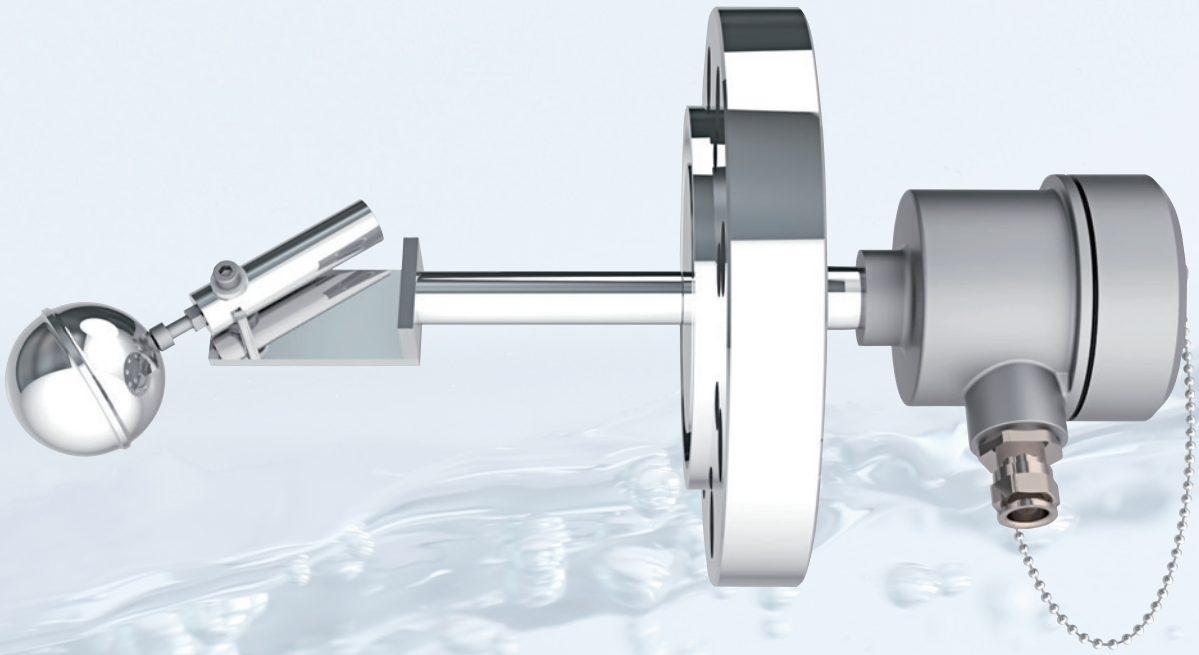
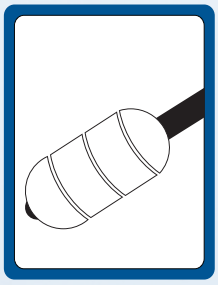
1003-h

MAGNETIC FLOAT SWITCHES
HORIZONTAL





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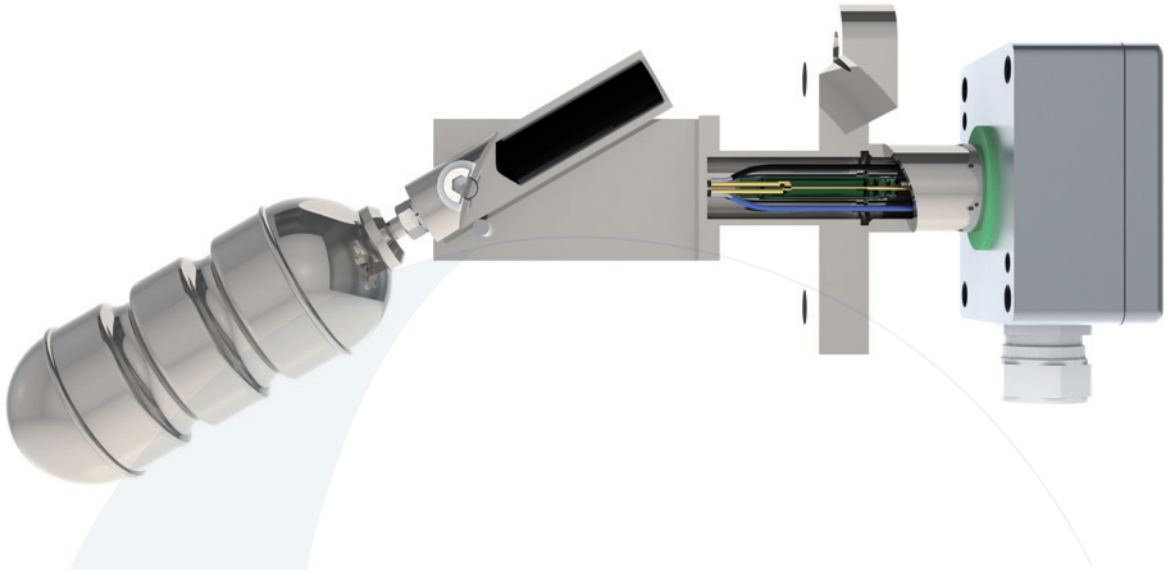
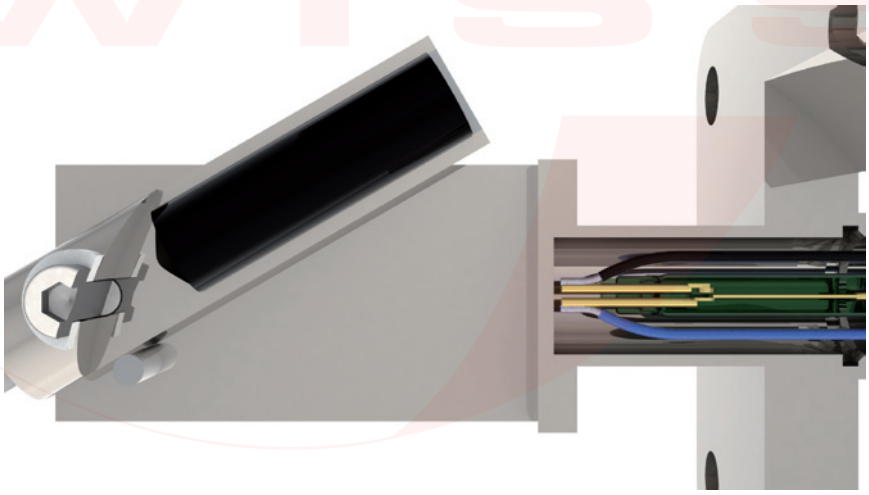
Functional description



Functional description

The horizontal magnetic float switches work with reed contact (protective gas contact).
The activation of the reed contacts by the magnetic field of a permanent magnet located at the float intake is triggered in a completely wear-free and contact-free way.
The only moving component of the horizontal magnetic float switch is the float system as a whole.



Areas of application

Horizontal magnetic float switches are used for the monitoring and the controlling of liquid media and they may be installed into vessels and tanks which meet the technical requirements, i.e. which are designed for the according operating parameters. Due to the potential-free reed contacts the magnetic float switches form an ideal switching element in connection with PLC controlling.

Design limits

Specific gravity:	≥ 350 kg/m³
Design pressure:	-1 bar ... 140 bar
Design temperature:	-30°C ... 250°C

Magnetic Float Switches Horizontal / Type key

Code 1

	Key 1 ... - **Version**
HS[1]	Horizontal magnetic float switches

Code 2

	Key 1 ... / ... / ... - **Electrical connection**		Key 2 ... / ... / ... - **Process connection material quality**		Key 3 ... / ... / ... - **Process connection**
ALE	Aluminium terminal box 64 x 58 x 34 mm	V[1]	Stainless steel	E[1]	Thread to electrical direction, G/BSP
ALF	Aluminium terminal box 80 x 75 x 57 mm	VP[1]	Stainless steel electropolished / Ra ca. 0,8µm	R[1]	Thread to float direction, G/BSP
ALG	Aluminium terminal box 100 x 100 x 81 mm		(not attestable)	ENPT[1]	Thread to electrical direction, NPT
ALDA[1]	Aluminium terminal box Ø 95 x 84 mm	TI[1]	Titanium	RNPT[1]	Thread to float direction, NPT
AVA	Stainless steel terminal box Ø 82 x 110 mm	HC[1]	Alloy C	EM[1]	Thread to electrical direction, metric
AVDA[1]	Stainless steel terminal box Ø 82 x 110 mm	VEEC[1]	Stainless steel ECTFE coated	RM[1]	Thread to float direction, metric
APA	Polyester terminal box 80 x 75 x 55 mm	VPFA[1]	Stainless steel PFA coated	FE[1]	Flange according to EN
APB	Polyester terminal box 80 x 75 x 55 mm / Exm	P	PVC	FA[1]	Flange according to ANSI
ABA	ABS terminal box 80 x 82 x 55 mm	PP	Polypropylene	FQ[1]	Square flange
K	Connection cable	PF	PVDF	F[1]	Flange according to ...
K68	Connection cable IP 68 (≥ G 3/8")	PA	Polyamide	FS[1]	Flange according to drawing
ASH	Connector Hirschmann DIN 43650			TC[1]	Try-Clamp according to ISO 2852
ASHAA	Plastic connector HTS straight			BK[1]	Aseptic blind cone according to DIN 11851
ASHAB	Plastic connector HTS angulate			BKN[1]	Aseptic blind cone according to DIN 11851 with groove nut
ASHBA	Aluminium connector HTS straight				
ASHBB	Aluminium connector HTS angulate			BKD[1]	Aseptic blind cone according to DIN 32676
ASQ	Quick-On Connector			BKND[1]	Aseptic blind cone according to DIN 32676 with groove nut
ASMA	Connector M12 3-pins				
ASMB	Connector M12 8-pins				
ASC	Connector C091D 7-pins				

Code 3

	Key 1 ... - **Threaded connection**		Key 1 ... - **Try-Clamp / Aseptic cone**		Key 1 ... - **Square flange**
...	Threaded connection size	...	Nominal size	80[1]	Square flange 80x80x12 mm
				92[1]	Square flange 92x92x15 mm

Code 3

	Key 1.1 (only for flange) ... / ... / ... - **Flange connection**		Key 1.2 (only for flange) ... / ... / ... - **Flange connection**		Key 1.3 (only for flange) ... / ... / ... - **Flange connection**
...	Flange nominal bore	...	Flange pressure rating	...	Flange facing

Example

Code	1		2					3							4					
Key	1	-	1	/	2	/	3	-	1.1	/	1.2	/	1.3	-	1	/	2	/	3	/	4	-
Example	HS	-	ALE	/	V	/	FE	-	50	/	16	/	B1	-	V	/	U	/	R	/	TO	-

Black = not possible according to Atex / Blue = possible according to Atex Exia / Blue[1] = possible according to Atex Exia and Exd / Black[1] = possible according to Atex Exd

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Code 4

	Key 1 ... / ... / ... / ... - **Float fastener**		Key 2 ... / ... / ... / ... - **Level switch function**		Key 3 ... / ... / ... / ... - **Level switch option**
V[1]	Stainless steel	U[1]	Change over*	R22[1]	Switch protective circuit with 22 ohm / 0.21 W resistor
VP[1]	Stainless steel electropolished / Ra ca. 0,8µm (not attestable)	S[1]	Normally open*	N[1]	Switch protective circuit according to NAMUR EN 60947
TI[1]	Titanium	O[1]	Normally closed*	HT	High temperature version 180-250°C
HC[1]	Alloy C		* 2 contacts possible e.g. ' OS '		
VEEC[1]	Stainless steel ECTFE coated				
VPFA[1]	Stainless steel PFA coated				
P	PVC				
PP	Polypropylene				
PF	PVDF				
PA	Polyamide				

Code 4

	Key 4 ... / ... / ... / ... - **Temperature switch function**
TS[1]	Temperature switch normally open*
TO[1]	Temperature switch normally closed*
TPS[1]	Temperature switch normally open*
TPO[1]	Temperature switch normally closed*
	* Multiple selections possible e.g. ' TSTO '

Code 5

	Key 1 ... / ... / ... / ... - **Number of probes**		Key 2 ... / ... / ... / ... - **Temperature probe**		Key 3 ... / ... / ... / ... - **Temperature control unit**
...	Number of temperature probes	TFA2[1]	Pt 100 Probe / 2-wire	TPAT[1]	TP5333A
		TFA3[1]	Pt 100 Probe / 3-wire	TPBT[1]	TP5333D Ex
		TFA4[1]	Pt 100 Probe / 4-wire	TDAT[1]	TD5335A
		TFB2[1]	Pt 1000 Probe / 2-wire	TDBT[1]	TD5335D Ex
		TFB3[1]	Pt 1000 Probe / 3-wire	PAATP[1]	TP5350AP / PROFIBUS® PA
		TFB4[1]	Pt 1000 Probe / 4-wire	PABTP[1]	TP5350BP Ex / PROFIBUS® PA
		TF[1]	Temperature probe (acc. to customers device)	PAATF[1]	TP5350AF / FOUNDATION™ Fieldbus
				PABTF[1]	TP5350BF Ex / FOUNDATION™ Fieldbus

Code 5

	Key 4 ... / ... / ... / ... - **Temperature measuring range**
050[1]	0°C ... 50°C / 4 ... 20 mA
100[1]	0°C ... 100°C / 4 ... 20 mA
150	0°C ... 150°C / 4 ... 20 mA
200	0°C ... 200°C / 4 ... 20 mA
000	..°C ... ..°C / 4 ... 20 mA

Example

5								6		7		8		9								10				**Code**
1	/	2	/	3	/	4	-	1	-	1	-	1	-	1	/	2	/	3	-	1	/	2	/	3		**Key**
1	/	TFA2	/	TPAT	/	050	-	L115	-	SVK44	-									EXIAG	/	PEDII				**Example**

Black = not possible according to Atex / Blue = possible according to Atex Exia / Blue[1] = possible according to Atex Exia and Exd / Black[1] = possible according to Atex Exd

Magnetic Float Switches Horizontal / Type key

Code 6

	Key 1 ... - **Length of instrument**
L...[1]	Length of instrument in mm

Code 7

	Key 1 ... - **Float**
...	Acc. to float table on page 135

Code 8

	Key 1 ... - **Optional test function**
NTO	With test function to high level
NTU	With test function for low level

Code 9

	Key 1 ... - **Length of cable**		Key 2 ... / ... / ... - **Connection cable**		Key 3 ... / ... / ... - **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
		FTEF[1]	Teflon strands	KF[1]	Halogen-free
		FPVC[1]	PVC strands		
		FPOL	Polyethylene strands (only Magnetic Float Switches Horizontal - Mini)		

Code 10

	Key 1 ... / ... / ... - **Approvals / 1**		Key 2 ... / ... / ... - **Approvals / 2**		Key 3 ... / ... / ... - **Approvals / 3**
EXIAG	Acc. to Exia, atmosphere gas	PEDII[1]	Acc. to PED97/23/EC category II	GL[1]	Approval Germanischer Lloyd
EXIAGD	Acc. to Exia, atmosphere gas and dust	PEDIV[1]	Acc. to PED97/23/EC category IV	BV[1]	Approval Bureau Veritas
EXDG[1]	Acc. to Exd, atmosphere gas			ABS[1]	Approval American Bureau of Shipping
EXDGD[1]	Acc. to Exd, atmosphere gas and dust			GOST[1]	Approval GOST
EXIADG[1]	Acc. to Exia and Exd, atmosphere gas				
EXIADGD[1]	Acc. to Exia and Exd, atmosphere gas and dust				

Example

Code	1		2				3					4					
Key	1	-	1	/	2	/	3	-	1.1	/	1.2	/	1.3	-	1	/	2	/	3	/	4	-
Example	HS	-	ALE	/	V	/	FE	-	50	/	16	/	B1	-	V	/	U	/	R	/	TO	-

Black = not possible according to Atex / Blue = possible according to Atex Exia / Blue[1] = possible according to Atex Exia and Exd / Black[1] = possible according to Atex Exd

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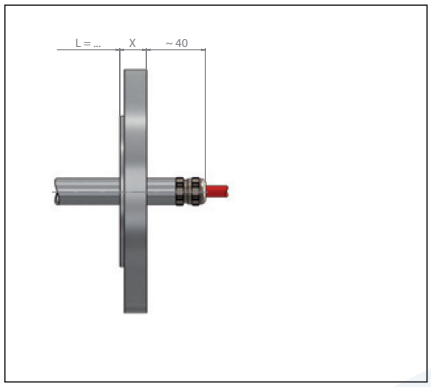
Notes

Example

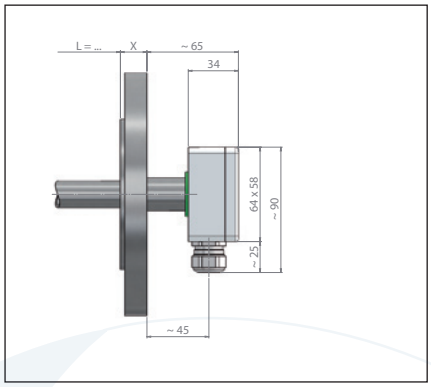
5				6	7	8	9			10			**Code**
1	2	3	4	1	1	1	1	2	3	1	2	3	**Key**
1	TFA2	TPAT	050	L115	SVK44					EXIAG	PEDII		**Example**

Black = not possible according to Atex / Blue = possible according to Atex Exia / Blue[1] = possible according to Atex Exia and Exd / Black[1] = possible according to Atex Exd

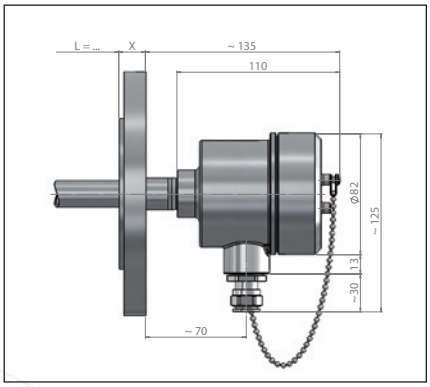
Electrical connection



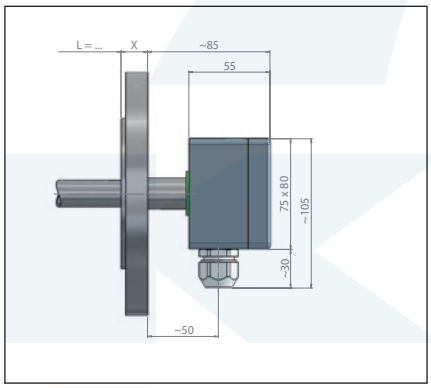
Connection type: K
Material quality: According as cable type
Cable entry: PG or metric
Ingress protection class: IP 55 (optional IP 68)
Ambient temperature: -40°C ... 200°C



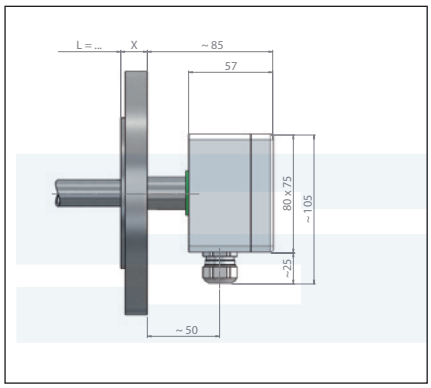
Connection type: ALE
Material quality: Aluminium coated RAL 7001
Cable entry: M20 x 1.5
Ingress protection class: IP 65
Ambient temperature: -40°C ... 100°C



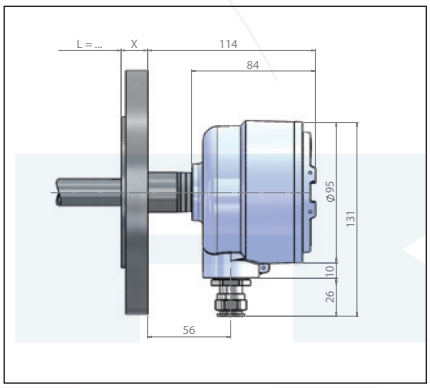
Connection type: AVA / AVDA (Exd)
Material quality: Stainless steel A4 (SS316)
Cable entry: M20 x 1.5
Ingress protection class: IP 67 / (Exd / IP68)
Ambient temperature: -40°C ... 85°C



Connection type: APA / APB (Ex)
Material quality: Polyester
Cable entry: M20 x 1.5
Ingress protection class: IP 65
Ambient temperature: -10°C ... 100°C



Connection type: ALF
Material quality: Aluminium coated RAL 7001
Cable entry: M20 x 1.5
Ingress protection class: IP 65
Ambient temperature: -40°C ... 100°C



Connection type: ALDA (Exd)
Material quality: Aluminium coated RAL 9006
Cable entry: M20 x 1.5
Ingress protection class: IP 68
Ambient temperature: -40°C ... 100°C

Approvals / Certificates

ATEX*

II 1/2G	Ex ia c IIC T6 - T3	II 2G	Ex d c IIC T6 - T4
II 2D	Ex tD A21 c IP6* T80°C - T190°C	II 2D	Ex tD A21 c IP6* T80°C - T190°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 ≤ 100 mA		
Type of protection intrinsic safety Ex ia IIC temperature probe	U_i ≤ 28 V	I_i ≤ 100 mA	P_i ≤ 700 mW
Type of protection intrinsic safety Ex ia IIC with option /N (NAMUR EN 60947)	U_i ≤ 15 VDC	I_i ≤ 60 mA	
Type of protection „moulding“	U_N ≤ 250 VDC/AC	P_{SN} ≤ 50 W/VA	P_{FN} ≤ 700 mW
Type of protection „moulding“ with option /N (NAMUR EN 60947)	U_N ≤ 15 VDC	I_N ≤ 60 mA	
Type of protection „moulding“ with option /R22 (resistor)	U_N ≤ 250 VDC/AC	I_N ≤ 100 mA	

Further electrical connections page 136
Further process connection according to type key page 118
Further floats page 135

The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120

* = The approval is dependent on the equipment combination

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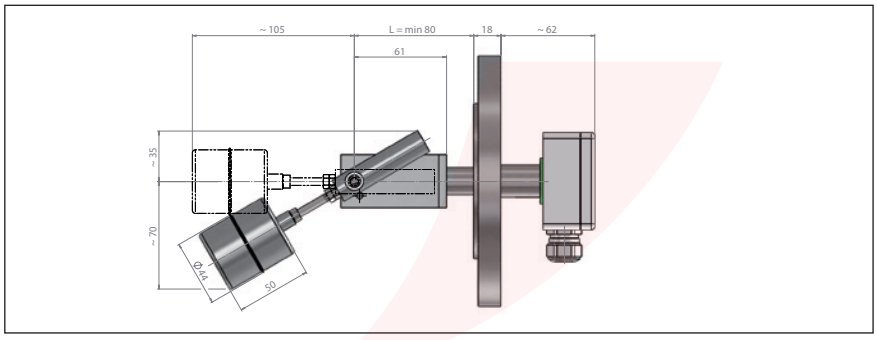
Type	HS-ALE/V/FE-50/16/B1-V/..-L...-HSVK44	HS-ALE/V/R-1½-V/..-L...-HSVK44
Material quality:	1.4404 / 1.4435 / 1.4571 (316L / 316Ti)	1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
Electrical connection:	ALE Aluminium terminal box	ALE Aluminium terminal box
Process connection:	Flange EN DN 50 / PN 16 / Form B1	G 1½“
Guide tube:	-	-
Length of instrument:	≤ 500 mm	≤ 500 mm
Float:	HSVK44 Ø 44 mm	HSVK44 Ø 44 mm
Specific gravity:	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	≥ 700 kg/m³ (optional ≥ 350 kg/m³)
Design pressure:	-1 bar ... 16 bar (depending on temperature)	-1 bar ... 16 bar
Design temperature:	-30°C ... 180°C (optional 250°C)	-30°C ... 180°C (optional 250°C)
Ingress protection class:	IP 65	IP 65
Mounting position:	Horizontal +/-3°	Horizontal +/-3°
Level switch function		
Function:	Normally open / S	Normally open / S
Switching capacity:	230 V / 1.0 A / 100 VA	230 V / 1.0 A / 100 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Normally closed / O	Normally closed / O
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Change over / U	Change over / U
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Option temperature probe / Page 137		
Temperature probe:	Pt-100 / Pt-1000	Pt-100 / Pt-1000
Norm:	IEC 751 Kl.B	IEC 751 Kl.B
Option temperature switch / Page 137		
Function:	Normally closed or normally open	Normally closed or normally open
Switching capacity:	Page 137	Page 137
Accuracy / Hysteresis:	Page 137	Page 137
Temperature / Grading:	Page 137	Page 137

Minimum measures

HS-ALE/V/FE-50/16/B1-V/..-L...-HSVK44
Minimum length: 80 mm
Standard length: 110 mm

Approvals / Certificates

ATEX / PED / GOST / GL / BV / SIL1

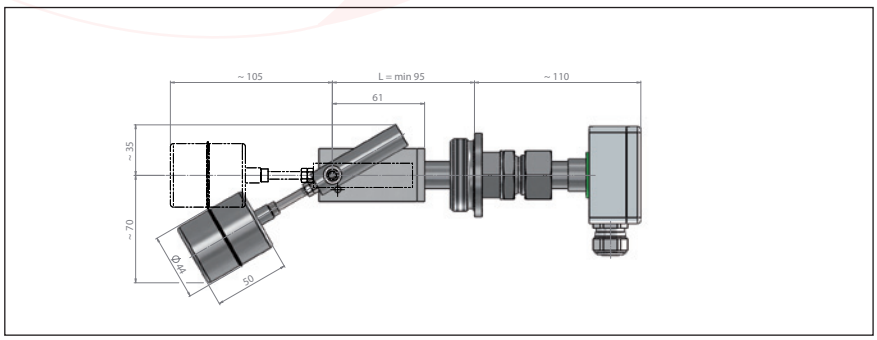


Minimum measures

HS-ALE/V/R-1½-V/..-L...-HSVK44
Minimum length: 95 mm
Standard length: 110 mm

Approvals / Certificates

ATEX / PED / GOST / GL / BV / SIL1



The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120

Magnetic Float Switches Horizontal / Stainless steel

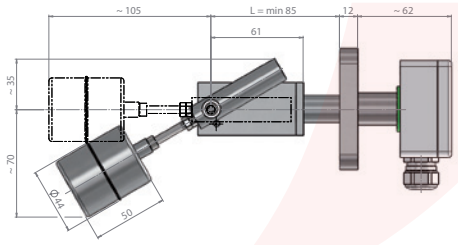
Type	HS-ALE/V/FQ-80-V/..-L...-HSVK44	HS-ALE/V/FQ-92-V/..-L...-HSVK44
Material quality:	1.4404 / 1.4435 / 1.4571 (316L / 316Ti)	1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
Electrical connection:	ALE Aluminium terminal box	ALE Aluminium terminal box
Process connection:	Flange 80x80x12 mm	Flange 92x92x15 mm
Guide tube:	-	-
Length of instrument:	≤ 500 mm	≤ 500 mm
Float:	HSVK44 Ø 44 mm	HSVK44 Ø 44 mm
Specific gravity:	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	≥ 700 kg/m³ (optional ≥ 350 kg/m³)
Design pressure:	-1 bar ... 16 bar (depending on temperature)	-1 bar ... 16 bar (depending on temperature)
Design temperature:	-30°C ... 180°C (optional 250°C)	-30°C ... 180°C (optional 250°C)
Ingress protection class:	IP 65	IP 65
Mounting position:	Horizontal +/-3°	Horizontal +/-3°
Level switch function		
Function:	Normally open / S	Normally open / S
Switching capacity:	230 V / 1.0 A / 100 VA	230 V / 1.0 A / 100 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Normally closed / O	Normally closed / O
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Change over / U	Change over / U
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Option temperature probe / Page 137		
Temperature probe:	Pt-100 / Pt-1000	Pt-100 / Pt-1000
Norm:	IEC 751 Kl.B	IEC 751 Kl.B
Option temperature switch / Page 137		
Function:	Normally closed or normally open	Normally closed or normally open
Switching capacity:	Page 137	Page 137
Accuracy / Hysteresis:	Page 137	Page 137
Temperature / Grading:	Page 137	Page 137

Minimum measures

HS-ALE/V/FQ-80-V/..-L...-HSVK44
Minimum length: 85 mm
Standard length: 110 mm

Approvals / Certificates

ATEX / PED / GOST / GL / BV / SIL1



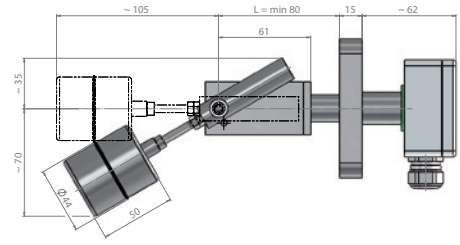
Screw-hole circle Ø 83 mm, 4 Bores Ø 9,0 mm

Minimum measures

HS-ALE/V/FQ-92-V/..-L...-HSVK44
Minimum length: 80 mm
Standard length: 110 mm

Approvals / Certificates

ATEX / PED / GOST / GL / BV / SIL1



Screw-hole circle Ø 92 mm, 4 Bores Ø 14,0 mm

The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120

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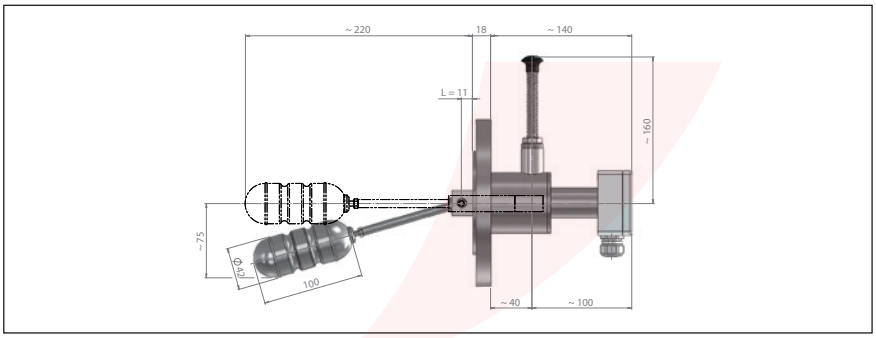
Type	HS-ALE/V/FE-50/16/B1-V/..-L...-HZVS42/100-NTO	HS-ALE/V/FE-50/16/B1-V/..-L...-HZVS42/100-NTU
Material quality:	1.4404 / 1.4435 / 1.4571 (316L / 316Ti)	1.4404 / 1.4435 / 1.4571 (316L / 316Ti)
Electrical connection:	ALE Aluminium terminal box	ALE Aluminium terminal box
Process connection:	Flange EN DN 50 / PN 16 / Form B1	Flange EN DN 50 / PN 16 / Form B1
Guide tube:	-	-
Length of instrument:	≤ 500 mm	≤ 500 mm
Float:	HZVS42/100 Ø 42 mm	HZVS42/100 Ø 42 mm
Specific gravity:	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	≥ 700 kg/m³ (optional ≥ 350 kg/m³)
Design pressure:	-1 bar ... 16 bar (depending on temperature)	-1 bar ... 16 bar (depending on temperature)
Design temperature:	-30°C ... 150°C	-30°C ... 150°C
Ingress protection class:	IP 65	IP 65
Mounting position:	Horizontal +/-3°	Horizontal +/-3°
Level switch function		
Function:	Normally open / S	Normally open / S
Switching capacity:	230 V / 1.0 A / 100 VA	230 V / 1.0 A / 100 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Normally closed / O	Normally closed / O
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Change over / U	Change over / U
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Option temperature probe / Page 137		
Temperature probe:	Pt-100 / Pt-1000	Pt-100 / Pt-1000
Norm:	IEC 751 Kl.B	IEC 751 Kl.B
Option temperature switch / Page 137		
Function:	Normally closed or normally open	Normally closed or normally open
Switching capacity:	Page 137	Page 137
Accuracy / Hysteresis:	Page 137	Page 137
Temperature / Grading:	Page 137	Page 137

Minimum measures

HS-ALE/V/FE-50/16/B1-V/..-L...-HZVS42/100-NTO
Minimum length: 150 mm
Standard length: 220 mm

Approvals / Certificates

ATEX / PED / GOST / GL / BV / SIL1

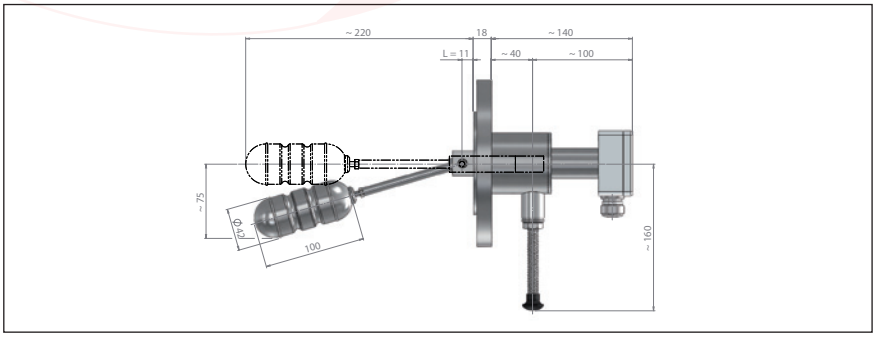


Minimum measures

HS-ALE/V/FE-50/16/B1-V/..-L...-HZVS42/100-NTU
Minimum length: 150 mm
Standard length: 220 mm

Approvals / Certificates

ATEX / PED / GOST / GL / BV / SIL1



The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120

Magnetic Float Switches Horizontal / Titanium / Alloy C

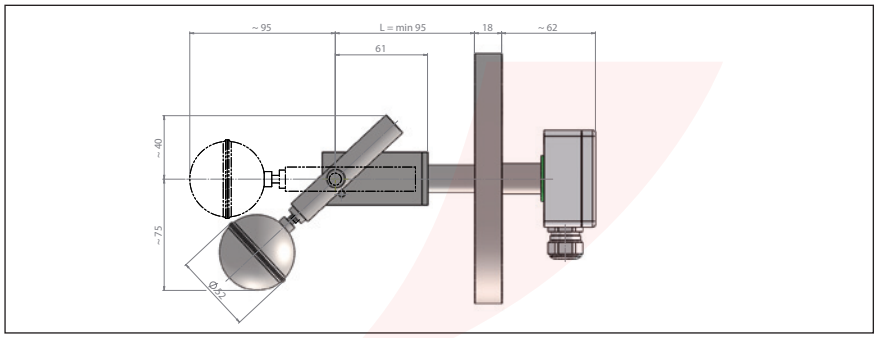
Type	HS-ALE/TI/FE-65/16/B1-TI/..-L...-HSTI52	HS-ALE/HC/FE-65/16/B1-HC/..-L...-HSHC52
Material quality:	Titanium	Alloy C
Electrical connection:	ALE Aluminium terminal box	ALE Aluminium terminal box
Process connection:	Flange EN DN 65 / PN 16 / Form B1	Flange EN DN 65 / PN 16 / Form B1
Guide tube:	-	-
Length of instrument:	≤ 500 mm	≤ 500 mm
Float:	HSTI52 Ø 52 mm	HSHC52 Ø 52 mm
Specific gravity:	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	≥ 700 kg/m³ (optional ≥ 350 kg/m³)
Design pressure:	-1 bar ... 16 bar (depending on temperature)	-1 bar ... 16 bar (depending on temperature)
Design temperature:	-10°C ... 150°C	-30°C ... 180°C (optional 250°C)
Ingress protection class:	IP 65	IP 65
Mounting position:	Horizontal +/-3°	Horizontal +/-3°
Level switch function		
Function:	Normally open / S	Normally open / S
Switching capacity:	230 V / 1.0 A / 100 VA	230 V / 1.0 A / 100 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Normally closed / O	Normally closed / O
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Change over / U	Change over / U
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Option temperature probe / Page 137		
Temperature probe:	Pt-100 / Pt-1000	Pt-100 / Pt-1000
Norm:	IEC 751 Kl.B	IEC 751 Kl.B
Option temperature switch / Page 137		
Function:	Normally closed or normally open	Normally closed or normally open
Switching capacity:	Page 137	Page 137
Accuracy / Hysteresis:	Page 137	Page 137
Temperature / Grading:	Page 137	Page 137

Minimum measures

HS-ALE/TI/FE-65/16/B1-TI/..-L...-HSTI52
Minimum length: 95 mm
Standard length: 110 mm

Approvals / Certificates

ATEX / PED / GOST / SIL1

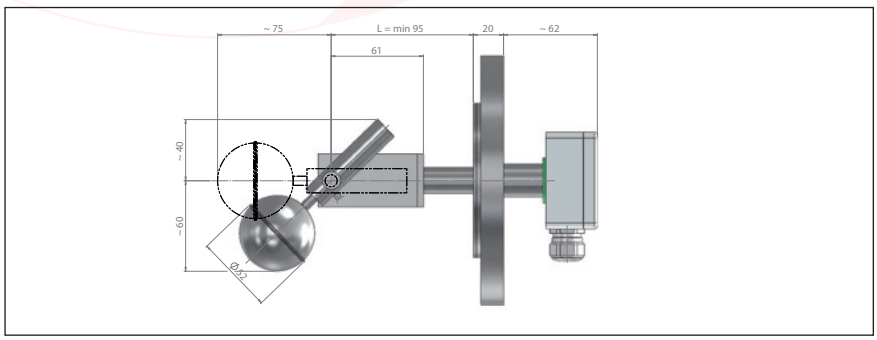


Minimum measures

HS-ALE/HC/FE-65/16/B1-HC/..-L...-HSHC52
Minimum length: 95 mm
Standard length: 110 mm

Approvals / Certificates

ATEX / PED / GOST / SIL1



The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120

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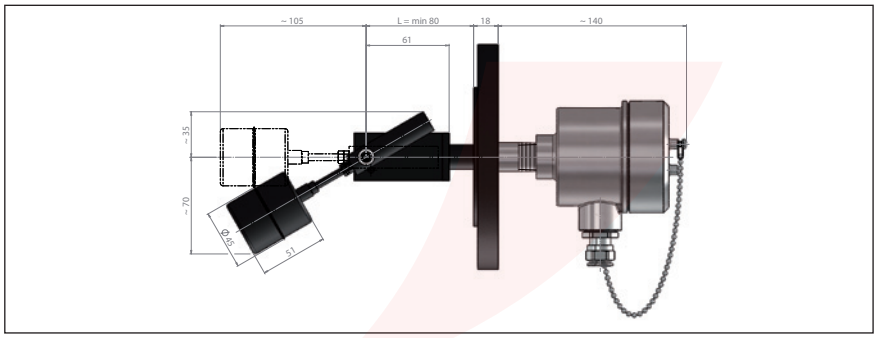
Type	HS-AVA/VEEC/FE-50/16/B1-VEEC/..-L...-HSVEECK45	HS-AVA/VPFA/FE-50/16/B1-VPFA/..-L...-HSVPFAK45
Material quality:	Stainless steel ECTFE coated	Stainless steel PFA coated
Electrical connection:	AVA Stainless steel terminal box	AVA Stainless steel terminal box
Process connection:	Flange EN DN 50 / PN 16 / Form B1	Flange EN DN 50 / PN 16 / Form B1
Guide tube:	-	-
Length of instrument:	≤ 500 mm	≤ 500 mm
Float:	HSVEECK45 Ø 45 mm	HSVPFAK45 Ø 45 mm
Specific gravity:	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	≥ 700 kg/m³ (optional ≥ 350 kg/m³)
Design pressure:	-1 bar ... 16 bar (depending on temperature)	-1 bar ... 16 bar (depending on temperature)
Design temperature:	-30°C ... 150°C	-30°C ... 180°C (optional 250°C)
Ingress protection class:	IP 67	IP 67
Mounting position:	Horizontal +/-3°	Horizontal +/-3°
Level switch function		
Function:	Normally open / S	Normally open / S
Switching capacity:	230 V / 1.0 A / 100 VA	230 V / 1.0 A / 100 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Normally closed / O	Normally closed / O
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Change over / U	Change over / U
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Option temperature probe / Page 137		
Temperature probe:	Pt-100 / Pt-1000	Pt-100 / Pt-1000
Norm:	IEC 751 Kl.B	IEC 751 Kl.B
Option temperature switch / Page 137		
Function:	Normally closed or normally open	Normally closed or normally open
Switching capacity:	Page 137	Page 137
Accuracy / Hysteresis:	Page 137	Page 137
Temperature / Grading:	Page 137	Page 137

Minimum measures

HS-AVA/VEEC/FE-50/16/B1-VEEC/..-L...-HSVEECK45
Minimum length: 80 mm
Standard length: 110 mm

Approvals / Certificates

ATEX / PED / GOST / SIL1

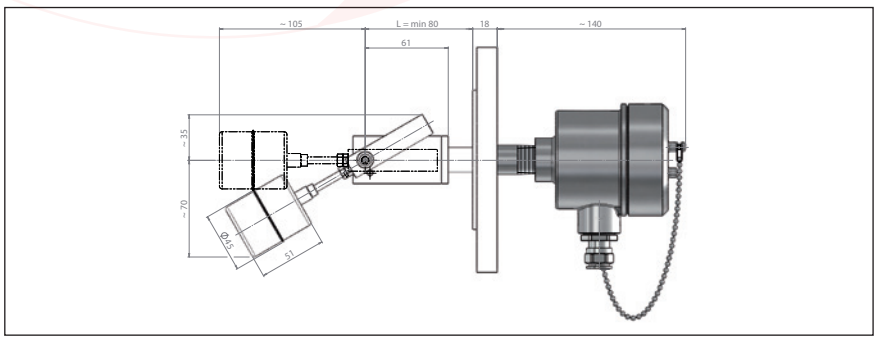


Minimum measures

HS-AVA/VPFA/FE-50/16/B1-VPFA/..-L...-HSVPFAK45
Minimum length: 80 mm
Standard length: 110 mm

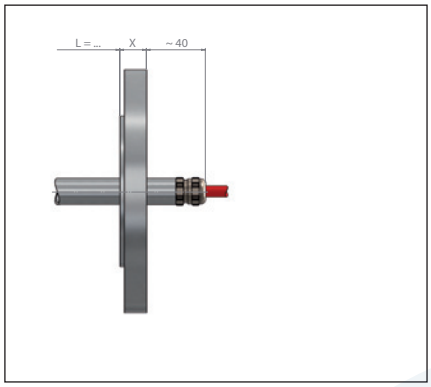
Approvals / Certificates

ATEX / PED / GOST / SIL1

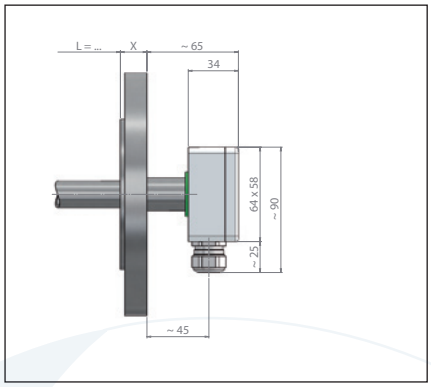


The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120

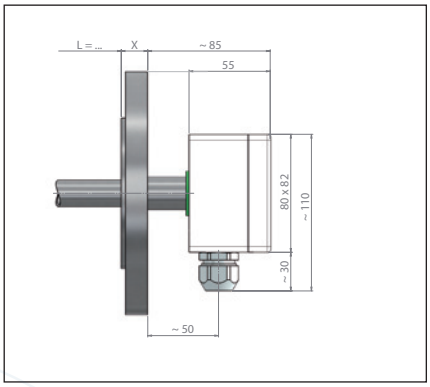
Electrical connection



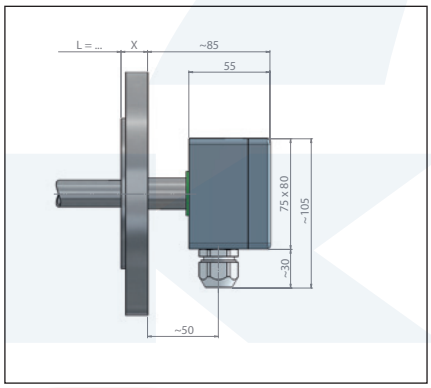
Connection type: K
Material quality: According as cable type
Cable entry: PG or metric
Ingress protection class: IP 55 (optional IP 68)
Ambient temperature: -40°C ... 200°C



Connection type: ALE
Material quality: Aluminium coated RAL 7001
Cable entry: M20 x 1.5
Ingress protection class: IP 65
Ambient temperature: -40°C ... 100°C



Connection type: ABA
Material quality: ABS
Cable entry: M20 x 1.5
Ingress protection class: IP 65
Ambient temperature: -10°C ... 80°C



Connection type: APA / APB (Ex)
Material quality: Polyester
Cable entry: M20 x 1.5
Ingress protection class: IP 65
Ambient temperature: -10°C ... 100°C

Approvals / Certificates

Further electrical connections page 136
Further process connection according to type key page 118
Further floats page 135

The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120

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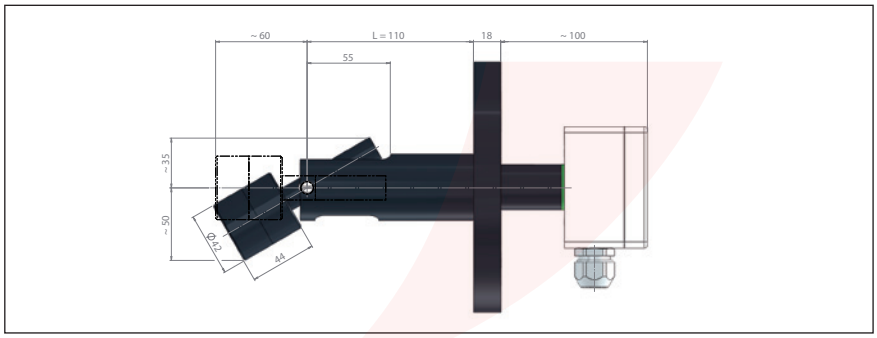
Type	HS-ABA/P/FE-50/10/A-P/..-L..-HSPK42	HS-K/P/EM-20-P/..-L..-HSPK42-../PVC
Material quality:	PVC	PVC
Electrical connection:	ABS terminal box	PVC connection cable
Process connection:	Flange EN DN 50 / PN 10 / Form A	M20x1.5
Guide tube:	-	-
Length of instrument:	≤ 110 mm	≤ 110 mm
Float:	HSPK44 Ø 44 mm	HSPK44 Ø 44 mm
Specific gravity:	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	≥ 700 kg/m³ (optional ≥ 350 kg/m³)
Design pressure:	-1 bar ... 1 bar	-1 bar ... 1 bar
Design temperature:	-15°C ... 60°C	-15°C ... 60°C
Ingress protection class:	IP 65	IP 55
Mounting position:	Horizontal +/-3°	Horizontal +/-3°
Level switch function		
Function:	Normally open / S	Normally open / S
Switching capacity:	230 V / 1.0 A / 100 VA	230 V / 1.0 A / 100 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Normally closed / O	Normally closed / O
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Change over / U	Change over / U
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Option temperature probe / Page 137		
Temperature probe:	Pt-100 / Pt-1000	Pt-100 / Pt-1000
Norm:	IEC 751 Kl.B	IEC 751 Kl.B
Option temperature switch / Page 137		
Function:	Normally closed or normally open	Normally closed or normally open
Switching capacity:	Page 137	Page 137
Accuracy / Hysteresis:	Page 137	Page 137
Temperature / Grading:	Page 137	Page 137

Minimum measures

HS-ABA/P/FE-50/10/A-P/..-L..-HSPK42
Standard length: 110 mm

Approvals / Certificates

PED / GOST / SIL1

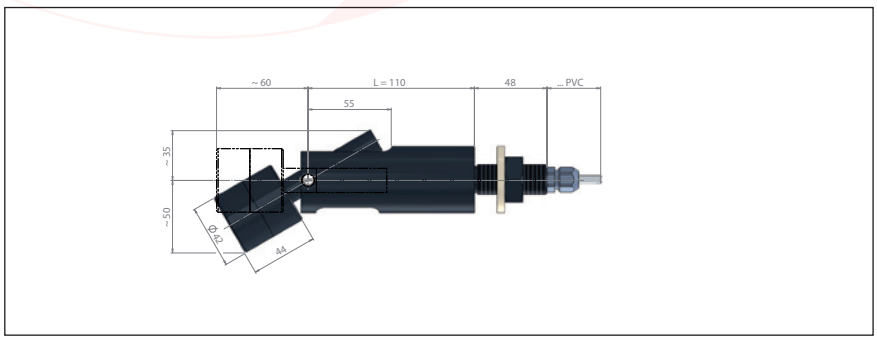


Minimum measures

HS-K/P/EM-20-P/..-L..-HSPK42-../PVC
Standard length: 110 mm

Approvals / Certificates

PED / GOST / SIL1



The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120

Magnetic Float Switches Horizontal / Polypropylene

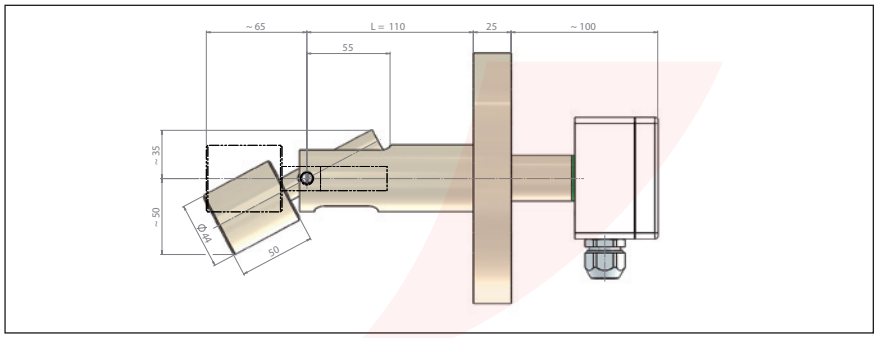
Type	HS-ABA/PP/FE-50/10/A-PP/..-L..-HSPPK44	HS-K/PP/EM-20-PP/..-L..-HSPPK44-../PVC
Material quality:	Polypropylene	Polypropylene
Electrical connection:	ABS terminal box	PVC connection cable
Process connection:	Flange EN DN 50 / PN 10 / Form A	M20x1.5
Guide tube:	-	-
Length of instrument:	≤ 110 mm	≤ 110 mm
Float:	HSPPK44 Ø 44 mm	HSPPK44 Ø 44 mm
Specific gravity:	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	≥ 700 kg/m³ (optional ≥ 350 kg/m³)
Design pressure:	-1 bar ... 1 bar	-1 bar ... 1 bar
Design temperature:	-10°C ... 80°C	-10°C ... 80°C
Ingress protection class:	IP 65	IP 55
Mounting position:	Horizontal +/-3°	Horizontal +/-3°
Level switch function		
Function:	Normally open / S	Normally open / S
Switching capacity:	230 V / 1.0 A / 100 VA	230 V / 1.0 A / 100 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Normally closed / O	Normally closed / O
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Change over / U	Change over / U
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Option temperature probe / Page 137		
Temperature probe:	Pt-100 / Pt-1000	Pt-100 / Pt-1000
Norm:	IEC 751 Kl.B	IEC 751 Kl.B
Option temperature switch / Page 137		
Function:	Normally closed or normally open	Normally closed or normally open
Switching capacity:	Page 137	Page 137
Accuracy / Hysteresis:	Page 137	Page 137
Temperature / Grading:	Page 137	Page 137

Minimum measures

HS-ABA/PP/FE-50/10/A-PP/..-L..-HSPPK44
Standard length: 110 mm

Approvals / Certificates

PED / GOST / SIL1

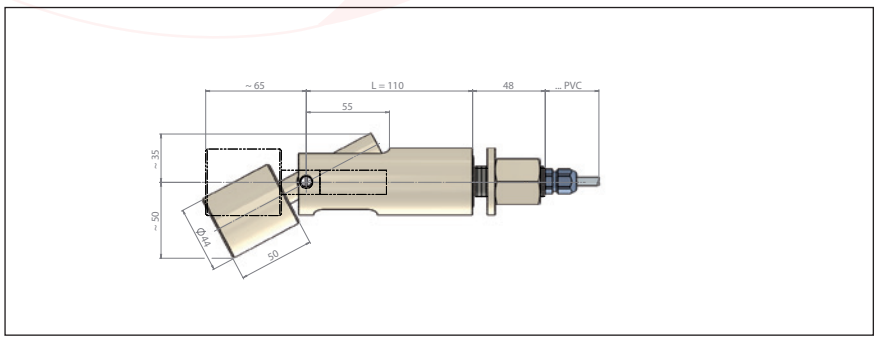


Minimum measures

HS-K/PP/EM-20-PP/..-L..-HSPPK44-../PVC
Standard length: 110 mm

Approvals / Certificates

PED / GOST / SIL1



The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120

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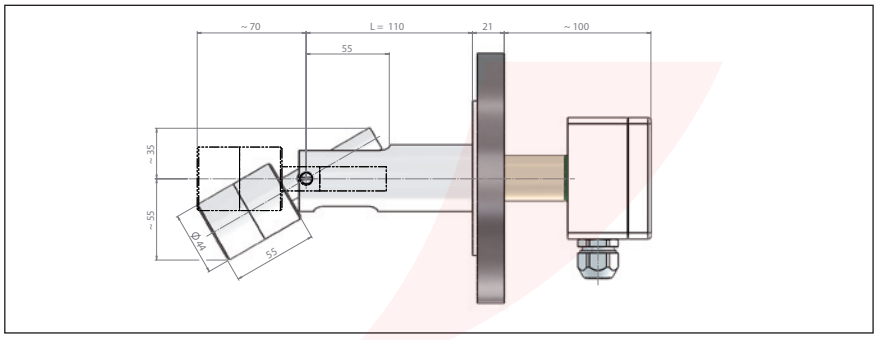
Type	HS-ABA/PF/FE-50/10/A-PF/..-L..-HSPFK44	HS-K/PF/EM-20-PF/..-L..-HSPFK44-../SIL
Material quality:	PVDF	PVDF
Electrical connection:	ABS terminal box	Silicon connection cable
Process connection:	Flange EN DN 50 / PN 10 / Form A	M20x1.5
Guide tube:	-	-
Length of instrument:	≤ 110 mm	≤ 110 mm
Float:	HSPFK44 Ø 44 mm	HSPFK44 Ø 44 mm
Specific gravity:	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	≥ 700 kg/m³ (optional ≥ 350 kg/m³)
Design pressure:	-1 bar ... 1 bar	-1 bar ... 1 bar
Design temperature:	-10°C ... 100°C	-10°C ... 100°C
Ingress protection class:	IP 65	IP 55
Mounting position:	Horizontal +/-3°	Horizontal +/-3°
Level switch function		
Function:	Normally open / S	Normally open / S
Switching capacity:	230 V / 1.0 A / 100 VA	230 V / 1.0 A / 100 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Normally closed / O	Normally closed / O
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Function:	Change over / U	Change over / U
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Maximal number of contacts:	2 pieces	2 pieces
Option temperature probe / Page 137		
Temperature probe:	Pt-100 / Pt-1000	Pt-100 / Pt-1000
Norm:	IEC 751 Kl.B	IEC 751 Kl.B
Option temperature switch / Page 137		
Function:	Normally closed or normally open	Normally closed or normally open
Switching capacity:	Page 137	Page 137
Accuracy / Hysteresis:	Page 137	Page 137
Temperature / Grading:	Page 137	Page 137

Minimum measures

HS-ABA/PF/FE-50/10/A-PF/..-L..-HSPFK44
Standard length: 110 mm

Approvals / Certificates

PED / GOST / SIL1

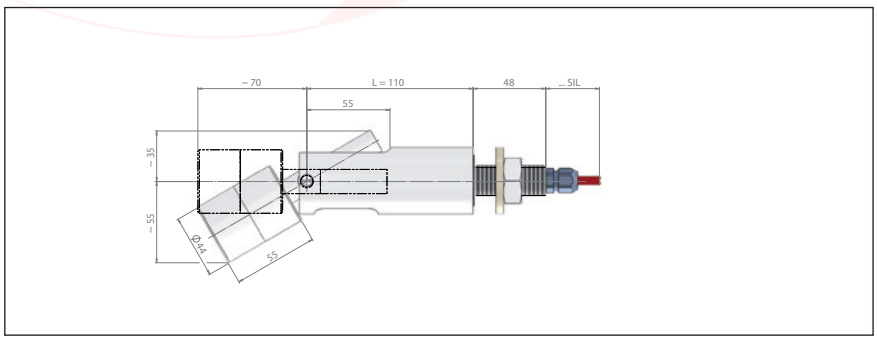


Minimum measures

HS-K/PF/EM-20-PF/..-L..-HSPFK44-../SIL
Standard length: 110 mm

Approvals / Certificates

PED / GOST / SIL1



The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120

Magnetic Float Switches Horizontal - Mini / Stainless steel

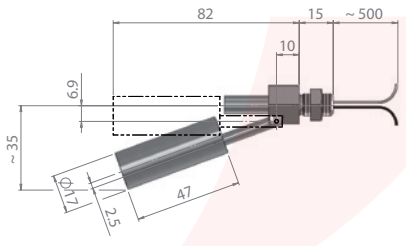
Type	HS-K/V/E-1/8-V/S-L82-HZVS17/47-0.5/FPOL	HS-K/V/RNPT-1/2-V/S-L94-HZVS17/47-0.5/FPOL
Material quality:	1.4301 (304)	1.4301 (304)
Electrical connection:	Polyethylene connection cable (Strands)	Polyethylene connection cable (Strands)
Process connection:	G 1/8“	G 1/2“
Guide tube:	-	-
Length of instrument:	82 mm	94 mm
Float:	HZVS17/47 Ø 17 mm	HZVS17/47 Ø 17 mm
Specific gravity:	≥ 700 kg/m³	≥ 700 kg/m³
Design pressure:	-1 bar ... 5 bar	-1 bar ... 5 bar
Design temperature:	-30°C ... 120°C	-30°C ... 120°C
Ingress protection class:	IP 55	IP 55
Mounting position:	Horizontal +/-3°	Horizontal +/-3°
Level switch function		
Function:	Normally open / S	Normally open / S
Switching capacity:	10VA / 150V / 0.5A	10VA / 150V / 0.5A
Maximal number of contacts:	1 piece	1 piece
Function:	-	-
Switching capacity:		
Maximal number of contacts:		
Function:	-	-
Switching capacity:		
Maximal number of contacts:		
Option temperature probe / Page 137		
Temperature probe:	-	-
Norm:	-	-
Option temperature switch / Page 137		
Function:	-	-
Switching capacity:	-	-
Accuracy / Hysteresis:	-	-
Temperature / Grading:	-	-

Minimum measures

HS-K/V/E-1/8-V/S-L82-HZVS17/47-0.5/FPOL

Approvals / Certificates

GOST

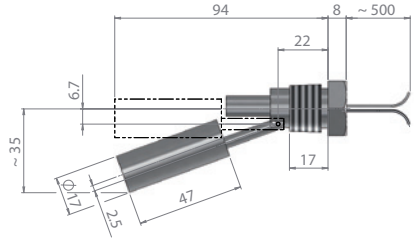


Minimum measures

HS-K/V/RNPT-1/2-V/S-L94-HZVS17/47-0.5/FPOL

Approvals / Certificates

GOST



The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120

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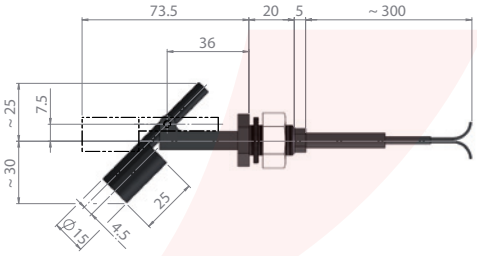
Type	HS-K/PA/E-1/4-PA/S-L74-HZPAK15/25-0.3/FPOL	HS-K/PA/RNPT-1/2-PA/S-L91-HZPAK15/25-0.3/FPOL
Material quality:	Polyamide	Polyamide
Electrical connection:	Polyethylene connection cable (Strands)	Polyethylene connection cable (Strands)
Process connection:	G 1/4“	G 1/2“
Guide tube:	-	-
Length of instrument:	73.5 mm	90.5 mm
Float:	HZPAK15/25 Ø 15 mm	HZPAK15/25 Ø 15 mm
Specific gravity:	≥ 700 kg/m³	≥ 700 kg/m³
Design pressure:	-1 bar ... 1 bar	-1 bar ... 1 bar
Design temperature:	-10°C ... 110°C	-10°C ... 110°C
Ingress protection class:	IP 55	IP 55
Mounting position:	Horizontal +/-3°	Horizontal +/-3°
Level switch function		
Function:	Normally open / S	Normally open / S
Switching capacity:	10VA / 150V / 0.5A	10VA / 150V / 0.5A
Maximal number of contacts:	1 piece	1 piece
Function:	-	-
Switching capacity:		
Maximal number of contacts:		
Function:	-	-
Switching capacity:		
Maximal number of contacts:		
Option temperature probe / Page 137		
Temperature probe:	-	-
Norm:	-	-
Option temperature switch / Page 137		
Function:	-	-
Switching capacity:	-	-
Accuracy / Hysteresis:	-	-
Temperature / Grading:	-	-

Minimum measures

HS-K/PA/E-1/4-PA/S-L74-HZPAK15/25-0.3/FPOL

Approvals / Certificates

GOST

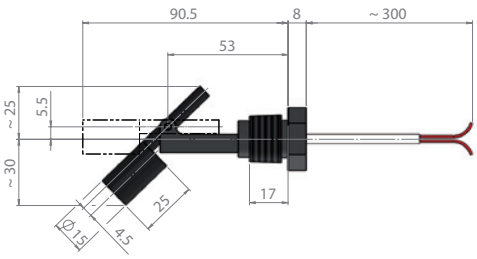


Minimum measures

HS-K/PA/RNPT-1/2-PA/S-L91-HZPAK15/25-0.3/FPOL

Approvals / Certificates

GOST



The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120

Magnetic Float Switches Horizontal - Mini / Polypropylene

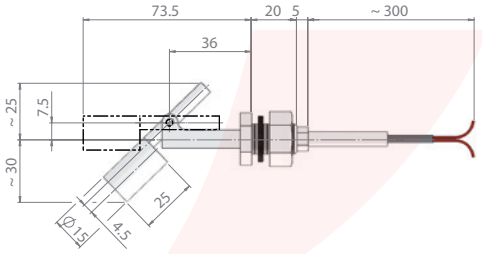
Type	HS-K/PP/E-1/4-PP/S-L74-HZPPK15/25-0.3/FPOL	HS-K/PP/RNPT-1/2-PP/S-L91-HZ-PPK15/25-0.3/FPOL
Material quality:	Polypropylene	Polypropylene
Electrical connection:	Polyethylene connection cable (Strands)	Polyethylene connection cable (Strands)
Process connection:	G 1/4“	G 1/2“
Guide tube:	-	-
Length of instrument:	73.5 mm	90.5 mm
Float:	HZPPK15/25 Ø 15 mm	HZPPK15/25 Ø 15 mm
Specific gravity:	≥ 700 kg/m³	≥ 700 kg/m³
Design pressure:	-1 bar ... 1 bar	-1 bar ... 1 bar
Design temperature:	-10°C ... 80°C	-10°C ... 80°C
Ingress protection class:	IP 55	IP 55
Mounting position:	Horizontal +/-3°	Horizontal +/-3°
Level switch function		
Function:	Normally open / S	Normally open / S
Switching capacity:	10VA / 150V / 0.5A	10VA / 150V / 0.5A
Maximal number of contacts:	1 piece	1 piece
Function:	-	-
Switching capacity:		
Maximal number of contacts:		
Function:	-	-
Switching capacity:		
Maximal number of contacts:		
Option temperature probe / Page 137		
Temperature probe:	-	-
Norm:	-	-
Option temperature switch / Page 137		
Function:	-	-
Switching capacity:	-	-
Accuracy / Hysteresis:	-	-
Temperature / Grading:	-	-

Minimum measures

HS-K/PP/E-1/4-PP/S-L74-HZPPK15/25-0.3/FPOL

Approvals / Certificates

GOST

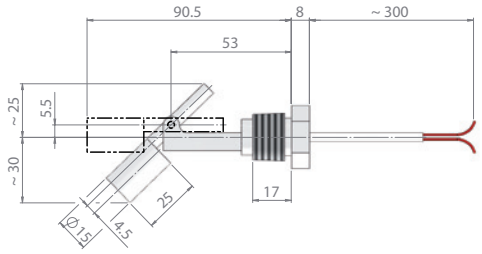


Minimum measures

HS-K/PP/RNPT-1/2-PP/S-L91-HZPPK15/25-0.3/FPOL

Approvals / Certificates

GOST



The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120

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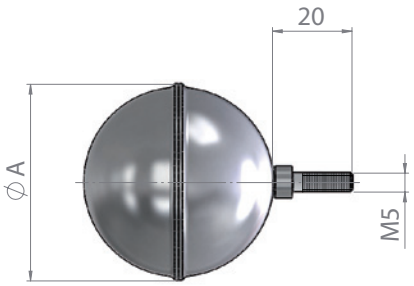
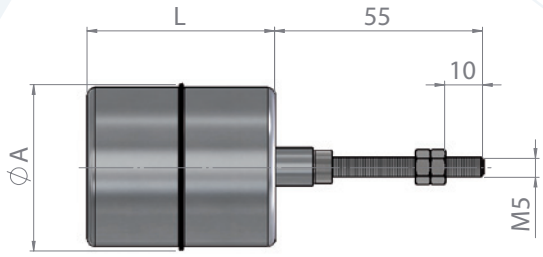
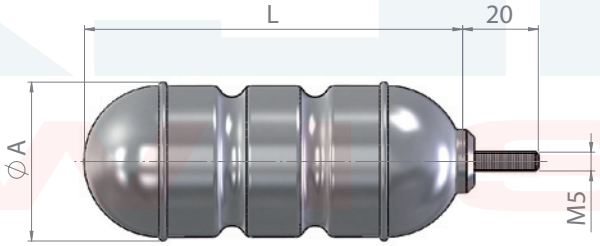
Drawing 1



Drawing 2



Drawing 3



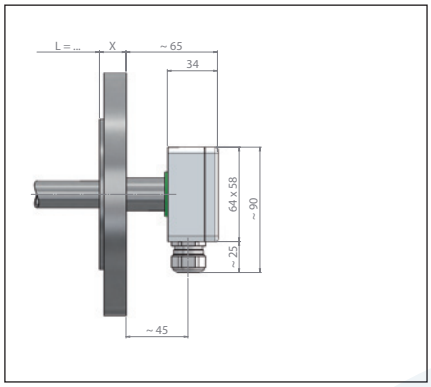
Type	Material quality	ø A	L	Min. Specific gravity	Min. / Max. Design pressure	Min. / Max. Design temperature	Drawing
		mm	mm	kg/m³	bar	°C	
HZVS42/100	Stainless steel	42	100	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	-1 ... 16	-156 ... 150	3
HSVK44	Stainless steel	44	50	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	-1 ... 25*	-156 ... 250	2
HSVS52	Stainless steel	52	-	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	-1 ... 100*	-156 ... 250	1
HSTIS52	Titanium	52	-	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	-1 ... 140	-10 ... 100	1
HSHC52	Alloy C	52	-	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	-1 ... 55*	-196 ... 250	1
HSPK42	PVC	42	44	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	-1 ... 1	-15 ... 60	2
HSPPK44	PP	44	43	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	-1 ... 1	-10 ... 80	2
HSPFK44	PVDF	44	55	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	-1 ... 1	-10 ... 100	2
HSVEECKA45	ECTFE coated	45	51	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	-1 ... 25	-78 ... 150	2
HSVEECKB45**	ECTFE coated	45	51	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	-1 ... 25	-78 ... 150	2
HSVPFAKA45	PFA coated	45	51	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	-1 ... 25*	-100 ... 250	2
HSVPFAKB45**	PFA coated	45	51	≥ 700 kg/m³ (optional ≥ 350 kg/m³)	-1 ... 25*	-100 ... 250	2

The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120

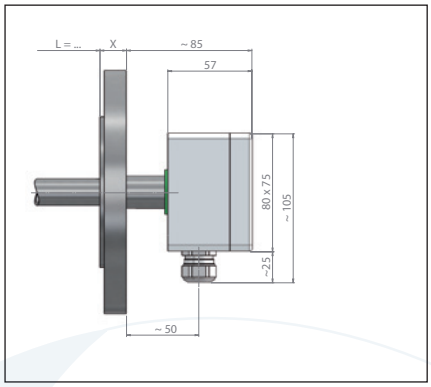
* = Design temperature 200°C, higher temperatures after calculating / ** = acc. to Atex (conductive)

Magnetic Float Switches Horizontal / Electrical connection

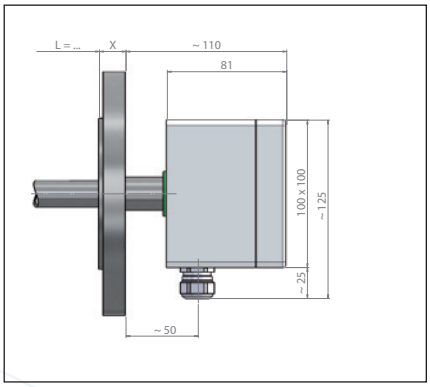
Electrical connection



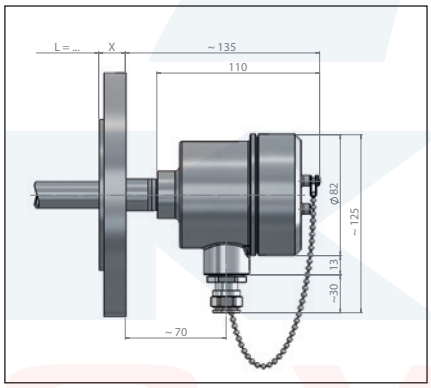
Connection type: ALE
Material quality: Aluminium coated RAL 7001
Cable entry: M20 x 1.5
Ingress protection class: IP 65
Ambient temperature: -40°C ... 100°C
Maximal number of contact clamps: 8



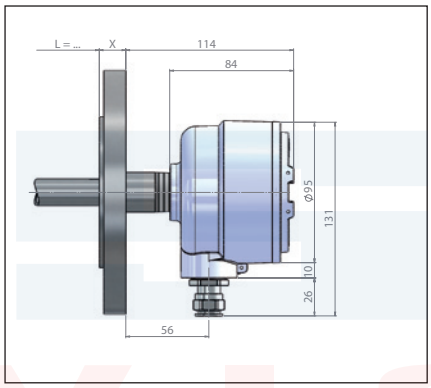
Connection type: ALF
Material quality: Aluminium coated RAL 7001
Cable entry: M20 x 1.5
Ingress protection class: IP 65
Ambient temperature: -40°C ... 100°C
Maximal number of contact clamps: 12



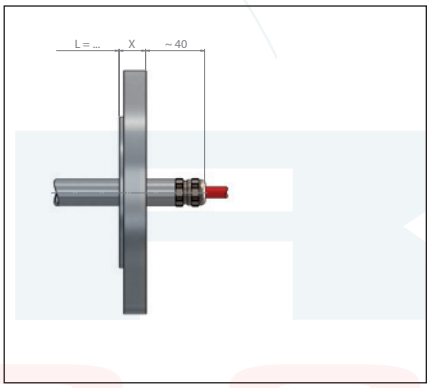
Connection type: ALG
Material quality: Aluminium coated RAL 7001
Cable entry: M20 x 1.5
Ingress protection class: IP 65
Ambient temperature: -40°C ... 100°C
Maximal number of contact clamps: 24



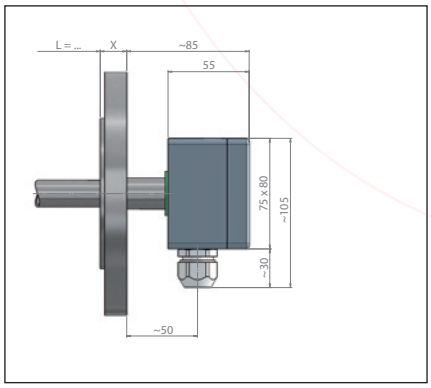
Connection type: AVA / AVDA (Exd)
Material quality: Stainless steel A4 (SS316)
Cable entry: M20 x 1.5
Ingress protection class: IP 67 / (Exd / IP68)
Ambient temperature: -40°C ... 85°C
Maximal number of contact clamps: 12



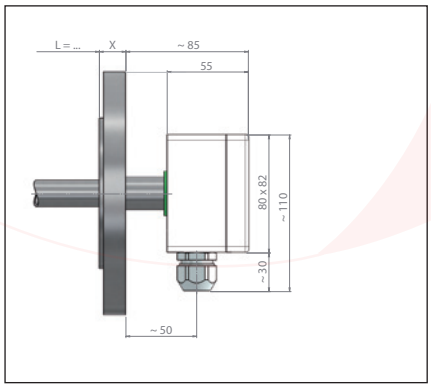
Connection type: ALDA (Exd)
Material quality: Aluminium coated RAL 9006
Cable entry: M20 x 1.5
Ingress protection class: IP 68
Ambient temperature: -40°C ... 100°C
Maximal number of contact clamps: 8



Connection type: K
Material quality: According as cable type
Cable entry: PG or metric
Ingress protection class: IP 55 (optional IP 68)
Ambient temperature: -40°C ... 200°C
Maximal number of contact clamps: -



Connection type: APA / APB (Ex)
Material quality: Polyester
Cable entry: M20 x 1.5
Ingress protection class: IP 65
Ambient temperature: -10°C ... 100°C
Maximal number of contact clamps: 12



Connection type: ABA
Material quality: ABS
Cable entry: M20 x 1.5
Ingress protection class: IP 65
Ambient temperature: -10°C ... 80°C
Maximal number of contact clamps: 12

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Type key page 118 - 120

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Temperature switch

Type:	TO	TS
Function:	Normally closed	Normally open
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Temperature / Grading:	50°C ... 160°C / 5 K	80°C ... 160°C / 5 K
Accuracy:	± 5 K	± 5 K
Hysteresis:	30 K ± 15 K	30 K ± 15 K

Temperature switch - Pepi

Type:	TPO	TPS
Function:	Normally closed	Normally open
Switching capacity:	230 V / 0.5 A / 40 VA	230 V / 0.5 A / 40 VA
Temperature / Grading:	30°C ... 120°C / 5 K	30°C ... 120°C / 5 K
Accuracy:	± 3 K	± 3 K
Hysteresis:	± 1 K	± 1 K

Temperature probe

Type:	TFA	TFB
Probe:	Pt 100	Pt 1000
Nominal response temperature:	-70°C ... 400°C	-70°C ... 400°C
Toleranzklasse:	B	B
Performance:	Acc. to IEC 751	Acc. to IEC 751
Connection:	2- / 3- or 4-wire	2- / 3- or 4-wire

Connection cable

Type	Material quality	Max. Ambient temperature
PVC	PVC connection cable	-20°C ... 80°C
PVCB	PVC connection cable with blue coating	-20°C ... 80°C
SIL	Silicon connection cable	-60°C ... 180°C
PUR	PUR connection cable	-40°C ... 80°C
RAD	Radox connection cable	-35°C ... 120°C
FTEF	Teflon strands	-65°C ... 200°C
FPVC	PVC strands	-5°C ... 70°C

The magnetic float switches Horizontal are based on a modular design and can be arranged individually.
Type key page 118 - 120