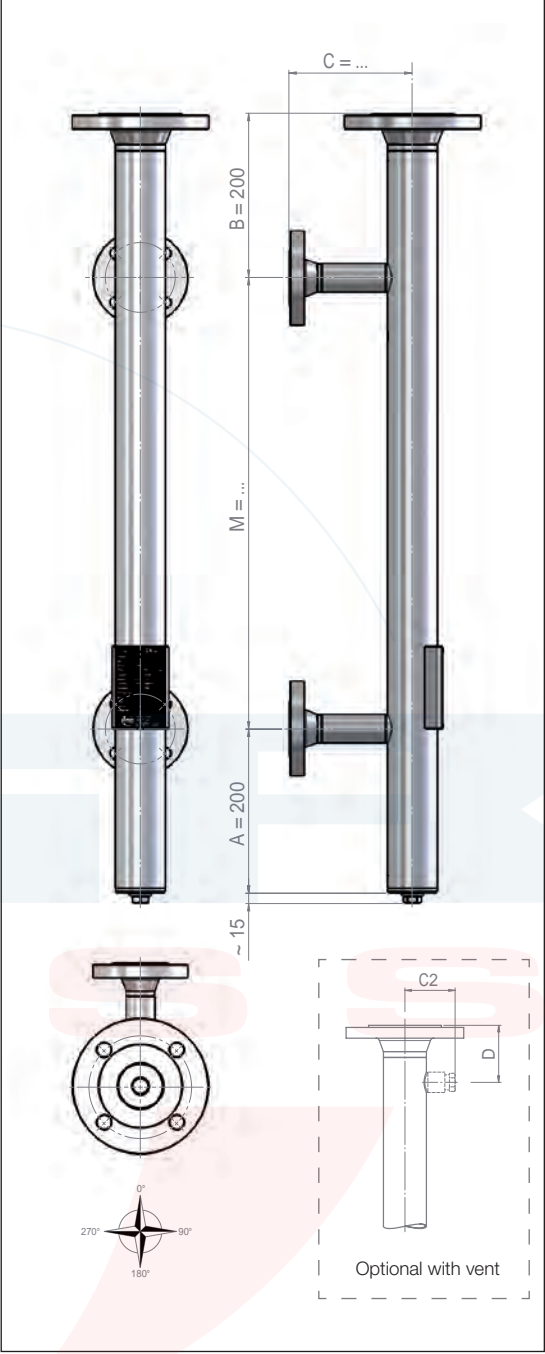
Type ACS1...-...-...-M...-...-...-...-...-...-...

Material quality:	Stainless steel 1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
	Steel 1.0460 / 1.5415 / 1.5423 (A106Gr.B / A105/C21 / A234Gr.WPB)
	Titanium Alloy C Stainless steel ECTFE coated Stainless steel PFA coated
Centre distance M:	150 ... 25000 mm
Specific gravity:	-
Design pressure:	-1 bar ... 400 bar
Design temperature:	
- Stainless steel:	-196°C ... 400°C
- Stahl:	-30°C ... 400°C
- Titanium:	-10°C ... 400°C
- Alloy C:	-196°C ... 200°C
- Stainless steel ECTFE coated:	-78°C ... 150°C
- Stainless steel PFA coated:	-100°C ... 250°C

Design		
Chamber:	Ø 60.30 x 2.00 mm	C: 150 mm
	Ø 60.33 x 2.77 mm	C: 150 mm / NACE
	Ø 73.03 x 3.05 mm	C: 150 mm / NACE
	Ø 88.90 x 2.00 mm	C: 180 mm
	Ø 88.90 x 3.05 mm	C: 180 mm / NACE
	Ø 114.30 x 2.00 mm	C: 180 mm
	Ø 114.30 x 3.00 mm	C: 180 mm
	Ø 114.30 x 3.05 mm	C: 180 mm / NACE
Process connection:	Type key page 236	
Chamber end top:	-	
Chamber end bottom:	Page 294 - 295	
Float:	-	

Option electrical heat tracing / Page 290	
Holding temperature:	~10°C / Frost protection

Option instrument isolation / Page 290 - 291	
Isolation:	Armaflex isolation / Rock-wool isolation



Approvals / Certificates



Der Werkstoff Stahl hat keine GL / BV / DNV / ABS Zulassung.

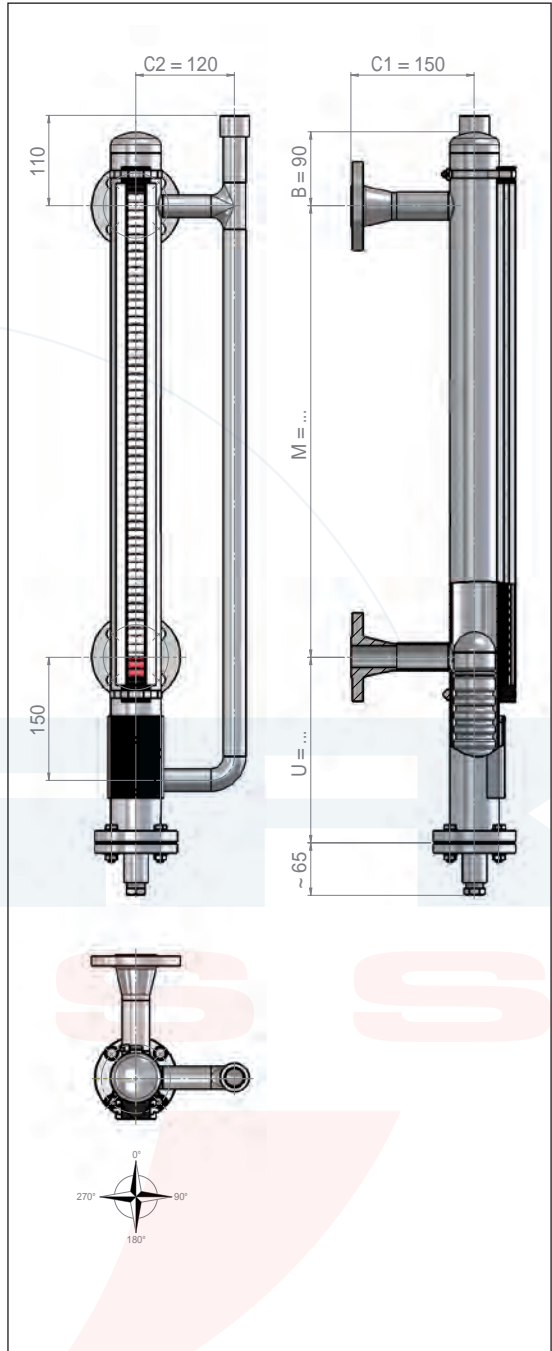
ATEX*	
II 1G2D/2GD c	II 2GD c
Liquid temperature Ex max. 300°C	

The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

* = The approval is dependent on the equipment combination ** ATEX-design = if measuring range ≥ 4000 mm please choose different material quality for chamber and float

Type ACS2-...-...-...-M...-V/...-ZK...-MR...-Z...S/..

Material quality:	1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
Centre distance M:	150 ... 25000 mm**
Specific gravity:	≥ 480 kg/m ³
Design pressure:	-1 bar ... 100 bar
Design temperature:	-196°C ... 400°C
Design	
Chamber:	Ø 60.30 x 2.00 mm Ø 60.33 x 2.77 mm / NACE Ø 63.50 x 2.00 mm
Process connection:	Type key page 236
Chamber end top:	Page 292 - 293
Chamber end bottom:	Page 294 - 295
Float:	Page 266 - 268
Option magnetic roller indicator / Page 274	
Aluminium or Stainless steel / Pocan	-40°C ... 200°C
Aluminium or Stainless steel / Ceramic	-40°C ... 400°C
Option scale / Page 275	
Aluminium / Stainless steel	With adhesive foil / Engraving / Blank
Option magnetic switch / Page 282 - 289	
Aluminium / Stainless steel	-60°C ... 300°C
Option level transmitter / Page 276 - 280	
Accuracy / Reed contacts:	5 / 10 / 15 mm
Accuracy / Magnetostrictive:	0.2 mm
Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Foundation Fieldbus
Option electrical heat tracing / Page 290	
Holding temperature:	~10°C / Frost protection
Option instrument isolation / Page 290 - 291	
Isolation:	Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*	
II 1G2D/2GD c	II 2GD c
Liquid temperature Ex max. 300°C	

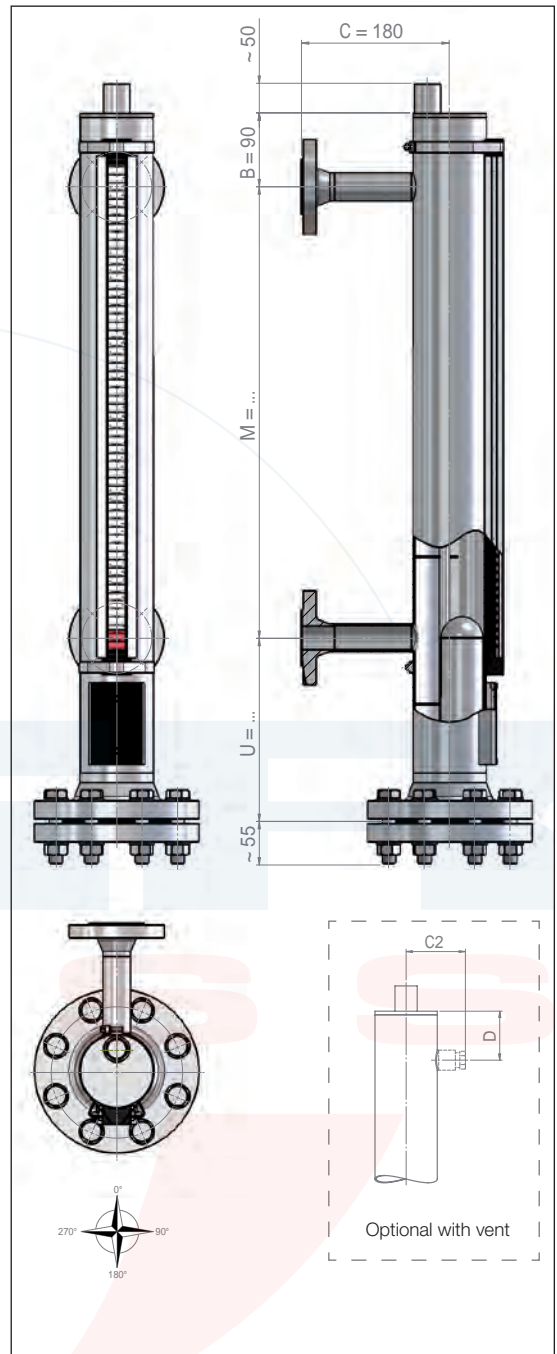
The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

* = The approval is dependent on the equipment combination

Bypass Level Indicator for guided wave radar (GWR) / ACS3

Type ACS3-...-.../...-M..-V/88/..-MR..-Z..S/..

Material quality:	1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
Centre distance M:	150 ... 25000 mm**
Specific gravity:	≥ 400 kg/m ³
Design pressure:	-1 bar ... 100 bar
Design temperature:	-196°C ... 400°C
Design	
Chamber:	Ø 88.90 x 2.00 mm Ø 88.90 x 3.05 mm / NACE
Process connection:	Type key page 236
Chamber end top:	-
Chamber end bottom:	Page 294 - 295
Float:	Page 266 - 268
Option magnetic roller indicator / Page 274	
Aluminium or Stainless steel / Pocaan	-40°C ... 200°C
Aluminium or Stainless steel / Ceramic	-40°C ... 400°C
Option scale / Page 275	
Aluminium / Stainless steel	With adhesive foil / Engraving / Blank
Option magnetic switch / Page 282 - 289	
Aluminium / Stainless steel	-60°C ... 300°C
Option level transmitter / Page 276 - 280	
Accuracy / Reed contacts:	5 / 10 / 15 mm
Accuracy / Magnetostrictive:	0.2 mm
Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Foundation Fieldbus
Option electrical heat tracing / Page 290	
Holding temperature:	~10°C / Frost protection
Option instrument isolation / Page 290 - 291	
Isolation:	Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*	
II 1G2D/2GD c	II 2GD c
Liquid temperature Ex max. 300°C	

The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

* = The approval is dependent on the equipment combination ** ATEX-design = if measuring range ≥ 4000 mm please choose different material quality for chamber and float

Type ACS4-...-...-...-M...-V/114/...-MR...-Z..S/..

Material quality: 1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
 Centre distance M: 150 ... 25000 mm**
 Specific gravity: $\geq 480 \text{ kg/m}^3$
 Design pressure: -1 bar ... 100 bar
 Design temperature: -196°C ... 400°C

Design

Chamber: $\varnothing 114.30 \times 2.00 \text{ mm}$
 $\varnothing 114.30 \times 3.00 \text{ mm}$
 $\varnothing 114.30 \times 3.05 \text{ mm}$ / NACE
 Process connection: Type key page 236
 Chamber end top: -
 Chamber end bottom: Page 294 - 295
 Float: Page 266 - 268

Option magnetic roller indicator / Page 274

Aluminium or Stainless steel / Pocan -40°C ... 200°C
 Aluminium or Stainless steel / Ceramic -40°C ... 400°C

Option scale / Page 275

Aluminium / Stainless steel With adhesive foil / Engraving / Blank

Option magnetic switch / Page 282 - 289

Aluminium / Stainless steel -60°C ... 300°C

Option level transmitter / Page 276 - 280

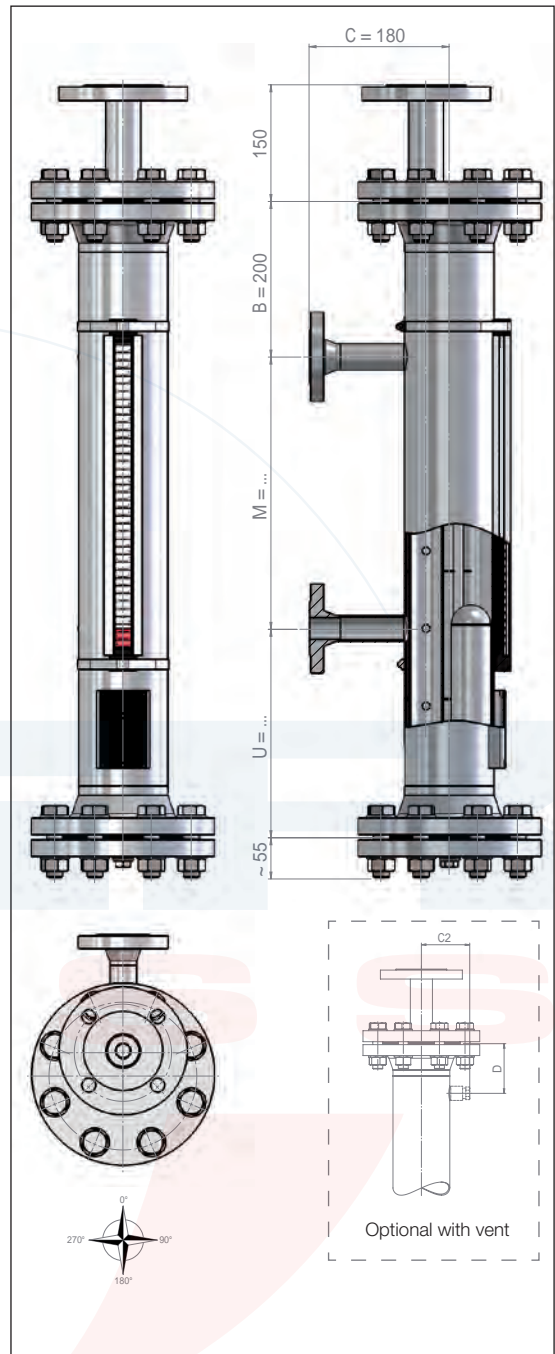
Accuracy / Reed contacts: 5 / 10 / 15 mm
 Accuracy / Magnetostrictive: 0.2 mm
 Control unit:
 - Programmable
 - Hart-programmable / SIL2
 - Profibus PA
 - Foundation Fieldbus

Option electrical heat tracing / Page 290

Holding temperature: $\sim 10^\circ\text{C}$ / Frost protection

Option instrument isolation / Page 290 - 291

Isolation: Armaflex isolation / Rock-wool isolation



Approvals / Certificates



ATEX*
 II 1G2D/2GD c II 2GD c
 Liquid temperature Ex max. 300°C

The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

* = The approval is dependent on the equipment combination ** ATEX-design = if measuring range $\geq 4000 \text{ mm}$ please choose different material quality for chamber and float

Bypass Level Indicator / Cylindrical float PN 4

Cylindrical float PN 4


PVC

Float:	ZPSS/.../B152
Diameter [mm]:	50
Design temperature [°C]:	-15 ... 40
Design pressure [bar]:	-1 ... 4

Distance U (see bypass level indicator figure)

Distance U with float stop: Float length - 25 mm

Float ZPSS/.../B152						
Length [mm]	150	200	250	300	350	
Weight [g]	275	316	356	397	437	
Float height above liquid [mm]	Specific gravity of the liquid [kg/m³]					
0	0	-	-	-	-	-
10	10	-	-	-	-	-
20	20	-	-	-	-	-
30	30	1170	950	820	750	700
40	40	1270	1010	860	780	720
50	50	1400	1070	910	810	740
60	60	1560	1150	950	840	770
70	70	1750	1240	1010	880	790
80	80	2000	1340	1070	920	820
90	90	2330	1460	1130	960	860
100	100	2800	1610	1210	1010	890



Cylindrical float PN 4


PP

Float:	ZPPSS/.../B152
Diameter [mm]:	50
Design temperature [°C]:	-10 ... 60
Design pressure [bar]:	-1 ... 4

Distance U (see bypass level indicator figure)

Distance U with float stop: Float length - 25 mm

Float ZPPSS/.../B152						
Length [mm]	150	200	250	300	350	
Weight [g]	246	279	311	344	376	
Float height above liquid [mm]	Specific gravity of the liquid [kg/m³]					
0	0	-	-	-	-	-
10	10	-	-	-	-	-
20	20	-	-	-	-	-
30	30	1040	840	720	650	600
40	40	1140	890	750	670	620
50	50	1250	950	790	700	640
60	60	1390	1010	830	730	660
70	70	1570	1090	880	760	680
80	80	1790	1180	930	800	710
90	90	2090	1290	990	830	740
100	100	2510	1420	1060	880	770



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

50 ~ Position of the magnetic system

Cylindrical float PN 4

PVDF

Float:	ZPFSS/./B152
Diameter [mm]:	50
Design temperature [°C]:	-10 ... 80
Design pressure [bar]:	-1 ... 4

Distance U (see bypass level indicator figure)

Distance U with float stop: Float length - 25 mm

Float ZPFSS/./B152						
Length [mm]	150	200	250	300	350	
Weight [g]	278	319	360	401	442	
Float height above liquid [mm]	Specific gravity of the liquid [kg/m³]					
0	0	-	-	-	-	-
10	10	-	-	-	-	-
20	20	-	-	-	-	-
30	30	1180	960	830	760	700
40	40	1290	1020	870	790	730
50	50	1420	1080	920	820	750
60	60	1570	1160	960	850	780
70	70	1770	1250	1020	890	800
80	80	2020	1350	1080	930	830
90	90	2360	1480	1150	970	870
100	100	2830	1620	1220	1020	900

SWISS

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

50 ~ Position of the magnetic system

Bypass Level Indicator / Cylindrical float PN 16

Cylindrical float PN 16

Stainless steel 1.4571 (316Ti)


Float:	ZVSS/.../B152
Diameter [mm]:	52
Design temperature [°C]:	-40 ... 250 (300)
Design pressure [bar]:	-1 ... 20 (18,5)

Distance U (see bypass level indicator figure)

Distance U with float stop:	Float length - 24 mm
Distance U with dampening spring:	Float length - 10 mm

Float ZVSS/.../B152

450	400	350	300	250	200	150	Length [mm]		
472	440	399	362	327	297	253	Weight [g]		
Specific gravity of the liquid [kg/m³]							Float height above liquid [mm]		
-	-	-	-	-	-	-	0	0	
-	-	-	-	-	-	-	10	10	
-	-	-	-	-	-	-	20	20	
600	640	680	720	800	950	1170	30	30	
610	660	700	740	840	1010	1280	40	40	
630	680	720	780	880	1080	1420	50	50	
650	700	750	810	930	1160	1600	60	60	
660	720	780	850	980	1260	1820	70	70	
680	740	810	890	1050	1370	2110	80	80	
700	770	840	930	1110	1500	2520	90	90	
720	790	870	980	1190	1670	-	100	100	



Cylindrical float PN 16

Stainless steel / ECTFE coated

Stainless steel / PFA coated

Float:	ZVEECSSA/.../B152 / ZVEECSSB/.../B152 (Ex)	ZVPFASSA/.../B152 / ZVPFASSB/.../B152 (Ex)
Diameter [mm]:	53	53
Design temperature [°C]:	-40 ... 150	-40 ... 250
Design pressure [bar]:	-1 ... 20	-1 ... 20


Distance U (see bypass level indicator figure)

Distance U with float stop:	Float length - 24 mm	Float length - 24 mm
Distance U with dampening spring:	Float length - 10 mm	Float length - 10 mm

Float ZVEECSSA/.../B152 / ZVEECSSB/.../B152 (Ex)

Float ZVPFASSA/.../B152 / ZVPFASSB/.../B152 (Ex)

450	400	350	300	250	200	150	Length [mm]		150	200	250	300	350	400	450
545	505	456	410	367	329	277	Weight [g]		284	338	378	424	471	523	565
Specific gravity of the liquid [kg/m³]							Float height above liquid [mm]			Specific gravity of the liquid [kg/m³]					
-	-	-	-	-	-	-	0	0	-	-	-	-	-	-	-
-	-	-	-	-	-	-	10	10	-	-	-	-	-	-	-
-	-	-	-	-	-	-	20	20	-	-	-	-	-	-	-
660	700	730	770	850	1000	1220	30	30	1260	1035	885	805	750	715	680
670	720	760	800	900	1070	1350	40	40	1385	1105	930	835	775	735	695
690	740	780	840	940	1140	1490	50	50	1535	1185	975	870	800	760	715
710	760	810	870	1000	1230	1680	60	60	1725	1275	1030	905	830	780	735
730	780	840	910	1050	1330	1910	70	70	1965	1375	1090	950	860	805	755
750	810	870	960	1120	1450	2220	80	80	2285	1500	1160	995	890	830	775
770	830	910	1000	1190	1590	2650	90	90	2730	1650	1235	1040	925	860	795
790	860	950	1060	1280	1770	-	100	100	-	1830	1325	1095	965	890	820



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

50 ~ Position of the magnetic system

Cylindrical float PN 16

Titanium

Alloy C

Float:	ZTIS/.../16/.../.../.../TR1	ZHCS/.../16/.../.../.../TR1
Diameter [mm]:	52	52
Design temperature [°C]:	-30 ... 150 (200)	-196 ... 200
Design pressure [bar]:	-1 ... 16 (10)	-1 ... 16

Distance U (see bypass level indicator figure)

Distance U with float stop:	Float length - 24 mm	Float length - 24 mm
Distance U with dampening spring:	Float length - 10 mm	Float length - 10 mm

Float ZTIS/.../16/.../.../.../TR1								Float ZHCS/.../16/.../.../.../TR1							
450	400	350	300	250	200	150	Length [mm]	150	200	250	300	350	400	450	
474	430	381	338	289	245	197	Weight [g]	197	245	289	338	381	430	474	
Specific gravity of the liquid [kg/m³]								Specific gravity of the liquid [kg/m³]							
-	-	-	-	-	-	-	0	0	-	-	-	-	-	-	
-	-	-	-	-	-	-	10	10	-	-	-	-	-	-	
-	-	-	-	-	-	-	20	20	-	-	-	-	-	-	
380	395	410	430	475	535	645	30	30	900	770	695	660	625	605	585
390	405	425	450	500	570	710	40	40	985	825	730	685	645	625	600
400	415	440	470	525	610	785	50	50	1095	880	770	710	665	640	615
410	430	455	490	555	655	885	60	60	1230	950	810	745	690	660	635
420	440	470	510	585	710	1005	70	70	1400	1025	855	775	715	680	650
435	455	490	535	625	775	1170	80	80	1625	1115	910	815	740	705	665
445	470	510	560	665	850	1400	90	90	1940	1225	970	855	770	725	685
460	485	530	590	710	945	1735	100	100	2410	1360	1040	900	805	750	705



SWISS

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

50 ~ Position of the magnetic system

Bypass Level Indicator / Cylindrical float PN 40

Cylindrical float PN 40

Stainless steel 1.4571 (316Ti)

Float:	ZVS/.../40/.../.../.../TR1
Diameter [mm]:	52
Design temperature [°C]:	-196 ... 250
Design pressure [bar]:	-1 ... 40

Distance U (see bypass level indicator figure)

Distance U with float stop:	Float length - 24 mm
Distance U with dampening spring:	Float length - 10 mm

Float ZVS/.../40/.../.../.../TR1

Length [mm]	150	200	250	300	350	400	450	500	550	600	650
Weight [g]	197	258	300	342	389	431	472	519	561	603	645

Float height above liquid [mm]	Specific gravity of the liquid [kg/m³]											
0	0	-	-	-	-	-	-	-	-	-	-	-
10	10	-	-	-	-	-	-	-	-	-	-	-
20	20	-	-	-	-	-	-	-	-	-	-	-
30	30	900	815	720	665	635	605	585	575	560	545	535
40	40	985	865	760	690	655	625	600	585	570	555	545
50	50	1095	930	795	720	680	640	615	600	580	565	555
60	60	1230	1000	840	750	705	660	630	610	595	580	565
70	70	1400	1080	890	785	730	680	645	625	605	590	575
80	80	1625	1175	945	825	755	705	665	640	620	600	585
90	90	1940	1290	1005	865	785	730	685	660	635	610	595
100	100	2410	1435	1080	910	820	755	705	675	645	625	605



Cylindrical float PN 40

Titanium

Float:	ZTIS/.../40/.../.../.../TR1
Diameter [mm]:	52
Design temperature [°C]:	-30 ... 200
Design pressure [bar]:	-1 ... 40

Distance U (see bypass level indicator figure)

Distance U with float stop:	Float length - 24 mm
Distance U with dampening spring:	Float length - 10 mm

Float ZTIS/.../40/.../.../.../TR1

Length [mm]	150	200	250	300	350	400	450	500	550	600	650
Weight [g]	175	219	258	298	337	376	420	460	499	538	578

Float height above liquid [mm]	Specific gravity of the liquid [kg/m³]											
0	0	-	-	-	-	-	-	-	-	-	-	-
10	10	-	-	-	-	-	-	-	-	-	-	-
20	20	-	-	-	-	-	-	-	-	-	-	-
30	30	775	670	600	560	535	515	505	490	480	475	465
40	40	850	715	630	585	550	530	515	505	490	480	475
50	50	945	765	665	610	570	545	530	515	500	490	480
60	60	1060	820	700	635	590	560	545	525	510	500	490
70	70	1205	890	740	665	610	575	560	540	520	510	500
80	80	1405	970	790	695	635	595	575	550	535	520	510
90	90	1675	1065	840	730	660	615	590	565	545	530	515
100	100	2080	1180	900	770	690	635	605	580	560	540	525



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

50 ~ Position of the magnetic system

Cylindrical float PN 40

Alloy C

Float:	ZHCS/.../40/.../.../.../TR1
Diameter [mm]:	52
Design temperature [°C]:	-196 ... 200
Design pressure [bar]:	-1 ... 40

Distance U (see bypass level indicator figure)

Distance U with float stop:	Float length - 24 mm
Distance U with dampening spring:	Float length - 10 mm

Float ZHCS/.../40/.../.../.../TR1												
Length [mm]	150	200	250	300	350	400	450	500	550	600	650	
Weight [g]	216	264	313	361	414	463	511	565	613	661	710	
Float height above liquid [mm]	Specific gravity of the liquid [kg/m³]											
	0	10	20	30	40	50	60	70	80	90	100	
0	0	-	-	-	-	-	-	-	-	-	-	-
10	10	-	-	-	-	-	-	-	-	-	-	-
20	20	-	-	-	-	-	-	-	-	-	-	-
30	30	985	830	755	705	675	650	630	625	610	600	590
40	40	1080	885	790	730	700	670	650	635	620	610	600
50	50	1200	950	830	760	725	690	665	650	635	620	610
60	60	1345	1020	875	795	750	710	680	665	650	635	620
70	70	1535	1105	930	830	775	735	700	680	660	645	635
80	80	1785	1205	985	870	805	755	720	700	675	660	645
90	90	2130	1320	1050	910	840	780	740	715	690	670	655
100	100	2640	1465	1125	960	870	810	760	735	705	685	670



SWISS

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

50 ~ Position of the magnetic system

Bypass Level Indicator / Cylindrical float PN 63 - 320

Cylindrical float PN 160

Titanium

Float:	ZTIKS1../TR1 for chamber: ≤ Ø 63.50 mm					
Diameter [mm]:	52					
Design temperature [°C]:	-90 ... 400	-90 ... 350	-90 ... 300	-90 ... 250	-90 ... 200	-90 ... 150
Design pressure [bar]:	-1 ... 125	-1 ... 135	-1 ... 150	-1 ... 155	-1 ... 165	-1 ... 175

Distance U (see bypass level indicator figure)

Distance U with float stop:	Float length - 28 mm
Distance U with dampening spring:	Float length - 13 mm

Float ZTIKS1../TR1													
Anzahl Kugeln	3	4	5	6	7	8	9	10	11	12	13	14	
Length [mm]	146	194	243	291	340	388	437	485	534	582	631	679	
Weight [g]	134	159	184	209	234	258	283	308	333	358	382	407	
Float height above liquid [mm]	Specific gravity of the liquid [kg/m³]												
0	0	-	-	-	-	-	-	-	-	-	-	-	-
10	10	-	-	-	-	-	-	-	-	-	-	-	-
20	20	-	-	-	-	-	-	-	-	-	-	-	-
30	30	870	725	645	595	565	535	520	505	490	480	475	465
40	40	975	785	685	625	585	555	535	515	505	493	480	475
50	50	1025	810	705	640	595	565	540	525	510	497	485	478
60	60	1080	840	720	650	605	570	550	530	515	502	490	482
70	70	1240	915	770	685	635	595	565	545	525	515	500	492
80	80	1515	1035	840	735	670	620	590	565	545	530	515	505
90	90	1855	1155	905	780	700	645	610	580	560	540	525	515
100	100	2045	1215	935	800	715	655	620	590	565	545	530	520

Cylindrical float PN 160

Titanium

Float:	ZTIKS1../TR2 for chamber: ≥ Ø 73.03 mm					
Diameter [mm]:	52					
Design temperature [°C]:	-90 ... 400	-90 ... 350	-90 ... 300	-90 ... 250	-90 ... 200	-90 ... 150
Design pressure [bar]:	-1 ... 125	-1 ... 135	-1 ... 150	-1 ... 155	-1 ... 165	-1 ... 175

Distance U (see bypass level indicator figure)

Distance U with float stop:	Float length - 28 mm
Distance U with dampening spring:	Float length - 13 mm

Float ZTIKS1../TR2													
Anzahl Kugeln	3	4	5	6	7	8	9	10	11	12	13	14	
Length [mm]	146	194	243	291	340	388	437	485	534	582	631	679	
Weight [g]	174	199	224	249	274	298	323	348	373	398	422	447	
Float height above liquid [mm]	Specific gravity of the liquid [kg/m³]												
0	0	-	-	-	-	-	-	-	-	-	-	-	-
10	10	-	-	-	-	-	-	-	-	-	-	-	-
20	20	-	-	-	-	-	-	-	-	-	-	-	-
30	30	1130	905	785	710	660	620	590	570	550	535	520	510
40	40	1265	980	835	745	685	640	610	585	565	550	533	520
50	50	1330	1015	855	760	700	650	615	590	570	555	537	525
60	60	1400	1050	880	775	710	660	625	600	575	560	542	530
70	70	1615	1150	940	820	740	685	645	615	590	570	555	540
80	80	1965	1295	1020	875	780	715	670	635	610	585	570	555
90	90	2410	1445	1105	925	820	745	695	655	625	600	580	565
100	100	2660	1520	1140	950	835	760	705	665	635	610	585	570

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

50 ~ Position of the magnetic system

Cylindrical float PN 320

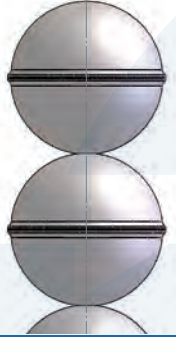
Titanium

Float:	ZTIKS2/.../TR2 for chamber: $\geq \varnothing 73.03$ mm					
Diameter [mm]:	52					
Design temperature [°C]:	-90 ... 400	-90 ... 350	-90 ... 300	-90 ... 250	-90 ... 200	-90 ... 150
Design pressure [bar]:	-1 ... 212	-1 ... 235	-1 ... 258	-1 ... 270	-1 ... 282	-1 ... 300

Distance U (see bypass level indicator figure)

Distance U with float stop:	Float length - 28 mm
Distance U with dampening spring:	Float length - 13 mm

Float ZTIKS2/.../TR2													
Anzahl Kugeln	3	4	5	6	7	8	9	10	11	12	13	14	
Length [mm]	146	194	243	291	340	388	437	485	534	582	631	679	
Weight [g]	204	239	274	308	343	378	412	447	482	516	551	586	
Float height above liquid [mm]	Specific gravity of the liquid [kg/m³]												
0	0	-	-	-	-	-	-	-	-	-	-	-	-
10	10	-	-	-	-	-	-	-	-	-	-	-	-
20	20	-	-	-	-	-	-	-	-	-	-	-	-
30	30	1325	1090	960	880	825	785	755	730	710	695	680	670
40	40	1480	1175	1020	920	860	815	775	750	730	710	695	685
50	50	1560	1215	1045	940	875	825	785	760	735	715	700	690
60	60	1645	1260	1075	960	890	840	795	770	745	725	710	695
70	70	1890	1380	1150	1010	930	870	825	790	765	740	725	710
80	80	2305	1555	1250	1080	980	910	855	820	785	760	740	725
90	90	2825	1735	1350	1145	1025	945	885	845	810	780	760	740
100	100	3115	1825	1395	1175	1050	965	900	855	820	790	765	745



Cylindrical float PN 63

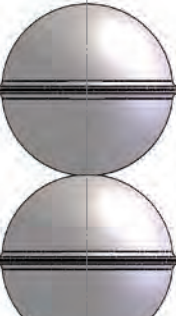
Titanium

Float:	ZTIKS4/.../TR2 for chamber: $\geq \varnothing 73.03$ mm					
Diameter [mm]:	62					
Design temperature [°C]:	-90 ... 400	-90 ... 350	-90 ... 300	-90 ... 250	-90 ... 200	-90 ... 150
Design pressure [bar]:	-1 ... 50	-1 ... 55	-1 ... 60	-1 ... 66	-1 ... 66	-1 ... 70

Distance U (see bypass level indicator figure)

Distance U with float stop:	Float length - 36 mm
Distance U with dampening spring:	Float length - 21 mm

Float ZTIKS4/.../TR2														
Anzahl Kugeln	3	4	5	6	7	8	9	10	11	12	13	14	15	
Length [mm]	180	240	300	360	420	480	540	600	660	720	780	840	900	
Weight [g]	197	226	255	284	313	342	371	400	429	458	487	516	545	
Float height above liquid [mm]	Specific gravity of the liquid [kg/m³]													
0	0	-	-	-	-	-	-	-	-	-	-	-	-	-
10	10	-	-	-	-	-	-	-	-	-	-	-	-	-
20	20	-	-	-	-	-	-	-	-	-	-	-	-	-
30	30	696	570	500	456	426	404	386	374	362	350	345	339	333
40	40	770	614	530	478	442	418	398	382	370	360	352	345	338
50	50	838	650	554	496	456	428	406	390	378	366	357	349	343
60	60	872	666	564	500	462	432	410	394	380	368	359	351	345
70	70	906	684	576	512	468	438	414	398	382	370	361	353	347
80	80	1000	730	604	530	482	450	424	406	390	378	367	359	351
90	90	1162	800	646	558	504	466	438	418	400	386	375	366	357
100	100	1382	884	692	590	528	484	452	428	410	396	383	373	364



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

50 ~ Position of the magnetic system

Bypass Level Indicator / Cylindrical float PN 16 / K74

Cylindrical float PN 16 for Bypass Level Indicator with steam tracing system

Stainless steel 1.4571 (316Ti)

Float:	ZVS/./16/./..././..././K74
Diameter [mm]:	52
Design temperature [°C]:	-196 ... 250
Design pressure [bar]:	-1 ... 16


Distance U (see bypass level indicator figure)

Distance U with float stop:	Float length - 24 mm
Distance U with dampening spring:	Float length - 10 mm

Float ZVS/./16/./..././..././K74

Length [mm]	150	200	250	300	350	400	450	500	550	600	650
Weight [g]	279	321	358	400	437	479	516	553	595	632	674

Float height above liquid [mm]	Specific gravity of the liquid [kg/m³]											
0	0	-	-	-	-	-	-	-	-	-	-	-
10	10	-	-	-	-	-	-	-	-	-	-	-
20	20	-	-	-	-	-	-	-	-	-	-	-
30	30	1270	1010	860	780	715	675	640	610	590	575	560
40	40	1400	1080	905	810	740	695	655	625	605	585	570
50	50	1550	1155	950	845	765	715	670	640	615	595	580
60	60	1740	1240	1005	880	790	735	690	650	630	605	590
70	70	1985	1345	1060	920	820	760	705	670	640	615	600
80	80	2305	1465	1130	960	850	785	725	685	655	630	610
90	90	2750	1610	1200	1010	885	810	745	700	670	640	620
100	100	3410	1785	1285	1065	920	835	770	720	685	655	635



Cylindrical float PN 16 for Bypass Level Indicator with steam tracing system

Titanium

Float:	ZTIS/./16/./..././..././K74
Diameter [mm]:	52
Design temperature [°C]:	-30 ... 200
Design pressure [bar]:	-1 ... 16


Distance U (see bypass level indicator figure)

Distance U with float stop:	Float length - 24 mm
Distance U with dampening spring:	Float length - 10 mm

Float ZTIS/./16/./..././..././K74

Length [mm]	150	200	250	300	350	400	450	500	550	600	650
Weight [g]	251	281	310	340	369	399	433	462	489	521	550

Float height above liquid [mm]	Specific gravity of the liquid [kg/m³]											
0	0	-	-	-	-	-	-	-	-	-	-	-
10	10	-	-	-	-	-	-	-	-	-	-	-
20	20	-	-	-	-	-	-	-	-	-	-	-
30	30	1110	860	725	640	585	545	520	495	470	460	445
40	40	1220	915	760	665	605	560	530	505	480	465	450
50	50	1355	980	800	695	625	575	545	515	490	475	460
60	60	1520	1055	845	725	645	595	560	530	500	485	465
70	70	1730	1140	890	755	670	610	575	540	510	495	475
80	80	2015	1245	945	795	695	630	590	555	525	505	485
90	90	2405	1365	1010	830	725	655	610	570	535	515	490
100	100	2980	1515	1080	875	755	675	625	580	545	525	500



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

50 ~ Position of the magnetic system

Bypass Level Indicator / Cylindrical float PN 40 / K74

Cylindrical float PN 40 for Bypass Level Indicator with steam tracing system

Stainless steel 1.4571 (316Ti)

Float: ZVS/./40/./..././.../K74
 Diameter [mm]: 52
 Design temperature [°C]: -196 ... 250
 Design pressure [bar]: -1 ... 40

Distance U (see bypass level indicator figure)

Distance U with float stop: Float length - 24 mm
 Distance U with dampening spring: Float length - 10 mm

Float ZVS/./40/./..././.../K74												
Length [mm]	150	200	250	300	350	400	450	500	550	600	650	
Weight [g]	298	359	401	443	490	532	573	620	662	704	746	

Float height above liquid [mm]	Specific gravity of the liquid [kg/m³]											
	0	10	20	30	40	50	60	70	80	90	100	
0	0	-	-	-	-	-	-	-	-	-	-	-
10	10	-	-	-	-	-	-	-	-	-	-	-
20	20	-	-	-	-	-	-	-	-	-	-	-
30	30	1360	1130	965	860	800	750	710	685	660	640	620
40	40	1495	1205	1015	895	825	770	725	700	670	650	630
50	50	1655	1290	1065	935	855	795	745	715	685	660	640
60	60	1860	1390	1125	975	885	815	765	730	700	675	655
70	70	2120	1505	1190	1020	920	840	785	750	715	685	665
80	80	2460	1635	1265	1065	955	870	805	765	730	700	675
90	90	2935	1800	1345	1120	990	900	830	785	745	715	690
100	100	3640	1995	1440	1175	1035	930	855	805	765	730	700



Cylindrical float PN 40 for Bypass Level Indicator with steam tracing system

Titanium

Float: ZTIS/./40/./..././.../K74
 Diameter [mm]: 52
 Design temperature [°C]: -30 ... 200
 Design pressure [bar]: -1 ... 40

Distance U (see bypass level indicator figure)

Distance U with float stop: Float length - 24 mm
 Distance U with dampening spring: Float length - 10 mm

Float ZTIS/./40/./..././.../K74												
Length [mm]	150	200	250	300	350	400	450	500	550	600	650	
Weight [g]	276	320	359	399	438	477	521	561	600	639	679	

Float height above liquid [mm]	Specific gravity of the liquid [kg/m³]											
	0	10	20	30	40	50	60	70	80	90	100	
0	0	-	-	-	-	-	-	-	-	-	-	-
10	10	-	-	-	-	-	-	-	-	-	-	-
20	20	-	-	-	-	-	-	-	-	-	-	-
30	30	1220	975	835	755	695	650	625	600	580	560	550
40	40	1340	1040	880	785	715	670	640	615	590	570	555
50	50	1490	1115	925	815	740	690	655	625	600	580	565
60	60	1670	1200	975	850	770	710	675	640	615	595	575
70	70	1905	1300	1035	890	795	730	690	655	630	605	585
80	80	2215	1415	1095	930	825	755	710	675	640	615	595
90	90	2640	1555	1170	975	860	780	730	690	655	630	605
100	100	3280	1725	1250	1030	895	805	755	705	670	640	620



The bypass level indicators are based on a modular design and can be arranged individually.

Type key page 236 - 241

50 ~ Position of the magnetic system

Bypass Level Indicator / Magnetic roller indicator

Type **MRA / MRB / MRAN / MRBN** **MRK / MRKN**

Housing: Aluminium anodized
Ingress protection class: IP 67

MRA / MRB / MRAN / MRBN

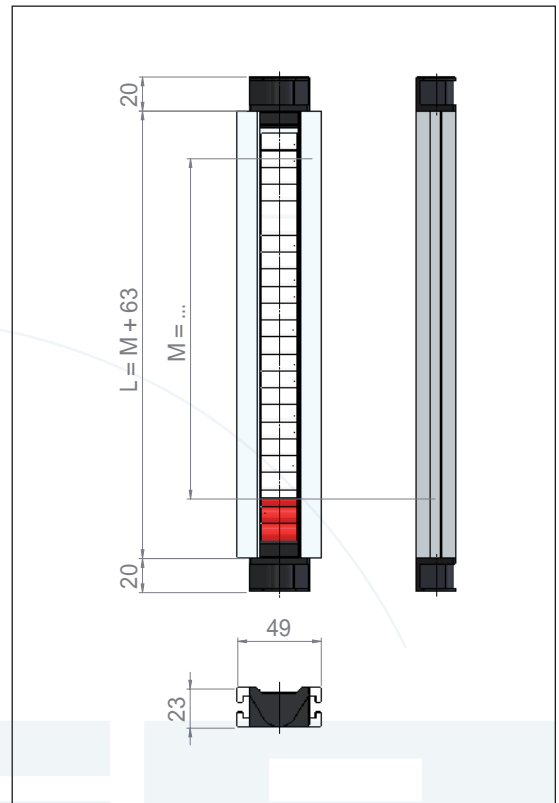
Indication
- Material quality: Pocan
- Colour: White / Red
End part: Ryton, black
Sight cover - MRA / MRAN: Macrolon
- MRB / MRBN: Glass
Ambient temperature: -40°C ... 200°C
MRAN / MRBN (over-roll-protected): Roller rotation max. 180°

MRK / MRKN

Indication
- Material quality: Ceramic
- Colour: White / Blue
End part: Aluminium
Sight cover: Glass
Ambient temperature: -40°C ... 400°C
MRKN (over-roll-protected): Roller rotation max. 180°

Approvals / Certificates

ATEX / GOST / GL / BV / DNV / ABS



Type **MNAV / MNBVN / MNAVN / MNBVN** **MNKV / MNKVN**

Housing: Aluminium with Stainless steel covered
Ingress protection class: IP 67

MNAV / MNBV / MNAVN / MNBVN

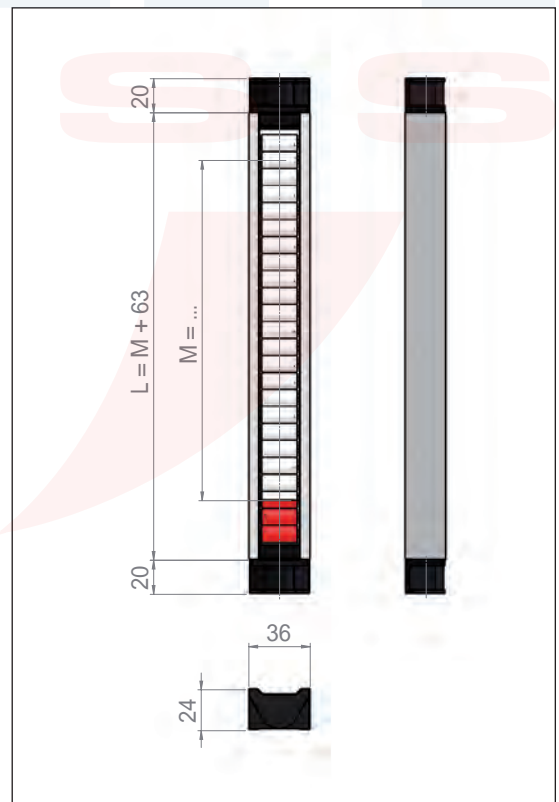
Indication
- Material quality: Pocan
- Colour: White / Red
End part: Ryton, black
Sight cover - MNAV / MNAVN: Macrolon
- MNBV / MNBVN: Glass
Ambient temperature: -40°C ... 200°C
MNAVN / MNBVN (over-roll-protected): Roller rotation max. 180°

MNKV / MNKVN

Indication
- Material quality: Ceramic
- Colour: White / Blue
End part: Aluminium
Sight cover: Glass
Ambient temperature: -40°C ... 400°C
MNKVN (over-roll-protected): Roller rotation max. 180°

Approvals / Certificates

ATEX / GOST / GL / BV / DNV / ABS



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

Type **SAK / SA.. / SV..**

SAK

Scale: Adhesive foil (black)
 Angle profile: Aluminium
 Scaling: in cm (0 cm .. 10 cm .. 20 cm .. 30 cm ..)
 Width: 40 mm
 Ambient temperature: -40°C ... 200°C

SA0 / SA1 / SA2 / SA3 / SA4

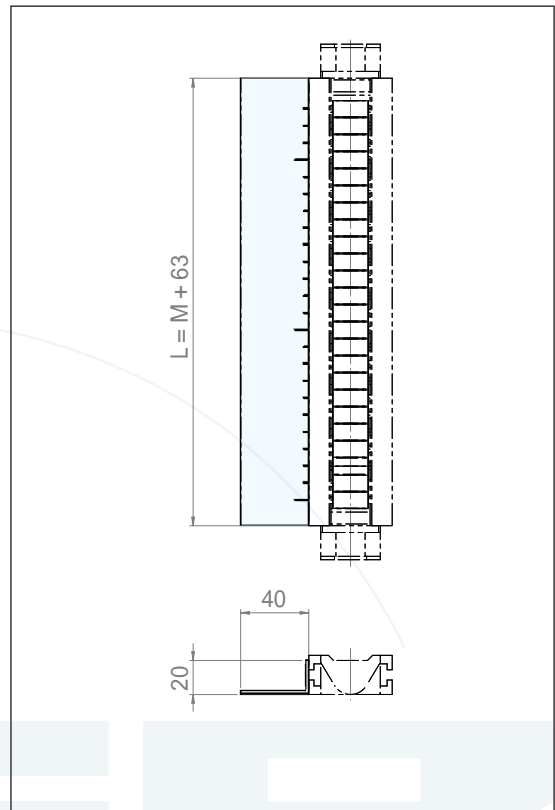
Scale: Engraved
 Angle profile: Aluminium
 Scaling: Blank / % / cm / inch. / ..
 Width: 40 mm
 Ambient temperature: -40°C ... 200°C

SV0 / SV1 / SV2 / SV3 / SV4

Scale: Engraved
 Angle profile: Stainless steel
 Scaling: Blank / % / cm / inch. / ..
 Width: 40 mm
 Ambient temperature: -40°C ... 400°C

Approvals / Certificates

ATEX / GOST / GL / BV / DNV / ABS

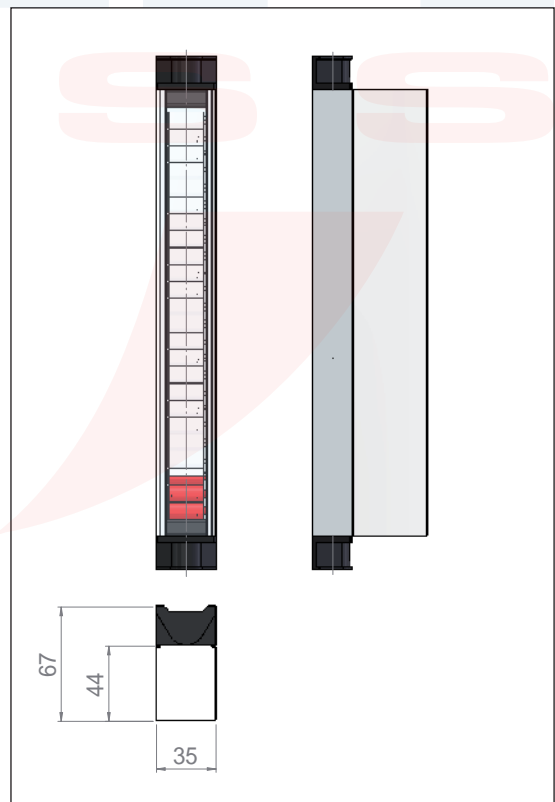


Type **Magnetic roller indicator sight extension PV**

Material quality: Acryl glass
 Width: 35 mm
 Depth: 67 mm
 Ambient temperature: -40°C ... 100°C
 Mounting: on magnetic roller indicator

Approvals / Certificates

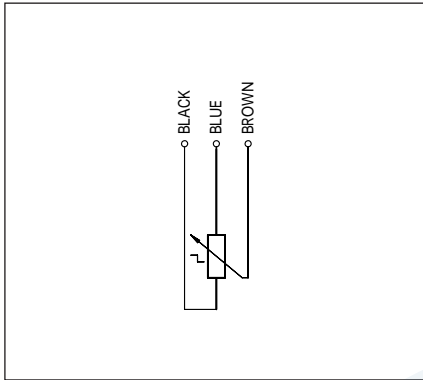
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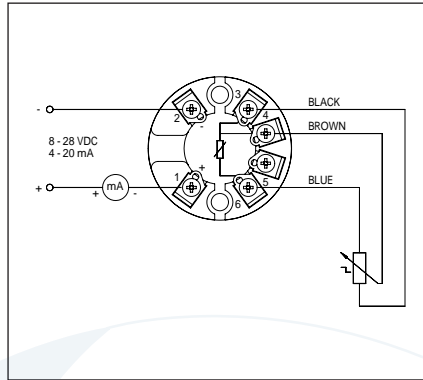
The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

Bypass Level Indicator / Level transmitter

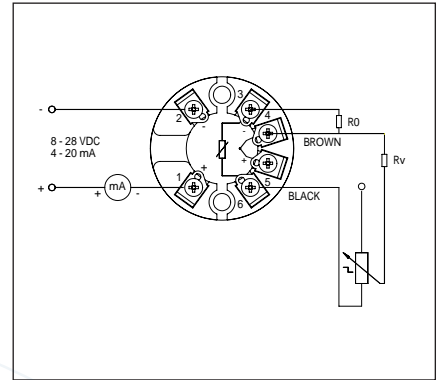
Connection diagram



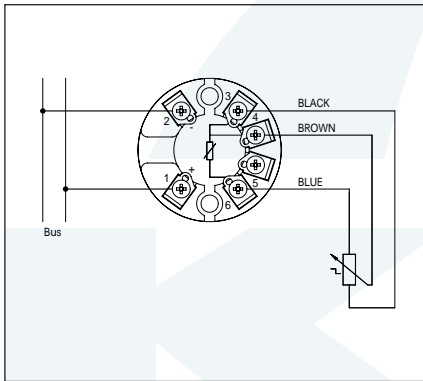
without Control unit



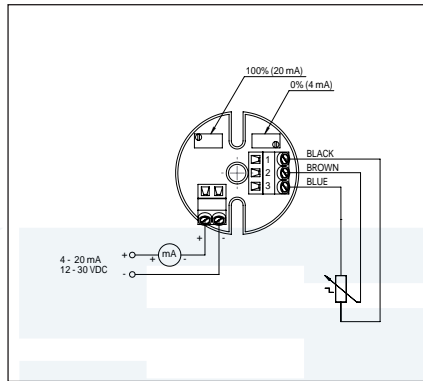
Control unit TP5343..



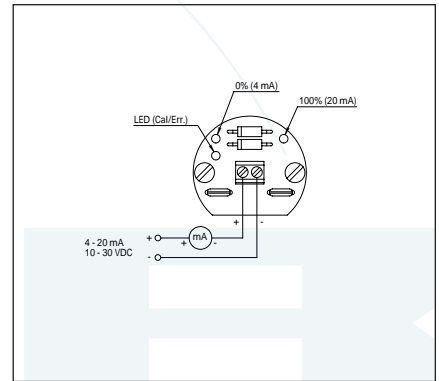
Control unit TD5335..



Control unit TP5350..



Control unit XT42SI Ex



Control unit magnetostrictive

Some further data according to chapter Control Units 1011

Approvals / Certificates



ATEX-Approval for accuracy K5.. / K10.. / K15..*

II 1/2G Ex ia c IIC T6 - T4	II 1/2G Ex ia c IIC T6 - T3 bzw. Ex d ia c IIC T6 - T4	II 2G Ex d c IIC T6 - T4
II 1/2G Ex d ia c IIC T6 - T4	II 2D Ex td A21 c IP6* T80°C - T190°C bzw. T125	
Liquid temperature Exia max. 180°C / Exd max. 120°C		
Type of protection intrinsic safety Ex ia IIC switch bzw. temperature switch	$I_i \leq 100 \text{ mA}$	
Type of protection intrinsic safety Ex ia IIC temperature probe	$U_i \leq 28 \text{ V}$	$I_i \leq 100 \text{ mA}$
Type of protection intrinsic safety Ex ia IIC with option /N (NAMUR EN 60947)	$U_i \leq 15 \text{ VDC}$	$I_i \leq 60 \text{ mA}$
Type of protection „moulding“	$U_N \leq 250 \text{ VDC/AC}$	$P_{SN} \leq 50 \text{ W/VA}$
Type of protection „moulding“ with option /N (NAMUR EN 60947)	$U_N \leq 15 \text{ VDC}$	$I_{N1} \leq 60 \text{ mA}$
Type of protection „moulding“ with option /R22 (resistor)	$U_N \leq 250 \text{ VDC/AC}$	$I_{N2} \leq 100 \text{ mA}$
		$P_{FN} \leq 700 \text{ mW}$

ATEX-Approval for accuracy K1..*

II 1/2G Ex ia c IIC T6 - T2	II 1G Ex ia IIC T4 - T2	
II 1/2G Ex ia IIC T6 - T2	II 2G Ex d IIC T4	
Type of protection intrinsic safety Ex ia IIC	$U_i \leq 30 \text{ V}$	$I_i \leq 200 \text{ mA}$
		$P_i \leq 1000 \text{ mW}$
Temperature class	T6	T5
Ambient temperature(T_a)	-20°C ... 40°C	-20°C ... 55°C
Liquid temperature(T_l)	-20°C ... 60°C	-20°C ... 60°C
		T4 - T2
		-20°C ... 85°C
		-20°C ... 60°C

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

* = The approval is dependent on the equipment combination

Type ALF../V../..-M..

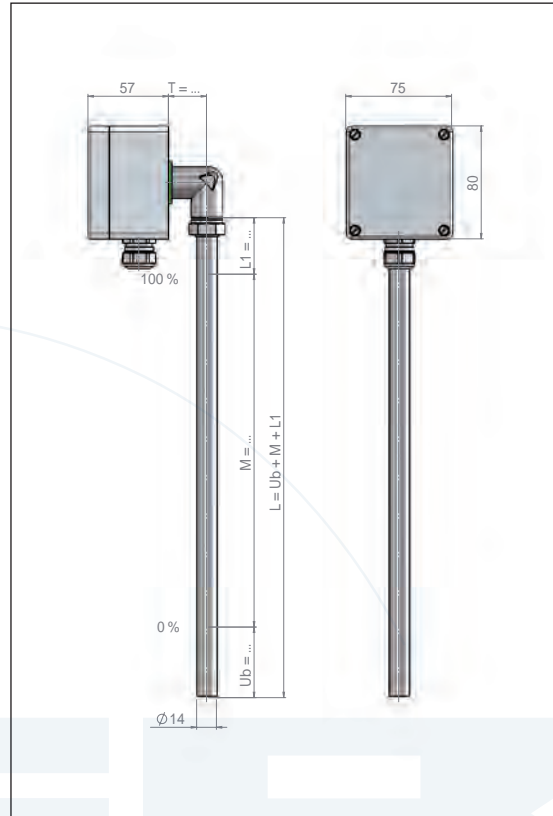
Electrical connection:	Aluminium anodized
Cable entry:	M20 x 1.5
Ingress protection class:	IP 65
Ambient temperature:	-40°C ... 100°C
Level transmitter tube material quality:	Stainless steel
Mounting:	T-shaped sliding block or tension strap
Minimum measures (Liquid ≤ 200°C):	T: 27 mm / L1: 40 mm / Ub: 50 mm
Minimum measures (Liquid > 200°C):	T: 100 mm / L1: 40 mm / Ub: 50 mm

Accuracy	
Accuracy:	5 / 10 / 15 mm
Ambient temperature	
- K5 / K10 / K15:	-30°C ... 130°C
- K5HTF / K10HTF / K15HTF:	-30°C ... 200°C
- K5HT / K10HT / K15HT:	-40°C ... 250°C

Option control unit / Page 276

Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Fondation Fieldbus
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Approvals / Certificates
ATEX / GOST / GL / BV / DNV / ABS



Type ALDA../V../EXDG-M..

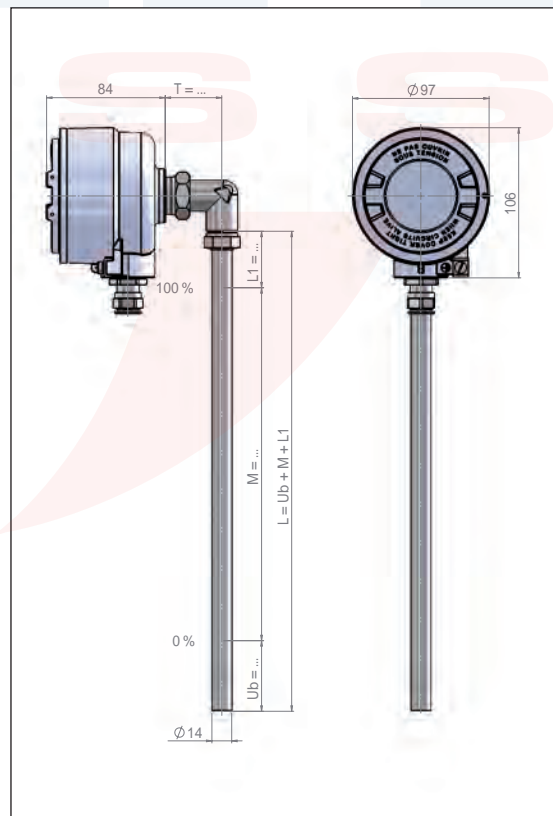
Electrical connection:	Aluminium coated RAL 9006
Cable entry:	M20 x 1.5
Ingress protection class:	IP 68
Ambient temperature:	-40°C ... 100°C
Level transmitter tube material quality:	Stainless steel
Mounting:	T-shaped sliding block or tension strap
Minimum measures (Liquid ≤ 200°C):	T: 50 mm / L1: 40 mm / Ub: 50 mm
Minimum measures (Liquid > 200°C):	T: 100 mm / L1: 40 mm / Ub: 50 mm

Accuracy	
Accuracy:	5 / 10 / 15 mm
Ambient temperature	
- K5 / K10 / K15:	-30°C ... 120°C
- K5HTF / K10HTF / K15HTF:	-30°C ... 120°C
- K5HT / K10HT / K15HT:	-40°C ... 120°C

Option control unit / Page 276

Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Fondation Fieldbus
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Approvals / Certificates
ATEX / GOST / GL / BV / DNV / ABS



The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

Bypass Level Indicator / Level transmitter

Type

DAALA../V/...M..

Electrical connection:	Aluminium anodized
Cable entry:	M20 x 1.5
Ingress protection class:	IP 65
Ambient temperature:	-40°C ... 60°C
Display:	4-digit LED display in red / Free scaling
Current input:	4 ... 20 mA
Level transmitter tube material quality:	Stainless steel
Mounting:	T-shaped sliding block or tension strap
Minimum measures (Liquid ≤ 200°C):	T: 50 mm / L1: 40 mm / Ub: 50 mm
Minimum measures (Liquid > 200°C):	T: 100 mm / L1: 40 mm / Ub: 50 mm

Accuracy: 5 / 10 / 15 mm

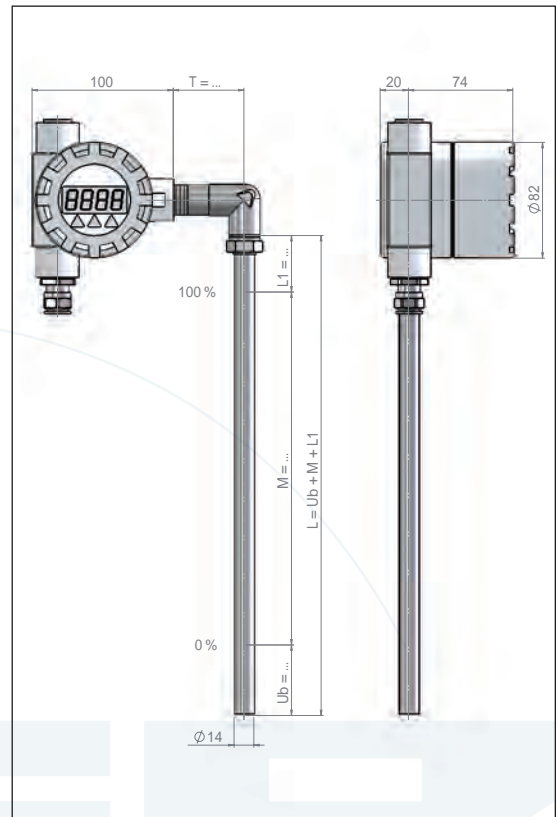
Ambient temperature	-30°C ... 130°C
- K5 / K10 / K15:	-30°C ... 200°C
- K5HTF / K10HTF / K15HTF:	-40°C ... 250°C
- K5HT / K10HT / K15HT:	

Option control unit / Page 276

Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Fondation Fieldbus
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Approvals / Certificates

ATEX / GOST



Type

DAAVDA../V/...EXIADG-M..

Electrical connection:	Stainless steel electropolished
Cable entry:	M20 x 1.5
Ingress protection class:	IP 68
Ambient temperature:	-40°C ... 60°C
Display:	4-digit LED display in red / Free scaling
Current input:	4 ... 20 mA
Level transmitter tube material quality:	Stainless steel
Mounting:	T-shaped sliding block or tension strap
Minimum measures (Liquid ≤ 200°C):	T: 50 mm / L1: 40 mm / Ub: 50 mm
Minimum measures (Liquid > 200°C):	T: 100 mm / L1: 40 mm / Ub: 50 mm

Accuracy: 5 / 10 / 15 mm

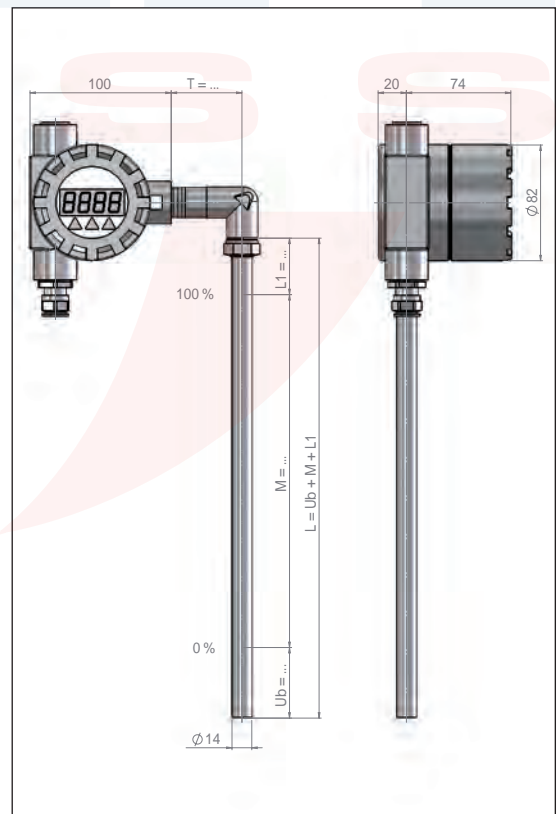
Ambient temperature	-30°C ... 130°C (Exd 120°C)
- K5 / K10 / K15:	-30°C ... 180°C (Exd 120°C)
- K5HTF / K10HTF / K15HTF:	-40°C ... 180°C (Exd 120°C)
- K5HT / K10HT / K15HT:	

Option control unit / Page 276

Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Fondation Fieldbus
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Approvals / Certificates

ATEX / GOST



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

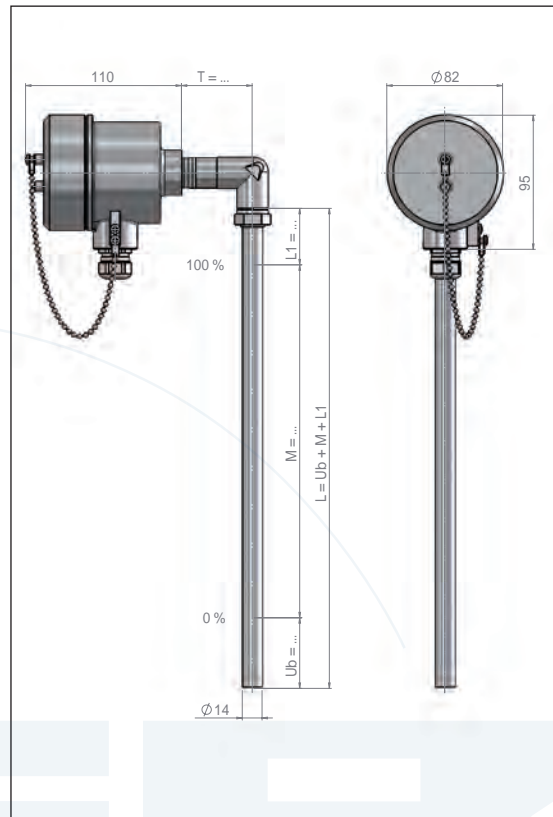
Type AVA/..V/..-M..

Electrical connection:	Stainless steel A4 (SS316)
Cable entry:	M20 x 1.5
Ingress protection class:	IP 67
Ambient temperature:	-40°C ... 85°C
Level transmitter tube material quality:	Stainless steel
Mounting:	T-shaped sliding block or tension strap
Minimum measures (Liquid ≤ 200°C):	T: 50 mm / L1: 40 mm / Ub: 50 mm
Minimum measures (Liquid > 200°C):	T: 100 mm / L1: 40 mm / Ub: 50 mm

Accuracy	
Accuracy:	5 / 10 / 15 mm
Ambient temperature	
- K5 / K10 / K15:	-30°C ... 130°C
- K5HTF / K10HTF / K15HTF:	-30°C ... 200°C
- K5HT / K10HT / K15HT:	-40°C ... 250°C

Option control unit / Page 276	
Control unit:	- Programmable - Hart-programmable / SIL2 - Profibus PA - Foundation Fieldbus

Approvals / Certificates
ATEX / GOST / GL / BV / DNV / ABS



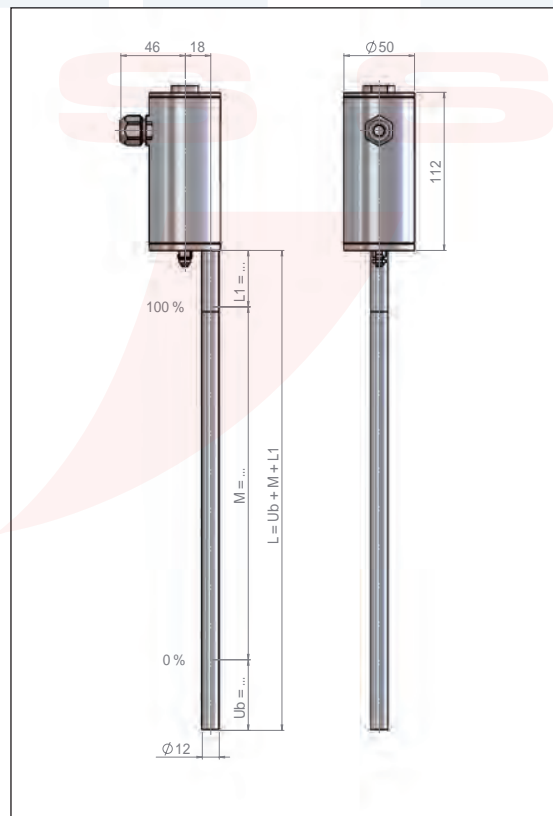
Type AVM/..V/...-M..

Electrical connection:	Stainless steel A4 (SS316)
Cable entry:	M16 x 1.5
Ingress protection class:	IP 68
Ambient temperature:	-40°C ... 85°C
Level transmitter tube material quality:	Stainless steel
Mounting:	T-shaped sliding block or tension strap
Minimum measures:	L1: 40 mm / Ub: 50 mm

Accuracy	
Accuracy:	0.2 mm
Ambient temperature	
- K1:	-40 ... 125°C
- K1HT:	-40 ... 250°C
- K1HHT:	-40 ... 450°C

Control unit	
- MST / MSTB:	- Programmable 4 ... 20 mA, 10 ... 30 VDC
- MSTH / MSTHB:	- Hart-programmable 4 ... 20 mA, 10 ... 30 VDC

Approvals / Certificates
ATEX / GOST / IECEx / SIL2



The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

Bypass Level Indicator / Level transmitter

Type

AVDM/..V/../EXIADG-M..

Electrical connection:	Stainless steel A4 (SS316)
Cable entry:	M20 x 1.5
Ingress protection class:	IP 68
Ambient temperature:	-40°C ... 85°C
Level transmitter tube material quality:	Stainless steel
Mounting:	T-shaped sliding block or tension strap
Minimum measures:	L1: 40 mm / Ub: 50 mm

Accuracy

Accuracy: 0.2 mm

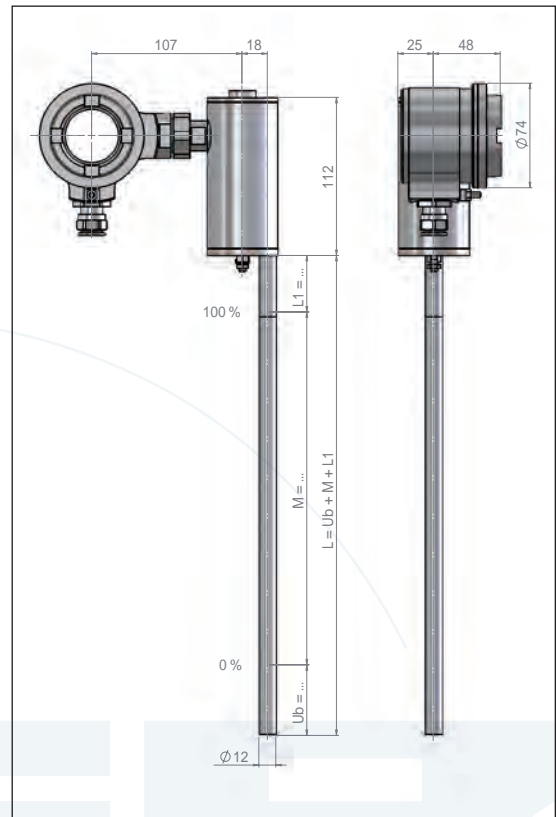
Ambient temperature
- K1: ATEX temperature page 276

Control unit

- MSTB: - Programmable
4 ... 20 mA, 10 ... 30 VDC
- MSTHB: - Hart-programmable
4 ... 20 mA, 10 ... 30 VDC

Approvals / Certificates

ATEX / GOST / IECEx / SIL2



Type

DAAVDM/..V/../EXIADG-M..

Electrical connection:	Stainless steel A4 (SS316)
Cable entry:	M20 x 1.5
Ingress protection class:	IP 68
Ambient temperature:	-40°C ... 85°C
Level transmitter tube material quality:	Stainless steel
Mounting:	T-shaped sliding block or tension strap
Minimum measures:	L1: 40 mm / Ub: 50 mm

Accuracy

Accuracy: 0.2 mm

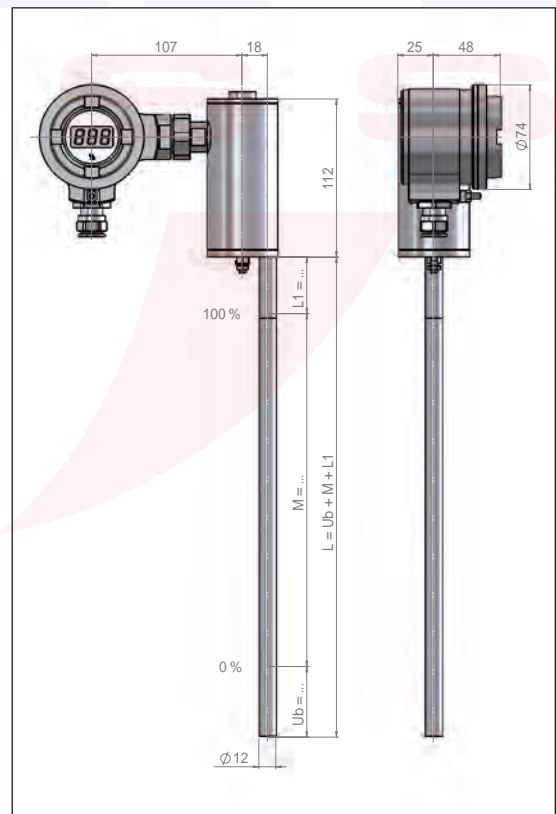
Ambient temperature
- K1: ATEX temperature page 276

Control unit

- MSTB: - Programmable
4 ... 20 mA, 10 ... 30 VDC
- MSTHB: - Hart-programmable
4 ... 20 mA, 10 ... 30 VDC

Approvals / Certificates

ATEX / GOST / IECEx / SIL2



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

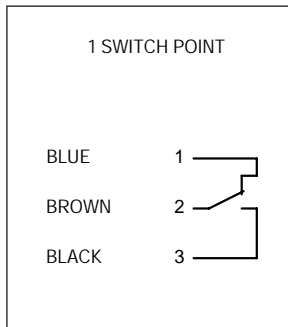
Notes



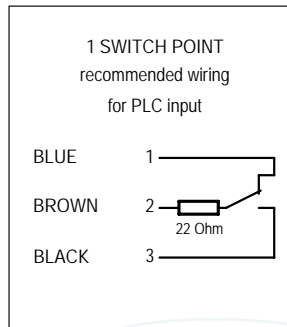
The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

Bypass Level Indicator / Magnetic switch

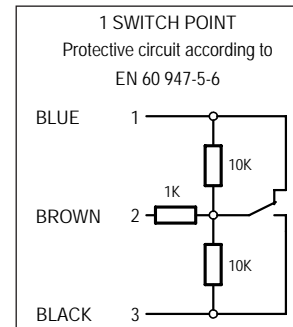
Connection diagram



Change over



Change over
with resistor



Change over
with NAMUR EN 60947

KUBLER

SWISS

Approvals / Certificates



ATEX*

II 2G Ex ia IIC T6 - T1

II 2D Ex tD A21 IP6* T80°C - T300°C

II 2G Ex d IIC T6 - T4

II 2D Ex tD A21 IP6* T80°C - T120°C

Liquid temperature Exia max. 180°C / Exd max. 120°C

Type of protection intrinsic safety Ex ia IIC switch bzw. temperature switch $I_i \leq 100 \text{ mA}$

Type of protection intrinsic safety Ex ia IIC temperature probe $U_i \leq 28 \text{ V}$

Type of protection intrinsic safety Ex ia IIC with option /N (NAMUR EN 60947) $U_i \leq 15 \text{ VDC}$

Type of protection „moulding“

Type of protection „moulding“ with option /N (NAMUR EN 60947)

Type of protection „moulding“ with option /R22 (resistor)

$U_N \leq 250 \text{ VDC/AC}$

$U_N \leq 15 \text{ VDC}$

$U_N \leq 250 \text{ VDC/AC}$

$I_i \leq 100 \text{ mA}$

$I_i \leq 60 \text{ mA}$

$P_{SN} \leq 50 \text{ W/VA}$

$I_N \leq 60 \text{ mA}$

$I_N \leq 100 \text{ mA}$

$P_i \leq 700 \text{ mW}$

$P_{FN} \leq 700 \text{ mW}$

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

* = The approval is dependent on the equipment combination

Type **BGU/.../.../...**
BGU/.../.../.../EXIAG

Housing: Aluminium anodized
 Ingress protection class: IP 65
 Mounting: Right or left at the magnetic roller indicator

Ambient temperature / ATEX Exia:
 - with PVC connection cable: -20°C ... 80°C / -20°C ... 80°C
 - with Silikon connection cable: -60°C ... 180°C / -25°C ... 180°C
 - with PUR connection cable: -40°C ... 80°C / -25°C ... 80°C
 - with Radox connection cable: -35°C ... 120°C / -25°C ... 120°C

Switch function

Function: Change over

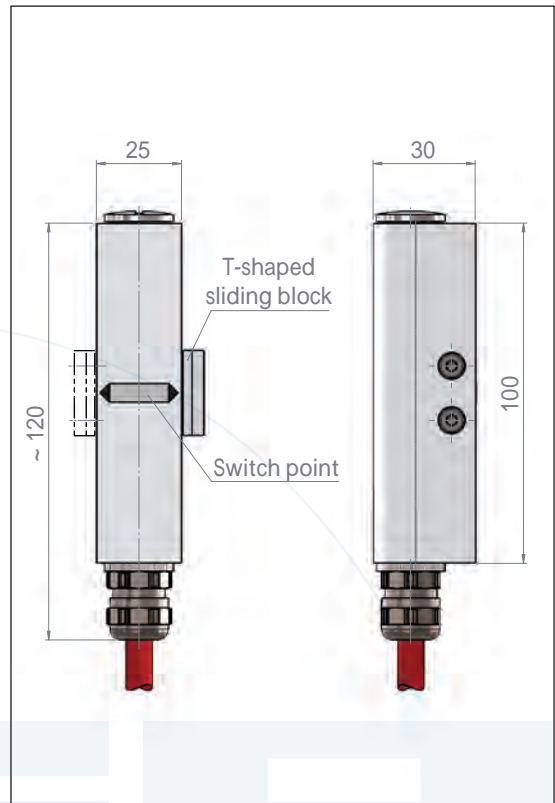
Switch behaviour: Bistable
 Switching capacity: 230 V / 0.5 A / 40 VA
 Switching capacity / ATEX Exia: Exia 100 mA / Exia NAMUR 60 mA
 Switching hysteresis: 5 mm ... 7 mm

Options

- Switch option .. /R22: Resistor 22 Ohm / 0.21 W
 - Switch option .. /N: NAMUR EN 60947

Approvals / Certificates

ATEX / GOST / GL / BV / DNV / ABS / SIL1



Type **BGUD/.../.../.../EXDG**

Housing: Aluminium anodized
 Ingress protection class: IP 65
 Mounting: Right or left at the magnetic roller indicator

Ambient temperature:
 - with PVC connection cable: -20°C ... 80°C
 - with Silikon connection cable: -25°C ... 120°C
 - with PUR connection cable: -25°C ... 80°C
 - with Radox connection cable: -25°C ... 120°C

Switch function

Function: Change over

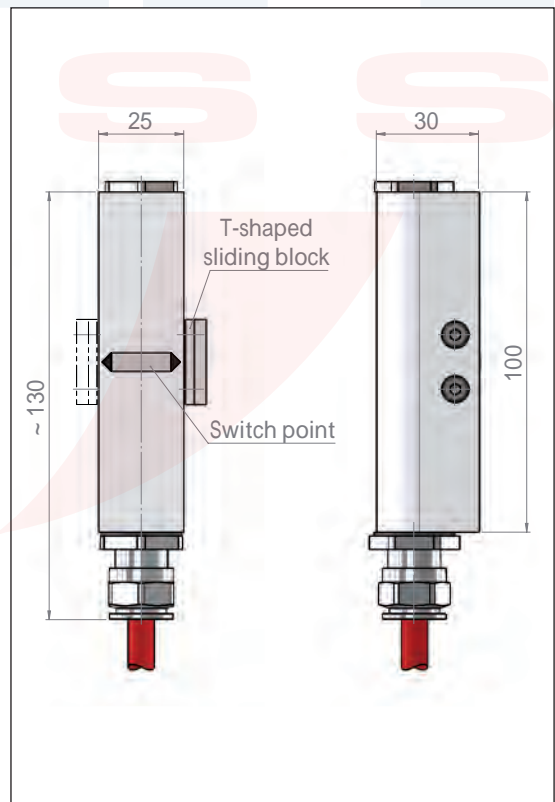
Switch behaviour: Bistable
 Switching capacity: U_N 250 V / P_{SN} 50 W/VA / P_{FN} 700 mW
 - NAMUR EN 60947: U_N 15 VDC / I_N 60 mA
 - with resistor: U_N 250 V / I_N 100 mA
 Switching hysteresis: 5 mm ... 7 mm

Options

- Switch option .. /R22: Resistor 22 Ohm / 0.21 W
 - Switch option .. /N: NAMUR EN 60947

Approvals / Certificates

ATEX / GOST / GL / BV / DNV / ABS / SIL1



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

Bypass Level Indicator / Magnetic switch

Type **BGUALE/..** **BGUALE/../EXIAG**

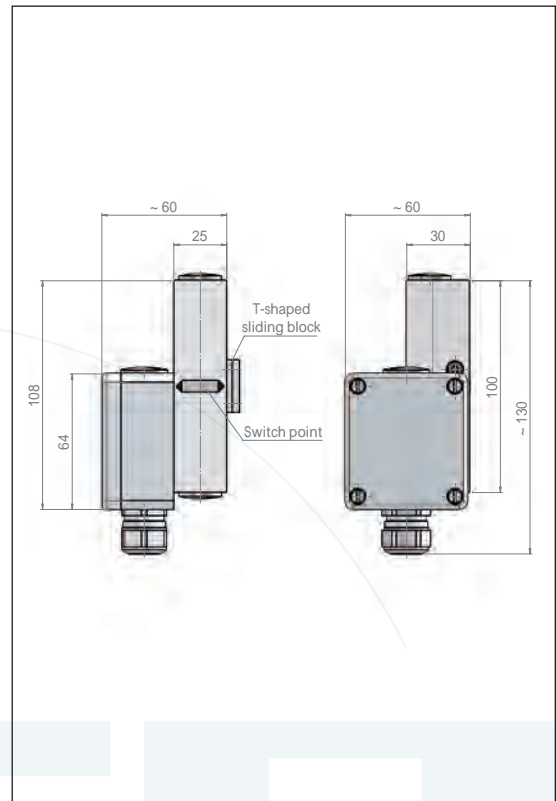
Housing:	Aluminium anodized
Cable entry:	M20 x 1.5
Ingress protection class:	IP 65
Mounting:	Right or left at the magnetic roller indicator
Ambient temperature / ATEX Exia:	-40°C ... 130°C / -25°C ... 130°C

Switch function	
Function:	Change over
Switch behaviour:	Bistable
Switching capacity:	230 V / 0.5 A / 40 VA
Switching capacity / ATEX Exia:	Exia 100 mA / Exia NAMUR 60 mA
Switching hysteresis:	5 mm ... 7 mm

Options	
- Switch option .. /R22:	Resistor 22 Ohm / 0.21 W
- Switch option .. /N:	NAMUR EN 60947

Approvals / Certificates

ATEX / GOST / GL / BV / DNV / ABS / SIL1



Type **BGUASQ/..** **BGUASQ/../EXIAG**

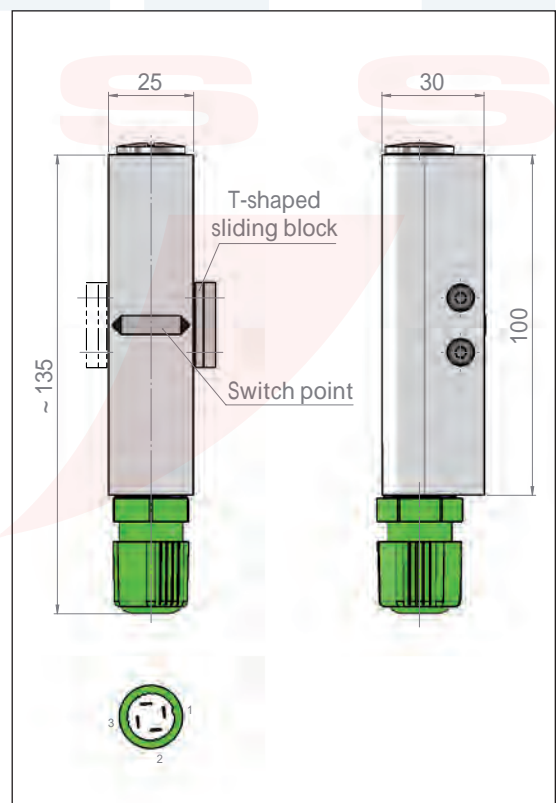
Housing:	Aluminium anodized
Ingress protection class:	IP 65
Mounting:	Right or left at the magnetic roller indicator
Ambient temperature:	-25°C ... 85°C

Switch function	
Function:	Change over
Switch behaviour:	Bistable
Switching capacity:	230 V / 0.5 A / 40 VA
Switching capacity / ATEX Exia:	Exia 100 mA / Exia NAMUR 60 mA
Switching hysteresis:	5 mm ... 7 mm

Options	
- Switch option .. /R22:	Resistor 22 Ohm / 0.21 W
- Switch option .. /N:	NAMUR EN 60947

Approvals / Certificates

ATEX / GOST / SIL1



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

Type **BGUASMA/./././././.**
BGUASMA/././././././EXIAG

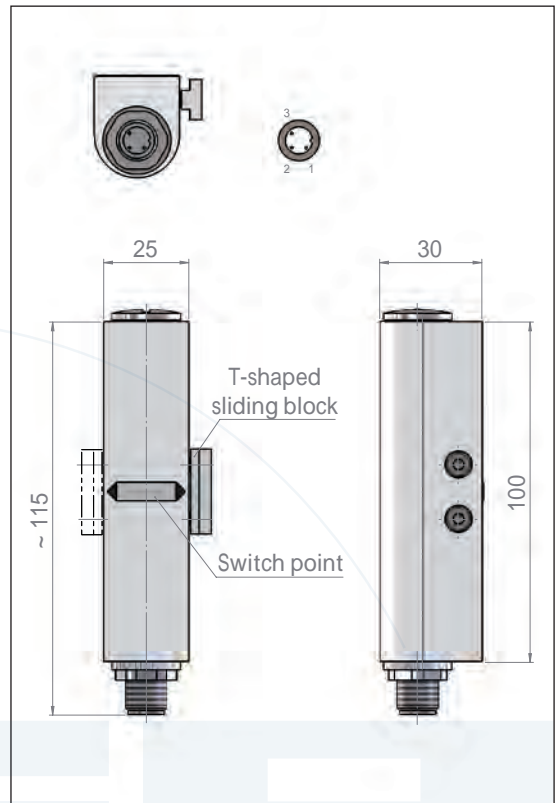
Housing: Aluminium anodized
 Connector: M12
 Ingress protection class: IP 65
 Mounting: Right or left at the magnetic roller indicator
 Ambient temperature: -25°C ... 90°C

Switch function
 Function: Change over
 Switch behaviour: Bistable
 Switching capacity: 230 V / 0.5 A / 40 VA
 Switching capacity / ATEX Exia: Exia 100 mA / Exia NAMUR 60 mA
 Switching hysteresis: 5 mm ... 7 mm

Options
 - Switch option .. /R22: Resistor 22 Ohm / 0.21 W
 - Switch option .. /N: NAMUR EN 60947

Approvals / Certificates

ATEX / GOST / SIL1



Type **RU60/./././././.** **RU73/./././././.**
RU60/././././././EXIAG **RU73/././././././EXIAG**

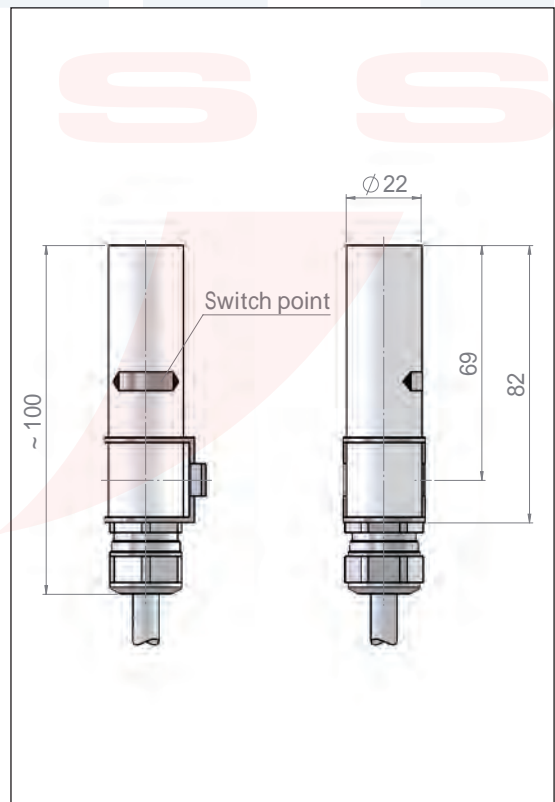
Housing: Aluminium anodized
 Ingress protection class: IP 65
 Mounting: Free positionable on the chamber
 RU73.. (for chamber $\geq \varnothing 73$ mm)
 Ambient temperature:
 - with PVC connection cable: -20°C ... 80°C
 - with Silikon connection cable: -40°C ... 180°C
 - with PUR connection cable: -40°C ... 80°C
 - with Radox connection cable: -35°C ... 120°C

Switch function
 Function: Change over
 Switch behaviour: Bistable
 Switching capacity: 230 V / 0.5 A / 40 VA
 Switching capacity / ATEX Exia: Exia 100 mA / Exia NAMUR 60 mA
 Switching hysteresis: 5 mm ... 7 mm

Options
 - Switch option .. /R22: Resistor 22 Ohm / 0.21 W
 - Switch option .. /N: NAMUR EN 60947

Approvals / Certificates

ATEX / GOST / GL / BV / DNV / ABS / SIL1



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

Bypass Level Indicator / Magnetic switch

Type **RUV60/.../.../...** **RUV73/.../.../...**
RUV60/.../.../.../EXIAG **RUV73/.../.../.../EXIAG**

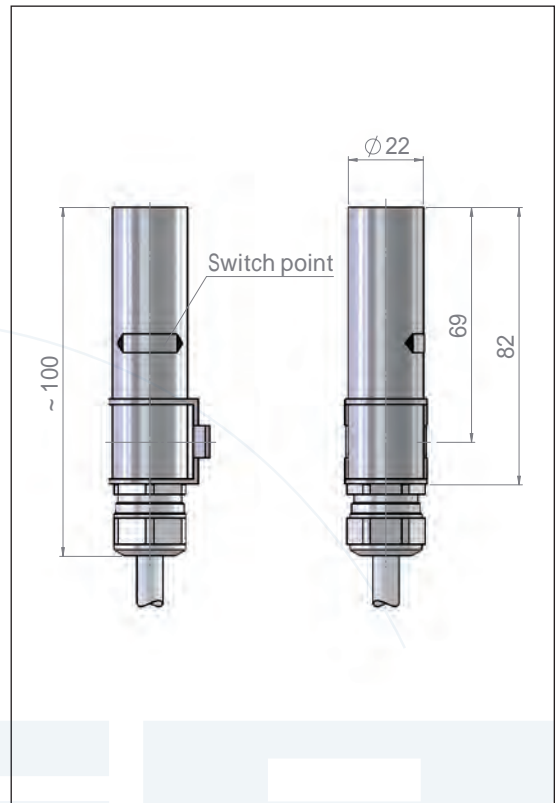
Housing: Stainless steel
 Ingress protection class: IP 68
 Mounting: Free positionable on the chamber
 RUV73.. (for chamber $\geq \varnothing 73$ mm)
 Ambient temperature:
 - with PVC connection cable: -20°C ... 80°C
 - with Silikon connection cable: -40°C ... 180°C
 - with PUR connection cable: -40°C ... 80°C
 - with Radox connection cable: -35°C ... 120°C

Switch function
 Function: Change over
 Switch behaviour: Bistable
 Switching capacity: 230 V / 0.5 A / 40 VA
 Switching capacity / ATEX Exia: Exia 100 mA / Exia NAMUR 60 mA
 Switching hysteresis: 5 mm ... 7 mm

Options
 - Switch option .. /R22: Resistor 22 Ohm / 0.21 W
 - Switch option .. /N: NAMUR EN 60947

Approvals / Certificates

ATEX / GOST / GL / BV / DNV / ABS / SIL1



Type **RUVD60/.../.../.../EXDG**
RUVD73/.../.../.../EXDG

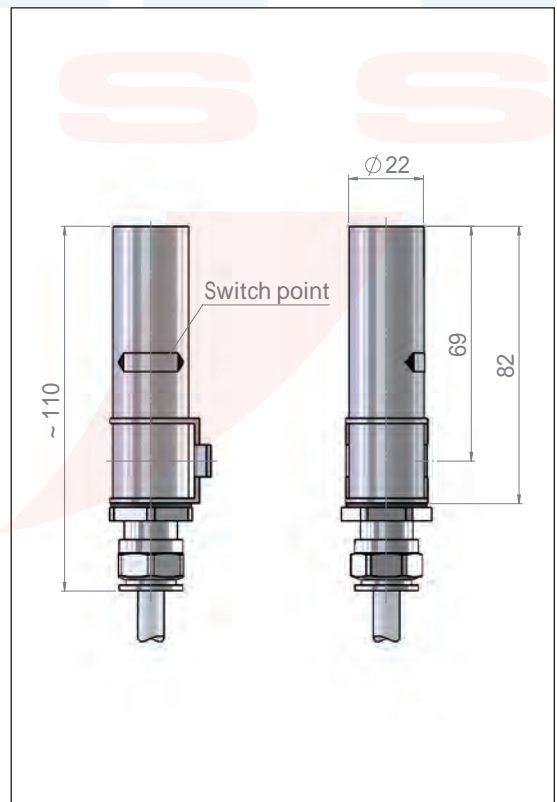
Housing: Stainless steel
 Ingress protection class: IP 68
 Mounting: Free positionable on the chamber
 RUVD73.. (for chamber $\geq \varnothing 73$ mm)
 Ambient temperature / ATEX Exia:
 - with PVC connection cable: -20°C ... 80°C
 - with Silikon connection cable: -40°C ... 120°C
 - with PUR connection cable: -40°C ... 80°C
 - with Radox connection cable: -35°C ... 120°C

Switch function
 Function: Change over
 Switch behaviour: Bistable
 Switching capacity: $U_N 250$ V / $P_{SN} 50$ W/VA / $P_{FN} 700$ mW
 - NAMUR EN 60947: $U_N 15$ VDC / $I_N 60$ mA
 - with resistor: $U_N 250$ V / $I_N 100$ mA
 Switching hysteresis: 5 mm ... 7 mm

Options
 - Switch option .. /R22: Resistor 22 Ohm / 0.21 W
 - Switch option .. /N: NAMUR EN 60947

Approvals / Certificates

ATEX / GOST / GL / BV / DNV / ABS / SIL1



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

Type

**ALFU../
ALFU../EXIAG**

Housing:	Aluminium anodized
Cable entry:	M20 x 1.5
Ingress protection class:	IP 65
Mounting:	Free positionable on the chamber
Ambient temperature:	-40°C ... 300°C
- with 22 Ohm Resistor:	-40°C ... 220°C
- with NAMUR EN 60947:	-40°C ... 220°C

Switch function

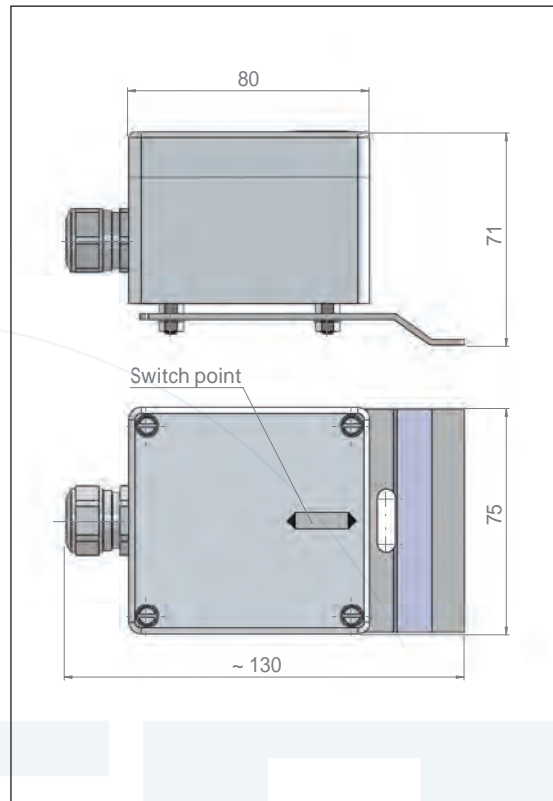
Function:	Change over
Switch behaviour:	Bistable
Switching capacity:	230 V / 0.5 A / 40 VA
Switching capacity / ATEX Exia:	Exia 100 mA / Exia NAMUR 60 mA
Switching hysteresis:	5 mm ... 7 mm

Options

- Switch option .. /R22:	Resistor 22 Ohm / 0.21 W
- Switch option .. /N:	NAMUR EN 60947

Approvals / Certificates

ATEX / GOST / SIL1



Type

**ALFI
ALFI/EXIAG**

Housing:	Aluminium coated RAL 9006
Cable entry:	M20 x 1.5
Ingress protection class:	IP 65
Mounting:	Free positionable on the chamber
Ambient temperature / ATEX Exia:	-40°C ... 100°C / -40°C ... 73°C
Power supply:	5.0 ... 25 VDC
Nominal voltage:	8.0 VDC (R _i ~ 1 Ohm)
Self inductance:	100 mH
Self capacitance:	30 nF

Switch function

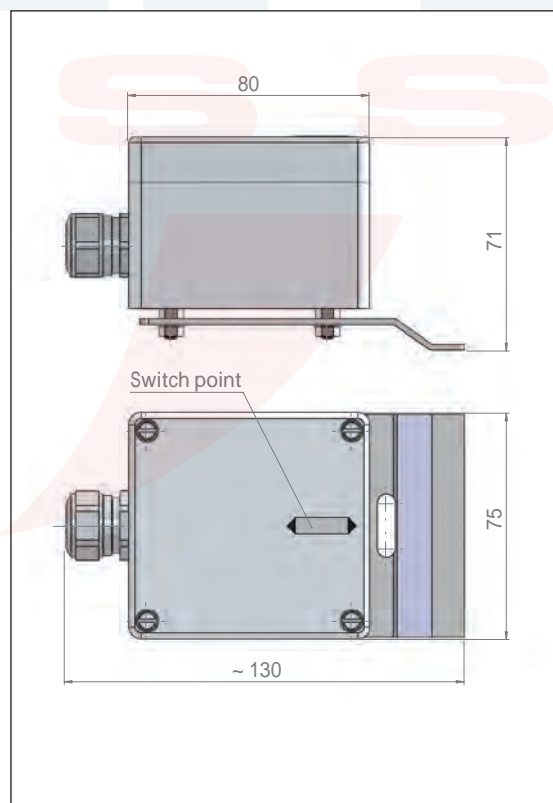
Function:	NAMUR normally closed (Proximity switch)
Switch behaviour:	Bistable

Intrinsic safety data:

U_i = 16 VDC
I_i = 25 mA
P_i = 34 mW

Approvals / Certificates

ATEX / GOST / SIL1



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

Bypass Level Indicator / Magnetic switch

Type

ALEU/..
ALEU../EXIAG

Housing:	Aluminium anodized
Cable entry:	M20 x 1.5
Ingress protection class:	IP 65
Mounting:	Free positionable on the chamber
Ambient temperature:	-40°C ... 130°C

Switch function

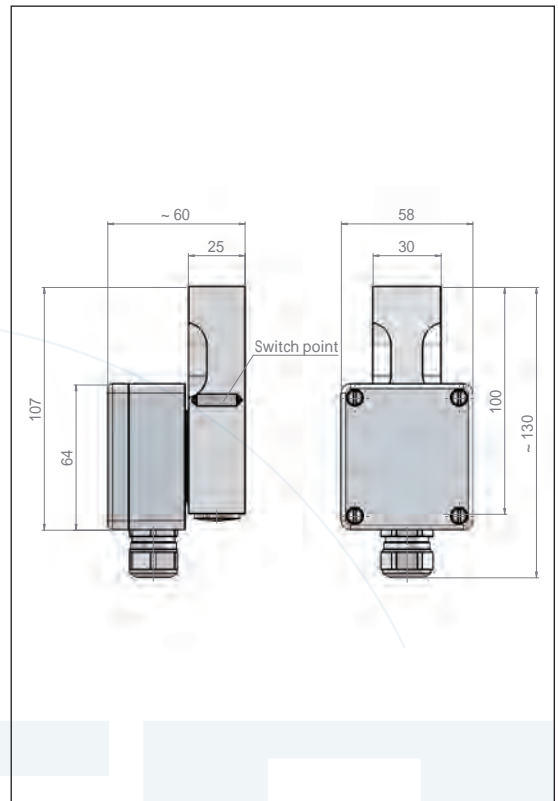
Function:	Change over
Switch behaviour:	Bistable
Switching capacity:	230 V / 0.5 A / 40 VA
Switching capacity / ATEX Exia:	Exia 100 mA / Exia NAMUR 60 mA
Switching hysteresis:	5 mm ... 7 mm

Options

- Switch option .. /R22:	Resistor 22 Ohm / 0.21 W
- Switch option .. /N:	NAMUR EN 60947

Approvals / Certificates

ATEX / GOST / GL / BV / DNV / ABS / SIL1



Type

APAVU/..
APBVU../EXIAG

Housing:	Polyester / Stainless steel
Cable entry:	M20 x 1.5
Ingress protection class:	IP 65
Mounting:	Free positionable on the chamber
Ambient temperature:	-10°C ... 100°C

Switch function

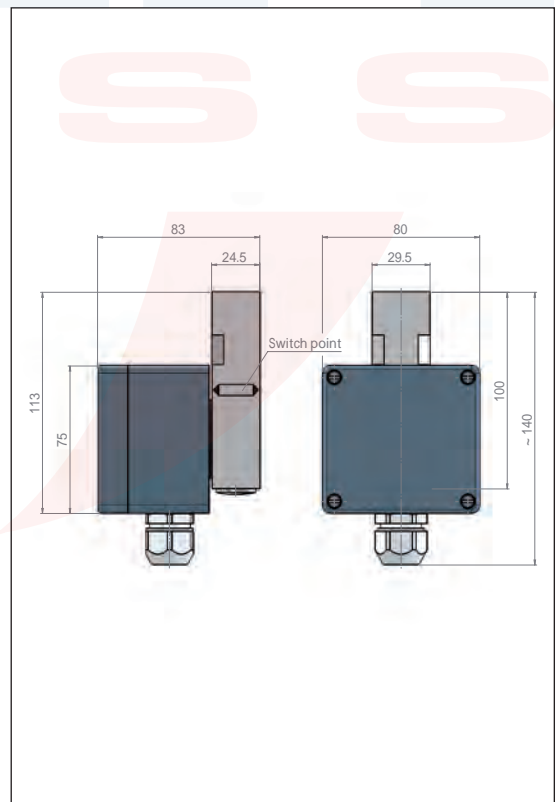
Function:	Change over
Switch behaviour:	Bistable
Switching capacity:	230 V / 0.5 A / 40 VA
Switching capacity / ATEX Exia:	Exia 100 mA / Exia NAMUR 60 mA
Switching hysteresis:	5 mm ... 7 mm

Options

- Switch option .. /R22:	Resistor 22 Ohm / 0.21 W
- Switch option .. /N:	NAMUR EN 60947

Approvals / Certificates

ATEX / GOST / SIL1



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

Type ALDAU/././././././EXDG

Housing: Aluminium coated RAL 9006
 Cable entry: M20 x 1.5
 Ingress protection class: IP 65
 Mounting: Free positionable on the chamber
 Ambient temperature: -40°C ... 100°C

Switch function

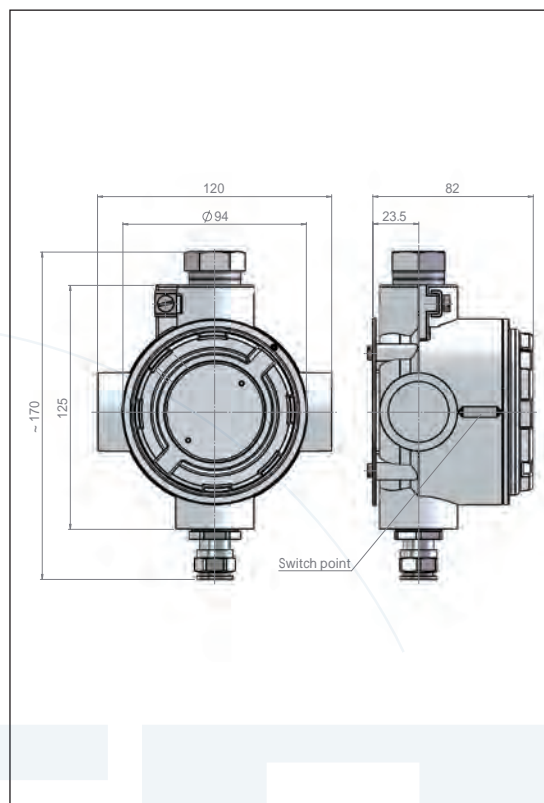
Function: Change over
 Switch behaviour: Bistable
 Switching capacity: U_N 250 V / P_{SN} 50 W/VA / P_{FN} 700 mW
 - NAMUR EN 60947: U_N 15 VDC / I_N 60 mA
 - with resistor: U_N 250 V / I_N 100 mA
 Switching hysteresis: 5 mm ... 7 mm

Options

- Switch option .. /R22: Resistor 22 Ohm / 0.21 W
 - Switch option .. /N: NAMUR EN 60947

Approvals / Certificates

ATEX / GOST / SIL1



The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

Type **AIT**
AHT

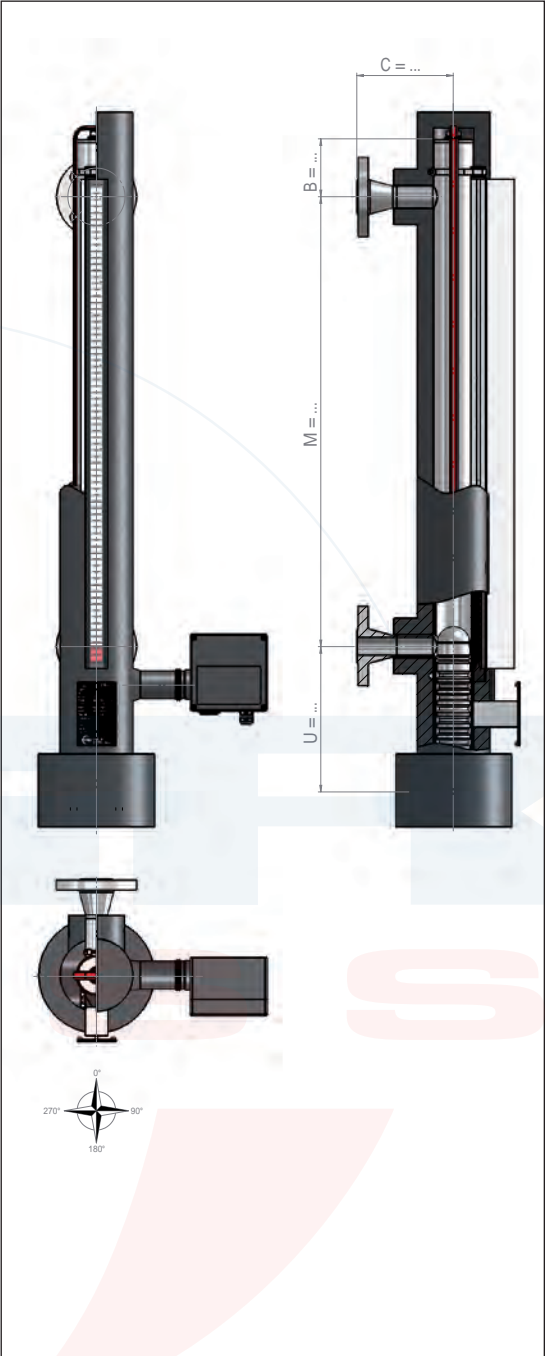
Armaflex isolation AIT	
Material quality:	Cellular plastic based on synthetic rubber
Fire behaviour:	Self-extinguishing, not drippy, not flammable
Nominal thickness:	32 mm
Ambient temperature:	-50°C ... 105°C
UV-resistance:	No

Armaflex isolation AHT	
Material quality:	Cellular plastic based on synthetic rubber
Fire behaviour:	Self-extinguishing, not drippy, not flammable
Nominal thickness:	25 mm
Ambient temperature:	-50°C ... 150°C
UV-resistance:	Yes

Type **H..A**
H..B

Self-regulating antifreeze heat tracing	
Type:	H75A H75B acc. to EExe / T4
Terminal box:	GFK black with cable entry M25
Protective shell:	Fluoropolymer
Power supply:	230V AC
Power output:	76 W/m at 10°C
Holding temperature:	~10°C / Frost protection (32 mm Isolation necessary)
Steam-flushing:	No
Ambient temperature:	-40°C ... 75°C
Approvals / Certificates:	ATEX / DNV

Self-regulating antifreeze heat tracing	
Type:	H150A H150B acc. to EExe / T2
Terminal box:	GFK black with cable entry M25
Protective shell:	Fluoropolymer
Power supply:	230V AC
Power output:	50 W/m at 10°C
Holding temperature:	~10°C / Frost protection (32 mm Isolation necessary)
Steam-flushing:	Yes
Ambient temperature:	-40°C ... 150°C
Approvals / Certificates:	ATEX / DNV



Approvals / Certificates



The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241

Type

SW

Rock-wool isolation SW

Material quality:

Rock-wool with chrome-nickel cover
(Removable)

Nominal thickness:

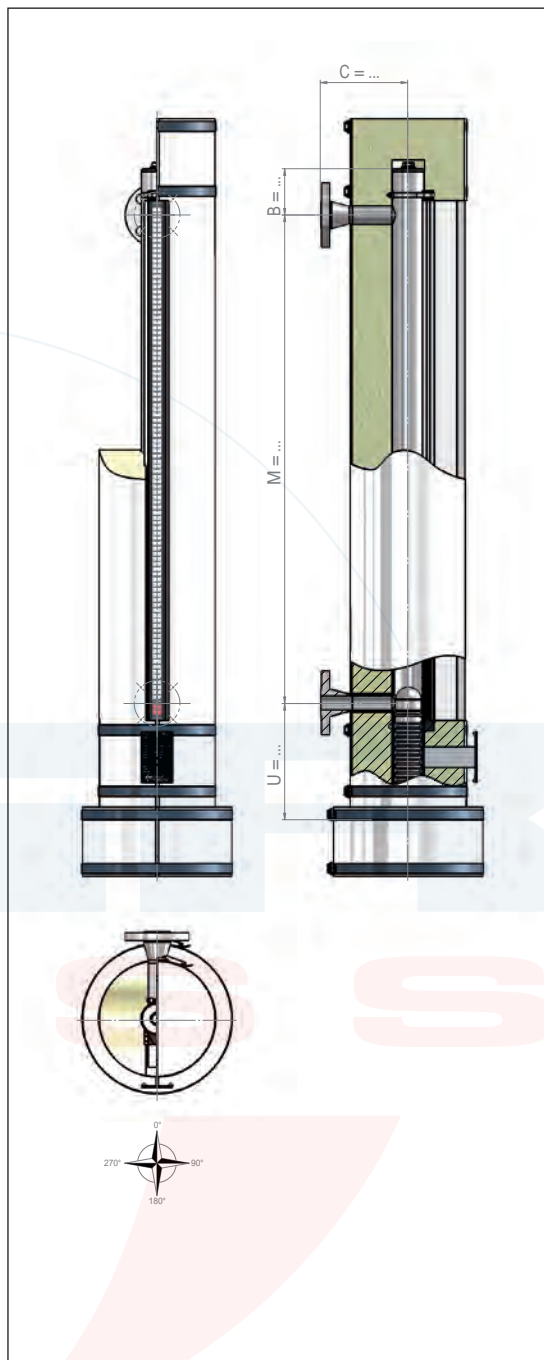
~50 mm

Ambient temperature:

-50°C ... 750°C

UV-resistance:

Yes



The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

Bypass Level Indicator / Chamber end top

Chamber end top



Tube cap



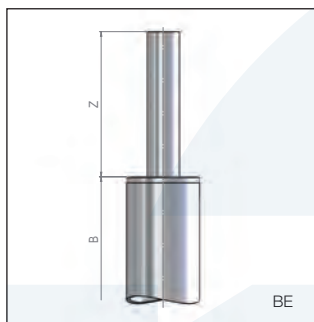
Tube plate



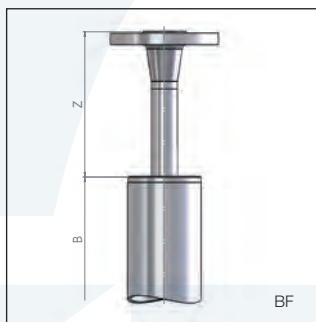
Tube plate with vent plug G..



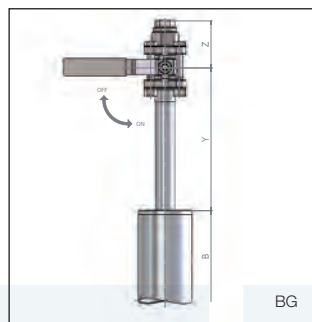
Tube plate with vent plug NPT..



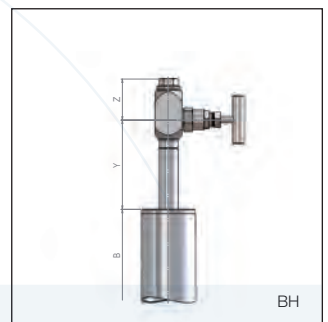
Tube plate with vent welding stub end



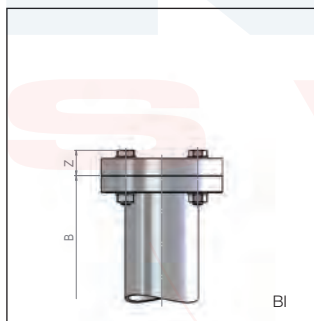
Tube plate with vent flange



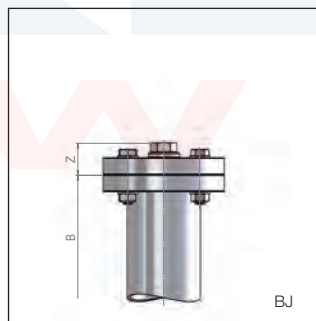
Tube plate with vent ball valve



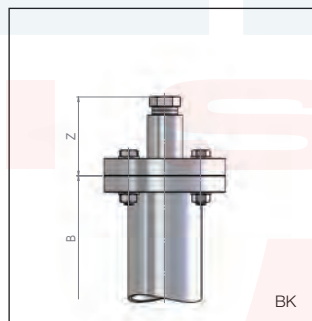
Tube plate with vent needle valve



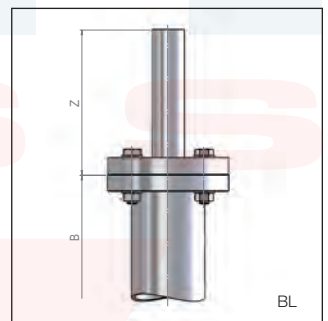
Flanged connection



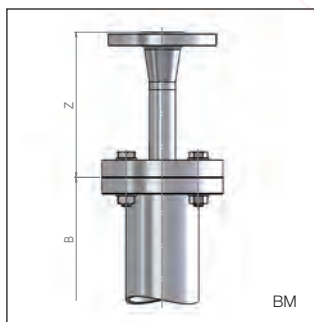
Flanged connection with vent plug G..



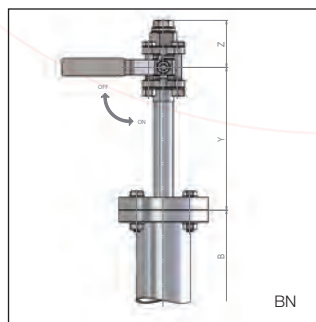
Flanged connection with vent plug NPT..



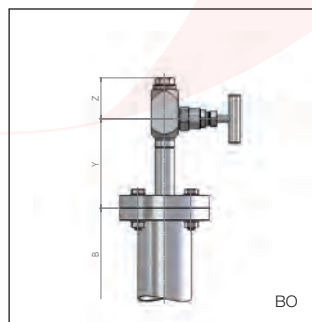
Flanged connection with vent welding stub end



Flanged connection with vent flange



Flanged connection with vent ball valve

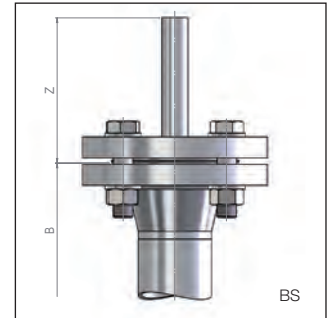
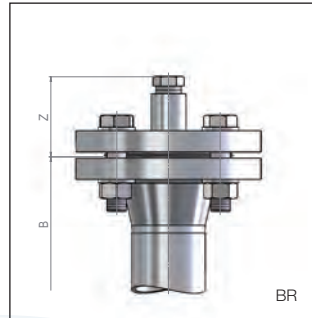
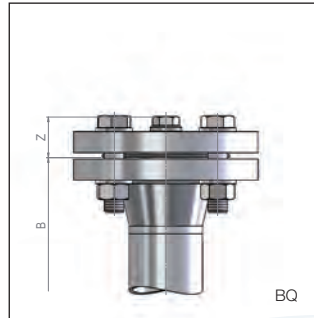
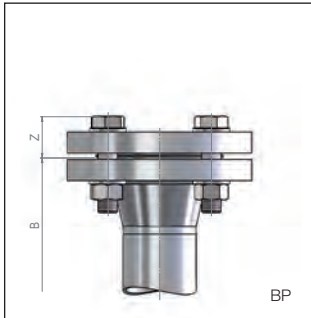


Flanged connection with vent needle valve

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

Chamber end top

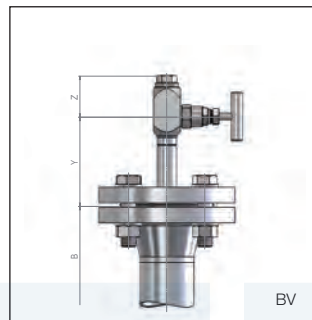
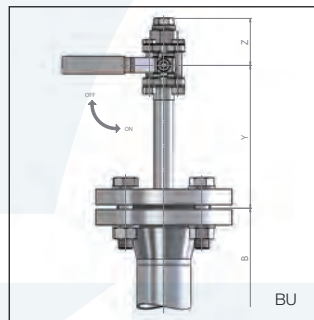
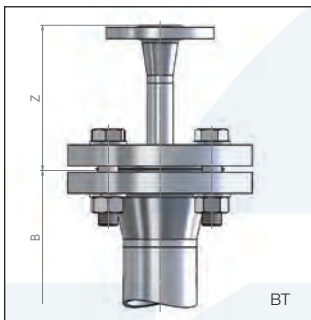


Flanged connection EN/ANSI

Flanged connection EN/ANSI with vent plug G..

Flanged connection EN/ANSI with vent plug NPT..

Flanged connection EN/ANSI with vent welding stub end



Flanged connection EN/ANSI with vent flange

Flanged connection EN/ANSI with vent ball valve

Flanged connection EN/ANSI with vent needle valve

Pressure rating	16 / 150#			40 / 300#			63 / 600#			160 / 1500#			250-400 / 2500#		
	B	Y	Z	B	Y	Z	B	Y	Z	B	Y	Z	B	Y	Z
Measure in ~ mm															
Tube cap	90	-	-	90	-	-	-	-	-	-	-	-	-	-	-
Tube plate	90	-	-	90	-	-	90	-	-	90	-	-	90	-	-
Tube plate with vent plug G1/2	90	-	20	90	-	20	90	-	20	-	-	-	-	-	-
Tube plate with vent plug NPT1/2	90	-	30	90	-	30	90	-	30	90	-	30	90	-	30
Tube plate with vent welding stub end	90	-	120	90	-	120	90	-	120	90	-	120	90	-	120
Tube plate with vent flange	90	-	120	90	-	120	90	-	120	90	-	120	90	-	120
Tube plate with vent ball valve G	90	180	55	90	180	55	90	180	55	-	-	-	-	-	-
Tube plate with vent needle valve G	90	120	50	90	120	50	90	120	50	-	-	-	-	-	-
Flanged connection	120	-	30	120	-	30	-	-	-	-	-	-	-	-	-
Flanged connection with vent plug G1/2	120	-	35	120	-	35	-	-	-	-	-	-	-	-	-
Flanged connection with vent plug NPT1/2	120	-	65	120	-	65	-	-	-	-	-	-	-	-	-
Flanged connection with vent welding stub end	120	-	120	120	-	120	-	-	-	-	-	-	-	-	-
Flanged connection with vent flange	120	-	120	120	-	120	-	-	-	-	-	-	-	-	-
Flanged connection with vent ball valve G	120	180	55	120	180	55	-	-	-	-	-	-	-	-	-
Flanged connection with vent needle valve G	120	120	50	120	120	50	-	-	-	-	-	-	-	-	-
Flanged connection EN/ANSI	160	-	35	160	-	35	160	-	50	200	-	100	250	-	115
Flanged connection EN/ANSI with vent plug G1/2	160	-	35	160	-	35	160	-	50	-	-	-	-	-	-
Flanged connection EN/ANSI with vent plug NPT1/2	160	-	65	160	-	65	160	-	70	200	-	100	250	-	115
Flanged connection EN/ANSI with vent welding stub end	160	-	120	160	-	120	160	-	120	200	-	120	250	-	120
Flanged connection EN/ANSI with vent flange	160	-	120	160	-	120	160	-	120	200	-	200	250	-	200
Flanged connection EN/ANSI with vent ball valve G	160	200	55	160	200	55	160	200	55	-	-	-	-	-	-
Flanged connection EN/ANSI with vent needle valve G	160	120	50	160	120	50	160	120	50	-	-	-	-	-	-
Flanged connection EN/ANSI with vent needle valve NPT	160	120	50	160	120	50	160	120	50	200	200	55	250	200	55

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

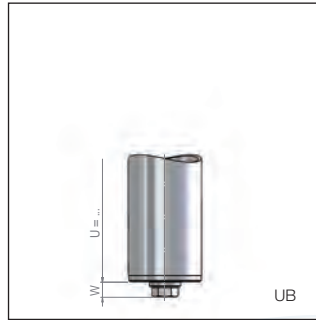
Bypass Level Indicator / Chamber end bottom

Chamber end bottom



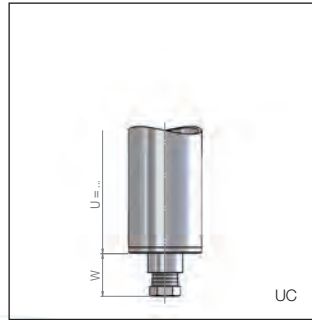
UA

Tube plate



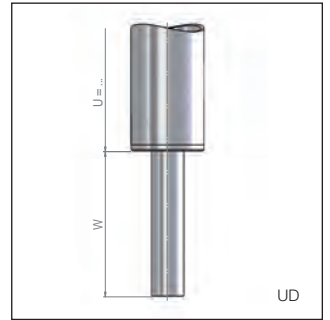
UB

Tube plate with drain plug G..



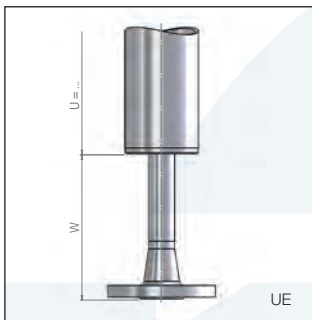
UC

Tube plate with drain plug NPT..



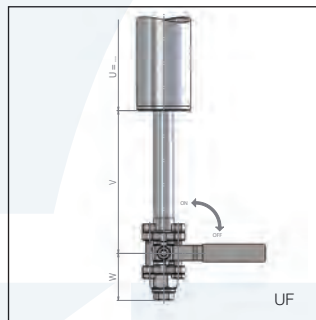
UD

Tube plate with drain welding stub end



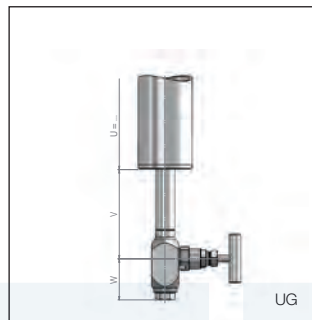
UE

Tube plate with drain flange



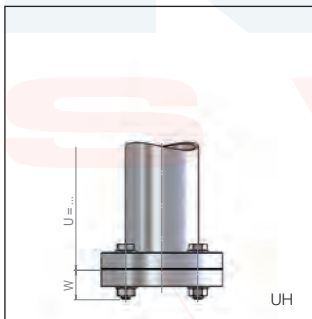
UF

Tube plate with drain ball valve



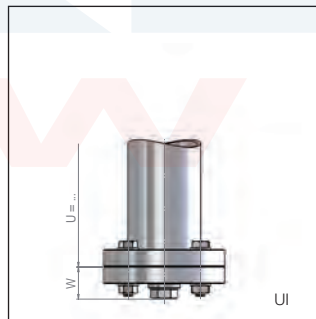
UG

Tube plate with drain needle valve



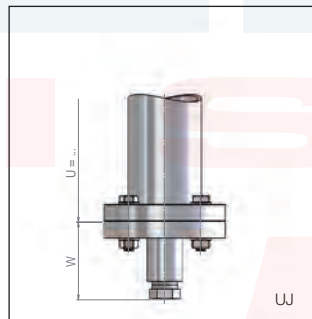
UH

Flanged connection



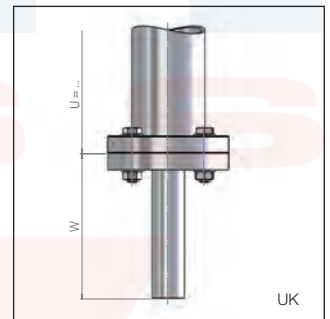
UI

Flanged connection with drain plug G..



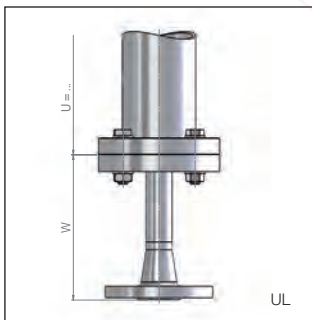
UJ

Flanged connection with drain plug NPT..



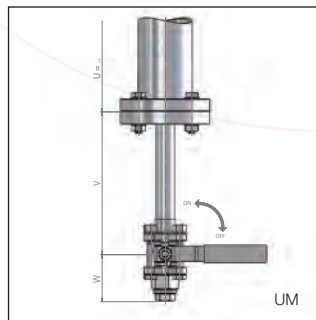
UK

Flanged connection with drain welding stub end



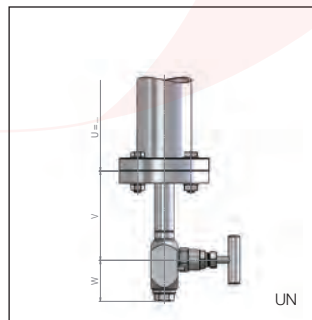
UL

Flanged connection with drain flange



UM

Flanged connection with drain ball valve



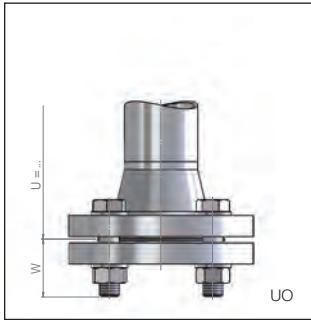
UN

Flanged connection with drain needle valve

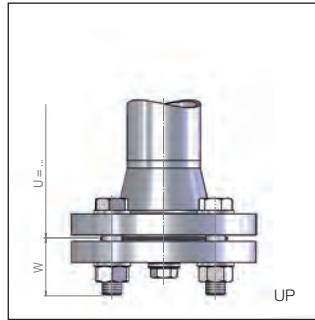
The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

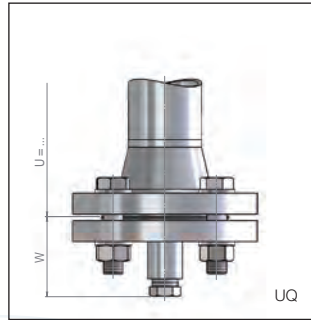
Chamber end bottom



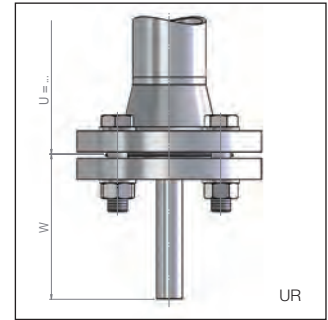
Flanged connection EN/ANSI



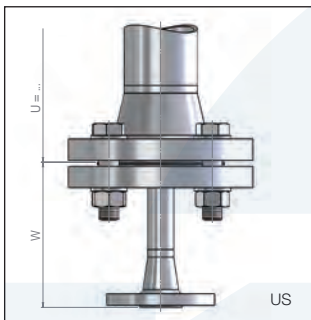
Flanged connection EN/ANSI with drain plug G..



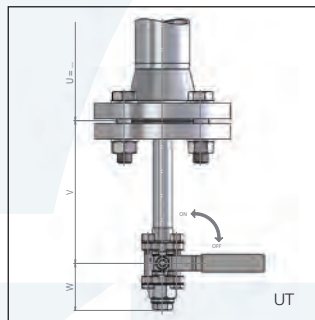
Flanged connection EN/ANSI with drain plug NPT..



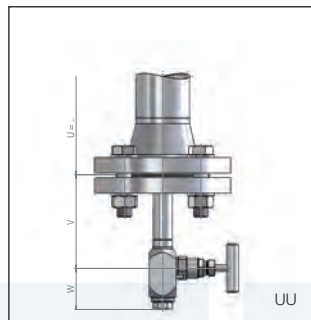
Flanged connection EN/ANSI with drain welding stub end



Flanged connection EN/ANSI with drain flange



Flanged connection EN/ANSI with drain ball valve



Flanged connection EN/ANSI with drain needle valve

Pressure rating	16 / 150#			40 / 300#			63 / 600#			160 / 1500#			250-400 / 2500#		
	U	V	W	U	V	W	U	V	W	U	V	W	U	V	W
	Measure in ~ mm														
Tube plate	... ^s	-	-	... ^s	-	-	... ^s	-	-	... ^s	-	-	... ^s	-	-
Tube plate with drain plug G1/2	... ^s	-	20	... ^s	-	20	... ^s	-	20	... ^s	-	-	... ^s	-	-
Tube plate with drain plug NPT1/2	... ^s	-	30	... ^s	-	30	... ^s	-	30	... ^s	-	30	... ^s	-	30
Tube plate with drain welding stub end	... ^s	-	120	... ^s	-	120	... ^s	-	120	... ^s	-	120	... ^s	-	120
Tube plate with drain flange	... ^s	-	120	... ^s	-	120	... ^s	-	120	... ^s	-	120	... ^s	-	120
Tube plate with drain ball valve G	... ^s	180	55	... ^s	180	55	... ^s	180	55	-	-	-	-	-	-
Tube plate with drain needle valve G	... ^s	120	50	... ^s	120	50	... ^s	120	50	-	-	-	-	-	-
Flanged connection	... ^s	-	30	... ^s	-	30	-	-	-	-	-	-	-	-	-
Flanged connection with drain plug G1/2	... ^s	-	35	... ^s	-	35	-	-	-	-	-	-	-	-	-
Flanged connection with drain plug NPT1/2	... ^s	-	65	... ^s	-	65	-	-	-	-	-	-	-	-	-
Flanged connection with drain welding stub end	... ^s	-	120	... ^s	-	120	-	-	-	-	-	-	-	-	-
Flanged connection with drain flange	... ^s	-	120	... ^s	-	120	-	-	-	-	-	-	-	-	-
Flanged connection with drain ball valve G	... ^s	180	55	... ^s	180	55	-	-	-	-	-	-	-	-	-
Flanged connection with drain needle valve G	... ^s	120	50	... ^s	120	50	-	-	-	-	-	-	-	-	-
Flanged connection EN/ANSI	... ^s	-	35	... ^s	-	35	... ^s	-	50	... ^s	-	100	... ^s	-	115
Flanged connection EN/ANSI with drain plug G1/2	... ^s	-	35	... ^s	-	35	... ^s	-	50	... ^s	-	-	... ^s	-	-
Flanged connection EN/ANSI with drain plug NPT1/2	... ^s	-	65	... ^s	-	65	... ^s	-	70	... ^s	-	100	... ^s	-	115
Flanged connection EN/ANSI with drain welding stub end	... ^s	-	120	... ^s	-	120	... ^s	-	120	... ^s	-	120	... ^s	-	120
Flanged connection EN/ANSI with drain flange	... ^s	-	120	... ^s	-	120	... ^s	-	120	... ^s	-	200	... ^s	-	200
Flanged connection EN/ANSI with drain ball valve G	... ^s	200	55	... ^s	200	55	... ^s	200	55	-	-	-	-	-	-
Flanged connection EN/ANSI with drain needle valve G	... ^s	120	50	... ^s	120	50	... ^s	120	50	-	-	-	-	-	-
Flanged connection EN/ANSI with drain needle valve NPT	... ^s	120	50	... ^s	120	50	... ^s	120	50	... ^s	200	55	... ^s	200	55

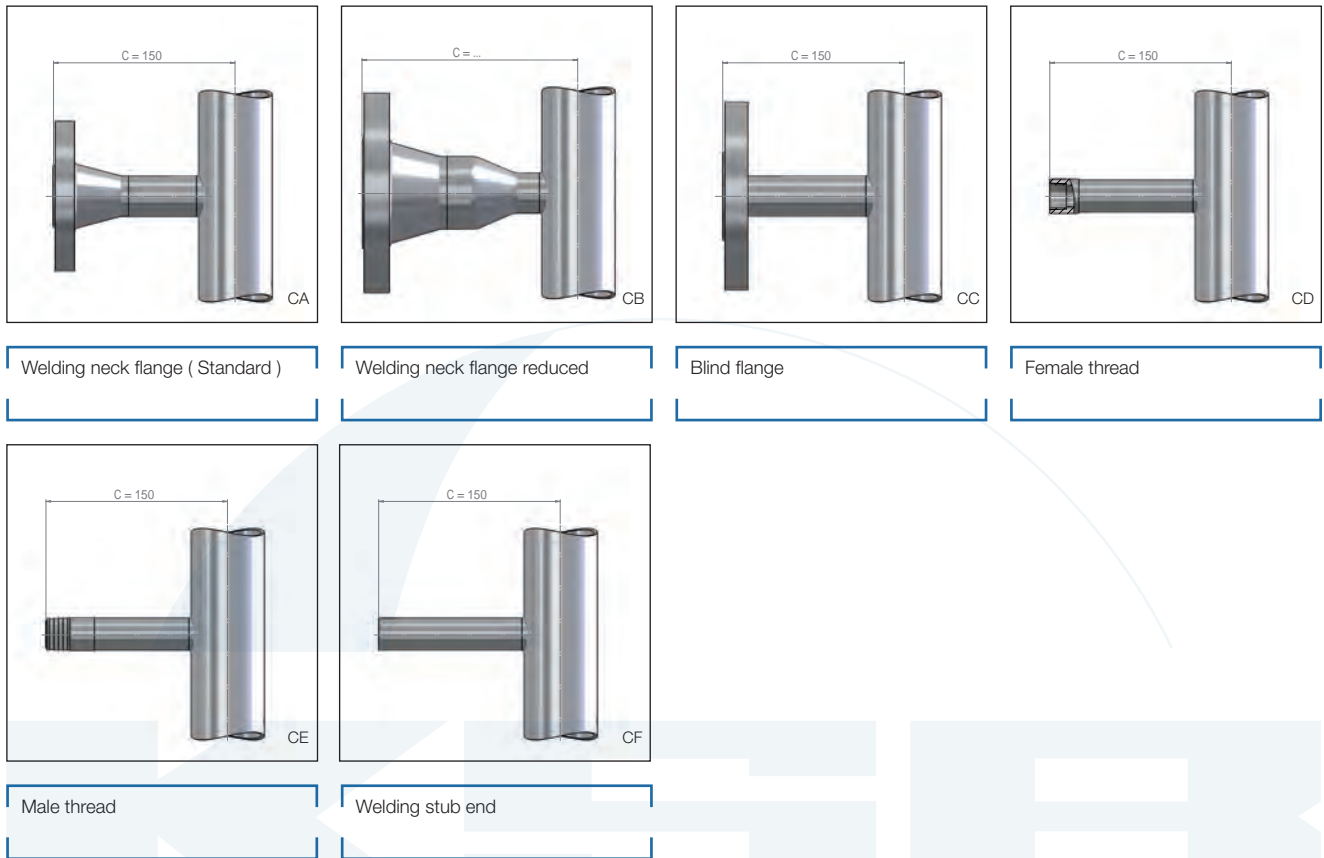
The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

...^s = Depending on the Float length

Bypass Level Indicator / Process connection

Process connection



Welding neck flange (Standard)

Welding neck flange reduced

Blind flange

Female thread

Male thread

Welding stub end

Welding neck flange reduced DN50 to DN25 / 2" to 1"

Pressure rating	16 / 150#	40 / 300#	63 / 600#	160 / 1500#	250-400 / 2500#
Standrohraussendurchmesser [mm]	C [mm]	C [mm]	C [mm]	C [mm]	C [mm]
Ø 60.30	154 / 172	156 / 179	170 / 188	-	-
Ø 63.50	155 / 174	158 / 180	172 / 190	-	-
Ø 73.03	160 / 179	163 / 185	177 / 195	190 / 223	225 / 248
Ø 88.90	168 / 186	171 / 193	185 / 203	198 / 231	233 / 256
Ø 114.30	181 / 199	184 / 206	198 / 215	211 / 244	246 / 269

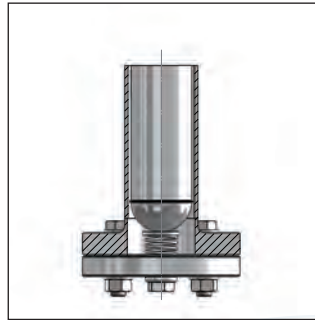
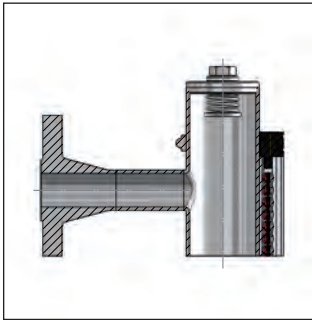
Material quality / Process connection

	Welding neck flange	Welding neck flange reduced	Blind flange	Female thread	Male thread	Welding stub end
Stainless steel	■	■	■	■	■	■
Titanium	■	■	■	■	■	■
Alloy	■	■	■	■	■	■
PVC	-	-	■	-	-	-
PP	-	-	■	-	-	-
PVDF	-	-	■	-	-	-
E-CTFE coated	■	■	■	-	-	-
PFA coated	■	■	■	-	-	-
redundantes System	■	■	■	■	■	■
Bezugsgefäss	■	■	■	■	■	■

The bypass level indicator are based on a modular design and can be arranged individually.

Type key page 236 - 241

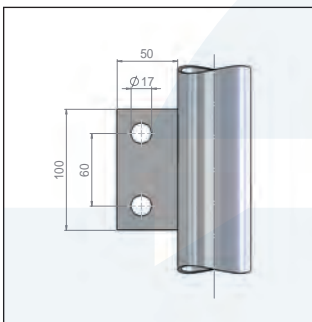
Dampening spring



Dampening spring top

Dampening spring bottom

Support bracket



Support bracket HE-4824
(recommended for $M \geq 2000$ mm)

KESFA
SWISS

The bypass level indicator are based on a modular design and can be arranged individually.
Type key page 236 - 241