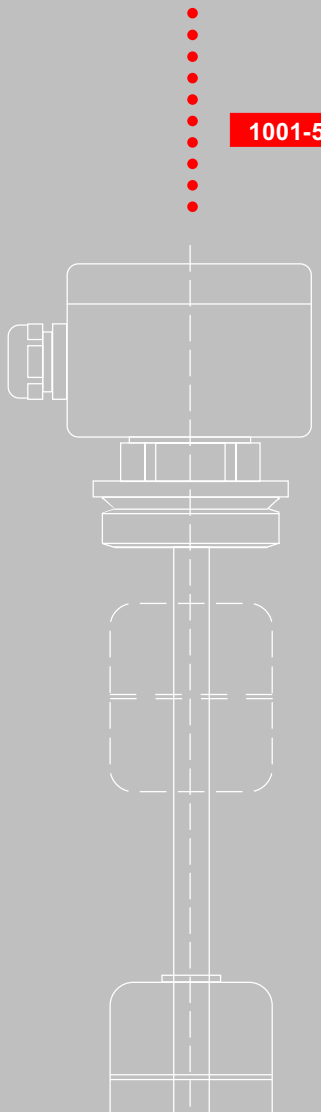
KSR Level Sensors / Transmitters

1001-5



KSR KUEBLER

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Approvals

Technischer Überwachungsverein Südwestdeutschland e.V.
Materials and type approval.
Approved for pressure vessels acc. to AD-Merkblatt HP 0

IBExU Institut für Sicherheitstechnik GmbH

Physikalisch Technische Bundesanstalt PTB

Bundesamt für Wehrtechnik und Beschaffung

Germanischer Lloyd

Netherlands

KEMA

France

Laboratoire Central des Industries Electriques

Bureau Veritas

Norway

Det Norske Veritas

Czech Republic

Osvědčení o Nevýbušnosti FTZÚ Ostrava Radvanice

Slovakia

Osvědčení o Nevýbušnosti EVPÚ Nová Dubnica

Russia

Gosgortechnadzor OGS Oil & Gas Safety

USA

Factory Mutual Research Corporation

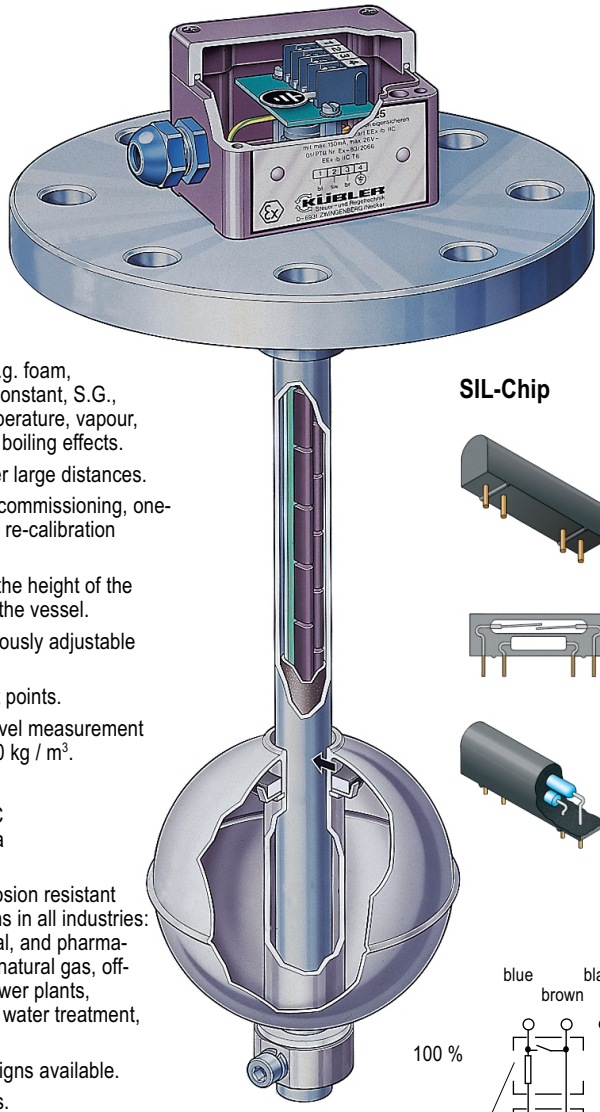
Underwriters' Laboratories, Inc.

Canada

Canadian Standards Association

Contents

KSR Level Sensors / Transmitters



KSR Level Sensors/Transmitters are used to measure and transmit the level of liquids in conjunction with a KSR Control Unit. It is based on the float principle with magnetic transmission in a 3-wire potentiometer circuit.

A float with a built-in magnetic system actuates small reed contacts through the wall of the guide tube. These reed switches form a resistance measuring chain that continuously generates a voltage proportional to the height of the level.

The resistance measuring chain is closely stepped and is made up from small chips soldered onto a PCB. Due to this assembly the generated voltage is virtually continuous.

Depending on requirements and design different contact separations from 5 to 20 mm are available.

Signal transmission:

- External control units and set point relays please refer to catalogue 1011

  or

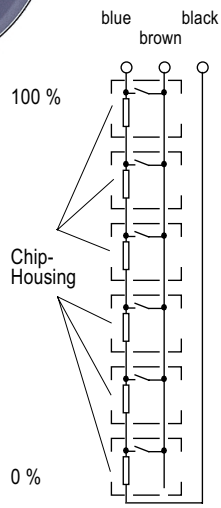
- Loop-powered control units in terminal box, 4 ... 20 mA output.

Technical advantages

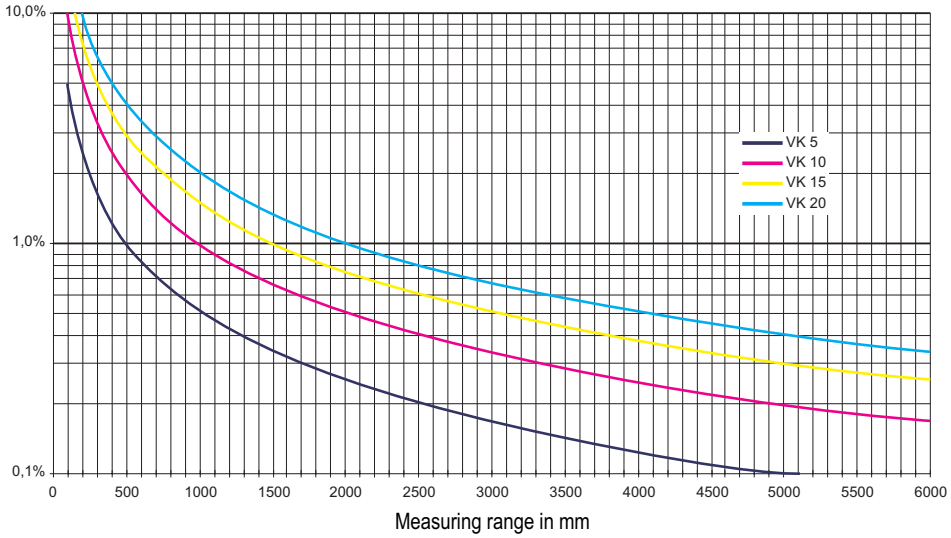
- The simple operating principle is suitable for a wide variety of applications.
- Continuous measurement of liquid levels independent of physical or chemical changes of the liquid, e.g. foam, conductivity, dielectric constant, S.G., pressure, vacuum, temperature, vapour, condensation, bubbles, boiling effects.
- Signal transmission over large distances.
- Simple installation and commissioning, one-time calibration only, no re-calibration necessary.
- Display proportional to the height of the level or the contents of the vessel.
- Set point relays continuously adjustable over full range.
- High repeatability of set points.
- Interface and product level measurement possible at Δ-S.G. $\geq$ 50 kg / m^3.
- Application limits:
  T = -80 °C to +200 °C
  P = vakuum to 10 MPa
  ρ = $\geq$ 400 kg/m^3
- High availability of corrosion resistant materials for applications in all industries: Chemical, petrochemical, and pharmaceutical industry, liquid natural gas, offshore, ship-building, power plants, manufacturing industry, water treatment, food and beverages.
- Application specific designs available.
- Explosion-proof designs.
- Programmable head-mounted transmitter units 4 ... 20 (see catalogue 1011).

SIL-Chip

Circuit Diagram Level Sensor

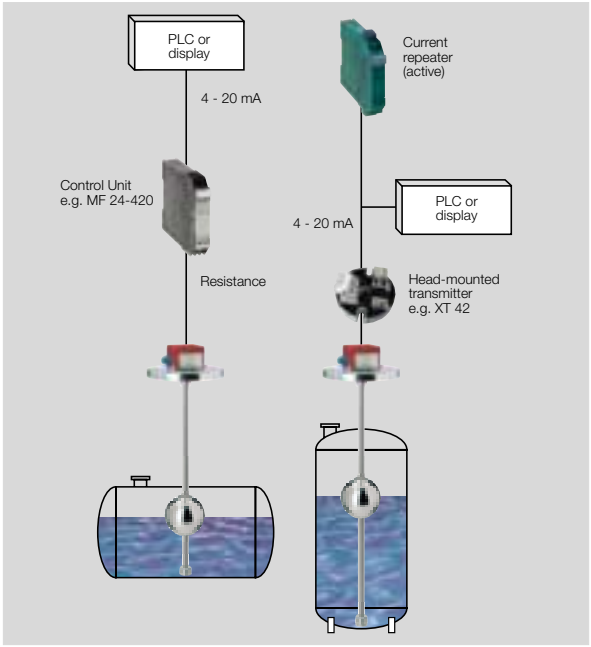


Accuracy of KSR Level Sensors / Transmitters

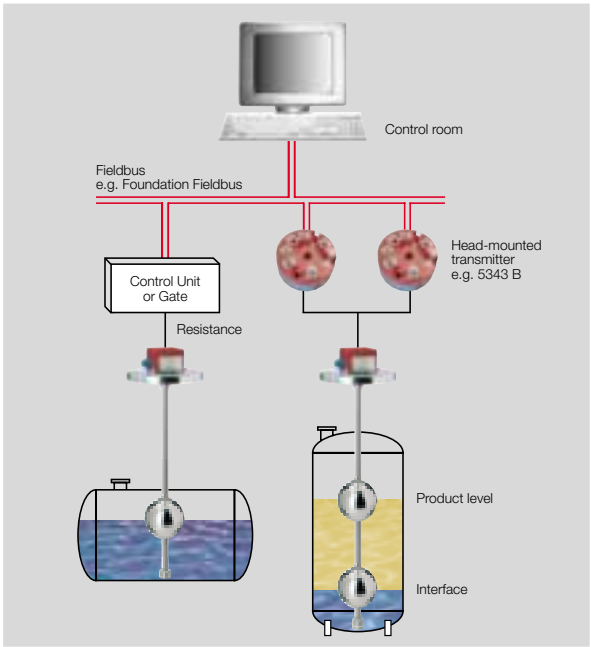


Applications

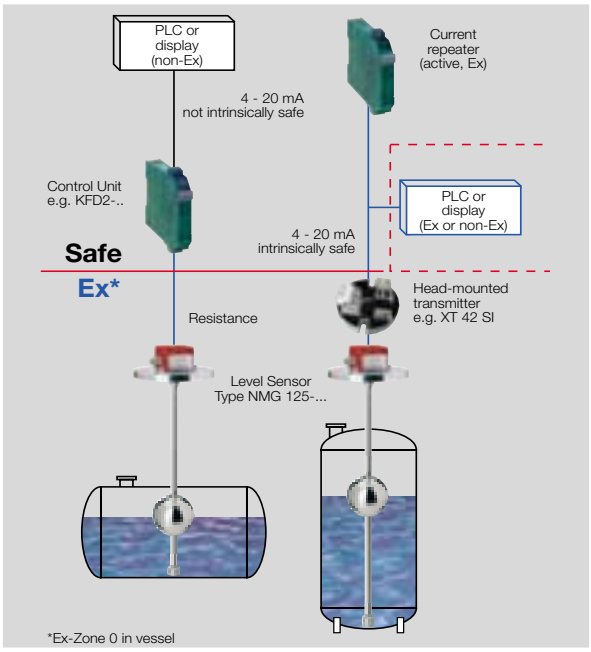
Standard



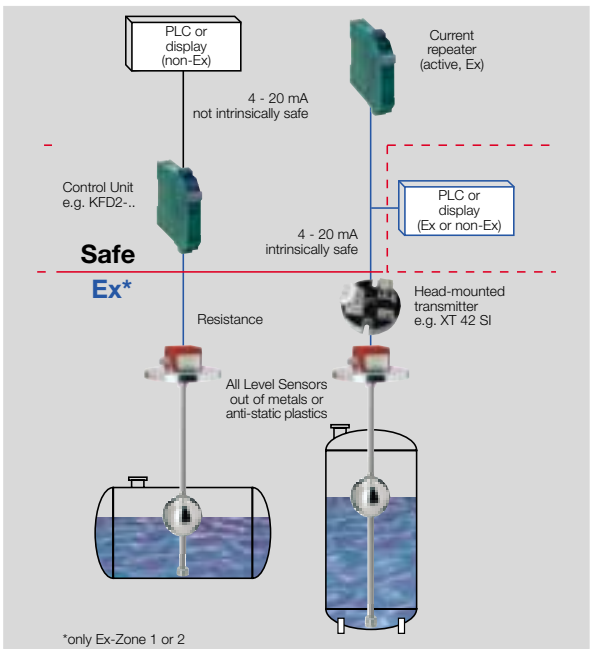
Fieldbus



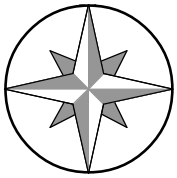
Ex-Zone 0



Ex-Zone 1, 2

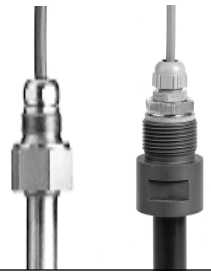


Compass



This page is intended to guide you through the product range of KSR KUEBLER for level sensors / transmitters.

Please select connecting option and material and turn to the page referred to in the following table.

		Material			
	Process Connection	Stainless steel SS 316 Ti (1.4571)	Stainless steel SS 316 Ti (1.4571) Ex	PVC PP PVDF	ECTFE PTFE
	Thread BSP 3/8" BSP 1/2" BSP 1"	Page **8**		Page **9 / 10 / 11**	
	Thread BSP 1 1/2" BSP 2"	Page **8**	Page **15 / 16**	Page **9 / 10 / 11**	
	Flange DN...PN..	Page **8**	Page **15 / 16**	Page **9 / 10 / 11**	Page **12**

KSR Level Sensors / Transmitters

Type code

Code	1st	Key	2nd	Key	3rd	Key
1		**Electrical connection**		**Design process connection**		**Material process connection**
.../.../...	-	(none) - connecting cable	**ER**	Mounting thread upwards (BSP)	**V**	Stainless steel SS 316 Ti
	A	Terminal box Aluminium	**R**	Mounting thread downwards (BSP)	**VE**	Stainless steel electro-polished
	AB	Terminal box Polypropylene	**ENPT**	Mounting thread upwards (NPT)	**VEC**	Stainless steel ECTFE-coated
	AP	Terminal box Polyester	**NPT**	Mounting thread downwards (NPT)	**VTF**	Stainless steel PTFE-lined
	AVT	Terminal box Stainless steel SS 316 Ti with screw cap	**MR**	Dairy fitting acc. to DIN 11851	**T**	Titanium
			F	Flange (DIN, ANSI, JIS)	**HB**	Hastelloy B
	AD	Terminal box Aluminium flameproof	**FC**	Clamp connection acc.to DIN 32676	**HC**	Hastelloy C
			IS	Sanitary nozzle (Ingoldstutzen)	**P**	PVC
	ASC4	Coupler plug C 164-232-F-4P			**PP**	Polypropylene
	ASC5	Coupler plug C 164-332-F-5P			**PF**	PVDF
	ASC7	Coupler plug C 164-4337-F-7P				
	ASH	Coupler plug Harting HAN 7 D				
	ASQ	Coupler plug QUICKON max.4-pin				
2		**Size process connection**				
.../.../...	...	**Thread** size in inches				
	...	**Dairy fitting** size DN **50** - DN **150**				
	.../	**Flange nominal size**	.../	**Flange pressure rating**	...	**Flange face**
DIN		DN **50** - DN **200**		PN **6** - PN **100**		Standard form **C** optional **E,A,F,N**
ANSI		**2"- 8"**		Class **150 - 600**		Standard **RF** optional **RTJ,FF,ST,SG**
JIS		**2"**(DN 50) **- 8"**(DN 200)		**5** K- **63** K		Standard **RF** optional **RTJ,FF,ST,SG**
Clamp		DN **25** - DN **100**; **1"- 4"**				
3		**Guide tube material**		**Contact separation**		**Optional code**
.../.../...	**V**	Stainless steel SS 316 Ti	**K 20**	20 mm	**HT..**	High temperature design* 120°C...+200°C
	VE	Stainless steel electro-polished	**K 16**	16 mm	**TT..**	Low temperature design* -10°C...-80°C
	VEC	Stainless steel ECTFE-coated	**K 15**	15 mm		*only contact separations 5/10/15 mm
	VTF	Stainless steel PTFE-lined	**K 12**	12.7 mm		
	T	Titanium	**K 10**	10 mm	**PT100**	Temperature probe PT 100 (2-,3- or 4-core)
	HB	Hastelloy B	**K 8**	8 mm	**..TH..**	Temperature switch ...°C - closing or opening
HC	Hastelloy C		**K 6**	6.35 mm		
	P	PVC	**K 5**	5 mm		
	PP	Polypropylene				
	PF	PVDF				
4		**Option, Head-mounted transmitter in terminal box** see catalogue 1011				
...	**TS**	Standard design type XT 42				
	TE	Ex-design type XT 42 SI				
	TA	Programmable type 5343 B				
	TD	HART®-Protocol type 5335 B				
5		**Guide tube length**		**OD Guide tube**		
L.../...	L.../	length in mm	...	OD in mm		
6		**Float design** see page 18-19				
.../...	.../	Material (code 3, 1st key)	...	Float OD in mm		
7		**Connection cable**		**Cable material**		
.../...	.../	length in Meter	-	PVC grey		
			blue	PVC blue		
			SIL	Silicone		
			ÖL	Ölflex		

Ordering examples

	Connection design / material		Connection size		Guide tube material contact separation		Option		Guide tube length / OD		Float		Cable length / material
Code	1	-	2	-	3	-	4	-	5	-	6	-	7
	AFV	-	50/6/F	-	VK15/TT30	-	TS	-	L950/12	-	V44R	-	-

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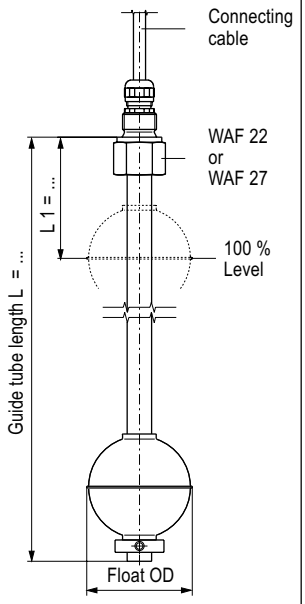
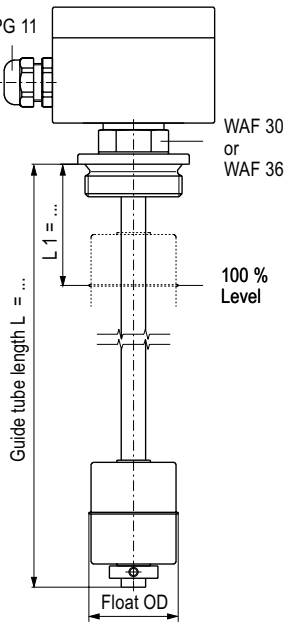
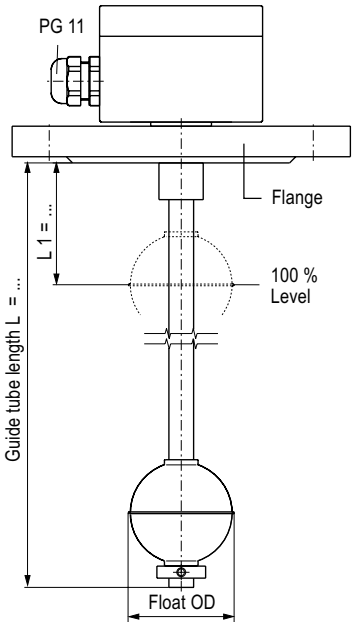
KSR Level Sensors / Transmitters

Stainless steel SS 316 Ti (1.4571)

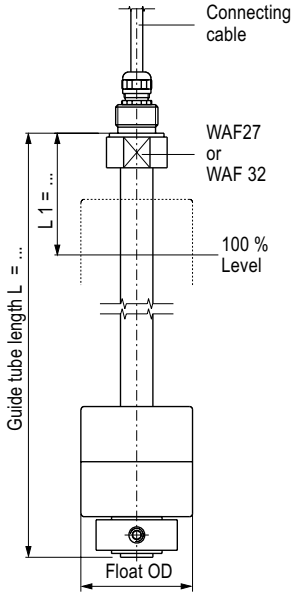


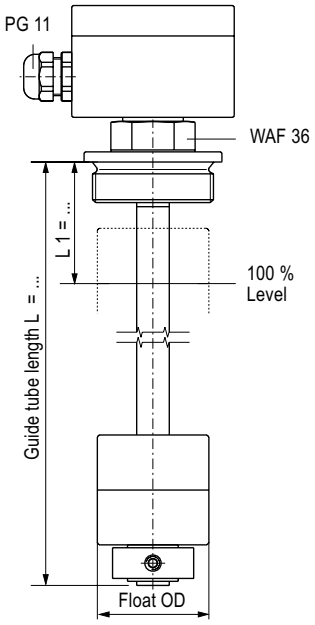


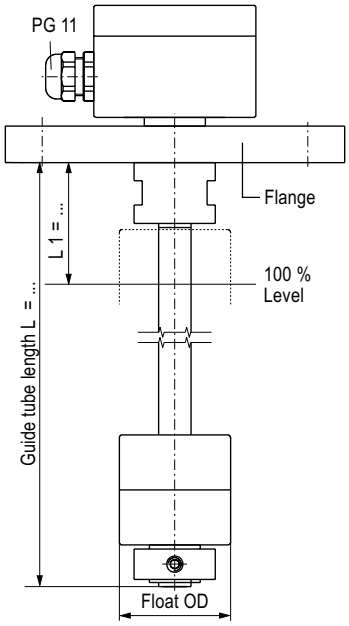


	ERV-...-VK..-L.../..-V..R-1...		**ARV-...-VK..-L.../..-V..R**		**AFV-.../.../..-VK..-L.../..-V..R**	
Electrical connection	Cable PVC grey, PVC blue, Silicone, Ölflex		Terminal box Aluminium 80 x 75 x 57 mm Option Polypropylene, Polyester, Stainless steel			
Process connection	Mounting thread upwards BSP **3/8"**	BSP **1/2"**	Mounting thread downwards BSP **1 1/2"** or BSP **2"**		Mounting flange DIN DN**50**-DN**200**, PN**6**-PN**100** ANSI **2"-8"**,Class **150-600**	
Guide tube OD	**12** or **14** mm	**18** mm	**12** or **14** mm	**18** mm	**12** or **14** mm	**18** mm
Guide tube length max.	**3000** mm	**6000** mm	**3000** mm	**6000** mm	**3000** mm	**6000** mm
Float	**V44R, V52R, V62R, V83R** **V80R, V98R,V105R, V120R**		guide tube - OD 12 or 14 mm guide tube - OD 18 mm			
Limit S.G. 85% Nominal S.G. 50% Nominal pressure	see KSR Floats page 18/19					
Temperature range Standard	PVC- / Ölflex cable -10°C... +80°C Silicone cable		-20°C...+120°C -10°C...+120°C			
High temperature			Optional code **(HT..)** +120°C...+200°C			
Low temperature			Optional code **(TT..)** -20°C... -80°C			
Contact separation	**K 20** = 20 mm **K 16** = 16 mm **K 12** = 12.7 mm **K 8** = 8 mm only guide tube OD 14 and 18 mm **K 6** = 6.35 mm only guide tube OD 14 and 18 mm					
HT- or TT-Design			**K 15 (.T..)** = 15 mm **K 10 (.T..)** = 10 mm **K 5 (.T..)** = 5 mm			
Overall resistance of measuring chain	dependent on length and contact separation					
Cable length	Distance between level sensor/transmitter and control unit max. 2000 m, 3-core, **shielded**					
Orientation	vertical ± 30°					
Ingress protection	IP 65					
	Materials SS 316 (1.4435), 1.4539, Titanium, Hastelloy and others available upon request					
			Head-mounted transmitter in terminal box see catalogue 1011			

PVC



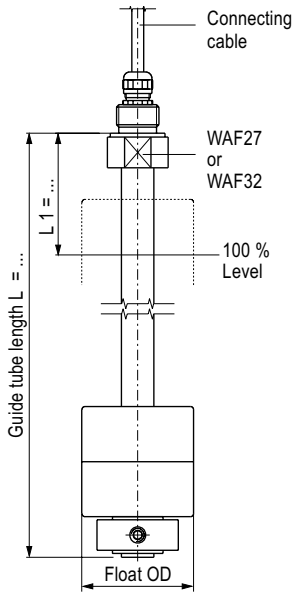


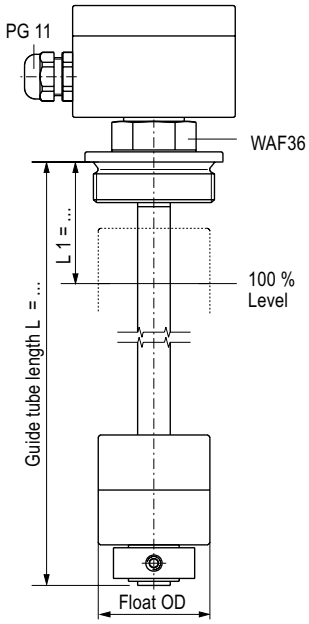


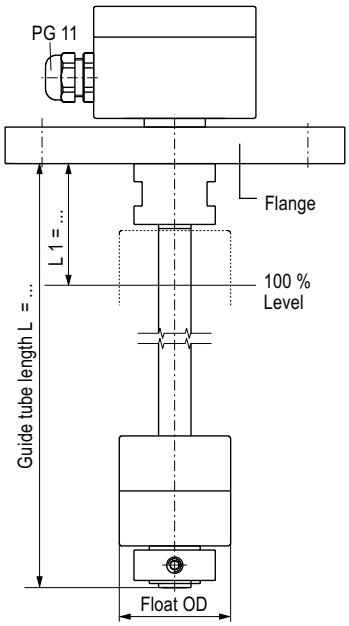
	ERP-...-PK..-L.../..-P..R-1...		**ARP-...-PK..-L.../..-P..R**		**APFP-.../10-PK..-L.../..-P..R**	
Electrical connection	Cable PVC grey, PVC blue, Silicone, Ölflex		Terminal box Polyester 80 x 75 x 55 mm			
Process connection	Mounting thread upwards BSP **1/2"**	BSP **1"**	Mounting thread downwards BSP **2"**		Mounting flange DIN DN**65**-DN**125**, PN**10** FormA ANSI **2 1/2"-5"**,Class **150** FF	
Guide tube - OD	**16** mm	**20** mm	**16** mm	**20** mm	**16** mm	**20** mm
Guide tube length max.	**3000** mm	**5000** mm	**3000** mm	**5000** mm	**3000** mm	**5000** mm
Float	**P55R** guide tube - OD 16 mm **P55R/26, P80R** guide tube - OD 20 mm					
Limit S.G. 85% Nominal S.G. 50%	see KSR Floats page 18/19					
Nominal pressure	max. 0.3 MPa					
Temperature range	0°C... +60°C					
Contact separation	**K 20** = 20 mm **K 16** = 16 mm **K 12** = 12.7 mm **K 8** = 8 mm only guide tube OD 20 mm **K 6** = 6.35 mm only guide tube OD 20 mm					
Overall resistance of measuring chain	dependent on length and contact separation					
Cable length	Distance between level sensor/transmitter and control unit max. 2000 m, 3-core, **shielded**					
Orientation	vertical ± 30°					
Ingress protection	IP 65					
			Head-mounted transmitter in terminal box see catalogue 1011			

KSR Level Sensors / Transmitters

Polypropylene

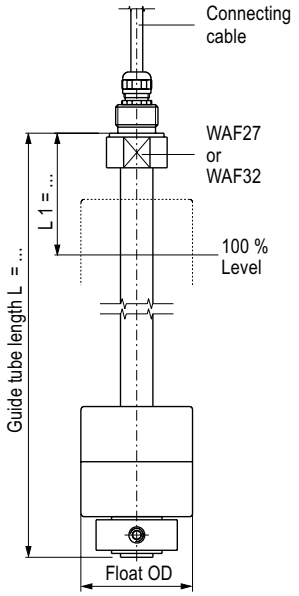




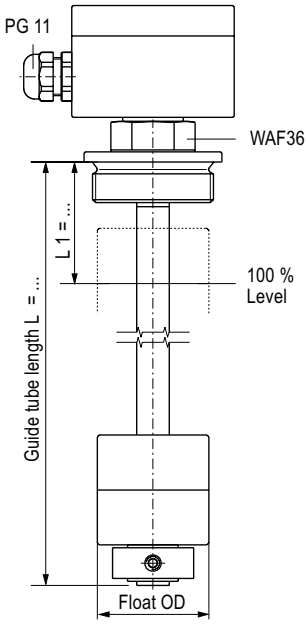


	ERPP-...-PPK..-L.../..-PP..R-1...		**ARPP-...-PPK..-L.../..-PP..R**		**APFPP-.../10-PPK..-L.../..-PP..R**	
Electrical connection	Cable PVC grey, PVC blue, Silicone, Olflex		Terminal box Polyester 80 x 75 x 55 mm			
Process connection	Mounting thread upwards BSP **1/2"**	BSP **1"**	Mounting thread downwards BSP **2"**		Mounting flange DIN DN**65**-DN**125**, PN**10** FormA ANSI **2**1/2"-**5"**,Class **150** FF	
Guide tube - OD	**16** mm	**20** mm	**16** mm	**20** mm	**16** mm	**20** mm
Guide tube length max.	**3000** mm	**5000** mm	**3000** mm	**5000** mm	**3000** mm	**5000** mm
Float	**PP55R** guide tube OD 16 mm **PP55R/26, PP80R** guide tube OD 20 mm					
Limit S.G. 85% Nominal S.G. 50%	see KSR Floats page 18/19					
Nominal pressure	max. 0.3 MPa					
Temperature range	-10°C... +80°C					
Contact separation	**K 20** = 20 mm **K 16** = 16 mm **K 12** = 12.7 mm **K 8** = 8 mm only guide tube OD 20 mm **K 6** = 6.35 mm only guide tube OD 20 mm					
Overall resistance of measuring chain	dependent on length and contact separation					
Cable length	Distance between level sensor/transmitter and control unit max. 2000 m, 3-core**, shielded**					
Orientation	vertical ± 30°					
Ingress protection	IP 65					
			Head-mounted transmitter in terminal box see catalogue 1011			

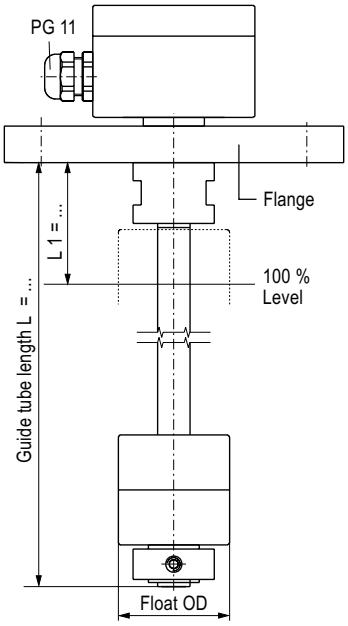
PVDF



ERPF-...-PFK..-L.../..-PF..R-1...



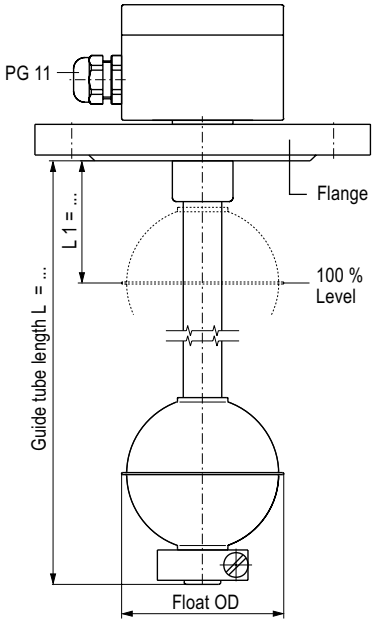
ARPF-...-PFK..-L.../..-PF..R

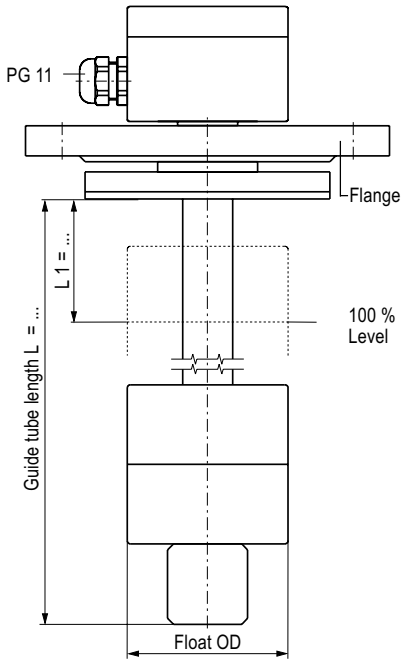


APFPF-.../10-PFK..-L.../..-PF..R

Electrical connection	Cable PVC grey, PVC blue, Silicone, Olflex		Terminal box Polyester 80 x 75 x 55 mm			
Process connection	Mounting thread upwards BSP **1/2"**	BSP **1"**	Mounting thread downwards BSP **2"**		Mounting flange DIN DN**65**-DN**125**, PN**10** FormA ANSI **2 1/2"-5"**,Class **150** FF	
Guide tube - OD	**16** mm	**20** mm	**16** mm	**20** mm	**16** mm	**20** mm
Guide tube length max.	**3000** mm	**5000** mm	**3000** mm	**5000** mm	**3000** mm	**5000** mm
Float	**PF55R** guide tube OD 16 mm **PF55R/26, PF80R** guide tube OD 20 mm					
Limit S.G. 85% Nominal S.G. 50%	see KSR Floats page 18/19					
Nominal pressure	max. 0.3 MPa					
Temperature range	-10°C... +100°C					
Contact separation	**K 20** = 20 mm **K 16** = 16 mm **K 12** = 12.7 mm **K 8** = 8 mm only guide tube OD 20 mm **K 6** = 6.35 mm only guide tube OD 20 mm					
Overall resistance of measuring chain	dependent on length and contact separation					
Cable length	Distance between level sensor/transmitter and control unit max. 2000 m, 3-core**, shielded**					
Orientation	vertical ± 30°					
Ingress protection	IP 65					
			Head-mounted transmitter in terminal box see catalogue 1011			

Stainless steel SS 316 Ti (1.4571), ECTFE-coated or PTFE-lined
Option: anti-static

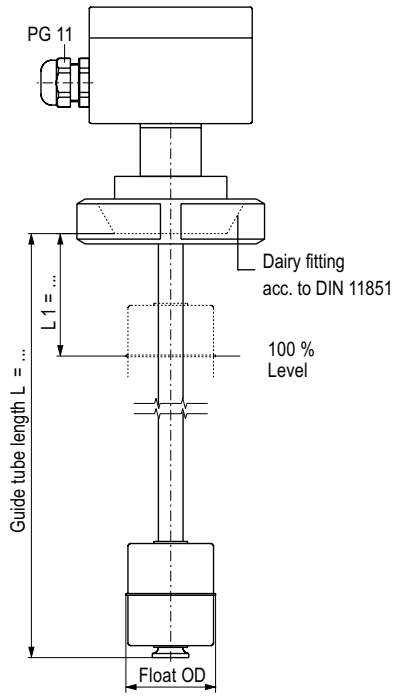


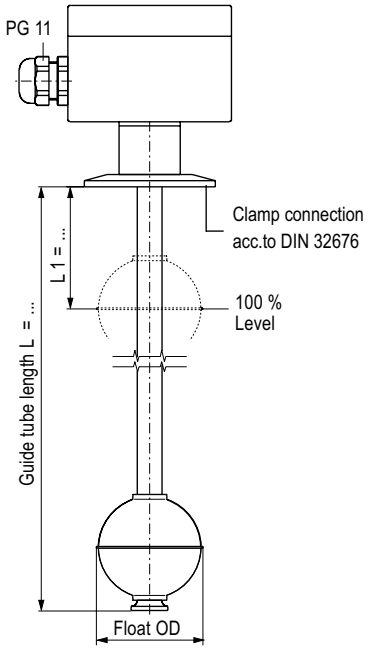


	AFVEC-.../../..-VECK..-L.../18-VEC..R	**AFVTF-.../../..-VTFK..-L.../25-TF..R**
Electrical connection	Terminal box Aluminium 80 x 75 x 57 mm, Option: Polypropylene, Polyester, Stainless steel	
Process connection	Mounting flange to DIN DN**50**-DN**200**, PN**6**-PN**100** or to ANSI **2"-8"**, Class **150-600**	
Guide tube - OD	**18** mm	**25** mm, PTFE-lining = 3.5 mm thick
Guide tube length max.	**4000** mm	**5000** mm
Float	**VEC81R, VEC99R, VEC106R, VEC121R**	**TF80R, TF90R**
Limit S.G. 85% Nominal S.G. 50%	see KSR Floats page 18/19	
Nominal pressure	see KSR Floats page 18/19	max. 0.3 MPa
Temperature range	dep. on liquid	
Contact separation	**K 20 =** 20 mm **K 16 =** 16 mm **K 12 =** 12.7 mm **K 8 =** 8 mm **K 6 =** 6.35 mm	
Overall resistance of measuring chain dependent on length and contact separation		
Cable length	Distance between level sensor/transmitter and control unit max. 2000 m, 3-core**, shielded**	
Orientation	vertical ± 30°	
Ingress protection	IP 65	
	Head-mounted transmitter in terminal box see catalogue 1011	

KSR Level Sensors / Transmitters

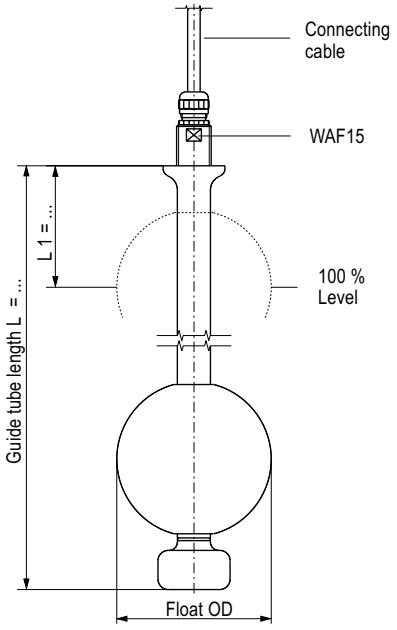
Food industry design - Stainless steel SS 316 L





	AMRV-...-VEK..-L.../..-VE..R	**AFCV-...-VEK..-L.../..-VE..R**
Electrical connection	Terminal box Aluminium 80 x 75 x 57 mm, Option: Polypropylene, Polyester, Stainless steel	
Process connection	Dairy fitting acc. to DIN 11851 DN**50**-DN**150**	Clamp connection acc.to DIN 32676 DN**25**-DN**100** or **1"-4"**
Guide tube - OD	**12** mm, **14** mm, **18** mm	
Guide tube length max.	**3000** mm guide tube OD 12 and 14 mm, **6000** mm guide tube OD 18 mm	
Float	**VE44R, VE52R, VE62R, VE83R** guide tube OD 12 and 14 mm **VE80R, VE98R. VE105R, VE120R** guide tube OD 18 mm	
Limit S.G. 85% Nominal S.G. 50% Nominal pressure	see KSR Floats page 18/19	
Temperature range	-20°C...+120°C	
High temperature	Optional code **(HT..)** +120°C...+200°C	
Low temperature	Optional code **(TT..)** -20°C... -80°C	
Contact separation	**K 20** = 20 mm **K 16** = 16 mm **K 12** = 12.7 mm **K 8** = 8 mm only guide tube OD 14 and 18 mm **K 6** = 6.35 mm only guide tube OD 14 and 18 mm	
HT- or TT-Design	**K 15 (.T..)** = 15 mm **K 10 (.T..)** = 10 mm **K 5 (.T..)** = 5 mm	
Overall resistance of measuring chain dependent on length and contact separation		
Cable length	Distance between level sensor/transmitter and control unit max. 2000 m, 3-core**, shielded**	
Orientation	vertical ± 30°	
Ingress protection	IP 65	
	Head-mounted transmitter in terminal box see catalogue 1011	

Sanitary design - Stainless steel SS 316 L



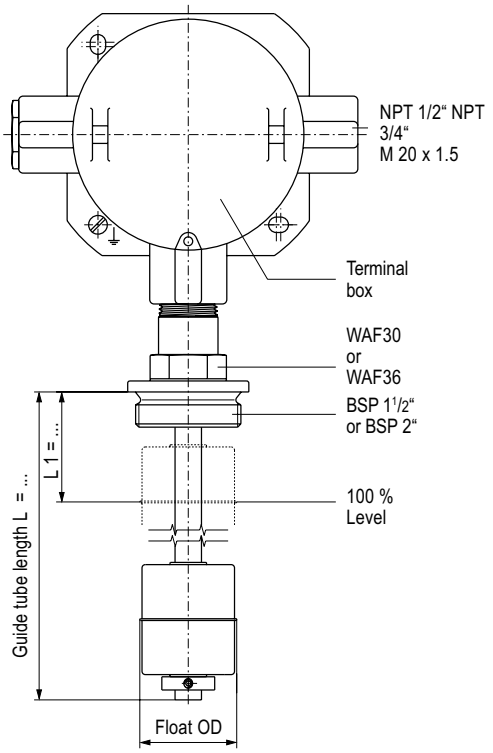
ERV-$^{3}/_{8}$-VK..-L.../17-V80R2/3A/..-1...

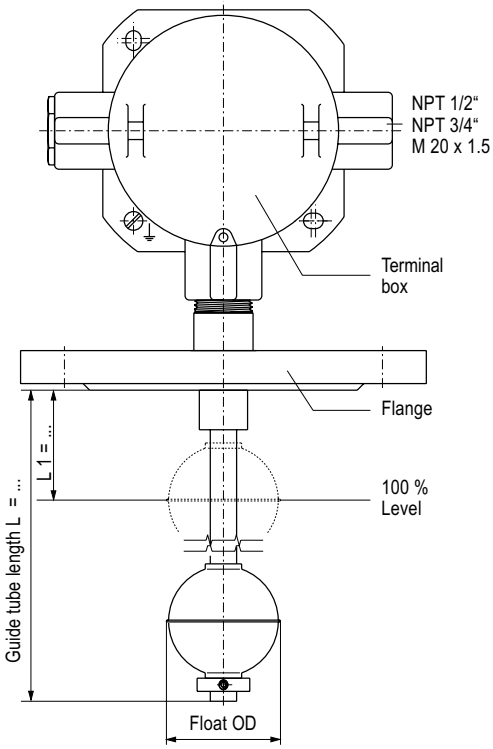
1001-5

Electrical connection	Cable: PVC grey, PVC blue, Silicone, Ölflex	Option: Terminal box
Process connection	Mounting thread upwards BSP $^{3}/_{8}$"	Mounting flange to DIN or ANSI Dairy fitting acc. to DIN 11851 Clamp connection acc.to DIN 32676 Sanitary nozzle (Ingoldstutzen)
Guide tube - OD	**17.2** mm Stainless steel 316 L (1.4435) or Uranus B6 (1.4539) - ground and polished	
Guide tube length max.	**5000** mm	
Float	**V80R2/3A/..** Stainless steel 316 L (1.4435) or Uranus B6 (1.4539) - ground and polished	
Limit S.G. 85%	715 kg/m^3	
Nominal S.G. 50%	1220 kg/m^3	
Nominal pressure	2.5 MPa	
Temperature range Standard	PVC- / Ölflex cable -10°C... +80°C Silicone cable -10°C...+120°C	-20°C...+120°C
High temperature		Optional code **(HT..)** +120°C...+200°C
Low temperature		Optional code **(TT..)** -20°C... -80°C
Contact separation	**K 20** = 20 mm **K 16** = 16 mm **K 12** = 12.7 mm **K 8** = 8 mm **K 6** = 6.35 mm	
HT- or TT-Design		**K 15 (.T..)** = 15 mm **K 10 (.T..)** = 10 mm **K 5 (.T..)** = 5 mm
Overall resistance of measuring chain dependent on length and contact separation		
Cable length	Distance between level sensor/transmitter and control unit max. 2000 m, 3-core**, shielded**	
Orientation	vertical ± 30°	
Ingress protection	IP 65	
		Head-mounted transmitter in terminal box see catalogue 1011

KSR Level Sensors / Transmitters

for hazardous area EEx d IIC T4-T6 - Stainless steel SS 316 Ti (1.4571)

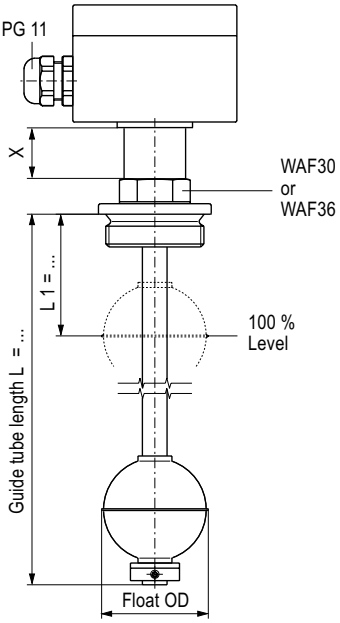


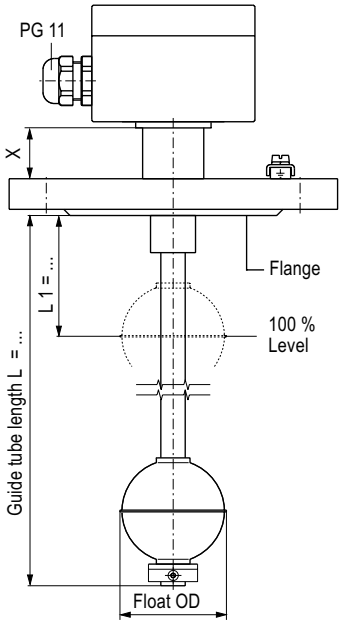


	AL-ADF-...-VK.-L..-S..	**AL-ADF-...-VK.-L..-S..**
Electrical connection	Terminal box Aluminium	
Process connection	Mounting thread downwards BSP **1 1/2”** or BSP **2”**	Mounting flange DIN DN**50**-DN**350**, PN**6**-PN**40** ANSI **2”-14”**,Class **150-300**
Guide tube - OD	**12** mm, **14** mm, **18** mm,	
Guide tube length max.	**3000** mm guide tube OD 12 and 14 mm, **6000** mm guide tube OD 18 mm	
Float	**SVK, SV, SVA, SVB** guide tube OD 12 and 14 mm **SVB23, SVC, SVD, SVF23** guide tube OD 18 mm	
Limit S.G. 85% Nominal S.G. 50% Nominal pressure	see KSR Floats page 18/19	
Temperature range	T4 - 120°C, T5 - 95°C, T6 - 80°C	
Contact separation	**K 20 =** 20 mm **K 16 =** 16 mm **K 12 =** 12.7 mm **K 8 =** 8 mm only guide tube OD 14 and 18 mm **K 6 =** 6.35 mm only guide tube OD 14 and 18 mm	
Overall resistance of measuring chain dependent on length and contact separation		
Protection class	EEx d IIC T4 - T6	
Certficate of conformity	L.C.I.E. 89. B 6050 X	
Connection cable	3-core, **shielded**	
Orientation	vertical ± 30°	
Ingress protection	IP 65	
	Head-mounted transmitter in terminal box see catalogue 1011	

II 1/2G EEx ia IIC T4-T6 KEMA 01 ATEX 1052X
Stainless steel SS 316 Ti (1.4571)

Process temperature	Raised terminal box
	X
< 60 °C	0 mm
< 100 °C	60 mm





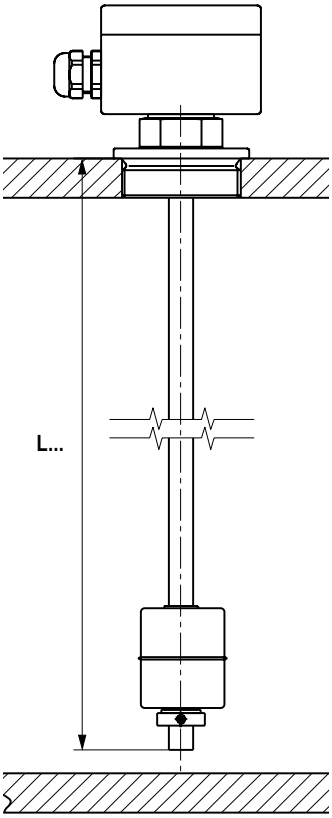
	NMG125-A-R...-VK..-L.../..-S..- (MU)	NMG125-A-.../../..-VK..-L.../..-S..- (MU)
Electrical connection	Terminal box Aluminium 80 x 75 x 57 mm, Option Stainless steel	
Process connection	Mounting thread downwards BSP **1**1/2**"** or BSP **2"**	Mounting flange DIN DN**50**-DN**200**, PN**6**-PN**100** ANSI **2"-8"**,Class **150-600**
Guide tube - OD	**12** mm, **14** mm, **18** mm	
Guide tube length max.	see option A and B on page 17	
Float	**SVK, SV, SVA, SVB** guide tube OD 12 and 14 mm **SVB23, SVC, SVD, SVF23** guide tube OD 18 mm	
Limit S.G. 85% Nominal S.G. 50% Nominal pressure	see KSR Floats page 18/19	

Temperature class		**T4**	**T5**	**T6**
Surface temperature	max.	135°C	100°C	85°C
Process temperature	max.	100°C	65°C	50°C
Ambient temperature at terminal box	max.	60°C	60°C	60°C

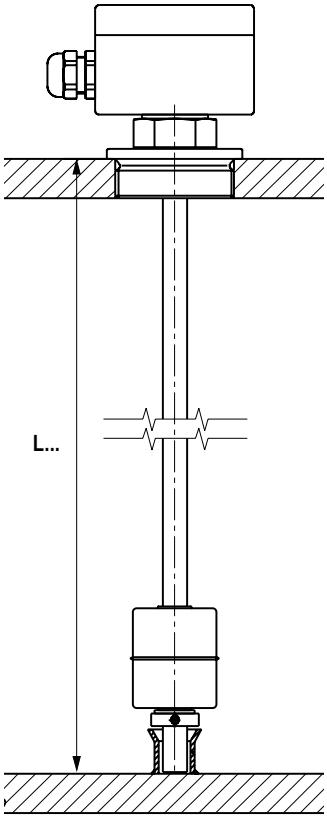
Contact separation	Chip design		Open chain	
	..K 20 = 20 mm		**..K 15** = 15 mm	
	..K 16 = 16 mm		**..K 10** = 10 mm	
	..K 12 = 12.7 mm		**..K 5** = 5 mm	
	..K 8 = 8 mm	only guide tube OD 14 and 18 mm		
	..K 6 = 6.35 mm	only guide tube OD 14 and 18 mm		

Overall resistance of measuring chain	3.2 kOhm ... 50 kOhm	Optional code **MU** approx. 1000 Ohm
Control circuit	for hazardous area EEx ia IIC, only for use in certified intrinsically safe circuits Transmitter external with max. 120 mA, max. 28 V Head-mounted transmitter acc. to certificate of transmitter	
Type code MU	only for use in certified intrinsically safe circuits with max. 50 mA, max. 20 V	
Connection cable	3-core, **shielded**	
Orientation	vertical ± 30°	
Ingress protection	IP 65	
	Materials Titanium and Hastelloy upon request	
	Head-mounted transmitter in terminal box see catalogue 1011	

Limitation of max. guide tube length for KSR Level Sensor/Transmitter type NMG125....



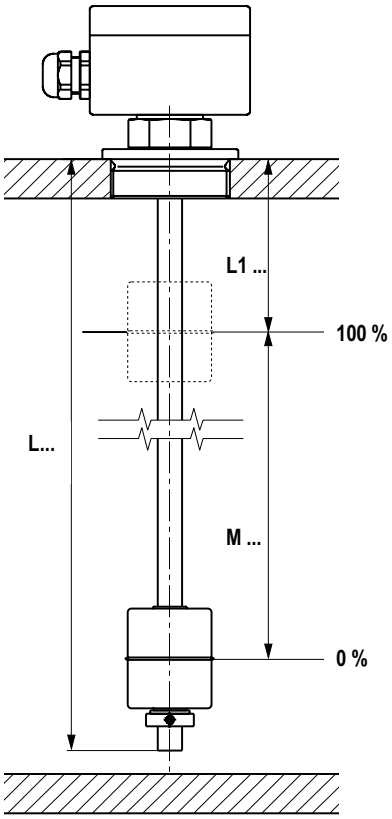
Option A
Mounted on top of tank



Option B
Mounted on top of tank and fixed at bottom of tank

max. length	Guide tube	max. length
660 mm	OD 12 x 1	3500 mm
940 mm	OD 14 x 1	5000 mm
1600 mm	OD 14 x 2	6000 mm
3000 mm	OD 18	6500 mm

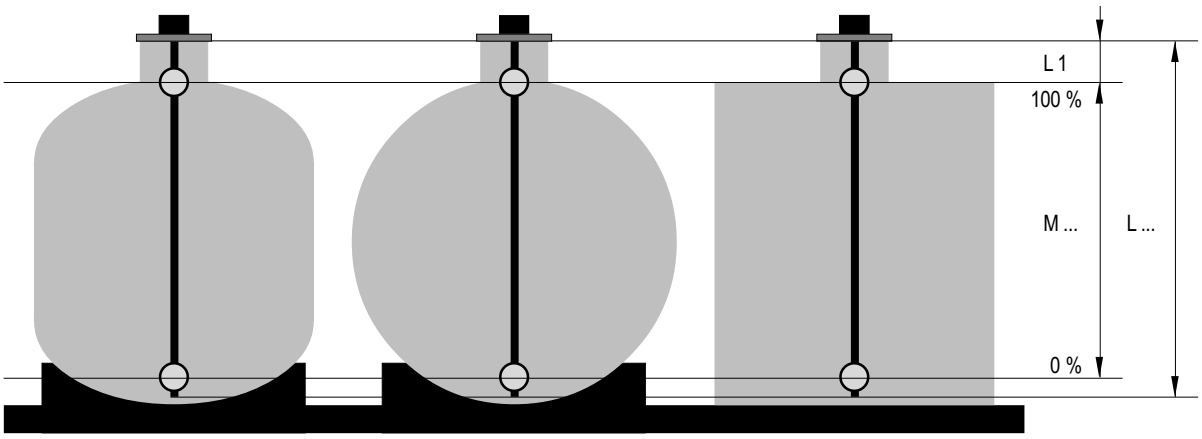
Order information
100% level



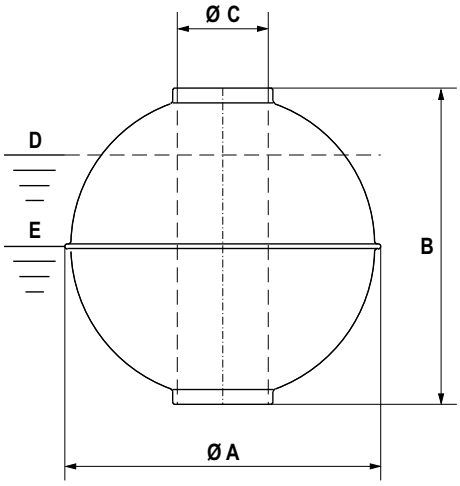
Please always provide **dimension L1** and **insertion length L**.
(It is not possible to change the measuring range after manufacture).

L1 = 100%-level (distance flange face to waist of float)
M = Measuring range (distance 0% - 100%)
L = Insertion length of level sensor/transmitter

Installation examples



Spherical floats



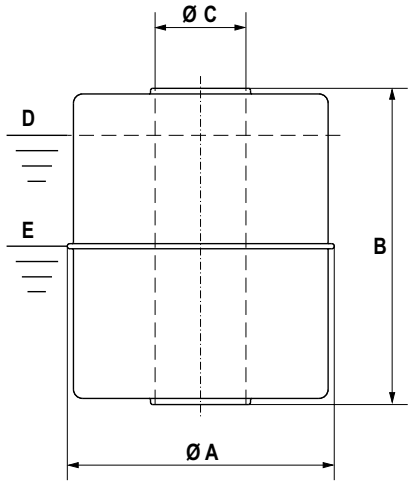
D = Limit S.G.
at 85% immersed float

E = Nominal S.G.
at 50% immersed float

Material	Type * Code 6	A mm	B mm	C mm	Max.operating pressure MPa	Max.operating temperature °C	Weight g	Volume cm^3	Limit S.G. (D) 85% kg/m^3	Nominal S.G. (E) 50% kg/m^3
Stainless steel SS 316 Ti	**V52R (SV)**	52	52	15	4.0	250	35	57	727	1236
(1.4571)	**V62R (SVA)**	62	61	15	3.2	250	52	102	597	1015
	V83R (SVB)	83	81	15	2.5	250	89	254	412	701
	V80R (SVB23)	80	76	23	2.5	250	104	198	617	1049
	V98R (SVC)	98	96	23	2.5	250	202	423	561	954
	V105R (SVD)	105	103	23	2.5	250	234	529	520	884
	V120R (SVF23)	120	117	23	2.5	250	272	811	394	671
	V120R/38	120	116	38	2.5	250	332	726	537	914
	V200R (SV200)	200	192	56	1.6	250	1710	3460	581	989
	V300R (SV300)	300	294	56	1.6	250	3820	13120	342	582
Titanium Grade 2 (3.7035)	**T52R**	52	52	15	2.5	250	30	57	623	1060
	T52R/0,6	52	52	15	6.0	250	38	57	790	1342
	T52R/0,8	52	52	15	8.0	250	48	57	997	1696
	T62R	62	62	15	2.5	250	42	102	482	820
	T83R	83	81	15	2.5	250	75	254	343	583
	T80R	80	76	23	2.5	250	146	198	866	1473
	T98R	98	96	23	2.5	250	193	423	536	912
	T105R	105	103	23	2.5	250	187	529	416	707
	T120R	120	117	23	2.5	250	217	811	315	535
Stainless steel SS 316 Ti	**VEC81R**	81	77	22	2.5	dep. on liquid	128	238	634	1077
(1.4571) ECTFE-coated	**VEC99R**	99	97	22	2.5	dep. on liquid	245	441	653	1111
	VEC106R	106	104	22	2.5	dep. on liquid	278	549	595	1011
	VEC121R	121	118	22	0.3	dep. on liquid	310	837	435	740

Type code in brackets for design Ex-0

Cylindrical floats



D = Limit S.G.
at 85% immersed float

E = Nominal S.G.
at 50% immersed float

Material	Type * Code 6	A mm	B mm	C mm	Max.operating pressure MPa	Max.operating temperature °C	Weight g	Volume cm^3	Limit S.G. (D) 85% kg/m^3	Nominal S.G. (E) 50% kg/m^3
Stainless steel SS 316 Ti	**V44R (SVK)**	44	52	15	1.6	250	38	60	740	1258
Titanium Grade 2 (3.7035)	**T44R**	44	52	15	1.6	250	32	60	645	1098
PVC	**P55R**	55	54	22	0.3	60	68	99	805	1369
	P55R/26	55	80	26	0.3	60	109	148	869	1477
	P80R	80	79	25	0.3	60	162	330	577	981
Polypropylene	**PP55R**	55	54	22	0.3	80	50	99	592	1007
	PP55R/26	55	80	26	0.3	80	79	148	630	1071
	PP80R	80	79	25	0.3	80	123	330	438	745
PVDF	**PF55R**	55	69	22	0.3	100	88	128	809	1375
	PF55R/26	55	80	26	0.3	100	143	148	1140	1938
	PF80R	80	79	25	0.3	100	198	330	706	1200
PTFE	**TF80R**	80	100	28	0.3	dep. on liquid	250	441	667	1134
	TF90R	90	100	28	0.3	dep. on liquid	285	575	584	992

Type code in brackets for design Ex-0

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