INTRA-AUTOMATION

MESS- UND REGELINSTRUMENTE / MEASUREMENT AND CONTROL

TÜVRheinland® CERT ISO 9001

Magnetically controlled liquid level indicator

Type: ITA

ITA with Aluminum-Indication rail and switch

ITA with mA-output signal and digital display with volume linearization

ITA with steam casing

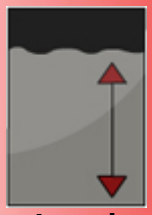
ITA with Armaflex®-Isolation (refrigerant)

Inspection / Certificate:

1. Material certificate EN 10204 2.1
2. Material certificate EN 10204 3.1 B
3. Test acc. to NACE
4. Pressure test certificate
5. Pressure test acc to „AD-Merkblatt“ by German TUV
6. Construction and pressure test as per TRD by German TUV
7. Dye penetration test DIN 54152
8. X-Ray test acc. with DIN 54111, part 1
9. PMI-check
10. ATEX-certificate
11. General approval of construction inspection acc. with § 19 water resources law about flammable liquids-Vbf
12. Water level controller component-check as per VdTUV/WR91-352
13. Germanischer Lloyd
14. Certification of passivation
15. Weight certificate

ITA, material PVDF

Technical Catalogue



Level

THE SPECIALIST IN LEVEL AND FLOW

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Please submit suggestions or comments regarding this ITA catalogue to:
info@intra-automation.de

List of contents:

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1. ISO 9001 Certificate

Certificate

Standard **ISO 9001:2008**

Certificate Registr. No. 01 100 036028

TÜV Rheinland Cert GmbH certifies:

Certificate Holder:

INTRA-AUTOMATION GmbH
MESS- UND REGELINSTRUMENTE
elektronische Meß- und Regelinstrumente

Intra-Automation GmbH
Otto-Hahn-Str. 20
D - 41515 Grevenbroich

Scope: Manufacturing, design and sale of measuring and control equipment

An audit was performed, Report No. 036028. Proof has been furnished that the requirements according to ISO 9001:2008 are fulfilled.
The due date for all future audits is 25-01 (dd.mm).

Validity: The certificate is valid from 2010-01-27 until 2013-01-25.
First certification 2003

Cologne, 2010-01-27

TÜV Rheinland Cert GmbH *)
Am Grauen Stein · 51105 Köln

IAF
TGA-ZM-58-95-00

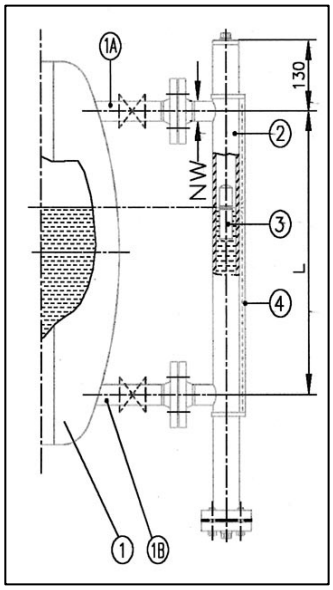
www.tuv.com

*) Member of TÜV CERT

TÜVRheinland®
Precisely Right.

2. Functioning and General Information

2.1 Magnetically controlled liquid level gauge type ITA



The product line ITA is used wherever fluid level has to be monitored, indicated, and controlled in a reliable way, especially with corrosive, toxic and inflammable fluids.

The ITA level indicators offer a reliable, accident-free and maintenance-free usage, through a simple and break-resistant construction at a maximum process pressure of 320 bar and a temperature range from –50 through 400 °C. The fluid level is indicated directly with a separation of the measurement and indication area. The magnetic transfer of the fluid level from the tank to the indicator is continuous and vibration-resistant, even in the case of fast changing levels.

It is possible to mount the indication rail in any position on the pipe diameter. There is no corrosion of the indication system. The ITA® instruments may be used in open or closed vessels. A definite level measurement without any power supply is guaranteed due to a continuous rotation of the wafers, even if a power loss in the plant occurs.

Functional principle:
A float chamber (2) is connected (1A and 1B) to the tank (1), and following the law of communicating tubes, the level in the float chamber is equal to the level of the tank. The float (3) follows the fluid level and transmits its movements contact-free to the indication rail (4) mounted on the outside. The float has a special magnet, which rotates the wafers by 180° as it passes them. The result is a clearly defined level indication, with the level shown in a continuous red stripe strongly contrasted to the white above. At increasing levels the color of the wafer changes from white to red and vice versa.

The indication rail and the wafers are made of Makrolon so that there will never be a problem of corrosion in humid and aggressive atmosphere. Each wafer has a permanent magnet, that is why the indicator is shock proof. Moreover, as there is no turbidness because of product contamination of the UV-radiation, the readability remains unobjectable even after some years.

All models are available with electronic alarms, which can be mounted at any position during operation of the system, which renders possible an optimal definition of the min. and max. data points. The indicator can be equipped with a scale for volume or height (depending on the customer's specifications).

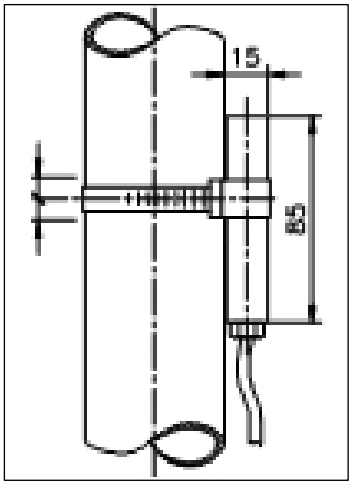
2.2 Level measurement tasks

1.) Indicating the fluid level
2.) Monitoring the level with alarm contacts
3.) Transferring the level using measurement value sensors (analogue signal 4-20 mA) to electrical display units
4.) Interface level measurement

2.3 Advantages

No risk of glass breakage as a result of the separation of the measurement and indicator areas. The float principle means that changes of the density in the medium have very little influence on the indication accuracy.

2.4 Switches / Alarm contacts

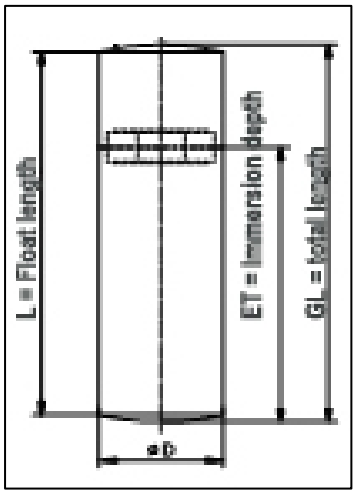


Magnetic level indicators can be equipped with an arbitrary number of switch contacts. In contrast to electric float switches, switch contacts may be installed at any position of the stand pipe. Wherever additional float chambers are needed for float switches, magnetically controlled level gauges offer a considerable price benefit.

Electrical level measurement transducers which use the displacement principle must be recalibrated each time the fluid density has changed. The price of a magnetically controlled level indicator with integral electrical measurement transducer is considerably lower than level measurement transducers. The reed chain with an R/I measurement transducer can be changed without interrupting the operation. The measurement chamber is hermetically sealed – there is no contact between the fluid chamber and the reed chain.

The switches / alarm contacts are secured with pipe clips, and can be adjusted to any desired height. The connection is using 3-core cable or casing terminals. The changeover contact can be used as opener or closer. The switches are also available as explosion-proof version.

2.5 Floats



The construction of the float requires a great amount of technical knowledge. The float with its special magnet can rotate freely in the float chamber. The Intra construction avoids a guide wire and other devices. The float materials are stainless steel, 1.4571(316Ti), 1.4435 (316L) or titanium (PVC, PP, PVDF in case of the plastics level gauges). Floats without gas-prestressing are used from a minimum density of 0,35 kg/dm³. The maximum process pressure for sealed floats is 250 bar; at higher pressures the floats must be relieved from pressure (not to be used for condensing media).

2.6 Indication rail

The ITA level gauges can be supplied with indication rails made from 2 different materials. Makrolon indication rails are resistible to breakage. The max. permissible media temperature is 120°C, with 20°C ambient temperature and natural convection as test conditions. The rails are resistible to UV-radiation and aggressive atmospheres and are sealed against dust by two seal-caps. Aluminum indication rails can be supplied as one part rail up to a length of 6 m. The sight cover material depends on the temperature, up to 150°C the material is Makrolon and up to 400°C it is glass. The surface of the indication rail can b coated with Saekaphen if required, the standard surface is brown-anodized.

2.7 Materials

The gauge chamber and the floats are made of stainless steel (1.4571), 254SMO (1.4529), titanium, Hasteloy, PVC, PP, PVDF and PTFE. Other materials on request.

2.8 Special versions

1. Transmitter, output signal 0-20 or 4-20 mA
2. Steam jacket, e.g. for viscous media
3. Float chamber with Armaflex® insulation, for temperatures below zero (centigrade)
4. Scale made of Gravoloy (white plastics) or aluminium red anodized
5. Two-parts versions without interruption of the indication, for measuring lengths > 5 m
6. Works report DIN 50049
7. Level indicator in GL-design (Germanischer Lloyd, Bureau Veritas, Det Norske Veritas, Lloyd's Register)
8. Usage as an overfilling guard for tanks for storing inflammable and non-inflammable water polluting liquids.
9. ITA Cryogenic versions for refrigerants
10. ITA with lining made of PTFE
11. ITA with inside coating made of E-CTFE (Halar)

2.9 Additional equipment

1. Anti-freezing heating belt for use in the open air
2. Vent/drain valves, threaded or flanged connection
3. Measuring scale, divisions to client's specifications
4. Armaflex insulation
5. Protective hose, additional protection of the indicator against dust, dirt and moisture
6. Plastics-indicator with armouring

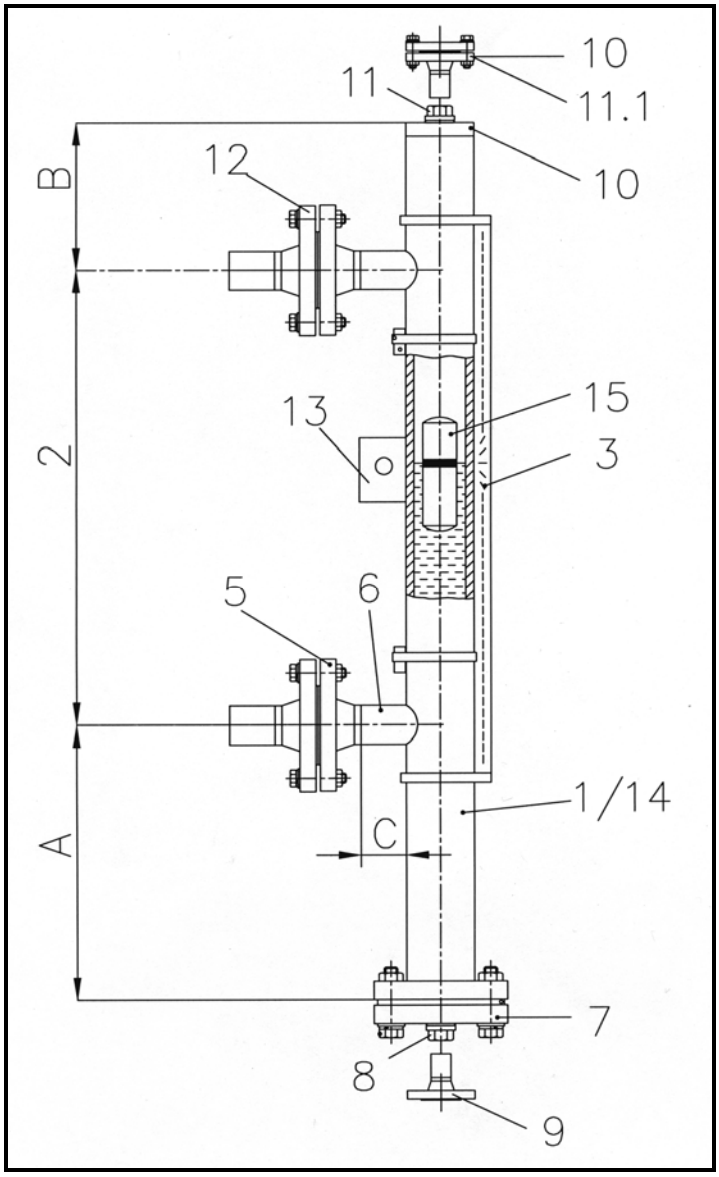
2.10 Inspection / Certificates

1. Material certificate EN 10204 2.1
2. Material certificate EN 10204 2.2
3. Material certificate EN 10204 3.1 A/B/C
4. Test according to NACE
5. Pressure test certificate
6. Pressure test according to "AD-Merkblatt" by the German TÜV
7. Construction and pressure test as per TRD by the TÜV
8. Dye penetration test DIN 54152
9. X-ray-test in accordance with DIN 54111 part 1
10. PMI-check
11. ATEX-certification
12. General approval of construction inspection in accordance with § 19 water resources law – WHG – and § 12 law about flammable liquids – VbF
13. Water level controller component check as per VdTÜV/WR91-352
14. Germanischer Lloyd
15. Certificate of passivation
16. Weight certificate
17. PED 97/23/EG

3 Level Gauges in details

3.1.1 ITA-3

Characteristics: **PN16 / Float pipe and flange material 1.4404**



Parts drawing ITA-3

Key:

1	Float pipe welded Dimensions 60,3 x 2 mm	9	Additional drain flange, open
2	c to c distance	10	Float pipe top end finish
3	Design (indication rail)	11	Vent plug
5	Process connection side/side	12	Counter flanges
6	Side studs welded with T-pieces for 100 % X-ray testing	13	Additional bracket
		14	Float pipe seamless
7	Float removal flange	15	Float
8	Drain plug		

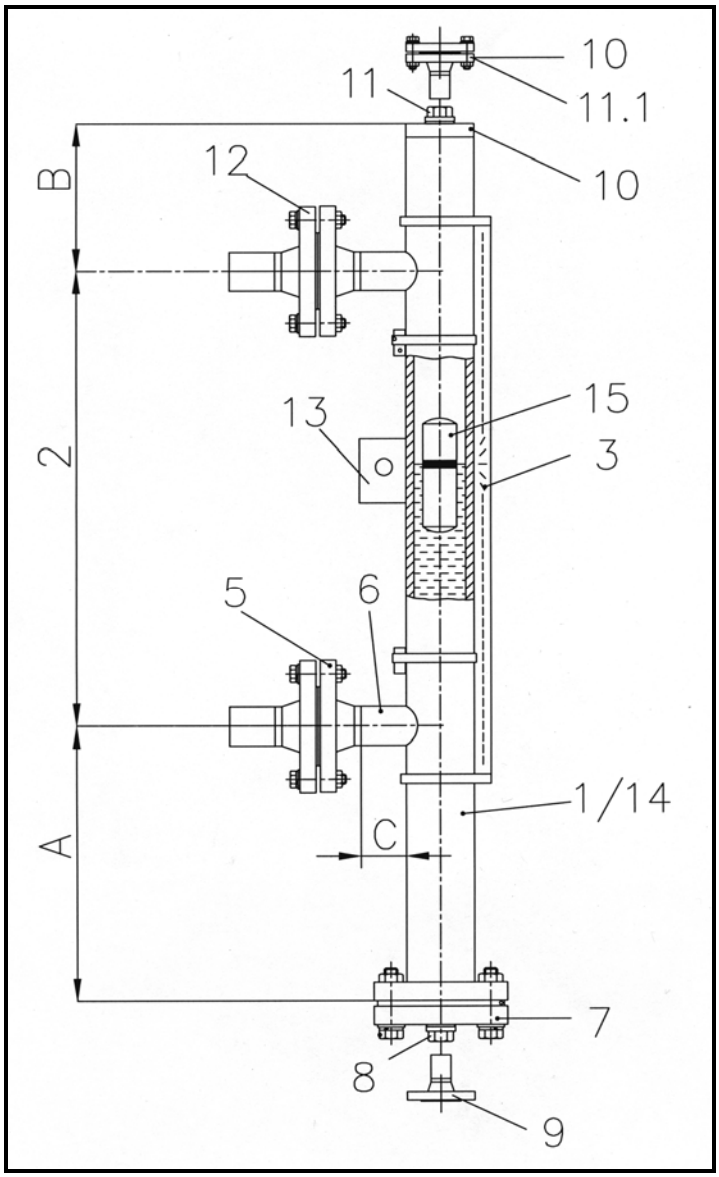
Technical specifications magnetic level gauge type ITA 3

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 2 mm welded,** 60,3 x 2 mm seamless 2“Sch10 **necking connection** or buttweld with T-pieces
Process connection	:	to specify: **Flanges DN15-50 (1/2“-2“150#),** **Welding or threaded stud**
Drain/vent connections	:	**Plug R1/2“** (for more please see price list)
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	same as pipe material
Float material	:	**1.4404** Titan, Titan/E-CTFE-coated
Operation temperature	:	-50...+400 °C
Operation pressure	:	max. 16 bar
Operation density	:	min. 0,3761 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**PTFE up to 100 °C** **Klingersil C4400 up to 175 °C** **Graphit spiral wound up to 400 °C****
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301 up to 400 °C
Float types	:	Cylindrical, sealed type Length: - **270 mm** - 130 mm - 150 mm - 210 mm - 330 mm - 430 mm - 530 mm - 630 mm
Standard dimensions	:	- A = 240* - B = 130 - C = 40

Base equipment printed in bold letters!
*** for densities < 0,7374 kg/dm³ enlarge the scale A**
**** only with vent- and/or drain-flanges DN50 resp. 2“**

3.1.2 ITA-3.0

Characteristics: **PN16 / Float pipe: 1.4404; Flanges: CS**



Parts drawing ITA-3.0

Key:

1	Float pipe welded Dimensions 60,3 x 2 mm	9	Additional drain flange, open
2	c to c distance	10	Float pipe top end finish
3	Design (indication rail)	11	Vent plug
5	Process connection side/side	12	Counter flanges
6	Side studs welded with T-pieces for 100 % X-ray testing	13	Additional bracket
		14	Float pipe seamless
7	Float removal flange	15	Float
8	Drain plug		

Technical specifications magnetic level gauge type ITA 3.0

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 2 mm welded,** 60,3 x 2 mm seamless 2“Sch10 **necking connection** or buttweld with T-pieces
Process connection	:	to specify: **Flanges DN15-50 (1/2“-2“150#),** **Welding or threaded stud**
Drain/vent connections	:	**Plug R1/2“** (for more please see price list)
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	Carbon steel
Float material	:	**1.4404** Titan, Titan/E-CTFE-coated
Operation temperature	:	-50...+400 °C
Operation pressure	:	max. 16 bar
Operation density	:	min. 0,3761 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**PTFE up to 100 °C** **Klingersil C4400 up to 175 °C** **Graphit spiral wound up to 400 °C****
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301 up to 400 °C
Float types	:	Cylindrical, sealed type Length: - **270 mm** - 130 mm - 150 mm - 210 mm - 330 mm - 430 mm - 530 mm - 630 mm
Standard dimensions	:	- A = 240* - B = 130 - C = 40

Base equipment printed in bold letters!
*** for densities < 0,7374 kg/dm³ enlarge the scale A**
**** only with vent- and/or drain-flanges DN50 resp. 2“**

Order codes for magnetic level gauge type ITA-3 and ITA-3.0

Code	Description
ITA-3 ITA-3.0	**1. Float pipe welded Dimensions 60,3 x 2 mm**
	2. c to c distance
L	c to c distance in mm
	3. Design
0	without indication rail
1	Indication rail material: Makrolon max. 120 °C
2	Indication rail material: Aluminium max. 400 °C
3	Indication rail material: 1.4401 max. 400 °C
	4. c to c distance < 5000 mm
A	< 5000 mm - without flange connection; DN 32 PN 16
B	> 5000 mm - with flange connection; DN 32 PN 16
	5. Process connection side/side
Y	Welding connection (please specify)
Z	Threaded connection (please specify)
1	Flanges DN 15 PN 16
2	Flanges DN 20 PN 16
3	Flanges DN 25 PN 16
4	Flanges DN 32 PN 16
5	Flanges DN 40 PN 16
6	Flanges DN 50 PN 16
A	Flanges 1/2" ANSI 150 lbs
B	Flanges 3/4" ANSI 150 lbs
C	Flanges 1" ANSI 150 lbs
D	Flanges 1 1/4" ANSI 150 lbs
E	Flanges 1 1/2" ANSI 150 lbs
F	Flanges 2" ANSI 150 lbs
	5.1 Surface side flanges
0	without
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface Nut (DIN2512)
G	Surface groove large
H	Surface Feder (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	6. Side studs welded with T-pieces for 100 % X-ray testing
0	without
T	T-pieces

Order codes for magnetic level gauge type ITA-3 and ITA-3.0 (Continuation)

Code	Description
	7. Float removal flange (bottom side)
1	End cap (only if float removal flange (top side))
2	Flange DN 32 PN 16 incl. blind flange
3	Flange DN 50 PN 16 incl. blind flange
A	Flange 2" ANSI 150 lbs incl. blind flange
B	Flange DN 50 PN 16 reinforced for shut off valve on side
C	Flange 2" ANSI 150 lbs reinforced for shut off valve on side
	7.1 Surface float removal flange (bottom side) (only DN50 or 2")
0	without (Float removal flange (bottom side) = end cap or < DN50 or 2")
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	7.2 Bolts & nuts float removal flange (bottom side)
0	without (Float removal flange (bottom side) = end cap)
1	M16 x 65 mm; mat. zinced steel; flange DN 32 PN 16
2	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 32 PN 16
3	M16 x 65 mm; mat. zinced steel; flange DN 50 PN 16
4	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 50 PN 16
A	5/8" x 83; mat. zinced steel A193B7; fange 2" ANSI 150 lbs
B	5/8" x 83; mat. stainless steel A193B8 A1948M; flange 2" ANSI 150 lbs
C	Bolts & nuts PTFE coated (only DN 50 or 2")
	8. Drain plug
0	without
1	Drain plug G 1/2" with soft iron gasket
2	Drain plug 1/2" NPT
3	Drain plug 3/4" NPT
4	Drain plug 1" NPT
	9. Additional drain flange, open
0	without
1	Drain stud with flange DN 15 PN 16
2	Drain stud with flange DN 20 PN 16
3	Drain stud with flange DN 25 PN 16
4	Drain stud with flange DN 32 PN 16
5	Drain stud with flange DN 40 PN 16
A	Drain stud with flange 1/2" ANSI 150 lbs
B	Drain stud with flange 3/4" ANSI 150 lbs
C	Drain stud with flange 1" ANSI 150 lbs
D	Drain stud with flange 1 1/4" ANSI 150 lbs
E	Drain stud with flange 1 1/2" ANSI 150 lbs

Order codes for magnetic level gauge type ITA-3 and ITA-3.0 (Continuation)

Code	Description
	9.1 Drain flange with concentric reducer (X-ray testing)
0	without
1	DN 15 PN 16
2	DN 20 PN 16
3	DN 25 PN 16
4	DN 32 PN 16
5	DN 40 PN 16
A	1/2" ANSI 150 lbs
B	3/4" ANSI 150 lbs
C	1" ANSI 150 lbs
D	1 1/4" ANSI 150 lbs
E	1 1/2" ANSI 150 lbs
	9.2 Surface open drain flange
0	without (additional drain flange = without)
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	10. Float pipe top end finish
1	End cap
2	Flange with blind flange DN 32 PN 16
3	Flange with blind flange DN 50 PN 16
A	Flange with blind flange 2" ANSI 150 lbs
	10.1 Surface float pipe top end finish flange (only DN50 or 2")
0	without (Float pipe top end finish = End cap or < DN50 or 2")
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"

Order codes for magnetic level gauge type ITA-3 and ITA-3.0 (Continuation)

Code	Description
	10.2 Bolts & nuts float pipe top end finish flange (only DN50 or 2")
0	without (Float removal flange (bottom side) = end cap)
1	M16 x 65 mm; mat. zinced steel; flange DN 32 PN 16
2	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 32 PN 16
3	M16 x 65 mm; mat. zinced steel; flange DN 50 PN 16
4	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 50 PN 16
A	5/8" x 83; mat. zinced steel A193B7; fange 2" ANSI 150 lbs
B	5/8" x 83; mat. stainless steel A193B8 A1948M; flange 2" ANSI 150 lbs
C	Bolts & nuts PTFE coated (only DN 50 or 2")
	11. Vent plug at top end
0	without
1	Vent plug G 1/2" with soft iron gasket
2	Vent plug 1/2" NPT
3	Vent plug 3/4" NPT
4	Vent plug 1" NPT
	11.1 Vent flange welded to end cap instead of vent plug
0	without
1	Flanged DN 15 PN 16 (socket weld construction to endcap)
2	Flanged DN 20 PN 16 (socket weld construction to endcap)
3	Flanged DN 25 PN 16 (socket weld construction to endcap)
4	Flanged DN 32 PN 16 (socket weld construction to endcap)
5	Flanged DN 40 PN 16 (socket weld construction to endcap)
6	Flanged DN 50 PN 16 (socket weld construction to endcap)
A	Flanged 1/2" ANSI 150 lbs (socket weld construction to endcap)
B	Flanged 3/4" ANSI 150 lbs (socket weld construction to endcap)
C	Flanged 1" ANSI 150 lbs (socket weld construction to endcap)
D	Flanged 1 1/4" ANSI 150 lbs (socket weld construction to endcap)
E	Flanged 1 1/2" ANSI 150 lbs (socket weld construction to endcap)
	11.2 Vent flange with concentric reducer (X-ray testing)
0	without
1	DN 15 PN 16
2	DN 20 PN 16
3	DN 25 PN 16
4	DN 32 PN 16
5	DN 40 PN 16
A	1/2" ANSI 150 lbs
B	3/4" ANSI 150 lbs
C	1" ANSI 150 lbs
D	1 1/4" ANSI 150 lbs
E	1 1/2" ANSI 150 lbs

Order codes for magnetic level gauge type ITA-3 and ITA-3.0 (Continuation)

Code	Description
	11.3 Surface vent flange welded to end cap (only DN50 or 2")
0	without (Vent flange welded to end cap = without)
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	12. Counter flanges
0	without
1	DN 15 PN 16
2	DN 20 PN 16
3	DN 25 PN 16
4	DN 32 PN 16
5	DN 40 PN 16
6	DN 50 PN 16
A	1/2" 150 lbs
B	3/4" 150 lbs
C	1" 150 lbs
D	1 1/4" 150 lbs
E	1 1/2" 150 lbs
F	2" 150 lbs
	12.1 Surface counter flanges
0	without (Counter flanges = without)
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	12.2 Bolts & Nuts counter flanges
0	without (Counter flanges = without)
1	M16 x 65 mm; mat. zinced steel; flange DN 32 PN 16
2	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 32 PN 16
3	M16 x 65 mm; mat. zinced steel; flange DN 50 PN 16
4	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 50 PN 16
A	5/8" x 83; mat. zinced steel A193B7; flange 2" ANSI 150 lbs
B	5/8" x 83; mat. stainless steel A193B8 A1948M; flange 2" ANSI 150 lbs
Z	Bolts & nuts PTFE coated (only DN 50 or 2")

Order codes for magnetic level gauge type ITA-3 and ITA-3.0 (Continuation)

Code	Description
	13. Additional bracket welded to the float pipe
0	without
H	Bracket
	14. Float pipe seamless
0	without
S	60,3 x 2 mm seamless
	15. Float

Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	Min. density [kg/dm³]	Vented? [Y/N]	Notes
3V0100K1	16	316L	52	125	1,4907	N	
3V0100K3	16	316L	52	125	1,0524	N	1
3V0120K1	16	316L	52	145	1,2346	N	
3V0120K3	16	316L	52	145	0,9034	N	1
3V0150K1	16	316L	52	175	0,9905	N	
3V0150K3	16	316L	52	175	0,8606	N	1
3V0180K1	16	316L	52	205	0,8781	N	
3V0180K3	16	316L	52	205	0,7022	N	1
3V0240K1	16	316L	52	265	0,7374	N	
3V0240K3	16	316L	52	265	0,6209	N	1
3V1240K1	40	316L	52	265	1,000	N	
3T0100K1	16	Titanium	50,8	125	1,1788	N	2
3T0100K3	16	Titanium	50,8	125	0,7821	N	1, 2
3T0120K1	16	Titanium	50,8	145	0,9646	N	2
3T0120K3	16	Titanium	50,8	145	0,6514	N	1, 2
3T0150K1	16	Titanium	50,8	175	0,7763	N	2
3T0150K3	16	Titanium	50,8	175	0,5675	N	1, 2
3T0180K1	16	Titanium	50,8	205	0,6716	N	2
3T0180K3	16	Titanium	50,8	205	0,5094	N	1, 2
3T0240K1	16	Titanium	50,8	265	0,5723	N	2
3T0240K3	16	Titanium	50,8	265	0,4550	N	1, 2
3T0300K1	16	Titanium	50,8	325	0,4955	N	2
3T0300K3	16	Titanium	50,8	325	0,4063	N	1, 2
3T0400K1	16	Titanium	50,8	425	0,4358	N	2
3T0400K3	16	Titanium	50,8	425	0,3719	N	1, 2
3T0500K1	16	Titanium	50,8	525	0,4017	N	2
3T0500K3	16	Titanium	50,8	525	0,3539	N	1, 2
3T0600K1	16	Titanium	50,8	625	0,3761	N	2
3T0600K3	16	Titanium	50,8	625	0,3371	N	1, 2
3H0150K1	16	Titanium, Halar-coated	52	175	0,902	N	
3HC012K1	16	Hastelloy C4	52	175	1,2455	N	
3HC024K1	16	Hastelloy C4	52	265	0,7510	N	
3HC024K3	16	Hastelloy C4	52	265	0,6296	N	1

Notes:

1. **Only with 316SS or Aluminium indication rail.**
2. **Do not use for hydrogen and alcohol compounds.**

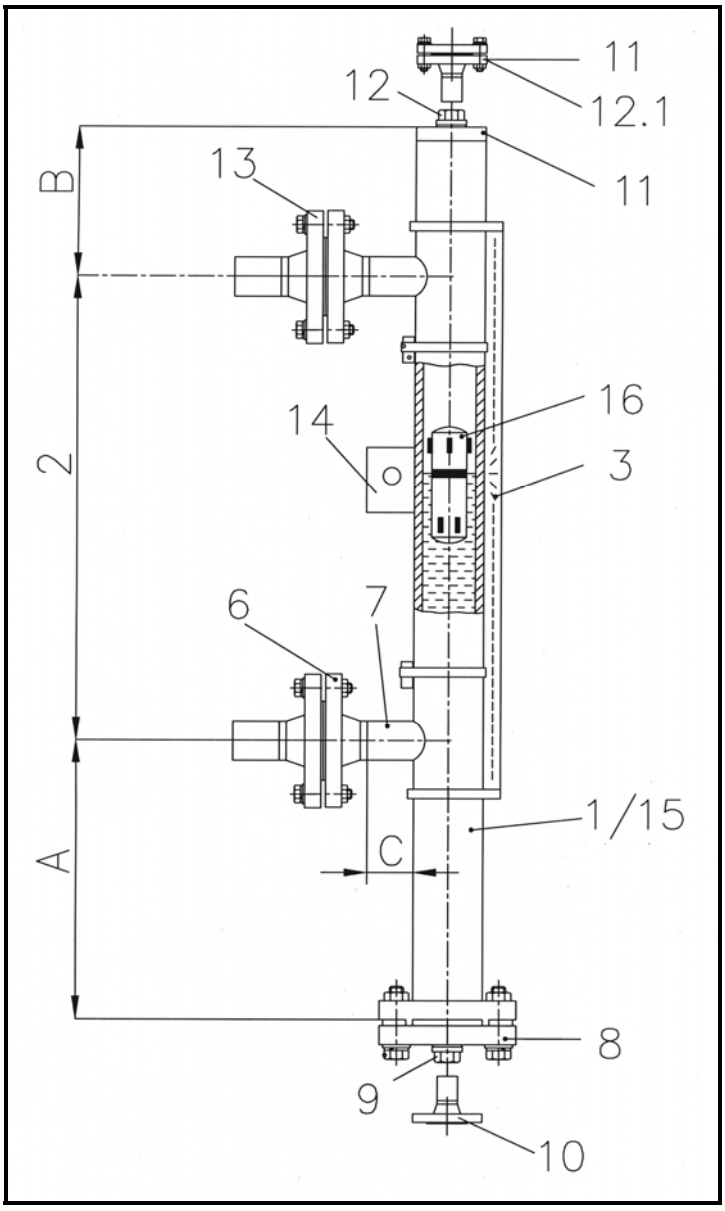
3.1.3 Order code scheme for ITA-3 & ITA-3.0

1. Type of level gauge [ITA-3 or ITA-3.0]											
	2. c to c distance in mm [or inches]										
		3. Design									
			4. c to c distance > 5000 mm								
				5. Process connection [side/side]							
					5.1 Surface side flanges						
						6. Side studs welded with T-pieces for 100 % X-ray testing					
							7. Float removal flange				
								7.1 Surface float removal flange (bottom side)			
									7.2 Bolts & Nuts float removal flange		
										8. Drain Plug	
											9. Additional drain flange, open
ITA-3											
ITA-3.0											

9.1 Drain flange with concentric reducer (X-ray-testing)														
	9.2 Surface open drain flange													
		10. Float pipe top end finish												
			10.1 Surface top end finish flange											
				10.2 Bolts & Nuts top end finish flange										
					11. Vent plug at top end									
						11.1 Vent flange welded to end cap instead of vent plug								
							11.2 Vent flange with concentric reducer (X-ray testing)							
								11.3 Surface Vent Flange						
									12. Counter flanges					
										12.1 Surface counter flanges				
											12.2 Bolts & Nuts counter flanges			
												13. Additional bracket welded to the float pipe		
													14. Float pipe seamless	
														15. Float

3.2.1 ITA-3 Cryo (cryogenic applications)

Characteristics: **PN16 / Float pipe and flange material 1.4404**



Parts drawing ITA-3 Cryo

Key:

1	Float pipe welded Dimensions 60,3 x 2 mm	9	Drain plug
2	c to c distance	10	Additional drain flange, open
3	Design (indication rail)	11	Float pipe top end finish
4	Armaflex insulation	12	Vent plug
6	Process connection side/side	13	Counter flanges
7	Side studs welded with T-pieces for 100 % X-ray testing	14	Additional bracket
		15	Float pipe seamless
8	Float removal flange	16	Float

Technical specifications magnetic level gauge type ITA 3 Cryo

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 2 mm welded,**
Process connection	:	to specify: **Flanges DN15-50 (1/2“-2“150#),** **Welding or threaded stud**
Drain/vent connections	:	**Plug G1/2“**
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	same as pipe material
Float material	:	**1.4404** Titanium, Titanium/E-CTFE-coated
Operation temperature	:	-200...+100 °C
Operation pressure	:	max. 16 bar
Operation density	:	min. 0,4017 kg/dm³
Bolts & Nuts	:	**CS** (min. -10 °C) SS or material in acc. with DIN 17280
Gasket	:	**PTFE min. -150 °C** **Klingersil TOP Chem 2000**
Indication rail	:	**Aluminium** 1.4301
Float types	:	Cylindrical, sealed type Length: - **270 mm***

Base equipment printed in bold letters!
*** not for vaporizing media (e.g. ammonia)**

Order codes for magnetic level gauge type ITA-3 Cryo

Code	Description
ITA-3-Cryo	**1. Float pipe welded Dimensions 60,3 x 2 mm**
	2. C to C distance
L	C to C distance in mm
	3. Design
0	without indication rail
1	Indication rail material: Aluminium max. 400 °C
2	Indication rail material: 1.4401 max. 400 °C
	4. Armaflex-Insulation
0	without insulation
F	Thickness: 12 mm, up to -15 °C
R	Thickness: 30 mm, up to -50 °C
T	Thickness: 70 mm, up to -200 °C, incl. Makrolon window
	5. C to C distance < 5000 mm
A	< 5000 mm - without flange connection; DN 32 PN 16
B	> 5000 mm - with flange connection; DN 32 PN 16
	6. Process connection side/side
Y	Welding connection (please specify)
Z	Threaded connection (please specify)
1	Flanges DN 15 PN 16
2	Flanges DN 20 PN 16
3	Flanges DN 25 PN 16
4	Flanges DN 32 PN 16
5	Flanges DN 40 PN 16
6	Flanges DN 50 PN 16
A	Flanges 1/2" ANSI 150 lbs
B	Flanges 3/4" ANSI 150 lbs
C	Flanges 1" ANSI 150 lbs
D	Flanges 1 1/4" ANSI 150 lbs
E	Flanges 1 1/2" ANSI 150 lbs
F	Flanges 2" ANSI 150 lbs
	6.1 Surface side flanges
0	without
F	Surface groove (DIN2512)
H	Surface tongue (DIN2512)
	7. Side studs welded with T-pieces for 100 % X-ray testing
0	without
T	T-pieces

Order codes for magnetic level gauge type ITA-3 Cryo (Cont.)

Code	Description
	8. Float removal flange (bottom side)
1	End cap (only if float removal flange (top side))
2	Flange DN 32 PN 16 incl. blind flange
3	Flange DN 50 PN 16 incl. blind flange
A	Flange 2" ANSI 150 lbs incl. blind flange
B	Flange DN 50 PN 16 reinforced for shut off valve on side
C	Flange 2" ANSI 150 lbs reinforced for shut off valve on side
	8.1 Surface float removal flange (bottom side) (only DN50 or 2")
0	without (Float removal flange (bottom side) = end cap or < DN50 or 2")
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	8.2 Bolts & nuts float removal flange (bottom side)
0	without (Float removal flange (bottom side) = end cap)
1	M16 x 65 mm; mat. zinced steel; flange DN 32 PN 16
2	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 32 PN 16
3	M16 x 65 mm; mat. zinced steel; flange DN 50 PN 16
4	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 50 PN 16
A	5/8" x 83; mat. zinced steel A193B7; fange 2" ANSI 150 lbs
B	5/8" x 83; mat. stainless steel A193B8 A1948M; flange 2" ANSI 150 lbs
C	Bolts & nuts PTFE coated (only DN 50 or 2")
	9. Drain plug
0	without
1	Drain plug G 1/2" with soft iron gasket
2	Drain plug 1/2" NPT
3	Drain plug 3/4" NPT
4	Drain plug 1" NPT
	10. Additional drain flange, open
0	without
1	Drain stud with flange DN 15 PN 16
2	Drain stud with flange DN 20 PN 16
3	Drain stud with flange DN 25 PN 16
4	Drain stud with flange DN 32 PN 16
5	Drain stud with flange DN 40 PN 16
6	Drain stud with flange DN 50 PN 16
A	Drain stud with flange 1/2" ANSI 150 lbs
B	Drain stud with flange 3/4" ANSI 150 lbs
C	Drain stud with flange 1" ANSI 150 lbs
D	Drain stud with flange 1 1/4" ANSI 150 lbs
E	Drain stud with flange 1 1/2" ANSI 150 lbs
F	Drain stud with flange 2" ANSI 150 lbs

Order codes for magnetic level gauge type ITA-3 Cryo (Cont.)

Code	Description
	10.1 Surface open drain flange
0	without (Float removal flange (bottom side) = end cap or < DN50 or 2")
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	11. Float pipe top end finish
1	End cap
2	Flange with blind flange DN 32 PN 16
3	Flange with blind flange DN 50 PN 16
A	Flange with blind flange 2" ANSI 150 lbs
	11.1 Surface float pipe top end finish flange (only DN50 or 2")
0	without (Float removal flange (bottom side) = end cap or < DN50 or 2")
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	11.2 Bolts & nuts float pipe top end finish flange (only DN50 or 2")
0	without (Float removal flange (bottom side) = end cap)
1	M16 x 65 mm; mat. zinced steel; flange DN 32 PN 16
2	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 32 PN 16
3	M16 x 65 mm; mat. zinced steel; flange DN 50 PN 16
4	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 50 PN 16
A	5/8" x 83; mat. zinced steel A193B7; fange 2" ANSI 150 lbs
B	5/8" x 83; mat. stainless steel A193B8 A1948M; flange 2" ANSI 150 lbs
C	Bolts & nuts PTFE coated (only DN 50 or 2")
	12. Vent plug at top end
0	without
1	Vent plug G 1/2" with soft iron gasket
2	Vent plug 1/2" NPT
3	Vent plug 3/4" NPT
4	Vent plug 1" NPT

Order codes for magnetic level gauge type ITA-3 Cryo (Cont.)

Code	Description
	12.1 Vent flange welded to end cap instead of vent plug
0	without
1	Flanged DN 15 PN 16 (socket weld construction to endcap)
2	Flanged DN 20 PN 16 (socket weld construction to endcap)
3	Flanged DN 25 PN 16 (socket weld construction to endcap)
4	Flanged DN 32 PN 16 (socket weld construction to endcap)
5	Flanged DN 40 PN 16 (socket weld construction to endcap)
6	Flanged DN 50 PN 16 (socket weld construction to endcap)
A	Flanged 1/2" ANSI 150 lbs (socket weld construction to endcap)
B	Flanged 3/4" ANSI 150 lbs (socket weld construction to endcap)
C	Flanged 1" ANSI 150 lbs (socket weld construction to endcap)
D	Flanged 1 1/4" ANSI 150 lbs (socket weld construction to endcap)
E	Flanged 1 1/2" ANSI 150 lbs (socket weld construction to endcap)
F	Flanged 2" ANSI 150 lbs (socket weld construction to endcap)
	12.2 Surface vent flange welded to end cap (only DN50 or 2")
0	without (Vent flange welded to end cap = without)
B	Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (ANSI)
F	Surface groove (DIN2512)
G	Surface groove large ANSI
H	Surface tongue (DIN2512)
K	Surface tongue-large ANSI
L	Surface RTJ (ANSI) 1/2" bis 2"
	13. Counter flanges
0	without
1	DN 15 PN 16
2	DN 20 PN 16
3	DN 25 PN 16
4	DN 32 PN 16
5	DN 40 PN 16
6	DN 50 PN 16
A	1/2" 150 lbs
B	3/4" 150 lbs
C	1" 150 lbs
D	1 1/4" 150 lbs
E	1 1/2" 150 lbs
F	2" 150 lbs

Order codes for magnetic level gauge type ITA-3 Cryo (Cont.)

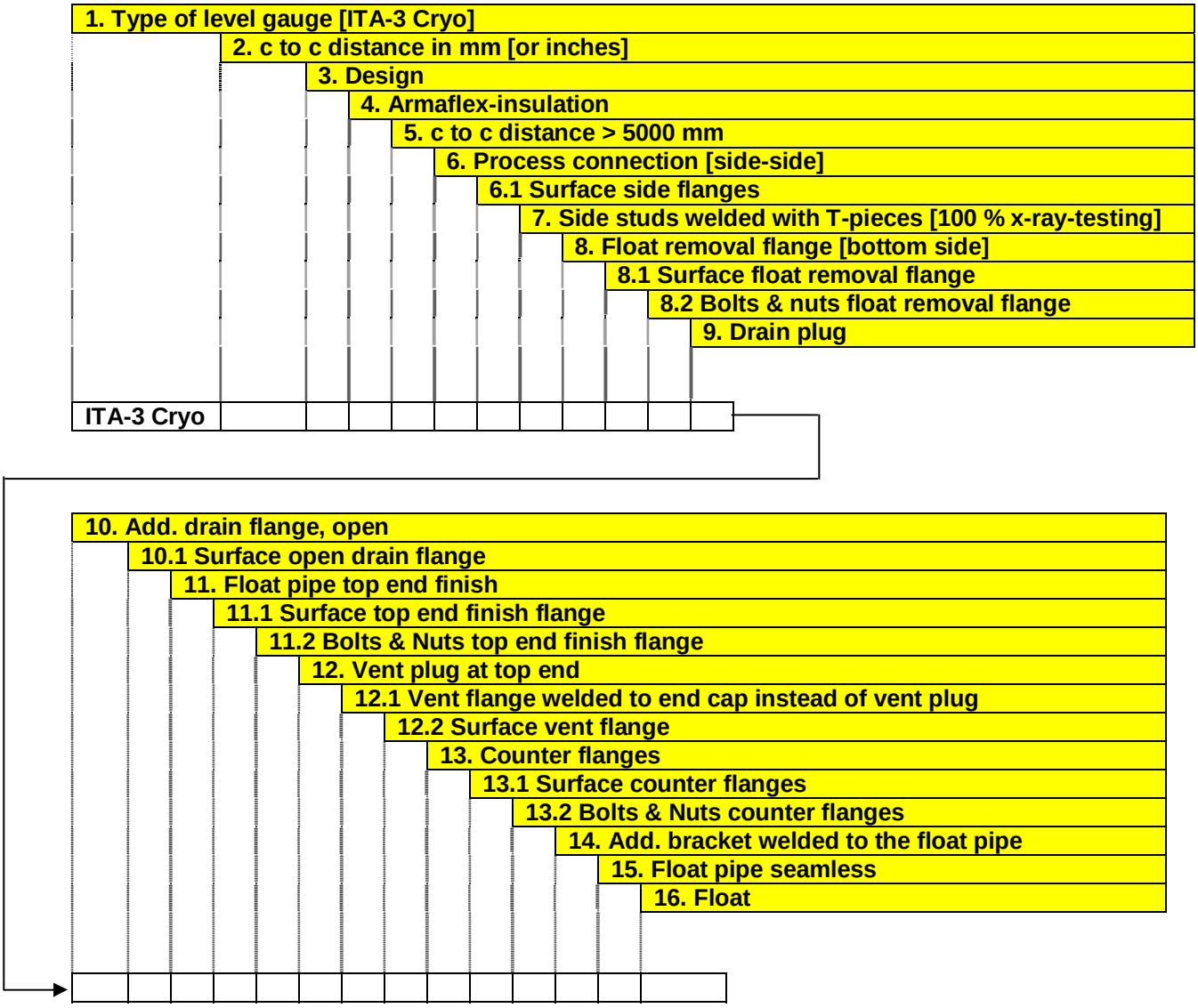
Code	Description
	13.1 Surface counter flanges
0	without (Counter flanges = without)
F	Surface groove (DIN2512)
H	Surface tongue (DIN2512)
	13.2 Bolts & Nuts counter flanges
0	without (Counter flanges = without)
1	M16 x 65 mm; mat. zinced steel; flange DN 32 PN 16
2	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 32 PN 16
3	M16 x 65 mm; mat. zinced steel; flange DN 50 PN 16
4	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 50 PN 16
A	5/8" x 83; mat. zinced steel A193B7; flange 2" ANSI 150 lbs
B	5/8" x 83; mat. stainless steel A193B8 A1948M; flange 2" ANSI 150 lbs
C	Bolts & nuts PTFE coated (only DN 50 or 2")
	14. Additional bracket welded to the float pipe
0	Without
H	Bracket
	15. Float pipe seamless
0	Without
S	60,3 x 2 mm seamless

	15. Float						
Code	**Pressure [bar]**	**Material**	**Diameter [mm]**	**Length [mm]**	**Min. density [kg/dm³]**	**Vented? [Y/N]**	**Notes**
3C0240K1	16	Titanium	50,8	265	0,5723	N	2
3C0500K1	16	Titanium	45	525	0,5509	N	2,3
3C0500K3	16	Titanium	45	525	0,5038	N	1,2,3

Notes:

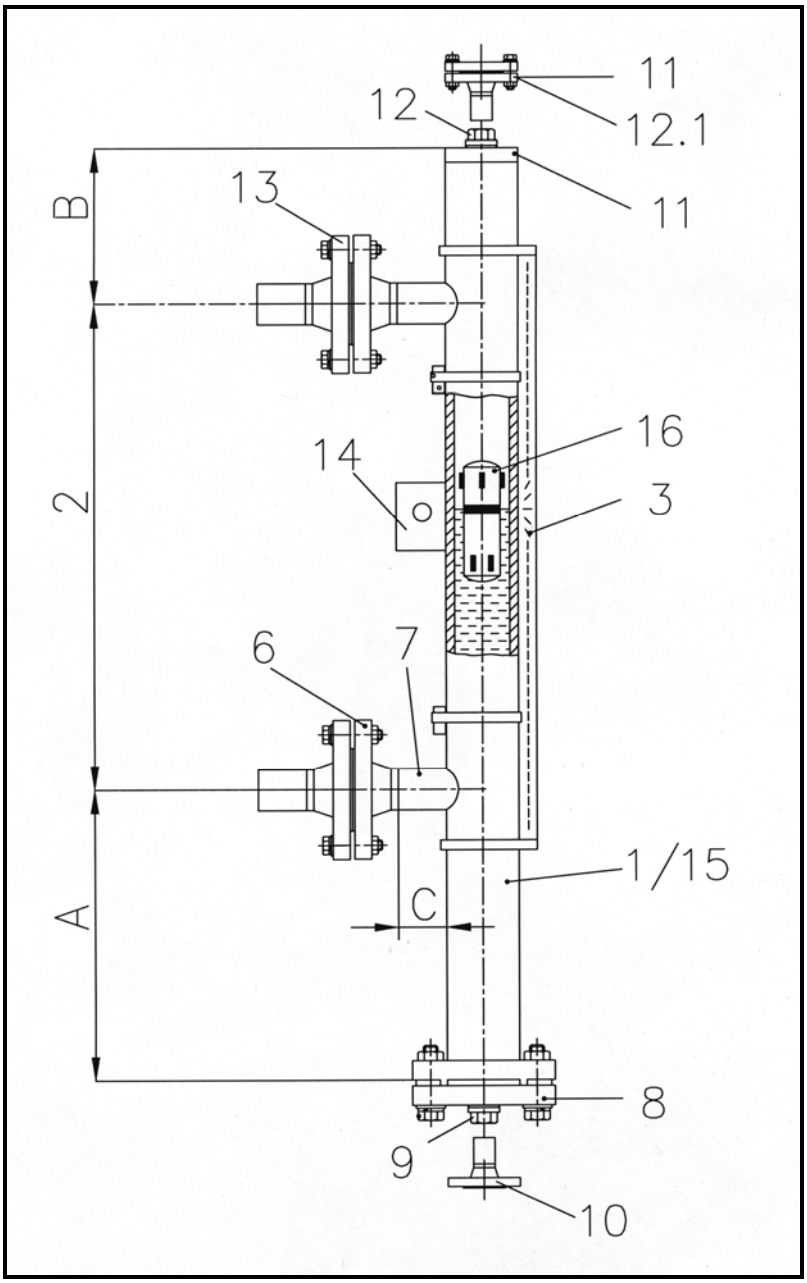
1. **Only with 316SS or Aluminium indication rail.**
2. **Do not use for hydrogen and alcohol compounds.**
3. **with spacers**

3.2.2 Order code scheme for ITA-3 Cryo



3.3.1 ITA-3 CR64 (cryogenic applications)

Characteristics: **PN16 / Float pipe and flange material 1.4404**



Parts drawing ITA-3 CR64

Key:

1	Float pipe welded Dimensions 64 x 2 mm	9	Drain plug
2	c to c distance	10	Additional drain flange, open
3	Design (indication rail)	11	Float pipe top end finish
4	Armaflex insulation	12	Vent plug
6	Process connection side/side	13	Counter flanges
7	Side studs welded with T-pieces for 100 % X-ray testing	14	Additional bracket
		15	Float pipe seamless
8	Float removal flange	16	Float

Technical specification magnetic level gauge type ITA 3 CR64

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**64 x 2 mm welded,**
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2"150#),** **Welding or threaded stud**
Drain/vent connections	:	**Plug G1/2"**
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	same as pipe material
Float material	:	**1.4404** Titanium, Titanium/E-CTFE-coated
Operation temperature	:	-200...+100 °C
Operation pressure	:	max. 16 bar
Operation density	:	min. 0,4017 kg/dm³
Bolts & Nuts	:	**CS** (min. -10 °C) SS or material in acc. with DIN 17280
Gasket	:	**PTFE min. -150 °C** **Klingersil TOP Chem 2000**
Indication rail	:	**Aluminium** 1.4301
Float types	:	Cylindrical, sealed type Length: - **∅50,8 x 270 mm*** - ∅50,8 x 530 mm

Base equipment printed in bold letters!
*** not for vaporizing media (e.g. ammonia)**

Order codes for magnetic level gauge type ITA-3 CR64

Code	Description
ITA-3-CR64	**1. Float pipe welded Dimensions 64 x 2 mm**
	2. C to C distance
L	C to C distance in mm
	3. Design
0	without indication rail
1	Indication rail material: Aluminium max. 400 °C
2	Indication rail material: 1.4401 max. 400 °C
	4. Armaflex-Insulation
0	without insulation
F	Thickness: 12 mm, up to -15 °C
R	Thickness: 30 mm, up to -50 °C
T	Thickness: 70 mm, up to -200 °C, incl. Makrolon window
	5. C to C distance < 5000 mm
A	< 5000 mm - without flange connection; DN 32 PN 16
B	> 5000 mm - with flange connection; DN 32 PN 16
	6. Process connection side/side
Y	Welding connection (please specify)
Z	Threaded connection (please specify)
1	Flanges DN 15 PN 16
2	Flanges DN 20 PN 16
3	Flanges DN 25 PN 16
4	Flanges DN 32 PN 16
5	Flanges DN 40 PN 16
6	Flanges DN 50 PN 16
A	Flanges 1/2" ANSI 150 lbs
B	Flanges 3/4" ANSI 150 lbs
C	Flanges 1" ANSI 150 lbs
D	Flanges 1 1/4" ANSI 150 lbs
E	Flanges 1 1/2" ANSI 150 lbs
F	Flanges 2" ANSI 150 lbs
	6.1 Surface side flanges
0	without
F	Surface groove (DIN2512)
H	Surface tongue (DIN2512)
	7. Side studs welded with T-pieces for 100 % X-ray testing
0	without
T	T-pieces
	8. Float removal flange (bottom side)
1	End cap (only if float removal flange (top side))
2	Flange DN 32 PN 16 incl. blind flange
3	Flange DN 50 PN 16 incl. blind flange
A	Flange 2" ANSI 150 lbs incl. blind flange
4	Flange DN 50 PN 16 reinforced for shut off valve on side
B	Flange 2" ANSI 150 lbs reinforced for shut off valve on side

Order codes for magnetic level gauge type ITA-3 CR64 (Cont.)

Code	Description
	8.1 Surface float removal flange (bottom side) (only DN50 or 2")
0	without (Float removal flange (bottom side) = end cap or < DN50 or 2")
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	8.2 Bolts & nuts float removal flange (bottom side)
0	without (Float removal flange (bottom side) = end cap)
1	M16 x 65 mm; mat. zinced steel; flange DN 32 PN 16
2	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 32 PN 16
3	M16 x 65 mm; mat. zinced steel; flange DN 50 PN 16
4	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 50 PN 16
A	5/8" x 83; mat. zinced steel A193B7; fange 2" ANSI 150 lbs
B	5/8" x 83; mat. stainless steel A193B8 A1948M; flange 2" ANSI 150 lbs
C	Bolts & nuts PTFE coated (only DN 50 or 2")
	9. Drain plug
0	without
1	Drain plug G 1/2" with soft iron gasket
2	Drain plug 1/2" NPT
3	Drain plug 3/4" NPT
4	Drain plug 1" NPT
	10. Additional drain flange, open
0	Without
1	Drain stud with flange DN 15 PN 16
2	Drain stud with flange DN 20 PN 16
3	Drain stud with flange DN 25 PN 16
4	Drain stud with flange DN 32 PN 16
5	Drain stud with flange DN 40 PN 16
6	Drain stud with flange DN 50 PN 16
A	Drain stud with flange 1/2" ANSI 150 lbs
B	Drain stud with flange 3/4" ANSI 150 lbs
C	Drain stud with flange 1" ANSI 150 lbs
D	Drain stud with flange 1 1/4" ANSI 150 lbs
E	Drain stud with flange 1 1/2" ANSI 150 lbs
F	Drain stud with flange 2" ANSI 150 lbs

Order codes for magnetic level gauge type ITA-3 CR64 (Cont.)

Code	Description
	10.1 Surface open drain flange
0	without (Float removal flange (bottom side) = end cap or < DN50 or 2")
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	11. Float pipe top end finish
1	End cap
2	Flange with blind flange DN 32 PN 16
3	Flange with blind flange DN 50 PN 16
A	Flange with blind flange 2" ANSI 150 lbs
	11.1 Surface float pipe top end finish flange (only DN50 or 2")
0	without (Float removal flange (bottom side) = end cap or < DN50 or 2")
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	11.2 Bolts & nuts float pipe top end finish flange (only DN50 or 2")
0	without (Float removal flange (bottom side) = end cap)
1	M16 x 65 mm; mat. zinced steel; flange DN 32 PN 16
2	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 32 PN 16
3	M16 x 65 mm; mat. zinced steel; flange DN 50 PN 16
4	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 50 PN 16
A	5/8" x 83; mat. zinced steel A193B7; fange 2" ANSI 150 lbs
B	5/8" x 83; mat. stainless steel A193B8 A1948M; flange 2" ANSI 150 lbs
C	Bolts & nuts PTFE coated (only DN 50 or 2")
	12. Vent plug at top end
0	Without
1	Vent plug G 1/2" with soft iron gasket
2	Vent plug 1/2" NPT
3	Vent plug 3/4" NPT
4	Vent plug 1" NPT

Order codes for magnetic level gauge type ITA-3 CR64 (Cont.)

Code	Description
	12.1 Vent flange welded to end cap instead of vent plug
0	Without
1	Flanged DN 15 PN 16 (socket weld construction to endcap)
2	Flanged DN 20 PN 16 (socket weld construction to endcap)
3	Flanged DN 25 PN 16 (socket weld construction to endcap)
4	Flanged DN 32 PN 16 (socket weld construction to endcap)
5	Flanged DN 40 PN 16 (socket weld construction to endcap)
6	Flanged DN 50 PN 16 (socket weld construction to endcap)
A	Flanged 1/2" ANSI 150 lbs (socket weld construction to endcap)
B	Flanged 3/4" ANSI 150 lbs (socket weld construction to endcap)
C	Flanged 1" ANSI 150 lbs (socket weld construction to endcap)
D	Flanged 1 1/4" ANSI 150 lbs (socket weld construction to endcap)
E	Flanged 1 1/2" ANSI 150 lbs (socket weld construction to endcap)
F	Flanged 2" ANSI 150 lbs (socket weld construction to endcap)
	12.2 Surface vent flange welded to end cap (only DN50 or 2")
0	without (Vent flange welded to end cap = without)
A	Surface RF
B	Surface Form D Rz=40
C	Surface Form E Rz=16
D	Surface RFSF (ANSI)
E	Surface groove (DIN2512)
F	Surface groove large ANSI
G	Surface tongue (DIN2512)
H	Surface tongue-large ANSI
K	Surface RTJ (ANSI) 1/2" bis 2"
L	Dichtfläche RTJ (ANSI)
	13. Counter flanges
0	Without
1	DN 15 PN 16
2	DN 20 PN 16
3	DN 25 PN 16
4	DN 32 PN 16
5	DN 40 PN 16
6	DN 50 PN 16
A	1/2" 150 lbs
B	3/4" 150 lbs
C	1" 150 lbs
D	1 1/4" 150 lbs
E	1 1/2" 150 lbs
F	2" 150 lbs
	13.1 Surface counter flanges
0	without (Counter flanges = without)
F	Surface groove (DIN2512)
H	Surface tongue (DIN2512)

Order codes for magnetic level gauge type ITA-3 CR64 (Cont.)

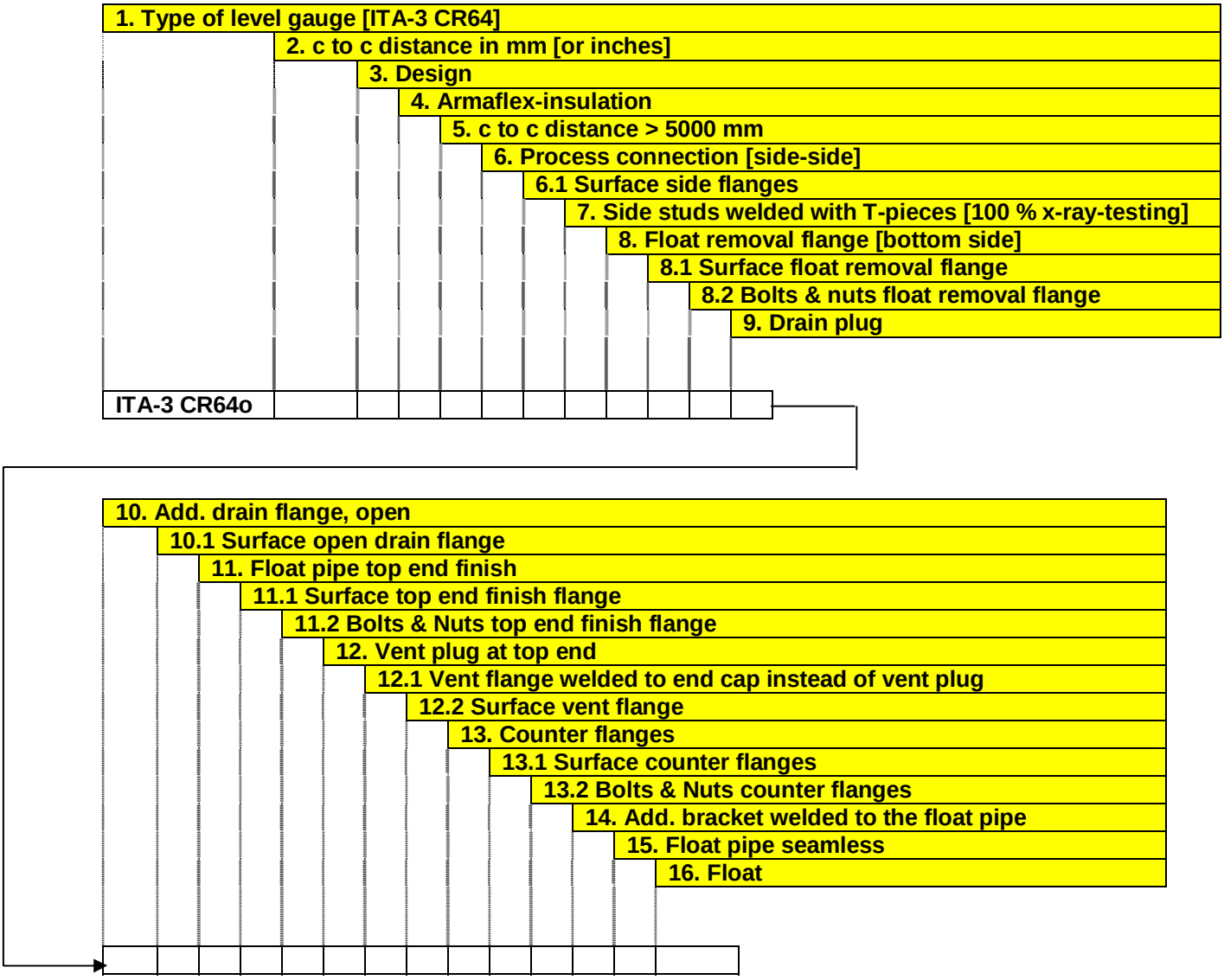
Code	Description
	13.2 Bolts & Nuts counter flanges
0	without (Counter flanges = without)
1	M16 x 65 mm; mat. zinced steel; flange DN 32 PN 16
2	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 32 PN 16
3	M16 x 65 mm; mat. zinced steel; flange DN 50 PN 16
4	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 50 PN 16
A	5/8" x 83; mat. zinced steel A193B7; flange 2" ANSI 150 lbs
B	5/8" x 83; mat. stainless steel A193B8 A1948M; flange 2" ANSI 150 lbs
C	Bolts & nuts PTFE coated (only DN 50 or 2")
	14. Additional bracket welded to the float pipe
0	without
H	Bracket
	15. Float pipe seamless
0	without
S	60,3 x 2 mm seamless

	15. Float						
Code	**Pressure [bar]**	**Material**	**Diameter [mm]**	**Length [mm]**	**Min. density [kg/dm³]**	**Vented? [Y/N]**	**Notes**
3C0501K1	16	Titanium	50,8	525	0,4017	N	2,3
3C0501K2	16	Titanium	50,8	525	0,389	N	2,3

Notes:

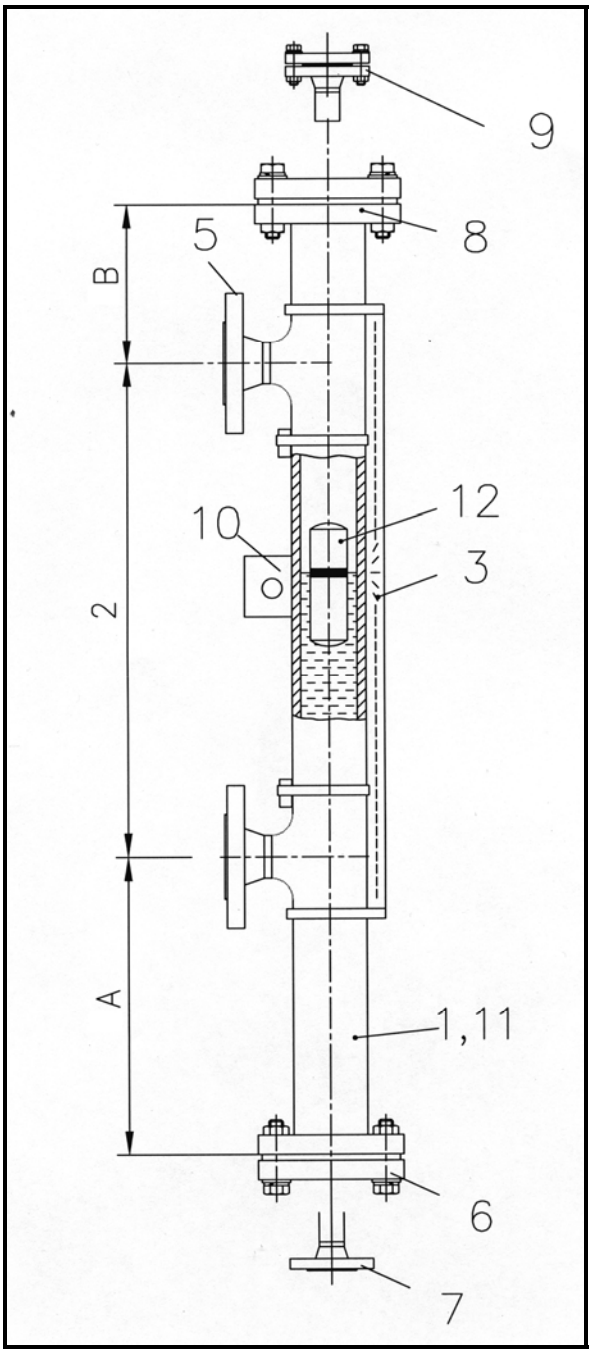
2. **Do not use for hydrogen and alcohol compounds.**
3. **with spacers**

3.3.2 Order code scheme for ITA-3 CR64



3.4.1 ITA-3.5 (wetted parts E-CTFE-coated)

Characteristics: **PN16 / Float pipe and flange material 1.4404**



Parts drawing ITA-3.5

Key:

1 Float pipe welded Dimensions 60,3 x 2 mm
2 c to c distance
3 Design (indication rail)
5 Process connection side/side
6 Float removal flange
7 Additional drain flange, open
8 Float pipe top end finish
7 Additional drain flange, open
8 Float pipe top end finish
9 Additional bracket
10 Float pipe seamless
11 Vent plug

Technical specification magnetic level gauge type ITA 3.5

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 3100 mm (one-part/total length max. 3500 mm)** > 3100 mm 2- or multipart
Pipe diameter	:	**60,3 x 2 mm welded,**
Process connection	:	to specify: **Flanges DN20-50 (1/2"-2"150#),** **Welding or threaded stud**
Drain/vent connections	:	**see price list**
Pipe material	:	**1.4404, wetted parts E-CTFE-coated (Halar)**
Flange material	:	as pipe material
Float material	:	**Titanium/E-CTFE-coated (Halar)**
Operation temperature	:	-50...+160 °C
Operation pressure	:	max. 16 bar
Operation density	:	min. 0,5645 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**PTFE min. -150 °C** **Klingersil TOP Chem 2000**
Indication rail	:	**Aluminium** 1.4301
Float types	:	Cylindrical, sealed type Length: - **270 mm** - 130 mm
Dimensions	:	- A= 240* - B= 130

Base equipment printed in bold letters!
*** for densities < 1,0 kg/dm³ enlarge the scale A**

Order codes for magnetic level gauge type ITA-3.5

Code	Description
ITA-3.5	**1. Float pipe welded Dimensions 60,3 x 2 mm**
	2. c to c distance
L	c to c distance in mm
	3. Design
0	without indication rail
1	Indication rail material Aluminium max. 400 °C
2	Indication rail material 1.4401 max. 400 °C
	4. c to c distance < 3100 mm, total length 3500 mm
A	< 3100 mm - without flange connection; DN 32 PN 16
B	> 3100 mm - with flange connection; DN 32 PN 16
	5. Process connection side/side
1	Flanges DN 20 PN 16
2	Flanges DN 25 PN 16
3	Flanges DN 32 PN 16
4	Flanges DN 40 PN 16
5	Flanges DN 50 PN 16
A	Flanges 3/4" ANSI 150 lbs
B	Flanges 1" ANSI 150 lbs
C	Flanges 1 1/4" ANSI 150 lbs
D	Flanges 1 1/2" ANSI 150 lbs
E	Flanges 2" ANSI 150 lbs
	5.1 Surface side flanges
0	without
A	Standard- Surface Form C
B	Standard-Surface RF
	6. Float removal flange (bottom side)
1	Flange DN 50 PN 16 incl. blind flange
A	Flange 2" ANSI 150 lbs incl. blind flange
	6.1 Bolts & nuts float removal flange (bottom side)
1	M16 x 65 mm; mat. zinced steel; flange DN 32 PN 16
2	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 32 PN 16
3	M16 x 65 mm; mat. zinced steel; flange DN 50 PN 16
4	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 50 PN 16
A	5/8" x 83; mat. zinced steel A193B7; fange 2" ANSI 150 lbs
B	5/8" x 83; mat. stainless steel A193B8 A1948M; flange 2" ANSI 150 lbs
C	Bolts & nuts PTFE coated (only DN 50 or 2")
	7. Additional drain flange, open
0	without
1	Drain stud with flange DN 20 PN 16
2	Drain stud with flange DN 25 PN 16
3	Drain stud with flange DN 32 PN 16
4	Drain stud with flange DN 40 PN 16
A	Drain stud with flange 3/4" ANSI 150 lbs
B	Drain stud with flange 1" ANSI 150 lbs
C	Drain stud with flange 1 1/4" ANSI 150 lbs
D	Drain stud with flange 1 1/2" ANSI 150 lbs

Order codes for magnetic level gauge type ITA-3.5 (Continuation)

Code	Description
	7.1 Drain flange with concentric reducer (X-ray testing)
0	without
1	DN 20 PN 16
2	DN 25 PN 16
3	DN 32 PN 16
4	DN 40 PN 16
A	3/4" ANSI 150 lbs
B	1" ANSI 150 lbs
C	1 1/4" ANSI 150 lbs
D	1 1/2" ANSI 150 lbs
	7.2 Surface open drain flange
A	Surface Form C
B	Surface RF
	8. Float pipe top end finish
1	Flange with blind flange DN 32 PN 16
2	Flange with blind flange DN 50 PN 16
A	Flange with blind flange 2" ANSI 150 lbs
	8.1 Float pipe top end finish with concentric reducer (X-ray testing)
0	without
1	DN 20 PN 16
2	DN 25 PN 16
3	DN 32 PN 16
4	DN 40 PN 16
A	3/4" ANSI 150 lbs
B	1" ANSI 150 lbs
C	1 1/4" ANSI 150 lbs
D	1 1/2" ANSI 150 lbs
	8.2 Surface float pipe top end finish flange (only DN50 or 2")
A	Dichtleiste Form C
B	Dichtleiste RF
	8.3 Bolts & nuts float pipe top end finish flange (only DN50 or 2")
1	M16 x 65 mm; mat. zinced steel; flange DN 32 PN 16
2	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 32 PN 16
3	M16 x 65 mm; mat. zinced steel; flange DN 50 PN 16
4	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 50 PN 16
A	5/8" x 83; mat. zinced steel A193B7; fange 2" ANSI 150 lbs
B	5/8" x 83; mat. stainless steel A193B8 A1948M; flange 2" ANSI 150 lbs
C	Bolts & nuts PTFE coated (only DN 50 or 2")

Order codes for magnetic level gauge type ITA-3.5 (Continuation)

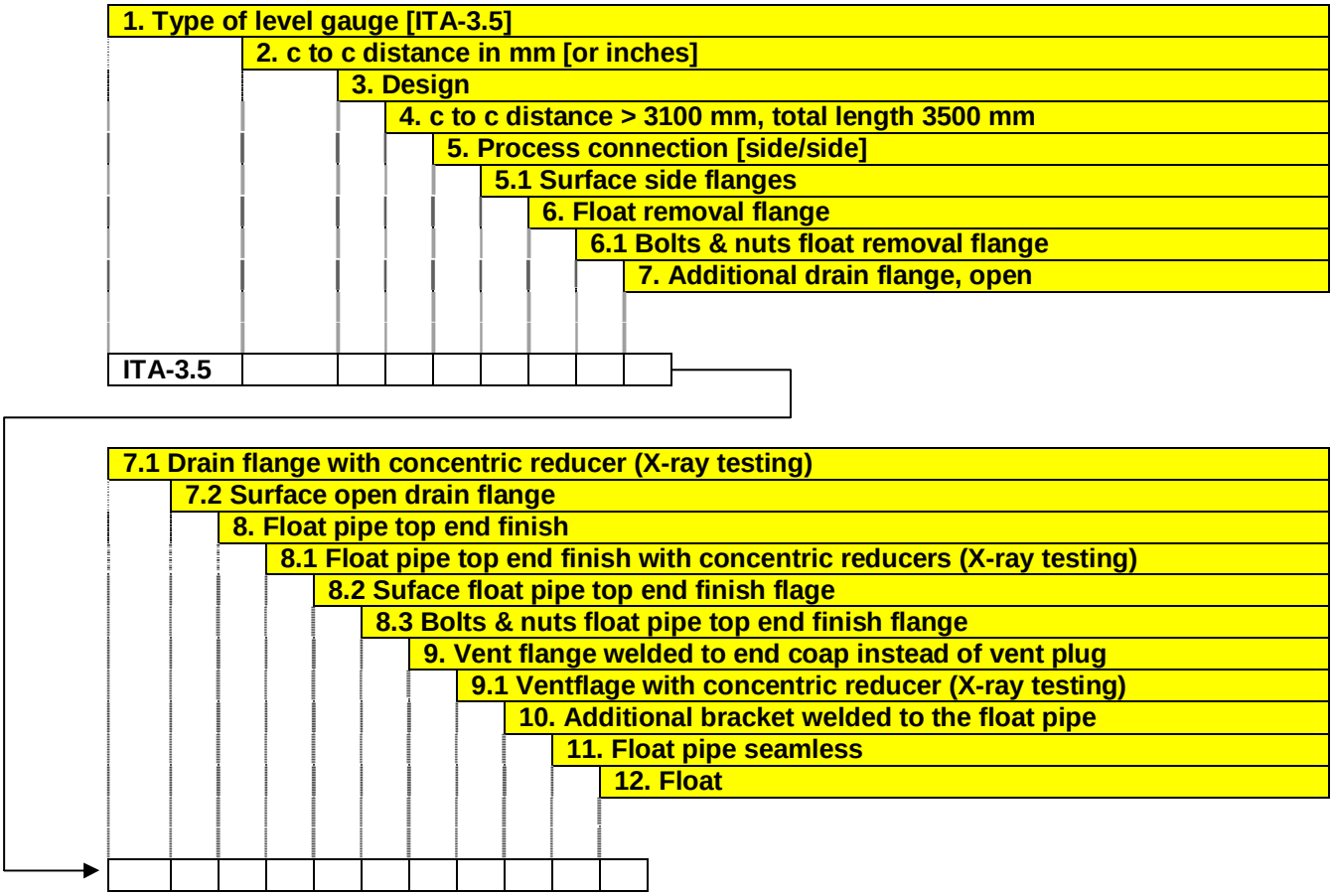
Code	Description
	9. Vent flange welded to end cap instead of vent plug
1	Flanged DN 20 PN 16 (socket weld construction to endcap)
2	Flanged DN 25 PN 16 (socket weld construction to endcap)
3	Flanged DN 32 PN 16 (socket weld construction to endcap)
4	Flanged DN 40 PN 16 (socket weld construction to endcap)
5	Flanged DN 50 PN 16 (socket weld construction to endcap)
A	Flanged 3/4" ANSI 150 lbs (socket weld construction to endcap)
B	Flanged 1" ANSI 150 lbs (socket weld construction to endcap)
C	Flanged 1 1/4" ANSI 150 lbs (socket weld construction to endcap)
D	Flanged 1 1/2" ANSI 150 lbs (socket weld construction to endcap)
E	Flanged 2" ANSI 150 lbs (socket weld construction to endcap)
	9.1 Vent flange with concentric reducer (X-ray testing)
0	without
1	DN 20 PN 16
2	DN 25 PN 16
3	DN 32 PN 16
4	DN 40 PN 16
A	3/4" ANSI 150 lbs
B	1" ANSI 150 lbs
C	1 1/4" ANSI 150 lbs
D	1 1/2" ANSI 150 lbs
	10. Additional bracket welded to the float pipe
0	without
H	Bracket
	11. Float pipe seamless
0	without
S	60,3 x 2 mm seamless
	12. Float

Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	Min. density [kg/dm³]	Vented? [Y/N]	Notes
35H024K1	16	Titanium, Halar-coated	52	240	0,6873	N	
35H024K3	16	Titanium, Halar-coated	52	240	0,5645	N	1

Notes:

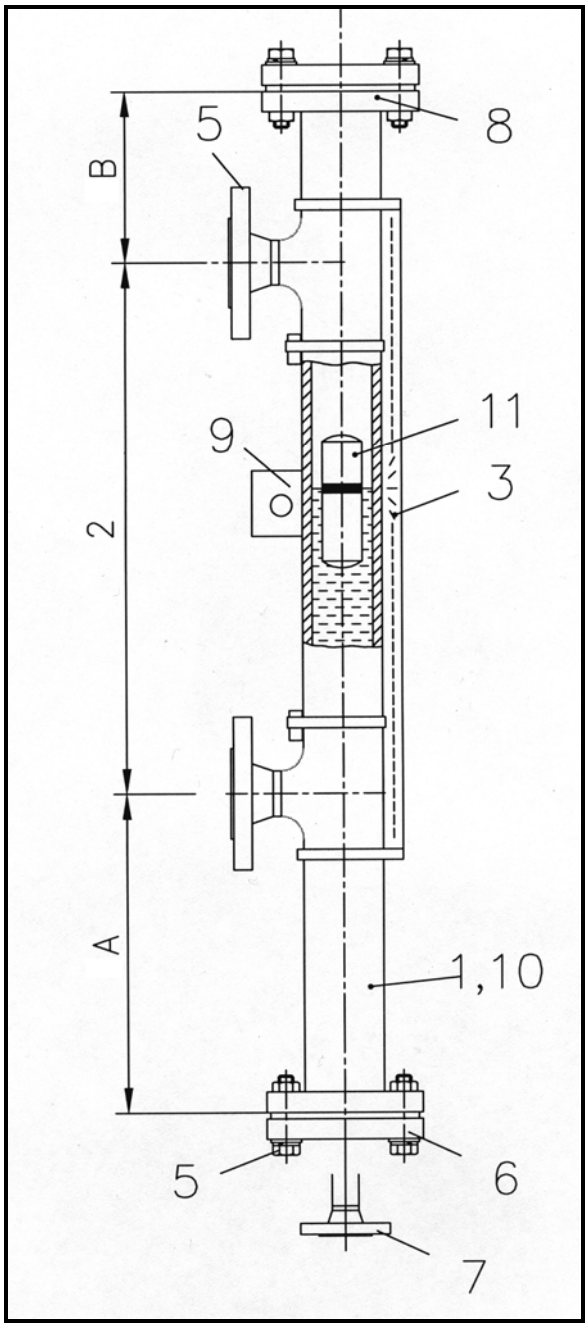
1. **Only with 316SS or Aluminium indication rail.**

3.4.2 Order code scheme for ITA-3.5



3.5.1 ITA-3.8 (wetted parts E-TFE-coated, for vacuum service)

Characteristics: **PN16 / Float pipe and flange material 1.4404**



Parts drawing ITA-3.8

Key:

1	Float pipe welded Dimensions 60,3 x 2 mm	7	Additional drain flange, open
2	c to c distance	8	Float pipe top end finish
3	Design (indication rail)	9	Additional bracket
5	Process connection side/side	10	Float pipe seamless
6	Float removal flange	11	Vent plug
7	Additional drain flange, open		
8	Float pipe top end finish		

Technical specification magnetic level gauge type ITA-3.8

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 1700 mm (one-part/total length max. 2100 mm)** > 2100 mm 2- or multipart
Pipe diameter	:	**64 x 2 mm welded, necking connections**
Process connection	:	to specify: **Flanges DN15-25 (1/2"-1"150# RF)**
Drain/vent connections	:	**see price list**
Pipe material	:	**1.4404, wetted parts E-TFE-coated**
Thickness of coating	:	2,0 mm for DN15 (1/2") process flange 2,5 mm for DN20 (3/4") process flange 3,0 mm for DN25 (1") process flange
Flange material	:	as pipe material
Float material	:	**Titanium/E-TFE-coated**
Operation temperature	:	-50...+160 °C
Operation pressure	:	max. 16 bar / vacuum resistant
Operation density	:	min. 0,6873 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**PTFE up to 100 °C** **Klingersil-chem-200 up to 260 °C**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301up to 400 °C
Float types	:	Cylindrical, sealed type Length: - **270 mm** - 150 mm
Dimensions	:	- A= 240* - B= 130 - C= 40

Base equipment printed in bold letters!

Order codes for magnetic level gauge type ITA-3.8

Code	Description
ITA-3.8	**1. Float pipe welded Dimensions 64 x 2 mm**
	2. c to c distance
L	c to c distance in mm
	3. Design
0	without indication rail
1	Indication rail material: Makrolon, max. 120 °C
2	Indication rail material: Aluminium max. 400 °C
3	Indication rail material: 1.4401 max. 400 °C
	4. c to c distance < 1700 mm, total length 2100 mm
A	< 1700 mm - without flange connection; DN 32 PN 16
B	> 1700 mm - with flange connection; DN 32 PN 16
	5. Process connection side/side
1	Flanges DN 20 PN 16
2	Flanges DN 25 PN 16
3	Flanges DN 32 PN 16
4	Flanges DN 40 PN 16
5	Flanges DN 50 PN 16
A	Flanges 3/4" ANSI 150 lbs
B	Flanges 1" ANSI 150 lbs
C	Flanges 1 1/4" ANSI 150 lbs
D	Flanges 1 1/2" ANSI 150 lbs
E	Flanges 2" ANSI 150 lbs
	5.1 Surface side flanges
A	Standard- Surface Form C
B	Standard-Surface RF
	6. Float removal flange (bottom side)
2	Flange DN 50 PN 16 incl. blind flange
A	Flange 2" ANSI 150 lbs incl. blind flange
	6.1 Surface Float removal flange (bottom side)
A	Standard- Surface Form C
B	Standard-Surface RF
	6.2 Bolts & nuts float removal flange (bottom side)
1	M16 x 65 mm; mat. zinced steel; flange DN 32 PN 16
2	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 32 PN 16
3	M16 x 65 mm; mat. zinced steel; flange DN 50 PN 16
4	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 50 PN 16
A	5/8" x 83; mat. zinced steel A193B7; fange 2" ANSI 150 lbs
B	5/8" x 83; mat. stainless steel A193B8 A1948M; flange 2" ANSI 150 lbs
C	Bolts & nuts PTFE coated (only DN 50 or 2")

Order codes for magnetic level gauge type ITA-3.8 (Continuation)

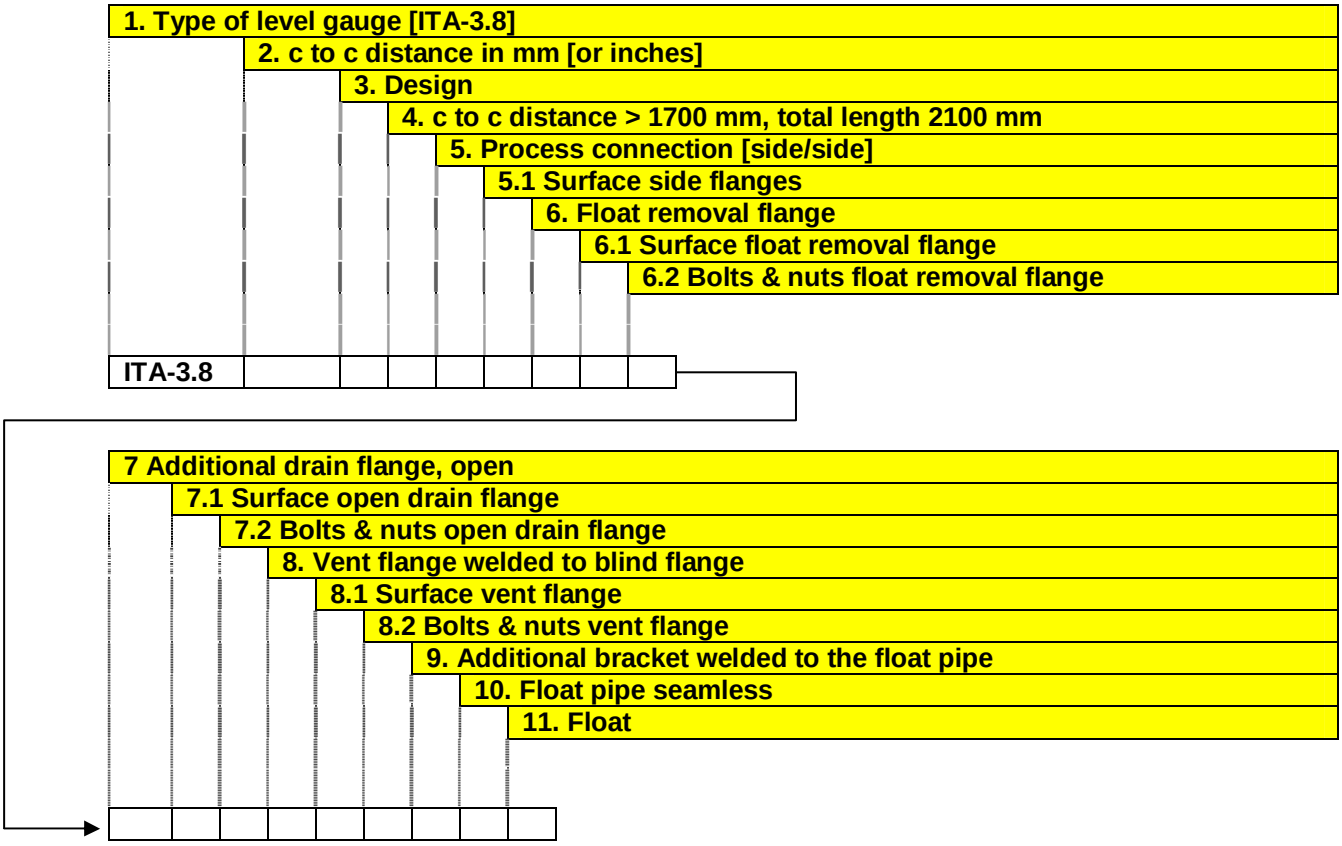
Code	Description
	7. Additional drain flange, open
0	without
1	Drain stud with flange DN 20 PN 16
2	Drain stud with flange DN 25 PN 16
3	Drain stud with flange DN 32 PN 16
4	Drain stud with flange DN 40 PN 16
A	Drain stud with flange 3/4" ANSI 150 lbs
B	Drain stud with flange 1" ANSI 150 lbs
C	Drain stud with flange 1 1/4" ANSI 150 lbs
D	Drain stud with flange 1 1/2" ANSI 150 lbs
	7.1 Surface open drain flange
0	without
A	Standard- Surface Form C
B	Standard-Surface RF
	7.2 Bolts & Nuts open drain flange
0	without
1	M16 x 65 mm; mat. zinced steel; flange DN 32 PN 16
2	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 32 PN 16
3	M16 x 65 mm; mat. zinced steel; flange DN 50 PN 16
4	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 50 PN 16
A	5/8" x 83; mat. zinced steel A193B7; fange 2" ANSI 150 lbs
B	5/8" x 83; mat. stainless steel A193B8 A1948M; flange 2" ANSI 150 lbs
C	Bolts & nuts PTFE coated (only DN 50 or 2")
	8. Vent flange welded to blind flange
0	without
1	Flanged DN 15 PN 16 (socket weld construction to blind flange)
2	Flanged DN 20 PN 16 (socket weld construction to blind flange)
3	Flanged DN 25 PN 16 (socket weld construction to blind flange)
4	Flanged DN 32 PN 16 (socket weld construction to blind flange)
5	Flanged DN 40 PN 16 (socket weld construction to blind flange)
6	Flanged DN 50 PN 16 (socket weld construction to blind flange)
A	Flanged 1/2" ANSI 150 lbs (socket weld construction to blind flange)
B	Flanged 3/4" ANSI 150 lbs (socket weld construction to blind flange)
C	Flanged 1" ANSI 150 lbs (socket weld construction to blind flange)
D	Flanged 1 1/4" ANSI 150 lbs (socket weld construction to blind flange)
E	Flanged 1 1/2" ANSI 150 lbs (socket weld construction to blind flange)
F	Flanged 2" ANSI 150 lbs (socket weld construction to blind flange)
	8.1 Surface vent flange
0	without
A	Standard- Surface Form C
B	Standard-Surface RF

Order codes for magnetic level gauge type ITA-3.8 (Continuation)

Code	Description
	8.2 Bolts & Nuts vent flange
0	without
1	M16 x 65 mm; mat. zinced steel; flange DN 32 PN 16
2	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 32 PN 16
3	M16 x 65 mm; mat. zinced steel; flange DN 50 PN 16
4	M16 x 65 mm; mat. stainless steel 1.4301; flange DN 50 PN 16
A	5/8" x 83; mat. zinced steel A193B7; fange 2" ANSI 150 lbs
B	5/8" x 83; mat. stainless steel A193B8 A1948M; flange 2" ANSI 150 lbs
C	Bolts & nuts PTFE coated (only DN 50 or 2")
	9. Additional bracket welded to the float pipe
0	without
H	Bracket
	10. Float pipe seamless
0	without
S	64 x 2 mm seamless
	11. Float

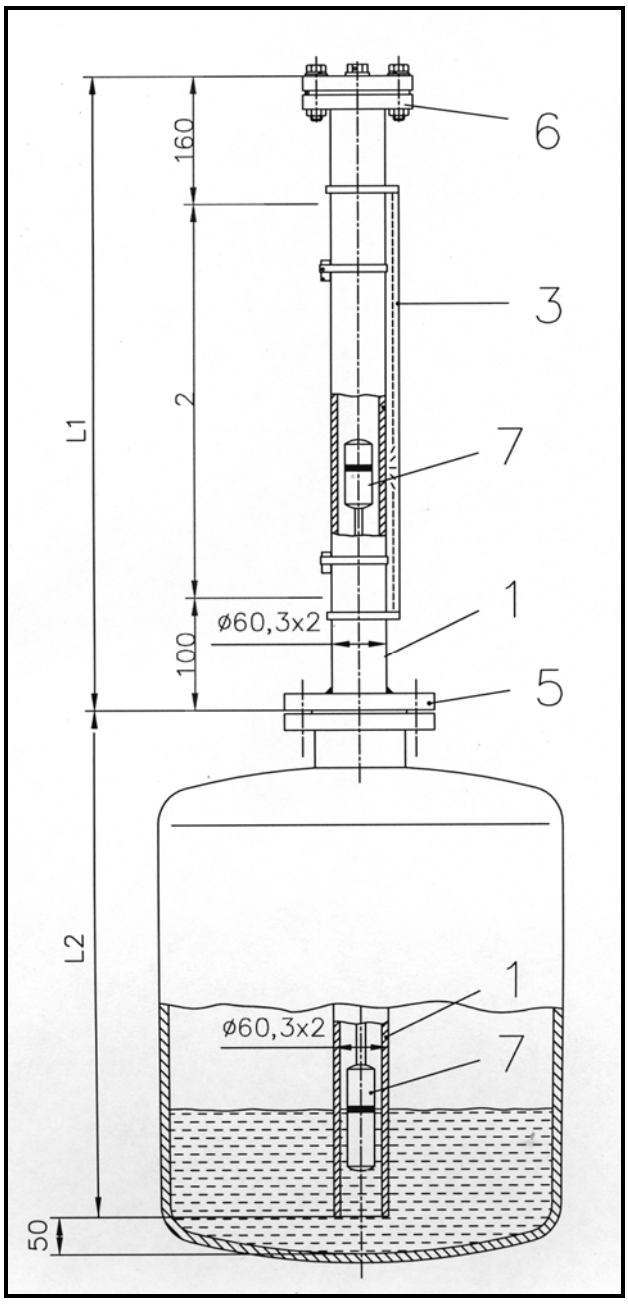
Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	Min. density [kg/dm³]	Vented? [Y/N]	Notes
34PVD1K1	10	E-TFE	50	135	1,3000	N	
34PVD2K1	10	E-TFE	50	255	0,8500	N	
34GLA2K2	10	Borosilicate	50	255	0,8500	N	

3.5.2 Order code scheme for ITA-3.8



3.6.1 ITA-4

Characteristics: **PN 16 / Float pipe and flange material 1.4404**



Parts drawing ITA-4

Key:

1 Float pipe welded Dimensions 60,3 x 2 mm
2 Measuring length
3 Design (indication rail)
5 Process connection on tank
6 Follower magnet guide tube topside finish
7 Float with rod and follower magnet

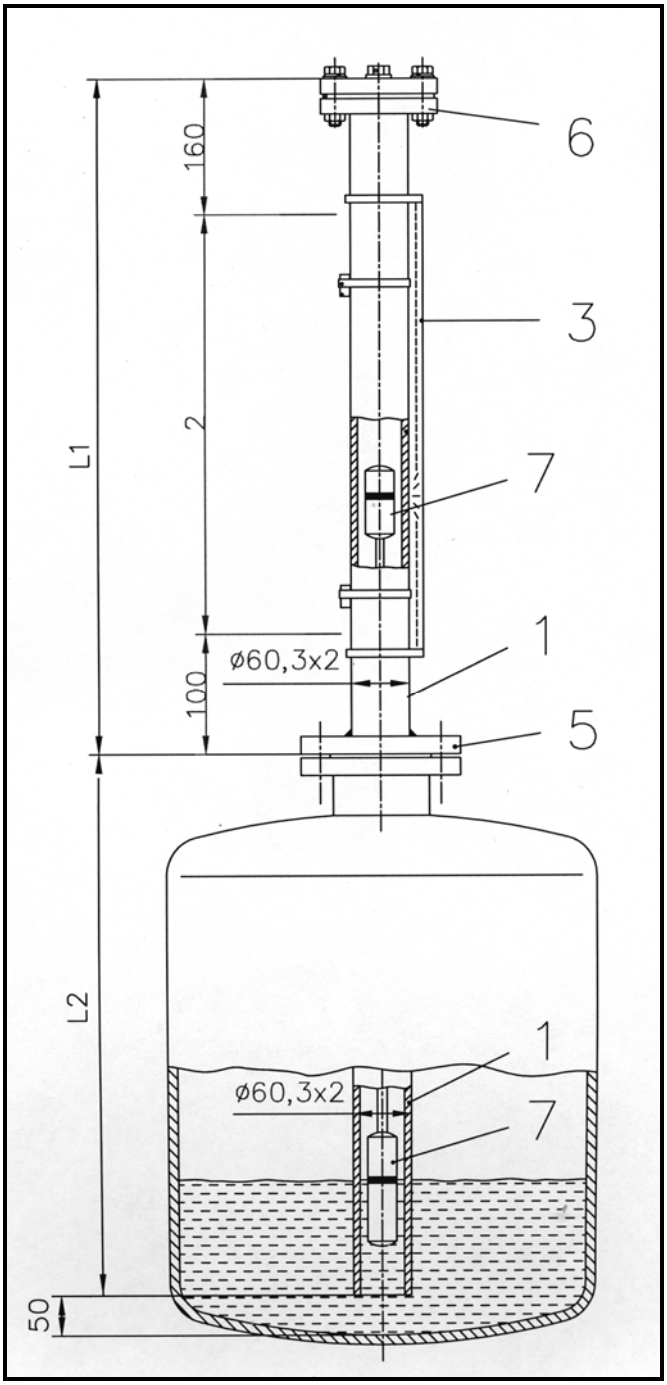
Technical specification magnetic level gauge type ITA-4

Principle	:	Communicating tubes with magnetic float
Mounting position	:	Top of tank
Measuring range	:	**max. 2750 mm** (depending on fluid's density)
Pipe diameter	:	**60,3 x 2 mm welded, necking connections**
Process connection	:	to specify: **Flanges DN50 PN16 or 2"150#**
Drain/vent connections	:	**Plugged R½"**
Pipe material	:	**1.4404,** Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4856), Titanium (3.7035), other materials available on request.
Flange material	:	as pipe material
Float material	:	**1.4404,** Titanium, Titanium/E-CTFE (Halar)-coated
Operation temperature	:	-50...+400 °C
Operation pressure	:	max. 16 bar
Operation density	:	min. 0,68 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**PTFE up to 100 °C** **Klingersil up to 175 °C** **Graphit spiral wound up to 400 °C**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301up to 400 °C
Float types	:	Cylindrical, sealed type, with rod

Base equipment printed in bold letters!

3.6.2 ITA-4.0

Characteristics: **PN 16 / Float pipe: 1.4404; Flanges: CS**



Parts drawing ITA-4.0

Key:

1 Float pipe welded Dimensions 60,3 x 2 mm
2 Measuring length
3 Design (indication rail)
5 Process connection on tank
6 Follower magnet guide tube topside finish
7 Float with rod and follower magnet

Technical specifications magnetic level gauge type ITA-4.0

Principle	:	Communicating tubes with magnetic float
Mounting position	:	Top of tank
Measuring range	:	**max. 2750 mm** (depending on fluid's density)
Pipe diameter	:	**60,3 x 2 mm welded, necking connections**
Process connection	:	to specify: **Flanges DN50 PN16 or 2"150#**
Drain/vent connections	:	**Plugged R½"**
Pipe material	:	**1.4404,** Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4856), Titanium (3.7035), other materials available on request.
Flange material	:	CS
Float material	:	**1.4404,** Titanium, Titanium/E-CTFE (Halar)-coated
Operation temperature	:	-50...+400 °C
Operation pressure	:	max. 16 bar
Operation density	:	min. 0,68 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**PTFE up to 100 °C** **Klingersil up to 175 °C** **Graphit spiral wound up to 400 °C**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301up to 400 °C
Float types	:	Cylindrical, sealed type, with rod

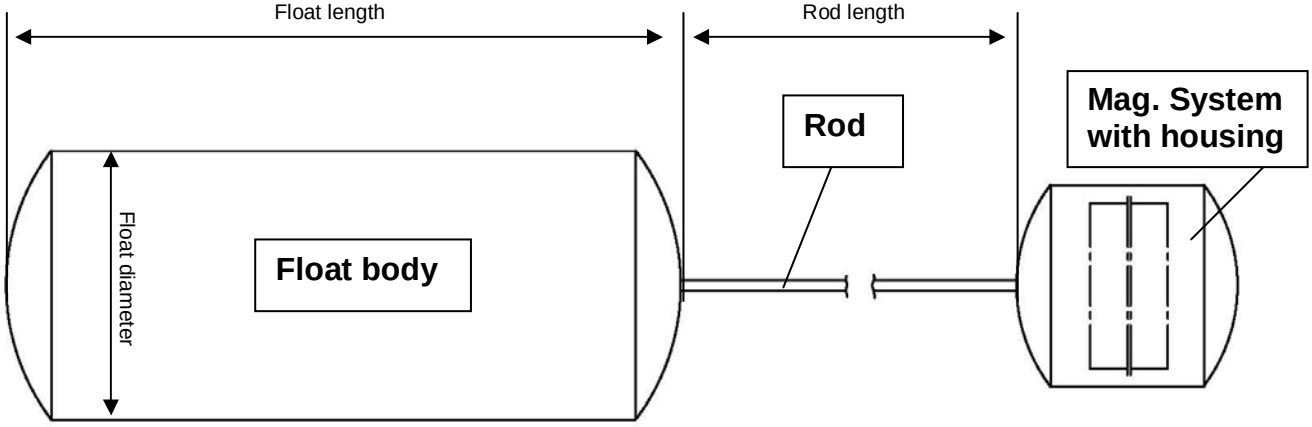
Base equipment printed in bold letters!

Order codes for magnetic level gauge type ITA-4 and ITA-4.0

Code	Description
ITA-4 ITA-4.0	**1. Float pipe welded Dimensions 60,3 x 2 mm**
	2. Measuring length
L	Measuring lenght in mm (max. 2750 mm, depending on the density of the fluid)
	3. Design
0	without indication rail, each 100 mm
1	Indication rail material: Makrolon, max. 120 °C fluid temperature
2	Indication rail material: Aluminium, max. 400 °C fluid temperature
3	Indication rail material: 1.4401, max. 400 °C fluid temperature
	4. Two-parts-construction
0	without
1	Connection of the follower magnet guide tube DN50 PN16
2	Connection of the follower magnet guide tube 2" ANSI 150 lbs RF
	5. Process connection on tank
1	Flange DN 50/PN 16
2	Flange DN 80/PN 16
3	Flange DN 100/PN 16
4	Flange DN 125/PN 16
5	Flange DN 150/PN 16
6	Flange DN 200/PN 16
A	Flange 2" ANSI/150 lbs
B	Flange 3" ANSI/150 lbs
C	Flange 4" ANSI/150 lbs
D	Flange 5" ANSI/150 lbs
E	Flange 6" ANSI/150 lbs
F	Flange 8" ANSI/150 lbs
	5.1 Surface of the process connection on tank
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smouth finished)
F	Surface groove (DIN 2512)
G	Surface groove large
H	Surface Feder (DIN 2512)
K	Surface tongue-large
	6. Follower magnet guide tube topside finish
1	Flange with blind flange DN32 PN 16
2	Flange with blind flange DN50 PN 16
A	Flange with blind flange 1 1/4" ANSI 150 lbs
B	Flange with blind flange 2" ANSI 150 lbs

Order codes for magnetic level gauge type ITA-4 and ITA-4.0 (Continuation)

Code	Description						
	7. Float						
Code	**Pressure [bar]**	**Material**	**Diameter [mm]**	**Length [mm]**	**Min. density [kg/dm³]**	**Vented? [Y/N]**	**Notes**
4T0240R1	16	Titanium	50,8	265	0,7484	N	2
4T0240K2	16	Titanium	50,8	265	0,7075	N	2
4T0240K3	16	Titanium	50,8	265	0,6417	N	1, 2
4T0300R1	16	Titanium	50,8	325	0,6483	N	2
4T0300K2	16	Titanium	50,8	325	0,6154	N	2
4T0300K3	16	Titanium	50,8	325	0,5594	N	1, 2



Notes:

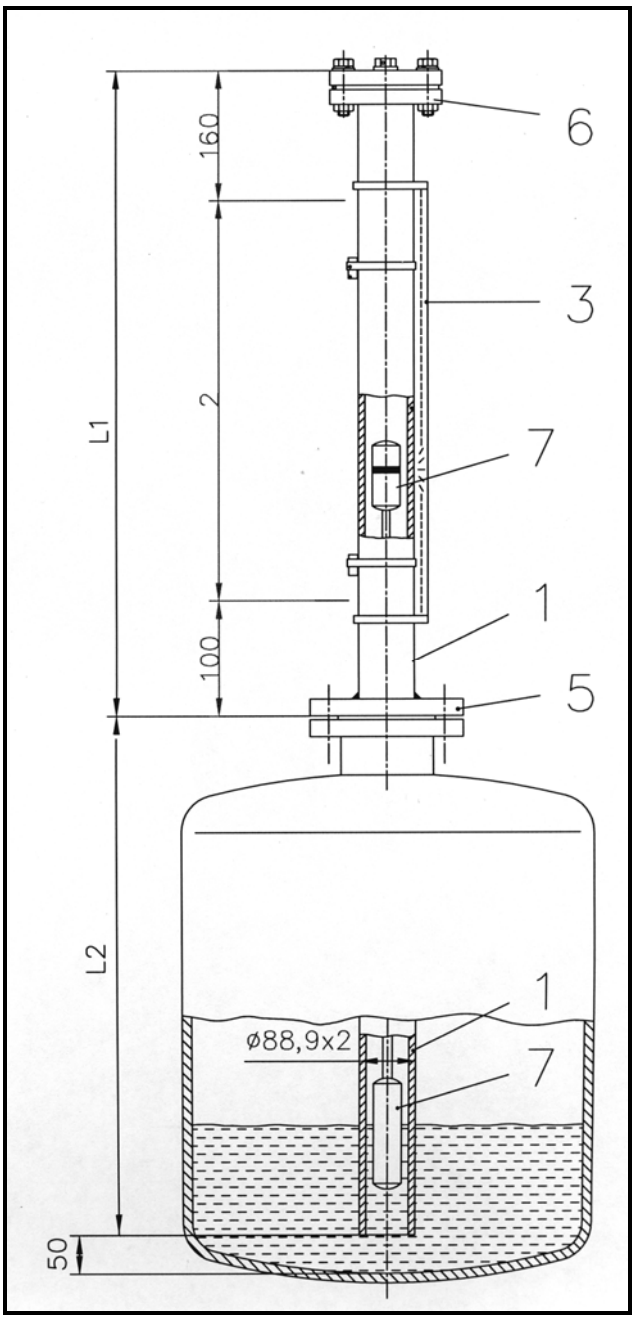
1. **Only with 316SS or Aluminium indication rail.**
2. **Do not use for hydrogen and alcohol compounds.**

3.6.3 Order code scheme for ITA-4 & ITA-4.0

1. Type of level gauge [ITA-4 or ITA-4.0]							
	2. Measuring lemgth in mm [or inches]						
		3. Design					
			4. Two-parts-construction				
				5. Process connection on tank			
					5.1 Surface of process connection flange		
						6. Follower magnet guide tube topside finish	
							7. Float
ITA-4							
ITA-4.0							

3.7.1 ITA-4.1

Characteristics: **PN 16 / Float pipe and flange material 1.4404**



Parts drawing ITA-4.1

Key:

1 Float pipe welded Dimensions 88,9 x 2 mm
2 Measuring length
3 Design (indication rail)
5 Process connection on tank
6 Follower magnet guide tube topside finish
7 Float with rod and follower magnet

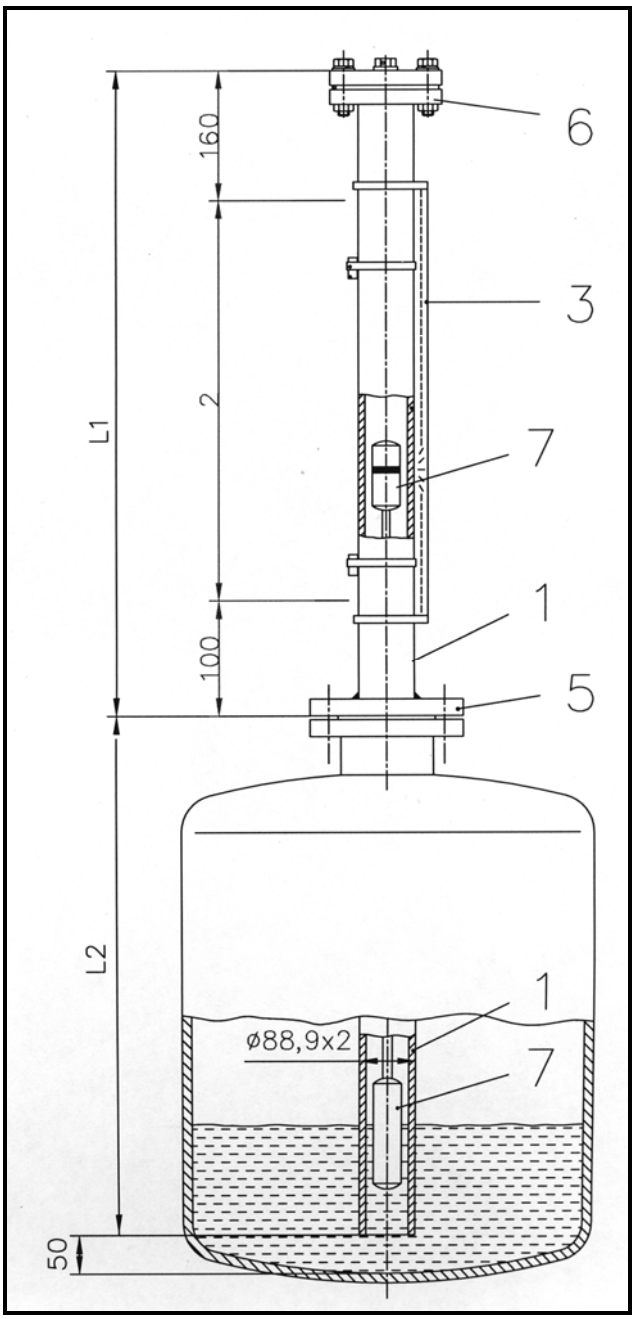
Magnetic level gauge type ITA-4.1

Principle	:	Communicating tubes with magnetic float
Mounting position	:	Top of tank
Measuring range	:	**max. 2750 mm** (depending on fluid's density)
Pipe diameter	:	**88,9 x 2 mm welded, necking connections**
Process connection	:	to specify: **Flanges DN80 PN16 or 4"150#**
Drain/vent connections	:	**Plugged R½"**
Pipe material	:	**1.4404,** Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4856), Titanium (3.7035), other materials available on request.
Flange material	:	as pipe material
Float material	:	**1.4404,** Titanium, Titanium/E-CTFE (Halar)-coated
Operation temperature	:	-50...+400 °C
Operation pressure	:	atmospheric
Operation density	:	min. 0,35 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**PTFE up to 100 °C** **Klingersil C4400 up to 175 °C** **Graphit spiral wound up to 400 °C**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301up to 400 °C
Float types	:	Cylindrical, sealed type, with rod

Base equipment printed in bold letters!

3.7.2 ITA-4.1.0

Characteristics: **PN 16 / Float pipe: 1.4404; Flanges: CS**



Parts drawing ITA-4.1

Key:

1 Float pipe welded Dimensions 88,9 x 2 mm
2 Measuring length
3 Design (indication rail)
5 Process connection on tank
6 Follower magnet guide tube topside finish
7 Float with rod and follower magnet

Technical specifications magnetic level gauge type ITA-4.1.0

Principle	:	Communicating tubes with magnetic float
Mounting position	:	Top of tank
Measuring range	:	**max. 2750 mm** (depending on fluid's density)
Pipe diameter	:	**88,9 x 2 mm welded, necking connections**
Process connection	:	to specify: **Flanges DN80 PN16 or 4"150#**
Drain/vent connections	:	**Plugged R½"**
Pipe material	:	**1.4404,** Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4856), Titanium (3.7035), other materials available on request.
Flange material	:	CS
Float material	:	**1.4404,** Titanium, Titanium/E-CTFE (Halar)-coated
Operation temperature	:	-50...+400 °C
Operation pressure	:	atmospheric
Operation density	:	min. 0,35 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**PTFE up to 100 °C** **Klingersil C4400 up to 175 °C** **Graphit spiral wound up to 400 °C**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301up to 400 °C
Float types	:	Cylindrical, sealed type, with rod

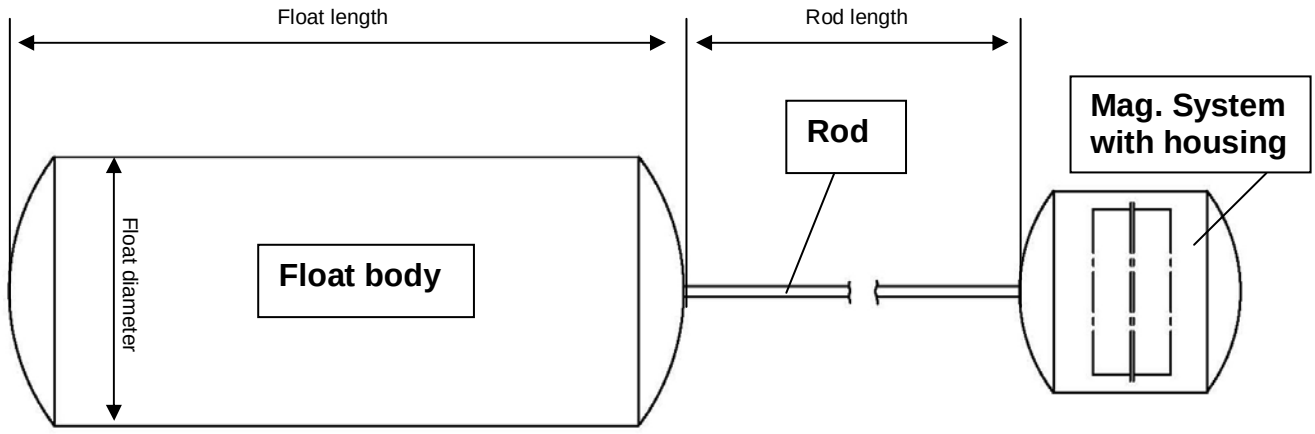
Base equipment printed in bold letters!

Order codes for magnetic level gauge type ITA-4.1 and ITA-4.1.0

Code	Description
ITA-4.1 ITA-4.1.0	**1. Float pipe welded 88,9 x 2 mm**
	2. Measuring length
L	Measuring lenght in mm (max. 2750 mm, depending on the density of the fluid)
	3. Design
0	without indication rail
1	Indication rail material: Makrolon, max. 120 °C fluid temperature
2	Indication rail material: Aluminium, max. 400 °C fluid temperature
3	Indication rail material: 1.4401, max. 400 °C fluid temperature
	4. Two-parts-construction
0	without
1	Connection of the follower magnet guide tube DN50 PN16
2	Connection of the follower magnet guide tube 2" ANSI 150 lbs RF
	5. Process connection on tank
1	Flange DN 80/PN 16
2	Flange DN 100/PN 16
3	Flange DN 125/PN 16
4	Flange DN 150/PN 16
5	Flange DN 200/PN 16
A	Flange 3" ANSI/150 lbs
B	Flange 4" ANSI/150 lbs
C	Flange 5" ANSI/150 lbs
D	Flange 6" ANSI/150 lbs
E	Flange 8" ANSI/150 lbs
	5.1 Surface of the process connection on tank
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smouth finished)
F	Surface groove (DIN 2512)
G	Surface groove large
H	Surface Feder (DIN 2512)
K	Surface tongue-large
	6. Follower magnet guide tube topside finish
1	Flange with blind flange DN32 PN 16
A	Flange with blind flange 1 1/2" ANSI 150 lbs

Order codes for magnetic level gauge type ITA-4.1 and ITA-4.1.0 (Continuation)

Code	Description						
	7. Float						
Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	Min. density [kg/dm³]	Vented? [Y/N]	Notes
4T0152R1	ATM	Titanium	80	175	0,4459	N	2
4T0152K2	ATM	Titanium	80	175	0,4193	N	2
4T0152K3	ATM	Titanium	80	175	0,3769	N	1, 2
4T0182R1	ATM	Titanium	80	205	0,3937	N	2
4T0182K2	ATM	Titanium	80	205	0,3693	N	2
4T0182K3	ATM	Titanium	80	205	0,3317	N	1, 2
4T0242R1	ATM	Titanium	80	265	0,3218	N	2
4T0242K2	ATM	Titanium	80	265	0,3035	N	2
4T0242K3	ATM	Titanium	80	265	0,2770	N	1, 2



Notes:

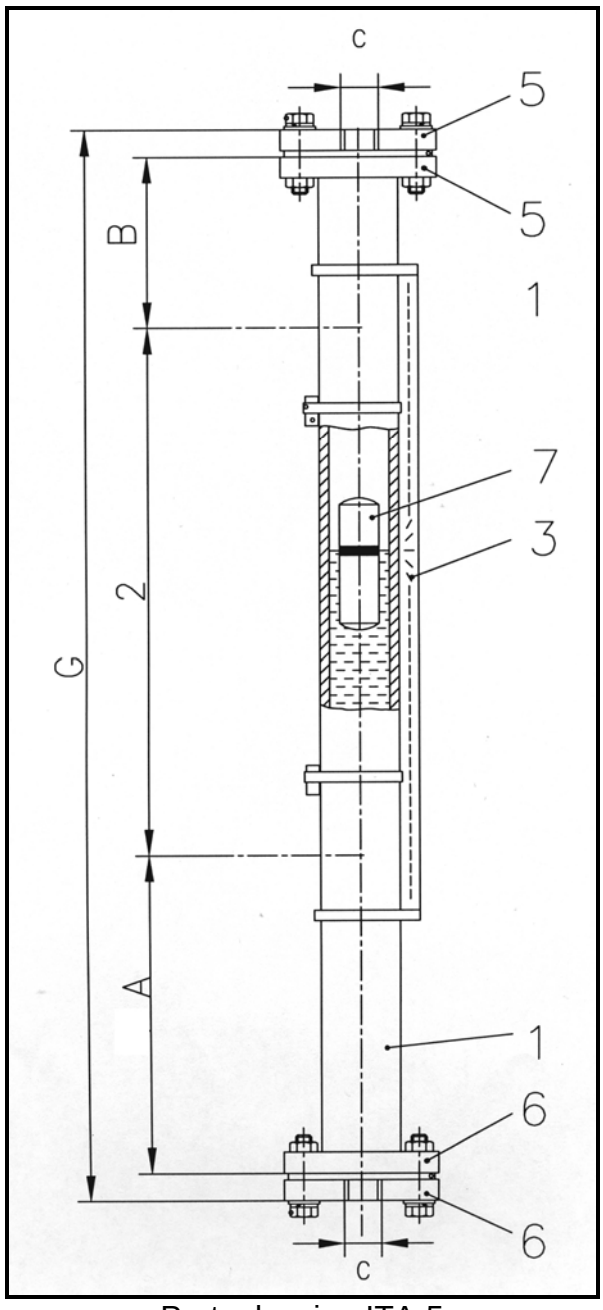
1. **Only with 316SS or Aluminium indication rail.**
2. **Do not use for hydrogen and alcohol compounds.**

3.7.3 Order code scheme for ITA-4.1 & ITA-4.1.0

	1. Type of level gauge [ITA-4.1 or ITA-4.1.0]							
	2. Measuring lemgth in mm [or inches]							
		3. Design						
			4. Two-parts-construction					
				5. Process connection on tank				
					5.1 Surface of process connection flange			
						6. Follower magnet guide tube topside finish		
							7. Float	
ITA-4.1								
ITA-4.1.0								

3.8.1 ITA-5

Characteristics: **PN 16 / 40 Float pipe and flange material 1.4404**



Parts drawing ITA-5

Key:

1 Float pipe welded Dimensions 60,3 x 2 mm
2 Distance between process connections
3 Design (indication rail)
5 Process connection topside
6 Process connection bottom side
7 Float

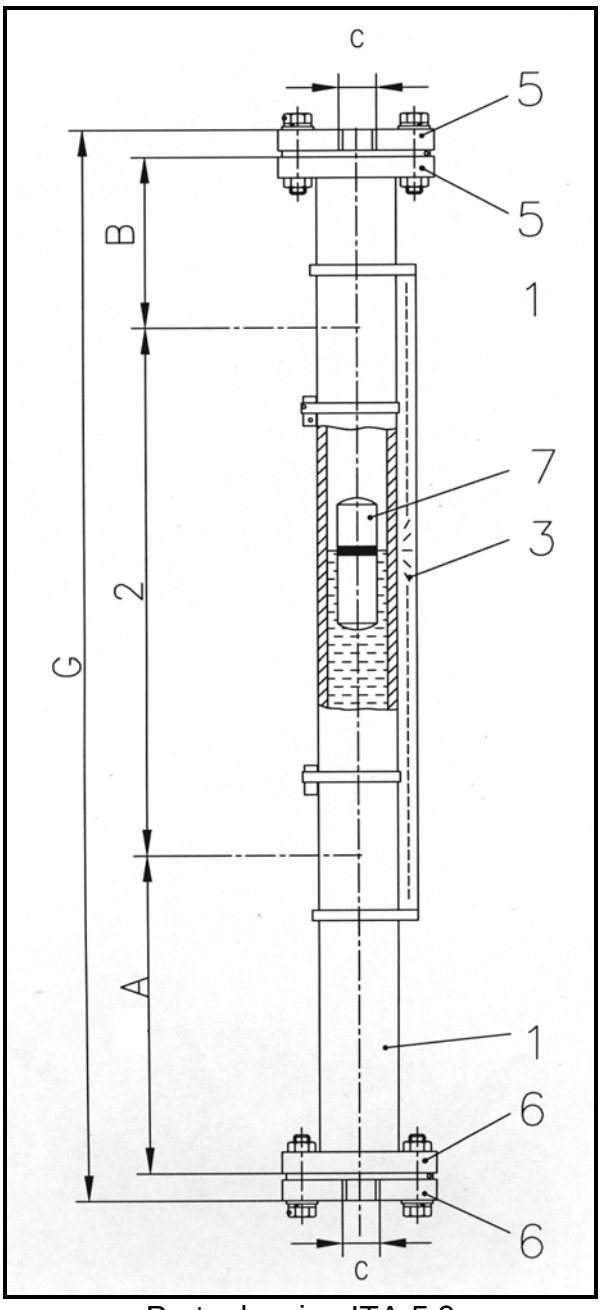
Technical specifications magnetic level gauge type ITA-5

Principle	:	Communicating tubes with magnetic float
Mounting position	:	Vertical
Measuring range	:	**max. 5000 mm (one part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 2 mm welded, necking connections** 2" Sch10 60,3 x (2-8,7 mm) seamless (depending on pressure rating)
Process connection	:	to specify: **R1/2" threaded (up to PN40)** **Welding or threaded stud** Flanged DN15-DN50 (1/2"-2")
Pipe material	:	**1.4404,** Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4856), Titanium (3.7035), other materials available on request.
Flange material	:	as pipe material
Float material	:	**1.4404,** Titanium, Titanium/E-CTFE (Halar)-coated
Operation temperature	:	-50...+400 °C
Operation pressure	:	**max. 16 bar** up to 320 bar
Operation density	:	min. 0,3371 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**PTFE up to 100 °C / PN40** **Klingersil C4400 up to 175 °C / PN40** **Graphit spiral wound up to 400 °C**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301up to 400 °C
Float types	:	Cylindrical, sealed type or vented type (depending on pressure rating)
Dimensions	:	- A= 240* - B= 130 (up to PN64) - **C= R1/2" (up to PN40)** **1/2" NPT (all pressure ratings**

Base equipment printed in bold letters!
*depending on the density the scale A can be enlarged

3.8.2 ITA-5.0

Characteristics: **PN 16 / 40 Float pipe: 1.4404; Flanges: CS**



Parts drawing ITA-5.0

Key:

1 Float pipe welded Dimensions 60,3 x 2 mm
2 Distance between process connections
3 Design (indication rail)
5 Process connection topside
6 Process connection bottom side
7 Float

Technical specifications magnetic level gauge type ITA-5.0

Principle	:	Communicating tubes with magnetic float
Mounting position	:	Vertical
Measuring range	:	**max. 5000 mm (one part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 2 mm welded, necking connections** 2" Sch10 60,3 x (2-8,7 mm) seamless (depending on pressure rating)
Process connection	:	to specify: **R1/2" threaded (up to PN40)** **Welding or threaded stud** Flanged DN15-DN50 (1/2"-2")
Pipe material	:	**1.4404,** Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4856), Titanium (3.7035), other materials available on request.
Flange material	:	**CS**
Float material	:	**1.4404,** Titanium, Titanium/E-CTFE (Halar)-coated
Operation temperature	:	-50...+400 °C
Operation pressure	:	**max. 16 bar** up to 320 bar
Operation density	:	min. 0,3371 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**PTFE up to 100 °C / PN40** **Klingersil C4400 up to 175 °C / PN40** **Graphit spiral wound up to 400 °C**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301up to 400 °C
Float types	:	Cylindrical, sealed type or vented type (depending on pressure rating)
Dimensions	:	- A= 240* - B= 130 (up to PN64) - **C= R1/2" (up to PN40)** **1/2" NPT (all pressure ratings**

Base equipment printed in bold letters!
*depending on the density the scale A can be enlarged

Order codes for magnetic level gauge type ITA-5 and ITA-5.0

Code	Description
ITA-5 ITA-5.0	**1. Float pipe welded Dimensions 60,3x2 mm**
	2. Distance between process connections
L	Distance between process connections in mm
	3. Design
0	without indication rail
1	Indication rail material Makrolon, max. 120 °C
2	Indication rail material Aluminium, max. 400 °C
3	Indication rail material 1.4401, max. 400 °C
	4. Distance between process connections > 5000 mm
A	Dist. betw. process connections < 5000 mm, without connection flanges
B	Dist. betw. process connections > 5000 mm, with connection flanges DN 32 PN 16
	5. Process connection topside
Y	Welding connection (please specify)
Z	Female thread (please specify)
1	Flange with blind flange DN 32 PN 16
	5.1 Surface of process connection topside
0	without
A	Standard-Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
	5.2 Bolts & Nuts process connection topside
0	without
1	M16 x 65 mm; mat 5.6 zinced; flange DN 32 PN 16 DIN 931
2	M16 x 80 mm; mat. A2-70; flange DN 32 PN 16 DIN 2510
3	M16 x 65 mm; mat. 5.6 zinced; flange DN 32 PN 40 DIN 931
4	M16 x 80 mm; mat. A2-70; flange DN 32 PN 40 DIN 2510
5	M16 x 65 mm; mat. 5.6 zinced; flange DN 50 PN 16 DIN 931
6	M16 x 80 mm; mat. A2-70; flange DN 50 PN 16 DIN 2510
7	M16 x 65 mm; mat. 5.6 zinced; flange DN 50 PN 40 DIN 931
8	M16 x 80 mm; mat. A2-70; flange DN 50 PN 40 DIN 2510
	6. Process connection bottom side
Y	Welding connection (please specify)
Z	Female thread (please specify)
A	Flange with blind flange DN 50 PN 16

Order codes for magnetic level gauge type ITA-5 and ITA-5.0 (Continuation)

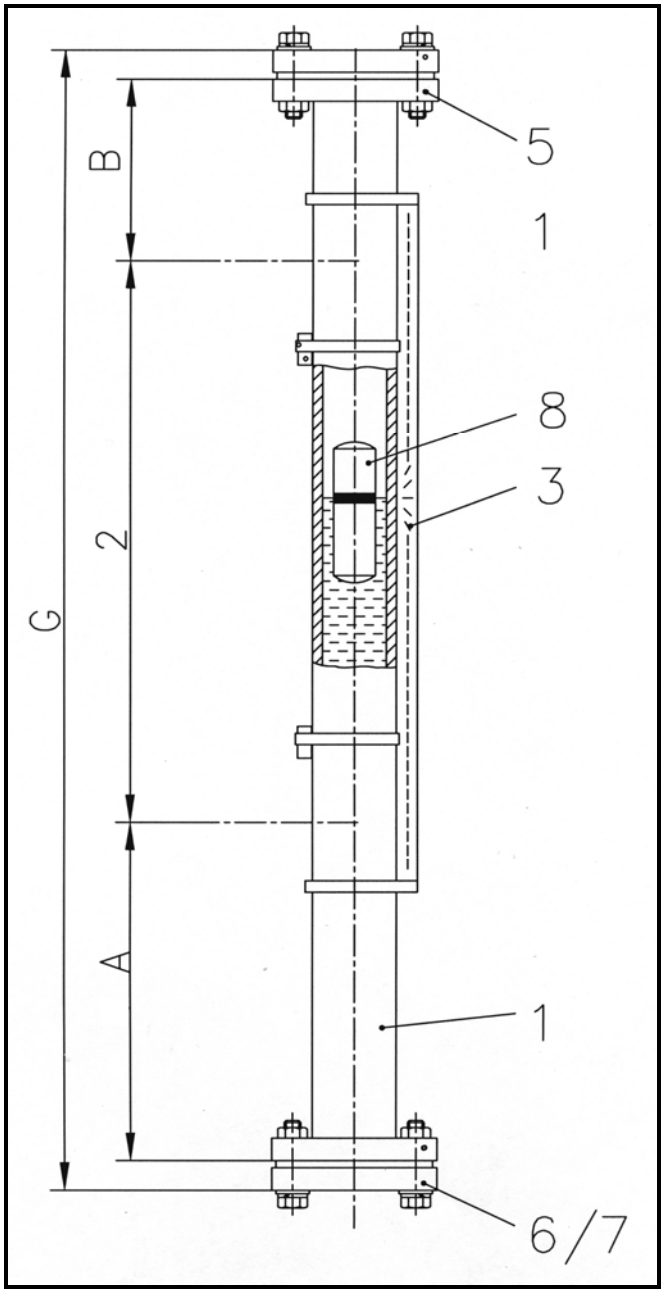
Code	Description
	6.1 Surface of process connection bottom side
0	without
A	Standard-Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
	6.2 Bolts & Nuts process connection bottom side
0	without
1	M16 x 65 mm; mat 5.6 zinced; flange DN 32 PN 16 DIN 931
2	M16 x 80 mm; mat. A2-70; flange DN 32 PN 16 DIN 2510
3	M16 x 65 mm; mat. 5.6 zinced; flange DN 32 PN 40 DIN 931
4	M16 x 80 mm; mat. A2-70; flange DN 32 PN 40 DIN 2510
5	M16 x 65 mm; mat. 5.6 zinced; flange DN 50 PN 16 DIN 931
6	M16 x 80 mm; mat. A2-70; flange DN 50 PN 16 DIN 2510
7	M16 x 65 mm; mat. 5.6 zinced; flange DN 50 PN 40 DIN 931
8	M16 x 80 mm; mat. A2-70; flange DN 50 PN 40 DIN 2510
	7. Floats (Please see ITA-3 to ITA-13)

3.8.3 Order code scheme for ITA-5 & ITA-5.0

1. Type of level gauge [ITA-5 or ITA-5.0]										
	2. Distance between process connections in mm [or inches]									
		3. Design								
			4. Distance between process connections > 5000 mm							
				5. Process connection topside						
					5.1 Surface process connection topside					
						5.2 Bolts & nuts process connection topside				
							6. Process connection bottom side			
								6.1 Surface of process connection bottom side		
									6.2 Bolts & nuts process conn. bottom side	
										7. Floats
ITA-5										
ITA-5.0										

3.9.1 ITA-5.5

Characteristics: **PN 16 Float pipe and flange material 1.4404**



Parts drawing ITA-5.5

Key:

1 Float pipe welded Dimensions 60,3 x 2 mm
2 Distance between process connections
3 Design (indication rail)
5 Process connection topside
6 Float removal flange
7 Process connection bottom side
8 Float

Technical specifications magnetic level gauge type ITA-5.5

Principle	:	Communicating tubes with magnetic float
Mounting position	:	Vertical
Measuring range	:	**max. 3100 mm (one part, total length 3500 mm)** > 3500 mm 2- or multipart
Pipe size	:	**60,3 x 2 mm seamless**
Process connection	:	Flanged DN20-DN50 (3/4”-2”)
Pipe material	:	**1.4404, wetted parts E-CTFE-coated (Halar)**
Flange material	:	**As pipe material**
Float material	:	**Titanium/E-CTFE (Halar)-coated**
Operation temperature	:	-50...+150 °C
Operation pressure	:	**max. 16 bar**
Operation density	:	min. 0,5645 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**PTFE up to 100 °C** **Klingertop-chem-200 up to 260 °C**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301up to 400 °C
Float types	:	Cylindrical, sealed type
Dimensions	:	- A= 240* - B= 130 (up to PN64)

Base equipment printed in bold letters!

Order codes for magnetic level gauge type ITA-5.5

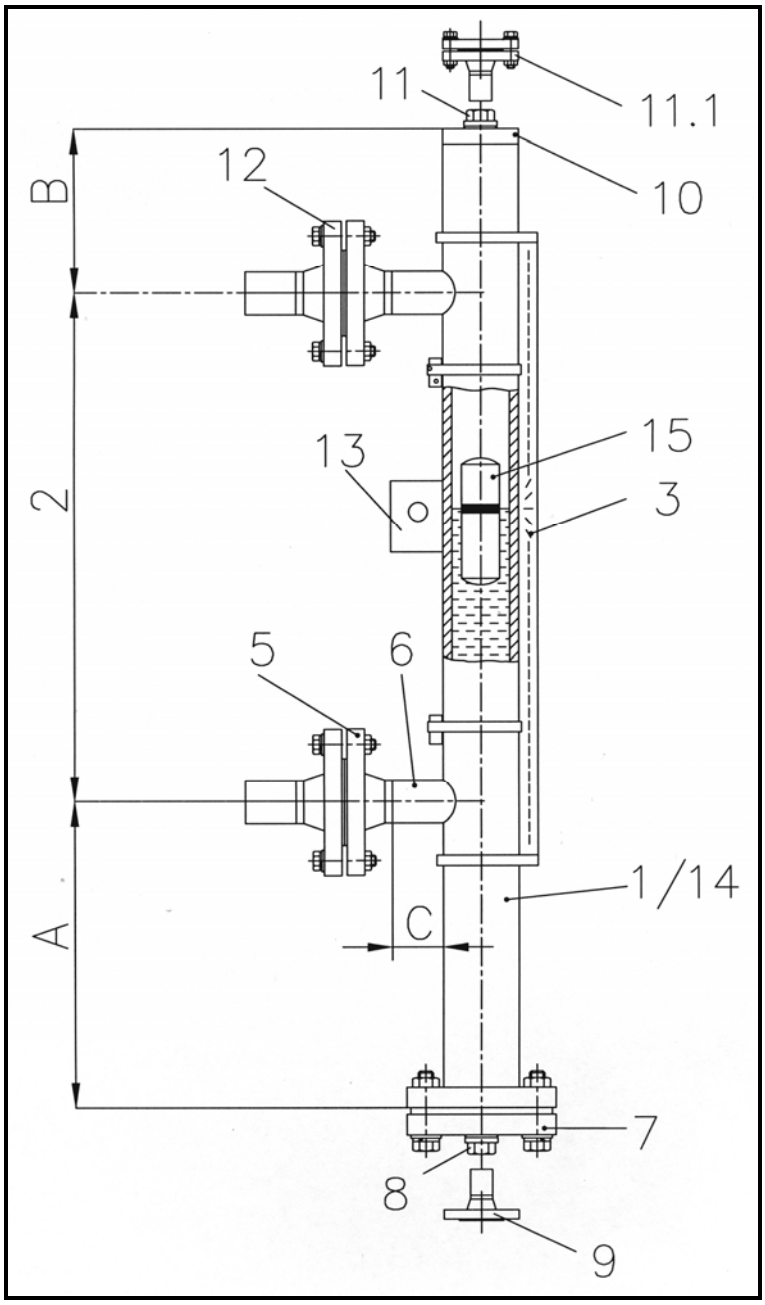
Code	Description
ITA-5.5	**1. Float pipe seamless 60,3x2 mm**
	2. Distance between process connections
L	Distance between process connections in mm
	3. Design
0	without indication rail
1	Indication rail material Makrolon, max. 120 °C
2	Indication rail material Aluminium, max. 400 °C
3	Indication rail material 1.4401, max. 400 °C
	4. Distance between process connections > 3500 mm
0	Dist. betw. process connections < 3500 mm, without connection flanges
A	Dist. betw. process connections > 3500 mm, with connection flanges DN 32 PN 16
B	Dist. betw. process connections > 3500 mm, with connection flanges 1 1/4"ANSI150lbs
	5. Process connection topside
1	Flange DN50 PN16
A	Flange 2" ANSI 150 lbs
	6. Float removal flange
1	Flange DN50 PN16
A	Flange 2" ANSI 150 lbs
	7. Process connection downside on concentric reducer (X-ray-testing)
1	Flange DN 20 PN 16
2	Flange DN 25 PN 16
3	Flange DN 32 PN 16
4	Flange DN 40 PN 16
5	Flange DN 50 PN 16
A	Flange 3/4" ANSI 150 lbs
B	Flange 1" ANSI 150 lbs
C	Flange 1 1/4" ANSI 150 lbs
D	Flange 1 1/2" ANSI 150 lbs
E	Flange 2" ANSI 150 lbs
	7.1 Bolts & Nuts
1	M16 x 65 mm, mat. 5.6 zinced DIN 931;Flange DN 50 PN 16
2	M16 x 80 mm, mat. A2-70 DIN 2510; Flange DN 50 PN 16
A	5/8" x 83 mm, mat. A193B7/A1942H zinced ANSI B16.5; Flange 2" 150 lbs
B	5/8" x 83 mm, mat. A193B7/A1942H PTFE-coated ANSI B16.5; Flange 2" 150 lbs
C	5/8" x 83 mm, mat. A193B8 / A1948M SS B16.5; Flansch 2" 150 lbs
	8. Floats (Please see ITA-3.5)

3.9.2 Order code scheme for ITA-5.5

1. Type of level gauge [ITA-5.5]								
	2. Distance between process connections in mm [or inches]							
		3. Design						
			4. Distance between process connections > 5000 mm					
				5. Process connection topside				
					6. Float removal flange			
						7. Process conn. downside on concetric reducer (X-ray)		
							7.1 Bolts & nuts	
								8. Floats
ITA-5.5								

3.10.1 ITA-6

Characteristics: **PN40 / Float pipe and flange material 1.4404**



Parts drawing ITA-6

Key:

1	Float pipe welded Dimensions 60,3 x 2 mm	9	Additional drain flange, open
2	c to c distance	10	Float pipe top end finish
3	Design (indication rail)	11	Vent plug
5	Process connection side/side	12	Counter flanges
6	Side studs welded with T-pieces for 100 % X-ray testing	13	Additional bracket
		14	Float pipe seamless
7	Float removal flange	15	Float
8	Drain plug		

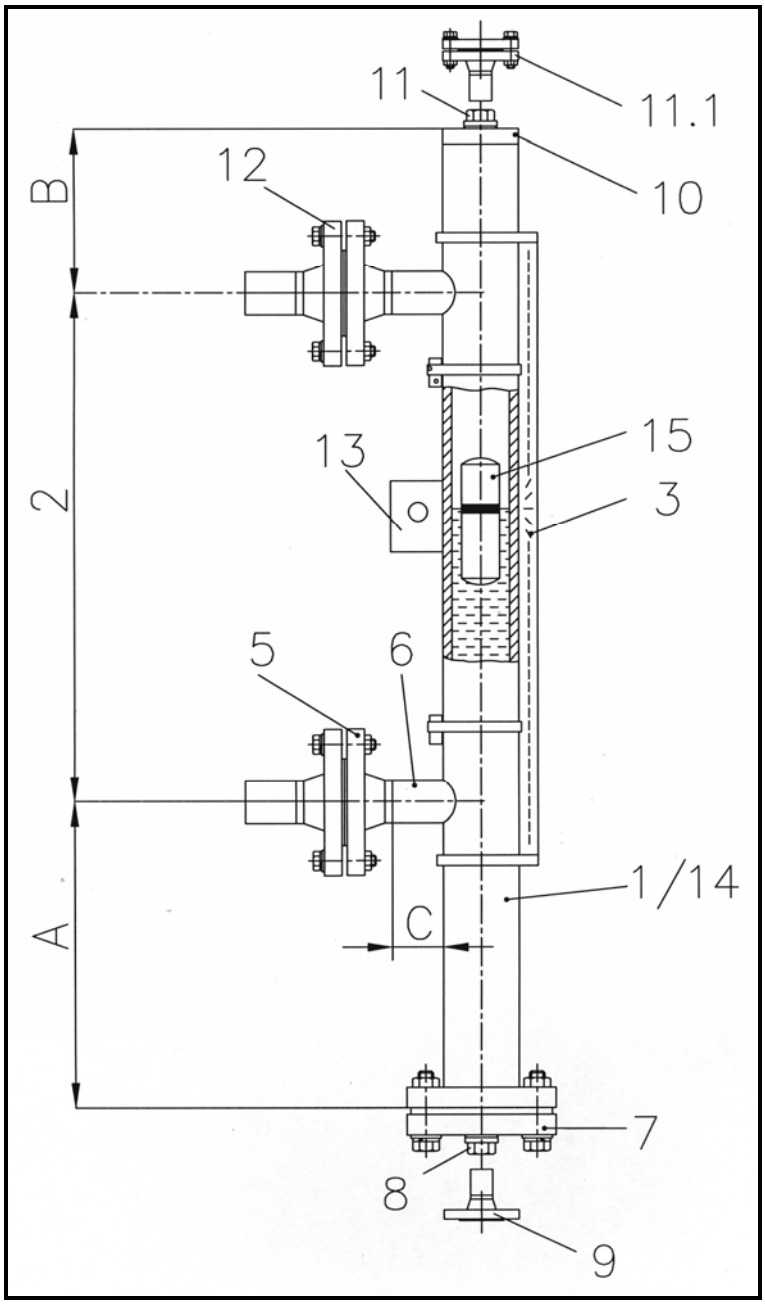
Technical specification magnetic level gauge type ITA-6

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 2 mm welded,** 60,3 x 2 mm seamless 2“Sch10 **necking connection** or buttweld with T-pieces
Process connection	:	to specify: **Flanges DN15-50 (1/2“-2“300#),** **Welding or threaded stud**
Drain/vent connections	:	**Plug R1/2“** (for more please see price list)
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	same as pipe material
Float material	:	**1.4404** Titan, Titan/E-CTFE-coated
Operation temperature	:	-50...+400 °C
Operation pressure	:	max. 40 bar
Operation density	:	min. 0,5723 kg/dm³* up to 20 bar process pressure min. 0,4370 kg/dm³ up to 40 bar process pressure
Bolts & Nuts	:	A193/A194 B7/2H A193/A194 B8/8M CS hot dipped galvanized SS
Gasket	:	**PTFE up to 100 °C** **Klingersil C4400 up to 175 °C** **Graphit spiral wound up to 400 °C******
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301 up to 400 °C
Float types	:	Cylindrical, sealed type Length: - **270 mm** - 130 mm - 150 mm - 210 mm - 330 mm - 430 mm - 530 mm - 630 mm
Standard dimensions	:	- A = 240* - B = 130 - C = 40

Base equipment printed in bold letters!
*** for densities < 0,5723 kg/dm³ enlarge the scale A**
**** only with vent- and/or drain-flanges DN50 resp. 2“**

3.10.2 ITA-6.0

Characteristics: **PN40 / Float pipe: 1.4404 Flanges: CS**



Parts drawing ITA-6.0

Key:

1	Float pipe welded Dimensions 60,3 x 2 mm	9	Additional drain flange, open
2	c to c distance	10	Float pipe top end finish
3	Design (indication rail)	11	Vent plug
5	Process connection side/side	12	Counter flanges
6	Side studs welded with T-pieces for 100 % X-ray testing	13	Additional bracket
		14	Float pipe seamless
7	Float removal flange	15	Float
8	Drain plug		

Technical specification magnetic level gauge type ITA-6.0

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 2 mm welded,** 60,3 x 2 mm seamless 2“Sch10 **necking connection** or buttweld with T-pieces
Process connection	:	to specify: **Flanges DN15-50 (1/2“-2“300#),** **Welding or threaded stud**
Drain/vent connections	:	**Plug R1/2“** (for more please see price list)
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	CS
Float material	:	**1.4404** Titan, Titan/E-CTFE-coated
Operation temperature	:	-50...+400 °C
Operation pressure	:	max. 40 bar
Operation density	:	min. 0,5723 kg/dm³* up to 20 bar process pressure min. 0,4370 kg/dm³ up to 40 bar process pressure
Bolts & Nuts	:	A193/A194 B7/2H A193/A194 B8/8M CS hot dipped galvanized SS
Gasket	:	**PTFE up to 100 °C** **Klingersil C4400 up to 175 °C** **Graphit spiral wound up to 400 °C****
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301 up to 400 °C
Float types	:	Cylindrical, sealed type Length: - **270 mm** - 130 mm - 150 mm - 210 mm - 330 mm - 430 mm - 530 mm - 630 mm
Standard dimensions	:	- A = 240* - B = 130 - C = 40

Base equipment printed in bold letters!
*** for densities < 0,5723 kg/dm³ enlarge the scale A**
**** only with vent- and/or drain-flanges DN50 resp. 2“**

Order codes for magnetic level gauge type ITA-6 and ITA-6.0 (Continuation)

Code	Description
ITA-6 ITA-6.0	**1. Float pipe welded Dimensions 60,3 x 2 mm**
	2. c to c distance
L	c to c distance in mm
	3. Design
0	without indication rail
1	Indication rail material: Makrolon max. 120 °C
2	Indication rail material: Aluminium max. 400 °C
3	Indication rail material: 1.4401 max. 400 °C
	4. c to c distance < 5000 mm
A	< 5000 mm - without flange connection; DN 32 PN 40
B	> 5000 mm - with flange connection; DN 32 PN 40
	5. Process connection side/side
Y	Welding connection (please specify)
Z	Threaded connection (please specify)
1	Flanges DN 15 PN 40
2	Flanges DN 20 PN 40
3	Flanges DN 25 PN 40
4	Flanges DN 32 PN 40
5	Flanges DN 40 PN 40
6	Flanges DN 50 PN 40
A	Flanges 1/2" ANSI 300 lbs
B	Flanges 3/4" ANSI 300 lbs
C	Flanges 1" ANSI 300 lbs
D	Flanges 1 1/4" ANSI 300 lbs
E	Flanges 1 1/2" ANSI 300 lbs
F	Flanges 2" ANSI 300 lbs
	5.1 Surface side flanges
0	without
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface Nut (DIN2512)
G	Surface groove large
H	Surface Feder (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	6. Side studs welded with T-pieces for 100 % X-ray testing
0	without
T	T-pieces

Order codes for magnetic level gauge type ITA-6 and ITA-6.0 (Continuation)

Code	Description
	7. Float removal flange (bottom side)
1	End cap (only if float removal flange (top side))
2	Flange DN 32 PN 40 incl. blind flange
3	Flange DN 50 PN 40 incl. blind flange
A	Flange 2" ANSI 300 lbs incl. blind flange
4	Flange DN 50 PN 40 prepared for shut off valve on side
B	Flange 2" ANSI 300 lbs prepared for shut off valve on side
	7.1 Surface float removal flange (bottom side) (only DN50 or 2")
0	without (Float removal flange (bottom side) = end cap or < DN50 or 2")
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	7.2 Bolts & Nuts float removal flange
0	without (Float removal flange (bottom side) = end cap)
1	M16 x 65 mm; mat. CS zinced; flange DN 32 PN 40
2	M16 x 65 mm; mat. SS 1.4301; flange DN 32 PN 40
3	M16 x 65 mm; mat. CS zinced; flange DN 50 PN 40
4	M16 x 65 mm; mat. SS 1.4301; flange DN 50 PN 40
A	5/8" x 83 mm; mat. CS zinced A193B7; flange 2" ANSI 300 lbs
B	5/8" x 89 mm; mat. CS zinced A193B7 / A1942H; flange 2" ANSI 300 lbs
C	5/8" x 83 mm; mat. SS A193B8 A1948M, flange 2" ANSI 300 lbs
D	5/8" x 89 mm; mat. SS A193B8 A1948M; flange 2" ANSI 300 lbs
E	Bolts & Nuts PTFE-coated (only DN50 or 2")
	8. Drain plug
0	without
1	Drain plug G 1/2" with soft iron gasket
2	Drain plug 1/2" NPT
3	Drain plug 3/4" NPT
4	Drain plug 1" NPT
	9. Additional drain flange, open
0	without
1	Drain stud with flange DN 15 PN 40
2	Drain stud with flange DN 20 PN 40
3	Drain stud with flange DN 25 PN 40
4	Drain stud with flange DN 32 PN 40
5	Drain stud with flange DN 40 PN 40
A	Drain stud with flange 1/2" ANSI 300 lbs
B	Drain stud with flange 3/4" ANSI 300 lbs
C	Drain stud with flange 1" ANSI 300 lbs
D	Drain stud with flange 1 1/4" ANSI 300 lbs
E	Drain stud with flange 1 1/2" ANSI 300 lbs

Order codes for magnetic level gauge type ITA-6 and ITA-6.0 (Continuation)

Code	Description
	9.1 Drain flange with concentric reducer (X-ray testing)
0	without
1	DN 15 PN 40
2	DN 20 PN 40
3	DN 25 PN 40
4	DN 32 PN 40
5	DN 40 PN 40
A	1/2" ANSI 300 lbs
B	3/4" ANSI 300 lbs
C	1" ANSI 300 lbs
D	1 1/4" ANSI 300 lbs
E	1 1/2" ANSI 300 lbs
	9.2 Surface open drain flange
0	without (Float removal flange (bottom side) = end cap or < DN50 or 2")
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	10. Float pipe top end finish
1	End cap
2	Flange with blind flange DN 32 PN 40
3	Flange with blind flange DN 50 PN 40
4	Flange with blind flange 2" ANSI 300 lbs
	10.1 Surface float pipe top end finish flange (only DN50 or 2")
0	without (Float pipe top end finish = End cap or < DN50 or 2")
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"

Order codes for magnetic level gauge type ITA-6 and ITA-6.0 (Continuation)

Code	Description
	10.2 Bolts & nuts float pipe top end finish flange
0	without (Float pipe top end finish = End cap)
1	M16 x 65 mm; mat. CS zinced; flange DN 32 PN 40
2	M16 x 65 mm; mat. SS 1.4301; flange DN 32 PN 40
3	M16 x 65 mm; mat. CS zinced; flange DN 50 PN 40
4	M16 x 65 mm; mat. SS 1.4301; flange DN 50 PN 40
A	5/8" x 83 mm; mat. CS zinced A193B7; flange 2" ANSI 300 lbs
B	5/8" x 89 mm; mat. CS zinced A193B7 / A1942H; flange 2" ANSI 300 lbs
C	5/8" x 83 mm; mat. SS A193B8 A1948M, flange 2" ANSI 300 lbs
D	5/8" x 89 mm; mat. SS A193B8 A1948M; flange 2" ANSI 300 lbs
E	Bolts & Nuts PTFE-coated (only DN50 or 2")
	11. Vent plug at top end
0	without
1	Vent plug G 1/2" with soft iron gasket
2	Vent plug 1/2" NPT
3	Vent plug 3/4" NPT
4	Vent plug 1" NPT
	11.1 Vent flange welded to end cap instead of vent plug
0	without
1	Flanged DN 15 PN 40 (socket weld construction to endcap)
2	Flanged DN 20 PN 40 (socket weld construction to endcap)
3	Flanged DN 25 PN 40 (socket weld construction to endcap)
4	Flanged DN 32 PN 40 (socket weld construction to endcap)
5	Flanged DN 40 PN 40 (socket weld construction to endcap)
6	Flanged DN 50 PN 40 (socket weld construction to endcap)
A	Flanged 1/2" ANSI 300 lbs (socket weld construction to endcap)
B	Flanged 3/4" ANSI 300 lbs (socket weld construction to endcap)
C	Flanged 1" ANSI 300 lbs (socket weld construction to endcap)
D	Flanged 1 1/4" ANSI 300 lbs (socket weld construction to endcap)
E	Flanged 1 1/2" ANSI 300 lbs (socket weld construction to endcap)
F	Flanged 2" ANSI 300 lbs (socket weld construction to endcap)
	11.2 Vent flange with concentric reducer (X-ray testing)
0	without
1	DN 15 PN 40
2	DN 20 PN 40
3	DN 25 PN 40
4	DN 32 PN 40
5	DN 40 PN 40
A	1/2" ANSI 300 lbs
B	3/4" ANSI 300 lbs
C	1" ANSI 300 lbs
D	1 1/4" ANSI 300 lbs
E	1 1/2" ANSI 300 lbs

Order codes for magnetic level gauge type ITA-6 and ITA-6.0 (Continuation)

Code	Description
	11.3 Surface vent flange welded to end cap (only DN50 or 2")
0	without (Vent flange welded to end cap = without)
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	12. Counter flanges
0	without
1	DN 15 PN 40
2	DN 20 PN 40
3	DN 25 PN 40
4	DN 32 PN 40
5	DN 40 PN 40
6	DN 50 PN 40
A	1/2" 300 lbs
B	3/4" 300 lbs
C	1" 300 lbs
D	1 1/4" 300 lbs
E	1 1/2" 300 lbs
F	2" 300 lbs
	12.1 Surface counter flanges
0	without
A	Standard- Surface Form C
B	Standard-Surface RF
C	Surface Form D Rz=40
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	12.2 Bolts & Nuts counter flanges
0	without
1	M16 x 65 mm; mat. CS zinced; flange DN 32 PN 40
2	M16 x 65 mm; mat. SS 1.4301; flange DN 32 PN 40
3	M16 x 65 mm; mat. CS zinced; flange DN 50 PN 40
4	M16 x 65 mm; mat. SS 1.4301; flange DN 50 PN 40
A	5/8" x 83 mm; mat. CS zinced A193B7; flange 2" ANSI 300 lbs
B	5/8" x 89 mm; mat. CS zinced A193B7 / A1942H; flange 2" ANSI 300 lbs
C	5/8" x 83 mm; mat. SS A193B8 A1948M, flange 2" ANSI 300 lbs
D	5/8" x 89 mm; mat. SS A193B8 A1948M; flange 2" ANSI 300 lbs
E	Bolts & Nuts PTFE-coated (only DN50 or 2")

Order codes for magnetic level gauge type ITA-6 and ITA-6.0 (Continuation)

Code	Description
	13. Additional bracket welded to the float pipe
0	without
H	Bracket
	14. Float pipe seamless
0	without
S	60,3 x 2 mm seamless
	15. Float

Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	Min. density [kg/dm³]	Vented? [Y/N]	Notes
6V0100K1	30	316L	52	125	1,5188	N	
6V0100K3	30	316L	52	125	1,0891	N	1
6V0120K1	30	316L	52	145	1,2780	N	
6V0120K3	30	316L	52	145	0,9519	N	1
6V0150K1	30	316L	52	175	1,0711	N	
6V0150K3	30	316L	52	175	0,8309	N	1
6V0180K1	30	316L	52	205	0,9486	N	
6V0180K3	30	316L	52	205	0,8140	N	1
6V0240K1	30	316L	52	265	0,7738	N	
6V0240K3	30	316L	52	265	0,6513	N	1
6T0100K1	40	Titanium	50,8	125	1,3114	N	2
6T0100K3	40	Titanium	50,8	125	0,8975	N	1, 2
6T0120K1	40	Titanium	50,8	145	1,1007	N	2
6T0120K3	40	Titanium	50,8	145	0,7837	N	1, 2
6T0150K1	40	Titanium	50,8	175	0,9029	N	2
6T0150K3	40	Titanium	50,8	175	0,6763	N	1, 2
6T0180K1	40	Titanium	50,8	205	0,7791	N	2
6T0180K3	40	Titanium	50,8	205	0,6100	N	1, 2
6T0240K1	40	Titanium	50,8	265	0,6391	N	2
6T0240K3	40	Titanium	50,8	265	0,5187	N	1, 2
6T0300K1	40	Titanium	50,8	325	0,5694	N	2
6T0300K3	40	Titanium	50,8	325	0,4812	N	1, 2
6T0400K1	40	Titanium*	50,8	425	0,5300	N	2
6T0400K3	40	Titanium*	50,8	425	0,4373	N	1, 2
6T0500K1	40	Titanium*	50,8	525	0,4463	N	2
6T0500K3	40	Titanium*	50,8	525	0,4098	N	1, 2
6T0600K1	40	Titanium*	50,8	625	0,4370	N	2
6T0600K3	40	Titanium*	50,8	625	0,3834	N	1, 2
6H0200K1	40	Titanium, Halar-coated	52	265	0,7674	N	
6H0200K3	40	Titanium, Halar-coated	52	265	0,6470	N	1
6HC012K1	40	Hastelloy C4	52	145		N	
6HC024K1	40	Hastelloy C4	52	265		N	
6HC024K3	40	Hastelloy C4	52	265		N	1

Notes:

1. **Only with 316SS or Aluminium indication rail.**
2. **Do not use for hydrogen and alcohol compounds.**

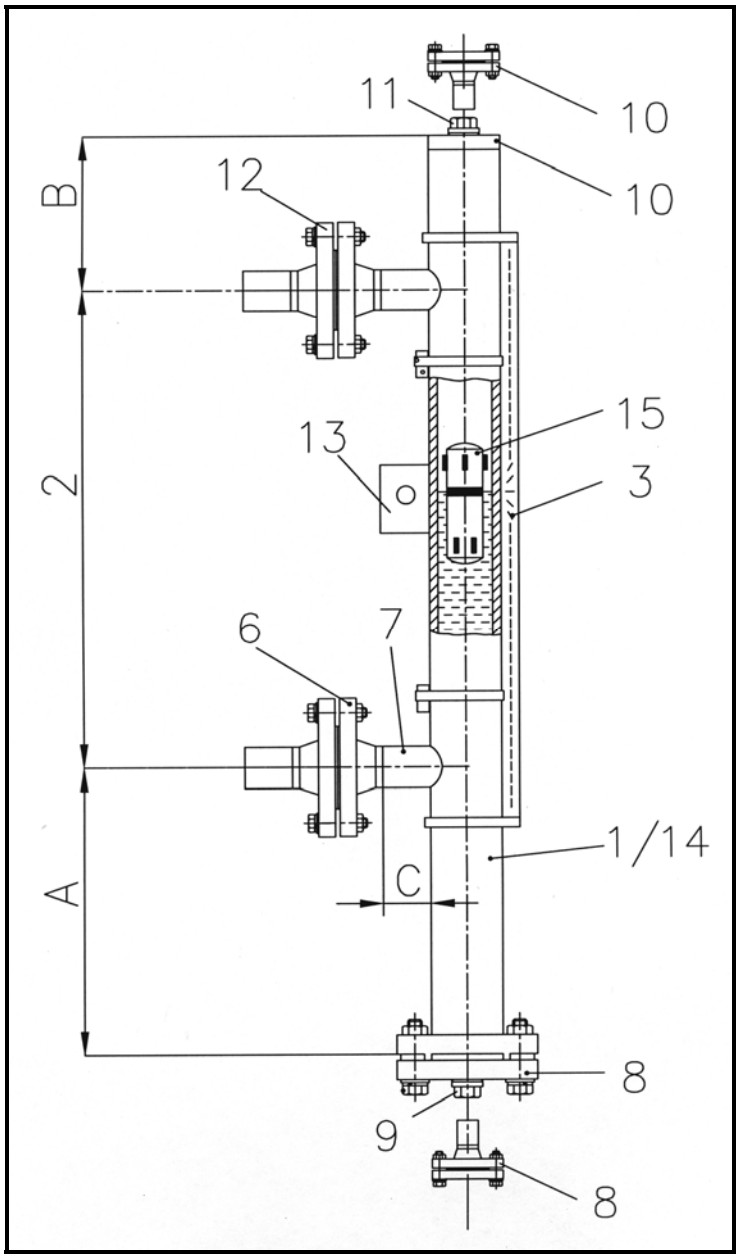
3.10.3 Order code scheme for ITA-6 & ITA-6.0

1. Type of level gauge [ITA-6 or ITA-6.0]											
	2. c to c distance in mm [or inches]										
		3. Design									
			4. c to c distance > 5000 mm								
				5. Process connection [side/side]							
					5.1 Surface side flanges						
						6. Side studs welded with T-pieces for 100 % X-ray testing					
							7. Float removal flange				
								7.1 Surface float removal flange (bottom side)			
									7.2 Bolts & Nuts float removal flange		
										8. Drain Plug	
											9. Additional drain flange, open
ITA-6											
ITA-6.0											

9.1 Drain flange with concentric reducer (X-ray-testing)														
	9.1 Surface open drain flange													
		10. Float pipe top end finish												
			10.1 Surface top end finish flange											
				10.2 Bolts & Nuts top end finish flange										
					11. Vent plug at top end									
						11.1 Vent flange welded to end cap instead of vent plug								
							11.2 Vent flange with concentric reducer (X-ray testing)							
								11.3 Surface Vent Flange						
									12. Counter flanges					
										12.1 Surface counter flanges				
											12.2 Bolts & Nuts counter flanges			
												13. Additional bracket welded to the float pipe		
													14. Float pipe seamless	
														15. Float

3.11.1 ITA-6 Cryo (cryogenic applications)

Characteristics: **PN40 / Float pipe and flange material 1.4404**



Parts drawing ITA-6 Cryo

Key:

1	Float pipe welded Dimensions 60,3 x 2 mm	9	Drain plug
2	c to c distance	10	Additional drain flange, open
3	Design (indication rail)	11	Float pipe top end finish
4	Armaflex insulation	12	Vent plug
6	Process connection side/side	13	Counter flanges
7	Side studs welded with T-pieces for 100 % X-ray testing	14	Additional bracket
		15	Float pipe seamless
8	Float removal flange	16	Float

Technical specification magnetic level gauge type ITA-6 CRYO

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 2 mm welded,**
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2"300#)**
Drain/vent connections	:	**Plug G1/2"** (for more please see price list)
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	same as pipe material
Float material	:	**1.4404** Titan, Titan/E-CTFE-coated
Operation temperature	:	--200...+100 °C
Operation pressure	:	max. 40 bar
Operation density	:	min. 0,4693 kg/dm³
Bolts & Nuts	:	**CS** (min. -10 °C) SS or material in acc. with DIN 17280
Gasket	:	**PTFE up to 100 °C** **Klingersil C4400 up to 175 °C** **Graphit spiral wound up to 400 °C****
Indication rail	:	**PTFE min. -150 °C** **Klingersil TOP Chem 2000**
Float types	:	Cylindrical, sealed type Dimensions: - **Ø50,8 x 270 mm**
Standard dimensions	:	- A = 240* - B = 130 - C = 40

Base equipment printed in bold letters!

Not for vaporizing media (e.g. Ammonia)

Order codes for magnetic level gauge type ITA-6 Cryo

Code	Description:
ITA-6-Cryo	**1. Float pipe welded Dimensions 60,3 x 2 mm**
	2. c to c distance
L	c to c distance in mm
	3. Design
0	without indication rail
1	Indication rail material: Aluminium max. 400 °C
2	Indication rail material: 1.4401 max. 400 °C
	4. Armaflex-Insulation
0	without Armaflex insulation
F	Thickness: 12 mm, bis -15 °C
R	Thickness: 30 mm, bis -50 °C
T	Thickness: 70 mm, bis -200 °C incl. Makrolon window
	5. C to C distance < 5000 mm
A	< 5000 mm - without flange connection; DN 32 PN 40
B	> 5000 mm - with flange connection; DN 32 PN 40
	6. Process connection side/side
Y	Welding connection (please specify)
Z	Threaded connection (please specify)
1	Flanges DN 15 PN 40
2	Flanges DN 20 PN 40
3	Flanges DN 25 PN 40
4	Flanges DN 32 PN 40
5	Flanges DN 40 PN 40
6	Flanges DN 50 PN 40
A	Flanges 1/2" ANSI 300 lbs
B	Flanges 3/4" ANSI 300 lbs
C	Flanges 1" ANSI 300 lbs
D	Flanges 1 1/4" ANSI 300 lbs
E	Flanges 1 1/2" ANSI 300 lbs
F	Flanges 2" ANSI 300 lbs
	6.1 Surface side flanges
0	Without
F	Groove (DIN2512)
H	Tongue (DIN2512)
	7. Side studs welded with T-pieces for 100 % X-ray testing
0	Without
T	T-pieces
	8. Float removal flange (bottom side)
1	End cap (only if float removal flange (top side))
2	Flange DN 50 PN 40 incl. blind flange
A	Flange 2" ANSI 300 lbs incl. blind flange

Order codes for magnetic level gauge type ITA-6 Cryo (Cont.)

Code	Description:
	8.1 Surface float removal flange (bottom side) (only DN50 or 2")
0	without (Float removal flange (bottom side) = end cap or < DN50 or 2")
F	Groove (DIN2512)
H	Tongue (DIN2512)
	8.2 Bolts & Nuts float removal flange
0	without (Float removal flange (bottom side) = end cap)
1	M16 x 65 mm; mat. CS zinced; Flange DN 50 PN 40
2	M16 x 65 mm; mat. SS 1.4301; Flange DN 50 PN 40
A	5/8" x 89 mm; mat. CS zinced A193B7 / A1942H ; Flange 2" ANSI 300 lbs
B	5/8" x 89 mm; mat. SS A193B8 A1948M; Flange 2" ANSI 300 lbs
C	Bolts & Nuts PTFE-coated
	9. Drain plug
0	without
1	G 1/2" DIN1910
	10. Float pipe top end finish
1	End cap
2	Flange with blind flange DN 50 PN 40
A	Flange with blind flange 2" ANSI 300 lbs
	10.1 Surface float pipe top end finish flange (only DN50 or 2")
0	without (Float pipe top end finish = End cap or < DN50 or 2")
F	Groove (DIN2512)
H	Tongue (DIN2512)
	10.2 Bolts & nuts float pipe top end finish flange
0	without (Float pipe top end finish = End cap)
1	M16 x 65 mm; mat. CS zinced; Flange DN 50 PN 40
2	M16 x 65 mm; mat. SS 1.4301; Flange DN 50 PN 40
A	5/8" x 89 mm; mat. CS zinced A193B7 / A1942H ; Flange 2" ANSI 300 lbs
B	5/8" x 89 mm; mat. SS A193B8 A1948M; Flange 2" ANSI 300 lbs
C	Bolts & Nuts PTFE-coated
	11. Vent plug on topside
0	without
1	Vent plug G 1/2" with soft iron gasket

Order codes for magnetic level gauge type ITA-6 Cryo (Cont.)

Code	Description:
	12. Counter flanges
0	without
1	DN 15 PN 40
2	DN 20 PN 40
3	DN 25 PN 40
4	DN 32 PN 40
5	DN 40 PN 40
6	DN 50 PN 40
A	1/2" 300 lbs
B	3/4" 300 lbs
C	1" 300 lbs
D	1 1/4" 300 lbs
F	1 1/2" 300 lbs
G	2" 300 lbs
	12.1 Surface counter flanges
0	without
F	Groove (DIN2512)
H	Tongue (DIN2512)
	12.2 Bolts & Nuts counter flanges
0	without
1	M16 x 65 mm; mat. CS zinced; Flange DN 50 PN 40
2	M16 x 65 mm; mat. SS 1.4301; Flange DN 50 PN 40
A	5/8" x 89 mm; mat. CS zinced A193B7 / A1942H ; Flange 2" ANSI 300 lbs
B	5/8" x 89 mm; mat. SS A193B8 A1948M; Flange 2" ANSI 300 lbs
C	Bolts & Nuts PTFE-coated
	13. Additional bracket welded to the float pipe
0	without
H	Bracket
	14. Float pipe seamless
0	without
S	60,3 x 2 mm seamless

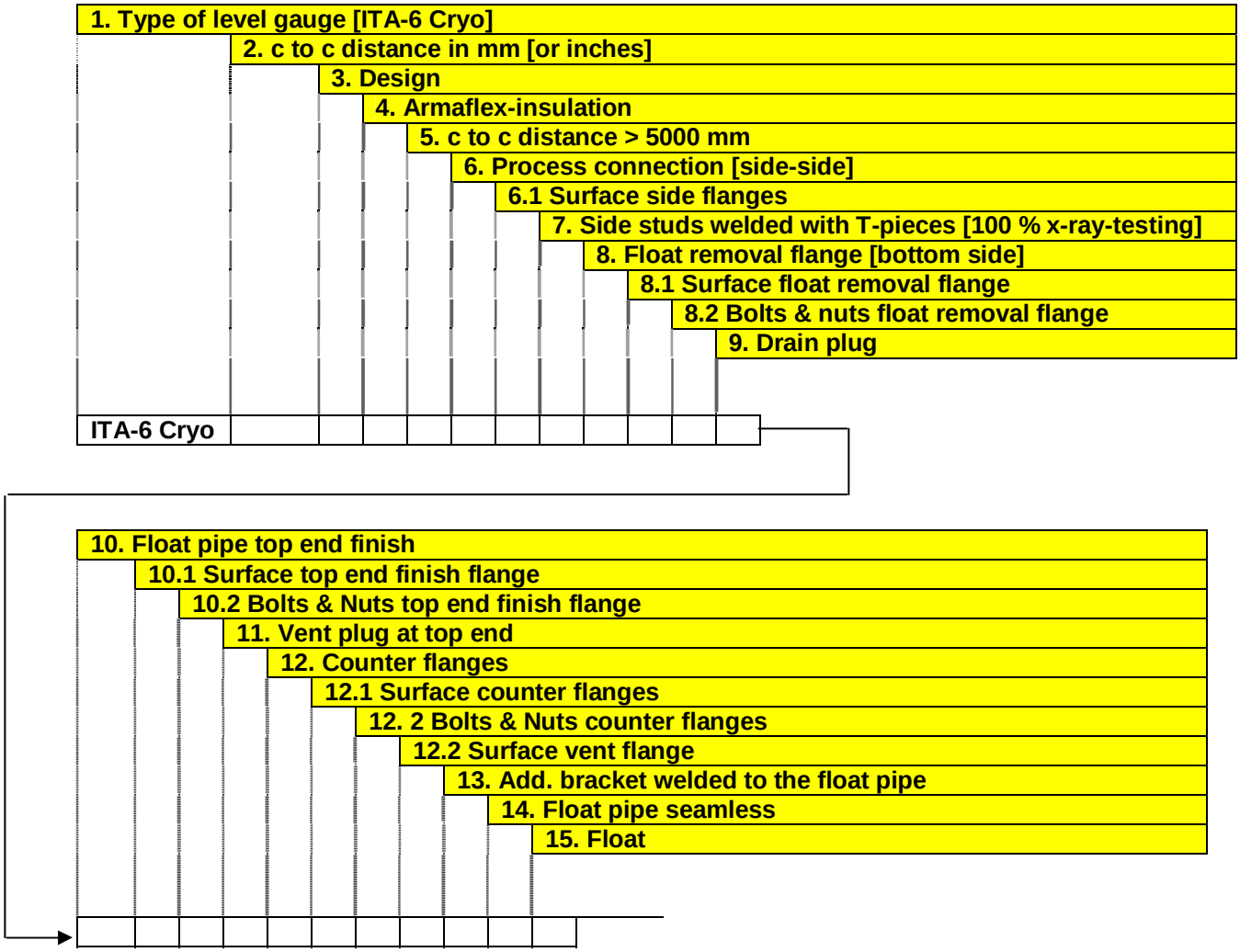
15. Float

Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	Min. density [kg/dm³]	Vented? [Y/N]	Notes
6C0240K1	40	Titanium	50,8	265	0,6391	N	2
6C0500K1	40	Titanium	45	525	0,5981	N	2, 3
6C0300K3	40	Titanium	45	525	0,5486	N	1, 2, 3

Notes:

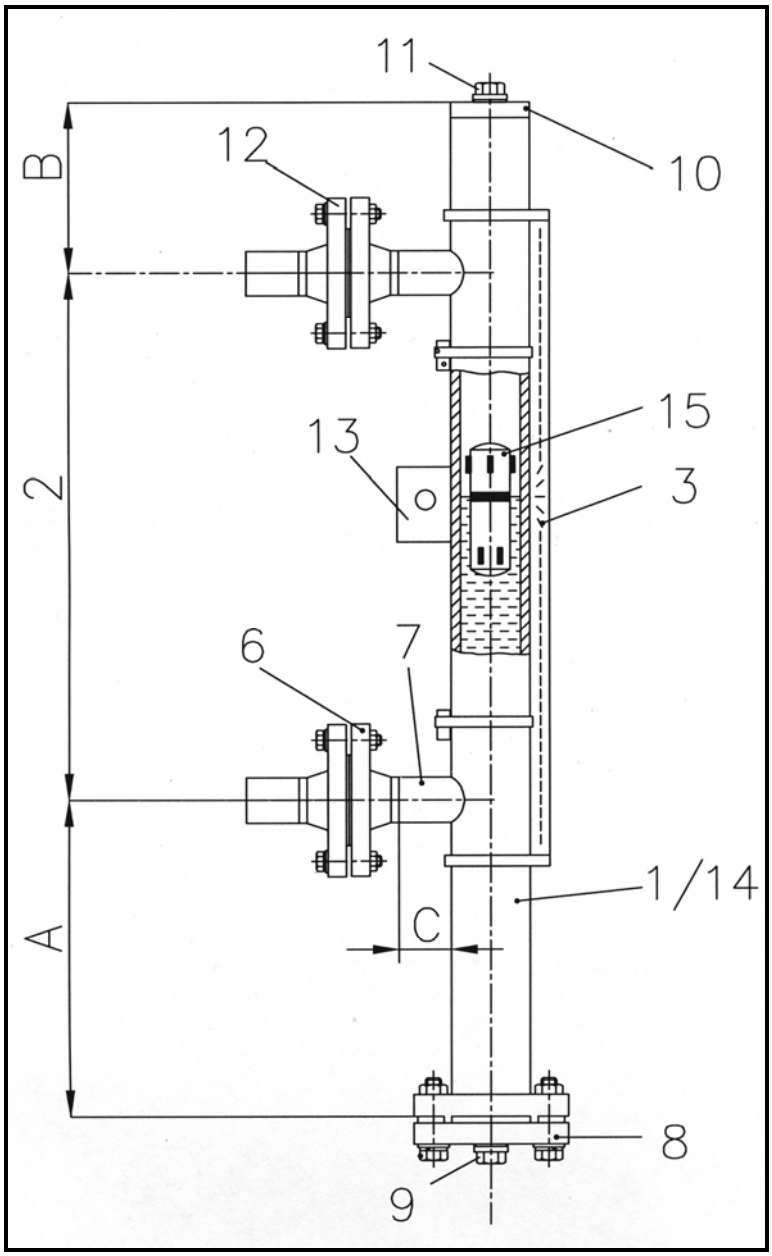
1. **Only with 316SS or Aluminium indication rail.**
2. **Do not use for hydrogen and alcohol compounds.**
3. **with spacers**

3.11.2 Order code scheme for ITA-6 Cryo



3.12.1 ITA-6 CR64 (cryogenic applications)

Characteristics: **PN40 / Float pipe and flange material 1.4404**



Parts drawing ITA-6 CR64

Key:

1	Float pipe welded Dimensions 64 x 2 mm	9	Drain plug
2	c to c distance	10	Additional drain flange, open
3	Design (indication rail)	11	Float pipe top end finish
4	Armaflex insulation	12	Vent plug
6	Process connection side/side	13	Counter flanges
7	Side studs welded with T-pieces for 100 % X-ray testing	14	Additional bracket
		15	Float pipe seamless
8	Float removal flange	16	Float

Technical specification magnetic level gauge type ITA-6 CR64

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**64 x 2 mm welded,**
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2"300#)**
Drain/vent connections	:	**Plug G1/2"** (for more please see price list)
Pipe material	:	**1.4404**
Flange material	:	same as pipe material
Float material	:	**1.4404** Titan, Titan/E-CTFE-coated
Operation temperature	:	-200...+100 °C
Operation pressure	:	max. 40 bar
Operation density	:	min. 0,4693 kg/dm³
Bolts & Nuts	:	**CS** (min. -10 °C) SS or material in acc. with DIN 17280
Gasket	:	**PTFE up to 100 °C** **Klingersil C4400 up to 175 °C** **Graphit spiral wound up to 400 °C****
Indication rail	:	**PTFE min. -150 °C** **Klingersil TOP Chem 2000**
Float types	:	Cylindrical, sealed type Dimensions: - **∅50,8 x 270 mm** - ∅50,8 x 530 mm
Standard dimensions	:	- A = 240* - B = 130 - C = 40

Base equipment printed in bold letters!

Not for vaporizing media (e.g. Ammonia)

Order codes for magnetic level gauge type ITA-6 CR64

Code	Description
ITA-6-CR64	**1. Float pipe welded Dimensions 64 x 2 mm**
	2. c to c distance
L	c to c distance in mm
	3. Design
0	without indication rail
1	Indication rail material: Aluminium max. 400 °C
2	Indication rail material: 1.4401 max. 400 °C
	4. Armaflex-Insulation
0	without Armaflex insulation
F	Thickness: 12 mm, bis -15 °C
R	Thickness: 30 mm, bis -50 °C
T	Thickness: 70 mm, bis -200 °C incl. Makrolon window
	5. C to C distance < 5000 mm
A	< 5000 mm - without flange connection; DN 32 PN 40
B	> 5000 mm - with flange connection; DN 32 PN 40
	6. Process connection side/side
Y	Welding connection (please specify)
Z	Threaded connection (please specify)
1	Flanges DN 15 PN 40
2	Flanges DN 20 PN 40
3	Flanges DN 25 PN 40
4	Flanges DN 32 PN 40
5	Flanges DN 40 PN 40
6	Flanges DN 50 PN 40
A	Flanges 1/2" ANSI 300 lbs
B	Flanges 3/4" ANSI 300 lbs
C	Flanges 1" ANSI 300 lbs
D	Flanges 1 1/4" ANSI 300 lbs
E	Flanges 1 1/2" ANSI 300 lbs
F	Flanges 2" ANSI 300 lbs
	6.1 Surface side flanges
0	without
F	Groove (DIN2512)
H	Tongue (DIN2512)
	7. Side studs welded with T-pieces for 100 % X-ray testing
0	without
T	T-pieces
	8. Float removal flange (bottom side)
1	End cap (only if float removal flange (top side))
2	Flange DN 50 PN 40 incl. blind flange
A	Flange 2" ANSI 300 lbs incl. blind flange

Order codes for magnetic level gauge type ITA-6 CR64 (Cont.)

Code	Description
	8.1 Surface float removal flange (bottom side) (only DN50 or 2")
0	without (Float removal flange (bottom side) = end cap or < DN50 or 2")
F	Groove (DIN2512)
H	Tongue (DIN2512)
	8.2 Bolts & Nuts float removal flange
0	without (Float removal flange (bottom side) = end cap)
1	M16 x 65 mm; mat. CS zinced; Flange DN 50 PN 40
2	M16 x 65 mm; mat. SS 1.4301; Flange DN 50 PN 40
A	5/8" x 89 mm; mat. CS zinced A193B7 / A1942H ; Flange 2" ANSI 300 lbs
B	5/8" x 89 mm; mat. SS A193B8 A1948M; Flange 2" ANSI 300 lbs
C	Bolts & Nuts PTFE-coated
	9. Drain plug
0	without
1	G 1/2" DIN1910
	10. Float pipe top end finish
1	End cap
2	Flange with blind flange DN 50 PN 40
A	Flange with blind flange 2" ANSI 300 lbs
	10.1 Surface float pipe top end finish flange (only DN50 or 2")
0	without (Float pipe top end finish = End cap or < DN50 or 2")
F	Groove (DIN2512)
H	Tongue (DIN2512)
	10.2 Bolts & nuts float pipe top end finish flange
0	without (Float pipe top end finish = End cap)
1	M16 x 65 mm; mat. CS zinced; Flange DN 50 PN 40
2	M16 x 65 mm; mat. SS 1.4301; Flange DN 50 PN 40
A	5/8" x 89 mm; mat. CS zinced A193B7 / A1942H ; Flange 2" ANSI 300 lbs
B	5/8" x 89 mm; mat. SS A193B8 A1948M; Flange 2" ANSI 300 lbs
C	Bolts & Nuts PTFE-coated
	11. Vent plug on topside
0	without
1	Vent plug G 1/2" with soft iron gasket

Order codes for magnetic level gauge type ITA-6 CR64 (Cont.)

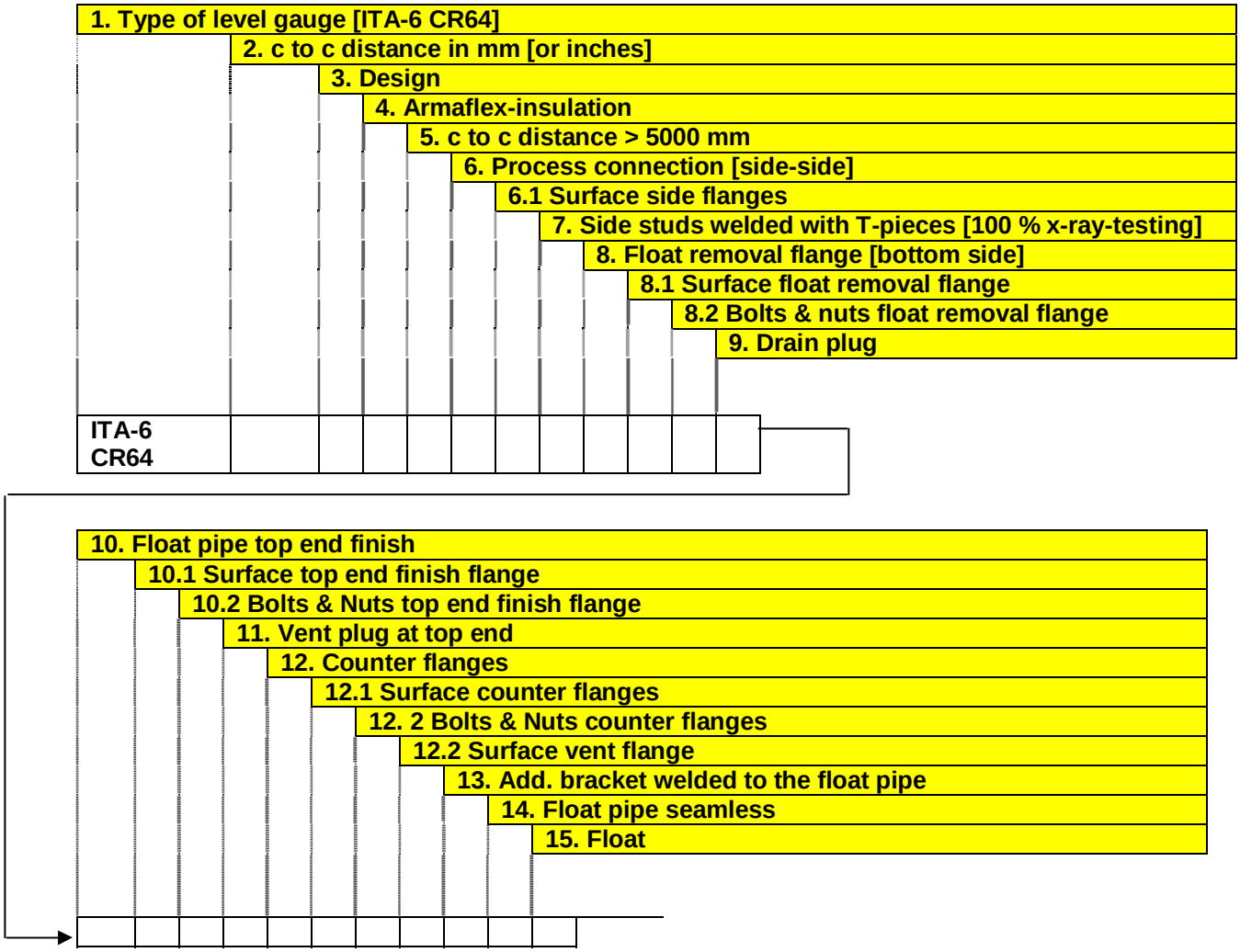
Code	Description
	12. Counter flanges
0	without
1	DN 15 PN 40
2	DN 20 PN 40
3	DN 25 PN 40
4	DN 32 PN 40
5	DN 40 PN 40
6	DN 50 PN 40
A	1/2" 300 lbs
B	3/4" 300 lbs
C	1" 300 lbs
D	1 1/4" 300 lbs
E	1 1/2" 300 lbs
F	2" 300 lbs
	12.1 Surface counter flanges
0	without
F	Groove (DIN2512)
H	Tongue (DIN2512)
	12.2 Bolts & Nuts counter flanges
0	without
1	M16 x 65 mm; mat. CS zinced; Flange DN 32 PN 40
2	M16 x 65 mm; mat. SS 1.4301; Flange DN 32 PN 40
3	M16 x 65 mm; mat. CS zinced; Flange DN 50 PN 40
4	M16 x 65 mm; mat. SS 1.4301; Flange DN 50 PN 40
A	5/8" x 89 mm; mat. CS zinced A193B7 / A1942H ; Flange 2" ANSI 300 lbs
B	5/8" x 89 mm; mat. SS A193B8 A1948M; Flange 2" ANSI 300 lbs
C	Bolts & Nuts PTFE-coated
	13. Additional bracket welded to the float pipe
0	Without
H	Bracket
	14. Float pipe seamless
0	without
S	60,3 x 2 mm seamless; each 100 mm
	15. Float

Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	Min. density [kg/dm³]	Vented? [Y/N]	Notes
6C0240K1	40	Titanium*	50,8	265	0,6391	N	2
6C0500K1	40	Titanium*	45	525	0,5981	N	2, 3
6C0300K3	40	Titanium*	45	525	0,5486	N	1, 2, 3

Notes:

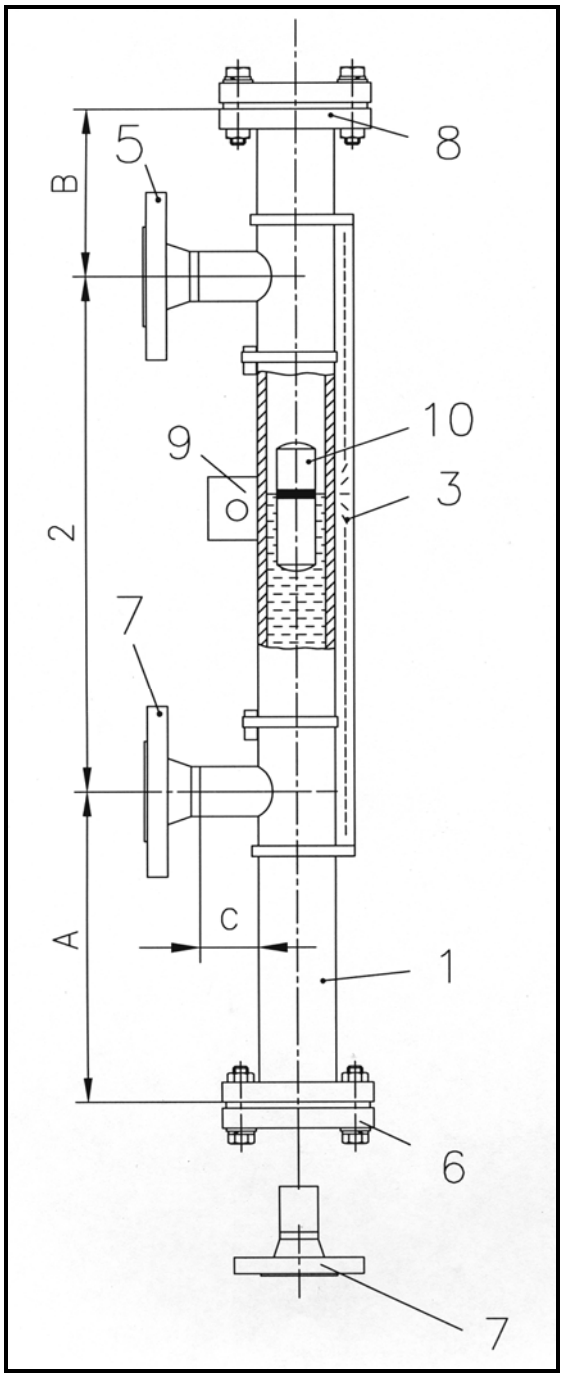
1. **Only with 316SS or Aluminium indication rail.**
2. **Do not use for hydrogen and alcohol compounds.**
3. **with spacers**

3.12.2 Order code scheme for ITA-6 CR64



3.13.1 ITA-6.8 (wetted parts E-TFE-coated, for vacuum service)

Characteristics: **PN40 / Float pipe and flange material 1.4404**



Parts drawing ITA-6.8

Key:

1	Float pipe welded Dimensions 60,3 x 2 mm	7	Additional drain flange, open
2	c to c distance	8	Float pipe top end finish
3	Design (indication rail)	9	Additional bracket
5	Process connection side/side	10	Float pipe seamless
6	Float removal flange	11	Vent plug
7	Additional drain flange, open		
8	Float pipe top end finish		

Technical specification magnetic level gauge type ITA-6.8

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 2800 mm (one-part/total length max. 2900 mm)** > 2900 mm 2- or multipart
Pipe diameter	:	**69 x 2 mm welded,** 69 x 2 seamless **butt weld construction with necking connections**
Process connection	:	to specify: **Flanges DN20-50 (3/4"-2"150# RF)**
Drain/vent connections	:	**see price list**
Pipe material	:	**1.4404, wetted parts E-CTFE-coated**
Flange material	:	as pipe material
Float material	:	**Titanium/E-TFE-coated**
Operation temperature	:	-50...+160 °C
Operation pressure	:	max. 40 bar / **vacuum resistant**
Operation density	:	min. 0,7647 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**PTFE up to 100 °C** **Klingersil-chem-200 up to 260 °C**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301up to 400 °C
Float types	:	Cylindrical, sealed type Length: - **270 mm** - 150 mm - 330 mm - 430 mm - 530 mm
Dimensions	:	- A= 240* - B= 130 - C= 40

Base equipment printed in bold letters!

Order codes for magnetic level gauge type ITA-6.8

Code	Description
ITA-6.8	**1. Float pipe welded Dimensions 69 x 2 mm**
	2. C to C distance
L	c to c distance in mm
	3. Design
0	without indication rail
1	Indication rail material: Makrolon, max. 120 °C
2	Indication rail material: Aluminium max. 400 °C
3	Indication rail material: 1.4401 max. 400 °C
	4. C to C distance < 2800 mm / total length 2900 mm
A	< 2800 mm - without flange connection; DN 50 PN 40
B	> 2800 mm - with flange connection; DN 50 PN 40
	5. Process connection side/side
1	Flanges DN 20 PN 40
2	Flanges DN 25 PN 40
3	Flanges DN 32 PN 40
4	Flanges DN 40 PN 40
5	Flanges DN 50 PN 40
A	Flanges 3/4" ANSI 300 lbs
B	Flanges 1" ANSI 300 lbs
C	Flanges 1 1/4" ANSI 300 lbs
D	Flanges 1 1/2" ANSI 300 lbs
E	Flanges 2" ANSI 300 lbs
	6. Float removal flange (bottom side)
1	Flange DN 50 PN 40 incl. blind flange
A	Flange 2" ANSI 300 lbs incl. blind flange
	6.1 Bolts & Nuts float removal flange
1	M16 x 65 mm; mat. CS zinced; Flange DN 50 PN 40
2	M16 x 65 mm; mat. SS 1.4301; Flange DN 50 PN 40
A	5/8" x 89 mm; mat. CS zinced A193B7 / A1942H ; Flange 2" ANSI 300 lbs
B	5/8" x 89 mm; mat. SS A193B8 A1948M; Flange 2" ANSI 300 lbs
C	Bolts & Nuts PTFE-coated
	7. Drain flange
1	DN 25 PN 40 (socket weld construction to blind flange)
2	DN 32 PN 40 (socket weld construction to blind flange)
3	DN 40 PN 40 (socket weld construction to blind flange)
A	3/4" ANSI 300 lbs (socket weld construction to blind flange)
B	1" ANSI 300 lbs (socket weld construction to blind flange)
C	1 1/4" ANSI 300 lbs (socket weld construction to blind flange)
D	1 1/2" 300 lbs (socket weld construction to blind flange)
	7. 1 Nuts & Bolts drain flange
1	M16 x 65 mm; mat. CS zinced; Flange DN 50 PN 40
2	M16 x 65 mm; mat. SS 1.4301; Flange DN 50 PN 40
A	5/8" x 89 mm; mat. CS zinced A193B7 / A1942H ; Flange 2" ANSI 300 lbs
B	5/8" x 89 mm; mat. SS A193B8 A1948M; Flange 2" ANSI 300 lbs
C	Bolts & Nuts PTFE-coated

Order codes for magnetic level gauge type ITA-6.8 (Continuation)

Code	Description
	8. Vent flange
1	DN 25 PN 40 (socket weld construction to blind flange)
2	DN 32 PN 40 (socket weld construction to blind flange)
3	DN 40 PN 40 (socket weld construction to blind flange)
A	3/4" ANSI 300 lbs (socket weld construction to blind flange)
B	1" ANSI 300 lbs (socket weld construction to blind flange)
C	1 1/4" ANSI 300 lbs (socket weld construction to blind flange)
D	1 1/2" 300 lbs (socket weld construction to blind flange)
	8.1 Nuts & Bolts vent flange
3	M16 x 65 mm; mat. CS zinced; Flange DN 50 PN 40
4	M16 x 65 mm; mat. SS 1.4301; Flange DN 50 PN 40
6	5/8" x 89 mm; mat. CS zinced A193B7 / A1942H ; Flange 2" ANSI 300 lbs
8	5/8" x 89 mm; mat. SS A193B8 A1948M; Flange 2" ANSI 300 lbs
9	Bolts & Nuts PTFE-coated
	9. Additional bracket welded to the float pipe
0	without
A	Bracket
	10. Float

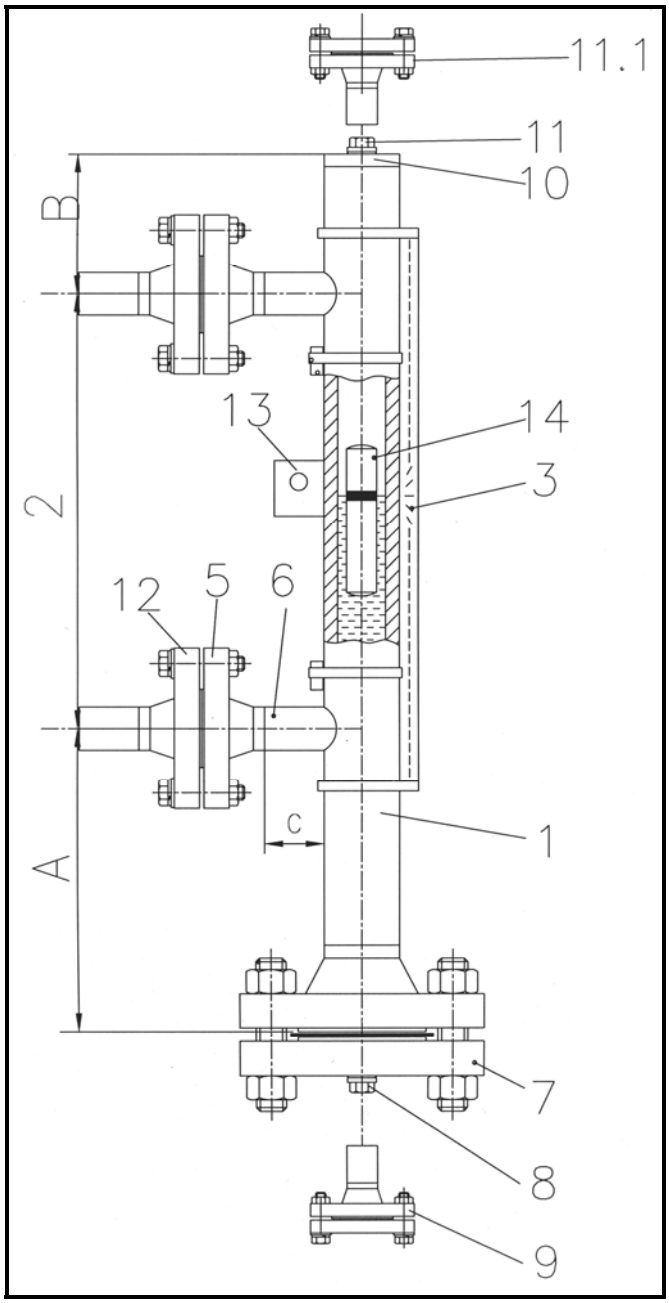
Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	Min. density [kg/dm³]	Vented? [Y/N]	Notes
6PVD02K1	10	PVDF	50	255	0,8500	N	
6H0180K1	40	Titanium / E-CTFE-coated	52	180	0,902	N	
6H0270K1	40	Titanium / E-CTFE-coated	52	270	0,7647	N	

3.13.2 Order code scheme for ITA-6.8

1. Type of level gauge [ITA-6.8]												
	2. c to c distance in mm [or inches]											
		3. Design										
			4. c to c distance > 2800 mm / total length 2900 mm									
				5. Process connection side/side								
					6. Float removal flange							
						6.1 Bolts & nuts float removal flange						
							7. Drain flange					
								7.1 Bolts & nuts drain flange				
									8. Vent flange			
										8.1 Bolts & nuts vent flange		
											9. Add. bracket welded to the float pipe	
												10. Float
ITA-6.8												

3.14.1 ITA-7

Characteristics: **PN64 / Float pipe and flange material 1.4404**



Parts drawing ITA-7

Key:

1 Float pipe welded Dimensions 60,3 x 2,9 mm
2 c to c distance
3 Design (indication rail)
5 Process connection side/side
6 Side studs welded with T-pieces for 100 % X-ray testing
7 Float removal flange
8 Drain plug
9 Additional drain flange, open
10 Float pipe top end finish
11 Vent plug
12 Counter flanges
13 Additional bracket
14 Float pipe seamless
15 Float

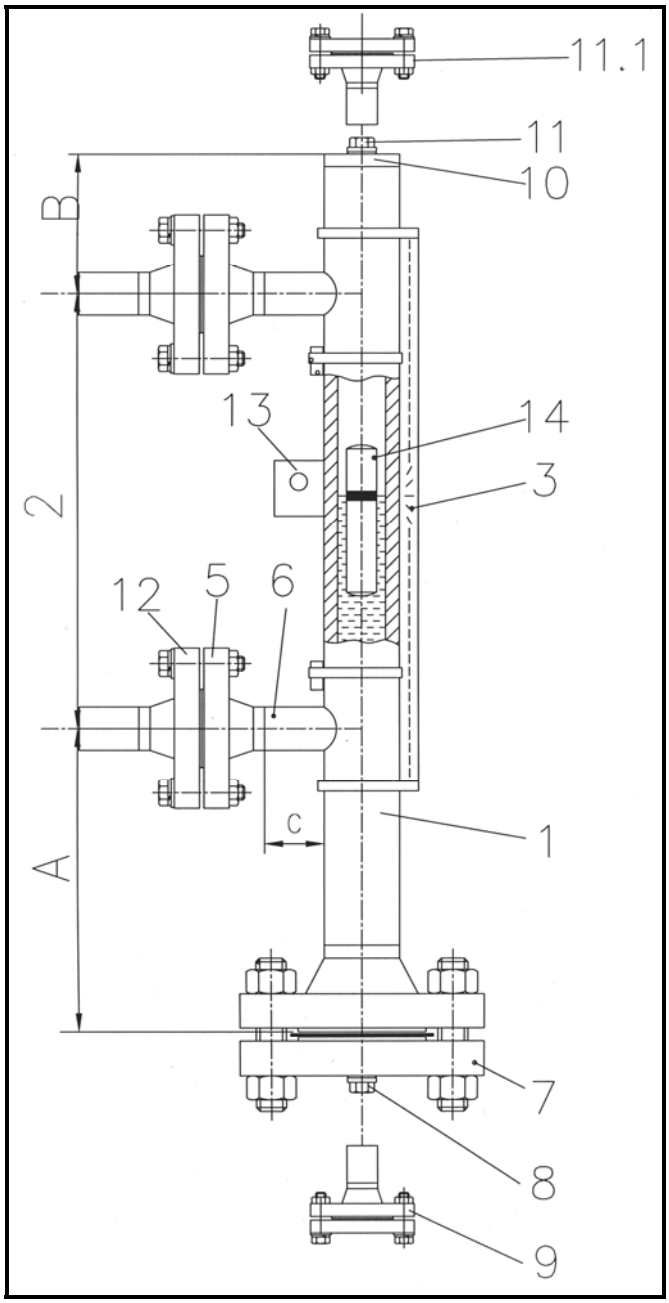
Technical specifications magnetic level gauge type ITA-7

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 2,9 mm seamless,** **butt weld construction with T-pieces**
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2"300#)** **welded or threaded stud**
Drain/vent connections	:	**plugged ½" NPT** **see price list**
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	as pipe material
Float material	:	**Titanium**,** Titanium/Halar-coated
Operation temperature	:	-50...+400 °C
Operation pressure	:	max. 64 bar
Operation density	:	min. 0,4243 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**Spiral wound, 316Ti** **Cam profile, 316Ti**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301up to 400 °C
Float types	:	Cylindrical, sealed type Length: - **270 mm** - 330 mm - 530 mm - 630 mm
Dimensions	:	- A= 240* - B= 130 - C= 40

Base equipment printed in bold letters!
*** For densities < 0,682 kg/dm³ enlarge the scale A**
**** do not use for hydrogen or alcohol-compounds**

3.14.2 ITA-7.0

Characteristics: **PN64 / Float pipe 1.4404; Flanges: CS**



Parts drawing ITA-7.0

Key:

1 Float pipe welded Dimensions 60,3 x 2,9 mm
2 c to c distance
3 Design (indication rail)
5 Process connection side/side
6 Side studs welded with T-pieces for 100 % X-ray testing
7 Float removal flange
8 Drain plug
9 Additional drain flange, open
10 Float pipe top end finish
11 Vent plug
12 Counter flanges
13 Additional bracket
14 Float pipe seamless
15 Float

Technical specifications magnetic level gauge type ITA-7.0

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 2,9 mm seamless,** **butt weld construction with T-pieces**
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2"300#)** **welded or threaded stud**
Drain/vent connections	:	**plugged ½" NPT** **see price list**
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	**CS**
Float material	:	**Titanium**,** Titanium/Halar-coated
Operation temperature	:	-50...+400 °C
Operation pressure	:	max. 64 bar
Operation density	:	min. 0,4243 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**Spiral wound, 316Ti** **Cam profile, 316Ti**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301up to 400 °C
Float types	:	Cylindrical, sealed type Length: - **270 mm** - 330 mm - 530 mm - 630 mm
Dimensions	:	- A= 240* - B= 130 - C= 40

Base equipment printed in bold letters!
*** For densities < 0,682 kg/dm³ enlarge the scale A**
**** do not use for hydrogen or alcohol-compounds**

Order codes for magnetic level gauge type ITA-7 and ITA-7.0

Code	Description
ITA-7 ITA-7.0	**1. Float pipe seamless Dimensions 60,3 x 2,9 mm**
	2. c to c distance
L	c to c distance in mm
	3. Design
0	without indication rail
1	Indication rail material: Makrolon max. 120 °C
2	Indication rail material: Aluminium max. 400 °C
3	Indication rail material: 1.4401 max. 400 °C
	4. c to c distance < 5000 mm
A	< 5000 mm - without flange connection; DN 50 PN 63
B	> 5000 mm - with flange connection; DN 50 PN 63
	5. Process connection side/side
Y	Welding connection (please specify)
Z	Threaded connection (please specify)
1	Flanges DN 15 PN 63
2	Flanges DN 20 PN 63
3	Flanges DN 25 PN 63
4	Flanges DN 32 PN 63
5	Flanges DN 40 PN 63
6	Flanges DN 50 PN 63
A	Flanges 1/2" ANSI 300 lbs
B	Flanges 3/4" ANSI 300 lbs
C	Flanges 1" ANSI 300 lbs
D	Flanges 1 1/4" ANSI 300 lbs
E	Flanges 1 1/2" ANSI 300 lbs
F	Flanges 2" ANSI 300 lbs
	5.1 Surface side flanges
0	without
A	Standard- Surface Form C
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface Nut (DIN2512)
G	Surface groove large
H	Surface Feder (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	6. Side studs welded with T-pieces for 100 % X-ray testing
0	without
T	T-pieces
	7. Float removal flange (bottom side)
1	End cap (only if float removal flange (top side))
2	Flange DN 50 PN 63 incl. blind flange
A	Flange 2" ANSI 300 lbs incl. blind flange
3	Flange DN 50 PN 63 prepared for shut off valve on side
B	Flange 2" ANSI 300 lbs prepared for shut off valve on side

Order codes for magnetic level gauge type ITA-7 and ITA-7.0 (Continuation)

Code	Description
	7.1 Surface float removal flange (bottom side) (only DN50 or 2")
0	without (Float removal flange (bottom side) = end cap or < DN50 or 2")
A	Standard- Surface Form C
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	7.2 Bolts & Nuts float removal flange
0	without (Float removal flange (bottom side) = end cap)
1	M20 x 80 mm; mat. steel zinced; Flange DN 50 PN 63
2	M20 x 80 mm; mat. SS 1.4301; Flange DN 50 PN 63
3	M20 x 110 mm; mat. steel zinced; Flange 2510 DN50 PN63
4	M22 x 100 mm; mat. SS 1.4301; Flange DIN 2510 DN 50 PN 63
A	5/8" x 89 mm; mat. steel zinced A193B7 / A1942H; Flange 2" ANSI 300 lbs
B	5/8" x 89 mm; mat. SS A193B8 A1948M; Flange 2" ANSI 300 lbs
C	Bolts & Nuts PTFE-coated
	8. Drain plug
0	without
1	Drain plug 1/2" NPT
2	Drain plug 3/4" NPT
3	Drain plug 1" NPT
	9. Additional drain flange, open
0	without
1	Drain stud with flange DN 15 PN 63
2	Drain stud with flange DN 20 PN 63
3	Drain stud with flange DN 25 PN 63
4	Drain stud with flange DN 32 PN 63
5	Drain stud with flange DN 40 PN 63
A	Drain stud with flange 1/2" ANSI 300 lbs
B	Drain stud with flange 3/4" ANSI 300 lbs
C	Drain stud with flange 1" ANSI 300 lbs
D	Drain stud with flange 1 1/4" ANSI 300 lbs
E	Drain stud with flange 1 1/2" ANSI 300 lbs
	9.1 Drain flange with concentric reducer (X-ray testing)
0	ohne
1	DN 15 PN 63
2	DN 20 PN 63
3	DN 25 PN 63
4	DN 32 PN 63
5	DN 40 PN 63
A	1/2" ANSI 300 lbs
B	3/4" ANSI 300 lbs
C	1" ANSI 300 lbs
D	1 1/4" ANSI 300 lbs
E	1 1/2" ANSI 300 lbs

Order codes for magnetic level gauge type ITA-7 and ITA-7.0 (Continuation)

Code	Description
	9.2 Surface open drain flange
0	without (Float removal flange (bottom side) = end cap or < DN50 or 2")
A	Standard- Surface Form C
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	10. Float pipe top end finish
1	End cap
2	Flange with blind flange DN 50 PN 63
A	Flange with blind flange 2" ANSI 300 lbs
	10.1 Surface float pipe top end finish flange (only DN50 or 2")
0	without (Float pipe top end finish = End cap or < DN50 or 2")
A	Standard- Surface Form C
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	10.2 Bolts & nuts float pipe top end finish flange
0	without (Float removal flange (bottom side) = end cap)
1	M20 x 80 mm; mat. steel zinced; Flange DN 50 PN 63
2	M20 x 80 mm; mat. SS 1.4301; Flange DN 50 PN 63
3	M20 x 110 mm; mat. steel zinced; Flange 2510 DN50 PN63
4	M22 x 100 mm; mat. SS 1.4301; Flange DIN 2510 DN 50 PN 63
A	5/8" x 89 mm; mat. steel zinced A193B7 / A1942H; Flange 2" ANSI 300 lbs
B	5/8" x 89 mm; mat. SS A193B8 A1948M; Flange 2" ANSI 300 lbs
C	Bolts & Nuts PTFE-coated
	11. Vent plug at top end
0	without
1	Vent plug G 1/2" DIN910
2	Vent plug 1/2" NPT
3	Vent plug 3/4" NPT
4	Vent plug 1" NPT

Order codes for magnetic level gauge type ITA-7 and ITA-7.0 (Continuation)

Code	Description
	11.1 Vent flange welded to end cap instead of vent plug
0	without
1	Flange DN 15 PN 63 (socket weld construction to endcap)
2	Flange DN 20 PN 63 (socket weld construction to end cap)
3	Flange DN 25 PN 63 (socket weld construction to end cap)
4	Flange DN 32 PN 63 (socket weld construction to end cap)
5	Flange DN 40 PN 63 (socket weld construction to end cap)
A	Flange 1/2" ANSI 300 lbs (socket weld construction to end cap)
B	Flange 3/4" ANSI 300 lbs (socket weld construction to end cap)
C	Flange 1" ANSI 300 lbs (socket weld construction to end cap)
D	Flange 1 1/4" ANSI 300 lbs (socket weld construction to end cap)
E	Flange 1 1/2" ANSI 300 lbs (socket weld construction to end cap)
	11.2 Vent flange with concentric reducer (X-ray testing)
0	without
1	DN 15 PN 63
2	DN 20 PN 63
3	DN 25 PN 63
4	DN 32 PN 63
5	DN 40 PN 63
A	1/2" ANSI 300 lbs
B	3/4" ANSI 300 lbs
C	1" ANSI 300 lbs
D	1 1/4" ANSI 300 lbs
E	1 1/2" ANSI 300 lbs
	11.3 Surface vent flange welded to end cap (only DN50 or 2")
0	without (Vent flange welded to end cap = without)
A	Standard- Surface Form C
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	12. Counter flanges
0	without
1	DN 15 PN 63
2	DN 20 PN 63
3	DN 25 PN 63
4	DN 32 PN 63
5	DN 40 PN 63
6	DN 50 PN 63
A	1/2" ANSI 300 lbs
B	3/4" ANSI 300 lbs
C	1" ANSI 300 lbs
D	1 1/4" ANSI 300 lbs
E	1 1/2" ANSI 300 lbs
F	2" ANSI 300 lbs

Order codes for magnetic level gauge type ITA-7 and ITA-7.0 (Continuation)

Code	Description
	12.1 Surface counter flanges
0	without (Counter flanges = without)
A	Standard- Surface Form C
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI) 1/2" bis 2"
	12.2 Bolts & Nuts counter flanges
0	without (Counter flanges = without)
1	M20 x 80 mm; mat. steel zinced; Flange DN 50 PN 63
2	M20 x 80 mm; mat. SS 1.4301; Flange DN 50 PN 63
3	M20 x 110 mm; mat. steel zinced; Flange 2510 DN50 PN63
4	M22 x 100 mm; mat. SS 1.4301; Flange DIN 2510 DN 50 PN 63
A	5/8" x 89 mm; mat. steel zinced A193B7 / A1942H; Flange 2" ANSI 300 lbs
B	5/8" x 89 mm; mat. SS A193B8 A1948M; Flange 2" ANSI 300 lbs
C	Bolts & Nuts PTFE-coated
	13. Additional bracket welded to the float pipe
0	without
H	Bracket
	14. Floats

Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	Min. density [kg/dm³]	Vented? [Y/N]	Notes
7T0240K1	64	Titanium	50,8	265	0,6820	N	2
7T0240K3	64	Titanium	50,8	265	0,5551	N	1, 2
7T0300K1	64	Titanium	50,8	325	0,6064	N	2
7T0300K3	64	Titanium	50,8	325	0,5168	N	1, 2
7T0500K3	64	Titanium	50,8	525	0,4450	N	2
7T0600K3	64	Titanium	50,8	625	0,4243	N	1, 2

Notes:

1. **Only with 316SS or Aluminium indication rail.**
2. **Do not use for hydrogen and alcohol compounds.**

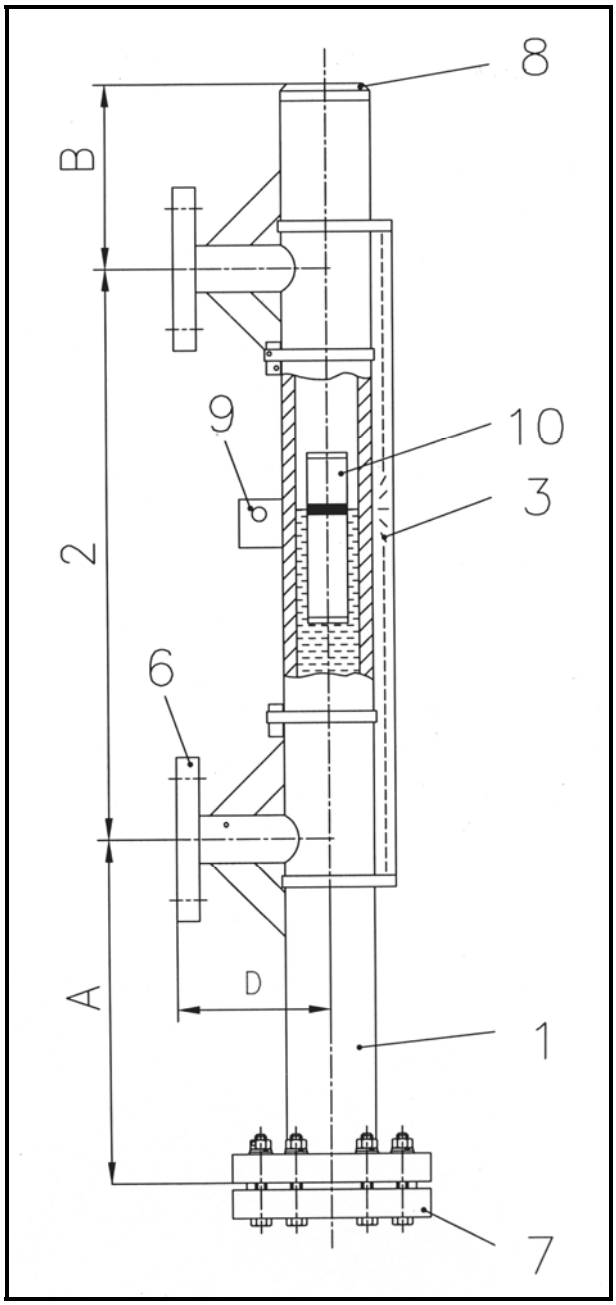
3.14.3 Order code scheme for ITA-7 & ITA-7.0

1. Type of level gauge [ITA-7 or ITA-7.0]											
	2. c to c distance in mm [or inches]										
		3. Design									
			4. c to c distance > 5000 mm								
				5. Process connection [side/side]							
					5.1 Surface side flanges						
						6. Side studs welded with T-pieces for 100 % X-ray testing					
							7. Float removal flange				
								7.1 Surface float removal flange (bottom side)			
									7.2 Bolts & Nuts float removal flange		
										8. Drain Plug	
											9. Additional drain flange, open
ITA-7											
ITA-7.0											

9.1 Drain flange with concentric reducer (X-ray-testing)													
	9.2 Surface open drain flange												
		10. Float pipe top end finish											
			10.1 Surface top end finish flange										
				10.2 Bolts & Nuts top end finish flange									
					11. Vent plug at top end								
						11.1 Vent flange welded to end cap instead of vent plug							
							11.2 Vent flange with concentric reducer (X-ray testing)						
								11.3 Surface Vent Flange					
									12. Counter flanges				
										12.1 Surface counter flanges			
											12.2 Bolts & Nuts counter flanges		
												13. Additional bracket welded to the float pipe	
													14. Float

3.15.1 ITA-8.1

Characteristics: **PN6 / Material: PVC**



Parts drawing ITA-8.1

Key:

1 Float pipe PVC Dimensions 63 x 4,7 mm
2 c to c distance
3 Design (indication rail)
6 Process connections side / side
7 Drain plug
8 Float pipe top end finish
9 Mounting link
10 Float

Technical specification magnetic level gauge type ITA-8.1

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**63 x 4,7 mm**
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2")**
Drain/vent connections	:	**plugged R ½"** **see price list**
Pipe material	:	**PVC**
Flange material	:	as pipe material
Float material	:	**PVC**
Operation temperature	:	-30...+60 °C
Operation pressure	:	max. 6 bar
Operation density	:	min. 0,75 kg/dm³
Bolts & Nuts	:	**SS**
Gasket	:	**Viton**
Indication rail	:	**Aluminium** 316SS
Float types	:	Cylindrical, sealed type Length: - **255 mm** - 135 mm
Dimensions	:	- A= 240* - B= 130 - C= 110

Base equipment printed in bold letters!
*** For densities < 0,75 kg/dm³ enlarge the scale A**

Order codes for magnetic level gauge type ITA-8.1

Code	Description
ITA-8.1	**1. Float pipe PVC Dimensions 63 x 4,7 mm**
	2. C to C distance
L	C to C distance in mm
	3. Design
0	without indication rail, each
1	Indication rail material Aluminium, max. 60 °C liquid temperature
2	Indication rail material 1.4401, max. 60 °C liquid temperature
	4. C to C distance < 5000 mm
A	< 5000 without flange connection DN 32 PN 6
B	> 5000 with flange connection DN32 PN 6
	5. Reinforcement
0	without reinforcement
A	Reinforcement of the PVC-guide tube, material: 1.4404
	6. Process connections side/side
Y	Welding connection (please specify)
Z	Threaded connection (please specify)
1	Flanges DN 15 PN 6
2	Flanges DN 15 PN 10
3	Flanges DN 20 PN 6
4	Flanges DN 20 PN 10
5	Flanges DN 25 PN 6
6	Flanges DN 25 PN 10
7	Flanges DN 32 PN 6
8	Flanges DN 32 PN 10
9	Flanges DN 40 PN 6
A	Flanges DN 40 PN 10
B	Flanges DN 50 PN 6
C	Flanges DN 50 PN 10
D	Flanges 1/2" ANSI 150 lbs
E	Flanges 3/4" ANSI 150 lbs
F	Flanges 1" ANSI 150 lbs
G	Flanges 1 1/4" ANSI 150 lbs
H	Flanges 1 1/2" ANSI 150 lbs
K	Flanges 2" ANSI 150 lbs
	7. Drain plug
0	without
1	Drain plug R1/2"
2	Drain plug 1/2" NPT
3	Drain plug 3/4" NPT
4	Stud on blind flange

Order codes for magnetic level gauge type ITA-8.1 (Continuation)

Code	Description
	8. Float pipe top end finish
0	without
A	End cap
B	Vent plug R1/2"
C	Vent plug 1/2" NPT
D	Vent plug 3/4" NPT
E	Flange DN32 PN6
	8.1 Nuts & bolts top end finish flange
0	without
1	M8 x 60 mm; mat. SS 1.4301; DIN 931
	9. Mounting link for additional fixing on the tank
0	without
H	Mounting link for additional fixing on the tank
	10. Float

Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	min. Density [kg/dm³]	vented [Y/N]	Notes
8PVC01K1	10	PVC	50	135	1,1500	N	1
8PVC02K1	10	PVC	50	255	0,7500	N	1

Notes:

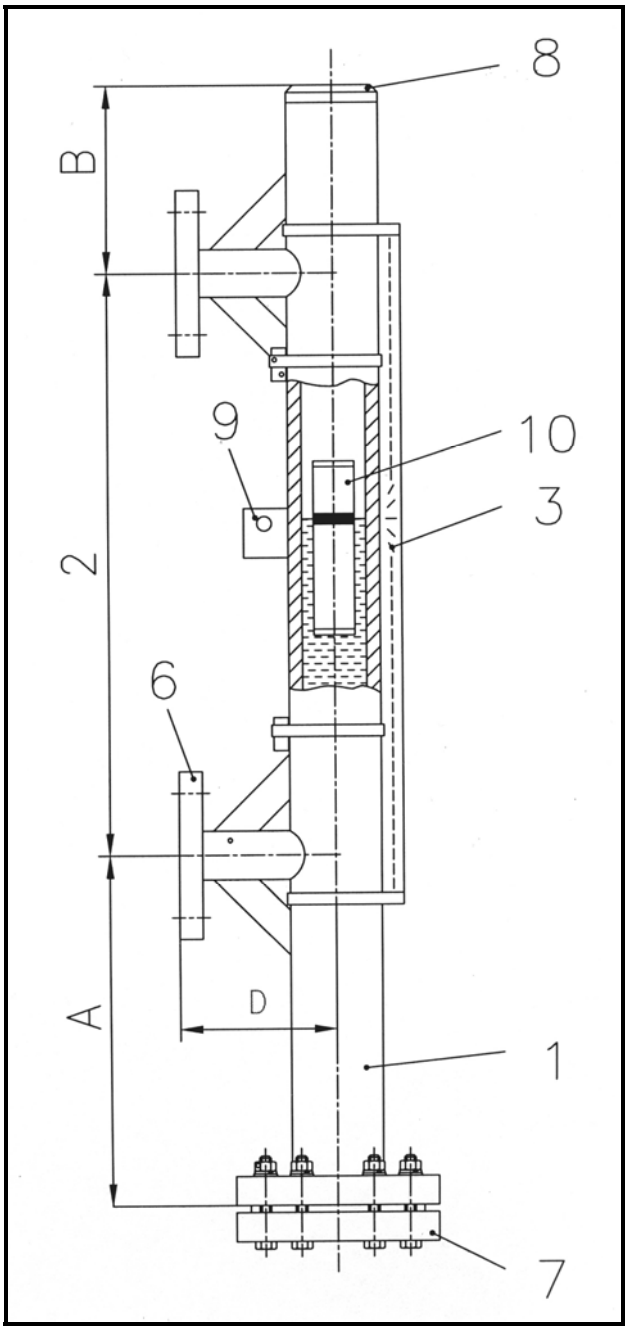
1. **Only with 316SS or Aluminium indication rail.**

3.15.2 Order code scheme for ITA-8.1

1. Type of level gauge [ITA-8.1]										
	2. c to c distance in mm [or inches]									
		3. Design								
			4. c to c distance > 5000 mm							
				5. Reinforcement						
					6. Process connection [side/side]					
						7. Drain plug				
							8. Float pipe top end finish			
								8.1 Bolts & nuts top end finish		
									9. Mounting link for add. fixing on the tank	
										10. Float
ITA-8.1										

3.15.3 ITA-8.2

Characteristics: **PN6 / Material: PP**



Parts drawing ITA-8.2

Key:

1 Float pipe PP Dimensions 63 x 4,7 mm
2 c to c distance
3 Design (indication rail)
6 Process connections side / side
7 Drain plug
8 Float pipe top end finish
9 Mounting link
10 Float

Technical specifications magnetic level gauge type ITA-8.2

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**63 x 3,6 mm**
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2")**
Drain/vent connections	:	**plugged R ½"** **see price list**
Pipe material	:	**PP**
Flange material	:	as pipe material
Float material	:	**PP**
Operation temperature	:	-10...+80 °C
Operation pressure	:	max. 6 bar
Operation density	:	min. 0,65 kg/dm³
Bolts & Nuts	:	**SS**
Gasket	:	**Viton**
Indication rail	:	**Aluminium** 316SS
Float types	:	Cylindrical, sealed type Length: - **255 mm** - 135 mm
Dimensions	:	- A= 240* - B= 130 - C= 110

Base equipment printed in bold letters!
*** For densities < 0,65 kg/dm³ enlarge the scale A**

Order codes for magnetic level gauge type ITA-8.2

Code	Description
ITA-8.1	**1. Float pipe PP Dimensions 63 x 4,7 mm**
	2. C to C distance
L	C to C distance in mm
	3. Design
0	without indication rail
1	Indication rail material Aluminium, max. 80 °C liquid temperature
2	Indication rail material 1.4401, max. 80 °C liquid temperature
	4. C to C distance < 5000 mm
A	< 5000 without flange connection DN 32 PN 6
B	> 5000 with flange connection DN32 PN 6
	5. Reinforcement
0	without reinforcement
A	Reinforcement of the PP-guide tube, material: 1.4404, base price
	+ length dependent price each 100 mm guide tube
	6. Process connections side/side
Y	Welding connection (please specify)
Z	Threaded connection (please specify)
1	Flanges DN 15 PN 6
2	Flanges DN 15 PN 10
3	Flanges DN 20 PN 6
4	Flanges DN 20 PN 10
5	Flanges DN 25 PN 6
6	Flanges DN 25 PN 10
7	Flanges DN 32 PN 6
8	Flanges DN 32 PN 10
9	Flanges DN 40 PN 6
A	Flanges DN 40 PN 10
B	Flanges DN 50 PN 6
C	Flanges DN 50 PN 10
D	Flanges 1/2" ANSI 150 lbs
E	Flanges 3/4" ANSI 150 lbs
F	Flanges 1" ANSI 150 lbs
G	Flanges 1 1/4" ANSI 150 lbs
H	Flanges 1 1/2" ANSI 150 lbs
K	Flanges 2" ANSI 150 lbs
	7. Drain plug
0	without
1	Drain plug R1/2"
2	Drain plug 1/2" NPT
3	Drain plug 3/4" NPT

Order codes for magnetic level gauge type ITA-8.2 (Continuation)

Code	Description
	8. Float pipe top end finish
A	End cap
B	Vent plug R1/2"
C	Vent plug 1/2" NPT
D	Vent plug 3/4" NPT
E	Flange DN32 PN6
	8.1 Nuts & bolts top end finish flange
0	without
1	M8 x 60 mm; mat. SS 1.4301; DIN 931
	9. Mounting link for additional fixing on the tank
0	without
1	Mounting link for additional fixing on the tank
	10. Float

Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	min. Density [kg/dm³]	vented [Y/N]	Notes
8PVC01K1	10	PP	50	135	0,9500	N	1
8PVC02K1	10	PP	50	255	0,6500	N	1

Notes:

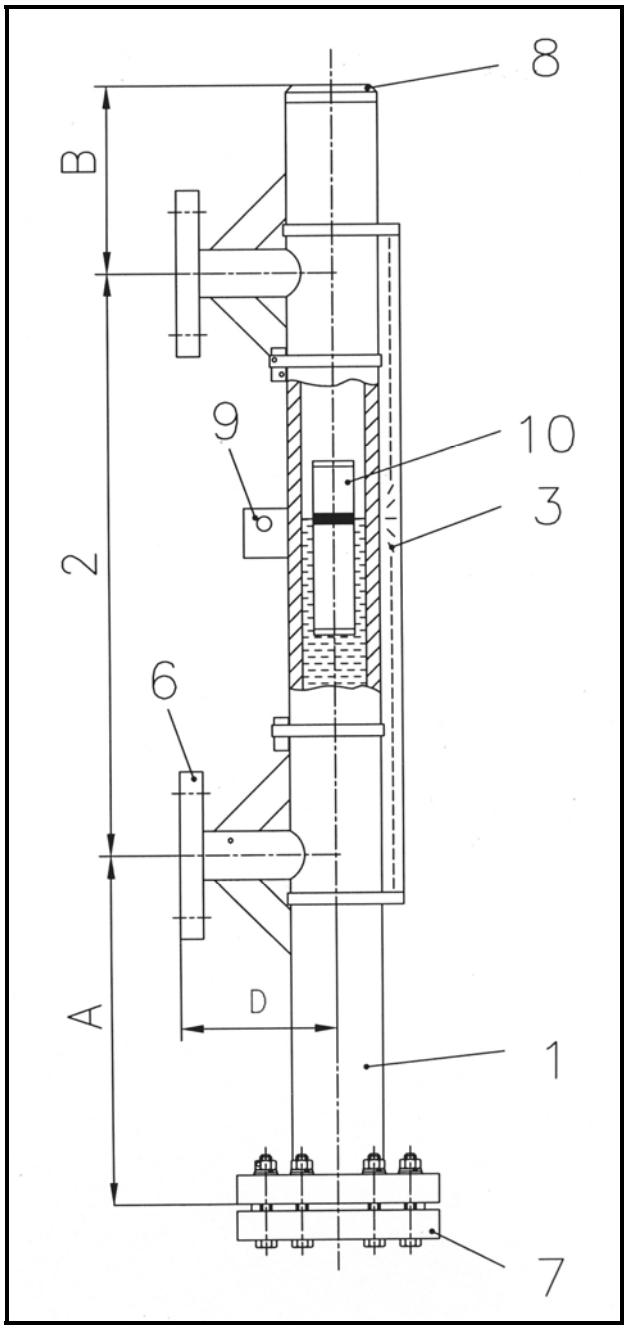
1. **Only with 316SS or Aluminium indication rail.**

3.15.4 Order code scheme for ITA-8.2

1. Type of level gauge [ITA-8.2]										
	2. c to c distance in mm [or inches]									
		3. Design								
			4. c to c distance > 5000 mm							
				5. Reinforcement						
					6. Process connection [side/side]					
						7. Drain plug				
							8. Float pipe top end finish			
								8.1 Bolts & nuts top end finish		
									9. Mounting link for add. fixing on the tank	
										10. Float
ITA-8.2										

3.15.5 ITA-8.3

Characteristics: **PN6 / Material: PVDF**



Parts drawing ITA-8.3

Key:

1 Float pipe PVDF Dimensions 63 x 3 mm
2 c to c distance
3 Design (indication rail)
6 Process connections side / side
7 Drain plug
8 Float pipe top end finish
9 Mounting link
10 Float

Technical specifications magnetic level gauge type ITA-8.3

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**63 x 3 mm**
Process connection	:	to specify: **Flanges DN15-50 (1/2“-2“)**
Drain/vent connections	:	**plugged R ½”** **see price list**
Pipe material	:	**PVDF**
Flange material	:	as pipe material
Float material	:	**PVDF**
Operation temperature	:	-40...+120 °C
Operation pressure	:	max. 6 bar
Operation density	:	min. 0,85 kg/dm³
Bolts & Nuts	:	**SS**
Gasket	:	**Viton**
Indication rail	:	**Aluminium** 316SS
Float types	:	Cylindrical, sealed type Length: - **255 mm** - 135 mm
Dimensions	:	- A= 240* - B= 130 - C= 110

Base equipment printed in bold letters!
*** For densities < 0,85 kg/dm³ enlarge the scale A**

Order codes for magnetic level gauge type ITA-8.3

Code	Description
ITA-8.3	**1. Float pipe PVDF Dimernsions 63 x 3 mm**
	2. C to C distance
L	C to C distance in mm
	3. Design
0	without indication rail
1	Indication rail material Aluminium, max. 120 °C liquid temperature
2	Indication rail material 1.4401, max. 120 °C liquid temperature
	4. C to C distance < 5000 mm
A	< 5000 without flange connection DN 32 PN 6
B	> 5000 with flange connection DN32 PN 6
	5. Reinforcement
0	without reinforcement
A	Reinforcement of the PVDF-guide tube, material: 1.4404, base price + length dependent price each 100 mm guide tube
	6. Process connections side/side
Y	Welding connection (please specify)
Z	Threaded connection (please specify)
1	Flanges DN 15 PN 6
2	Flanges DN 15 PN 10
3	Flanges DN 20 PN 6
4	Flanges DN 20 PN 10
5	Flanges DN 25 PN 6
6	Flanges DN 25 PN 10
7	Flanges DN 32 PN 6
8	Flanges DN 32 PN 10
9	Flanges DN 40 PN 6
A	Flanges DN 40 PN 10
B	Flanges DN 50 PN 6
C	Flanges DN 50 PN 10
D	Flanges 1/2" ANSI 150 lbs
E	Flanges 3/4" ANSI 150 lbs
F	Flanges 1" ANSI 150 lbs
G	Flanges 1 1/4" ANSI 150 lbs
H	Flanges 1 1/2" ANSI 150 lbs
K	Flanges 2" ANSI 150 lbs
	7. Drain plug
0	without
1	Drain plug R1/2"
2	Drain plug 1/2" NPT
3	Drain plug 3/4" NPT

Order codes for magnetic level gauge type ITA-8.3 (Continuation)

Code	Description
	8. Float pipe top end finish
A	End cap
B	Vent plug R1/2"
C	Vent plug 1/2" NPT
D	Vent plug 3/4" NPT
E	Flange DN32 PN6
	8.1 Nuts & bolts top end finish flange
0	without
1	M8 x 60 mm; mat. SS 1.4301; DIN 931
	9. Mounting link for additional fixing on the tank
0	without
1	Mounting link for additional fixing on the tank
	10. Float

Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	min. Density [kg/dm³]	vented [Y/N]	Notes
8PVD01K1	10	PVDF	50	135	1,3000	N	1
8PVD02K1	10	PVDF	50	255	0,8500	N	1

Notes:

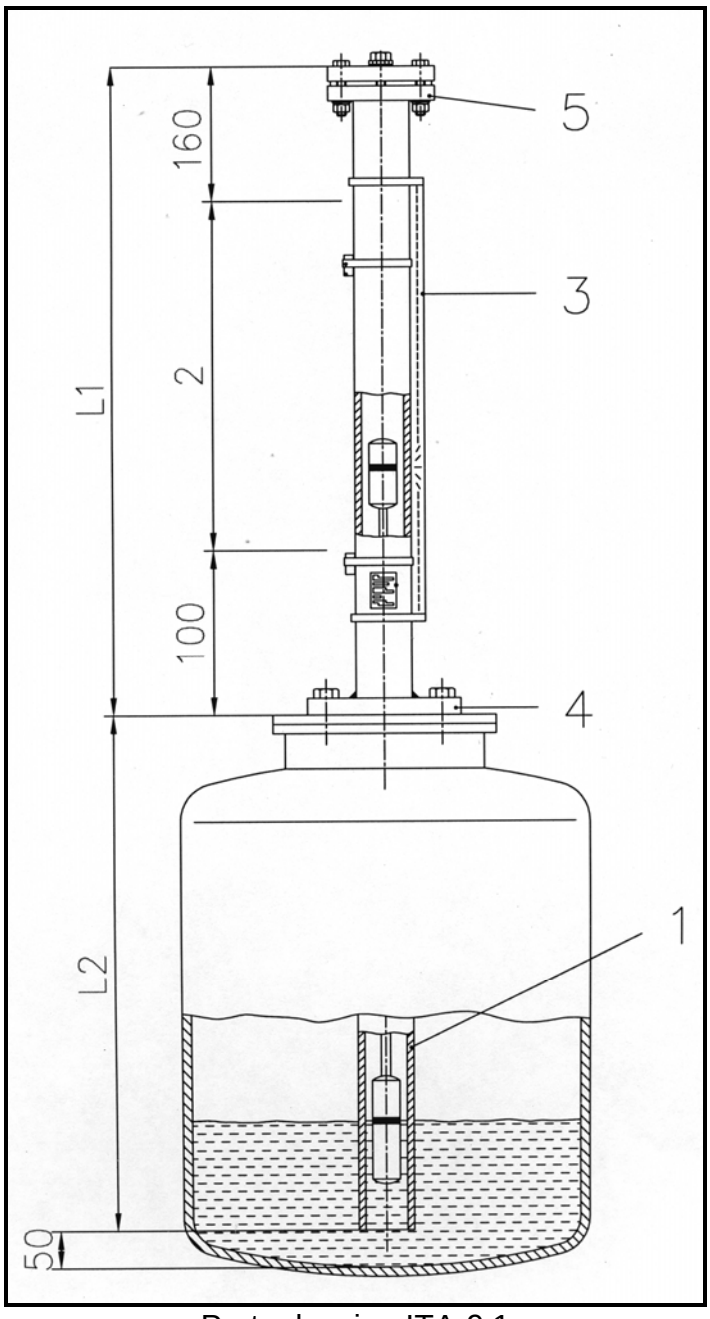
1. **Only with 316SS or Aluminium indication rail.**

3.15.6 Order code scheme for ITA-8.3

1. Type of level gauge [ITA-8.3]										
	2. c to c distance in mm [or inches]									
		3. Design								
			4. c to c distance > 5000 mm							
				5. Reinforcement						
					6. Process connection [side/side]					
						7. Drain plug				
							8. Float pipe top end finish			
								8.1 Bolts & nuts top end finish		
									9. Mounting link for add. fixing on the tank	
										10. Float
ITA-8.3										

3.16.1 ITA-9.1. PVC

Characteristics: **PN 6 / Material: PVC**



Parts drawing ITA-9.1

Key:

1 Float pipe welded Dimensions 63 x 4,7 mm
2 Measuring length
3 Design (indication rail)
4 Process connection on tank
5 Follower magnet guide tube topside finish

Technical specification magnetic level gauge type ITA-9.1

Principle	:	Communicating tubes with magnetic float
Mounting position	:	top of tank
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**63 x 4,7 mm**
Process connection	:	Flanged DN80 (3") Flanged DN100-DN150 (4"-6")
Vent connections	:	**Flanged DN32 PN6**
Pipe material	:	**PVC**
Flange material	:	as pipe material
Float material	:	**PVC**
Operation temperature	:	-30...+50 °C
Operation pressure	:	max. 6 bar
Operation density	:	min. 0,7 kg/dm³ (depending on the measuring length)
Bolts & Nuts	:	**SS**
Gasket	:	**Viton**
Indication rail	:	**Aluminium** 316SS
Float types	:	Cylindrical, sealed type, with rod Length: - **250 mm** - (special sizes available)

Base equipment printed in bold letters!

Order codes for magnetic level gauge type ITA-9.1

Code	Description
ITA-9.1	**1. Float pipe Dimensions 63 x 4,7 mm**
	2. Measuring length
L	Measuring length in mm (max. 2500 mm, depending on the liquid's density)
	3. Design
0	without indication rail
1	Indication rail material Aluminium, max. 60 °C liquid temperature
2	Indication rail material 1.4401, max. 60 °C liquid temperature
	4. Process connection onto Tank (FF)
1	Flange DN 80/PN 6
2	Flange DN 100/PN 6
3	Flange DN 150/PN 6
A	Flange 3" ANSI/150 lbs
B	Flange 4" ANSI/150 lbs
C	Flange 6" ANSI/150 lbs
	5. Follower magnet guide tube topside finish
1	Vent plug R1/2"
2	Vent plug 1/2"NPT
3	Vent plug 3/4" NPT
4	Flange with blind flange DN32 PN 6
	6. Float

Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	min. Density [kg/dm³]	vented [Y/N]	Notes
9PVC03K1	6	PVC	50	135		N	1

Notes:

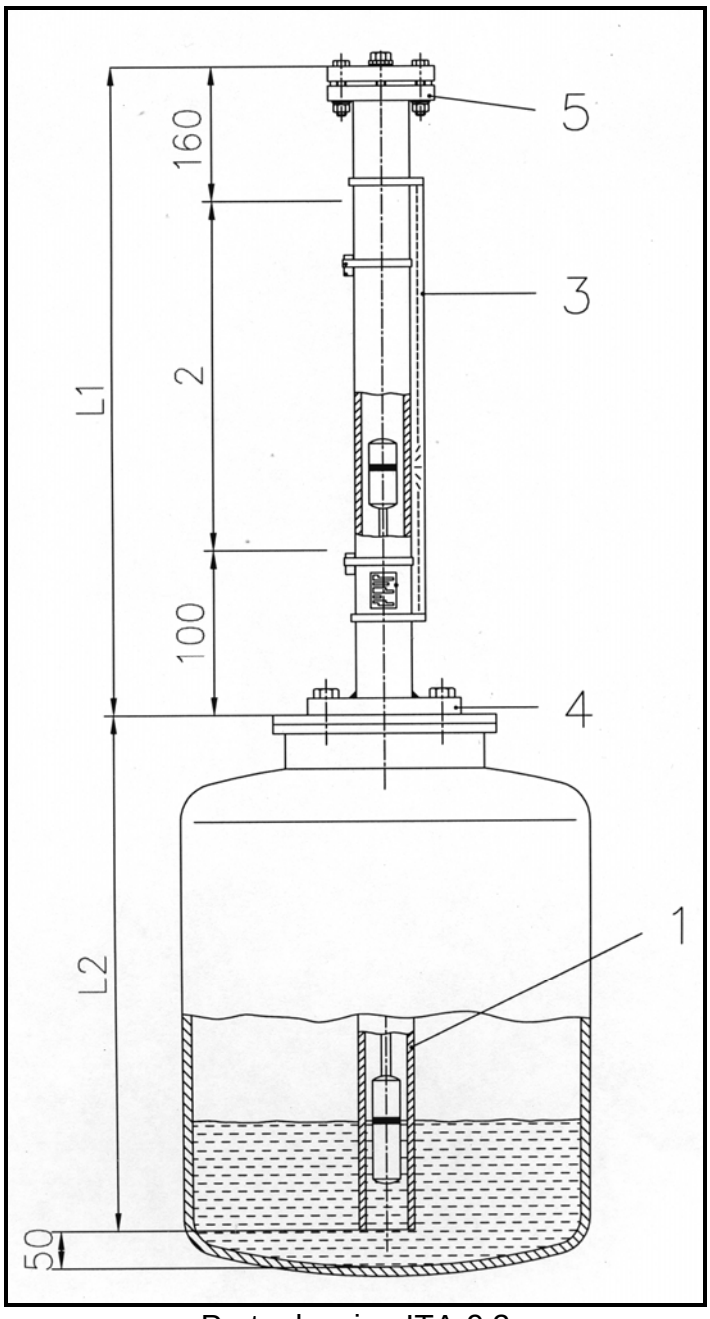
1. **Only with 316SS or Aluminium indication rail.**

3.16.2 Order code scheme for ITA-9.1

1. Type of level gauge [ITA-9.1]					
	2. Measuring length in mm [or inches]				
		3. Design			
			4. Process connection onto tank (FF)		
				5. Follower magnet guide tube topside finish	
					6. Float
ITA-9.1					**9PVC03K1**

3.16.3 ITA-9.2 PP

Characteristics: **PN 6 / Material: PP**



Parts drawing ITA-9.2

Key:

1 Float pipe welded Dimensions 63 x 3,6 mm
2 Measuring length
3 Design (indication rail)
4 Process connection on tank
5 Follower magnet guide tube topside finish

Technical specification magnetic level gauge type ITA-9.2

Principle	:	Communicating tubes with magnetic float
Mounting position	:	top of tank
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**63 x 3,6 mm**
Process connection	:	Flanged DN80 (3") Flanged DN100-DN150 (4"-6")
Vent connections	:	**Flanged DN32 PN6**
Pipe material	:	**PP**
Flange material	:	as pipe material
Float material	:	**PP**
Operation temperature	:	-10...+80 °C
Operation pressure	:	max. 6 bar
Operation density	:	min. 0,7 kg/dm³ (depending on the measuring length)
Bolts & Nuts	:	**SS**
Gasket	:	**Viton**
Indication rail	:	**Aluminium** 316SS
Float types	:	Cylindrical, sealed type, with rod Length: - **250 mm** - (special sizes available)

Base equipment printed in bold letters!

Order codes for magnetic level gauge type ITA-9.2

Code	Description						
ITA-9.2	**1. Float pipe Dimensions 63 x 3,6 mm**						
	2. Measuring length						
L	Measuring length in mm (max. 2500 mm, depending on the liquid's density)						
	3. Design						
0	without indication rail						
1	Indication rail material Aluminium, max. 80 °C liquid temperature						
2	Indication rail material 1.4401, max. 80 °C liquid temperature						
	4. Process connection onto Tank (FF)						
1	Flange DN 80/PN 6						
2	Flange DN 100/PN 6						
3	Flange DN 150/PN 6						
A	Flange 3" ANSI/150 lbs						
B	Flange 4" ANSI/150 lbs						
C	Flange 6" ANSI/150 lbs						
	5. Follower magnet guide tube topside finish						
1	Vent plug R1/2"						
2	Vent plug 1/2"NPT						
3	Vent plug 3/4" NPT						
4	Flange with blind flange DN32 PN 6						
	6. Float						
Code	**Pressure [bar]**	**Material**	**Diameter [mm]**	**Length [mm]**	**min. Density [kg/dm³]**	**vented [Y/N]**	**Notes**
9PP030K1	6	PP	50			N	1

Notes:

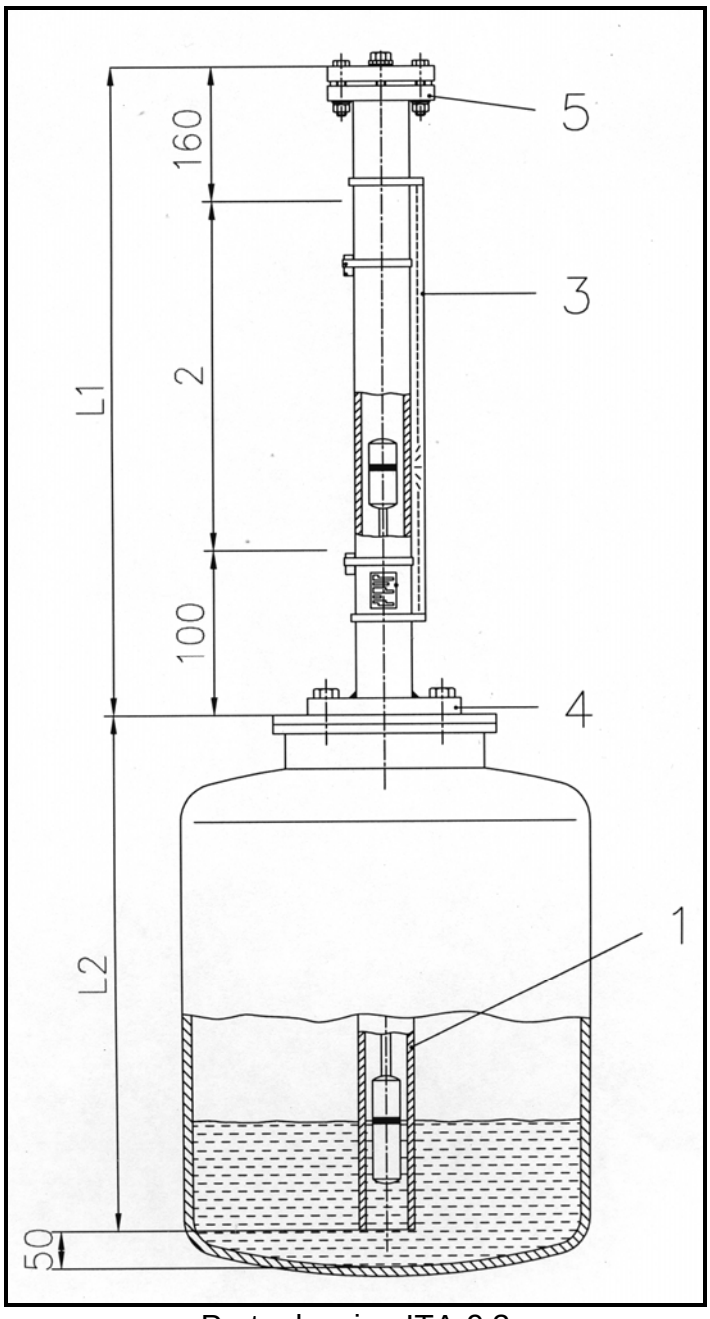
2. **Only with 316SS or Aluminium indication rail.**

3.16.4 Order code scheme for ITA-9.2

1. Type of level gauge [ITA-9.2]					
	2. Measuring length in mm [or inches]				
		3. Design			
			4. Process connection onto tank (FF)		
				5. Follower magnet guide tube topside finish	
					6. Float
ITA-9.2					**9PP030K1**

3.16.5 ITA-9.3 PVDF

Characteristics: **PN 6 / Material: PVDF**



Parts drawing ITA-9.3

Key:

1 Float pipe welded Dimensions 63 x 3 mm
2 Measuring length
3 Design (indication rail)
4 Process connection on tank
5 Follower magnet guide tube topside finish

Technical specification magnetic level gauge type ITA-9.3

Principle	:	Communicating tubes with magnetic float
Mounting position	:	top of tank
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**63 x 3 mm**
Process connection	:	Flanged DN80 (3") Flanged DN100-DN150 (4"-6")
Vent connections	:	**Flanged DN32 PN6**
Pipe material	:	**PVDF**
Flange material	:	as pipe material
Float material	:	**PVDF**
Operation temperature	:	-40...+120 °C
Operation pressure	:	max. 6 bar
Operation density	:	min. 0,7 kg/dm³ (depending on the measuring length)
Bolts & Nuts	:	**SS**
Gasket	:	**Viton**
Indication rail	:	**Aluminium** 316SS
Float types	:	Cylindrical, sealed type, with rod Length: - **250 mm** - (special sizes available)

Base equipment printed in bold letters!

Order codes for magnetic level gauge type ITA-9.3

Code	Description						
ITA-9.3	**1. Float Pipe Dimensions 63 x 3 mm**						
	2. Measuring length						
L	Measuring length in mm (max. 2500 mm, depending on the liquid's density)						
	3. Design						
0	without indication rail						
1	Indication rail material Aluminium, max. 120 °C liquid temperature						
2	Indication rail material 1.4401, max. 120 °C liquid temperature						
	4. Process connection onto tank (FF)						
1	Flange DN 80/PN 6						
2	Flange DN 100/PN 6						
3	Flange DN 150/PN 6						
A	Flange 3" ANSI/150 lbs						
B	Flange 4" ANSI/150 lbs						
C	Flange 6" ANSI/150 lbs						
	5. Follower magnet guide tube topside finish						
1	Vent plug R1/2"						
2	Vent plug 1/2"NPT						
3	Vent plug 3/4" NPT						
4	Flange with blind flange DN32 PN 6						
	6. Float						
Code	**Pressure [bar]**	**Material**	**Diameter [mm]**	**Length [mm]**	**min. Density [kg/dm³]**	**vented [Y/N]**	**Notes**
9PVD03K1	6	PVDF	50			N	1

Notes:

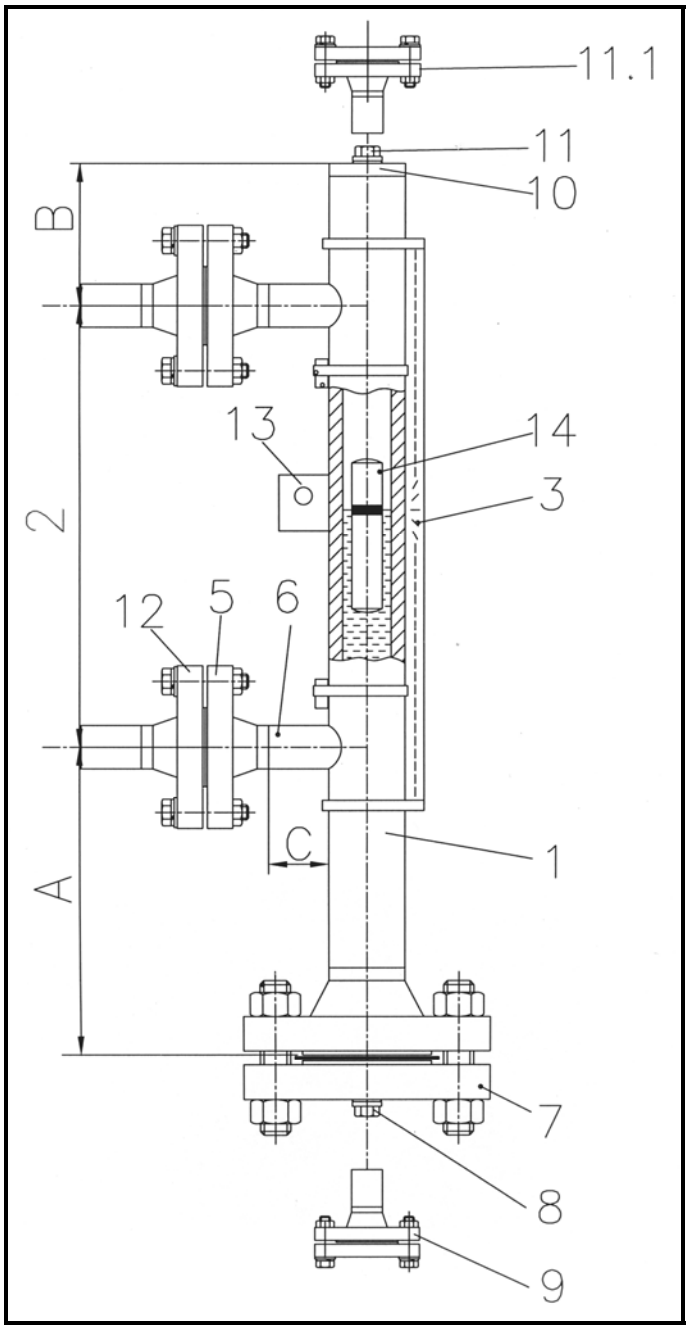
1. **Only with 316SS or Aluminium indication rail.**

3.16.6 Order code scheme for ITA-9.3

1. Type of level gauge [ITA-9.3]					
	2. Measuring length in mm [or inches]				
		3. Design			
			4. Process connection onto tank (FF)		
				5. Follower magnet guide tube topside finish	
					6. Float
ITA-9.3					**9PVD03K1**

3.17.1 ITA-10

Characteristics: **PN100 / Float pipe and flange material 1.4404**



Parts drawing ITA-10

Key:

1 Float pipe welded Dimensions 60,3 x 3,2 mm
2 c to c distance
3 Design (indication rail)
5 Process connection side/side
6 Side studs welded with T-pieces for 100 % X-ray testing
7 Float removal flange
8 Drain plug
9 Additional drain flange, open
10 Float pipe top end finish
11 Vent plug
12 Counter flanges
13 Additional bracket
14 Float pipe seamless
15 Float

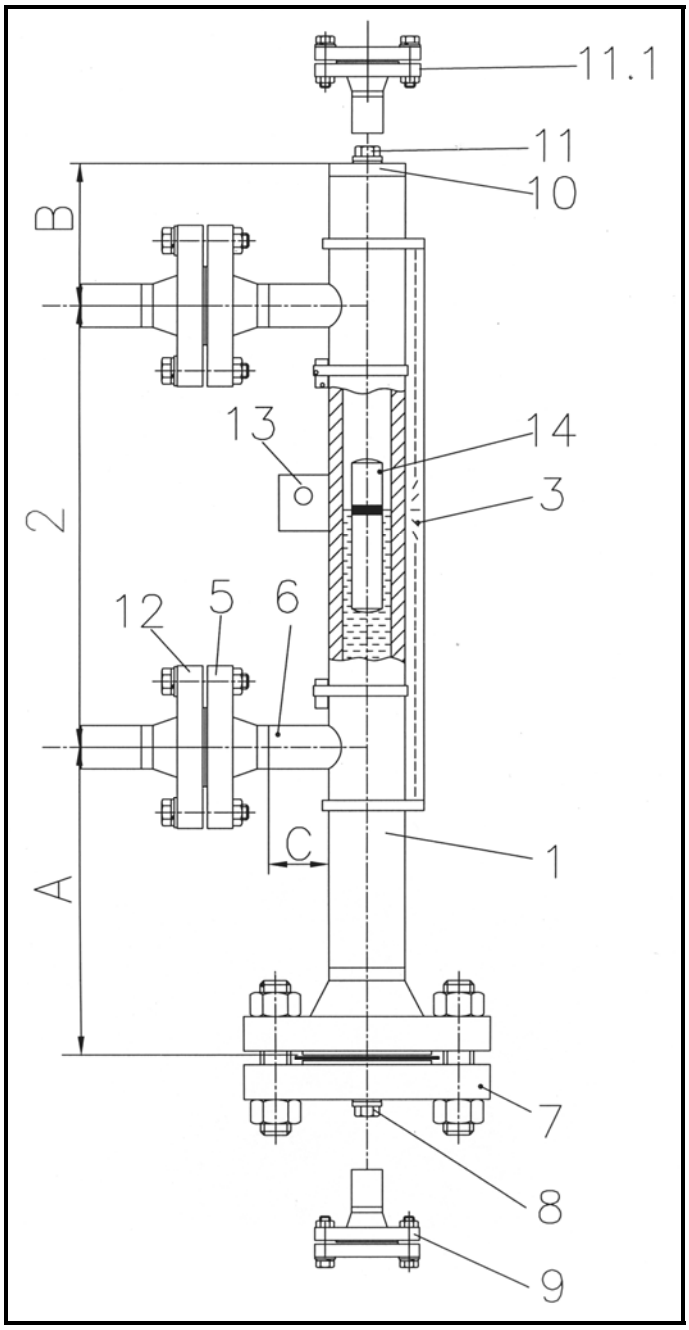
Technical specifications magnetic level gauge type ITA-10

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 3,2 mm seamless,** **With studs** or butt weld construction with T-pieces
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2"600#),** **Welding or threaded stud**
Drain/vent connections	:	**Plug ½" NPT** (for more please see price list)
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	same as pipe material
Float material	:	**Titanium,** Titan/Halar-coated
Operation temperature	:	-50...+400 °C
Operation pressure	:	max.100 bar
Operation density	:	min. 0,4632 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**Spiral wound, 316Ti** **Cam profile, 316Ti**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301 up to 400 °C
Float types	:	Cylindrical, sealed type Length: - **270 mm** - 330 mm - 430 mm - 530 mm - 630 mm
Standard dimensions	:	- A = 240* - B = 130** - C = 70

Base equipment printed in bold letters!
*** for densities < 0,7011 kg/dm³ enlarge the scale A**
**** for end cap B=170 mm for WN**

3.17.2 ITA-10.0

Characteristics: **PN100 / Float pipe: 1.4404; Flanges CS**



Parts drawing ITA-10.0

Key:

1 Float pipe welded Dimensions 60,3 x 3,2 mm
2 c to c distance
3 Design (indication rail)
5 Process connection side/side
6 Side studs welded with T-pieces for 100 % X-ray testing
7 Float removal flange
8 Drain plug
9 Additional drain flange, open
10 Float pipe top end finish
11 Vent plug
12 Counter flanges
13 Additional bracket
14 Float pipe seamless
15 Float

Technical specifications magnetic level gauge type ITA-10.0

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 3,2 mm seamless,** **With studs** or butt weld construction with T-pieces
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2"600#),** **Welding or threaded stud**
Drain/vent connections	:	**Plug ½" NPT** (for more please see price list)
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	**CS**
Float material	:	**Titanium,** Titan/Halar-coated
Operation temperature	:	-50...+400 °C
Operation pressure	:	max.100 bar
Operation density	:	min. 0,4632 kg/dm³
Bolts & Nuts	:	**CS** SS
Gasket	:	**Spiral wound, 316Ti** **Cam profile, 316Ti**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301 up to 400 °C
Float types	:	Cylindrical, sealed type Length: - **270 mm** - 330 mm - 430 mm - 530 mm - 630 mm
Standard dimensions	:	- A = 240* - B = 130** - C = 70

Base equipment printed in bold letters!
*** for densities < 0,7011 kg/dm³ enlarge the scale A**
**** for end cap B=170 mm for WN**

Order codes for magnetic level gauge type ITA-10 and ITA-10.0

Code	Description
ITA-10 ITA-10.0	**1. Float pipe seamless Dimensions 60,3 x 3,2 mm**
	2. C to C distance
L	C to C distance in mm
	3. Design
0	without indication rail
1	Indication rail material: Makrolon max. 120 °C
2	Indication rail material: Aluminium max. 400 °C
3	Indication rail material: 1.4401 max. 400 °C
	4. C to C distance < 5000 mm
A	< 5000 mm - without flange connection; DN 50 PN 100
B	> 5000 mm - with flange connection; DN 50 PN 100
	5. Process connections side/side
Y	Welded connection (please specify)
Z	Threaded connection (please specify)
1	Flanges DN 15 PN 100
2	Flanges DN 25 PN 100
3	Flanges DN 32 PN 100
4	Flanges DN 40 PN 100
5	Flanges DN 50 PN 100
A	Flanges 1/2" ANSI 600 lbs
B	Flanges 3/4" ANSI 600 lbs
C	Flanges 1" ANSI 600 lbs
D	Flanges 1 1/4" ANSI 600 lbs
E	Flanges 1 1/2" ANSI 600 lbs
F	Flanges 2" ANSI 600 lbs
	5.1 Surface side flanges
0	without
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI)
	6. Side studs welded with T-pieces for 100 % X-ray testing
0	without
1	T-pieces
	7. Float removal flange (bottom side)
1	Flange DN 50 PN 100 incl. blind flange
2	Flange 2" ANSI 600 lbs incl. blind flange
3	Flange DN 50 PN 100 prepared for shut off valve on side
4	Flange 2" ANSI 600 lbs prepared for shut off valve on side

Order codes for magnetic level gauge type ITA-10 and ITA-10.0 (Continuation)

Code	Description
	7.1 Surface float removal flange (bottom side) (only DN50 or 2")
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI)
	7.2 Bolts & Nuts float removal flange
1	M24 x 120 mm; material CK35/C35 zinced DIN2510; Flange DN 50 PN 100
2	M24 x 120 mm; material A2-70 DIN2510; Flange DN 50 PN 100
A	5/8" x 108 mm; material A193B7 / A1942H zinced; Flange 2" ANSI 600 lbs RF
B	5/8" x 108 mm; material A193B7 / A1942H PTFE coated; Flange 2" ANSI 600 lbs RF
C	5/8" x 108 mm; material A193B8 / A1948M SS; Flange 2" ANSI 600 lbs RF
	8. Drain plug
0	without
1	Drain plug G 1/2" with soft iron gasket
2	Drain plug 1/2" NPT
3	Drain plug 3/4" NPT
4	Drain plug 1" NPT
	9. Additional drain flange, open
0	without
1	Drain stud with flange DN 15 PN 100
2	Drain stud with flange DN 25 PN 100
3	Drain stud with flange DN 32 PN 100
4	Drain stud with flange DN 40 PN 100
A	Drain stud with flange 1/2" ANSI 600 lbs
B	Drain stud with flange 3/4" ANSI 600 lbs
C	Drain stud with flange 1" ANSI 600 lbs
D	Drain stud with flange 1 1/4" ANSI 600 lbs
E	Drain stud with flange 1 1/2" ANSI 600 lbs
	9.1 Drain flange with concentric reducer (X-ray testing)
0	without
1	DN 15 PN 100
2	DN 25 PN 100
3	DN 32 PN 100
4	DN 40 PN 100
A	1/2" ANSI 600 lbs
B	3/4" ANSI 600 lbs
C	1" ANSI 600 lbs
D	1 1/4" ANSI 600 lbs
E	1 1/2" ANSI 600 lbs

Order codes for magnetic level gauge type ITA-10 and ITA-10.0 (Continuation)

Code	Description
	9.2 Surface open drain flange
0	without
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI)
	10. Float pipe top end finish
0	End Cap
1	Flange with blind flange DN 50 PN 100
A	Flange with blind flange 2" ANSI 600 lbs
	10.1 Surface float pipe top end finish flange (only DN50 or 2")
0	without
B	Surface Form E Rz=16
D	Surface groove (DIN2512)
E	Surface tongue (DIN2512)
F	Dichtleiste RF - RA = 3,2 bis 6,3
G	Surface RFSF (ANSI)
H	Surface groove large ANSI
K	Surface tongue-large ANSI
L	Surface RTJ (ANSI)
	10.2 Bolts & nuts float pipe top end finish flange
0	without
1	M24 x 120 mm; material CK35/C35 zinced DIN2510; Flange DN 50 PN 100
2	M24 x 120 mm; material A2-70 DIN2510; Flange DN 50 PN 100
A	5/8" x 108 mm; material A193B7 / A1942H zinced; Flange 2" ANSI 600 lbs RF
B	5/8" x 108 mm; material A193B7 / A1942H PTFE coated; Flange 2" ANSI 600 lbs RF
C	5/8" x 108 mm; material A193B8 / A1948M SS; Flange 2" ANSI 600 lbs RF
	11. Vent plug at top end
0	without
1	Vent plug G 1/2" with soft iron gasket
2	Vent plug 1/2" NPT
3	Vent plug 3/4" NPT
4	Vent plug 1" NPT
	11.1 Vent flange welded to end cap instead of vent plug
0	without
1	Flange DN 15 PN 100 (socket weld construction to endcap)
2	Flange DN 25 PN 100 (socket weld construction to endcap)
3	Flange DN 32 PN 100 (socket weld construction to endcap)
4	Flange DN 40 PN 100 (socket weld construction to endcap)
A	Flange 1/2" ANSI 600 lbs (socket weld construction to endcap)
B	Flange 3/4" ANSI 600 lbs (socket weld construction to endcap)
C	Flange 1" ANSI 600 lbs (socket weld construction to endcap)
D	Flange 1 1/4" ANSI 600 lbs (socket weld construction to endcap)
E	Flange 1 1/2" ANSI 600 lbs (socket weld construction to endcap)

Order codes for magnetic level gauge type ITA-10 and ITA-10.0 (Continuation)

Code	Description
	11.2 Vent flange with concentric reducer (X-ray testing)
0	without
1	DN 15 PN 100
2	DN 25 PN 100
3	DN 32 PN 100
4	DN 40 PN 100
A	1/2" ANSI 600 lbs
B	3/4" ANSI 600 lbs
C	1" ANSI 600 lbs
D	1 1/4" ANSI 600 lbs
E	1 1/2" ANSI 600 lbs
	11.3 Surface vent flange welded to end cap (only DN50 or 2")
0	without
B	Surface Form E Rz=16
D	Surface groove (DIN2512)
E	Surface tongue (DIN2512)
F	Standard-Surface RF
G	Surface RFSF (smooth finished)
H	Surface groove large
K	Surface tongue-large
L	Surface RTJ (ANSI)
	12. Counter flanges
0	without
1	DN 15 PN 100
2	DN 25 PN 100
3	DN 32 PN 100
4	DN 40 PN 100
5	DN 50 PN 100
A	1/2" 600 lbs
B	3/4" 600 lbs
C	1" 600 lbs
D	1 1/4" 600 lbs
E	1 1/2" 600 lbs
F	2" 600 lbs
	12.1 Surface counter flanges
0	without
B	Surface Form E Rz=16
D	Surface groove (DIN2512)
E	Surface tongue (DIN2512)
F	Standard-Surface RF
G	Surface RFSF (smooth finished)
H	Surface groove large
K	Surface tongue-large
L	Surface RTJ (ANSI)

Order codes for magnetic level gauge type ITA-10 and ITA-10.0 (Continuation)

Code	Description
	12.2 Bolts & Nuts counter flanges
0	without
1	M24 x 120 mm; material CK35/C35 zinced DIN2510; Flange DN 50 PN 100
2	M24 x 120 mm; material A2-70 DIN2510; Flange DN 50 PN 100
3	5/8" x 108 mm; material A193B7 / A1942H zinced; Flange 2" ANSI 600 lbs RF
4	5/8" x 108 mm; material A193B7 / A1942H PTFE coated; Flange 2" ANSI 600 lbs RF
5	5/8" x 108 mm; material A193B8 / A1948M SS; Flange 2" ANSI 600 lbs RF
	13. Additional bracket welded to the float pipe
0	without
H	Bracket

14. Floats

Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	Min. density [kg/dm³]	Vented? [Y/N]	Notes
10V324K3	100	316L	52	265	0,6122	Y	
10T024K1	80	Titanium	50,8	265	0,7011	N	
10T024K3	80	Titanium	50,8	265	0,5823	N	
10T030K1	80	Titanium	50,8	325	0,6212	N	
10T030K3	80	Titanium	50,8	325	0,5275	N	
10T040K1	80	Titanium	50,8	425	0,5515	N	
10T040K3	80	Titanium	50,8	425	0,4871	N	
10T050K1	80	Titanium	50,8	525	0,5095	N	
10T050K3	80	Titanium	50,8	525	0,4574	N	
10T060K1	80	Titanium	50,8	625	0,4632	N	
10T060K3	80	Titanium	50,8	625	0,4209	N	
10T124K1	100	Titanium	50,8	265	0,8299	N	
10T124K3	100	Titanium	50,8	265	0,7006	N	
10T130K1	100	Titanium	50,8	325	0,7617	N	
10T130K3	100	Titanium	50,8	325	0,6594	N	
10T140K1	100	Titanium	50,8	425	0,6779	N	
10T140K3	100	Titanium	50,8	425	0,6075	N	
10T150K1	100	Titanium	50,8	525	0,6321	N	
10T150K3	100	Titanium	50,8	525	0,5775	N	

Notes:

1. **Only with 316SS or Aluminium indication rail.**
2. **Do not use for hydrogen and alcohol compounds.**

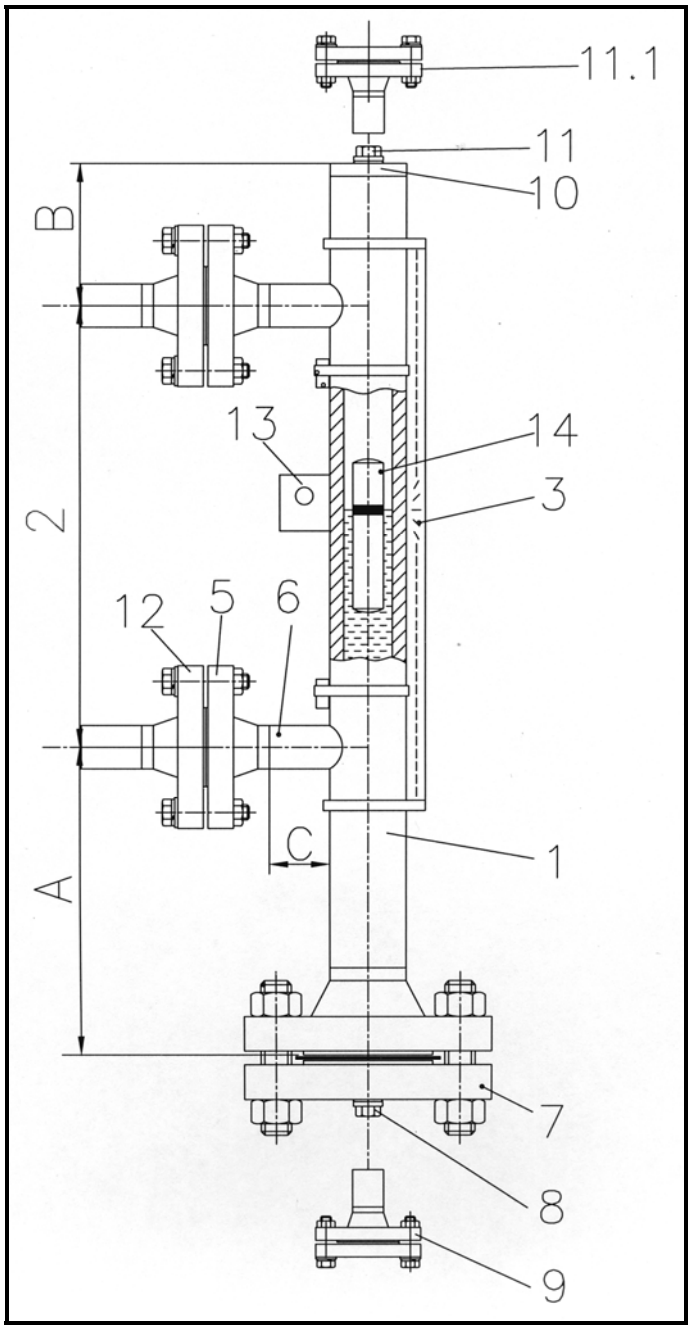
3.17.3 Order code scheme for ITA-10 & ITA-10.0

1. Type of level gauge [ITA-10 or ITA-10.0]													
	2. c to c distance in mm [or inches]												
		3. Design											
			4. c to c distance > 5000 mm										
				5. Process connection [side/side]									
					5.1 Surface side flanges								
						6. Side studs welded with T-pieces for 100 % X-ray testing							
							7. Float removal flange						
								7.1 Surface float removal flange (bottom side)					
									7.2 Bolts & Nuts float removal flange				
										8. Drain Plug			
											9. Additional drain flange, open		
ITA-10													
ITA-10.0													

9.1 Drain flange with concentric reducer (X-ray-testing)													
	9.2 Surface open drain flange												
		10. Float pipe top end finish											
			10.1 Surface top end finish flange										
				10.2 Bolts & Nuts top end finish flange									
					11. Vent plug at top end								
						11.1 Vent flange welded to end cap instead of vent plug							
							11.2 Vent flange with concentric reducer (X-ray testing)						
								11.3 Surface Vent Flange					
									12. Counter flanges				
										12.1 Surface counter flanges			
											12.2 Bolts & Nuts counter flanges		
												13. Additional bracket welded to the float pipe	
													14. Float

3.18.1 ITA-11

Characteristics: **PN160 / Float pipe and flange material 1.4404**



Parts drawing ITA-11

Key:

1 Float pipe welded Dimensions 60,3 x 3,91 mm
2 c to c distance
3 Design (indication rail)
5 Process connection side/side
6 Side studs welded with T-pieces for 100 % X-ray testing
7 Float removal flange
8 Drain plug
9 Additional drain flange, open
10 Float pipe top end finish
11 Vent plug
12 Counter flanges
13 Additional bracket
14 Float pipe seamless
15 Float

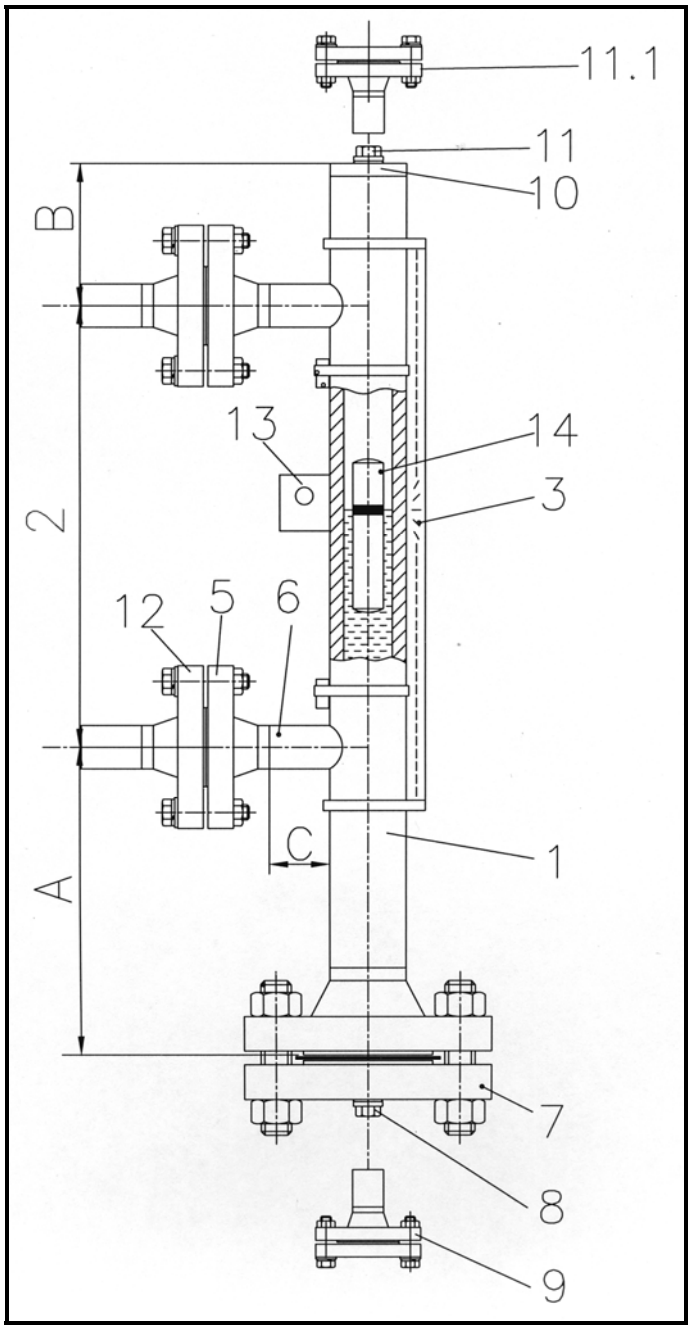
Technical specification magnetic level gauge type ITA-11

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 3,91 mm seamless,** **60,3 x 3,6 mm seamless,** **welding stud** or butt weld construction with T-pieces
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2"1500#),** **Welding or threaded stud**
Drain/vent connections	:	**Plug ½" NPT** (for more please see price list)
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	same as pipe material
Float material	:	**316 Ti,** Titanium
Operation temperature	:	-50...+400 °C
Operation pressure	:	max.160 bar
Operation density	:	min. 0,6008 kg/dm³ (sealed type)
Bolts & Nuts	:	**CS** SS
Gasket	:	**Spiral wound, 316SS** **Cam profile, 316SS**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301 up to 400 °C
Float types	:	Cylindrical, vented type Length: - **270 mm** - 210 mm - 330 mm - 430 mm - 530 mm
Standard dimensions	:	- A = 240* - B = 130** - C = 70

Base equipment printed in bold letters!
*** for densities < 0,7324 kg/dm³ enlarge the scale A**
**** for end cap B=170 mm for WN**

3.18.2 ITA-11.0

Characteristics: **PN160 / Float pipe: 1.4404; Flanges: CS**



Parts drawing ITA-11.0

Key:

1 Float pipe welded Dimensions 60,3 x 3,91 mm
2 c to c distance
3 Design (indication rail)
5 Process connection side/side
6 Side studs welded with T-pieces for 100 % X-ray testing
7 Float removal flange
8 Drain plug
9 Additional drain flange, open
10 Float pipe top end finish
11 Vent plug
12 Counter flanges
13 Additional bracket
14 Float pipe seamless
15 Float

Magnetic level gauge type ITA-11.0

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 3,91 mm seamless,** **60,3 x 3,6 mm seamless,** **welding stud** or butt weld construction with T-pieces
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2"1500#),** **Welding or threaded stud**
Drain/vent connections	:	**Plug ½" NPT** (for more please see price list)
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	**CS**
Float material	:	**316 Ti,** Titanium
Operation temperature	:	-50...+400 °C
Operation pressure	:	max.160 bar
Operation density	:	min. 0,6008 kg/dm³ (sealed type)
Bolts & Nuts	:	**CS** SS
Gasket	:	**Spiral wound, 316SS** **Cam profile, 316SS**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301 up to 400 °C
Float types	:	Cylindrical, vented type Length: - **270 mm** - 210 mm - 330 mm - 430 mm - 530 mm
Standard dimensions	:	- A = 240* - B = 130** - C = 70

Base equipment printed in bold letters!
*** for densities < 0,7324 kg/dm³ enlarge the scale A**
**** for end cap B=170 mm for WN**

Order codes for magnetic level gauge type ITA-11 and ITA-11.0

Code	Description
ITA-11 ITA-11.0	**1. Float pipe seamless Dimensions 60,3 x 3,91 mm**
	2. C to C distance
L	C to C distance in mm
	3. Design
0	without indication rail
1	Indication rail material: Makrolon max. 120 °C
2	Indication rail material: Aluminium max. 400 °C
3	Indication rail material: 1.4401 max. 400 °C
	4. C to C distance < 5000 mm
A	< 5000 mm - without flange connection; DN 50 PN 160
B	> 5000 mm - with flange connection; DN 50 PN 160
	5. Process connections side/side
Y	welding connection (please specify)
Z	threaded connection (please specify)
1	Flanges DN 15 PN 160
2	Flanges DN 25 PN 160
3	Flanges DN 32 PN 160
4	Flanges DN 50 PN 160
A	Flanges 1/2" ANSI 1500 lbs
B	Flanges 3/4" ANSI 1500 lbs
C	Flanges 1" ANSI 1500 lbs
D	Flanges 1 1/4" ANSI 1500 lbs
E	Flanges 1 1/2" ANSI 1500 lbs
F	Flanges 2" ANSI 1500 lbs
	5.1 Surface side flanges
0	without
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI)
	6. Side studs welded with T-pieces for 100 % X-ray testing
0	without
T	T-pieces
	7. Float removal flange (bottom side)
1	Flange DN 50 PN 160 incl. blind flange
A	Flange 2" ANSI 1500 lbs incl. blind flange
2	Flange DN 50 PN 160 prepared for shut off valve on side
B	Flange 2" ANSI 1500 lbs prepared for shut off valve on side

Order codes for magnetic level gauge type ITA-11 and ITA-11.0 (Continuation)

Code	Description
	7.1 Surface float removal flange (bottom side) (only DN50 or 2")
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI)
	7.2 Bolts & Nuts float removal flange
1	M24 x 120 mm; mat. CK35/C35 zinced DIN2510; Flange DN 50 PN 160
2	M24 x 120 mm; mat. A2-70 DIN2510; Flange DN 50 PN 160
A	7/8" x 150 mm; mat. A193B7 / A1942H zinced; Flange 2" ANSI 1500 lbs RF/RTJ
B	7/8" x 150 mm; mat. A193B7 / A1942H PTFE coated; Flange 2" ANSI 1500 lbs RF/RTJ
C	7/8" x 150 mm; mat. A193B8 / A1948M stainless steel; Flange 2" ANSI 1500 lbs RF/RTJ
	8. Drain plug
0	without
1	Drain plug G 1/2" with soft iron gasket
2	Drain plug 1/2" NPT
3	Drain plug 3/4" NPT
4	Drain plug 1" NPT
	9. Additional drain flange, open
0	without
1	Drain stud with flange DN 15 PN 160
2	Drain stud with flange DN 25 PN 160
3	Drain stud with flange DN 32 PN 160
4	Drain stud with flange DN 40 PN 160
A	Drain stud with flange 1/2" ANSI 1500 lbs
B	Drain stud with flange 3/4" ANSI 1500 lbs
C	Drain stud with flange 1" ANSI 1500 lbs
D	Drain stud with flange 1 1/4" ANSI 1500 lbs
E	Drain stud with flange 1 1/2" ANSI 1500 lbs
	9.1 Drain flange with concentric reducer (X-ray testing)
0	without
1	DN 15 PN 160
2	DN 25 PN 160
3	DN 32 PN 160
4	DN 40 PN 160
A	1/2" ANSI 1500 lbs
B	3/4" ANSI 1500 lbs
C	1" ANSI 1500 lbs
D	1 1/4" ANSI 1500 lbs
E	1 1/2" ANSI 1500 lbs

Order codes for magnetic level gauge type ITA-11 and ITA-11.0 (Continuation)

Code	Description
	9.2 Surface open drain flange
0	without
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI)
	10. Float pipe top end finish
1	End cap
2	Flange with blind flange DN 50 PN 160
A	Flange with blind flange 2" ANSI 1500 lbs
	10.1 Surface float pipe top end finish flange (only DN50 or 2")
0	without
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI)
	10.2 Bolts & nuts float pipe top end finish flange
0	without
1	M24 x 120 mm; mat. CK35/C35 zinced DIN2510; Flange DN 50 PN 160
2	M24 x 120 mm; mat. A2-70 DIN2510; Flange DN 50 PN 160
A	7/8" x 150 mm; mat. A193B7 / A1942H zinced; Flange 2" ANSI 1500 lbs RF/RTJ
B	7/8" x 150 mm; mat. A193B7 / A1942H PTFE coated; Flange 2" ANSI 1500 lbs RF/RTJ
C	7/8" x 150 mm; mat. A193B8 / A1948M stainless steel; Flange 2" ANSI 1500 lbs RF/RTJ
	11. Vent plug at top end
0	without
1	Vent plug G 1/2" with soft iron gasket
2	Vent plug 1/2" NPT
3	Vent plug 3/4" NPT
4	Vent plug 1" NPT
	11.1 Vent flange welded to end cap instead of vent plug
0	without
1	Flange DN 15 PN 160 (socket weld construction to endcap)
2	Flange DN 25 PN 160 (socket weld construction to endcap)
3	Flange DN 32 PN 160 (socket weld construction to endcap)
4	Flange DN 40 PN 160 (socket weld construction to endcap)
A	Flange 1/2" ANSI 1500 lbs (socket weld construction to endcap)
B	Flange 3/4" ANSI 1500 lbs (socket weld construction to endcap)
C	Flange 1" ANSI 1500 lbs (socket weld construction to endcap)
D	Flange 1 1/4" ANSI 1500 lbs (socket weld construction to endcap)
E	Flange 1 1/2" ANSI 1500 lbs (socket weld construction to endcap)

Order codes for magnetic level gauge type ITA-11 and ITA-11.0 (Continuation)

Code	Description
	11.2 Vent flange with concentric reducer (X-ray testing)
0	without
1	DN 15 PN 160
2	DN 25 PN 160
3	DN 32 PN 160
4	DN 40 PN 160
A	1/2" ANSI 1500 lbs
B	3/4" ANSI 1500 lbs
C	1" ANSI 1500 lbs
D	1 1/4" ANSI 1500 lbs
E	1 1/2" ANSI 1500 lbs
	11.3 Surface vent flange welded to end cap (only DN50 or 2")
0	without
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI)
	12. Counter flanges
0	without
1	DN 15 PN 160
2	DN 25 PN 160
3	DN 32 PN 160
4	DN 40 PN 160
5	DN 50 PN 100
A	1/2" ANSI 1500 lbs
B	3/4" ANSI 1500 lbs
C	1" ANSI 1500 lbs
D	1 1/4" ANSI 1500 lbs
E	1 1/2" ANSI 1500 lbs
F	2" 600 lbs
	12.1 Surface counter flanges
0	without
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
F	Surface groove (DIN2512)
G	Surface groove large
H	Surface tongue (DIN2512)
K	Surface tongue-large
L	Surface RTJ (ANSI)

Order codes for magnetic level gauge type ITA-11 and ITA-11.0 (Continuation)

Code	Description
	12.2 Bolts & Nuts counter flanges
0	without
1	M24 x 120 mm; mat. CK35/C35 zinced DIN2510; Flange DN 50 PN 160
2	M24 x 120 mm; mat. A2-70 DIN2510; Flange DN 50 PN 160
A	7/8" x 150 mm; mat. A193B7 / A1942H zinced; Flange 2" ANSI 1500 lbs RF/RTJ
B	7/8" x 150 mm; mat. A193B7 / A1942H PTFE coated; Flange 2" ANSI 1500 lbs RF/RTJ
C	7/8" x 150 mm; mat. A193B8 / A1948M stainless steel; Flange 2" ANSI 1500 lbs RF/RTJ
	13. Additional bracket welded to the float pipe
0	without
H	Bracket

	14. Floats						
Code	**Pressure [bar]**	**Material**	**Diameter [mm]**	**Length [mm]**	**Min. density [kg/dm³]**	**Vented? [Y/N]**	**Notes**
11V324K2	160	316L	46	265	0,7736	Y	
11T330K2	160	Titanium	46	325	0,4901	Y	2
11T018K1	130	Titanium	45	205	1,0185	N	2
11T018K3	130	Titanium	45	205	0,8455	N	1, 2
11T024K1	130	Titanium	45	265	0,8600	N	2
11T024K3	130	Titanium	45	265	0,7450	N	1, 2
11T030K1	130	Titanium	45	325	0,7822	N	2
11T030K3	130	Titanium	45	325	0,6949	N	1, 2
11T040K1	130	Titanium	45	425	0,7028	N	2
11T040K3	130	Titanium	45	425	0,6391	N	1, 2
11T050K1	130	Titanium	45	525	0,6587	N	2
11T050K3	150	Titanium	45	525	0,6106	N	1, 2
11T124K3	150	Titanium	46	265	0,7324	N	2
11T130K3	150	Titanium	46	325	0,7042	N	1, 2
11T140K3	150	Titanium	46	425	0,6164	N	2
11T150K3	150	Titanium	46	525	0,6008	N	1, 2
11T218K1	160	Titanium	42	205	1,1692	N	2
11T218K3	160	Titanium	42	205	0,9291	N	1, 2
11T224K1	160	Titanium	42	265	0,9768	N	2
11T224K3	160	Titanium	42	265	0,8120	N	1, 2
11T230K1	160	Titanium	42	325	0,8871	N	2
11T230K3	160	Titanium	42	325	0,7613	N	1, 2
11T240K1	160	Titanium	42	425	0,7832	N	2
11T240K3	160	Titanium	42	425	0,6934	N	1, 2
11T250K1	160	Titanium	42	525	0,7268	N	2
11T250K3	160	Titanium	42	525	0,6571	N	1, 2

Notes:

1. **Only with 316SS or Aluminium indication rail.**
2. **Do not use for hydrogen and alcohol compounds.**

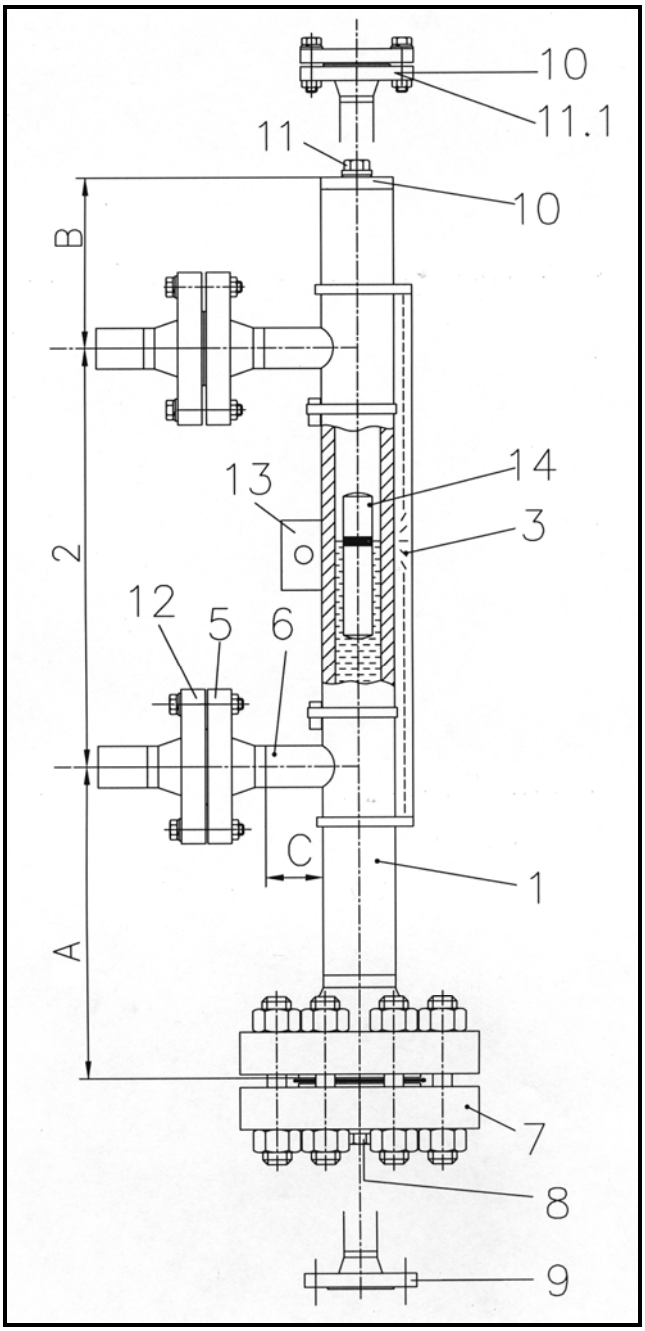
3.18.3 Order code scheme for ITA-11 & ITA-11.0

1. Type of level gauge [ITA-11 or ITA-11.0]													
	2. c to c distance in mm [or inches]												
		3. Design											
			4. c to c distance > 5000 mm										
				5. Process connection [side/side]									
					5.1 Surface side flanges								
						6. Side studs welded with T-pieces for 100 % X-ray testing							
							7. Float removal flange						
								7.1 Surface float removal flange (bottom side)					
									7.2 Bolts & Nuts float removal flange				
										8. Drain Plug			
											9. Additional drain flange, open		
ITA-11													
ITA-11.0													

9.1 Drain flange with concentric reducer (X-ray-testing)													
	9.2 Surface open drain flange												
		10. Float pipe top end finish											
			10.1 Surface top end finish flange										
				10.2 Bolts & Nuts top end finish flange									
					11. Vent plug at top end								
						11.1 Vent flange welded to end cap instead of vent plug							
							11.2 Vent flange with concentric reducer (X-ray testing)						
								11.3 Surface Vent Flange					
									12. Counter flanges				
										12.1 Surface counter flanges			
											12.2 Bolts & Nuts counter flanges		
												13. Additional bracket welded to the float pipe	
													14. Float

3.19.1 ITA-12

Characteristics: **PN250 / Float pipe and flange material 1.4404**



Parts drawing ITA-12

Key:

1 Float pipe welded Dimensions 60,3 x 5,54 mm
2 c to c distance
3 Design (indication rail)
5 Process connection side/side
6 Side studs welded with T-pieces for 100 % X-ray testing
7 Float removal flange
8 Drain plug
9 Additional drain flange, open
10 Float pipe top end finish
11 Vent plug
12 Counter flanges
13 Additional bracket
14 Float pipe seamless
15 Float

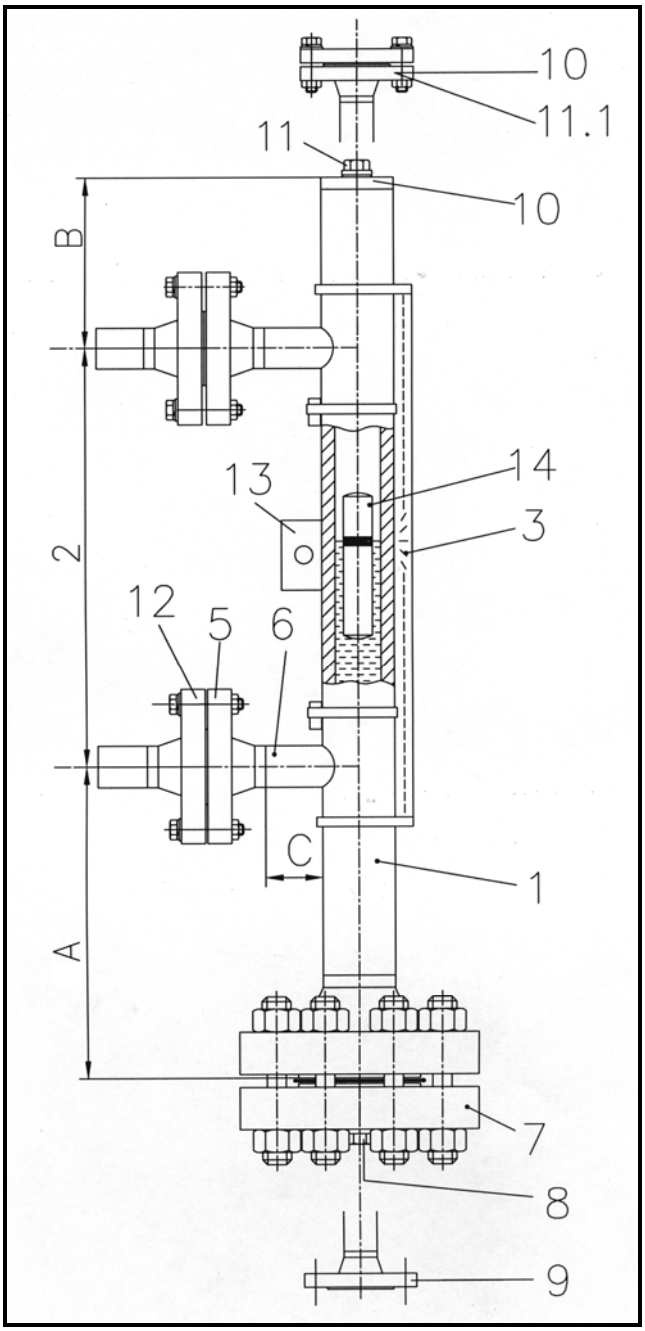
Technical specification magnetic level gauge type ITA-12

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 5,54 mm seamless,** **welding stud** or butt weld construction with T-pieces
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2"1500#),** **Welding or threaded stud**
Drain/vent connections	:	**Plug ½" NPT** (for more please see price list)
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	same as pipe material
Float material	:	**316 Ti,** Titanium
Operation temperature	:	-50...+400 °C
Operation pressure	:	max.250 bar
Operation density	:	min. 0,57 kg/dm³ (vented float) min. 0,828 kg/dm³ (sealed float)
Bolts & Nuts	:	**CS** SS
Gasket	:	**Spiral wound, 316SS** **Cam profile, 316SS**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301 up to 400 °C
Float types	:	Cylindrical, sealed type (Titanium) Length: - **270 mm** - 330 mm
Standard dimensions	:	- A = 240* - B = 130** - C = 100

Base equipment printed in bold letters!
*** for densities < 0,7 kg/dm³ enlarge the scale A**
**** for end cap B=170 mm for WN**

3.19.2 ITA-12.0

Characteristics: **PN250 / Float pipe: 1.4404; Flanges: CS**



Parts drawing ITA-12.0

Key:

1 Float pipe welded Dimensions 60,3 x 5,54 mm
2 c to c distance
3 Design (indication rail)
5 Process connection side/side
6 Side studs welded with T-pieces for 100 % X-ray testing
7 Float removal flange
8 Drain plug
9 Additional drain flange, open
10 Float pipe top end finish
11 Vent plug
12 Counter flanges
13 Additional bracket
14 Float pipe seamless
15 Float

Technical specification magnetic level gauge type ITA-12.0

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 5,54 mm seamless,** **welding stud** or butt weld construction with T-pieces
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2"1500#),** **Welding or threaded stud**
Drain/vent connections	:	**Plug ½" NPT** (for more please see price list)
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	**CS**
Float material	:	**316 Ti,** Titanium
Operation temperature	:	-50...+400 °C
Operation pressure	:	max.250 bar
Operation density	:	min. 0,57 kg/dm³ (vented float) min. 0,828 kg/dm³ (sealed float)
Bolts & Nuts	:	**CS** SS
Gasket	:	**Spiral wound, 316SS** **Cam profile, 316SS**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301 up to 400 °C
Float types	:	Cylindrical, sealed type (Titanium) Length: - **270 mm** - 330 mm
Standard dimensions	:	- A = 240* - B = 130** - C = 100

Base equipment printed in bold letters!
*** for densities < 0,7 kg/dm³ enlarge the scale A**
**** for end cap B=170 mm for WN**

Order codes for magnetic level gauge type ITA-12 and ITA-12.0

Code	Description
ITA-12 ITA-12.0	**1. Float pipe seamless Dimensions 60,3 x 5,54 mm**
	2. C to C distance
L	C to C distance in mm
	3. Design
0	without indication rail
1	Indication rail material: Makrolon max. 120 °C
2	Indication rail material: Aluminium max. 400 °C
3	Indication rail material: 1.4401 max. 400 °C
	4. C to C distance < 5000 mm
A	< 5000 mm - without flange connection; DN 50 PN 250
B	> 5000 mm - with flange connection; DN 50 PN 250
	5. Process connections side/side
Y	Welding connection (please specify)
Z	Threaded stud (please specify)
0	Flanges DN 15 PN 250
1	Flanges DN 25 PN 250
2	Flanges DN 32 PN 250
3	Flanges DN 40 PN 250
4	Flanges DN 50 PN 250
A	Flanges 1/2" ANSI 1500 lbs
B	Flanges 3/4" ANSI 1500 lbs
C	Flanges 1" ANSI 1500 lbs
D	Flanges 1 1/4" ANSI 1500 lbs
E	Flanges 1 1/2" ANSI 1500 lbs
F	Flanges 2" ANSI 1500 lbs
	5.1 Surface side flanges
0	without
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
G	Surface groove large
K	Surface tongue-large
L	Surface RTJ (ANSI)
	6. Side studs welded with T-pieces for 100 % X-ray testing
0	without
T	T-pieces
	7. Float removal flange (bottom side)
1	Flange DN 50 PN 250 incl. blind flange
A	Flange 2" ANSI 1500 lbs incl. blind flange
2	Flange DN 50 PN 250 prepared for shut off valve on side
B	Flange 2" ANSI 1500 lbs prepared for shut off valve on side

Order codes for magnetic level gauge type ITA-12 and ITA-12.0 (Continuation)

Code	Description
	7.1 Surface float removal flange (bottom side)
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
G	Surface groove large
K	Surface tongue-large
L	Surface RTJ (ANSI)
	7.2 Bolts & Nuts float removal flange
1	M24 x 140 mm; mat. CK35/C35 zinced DIN2510; Flange DN 50 PN 250
2	M24 x 140 mm; mat. A2-70 DIN2510; Flange DN 50 PN 250
A	7/8" x 150 mm; mat. A193B7 / A1942H zinced; Flange 2" ANSI 1500 lbs RF/RTJ
B	7/8" x 150 mm; mat. A193B7 / A1942H PTFE coated; Flange 2" ANSI 1500 lbs RF/RTJ
C	7/8" x 150 mm; mat. A193B8 / A1948M stainless steel; Flange 2" ANSI 1500 lbs RF/RTJ
	8. Drain plug
0	without
1	Drain plug G 1/2" with soft iron gasket
2	Drain plug 1/2" NPT
3	Drain plug 3/4" NPT
4	Drain plug 1" NPT
	9. Additional drain flange, open
0	without
1	Drain-stud with flange DN 15 PN 250
2	Drain-stud with flange DN 25 PN 250
3	Drain-stud with flange DN 32 PN 250
4	Drain-stud with flange DN 40 PN 250
A	Drain-stud with flange 1/2" ANSI 1500 lbs
B	Drain-stud with flange 3/4" ANSI 1500 lbs
C	Drain-stud with flange 1" ANSI 1500 lbs
D	Drain-stud with flange 1 1/4" ANSI 1500 lbs
E	Drain-stud with flange 1 1/2" ANSI 1500 lbs
	9.1 Drain flange with concentric reducer (X-ray testing)
0	without
1	DN 15 PN 250
2	DN 25 PN 250
3	DN 32 PN 250
4	DN 40 PN 250
A	1/2" ANSI 1500 lbs
B	3/4" ANSI 1500 lbs
C	1" ANSI 1500 lbs
D	1 1/4" ANSI 1500 lbs
E	1 1/2" ANSI 1500 lbs

Order codes for magnetic level gauge type ITA-12 and ITA-12.0 (Continuation)

Code	Description
	9.2 Surface open drain flange
0	without
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
G	Surface groove large
K	Surface tongue-large
L	Surface RTJ (ANSI)
	10. Float pipe top end finish
1	End cap
2	Flange with blind flange DN 50 PN 250
A	Flange with blind flange 2" ANSI 1500 lbs
	10.1 Surface float pipe top end finish flange (only DN50 or 2")
0	without
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
G	Surface groove large
K	Surface tongue-large
L	Surface RTJ (ANSI)
	10.2 Bolts & nuts float pipe top end finish flange
0	without
1	M24 x 140 mm; mat. CK35/C35 zinced DIN2510; Flange DN 50 PN 250
2	M24 x 140 mm; mat. A2-70 DIN2510; Flange DN 50 PN 250
A	7/8" x 150 mm; mat. A193B7 / A1942H zinced; Flange 2" ANSI 1500 lbs RF/RTJ
B	7/8" x 150 mm; mat. A193B7 / A1942H PTFE coated; Flange 2" ANSI 1500 lbs RF/RTJ
C	7/8" x 150 mm; mat. A193B8 / A1948M stainless steel; Flange 2" ANSI 1500 lbs RF/RTJ
	11. Vent plug at top end
0	without
1	Vent plug G1/2" with soft iron gasket
2	Vent plug 1/2" NPT
3	Vent plug 3/4" NPT
4	Vent plug 1" NPT
	11.1 Vent flange welded to end cap instead of vent plug
0	without
1	Flange DN 15 PN 250 (socket weld construction to endcap)
2	Flange DN 25 PN 250 (socket weld construction to endcap)
3	Flange DN 32 PN 250 (socket weld construction to endcap)
4	Flange DN 40 PN 250 (socket weld construction to endcap)
A	Flange 1/2" ANSI 1500 lbs (socket weld construction to endcap)
B	Flange 3/4" ANSI 1500 lbs (socket weld construction to endcap)
C	Flange 1" ANSI 1500 lbs (socket weld construction to endcap)
D	Flange 1 1/4" ANSI 1500 lbs (socket weld construction to endcap)
E	Flange 1 1/2" ANSI 1500 lbs (socket weld construction to endcap)

Order codes for magnetic level gauge type ITA-12 and ITA-12.0 (Continuation)

Code	Description
	11.2 Vent flange with concentric reducer (X-ray testing)
0	without
1	DN 15 PN 250
2	DN 25 PN 250
3	DN 32 PN 250
4	DN 40 PN 250
A	1/2" ANSI 1500 lbs
B	3/4" ANSI 1500 lbs
C	1" ANSI 1500 lbs
D	1 1/4" ANSI 1500 lbs
E	1 1/2" ANSI 1500 lbs
	11.3 Surface vent flange welded to end cap (only DN50 or 2")
0	without
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
G	Surface groove large
K	Surface tongue-large
L	Surface RTJ (ANSI)
	12. Counter flanges
0	without
1	DN 15 PN 250
2	DN 25 PN 250
3	DN 32 PN 250
4	DN 40 PN 250
5	DN 50 PN 250
A	1/2" ANSI 1500 lbs
B	3/4" ANSI 1500 lbs
C	1" ANSI 1500 lbs
D	1 1/4" ANSI 1500 lbs
E	1 1/2" ANSI 1500 lbs
F	2" ANSI 1500 lbs
	12.1 Surface counter flanges
0	without
B	Standard-Surface RF
D	Surface Form E Rz=16
E	Surface RFSF (smooth finished)
G	Surface groove large
K	Surface tongue-large
L	Surface RTJ (ANSI)
	12.2 Bolts & Nuts counter flanges
0	without
1	M24 x 140 mm; mat. CK35/C35 zinced DIN2510; Flange DN 50 PN 250
2	M24 x 140 mm; mat. A2-70 DIN2510; Flange DN 50 PN 250
A	7/8" x 150 mm; mat. A193B7 / A1942H zinced; Flange 2" ANSI 1500 lbs RF/RTJ
B	7/8" x 150 mm; mat. A193B7 / A1942H PTFE coated; Flange 2" ANSI 1500 lbs RF/RTJ
C	7/8" x 150 mm; mat. A193B8 / A1948M stainless steel; Flange 2" ANSI 1500 lbs RF/RTJ

Order codes for magnetic level gauge type ITA-12 and ITA-12.0 (Continuation)

Code	Description
	13. Additional bracket welded to the float pipe
0	without
H	Bracket
	14. Floats

Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	Min. density [kg/dm³]	Vented? [Y/N]	Notes
12V324K3	250	316L	46	265	0,7736	Y	
12T324K3	250	Titanium	46	265	0,5526	Y	1, 2
12T218K1	250	Titanium	42	205	1,2085	N	2
12T218K3	250	Titanium	42	205	0,9659	N	1, 2
12T224K1	250	Titanium	42	265	1,0396	N	2
12T224K3	250	Titanium	42	265	0,8719	N	1, 2
12T230K1	250	Titanium	42	325	0,9250	N	2
12T230K3	250	Titanium	42	325	0,7978	N	1, 2
12T240K1	250	Titanium	42	425	0,8304	N	2
12T240K3	250	Titanium	42	425	0,7394	N	1, 2
12T250K1	250	Titanium	42	525	0,7763	N	2
12T250K3	250	Titanium	42	525	0,7055	N	1, 2
12T124K3	250	Titanium	38	265	0,8944	N	2
12T130K3	250	Titanium	38	325	0,8281	N	1, 2
12T250K1	250	Titanium	42	525	0,7763	N	2
12T250K3	250	Titanium	42	525	0,7055	N	1, 2
12T124K3	250	Titanium	38	265	0,8944	N	1, 2
12T130K3	250	Titanium	38	325	0,8281	N	1, 2

Notes:

1. **Only with 316SS or Aluminium indication rail.**
2. **Do not use for hydrogen and alcohol compounds.**

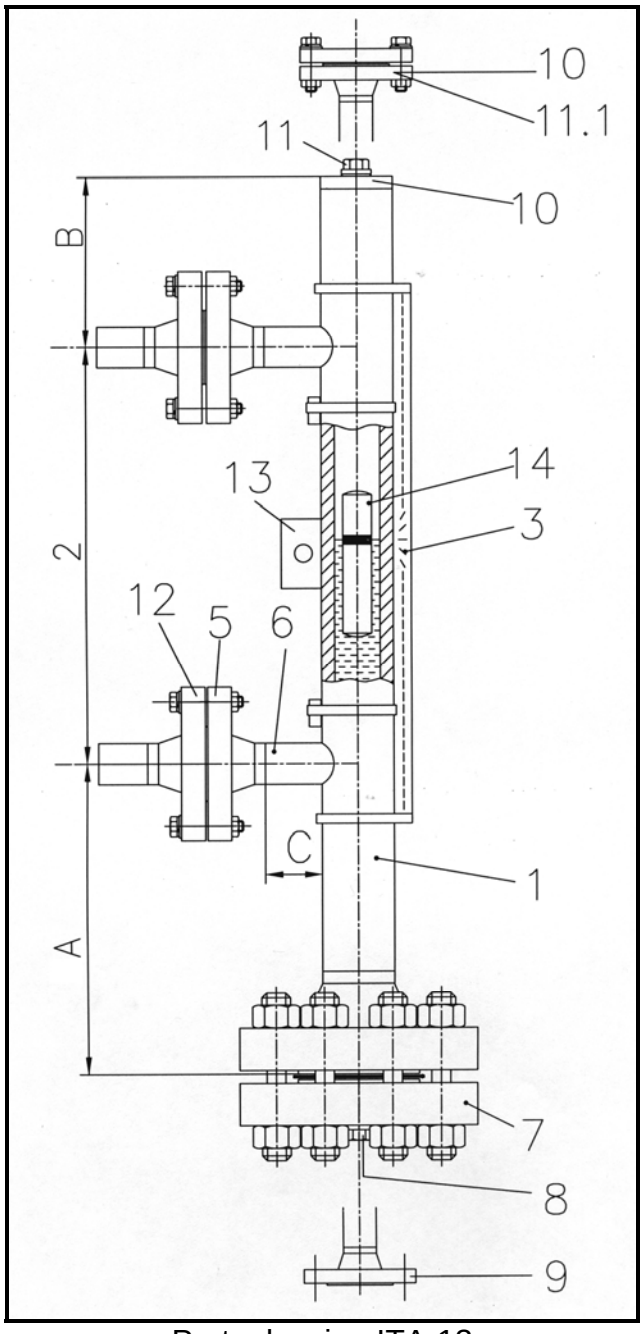
3.19.3 Order code scheme for ITA-12 & ITA-12.0

1. Type of level gauge [ITA-12 or ITA-12.0]													
	2. c to c distance in mm [or inches]												
		3. Design											
			4. c to c distance > 5000 mm										
				5. Process connection [side/side]									
					5.1 Surface side flanges								
						6. Side studs welded with T-pieces for 100 % X-ray testing							
							7. Float removal flange						
								7.1 Surface float removal flange (bottom side)					
									7.2 Bolts & Nuts float removal flange				
										8. Drain Plug			
											9. Additional drain flange, open		
ITA-12													
ITA-12.0													

9.1 Drain flange with concentric reducer (X-ray-testing)													
	9.2 Surface open drain flange												
		10. Float pipe top end finish											
			10.1 Surface top end finish flange										
				10.2 Bolts & Nuts top end finish flange									
					11. Vent plug at top end								
						11.1 Vent flange welded to end cap instead of vent plug							
							11.2 Vent flange with concentric reducer (X-ray testing)						
								11.3 Surface Vent Flange					
									12. Counter flanges				
										12.1 Surface counter flanges			
											12.2 Bolts & Nuts counter flanges		
												13. Additional bracket welded to the float pipe	
													14. Float

3.20.1 ITA-13

Characteristics: **PN320 / Float pipe and flange material 1.4404**



Parts drawing ITA-13

Key:

1 Float pipe welded Dimensions 60,3 x 8,7 mm
2 c to c distance
3 Design (indication rail)
5 Process connection side/side
6 Side studs welded with T-pieces for 100 % X-ray testing
7 Float removal flange
8 Drain plug
9 Additional drain flange, open
10 Float pipe top end finish
11 Vent plug
12 Counter flanges
13 Additional bracket
14 Float pipe seamless
15 Float

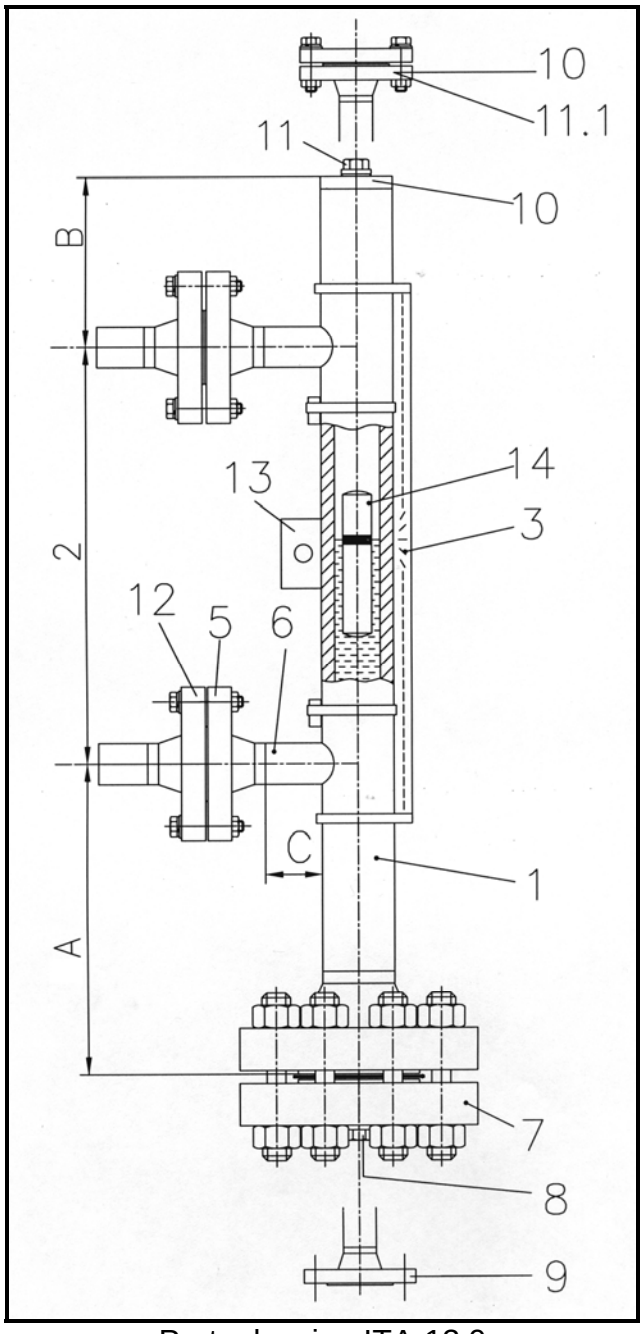
Technical specifications magnetic level gauge type ITA-13

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 8,7 mm seamless,** **welding stud** or butt weld construction with T-pieces
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2"2500#),** **Welding or threaded stud**
Drain/vent connections	:	**Plug ½" NPT** (for more please see price list)
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	same as pipe material
Float material	:	**Titanium**
Operation temperature	:	-50...+400 °C
Operation pressure	:	max.320 bar
Operation density	:	min. 0,5032 kg/dm³ (vented float) min. 0,7582 kg/dm³ (sealed float)
Bolts & Nuts	:	**CS** SS
Gasket	:	**Spiral wound, 316SS** **Cam profile, 316SS**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301 up to 400 °C
Float types	:	Cylindrical, sealed type (Titanium) Length: - **270 mm** - 330 mm - 430 mm
Standard dimensions	:	- A = 240* - B = 130** - C = 100

Base equipment printed in bold letters!
***depending on density enlarge the scale A**
****** **for end cap B=170 mm for WN**

3.20.2 ITA-13.0

Characteristics: **PN320 / Float pipe: 1.4404; Flanges: CS**



Parts drawing ITA-13.0

Key:

1 Float pipe welded Dimensions 60,3 x 8,7 mm
2 c to c distance
3 Design (indication rail)
5 Process connection side/side
6 Side studs welded with T-pieces for 100 % X-ray testing
7 Float removal flange
8 Drain plug
9 Additional drain flange, open
10 Float pipe top end finish
11 Vent plug
12 Counter flanges
13 Additional bracket
14 Float pipe seamless
15 Float

Technical specifications magnetic level gauge type ITA-13.0

Principle	:	Communicating tubes with magnetic float
Mounting position	:	vertical
Measuring range	:	**max. 5000 mm (one-part)** > 5000 mm 2- or multipart
Pipe diameter	:	**60,3 x 8,7 mm seamless,** **welding stud** or butt weld construction with T-pieces
Process connection	:	to specify: **Flanges DN15-50 (1/2"-2"2500#),** **Welding or threaded stud**
Drain/vent connections	:	**Plug ½" NPT** (for more please see price list)
Pipe material	:	**1.4404**, 1.4435,1.4539, Hastelloy C4 (2.4610), Inconel 625 (2.4856), Inconel 825 (2.4858), Titan (3.7035) Other materials also possible (on request)
Flange material	:	**CS**
Float material	:	**Titanium**
Operation temperature	:	-50...+400 °C
Operation pressure	:	max.320 bar
Operation density	:	min. 0,5032 kg/dm³ (vented float) min. 0,7582 kg/dm³ (sealed float)
Bolts & Nuts	:	**CS** SS
Gasket	:	**Spiral wound, 316SS** **Cam profile, 316SS**
Indication rail	:	**Makrolon up to 120 °C** Aluminium up to 400 °C 1.4301 up to 400 °C
Float types	:	Cylindrical, sealed type (Titanium) Length: - **270 mm** - 330 mm - 430 mm
Standard dimensions	:	- A = 240* - B = 130** - C = 100

Base equipment printed in bold letters!
***depending on density enlarge the scale A**
****** **for end cap B=170 mm for WN**

Order codes for magnetic level gauge type ITA-13 and ITA-13.0

Code	Description
ITA-13 ITA-13.0	**1. Float pipe seamless Dimensions 60,3 x 8,7 mm**
	2. C to C distance
L	C to C distance in mm
	3. Design
0	without indication rail
1	Indication rail material: Makrolon max. 120 °C
2	Indication rail material: Aluminium max. 400 °C
3	Indication rail material: 1.4401 max. 400 °C
	4. C to C distance < 5000 mm
A	< 5000 mm - without flange connection; DN 50 PN 320
B	> 5000 mm - with flange connection; DN 50 PN 320
	5. Process connections side/side
Y	Welding connections (please specify)
Z	Threaded connections (please specify)
0	Flanges DN 15 PN 320
1	Flanges DN 25 PN 320
2	Flanges DN 32 PN 320
3	Flanges DN 40 PN 320
4	Flanges DN 50 PN 320
A	Flanges 1/2" ANSI 2500 lbs
B	Flanges 3/4" ANSI 2500 lbs
C	Flanges 1" ANSI 2500 lbs
D	Flanges 1 1/4" ANSI 2500 lbs
E	Flanges 1 1/2" ANSI 2500 lbs
F	Flanges 2" ANSI 2500 lbs
	5.1 Surface side flanges
0	Without
C	Standard-Surface RF
F	Surface Form E Rz=16
G	Surface RFSF (smooth finished)
H	Surface groove large
I	Surface tongue-large
J	Surface RTJ (ANSI)
	6. Side studs welded with T-pieces for 100 % X-ray testing
0	without
T	T-pieces
	7. Float removal flange (bottom side)
1	Flange DN 50 PN 320 incl. blind flange
A	Flange 2" ANSI 2500 lbs incl. blind flange
2	Flange DN 50 PN 320 prepared for shut off valve on side
B	Flange 2" ANSI 2500 lbs prepared for shut off valve on side

Order codes for magnetic level gauge type ITA-13 and ITA-13.0 (Continuation)

Code	Description
	7.1 Surface float removal flange (bottom side)
C	Standard-Surface RF
F	Surface Form E Rz=16
G	Surface RFSF (smooth finished)
H	Surface groove large
I	Surface tongue-large
J	Surface RTJ (ANSI)
	7.2 Bolts & Nuts float removal flange
1	M24 x 150 mm; mat. CK35/C35 zinced DIN2510; Flange DN 50 PN 320
2	M24 x 150 mm; mat. A2-70 DIN2510; Flange DN 50 PN 320
A	1" x 190 mm;mat. A193B7 / A1942H zinced; Flange 2" ANSI 2500 lbs RF
B	1" x 190 mm; mat. A193B7 / A1942H PTFE coated; Flange 2" ANSI 2500 lbs RF
C	1" x 190 mm; mat. A193B8 / A1948M stainless steel; Flange 2" ANSI 2500 lbs RF
	8. Drain plug
0	without
1	Drain plug G 1/2" with soft iron gasket
2	Drain plug 1/2" NPT
3	Drain plug 3/4" NPT
4	Drain plug 1" NPT
	9. Additional drain flange, open
0	without
1	Drain stud with flange DN 15 PN 320
2	Drain stud with flange DN 25 PN 320
3	Drain stud with flange DN 32 PN 320
4	Drain stud with flange DN 40 PN 320
A	Drain stud with flange 1/2" ANSI 2500 lbs
B	Drain stud with flange 3/4" ANSI 2500 lbs
C	Drain stud with flange 1" ANSI 2500 lbs
D	Drain stud with flange 1 1/4" ANSI 2500 lbs
E	Drain stud with flange 1 1/2" ANSI 2500 lbs
	9.1 Drain flange with concentric reducer (X-ray testing)
0	without
1	DN 15 PN 320
2	DN 25 PN 320
3	DN 32 PN 320
4	DN 40 PN 320
A	1/2" ANSI 2500 lbs
B	3/4" ANSI 2500 lbs
C	1" ANSI 2500 lbs
D	1 1/4" ANSI 2500 lbs
E	1 1/2" ANSI 2500 lbs

Order codes for magnetic level gauge type ITA-13 and ITA-13.0 (Continuation)

Code	Description
	9.2 Surface open drain flange
0	without
C	Standard-Surface RF
F	Surface Form E Rz=16
G	Surface RFSF (smooth finished)
H	Surface groove large
I	Surface tongue-large
J	Surface RTJ (ANSI)
	10. Float pipe top end finish
0	End cap
1	Flange with blind flange DN 50 PN 320
A	Flange with blind flange 2" ANSI 2500 lbs
	10.1 Surface float pipe top end finish flange (only DN50 or 2")
0	without
C	Standard-Surface RF
F	Surface Form E Rz=16
G	Surface RFSF (smooth finished)
H	Surface groove large
I	Surface tongue-large
J	Surface RTJ (ANSI)
	10.2 Bolts & nuts float pipe top end finish flange
0	without
1	M24 x 150 mm; mat. CK35/C35 zinced DIN2510; Flange DN 50 PN 320
2	M24 x 150 mm; mat. A2-70 DIN2510; Flange DN 50 PN 320
A	1" x 190 mm;mat. A193B7 / A1942H zinced; Flange 2" ANSI 2500 lbs RF
B	1" x 190 mm; mat. A193B7 / A1942H PTFE coated; Flange 2" ANSI 2500 lbs RF
C	1" x 190 mm; mat. A193B8 / A1948M stainless steel; Flange 2" ANSI 2500 lbs RF
	11. Vent plug at top end
0	without
1	Vent plug G1/2" with soft iron gasket
2	Vent plug 1/2" NPT
3	Vent plug 3/4" NPT
4	Vent plug 1" NPT
	11.1 Vent flange welded to end cap instead of vent plug
0	without
1	Flange DN 15 PN 320 (socket weld construction to endcap)
2	Flange DN 25 PN 320 (socket weld construction to endcap)
3	Flange DN 32 PN 320 (socket weld construction to endcap)
4	Flange DN 40 PN 320 (socket weld construction to endcap)
A	Flange 1/2" ANSI 2500 lbs (socket weld construction to endcap)
B	Flange 3/4" ANSI 2500 lbs (socket weld construction to endcap)
C	Flange 1" ANSI 2500 lbs (socket weld construction to endcap)
D	Flange 1 1/4" ANSI 2500 lbs (socket weld construction to endcap)
E	Flange 1 1/2" ANSI 2500 lbs (socket weld construction to endcap)

Order codes for magnetic level gauge type ITA-13 and ITA-13.0 (Continuation)

Code	Description
	11.2 Vent flange with concentric reducer (X-ray testing)
0	without
1	DN 15 PN 320
2	DN 25 PN 320
3	DN 32 PN 320
4	DN 40 PN 320
A	1/2" ANSI 2500 lbs
B	3/4" ANSI 2500 lbs
C	1" ANSI 2500 lbs
D	1 1/4" ANSI 2500 lbs
E	1 1/2" ANSI 2500 lbs
	11.3 Surface vent flange welded to end cap (only DN50 or 2")
0	without
C	Standard-Surface RF
F	Surface Form E Rz=16
G	Surface RFSF (smooth finished)
H	Surface groove large
I	Surface tongue-large
J	Surface RTJ (ANSI)
	12. Counter flanges
0	without
1	DN 15 PN 320
2	DN 25 PN 320
3	DN 32 PN 320
4	DN 40 PN 320
5	DN 50 PN 320
A	1/2" ANSI 2500 lbs
B	3/4" ANSI 2500 lbs
C	1" ANSI 2500 lbs
D	1 1/4" ANSI 2500 lbs
E	1 1/2" ANSI 2500 lbs
F	2" ANSI 2500 lbs
	12.1 Surface counter flanges
0	without
C	Standard-Surface RF
F	Surface Form E Rz=16
G	Surface RFSF (smooth finished)
H	Surface groove large
I	Surface tongue-large
J	Surface RTJ (ANSI)
	12.2 Bolts & Nuts counter flanges
0	without
1	M24 x 150 mm; mat. CK35/C35 zinced DIN2510; Flange DN 50 PN 320
2	M24 x 150 mm; mat. A2-70 DIN2510; Flange DN 50 PN 320
A	1" x 190 mm;mat. A193B7 / A1942H zinced; Flange 2" ANSI 2500 lbs RF
B	1" x 190 mm; mat. A193B7 / A1942H PTFE coated; Flange 2" ANSI 2500 lbs RF
C	1" x 190 mm; mat. A193B8 / A1948M stainless steel; Flange 2" ANSI 2500 lbs RF

Order codes for magnetic level gauge type ITA-13 and ITA-13.0 (Continuation)

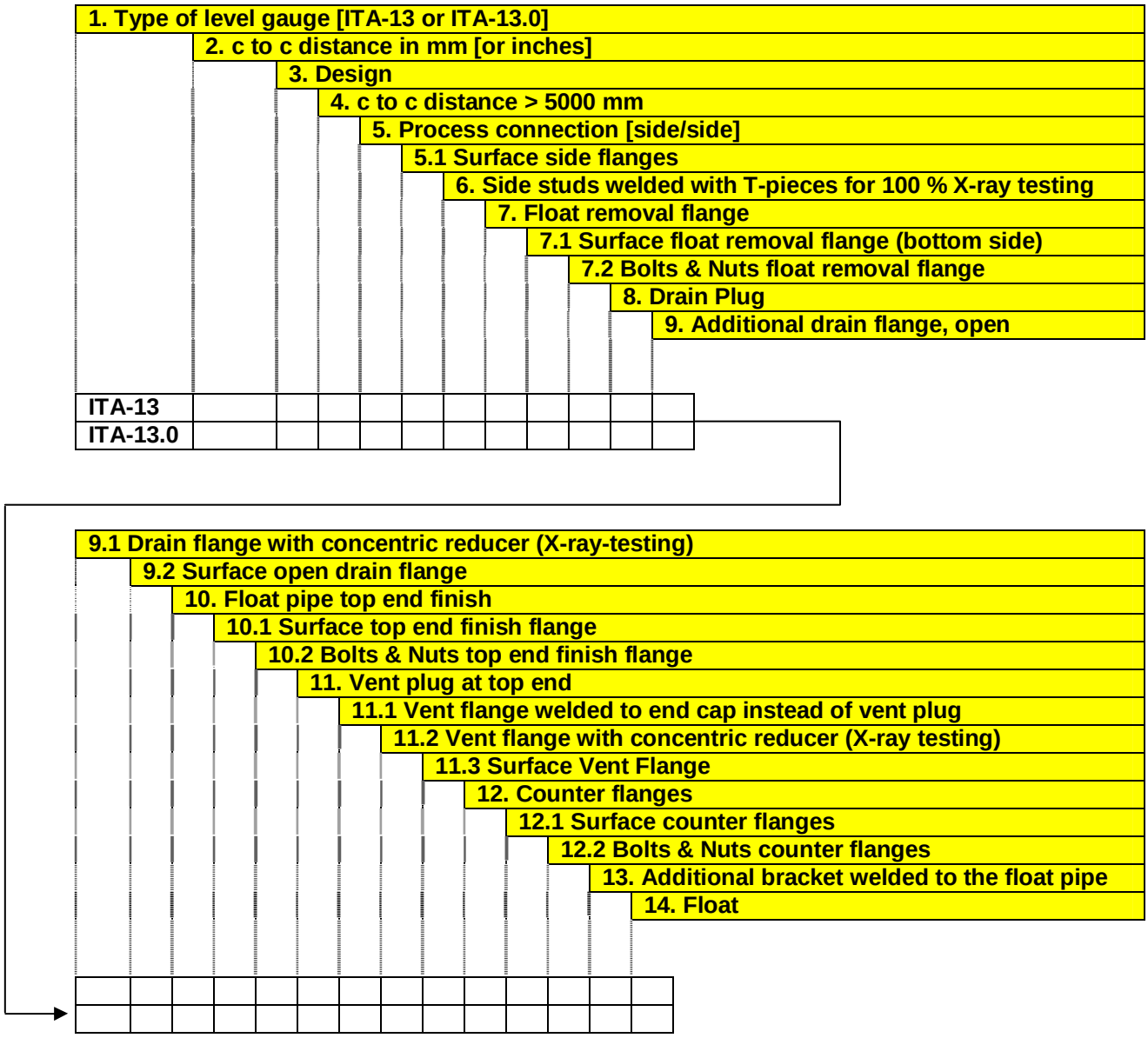
Code	Description
	13. Additional bracket welded to the float pipe
0	without
H	Bracket
	14. Floats

Code	Pressure [bar]	Material	Diameter [mm]	Length [mm]	Min. density [kg/dm³]	Vented? [Y/N]	Notes
13V330K3	320	316L	38	325	0,7269	Y	1
13T324K3	320	Titanium	38	265	0,5366	Y	1, 2
13T024K3	320	Titanium	38	265	0,8985	N	1, 2
13T330K3	320	Titanium	38	325	0,5032	Y	1, 2
13T040K3	320	Titanium	38	425	0,7582	N	1, 2

Notes:

3. **Only with 316SS or Aluminium indication rail.**
4. **Do not use for hydrogen and alcohol compounds.**

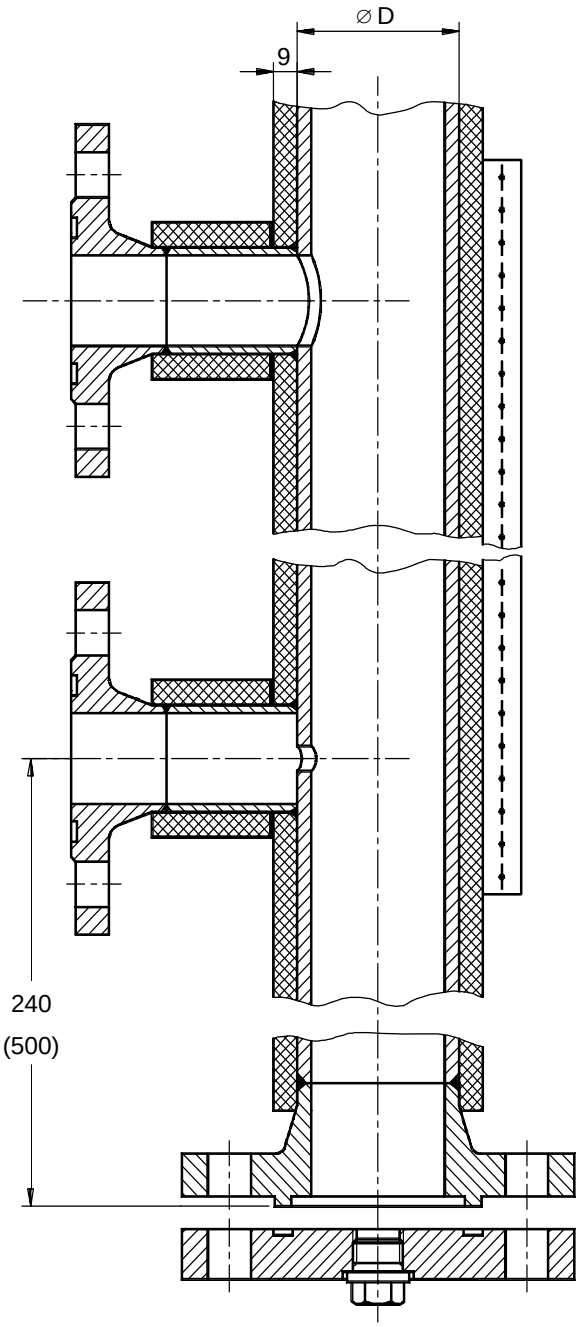
3.20.3 Order code scheme for ITA-13 & ITA-13.0



4. Equipment

4.1 ITA-3 Cryo; ITA-3.0 Cryo

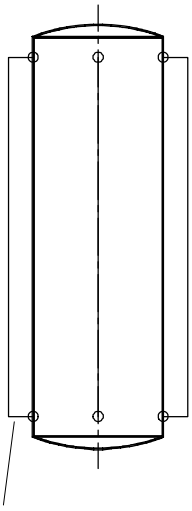
If Armaflex is used for insulation (t=9 mm) the material for the indication rail will be aluminium. As standard for the level gauge in Cryo-design we use a float chamber ∅60,3x2 mm with a float from titanium (∅50,8x240 mm length) down to a liquid density of 0,6 kg/dm³.



For temperatures below –40°C the Armaflex insulation is double ply, the upper layer only up to the indication rail.

The customer should also insulate the process flanges.

For vaporizing media (for example ammonia) w recommend to use floats with 4 distance sleeves (In this case the floats are smaller than standard floats). This construction prevents catapulting the float upwards (this would cause switch failures) if gas evolution appears.


distance sleeve

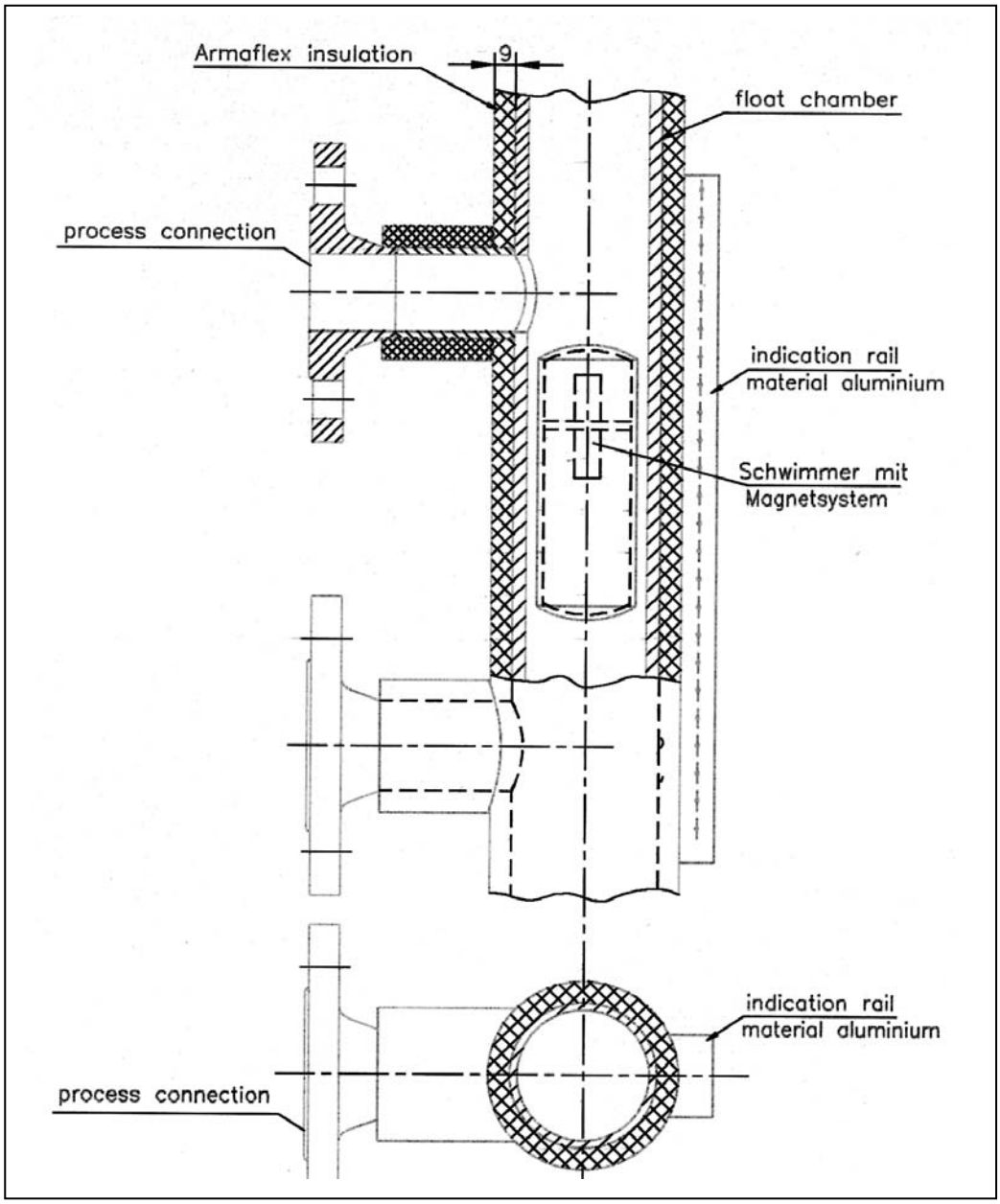
For temperatures down to –20°C we are using a float chamber ∅60,3x2 mm and a titanium float ∅45x400 mm, for temperatures below –20°C we are using a float chamber ∅64x2mm and a titanium float ∅50,8x500 mm.

In every case we use flanges DN50 as drain connections (weld neck and blind flanges with groove and tongue). When the dimension of the float chamber is ∅64x2 mm, it is necessary to modify the weld neck flange.

On request by the customer we make use of small hole (throttling part) to transmit the liquid level to the float chamber. It stabilizes the float movement (damping).

throttling part dependence on the temperature:
∅4 mm for T ≥ -20°C
∅2 mm for T < -20°C

4.2 Armaflex®-insulation



4.3 Heat insulation

Isolation and sealing material
made of e-glassyarns

Technical data:

Composition in %	:	53 % SiO_2, 16 % CaO, 13 % Al_2O_3, 7 % B_2O_3, 4 % MgO, 1 % $Na_2 + K_2O$
Portion organic substance	:	< 1 % (combust at first heating-up)
Density (g/cm³)	:	2,5
Temperature resistance	:	500°C/550°C
Degree of moisture	:	1%
Annealing loss	:	0,6%
Shrinking	:	500°C = 0 %
Resistance against	:	Oil, grease, water, temporay steam, and numerous low organic acids/solvents. Good resitance against sudden heatwaves. Good thermal electrical and acoustical insulation resistance: Toxicologically harmless. No handling abligations.

4.4 Technical data switches

1. General table

Switch	1690	1690ATEX	LMS-A	LMS-A-EExd	MS09K	MS10 EExd
Case	synthetic	synthetic	Al Si 12	Al Si 12	synthetic	Aluminium
Contact Function	bistable change-over contact	bistable change-over contact	bistable change-over contact**	bistable change-over contact	break- or make-contact, change-over contact	break- or make-contact, change-over contact
Dimensions	20x15x80	20x15x80	65x65x40	∅138x80	110x75x50	120x120x110
Breaking on rupturing capacity	230 VAC	230 VAC	12-250 VAC	220 VAC	250 VAC	250 VAC
	0,8 A	0,4 A	1,5 A	1,5 A	10 A	10 A
	60 VA	30 VA	80 VA	80 VA	---	---
Protective System	IP65	IP65	IP65 DIN40050	IP65 DIN40050	IP65 DIN40050	IP65 DIN40050
Option	IP67 DIN40050	IP67 DIN40050	---	---	---	---
Switch-hysteresis	15 mm	15 mm	8-12 mm	8-12 mm	---	---
Medium-temperature	max. 130°C	max. 130°C	max. 200°C*	max. 200°C*	max. 100°C	max. 200°C
EEx-protection	---	EEx m II CT6	---	EEx d II CT6	---	EEx d II CT6
Connection	---	---	PG7,5	4 connection (¾" NPT)	PG11	¾" NPT

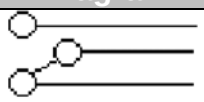
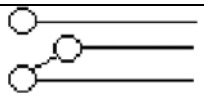
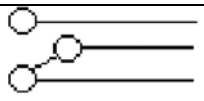
Electric connection with 3-channel plug and earth.
For all switches valid the international standard EN 60529.
* Type LMS-AH with heat-protection-execution through a max. temperature of 400°C.
** available with gold contact.

2. NI Ex NU-Switch

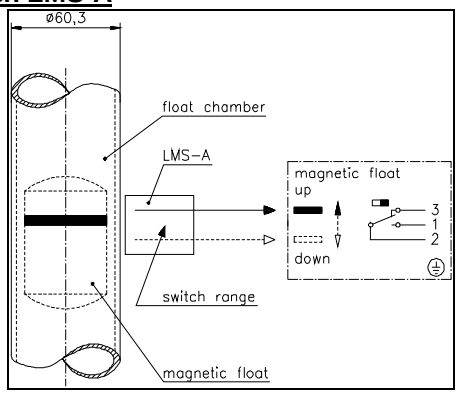
Inherent safety EEx-switch, on request with define error message.

Contact-transmitter	Supply voltage:	8 V DC
	Max. temperature:	60°C
	Cable connection at the case:	PG11
Section switch appliance	Supply voltage:	220 V +15 % (45-60 Hz)
	Power consumption:	Ca. 1,5 V
	Open circuit voltage:	8 V DC
	Admit charge:	4 A/250 V/ 250 VA
	Admit temperature:	-20...+60°C

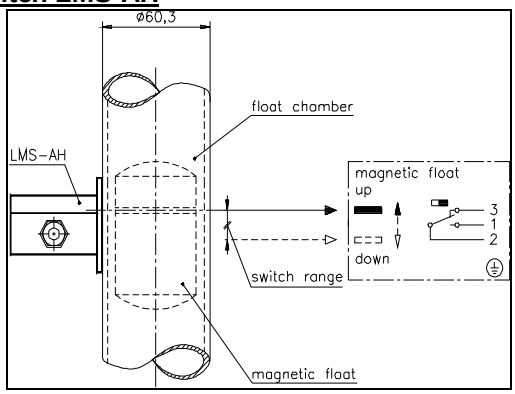
3. Switch diagrams

Type	Diagram
1690	 bistable change-over contact
LMS-A	 bistable change-over contact
LMS-AH	 bistable change-over contact

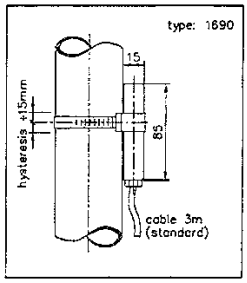
Switch LMS-A

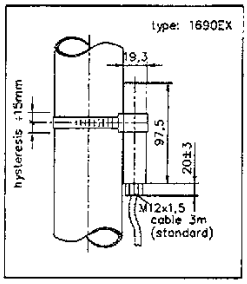


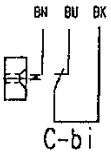
Switch LMS-AH



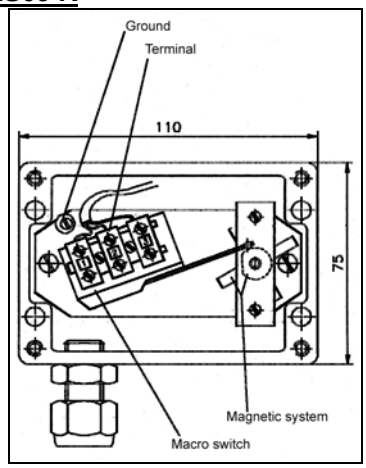
Switch 1690 / 1690ATEX



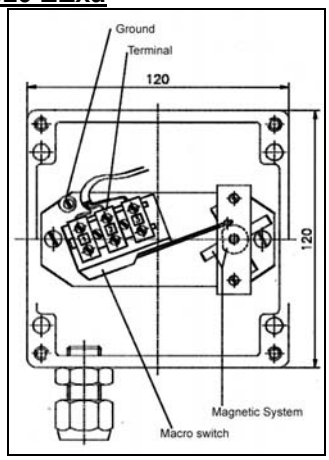




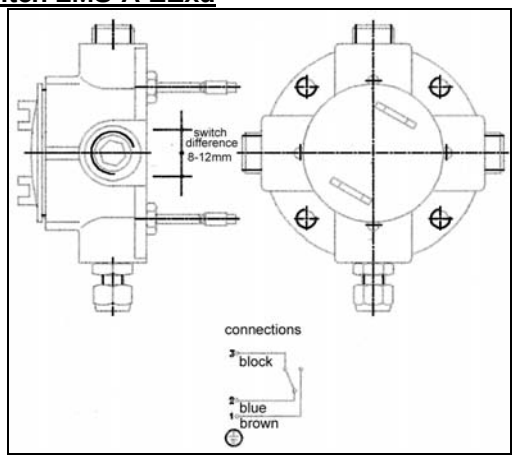
Switch MS09 K



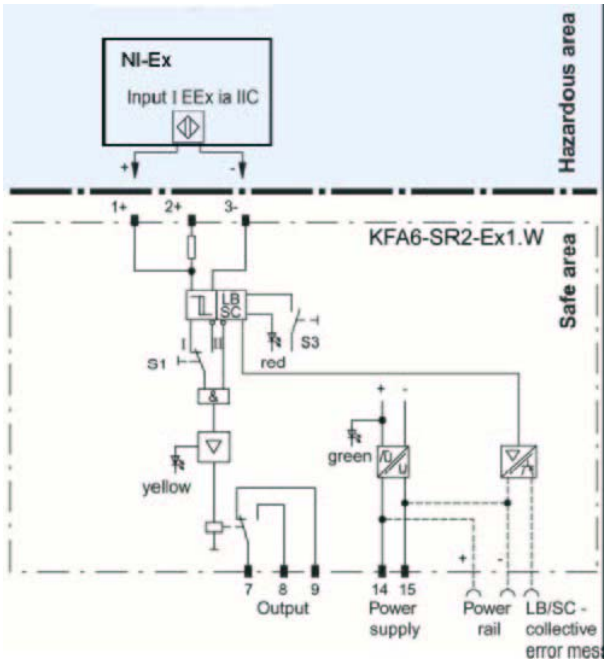
Switch MS10 EExd

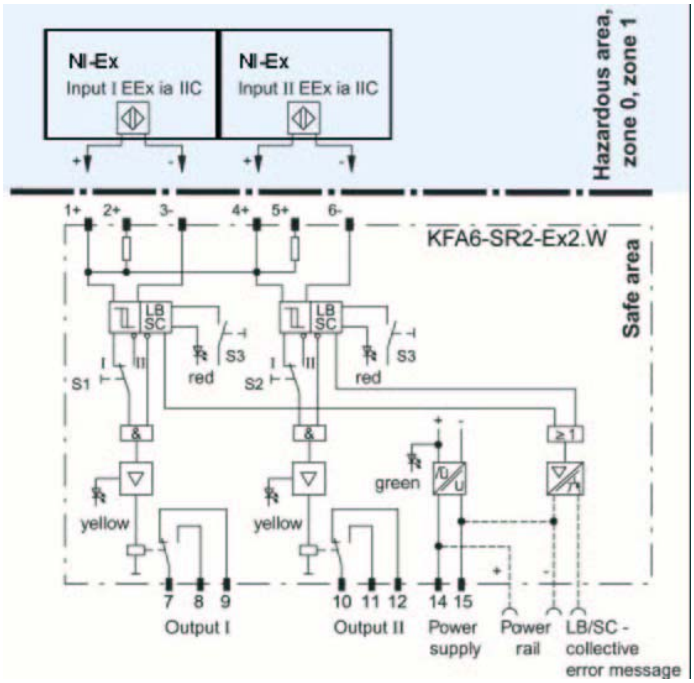


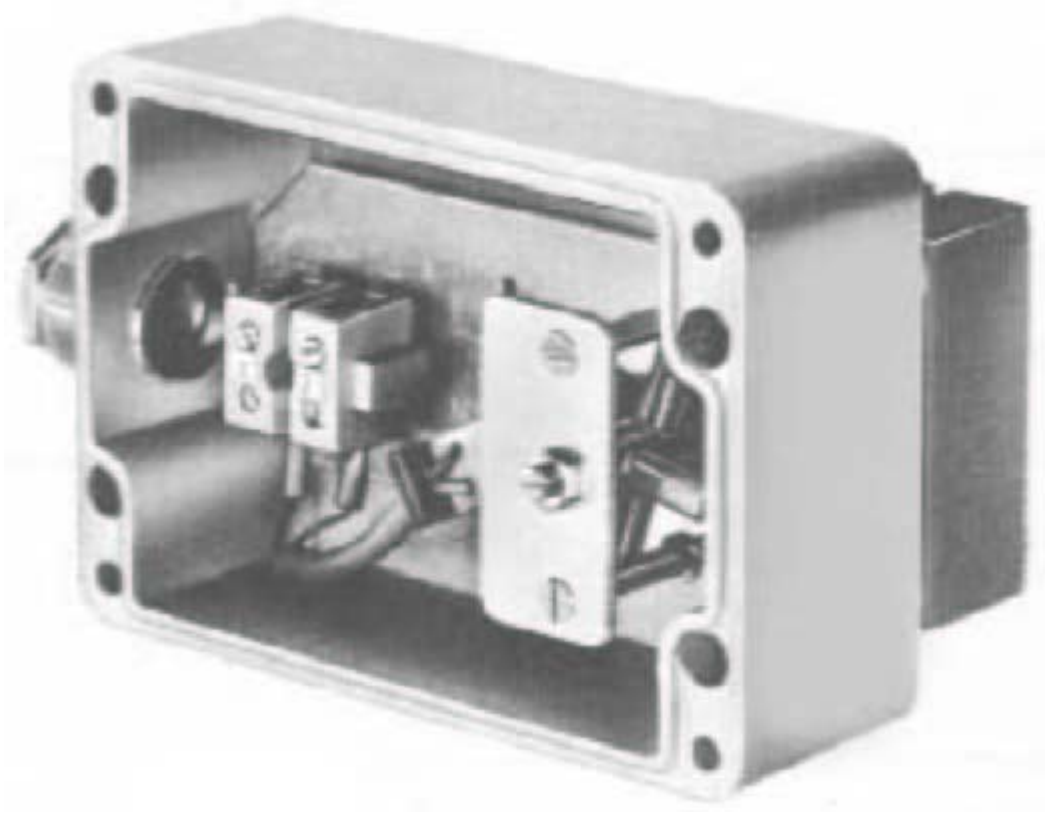
Switch LMS-A-EExd



Switch NI Ex NJ







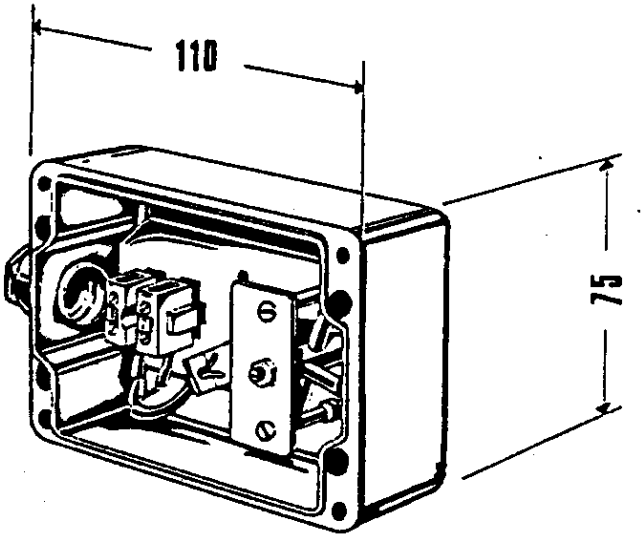
Switch NI-Ex-NJ

4.5 Contact NJ-EX

The contact NJ-EX is an inductive contact NJ 1.5-6.5 N, kontex System,
Protective system EEx ia IIC T6.

Function

Actuation is provided by the magnet installed in the float. The follow magnet system of the contact maker moves the switching disk, which serves for releasing the contact between two small inductances of the slotted initiator and thereby varies the attenuation of the resonant circuit.



Technical data

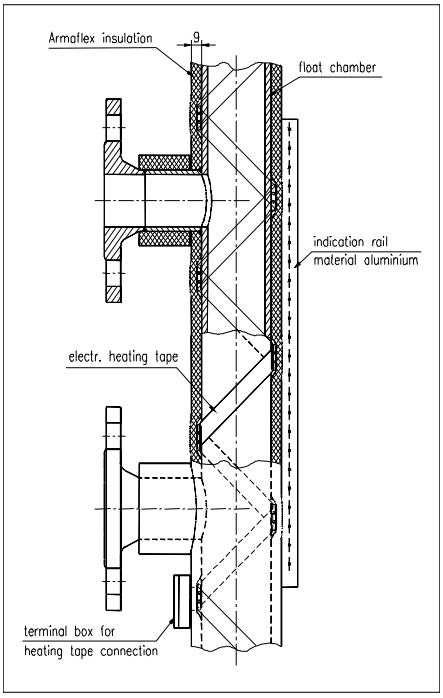
Electrical connection	:	8 V DC
Temp./ambient temp.	:	60°C
Cable connections	:	M20x1,5

Switch relay

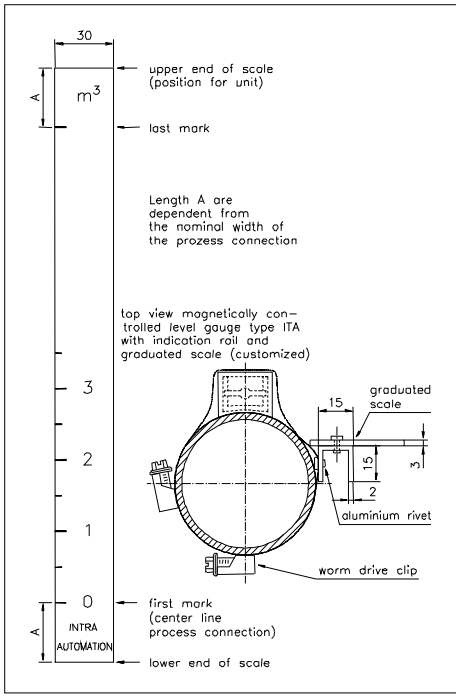
KFA6-SR2-Ex1.W	:	for 1 inductive contact EEx ia IIC
KFA6-SR2-Ex2.W	:	for 2 inductive contacts EEx ia IIC

4.6 Indication rails

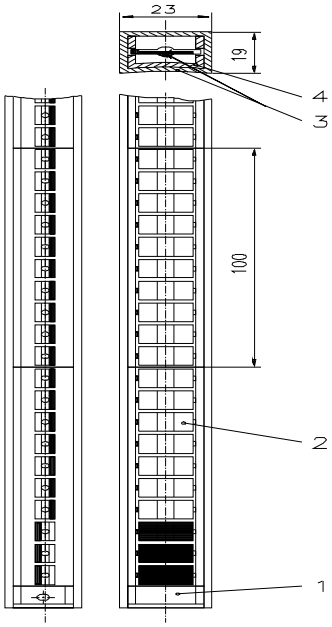
Armaflex-insulation and heating tape ITA



Indication rail with scale for ITA

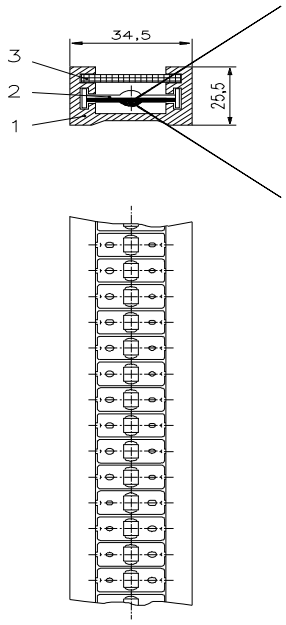


Indication rail, mat. Makrolon



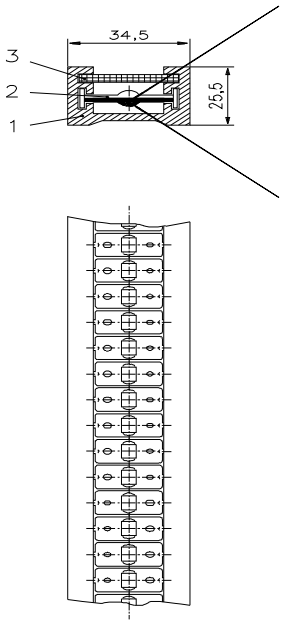
1. Sealing cap
2. Indication lamina with magnet
3. Rectangular profile
4. U-profile

Indication rail, mat. Aluminium



1. U-profile
2. Indication lamina with magnet
3. Transparent covering
4. Hermetically sealed

Indication rail, material 316SS



1. U-profile
2. Indication lamina with magnet
3. Transparent covering
4. Hermetically sealed

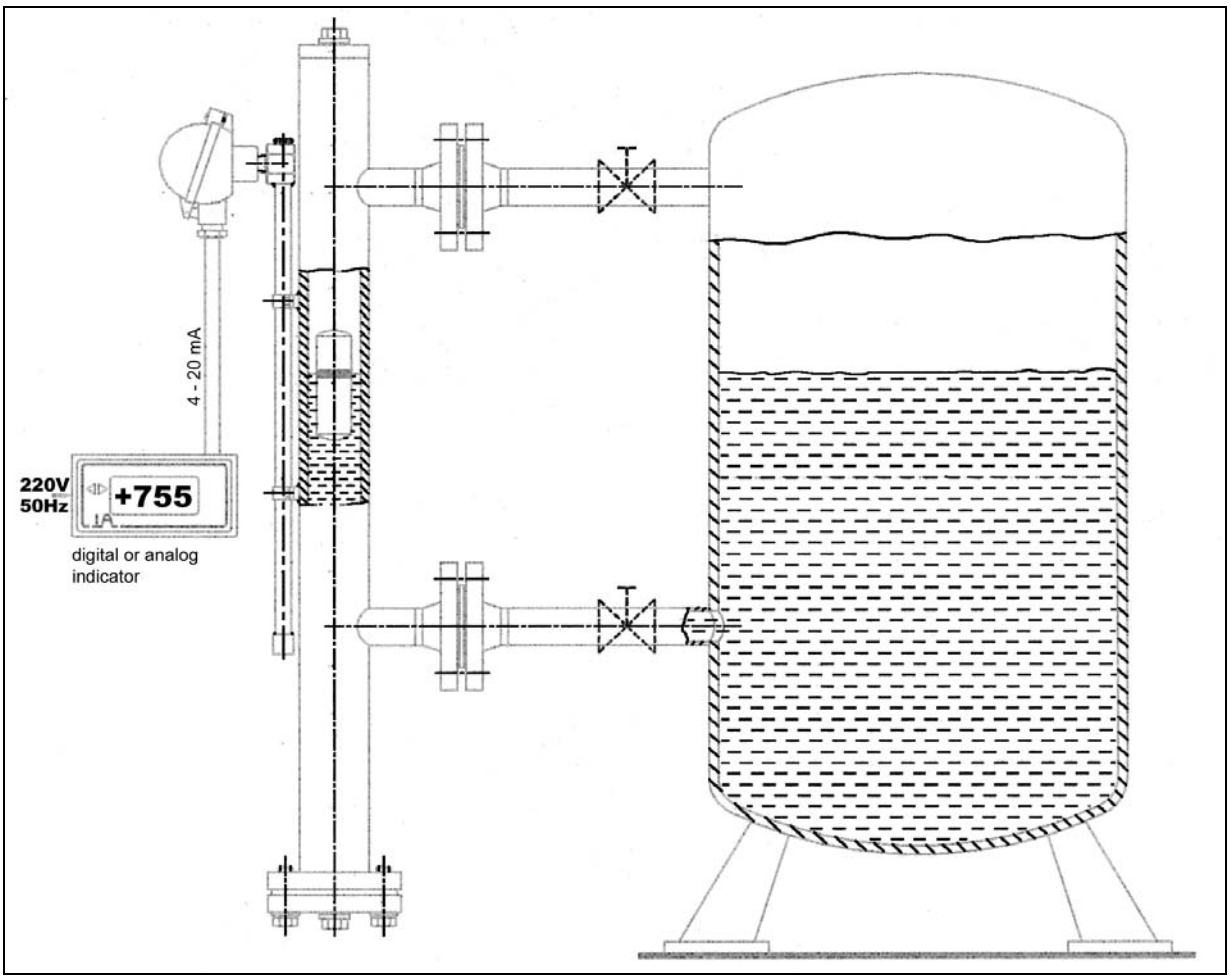
4.7 Digital indication with volume linearization

Electrical level measurement transducers which use the displacement principle must be recalibrated each time the fluid density is changed.

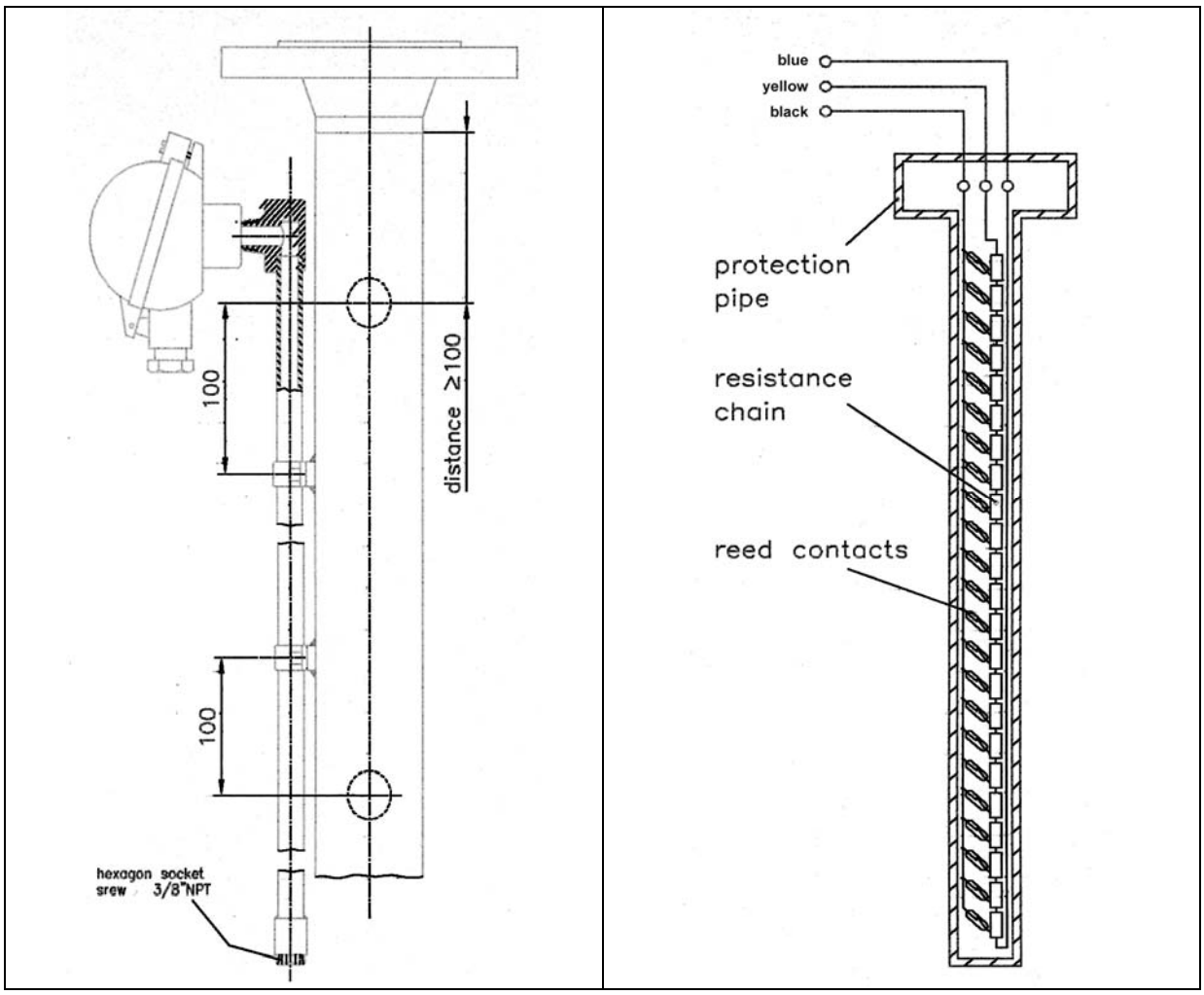
The price of a magnetically controlled level indicator with integral electrical measurement transducer is considerably lower than level measurement transducers.

The reed chain with an R/I-measurement transducer can be changed without interrupting operation. The measurement chamber is hermetically sealed – there is no contact between the fluid chamber and the reed chain.

With the microprocessor-controlled level indicator unit type 420, the level can be displayed directly in any arbitrary physical measurement unit. The indicator has a curve calculator with which non-linear tank contents can be displayed directly in cubic meters.



4.8 Niveau-source



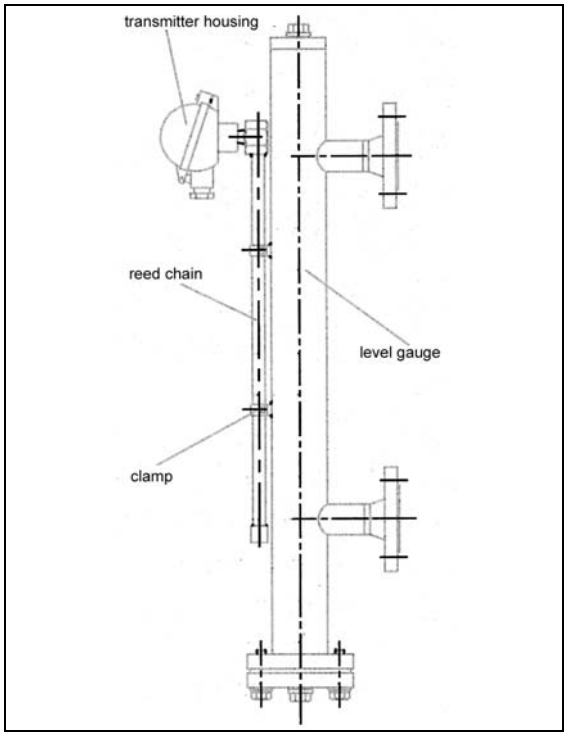
Measuring principle:
The resistance chain with the reed contacts are built in a pipe made of material 316SS. This so-called “Reed-chain” is mounted on the float chamber with tube clamps. According to the movement of the float, the float magnet closes one reed contact which produces a voltage (or resistance) proportional to the height of the liquid in the tank. You get a near-analogous output signal, with a resolution of about 10 mm.
The resistance chain receives it’s power supply from the transmitter. The 4...20 mA transmitter output signal can be transferred to an indicator or can be used to drive alarm contacts. In the case of an error the output signal becomes higher than 22 mA.

Connection:
As a standard, the reed chain is supplied with a transmitter that is installed inside the housing-head, 2-wire connection to the transmitter is only required.

4.9 Reed-contact

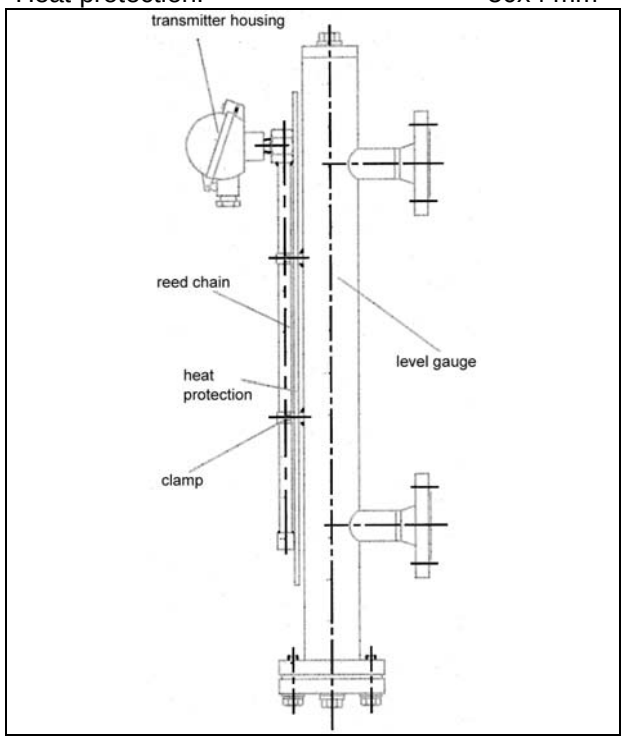
Standard reed chain

Max. medium temperature:	150 °C
Protection pipe:	∅14 mm
Material:	316Ti
Enclosure:	IP65

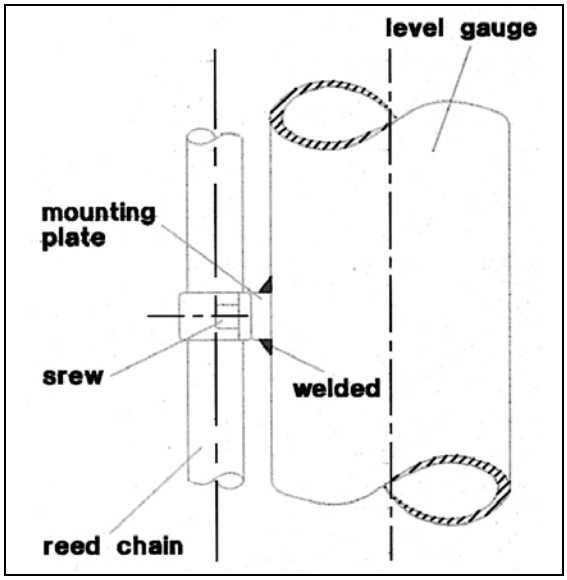


Reed chain for higher temperature

Max. medium temperature:	400 °C
Protection pipe:	∅14 mm
Material:	316Ti
Enclosure:	IP65
Heat protection:	50x4 mm

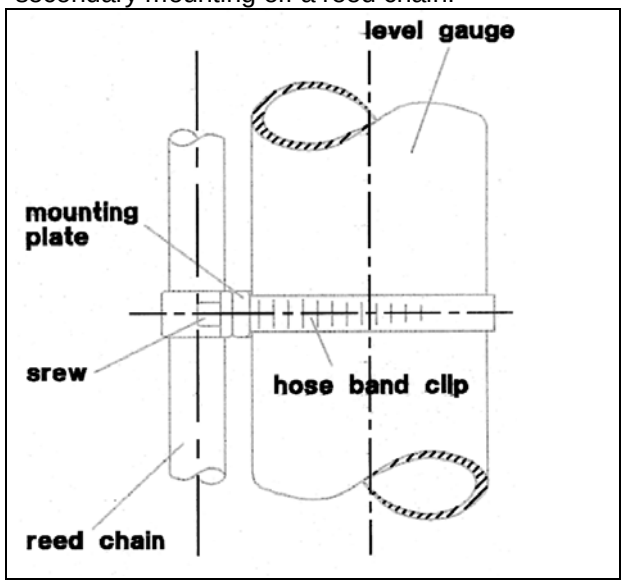


Clamp standard

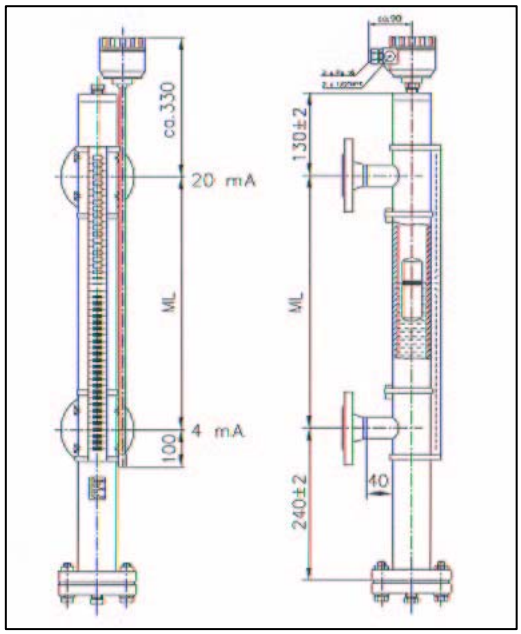


Clamp special

Will be needed by Armaflex isolation and secondary mounting off a reed chain.



4.10 Magnetostrictive level transmitter



Datasheet M-300, M-400

Description:

Magnetostrictive transmitter for mounting to a level gauge type ITA

M-300/M-400 series working on the magnetostrictive principle is high accuracy transmitter for affordable price. The float inside of the level gauge type ITA containing a magnet moves along the magnetostrictive wire. A pulse generated by the electronics travels along the wire. When the pulse reaches the float's magnetic field, a twist develops in the wire. Reflected from the torsion point, the pulse creates an acoustic wave that travels back along the wire. The 4...20 mA output from the transmitter is proportional to the level.

Technical data:

Type		**rigid version**	**flexible version**
principle/design:		magnetostrictive 2-wire transmitter	
measured process values:		level, interface level	
sensor length:		0,5...3 m	3...10 m
materials	sensor:	Stainless steel (1.4571 – DIN)	
	housing:	Aluminium, powder paint coated or plastic (PBT)	
max. pressure:		depends on the level gauge type ITA	
Temperature	Medium:	Max. +150°C *(+400°C for high-temperature-version)*	
	Ambient:	-25°C...+70°C*	
linearity with dry calibration:		±1 mm	
resolution:		1 mm or 5 mm (depends on order)	
temperature coefficient:		0,04 mm/°C	
measuring range:		min. 200 mm	
medium density:		depends on the level gauge type ITA	
outputs	analogue:	4...20 mA or 20...4 mA	
	serial:	Hart	
	display:	6 digits (7 mm characters) icon; bargraph	
damping:		0...60 s programmable	
error indication:		3,8 mA or 22 mA	
output load:		Rt=(Us-12V)/0,02 A; Us= voltage of power supply	
power supply:		12...36 V DC	
ATEX approval		Ex II 1 G EEx ia IIB T6 (0,5...5 m) Ex II 1 G EEx ia IIA T6 (3...10 m)	
intriniscally safe area:		U_{max}=30 V; I_{max}=80 mA; P_{max}=0,8 W; C_i<30 nF; L_i<200 µH	
protection	electric:	class III	
	ingress:	IP67	
electrical connection:		cable gland PG16 or M20x1,5 cable diameter: ∅8...∅15 mm; wire cross section: max. 1,5 mm²	
weight:		1,7kg + sensor (sensor = 0,6 kg/m)	1,7kg + sensor (sensor = 0,6 kg/m+12 kg))

* temperature classification for Ex-application

Temperature classification for Ex-Application

temperature class	ambient temperature	process temperature
T6	-25...+70 °C	Max. 400 °C, because no wetted parts
T5	-25...+59 °C	
T4	-25...+45 °C	

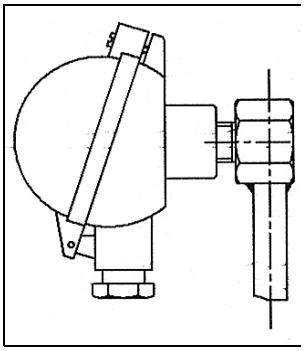
Order specification:

M	**Magnetrostrictive Level Transmitter**									
	Function							***/sensor design (depends on tube length)***		
	T	with transmitter						/rigid sensor (0,5...3 m); flexible (> 3 m)		
	B	with transmitter and display						/rigid sensor (0,5...3 m); flexible (> 3 m)		
		Connection to level gauge type ITA®								
		U	Direct welded clamps; st. st.							
		UX	Hose band clips; st.st.							
			-							
			material electronic housing							
			3	Aluminium/powder paint coated						
			4	Plastic (PTB fiber-glass reinforced, flame retardant)						
				Measuring length						
				ML	measuring length in mm					
					-					
						Output		***/resolution***	***/approval***	
						2	4...20 mA	/1 mm		
						4	4...20 mA; Hart	/1 mm		
						6	4...20 mA	/1 mm	/Ex	
						8	4...20 mA; Hart	/1 mm	/Ex	
						A	4...20 mA	/5 mm		
						E	4...20 mA; Hart	/5 mm	/Ex	

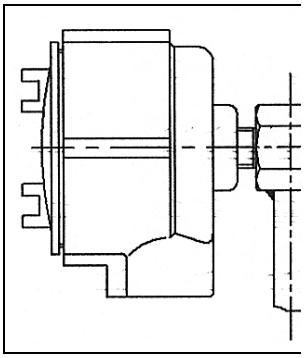
M			**-**			**-**	

4.11 Transmitters

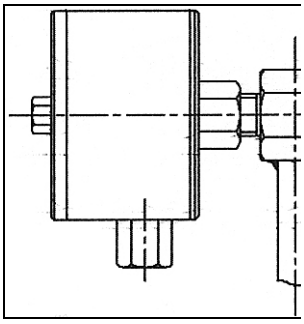
Available housings



Standard-transmitter-housing
- material aluminium
- PG16 entry

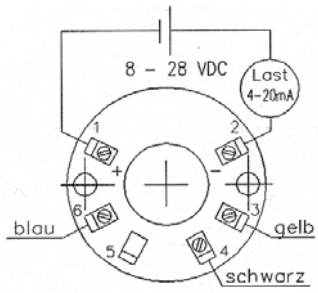


EExd transmitter housing
- material aluminium epoxy coated
- ½" NPT cable entry

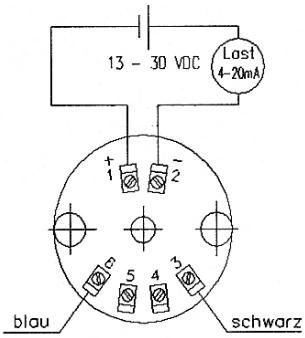


Stainless steel transmitter housing
- material 316Ti
- M20-1,5 entry

Available transmitters



Type: INT5333B
- EEx ia IIC T5/T6
- output: 4...20 mA
- power supply: 2...36 VDC
- linearity: ± 1 %



Type: TMT182
- Eexia IIC T4
- output: 4...20 mA (Hart-protocol)
- power supply: 13...30 V DC
- linearity: 400 Ω-area ± 0,04 Ω 4000 Ω-area ± 0,5 Ω
- input: 5...400 Ω/50...4000 Ω

Transmitter type INT5333

INT5333
2-wire
programmable
Transmitter

2-WIRE PROGRAMMABLE TRANSMITTER INT5333

- **RTD or Ohm input**
- **High measurement accuracy**
- **3-wire connection**
- **programmable sensor error value**
- **for DIN form B sensor head mounting**

Application:
- Linearised temperature measurement with Pt100...Pt1000 or Ni100...Ni1000 sensor
- Conversion of linear resistance variation to a standard analogue current signal, for instance from valves or Ohmic level sensors

Technical characteristics:
- Within a few seconds the user can program INT5333 to measure temperatures within all RTD ranges defined by the norms.
- The RTD and resistance inputs have cable compensation for 2- and 3-wire connection.

Mounting / installation:
- For DIN form B sensor head or DIN rail mounting with a special fitting.

Order information:

Type	Version	
INT5333	**Standard**	**: A**
	EEx	**: B**
	FM and EEx	**: C**

Electrical specifications:

Specifications range:

-40...+85 °C

Common Specifications:

Supply voltage, DC

Standard, 5333A..... 8...35 V

EEx and FM, 5333B and C..... 8...28 VDC

Internal consumption..... 35 mW...0,8 W

Voltage drop..... 8 VDC

Warm-up time..... 5 min.

Communications interface..... Loop Link 5905

Signal/noise ratio..... min. 60 dB

Response time (programmable)..... 0,33...60 s

Signal dynamics, input..... 19 bit

Signal dynamics, output..... 16 bit

Calibration temperature..... 20...28 °C

Accuracy, the greater of general and basic values:

General values		
Input type:	**Absolute accuracy**	**Temperature coefficient**
All	≤ ± 0,1 % of span	≤ ± 0,1 % of span / °C

Basic values		
Input type	**Basic accuracy**	**Temperature coefficient**
RTD	≤ ± 0,3 °C	≤ ± 0,01 °C / °C
Lin. R.	≤ ± 0,2 Ω	≤ ± 20 Ω / °C

EMC immunity influence..... ≤ ± 0,5 % of span

Effect of supply voltage variation..... ≤ 0,005 % of span /VDC

Vibration..... IEC 68-2-6 Test FC

Lloyd's specification no. 1..... 4 g / 3...100 Hz

Max. wire size..... 1 x 1,5 mm²

Humidity..... < 95 % RH (non-cond.)

Dimensions..... ∅ 44 x 20,2 mm

Tightness (enclosure/terminal)..... IP68 / IP00

Weight..... 50 g

Electrical specifications, input:

RTD type	Min. value	Max. value	Min. span
Pt100	-200 °C	+850 °C	25 °C
Ni100	-60 °C	+250 °C	25 °C
Lin.R	0 Ω	10000 Ω	30 Ω

RTD and linear resistance input:

Max. offset	50 % of selec. max. value
Cable resistance per wire (max.)	10 Ω
Sensor current	> 0,2 mA, < 0,4 mA
Effect of sensor cable resistance (3-wire)	< 0,002 Ω/Ω
Sensor error detection	Yes

Output:

Current output:

Signal range	4...20 mA
Min. signal range	16 mA
Updating time	135 ms
Load resistance	$\leq (V_{supply}-8)/0,023$ [Ω]
Load stability	< ± 0,01 % of span / 100 Ω

Sensor error detection:

Programmable	3,5...23 mA
NAMUR NE 43 upscale	23 mA
NAMUR NE 43 downscale	3,5 mA

Ex data:

U_i	28 V DC
I_i	120 mA DC
P_i	0,84 W
L_i	≤ 10µH
C_i	≤ 1 nF

EEx approval CENELEC:

DEMKO 03	ATEX 134705X
ATEX	0539 Ex II 1 G EEx ia IIC T1...T6
Max. amb. temperature for T1....T4	85 °C
Max. amb. temperature for T5 and T6	60 °C
Applicable in zone	0, 1 or 2
FM	IS, Cl. I, Div.1, Gp. A-D
Entity, FM control drawing no	5300Q502

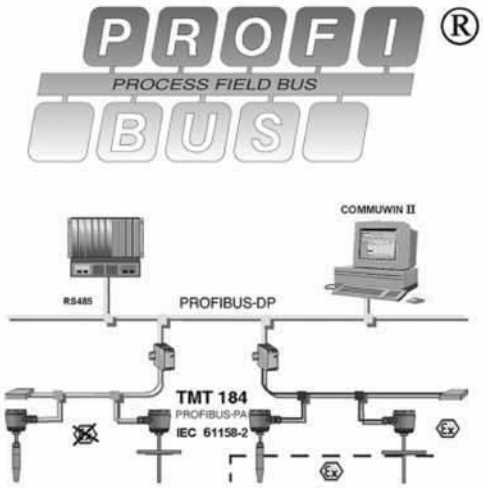
Observed authority requirements:		**Standard:**
EMC 89/336/EEC,	Emission	EN50081-1, EN50081-2
	Immunity	EN50082-2, EN50082-1
ATEX 94/9/EC		EN50014 and EN50020
FM class number		3600, 3610

Of span = of the presently selected range

Transmitter type TMT184 (Profibus)

Resistance transmitter
Type: TMT 184

Head transmitter with PROFIBUS-PA® interface. Supply and digital communication using PROFIBUS-PA®, for installation in a Form B sensor head.



Features and benefits:
- Universally programmable for various input signals using PROFIBUS-PA®
- DIP switch for address setting (as option)
- High accuracy in the total ambient temperature range
- EMC to NAMUR NE 21, CE
- Certification:
  - ATEX
  - FM
  - CSA
- PROFIBUS-PA® profile V3.0
- Galvanic isolation
- Customer specific address setting or expanded setup (see questionnaire page)

Application areas:
- Applied in a PROFIBUS-PA® environment, the process industry fieldbus, an open standard to EN50170 and IEC 61158-2
- Temperature head transmitter with PROFIBUS-PA® protocol for converting various input singals into a digital output signal
- Input:
  Resistance thermometer (RTD)
  Thermocouple TC
  Resistance transmitter (Ω)
  Voltage transmitter (mV)
- Swift and easy operation, visualization and maintenance using a PC direct from the control panel, e.g. using the COMMUWIN II operating software

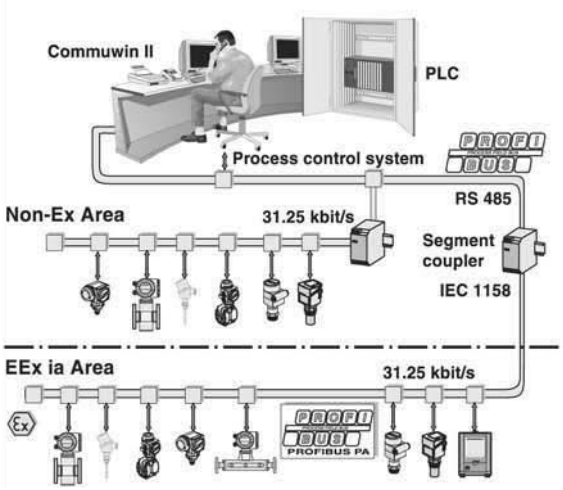
Operation and system construction

Measurement principle

Electronic measurement and conversion of input signals in industrial temperature measurement.

Measurement system

The TMT184 temperature head transmitter is a 2-wire transmitter with measurement inputs for resistance thermometers and resistance transmitters in 2-, 3- or 4-wire connection, thermocouples and voltage transmitters. Applications are in the measurement and control areas for process monitoring. The TMT184 setup is done using the PROFIBUS-PA® protocol combined with a PC operating software (e.g. COMMUWIN II).



PROFIBUS-PA® is a open field bus standard in accordance with EN50170 and IEC61158-2, which has been specifically designed to handle the requirements of the process industry. In the simplest case a complete measurement circuit consists of a TMT184 fitted into a temperature sensor, a segment coupler, a PROFIBUS-PA® connection resistance, a PLC or a PC with an operating software.

The maximum number of transmitters that can be connected per bus segment is determined by the transmitter consumption, the maximum power of the segment coupler as well as the required bus length.

Normally:

- max. 9 TMT184 in an EEx ia explosion hazardous area per bus segment.
- max. 32 TMT184 in a non-explosion hazardous area per bus segment.

More detailed information for detailed prject planning can be found in the operating manual. See further documentation on page .

Input values

Measurement value: Temperature (temperature linear), resistance and voltage

Measurement range: Dependent on the sensor connection and input signal the transmitter evaluates a number of different measurement ranges.

Type of input:

	Type	Measurement ranges	Min. measurement range
Resistance thermometer (RTD)	Pt100 Pt500 Pt1000 acc.to IEC 751	-200...850 °C (-328...1562 °F) -200...250 °C (-328... 482 °F) -200...250 °C (-328... 482 °F)	10 K 10 K 10 K
	Ni100 Ni500 Ni1000 acc.to DIN43760	-60...250 °C (-78...482 °F) -60...150 °C (-78...302 °F) -60...150 °C (-78...302 °F)	10 K 10 K 10 K
	- Connection type: 2-, 3- or 4-wire connection cable resistance compensation possible in the 2-wire system (0...30 Ω) - Sensor cable resistance: max. 11 Ω per cable - Sensor current: ≤ 0.2 mA		
Resistance transmitter	Resistance (Ω)	10...400 Ω 10...2000 Ω	10 Ω 100 Ω
Thermocouples (TC)	B(PtRh30-PtRh6) C(W5Re-W26Re)[I] D(W3Re-W25Re)[I] **E(NiCr-CuNi)** J(Fe-CuNi) K(NiCr-Ni) L(Fe-CuNi)[II] **N(NiCrSi-NiSi)** R(PtRh13-Pt) S(PtRh10-Pt) T(Cu-CuNi) U(Cu-CuNi)[II] MoRe5-MoRe41[III] acc.to IEC 584 Part 1	0...1820°C (32...3308 °F) 0...2320°C (32...4208 °F) 0...2495°C (32...4523 °F) -270...1000°C (-454...1832 °F) -210...1200°C (-346...2192 °F) -270...1372°C (-454...2192 °F) -200...900°C (-328...1652 °F) -270...1300°C (-454...2372 °F) -50...1768°C (-58...3214 °F) -50...1768°C (-58...3214 °F) -270...400°C (-454...752 °F) -200...600°C (-328...1112 °F) 0...2000°C (32...3632 °F)	500 K 500 K 500 K 50 K 50 K 50 K 50 K 50 K 500 K 500 K 50 K 50 K 500 K
	- **Cold junction: internal (Pt100)** - Cold juncion accuracy: ± 1 K		
Voltage transmitters (mV)	Millivolt transmitter (mV)	-10...75 mV	5 mV

I: according to ASTME 988
II: according to DIN 43710

Output values

Output signal
Physical data transmission (Physical layer type):
Fieldbus interface in acc. to IEC 61158-2.

Failure signal
Status message acc. to the PROFIBUS-PA® profile V3.0 specification.

Galvanic isolation
2 kV AC

Filter
Digital filter 1st degree 0...60 s

Current consumption
10 mA ± 1 mA

Error current
0 mA

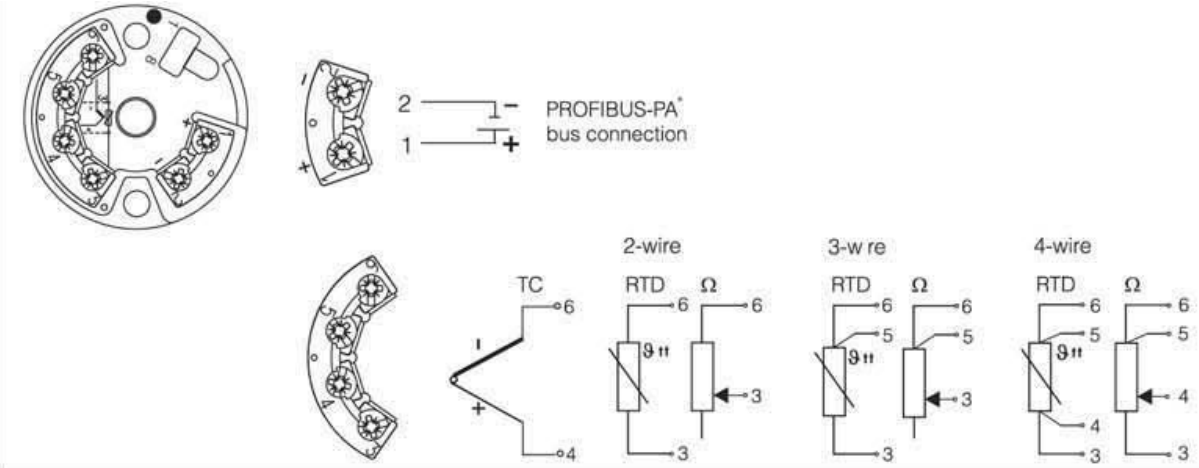
Switch on delay
- 10 s

Data transmission speed
31,25 kBit/s, voltage mode

Signal code
Manchester II

Auxiliary energy

Electrical connection



Head transmitter terminal layout

Power supply
Ub = 9...30 V DC non Ex area, polarity protected
Ub = 9...15 V DC Ex area, polarity protected

Accuracy

Response time: 1 s

Reference conditions: Calibration temperature:+23 °C ± 5 K

Maximum measured error:

	Type	Measurement accuracy[1]
Resistance thermometer (RTD)	Pt100, Ni100 Pt500, Ni500 Pt1000, Ni1000	0,15 K 0,5 K 0,3 K
Thermocouple (TC)	K, J, T, E, L, U N, C, D S, V, R, MoRe5-MoRe41	typ. 0,5 K typ. 1,0 K typ. 2,0 K

	Measurement accuracy[1]	**Measurement range**
Resistance transmitter (Ω)	± 0,1 Ω or 0,08 % ± 0,15 Ω or 0,12 %	10...400 Ω 20...2000 Ω
Voltage transmitter (mV)	± 20 µV or 0,08 %	-10...75 mV

Influence of ambient temperature (temperature drift):

Resistance thermometer:

$T_d = \pm(15ppm/K*max.meas.range + 50ppm/K*preset\ meas\ range)*\Delta\delta$

Thermocouple:

$T_d = \pm(50ppm/K*max.meas.range + 50ppm/K*preset\ meas\ range)*\Delta\delta$

$\Delta\delta$ = Deviation of the ambient temperature according to the reference condition

Long term stability: ≤ 0,1 K/year[2] or ≤ 0,05 %/year[3] [2]

Influence of reference junction: Pt100 DIN IEC 751 Cl.B(internal reference junction for thermocouples)

Application conditions (installation conditions)

Installation hints:

- installation angle: no limitations
- installation area:

connection head acc. to DIN 43729 Form B; Field housing TAF 10

Application conditions (ambient conditions)

Ambient temperature: -40...+85 °C (for hazardous areas see Ex-certificate)

Storage temperature: -40...+100 °C

Climate class: acc. to EN 60654-1, Class C

Condensation: allowable

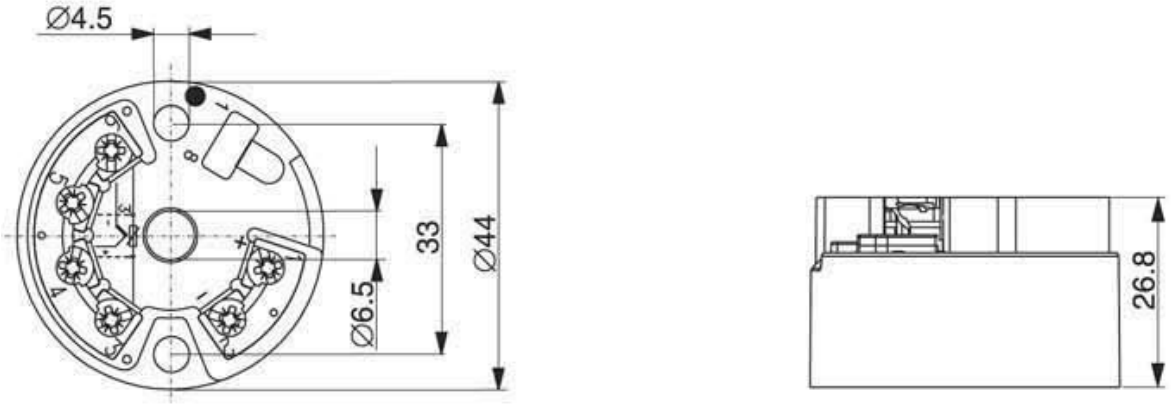
Ingress protection: IP00, IP66 installed

Shock and vibration resistance: 4g/2...150 Hz acc. to IEC 60068-2-6

Electromagnetic compatibility (EMC) Interference immunity and interference emission acc. to EN 61326-1 (IEC 1326) and NAMUR NE 21

Mechanical construction

Dimensions



Head transmitter dimensions in mm

Weight: approx. 40 g

Material: - Housing: PC
- Potting: PUR

Terminals: cable up to max. 1,75 mm² (secure screws)

Display and operating system

Remote operation

Operation via PROFIBUS-PA® using a suitable configuration or operating software.

Certification

Ex-certification

Details regarding the availability of the Ex-versions (ATEX, FM, CSA etc.) can be obtained from your local sales organization. All relevant data for hazardous area protection can be found in separate Ex-documentation, which can be requested separately.

CE marking

The measurement system complies with the legal requirements laid out within the EU regulations.

ORDERING INFORMATION TRANSMITTER TMT184

Questionnaire temperature transmitter TMT184
Customer specific setup

Sensor

TC ( ) B (..) C ( ) D ( ) E ( ) J
( ) K (..) L ( ) N ( ) R ( ) S
( ) T (..) U

RTD ( ) Pt100 ( ) Pt500 ( ) Pt1000
( ) Ni100 ( ) Ni500 ( ) Ni1000

( ) 2 wire ( ) 3 wire ( ) 4 wire

(..) °C ( ) °F

Range not Profibus-PA

Low scale | | | | | | , | |

High scale | | | | | | | |

Note: Range and min. span (see techn. Data)

Bus address only Profibus-PA | | | | [0...126]

Reference junction ( ) intern ( ) extern only / nur TC

| | | | [0...80 °C; 32...176 °F]

Compensation wire resistance | | | | [0...20 Ohm] (only RTD 2-wire)
[0...30 Ohm] (only HART® RTD 2-wire)

Failure mode ( ) ≤ 3,6 mA (..) ≥ 21,0 mA (not Profibus-PA)

Output ( ) 4...20 mA ( ) 20...4 mA (not Profibus-PA)

Damping | | | | [0, 1, 2,..., 60s]

Offset | | , | | [-9,9...0...+9,9 K]

TAG PCP | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
HART (HART: 8 char.+16 char.descriptor, PROFIBUS-PA: 32 char.

PROFIBUS-PA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Ordering Codes for add. equipment

Code	Description
	Switches
S10	mag. switch type 1690, 3 m cable Protection class: IP68, max. operation temperature: 120°C ***(Art.-No. 641.6502.380LI)***
S20	mag. switch type 1690 ATEX , 3 m cable Protection class: IP67 BVS03 ATEX, max. operation temperature 120°C ***(Art.-Nr. 610.045M1001)***
SXK	Cable length > 3 m, each additional m (please specify)
SXS	Hose clamp for switch 1690 and 1690 ATEX material 1.4404, 1 off each switch
S30	Mag. switch type LMS-A Protection class IP65, max. operation temperature: 200°C *(without special equipment)*
S3G	Mag. switch type LMS-A with gold plated contacts 8 VDC
S3D	Mag. switch type LMS-A mounted in EExd housing
S3E	Mag. switch type LMS-A with gold plated contacts 8 VDC + mounted in Eexd housing
S40	Mag. switch type: LMS-AH Protection class IP65, max. operation temperature 400°C *(without special equipment)*
S4G	Mag. switch type LMS-AH with gold plated contacts 8 VDC
S4D	Mag. switch type LMS-AH mounted in EExd housing
S4E	Mag. switch type LMS-AH with gold plated contacts 8 VDC + mounted in Eexd housing
S50	Mag. switch type NI-EX with P&F proximation initiator acc. NAMUR Protection class IP65 EExia ATEX, max. operation temperature: 60 °C
S5H	Mag. switch type NI-EX with P&F proximation initiator acc. NAMUR with additional heat protection, max. operation temperature: 400 °C
S60	Mag. switch type NI-EX with P&F proximity initiator acc. NAMUR Protection class IP65 EExia ATEX, max. operation temperature: 60 °C Protection class IP65, max. operation temperature: 100°C, max. 250VAC/10A
S6H	Switch type MS9, with micro switch and additional heat protection max. operation temperature: 400°C
S70	Switch type MS10, with micro switch Protection class IP65, max. operation temperature: 200°C, max. 250 VAC/10A mounted in Eexd housing
S7H	Switch type MS10, with micro switch with additional heat protection Protection class IP65, max. operation temperature: 400°C, max. 250 VAC/10A mounted in Eexd housing
S80	Switch type MAK9924
	Cable entry for switch (all switches)
1	M20 x 1,5
2	1/2" NPT
3	3/4" NPT
	Isolation amplifier for NI-EX switch
T01	Isolation amplifier for NI-EX switch; type: KFAG-SR2-EX1.W; one channel
T02	Isolation amplifier for NI-EX switch; type: KFAG-SR2-EX2.W; two channels

Ordering Codes for add. equipment (Continuation)

Code	Description
	Reed chain
R10	Reed chain, resolution 10 mm, max. 150 °C, base price
L	length in mm
0	without heat protection
H	with heat protection, max 400 °C / each 100 mm
R05	Reed chain, resolution 5 mm, base price
L	length in mm
0	without heat protection
H	with heat protection, max 400 °C / each 100 mm
R20	Reed chain, resolution 20 mm, base price
L	length in mm
0	without heat protection
H	with heat protection, max 400 °C / each 100 mm
RXS	Clamps for reed chain length > 1500 mm / 3 pcs.
	Transmitter
M10	Transmitter type: INT5333A
M11	Transmitter type: INT5333A with ExD-housing
M12	Transmitter type: INT5333A with stainless steel housing
M20	Transmitter type: INT5333B EX intrinsically safe
M22	Transmitter type: INT5333B EX intrinsically safe with stainless steel housing
M30	Transmitter type: INT5335A SMART/HART-technology
M32	Transmitter type: INT5335B Ex-proof with SMART/HART-technology with stainless steel housing
M33	Transmitter type: TMT-185 with Foundation Fieldbus
0	without Ex-protection
1	EExia ATEX
	Cable entry for transmitter housings
1	M20 x 1,5
2	1/2" NPT
3	3/4" NPT

Ordering Codes for add. equipment (Continuation)

Code	Description
	Digital indicator
D10	Digital indicator mounted in transmitter housing (only with reed-chain) FPM-indicator, standard version input 4-20 mA; display ± 19999
D11	Digital indicator mounted in transmitter housing (only with reed-chain) FPM-indicator, standard version input 4-20 mA; display ± 19999; EEx-version
D20	Digital indicator DA2000, input 4-20 mA; 24 VDC for 2-wire-transmitters
D21	Digital indicator DA2000, input 4-20 mA; 24 VDC for 2-wire-transmitters add. 4-20 mA-output
D22	Digital indicator DA2000, input 4-20 mA; 24 VDC for 2-wire-transmitters add- 2 off. contacts
D23	Digital indicator DA2000, input 4-20 mA; 24 VDC for 2-wire-transmitters add. 2 off contacs and 4-20 mA-output
	Electronic heat tape
H10	Electronic heat tape without Ex-protection, base price
H11	Electronic heat tape connection set
H12	Electronic heat tape connection socket, material CS
H20	Electronic heat tape, Ex-version
H21	Electronic heat tape connection set Ex-version
H22	Electronic heat tape connection socket, material CS / EExd housing
H23	Electronic heat tape thermostat Ex-version
	Power supply
SG1	Power supply 220 V / 50 Hz
	Indication rail
Z01	Aluminium indicaion rail coated (Epoxy-coat: Saekaphen); colour: white
	Measuring scale
Z02	Graduated scale, graved, material: plastics, base price
Z03	Graduated scale, graved, material: Aluminium, base price
Z04	Graduated scale, graved, material: 316SS, base price
	Steam jacket
Z05	Steam jacket, max. 6 bar, threaded connection, material 1.4404 (only available with Aluminium indication rail and Titanium float)
Z06	Steam jacket, max. 6 bar, flanged connection DN 15 PN 16 (1/2" 150#), material 1.4404 (only available with Aluminium indication rail and Titanium float)

Ordering Codes for add. equipment (Continuation)

Code	Description
	Vent/drain fittings
Z07	Vent-/drain valve 1/2" NPT / material 1.4401
Z08	Vent-/drain valve 1/2" NPT / material PTFE
Z09	Vent-/drain valve 1/2" NPT / material PP
Z10	Vent-/drain valve 1/2" NPT / material PVDF
Z11	Vent-/drain ball valve 1/2" NPT / material 1.4401
Z12	Vent-/drain valve 1/2" NPT, einseitig geflanscht mit DN 15 PN 16 (1/2" 150#) / material: 1.4401/1.4571
Z13	Vent-/drain valve 1/2" NPT / material: 1.4401 seitlich am Blindflansch DN50 (2"), 1.4571, angeschweißt
	Insulation
Z14	Low-temperature-insulation Armaflex -75...+105 °C (only available with Aluminium-indication rail and Titanium float) (each 100 mm)
Z15	Heat insulation ceramic tape; op. temperature up to 600 °C (only available with Aluminium-indication rail and Titanium float) (each 100 mm)
Z16	Insulation guide plate around indication rail, material 1.4404; height = 80 mm Equipment for Armaflex- or ceramic insulation (each 100 mm)
Z17	Makrolon window for insulation (each 100 mm)
	Painting
Z18	Device completely painted with RAL-colour (grounding + main paint)
	Security springs
Z19	Spring at top of gauge
Z20	Spring at bottom of gauge

Ordering codes for special designs

Code	Description
ITA-3 GL	Design for maritime and inland navigation acc. rules of "German Lloyd"
ITA-6 GL	Design for maritime and inland navigation acc. rules of "German Lloyd"
ITA-6 D	Design as steam regulator acc. TRD incl. 2 switches type: LMS-AH
ITA-7-D	Design as steam regulator acc. TRD incl. 2 switches type: LMS-AH
ITA-3 / 3.0 Ex	Design for Ex-zone 0 *(following 94/9/EG: II 1 Gc IIC T1...T6)*
ITA-4 /4.0 Ex	Design for Ex-zone 0 *(following 94/9/EG: II 1 Gc IIC T1...T6)*
ITA-4.1 / 4.1.0 Ex	Design for Ex-zone 0 *(following 94/9/EG: II 1 Gc IIC T1...T6)*
ITA-5 / 5.0 Ex	Design for Ex-zone 0 *(following 94/9/EG: II 1 Gc IIC T1...T6)*
ITA-6 / 6.0 Ex	Design for Ex-zone 0 *(following 94/9/EG: II 1 Gc IIC T1...T6)*
ITA-7 / 7.0 Ex	Design for Ex-zone 0 *(following 94/9/EG: II 1 Gc IIC T1...T6)*
ITA-10 / 10.0 Ex	Design for Ex-zone 0 *(following 94/9/EG: II 1 Gc IIC T1...T6)*
ITA-11 / 11.0 Ex	Design for Ex-zone 0 *(following 94/9/EG: II 1 Gc IIC T1...T6)*
ITA-12 / 12.0 Ex	Design for Ex-zone 0 *(following 94/9/EG: II 1 Gc IIC T1...T6)*

Ordering codes spare parts

Code	*Type*	*Float*	*max. pressure [bar]*	*min. density [kg/dm3]*	*material*	*Dimensions [mm]*
F8C1SY	ITA-3 ITA-3.0	standard, sealed	16	0,7374	1.4571	Ø52 x 270
F7C2SY	ITA-3 ITA-3.0	standard, sealed	16	0,5723	Titanium	Ø50,8 x 270
B7C1KY	ITA-3 ITA-3.0	shortened, sealed	16	1,2346	1.4571	Ø52 x 150
B7C2KY	ITA-3 ITA-3.0	shortened, sealed	16	0,9646	Titanium	Ø50,8 x 150
G7C2SN	ITA-3 ITA-3.0	low densities, sealed	16	0,4955	Titanium	Ø50,8 x 330
H7C2SN	ITA-3 ITA-3.0	low densities, sealed	16	0,4358	Titanium	Ø50,8 x 430
K7C2SN	ITA-3 ITA-3.0	low densities, sealed	16	0,4017	Titanium	Ø50,8 x 530
L7C2SN	ITA-3 ITA-3.0	low densities, sealed	16	0,3761	Titanium	Ø50,8 x 630
N8C9KS	ITA-3 ITA-3.0	coated, sealed	16	0,9020	Titanium / Halar	Ø52 x 180
F8C5SY	ITA-3 ITA-3.0	standard, sealed	16	0,7510	HC 4	Ø52 x 270
F7C2SY	ITA-3 Cryo ITA-3.0 Cryo	standard, sealed	16	0,5723	Titanium	Ø50,8 x 270
K3C2SN	ITA-3/3.0 Cryo, CR 60	low densities, sealed	16	0,6502	Titanium	Ø44,5 x 530
K7C2SN	ITA-3/3.0 Cryo, CR 64	low densities, sealed	16	0,4017	Titanium	Ø50,8 x 530
E6B8SY	ITA-34 ITA-3/3.0	coated, sealed	10	0,8500	PVDF	Ø50 x 255
E6CASY	ITA-34 ITA-3/3.0	sealed	16	0,8500	Borosilikat-glas	Ø50 x 255
E8C9SY	ITA-3.5 ITA-3.5.0	standard, sealed	16	0,6873	Titanium / Halar	Ø52 x 270
F7C2SY	ITA-4 ITA-4.0	standard, sealed	16	depends on meas. length	Titanium	Ø50,8x270
F9C2SY	ITA-4.1 ITA-4.1.0	standard, sealed	atm.	depends on meas. length	Titanium	Ø80x270
-	ITA-5 ITA-5.0	see ITA-3 to ITA-13				
-	ITA-5.1 ITA-5.1.0	see ITA-3 to ITA-13				

Ordering codes spare parts (Continuation)

Code	Type	Float	max. pressure [bar]	min. density [kg/dm3]	material	dimensions [mm]
F8F1SY	ITA-6 ITA-6.0	standard, sealed	30	0,7738	1.4571	Ø52 x 270
F7H2SY	ITA-6 ITA-6.0	standard, sealed	40	0,6391	Titanium	Ø50,8 x 270
F8H1SY	ITA-6 ITA-6.0	standard, sealed	40	1,0000	1.4571	Ø52 x 270
B7H2SK	ITA-6 ITA-6.0	shortened, sealed	40	1,1007	Titanium	Ø50,8 x 150
G7H2SN	ITA-6 ITA-6.0	low densities, sealed	40	0,5694	Titanium	Ø50,8 x 330
H7H2SN	ITA-6 ITA-6.0	low densities, sealed	40	0,5300	Titanium	Ø50,8 x 430
K7H2SN	ITA-6 ITA-6.0	low densities, sealed	40	0,4463	Titanium	Ø50,8 x 530
L7H2SN	ITA-6 ITA-6.0	low densities, sealed	40	0,4370	Titanium	Ø50,8 x 630
F8H9SY	ITA-6 ITA-6.0	coated, sealed	40	0,7647	Titanium / Halar	Ø52 x 270
F8E5SY	ITA-6 ITA-6.0	standard, sealed	24	0,8000	HC 4	Ø52 x 270
F7H2SY	ITA-6 Cryo ITA-6.0 Cryo	standard, sealed	40	0,6391	Titanium	Ø50,8 x 270
K3H2SN	ITA-6 Cryo ITA-6.0 Cryo	low densities, sealed	40	0,6667	Titanium	Ø44,5 x 530
K7H2SN	ITA-6 Cryo ITA-6.0 Cryo	low densities, sealed	40	0,4693	Titanium	Ø50,8 x 530
F7K2SY	ITA-7 ITA-7.0	standard, sealed	64	0,6820	Titanium	Ø50,8 x 270
G7K2SN	ITA-7 ITA-7.0	low densities, sealed	64	0,6064	Titanium	Ø50,8 x 330
K7K2SN	ITA-7 ITA-7.0	low densities, sealed	64	0,4450	Titanium	Ø50,8 x 530
E6B6SY	ITA-8.1	standard, sealed	10	0,7500	PVC	Ø50 x 255
E6B7SY	ITA-8.2	standard, sealed	10	0,6500	PP	Ø50 x 255
E6B8SY	ITA-8.3	standard, sealed	10	0,8500	PVDF	Ø50 x 255
X6A6SY	ITA-9.1	standard, sealed	6	depends on meas. length	PVC	Ø50
X6A7SY	ITA-9.2	standard, sealed	6	depends on meas. length	PP	Ø50
X6A8SY	ITA-9.3	standard, sealed	6	depends on meas. length	PVDF	Ø50

Ordering codes spare parts (Continuation)

Code	Type	Float	max. pressure [bar]	min. density [kg/dm3]	material	dimensions [mm]
F7L2SY	ITA-10 ITA-10.0	standard, sealed	100	0,8299	Titanium	Ø50,8 x 270
G7L2SY	ITA-10 ITA-10.0	low densities, geschlossesn	100	0,7617	Titanium	Ø50,8 x 330
H7L2SY	ITA-10 ITA-10.0	low densities, sealed	100	0,6779	Titanium	Ø50,8 x 430
K7L2SY	ITA-10 ITA-10.0	low densities, sealed	100	0,6321	Titanium	Ø50,8 x 530
L7V2SN	ITA-10 ITA-10.0	low densities, sealed	80	0,4632	Titanium	Ø50,8 x 630
F3N2SY	ITA-11 ITA-11.0	standard, sealed	160	1,0069	Titanium	Ø44,5 x 270
F5N1SY	ITA-11 ITA-11.0	standard, vented	160	0,7736	1.4571	Ø46 x 270
G3N2SY	ITA-11 ITA-11.0	standard, sealed	160	0,9059	Titanium	Ø44,5 x 330
H3N2SY	ITA-11 ITA-11.0	standard, sealed	160	0,8238	Titanium	Ø44,5 x 430
K3N2SY	ITA-11 ITA-11.0	standard, sealed	160	0,7411	Titanium	Ø44,5 x 530
F2N2SY	ITA-11 ITA-11.0	standard, sealed	160	0,9768	Titanium	Ø42 x 270
M2N2SY	ITA-11 ITA-11.0	low densities, sealed	160	0,8871	Titanium	Ø42 x 300
P2N2SY	ITA-11 ITA-11.0	low densities, sealed	160	0,7832	Titanium	Ø42 x 400
R2N2SY	ITA-11 ITA-11.0	low densities, sealed	160	0,7268	Titanium	Ø42 x 500
F5R1VN	ITA-12 ITA-12.0	standard, vented	250	0,7736	1.4571	Ø46 x 270
F4R2VN	ITA-12 ITA-12.0	standard, vented	250	0,5774	Titanium	Ø45 x 270
F2R2SN	ITA-12 ITA-12.0	low densities, sealed	250	0,8719	Titanium	Ø42 x 270
G2R2SN	ITA-12 ITA-12.0	low densities, sealed	250	0,7978	Titanium	Ø42 x 330
H2R2SN	ITA-12 ITA-12.0	low densities, sealed	250	0,7394	Titanium	Ø42 x 430
K2R2SN	ITA-12 ITA-12.0	low densities, sealed	250	0,7055	Titanium	Ø42 x 530
F1R2SN	ITA-12 ITA-12.0	low densities, sealed	250	0,8944	Titanium	Ø38x 270
G1R2SN	ITA-12 ITA-12.0	low densities, sealed	250	0,8281	Titanium	Ø38x 330
G1W1VY	ITA-13 ITA-13.0	standard, vented	320	0,7269	1.4571	Ø38 x 330
F1W2VY	ITA-13 ITA-13.0	standard, vented	320	0,5773	Titanium	Ø38 x 270

Ordering codes spare parts (Continuation)

Code	Type	Float	max. pressure [bar]	min. density [kg/dm3]	material	dimensions [mm]
F1T2SN	ITA-13 ITA-13.0	low densities, sealed	300	0,9757	Titanium	Ø38 x 270
G1W2SN	ITA-13 ITA-13.0	low densities, vented	320	0,5032	Titanium	Ø38 x 330
H1R2SN	ITA-13 ITA-13.0	low densities, sealed	250	0,8000	Titanium	Ø38 x 430
E01	Indication rail, max. operation temperature 100 °C					Makrolon
E02	Indication rail, max. operation temperature 400 °C					Aluminium
E03	Indication rail, max. operation temperature 400 °C					1.4301
E04	Gaskets for ITA-3,-7 max. operation temperature 100 °C					PTFE
E05	Gaskets for ITA-3,-7 max. operation temperature 400 °C					Klingersil
E06	Spiral wound or cam profiled gaskets for ITA-7,-11 max. operation temperature 400 °C					1.4571
E07	Spiral wound or cam profiled gaskets for ITA-12,-13 max. operation temperature 400 °C					1.4571
E08	Gaskets for all mag. level gauges, mat. plastics					Viton
E09	Brackets for indication rails					VA
E10	Gaskets for vent/drain plugs R½"					copper
E11						PTFE
E12						soft iron

5. Special constructions

5.1 ITA-T1S Continuous level sensing element

Technical information ITA-T1S
Special features

- simple and rugged design
- reliable performance in liquids with densities of ≥ 0,5 kg/dm³
- short mounting depth ≥ 300 mm (11.81”), therefore suitable for small vessels
- indicating length up to 3000 mm (118”)
- resistant to pressures of ≤ 40 bar (580 psi g) and temperatures of ≤ 130 °C (266 °F)
- housing of cast aluminium or stainless steel in IP65 equivalent to NEMA 4 and NEMA 4x enclosure
- wide variety of material combinations
- various plastic coatings available for all wetted parts
- 4...20 mA or Hart protocol 4...20 mA output via the signal conditioner

Fig1: ITA®-T1S with EExd-housing and tank mounting flange

Introduction

Intra-Automation does not limit you with the standard designs catalogued here. Our experienced engineering staff, with extensive research and development capabilities, will customize liquid level indicators to meet your specific requirements. Modifications regarding the variety of mountings, exotic materials and float configurations provide compatibility for most liquid media, various tank temperatures and pressures, as well as liquids with a broad range of specific gravities.

Operating

The ITA-T1S Liquid Level Transmitters, vertically mounted in the tank and cable connected (3-wire) to a remote receiver, operates on the float principle.
A float guided on a non-magnetic tube follows the level of the liquid surface, thereby actuating the reed switches located inside the tube by means of a built-in magnet system. The reed switches shunt over parts of a resistor string.
The magnet system operates the reed switches according to the position of the float and thus causes the Ω resistance of the resistor string to change as a function for liquid level.
A current 4...20 mA is then obtained as an output signal together with the INT5333; INT5333ATEX; TMT182 signal conditioner. The float travel distance can be limited by stops fitted to the guide tube.

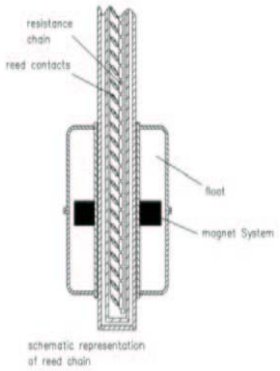


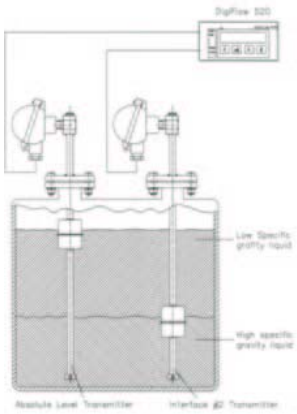
Fig2: diagrammatic view of reed switches

Monitoring

Combined with DigiFlow 520 these transmitters form a complete liquid level monitoring system. Used as a separate system with a process control system, Intra transmitters can interface with programmable controllers and other industrial microprocessors.

Interface measuring

Very often dissimilar liquids resides in a tank. Most tank gauging methods are limited in these cases and only indicate the level of the uppermost surface. But, with using Intra-Automation level sensing elements, you can easily monitor the interface between liquids. By adjusting the specific gravity of the magnet float, Intra can adapt the transmitter to monitor the interface of a broad range of media. This principle applies to oil and water, slurries, acid, bilge and other dissimilar liquids.
In conjunction with DigiFlow 520 tank level, ITA-T1S will help assure that only the “correct” liquid is taken from a tank, or introduced into a process system.



Technical data

Level transmitter	ITA-T1S
overall length	0,3...6 m (0.98...19.69 ft)
measurement accuracy	±5,10 or 20 mm (±0.2”, 0.39” or 0.79”)
ambient temperature	
♦ aluminium housing	-40...+60°C (-40...+140°F)
♦ stainless steel housing	-40...+60°C (-40...+140°F)
tank product	
♦ temperature	-10...+100°C (-14...+212°F)
♦ min. density	O,5 kg/dm³ (32,21 lbs/ft³)
♦ max. allowable op. Pressure	40 bar (580 psig)
protection category DIN40050/IEC144	IP65 (NEMA 4.4x)
terminals	Max. 1,5 mm² (AWG 14 cable cross sect.
cable entry	
♦ aluminium housing	PG16 (optional M20x1.5)
♦ stainless steel housing	PG13,5 (optional M20x1.5)
	other entries on request
current output	4...20 mA (optional Hart 4...20 mA)
connection	
♦ screw connection acc. ISO	R ½”
♦ screw connection acc. ANSI/NEMA	½” NPT-M
♦ flanges acc. DIN	DN50, DN100, PN16 and PN40
♦ flanges acc. ANSI	2”, 4”, class 150 lbs/RF and 300 lbs/RF
	Other connections on request
materials	
housing	
♦ standard	cast aluminium (option: with epoxy finish)
♦ special	stainless steel
♦ explosion proof	cast aluminium with epoxy finish
flange	carbon steel, stainless steel (optional Halar coated), PP, PVC, PVDF
thread	stainless steel
guide tube	carbon steel, stainless steel (optional Halar coated), PP, PVC, PVDF
float	see “float type”

Float type

type 1)	shape	dimensions in mm (inches)	material	min. density kg/dm³ (lbs/ft³)	max. operating pressure in bar (psig) @ 20°C (68°F)	max. product temperature in °C (°F)
A	spherical	∅ 52 (2.05)	1.4571 (316 Ti)	0,7 (43.70)	40 (580)	-40...+100 (-40...+266)
B	spherical	∅ 80 (3.15)	3.7035 (Titanium)	0,6 (37.46)	17 (247)	-40...+100 (-40...+266)
C	cylindrical	∅ 80x35 (3.15x1.38)	1.4571 (316 Ti)	0,5 (31.21)	13 (189)	-40...+100 (-40...+266)
D	cylindrical	∅ 44x52	1.4571 (316 Ti)	0,8 (49.94)	25 (362)	-40...+100 (-40...+266)
E	cylindrical	∅ 32x34	Buna N	0,55	10 (150)	0...+82 (-18...+180)
F	cylindrical	∅ 32x34	Intox	0,5	100 (1450)	-40...+100 (-40...+266)

1) other types on request

float type A

float type B

float type C

float type D

float type E

float type F

Transmitter

Type	Output in mA	Supply voltage in VDC	Current in mA	Operating temperature in °C (°F)	Min. resistance max. resistance in Ohm	Approval
INT5333	4...20	8...28	4...20	-20...+85 (-4...+185)	50 6000	Non
TMT182	4...20	10...30	4...20	-40...+85	0...400 0...2000	EEx ia C FM IS CSA IS
TMT184	Profibus	10...35	Profibus	-40...+85	10...400 10...2000	EEx ia CII ATEX FM CSA

Order key:

ITA-T1S	Continuous Level Sensing Element							
	Material of guide tube							
	S	316Ti (1.4571)						
	T	Titanium (3.7035)						
	P	Polypropylene						
	Y	others						
		Material of tank connection						
		S	316 Ti (1.4571)					
		T	Carbon steel					
		Y	others					
			Type/size of tank connection					
			R1	R½"				
			N1	½" NPT				
			F11	Blind flange DN50 PN16 (DIN 2501)				
			F12	Blind flange DN50 PN32 (DIN 2501)				
			F21	Blind flange 2" 150 lbs RF (ANSI B 16.5)				
			F22	Blind flange 2" 150 lbs RF (ANSI B 16.5)				
			Y	other				
				Measuring accuracy				
				10	± 10 mm (± 0.394")			
				5	± 5 mm (± 0.197")			
				20	± 20 mm (± 0.788")			
					Float type			
					A	∅52 mm; min.SG: 0,7 kg/dm³, max. p. 40 bar; mat.: 316Ti		
					B	∅80 mm; min.SG: 0,6 kg/dm³, max. p. 17 bar; mat.: Titanium		
					C	∅80x35 mm; min.SG: 0,5 kg/dm³, max. p. 13 bar; mat.: 316Ti		
					D	∅44x52 mm; min.SG: 0,8 kg/dm³, max. p. 25 bar; mat.: 316Ti		
					E	∅32x34 mm; min.SG: 0,55 kg/dm³, max. p. 10 bar; mat.: Buna N		
					F	∅32x34 mm; min.SG: 0,5 kg/dm³, max. p. 100 bar; mat.: Intox		
					Y	other		
						Transmitter housing		
						A	mat. cast aluminium, IP65 (NEMA4/4X), standard	
						S	mat. 316Ti, IP65 (NEMA47/4X), standard	
						E	mat. alu/epoxy finish, IP65 (NEMA4/4X), EExd II C T6	
						Y	other	
							Transmitter	
							T1	INT5333 non Ex
							T2	TMT182 non Ex
							T3	TMT182Ex
							T4	TMT184 Profibus

ITA-T1S							

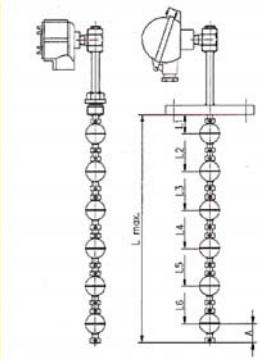
5.2 ITA-T1R Magnetic multi-float-switch

Technical data:

Max. oper. Pressure	:	40 bar, depending on mounting type and float type
Max. temperature	:	100 °C (213 °F)
Min. oper. Temperature	:	depending on the float type
Installation	:	vertical; ± 30°
Protection class	:	IP65 (NEMA 4)
Weight	:	depending on version
Min. switch distance	:	float.diameter + 30 mm

Dimensions

L1: min. 30 mm (flanged version)
min. 50 mm (screwed-mounting)
L_{max}: 3000 mm



L2-L5: min. (float diameter + 20 mm)

A: min. 50 mm

Guide tube ∅ : 14 mm

Order coding system:

ITA-T1R	**Magnetic Multi-Float-Switch**										
	Material of guide tube										
	S	316Ti (1.4571)									
		Material of tank mounting									
		S	316Ti (1.4571)								
		C	Carbon steel								
			Mounting type:								
			R1	R½"							
			N1	½" NPT							
			F11	Blind flange DN50 PN16 (DIN 2501)							
			F12	Blind flange DN50 PN32 (DIN 2501)							
			F21	Blind flange 2" 150 lbs RF (ANSI B 16.5)							
			F22	Blind flange 2" 150 lbs RF (ANSI B 16.5)							
				Switches: 1☐ 2☐ 3☐ 4☐ 5☐ 6☐							
				Switchpoint: _____ _____ _____ _____ _____ _____ (mm)							
					Float type:						
					A	∅52 mm; min.SG: 0,7 kg/dm³, max. p. 40 bar; mat.: 316Ti					
					B	∅80 mm; min.SG: 0,6 kg/dm³, max. p. 17 bar; mat.: Titanium					
					C	∅80x35 mm; min.SG: 0,5 kg/dm³, max. p. 13 bar; mat.: 316Ti					
					D	∅44x52 mm; min.SG: 0,8 kg/dm³, max. p. 25 bar; mat.: 316Ti					
					E	∅32x34 mm; min.SG: 0,55 kg/dm³, max. p. 10 bar; mat.: Buna N					
					F	∅32x34 mm; min.SG: 0,5 kg/dm³, max. p. 100 bar; mat.: Intox					
						Connection box					
						S	Standard (max. 2 switches); IP65 (NEMA 4)				
						D	EExd (max. 2 switches); IP65 (NEMA 4)				
						K	Plastic (max. 6 switches) IP65 (NEMA 4)				
						A	Aluminium (max. 2 switches); IP65 (NEMA 4)				
							Contacts				
							S	Normally open (NO)	U_{max} = 25 V; I_{max} = 150 mA		
							O	Normally closed (NC)			

ITA-T1R							

Ordering codes documentation

General documentation

Code	*Description*
D001	Certificate of Conformity
D003	Drawings for special types
D004	Certificate of origin
D005	Certificate of orign by German Chamber of Commerce
D006	Legalised by Embassy of recipient
D007	Standard QA-Plan
D008	Inspection certificate
D009	QA-Manual
D009a	Calibration certificate
D009b	Legalised by Embassy of recipient
D009c	***Documents on CD*** only **one** manual or technical information
D009d	**up to 4** manuals or technical information
D009e	manuals incl. e.g. 3.1B, drawings, cert. of conf. etc.
D009f	add. documents as paper print

Orderwise documentation

Code	*Description*
D010	Production schedule
D011	Manufacturing Progress Status Report
D012	Test Procedures (Covering Manufacturing)
D013	Welding Procedures (WPS, PQR), Standard material
D014	Welding Procedures (WPS, PQR), Special material

Material certificates

Code	*Description*
D015	Material Certificate EN 10204:2004-2.2
D016	Material certificates acc. EN 10204:2004-3.1, for ITA-3 to ITA-6, please advise if cast marking for pressure retaining parts required Cast marking of pressure retaining parts
D016a	for special material (ITA3 to ITA-6) Cast marking of pressure retaining parts
D017	Material certificates acc. EN 10204:2004-3.1, for ITA-7 to ITA-13, please advise if cast marking for pressure retaining parts required Cast marking of pressure retaining parts
D017a	for special material (ITA7 to ITA-13) Cast marking of pressure retaining parts
D018	Material certificates acc. EN 10204:2004-3.2 (former 3.1C or 3.1A)

Ordering codes documentation (Continuation)

CE Declaration of conformity acc. PED 97/23/EG

Code	*Description*
D019	**Category sound engineering paractice** manufactured and tested acc. Module A1, checked against diagram 1of PED 97/23/EG
D020	**Category I,II und III** manufactured and tested acc. Module H, checked against diagram 1of PED 97/23/EG
D022	**Category IV** manufactured and tested acc. Modul G. Layout test and inspection by German TÜV

Inspection and testing

Code	*Description*
D023	Hydr. pressure test incl. test certificate
D024	Inspection And Pressure Testing acc. AD-Merkblatt, TRB and TRD By German TÜV, incl. Cast Marking and Certificates EN 10204 3.1B, for Standard ITA
D025	Inspection And Pressure Testing acc. AD-Merkblatt, TRB and TRD By German TÜV, incl. Cast Marking and Certificates EN 10204 3.1B, for Special Constructed ITA
D026	Radiographic Examination Of Welds (Only Buttwelds) ***acc. DIN 54111***
D026.1	Radiographic Examination Of Welds (Only Buttwelds) ***acc. ASME Sec. VIII***
D027	Dyepenetrant Examination Of Welds acc. **EN473:2000** and **PED**
D027.1	Dyepenetrant Examination Of Welds acc. **ASME Sec. VIII**
D028	Härteprüfung nach NACE MR01-75, incl. NACE-Konformitätsbescheinigung (nur in Verbindung mit EN10204-3.1 Werkstoffbelegung
D029	Weight Certificate (for all units of an order)
D030	PMI-Check
D031	Percentage of ferrite in welding

Certificates for electrical components

Code	*Description*
D032	Standard wiring plans and data sheets
D033	ATEX-certificates

General notes for documentation

The standard documentation mentioned in our quotations and order acknowledgements consists of:
1 off installation & operation manual (hard copy)

Besides the products covered by this brochure, Intra-Automation GmbH also manufactures other high-quality and high precision instruments for industrial measurement tasks. For more information, please contact us (contact details on the backside of this brochure).

Flow Measurement

Itabar®-Flow-Sensors

IntraSonic IS210 Ultrasonic Flow Meters

Level Measurement

ITA-mag. level gauges

MAGLINK level indicators

Other measurement tasks:

DigiFlow Flow and Level Computers

IntraCont digital Controllers

IntraDigit digital indicators

INTRA-AUTOMATION

MESS- UND REGELINSTRUMENTE / MEASUREMENT AND CONTROL

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