

Level Switch Series LC40



Level Switch for Liquids

Working pressure manufacturing according to PED 97/23/CE (Lloyd's Register Certificate N° 031)

The Series LC40 level switch for liquids uses a float to activate a micro-switch. The magnetic coupling drives the switch so there is no direct link, requiring a seal, between the process and the instrumentation. This provides a robust measurement that is well suited to severe or corrosive processes.

The installation in the tank can be vertical or horizontal depending on the type of float system used.

The level dead band is variable. That is, the level differential between the high and low switching points.

A robust construction and versatile configuration options make the LC40 easily adaptable to the many different installation requirements of most industrial processes.

Suitable for:

- Dosing tanks
- Hot water storage tanks
- Control of condensation/steam separation
- Lubricating & hydraulic oil tanks/sumps
- Pump control
- Hi/Lo Level alarms
- Up to 300°C
- Up to 400 bar

Measurement Principle

By the repulsion of two magnetic fields to activate a micro-switch that is external to the process.

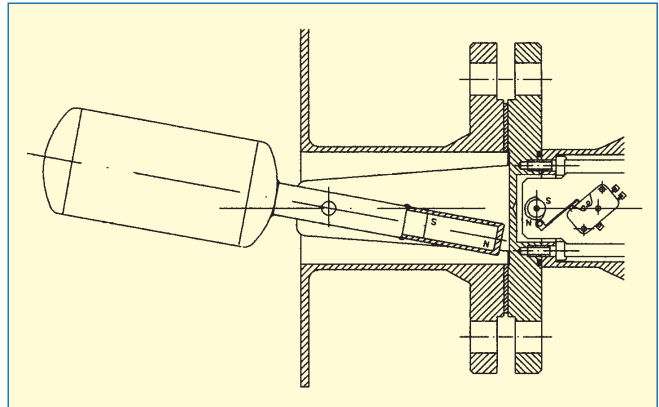


Operation

A float on an articulated arm follows the liquid level. A permanent magnet, in the opposite end of the arm, creates a magnetic coupling to activate a micro-switch located in a sealed enclosure. This design eliminates any direct connection between the process and the instrumentation.

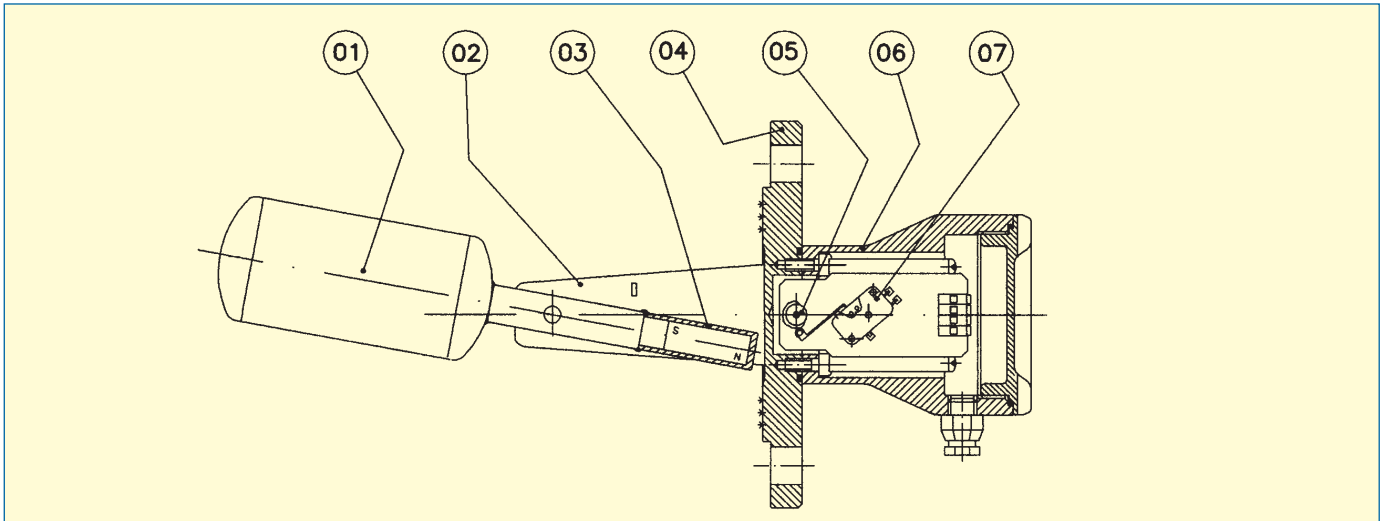
The length of the arm and its angle determine the control range. That is, the level differential between the high and low switching points.

The micro-switch can be electric or pneumatic depending on the application requirements and industrial classification.



Technical Data

- Assembly: Vertical or horizontal (refer to diagrams)
- Connections: Flange DN65 PN16, EN 1092-1
On request ASA or square 92 x 92, others on demand
- Density: 0.45 kg/l to 3 kg/l
- Viscosity: 3,000 mPa·s (maximum)
- Precision: ± 3 mm
- Dead Band: 52 mm to 1100 mm, refer page 6
- Materials: EN 1.4404 (SS 316L), PTFE, PVC, PP, PVDF, etc.
- Enclosure: Anodized Aluminium, standard
SS 316L & Ex Proof, PP, PVC, PTFE, PVDF on order
- Pressure: Manufacturing according to PED 97/23/CE (Lloyd's Register Certificate N° 031)
PN16, standard
PN25...PN400 on order
- Temperature:
 - Liquid: -30°C to...+150°C (Standard)
-50°C to...+300 C (Special)
 - Ambient: -30°C to...+80°C
- Switches: AMM, AMD, AMR, AMP, (page 3)

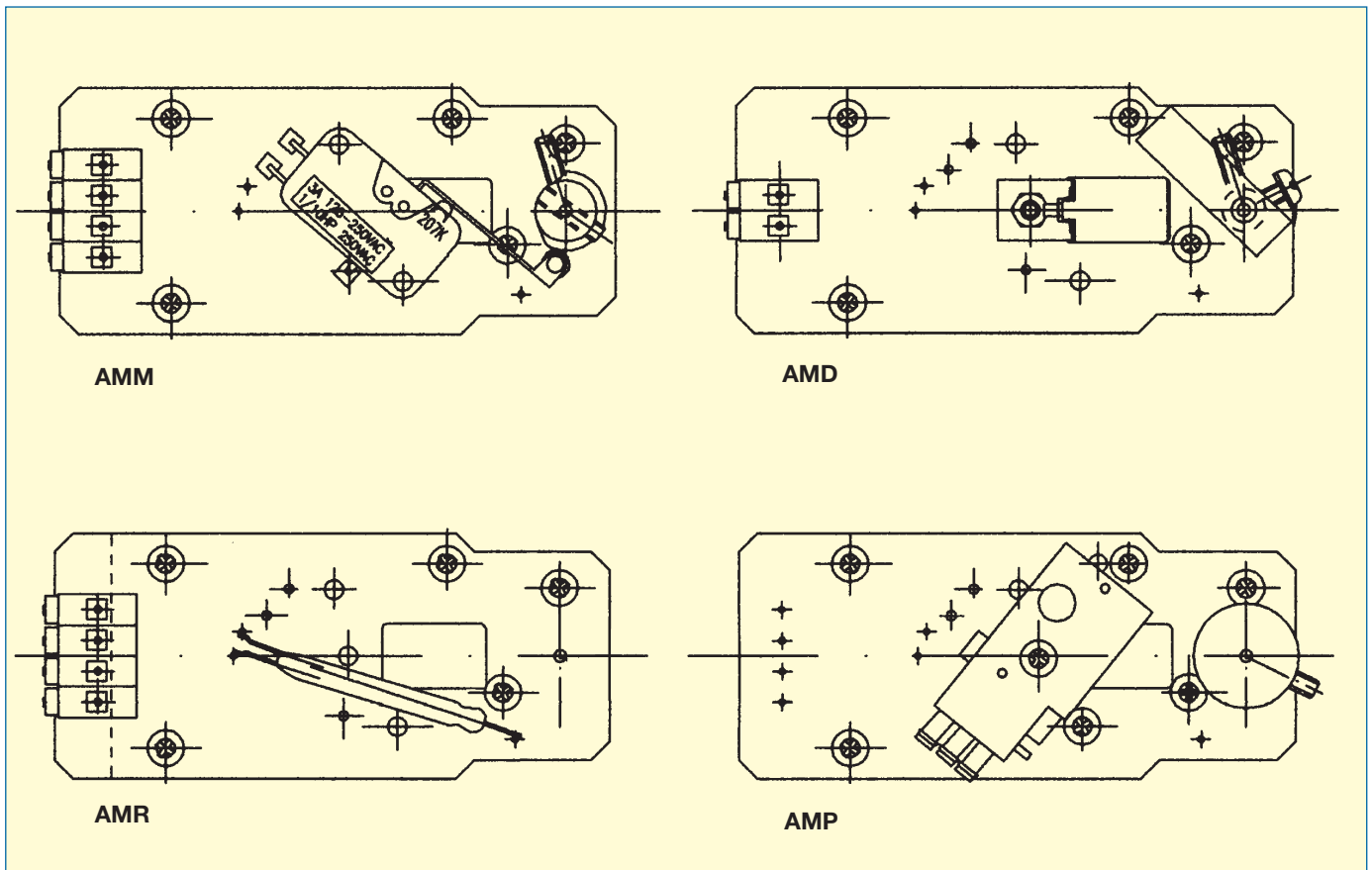


Materials

N°	Item	LC-INOX	LC-/PVC...PP	LC-/PTFE...PVDF
1	Float	EN 1.4404 (SS 316L)	PVC/PP	PTFE/PVDF
2	Splitpin	EN 1.4404 (SS 316L)	PVC/PP	PTFE/PVDF
3	Float Magnet	Supernialco	Supernialco	Supernialco
4	Flange	EN 1.4404 (SS 316L)	PVC/PP	PTFE/PVDF
5	Switch Magnet	Supernialco	Supernialco	Supernialco
6	Enclosure	Al./EN 1.4404 (SS 316L)	Al./PVC/PP	Al./PTFE/PVDF
7	Switch	Refer page 3	Refer page 3	Refer page 3

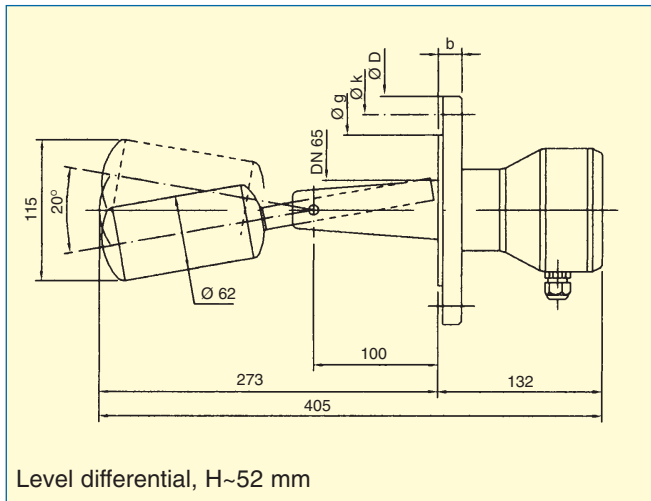
Switches

	System	Capacity	Protection	Temperature Limit	Ambient Limit
AMM 	Micro-switch 20x10 ⁶ operations C / NO / NC	3A. 220VAC 0.5A. 24VDC	IP-65	-20...+200°C -180...+400°C	-20...+70°C
AMD 	Inductive Sensor	NAMUR (DIN 19234) 8,2 V dc (on request relay amplifier NAMUR DIN 19234)	IP-65	-20...+200°C	-20...+70°C
AMR 	Reed and Relay	1A. maximum 220V maximum 30W/60VA	IP-65	-20...+200°C	-20...+70°C
AMP 	Pneumatic On/Off, two way	0-10 bar	IP-65	0...+150°C	0...+50°C

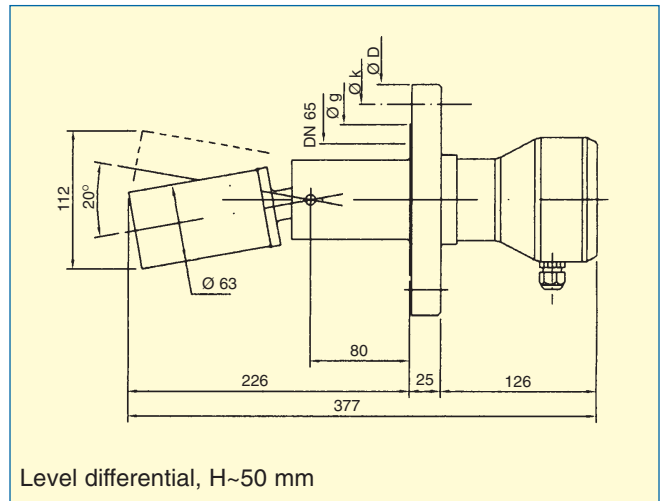
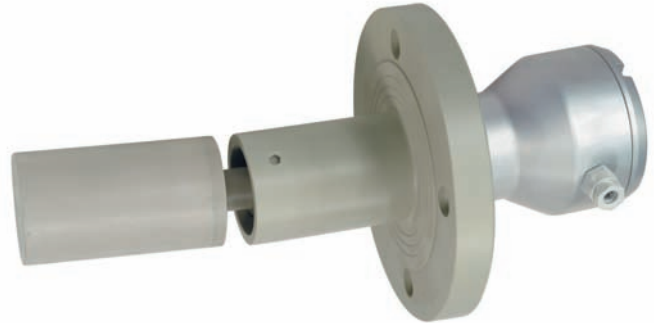




Horizontal Installation
LC40/INOX



LC40-03/PVC, LC40-05/PTFE, LC40-09/PP, LC40-00/PVDF

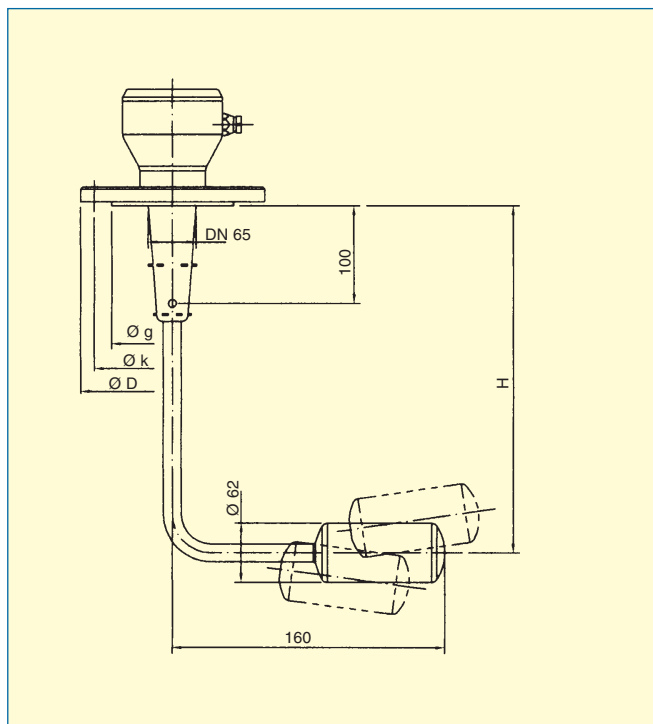


Dimensions

PN	DN	SS 316					PVC, PTFE, PP, PVDF					
		D	g	k	l x n°	b	DN	D	g	k	l x n°	b
10							65	185	122	145	18x4	18
16		185	122	145	18x4	18						
25		185	122	145	18x4	22						
40		185	122	145	18x4	22						
63	65	205	122	160	22x8	26						
100		220	122	170	26x8	30						
160		220	122	170	26x8	34						
250		230	122	180	26x8	42						

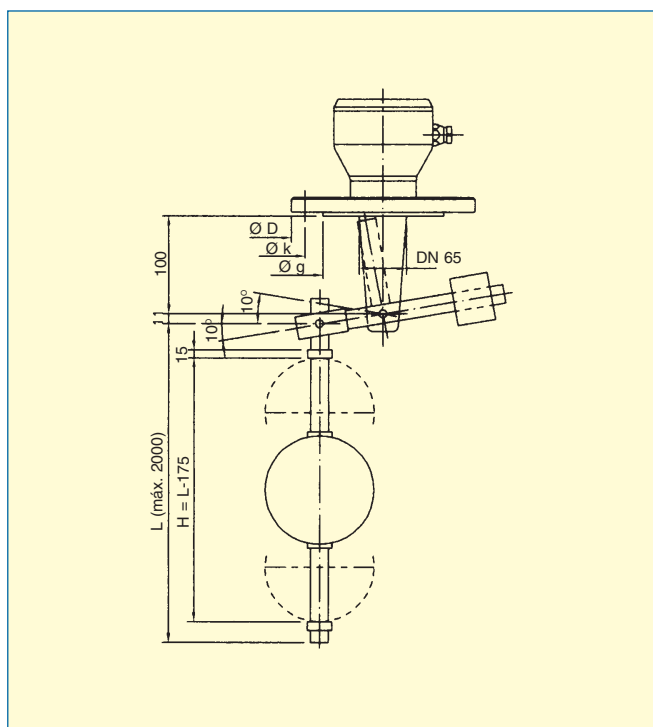
On request ASA/A, BS, JIS, flanges are available
The flanges in PVC, PTFE, PP and PVDF are according to DIN 8063 PN10

Vertical Installation LC40-V / INOX



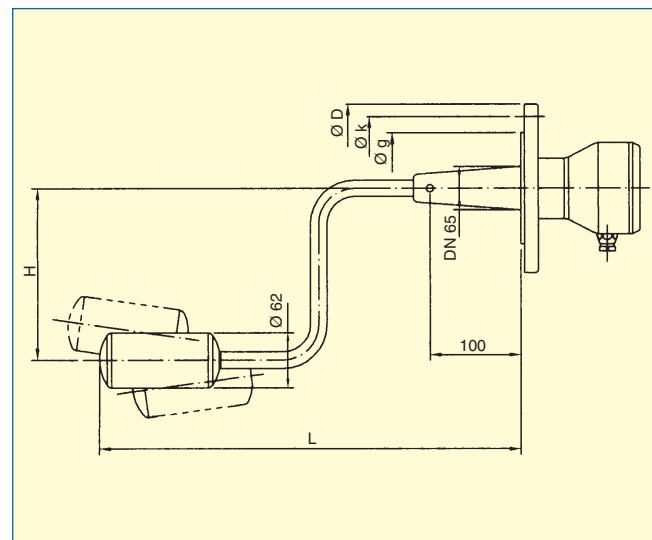
H average distance for actuation
H maximum 1000 mm

LC40-VR/INOX



H maximum 1500 mm
H maximum-minimum level differential

LC40-BA / INOX



Standard Dimensions LC40-BA/SS

H mm	150	200	300	400
L mm	250	350	450	600

Others on request (H+L maximum 1000 mm)

Flange Installation

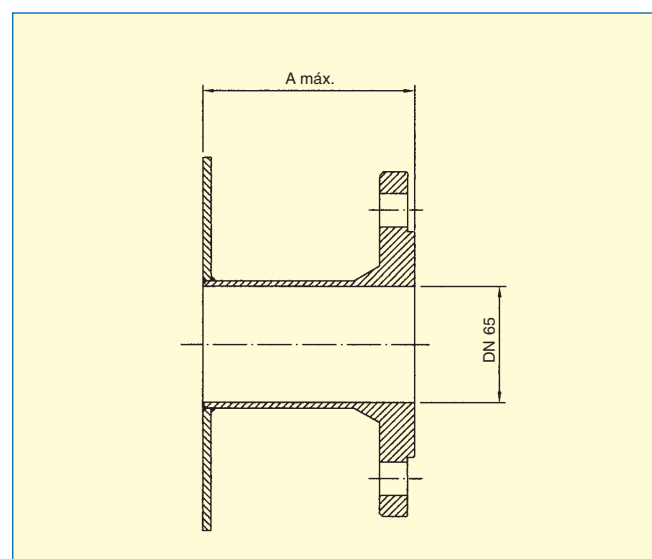
LC40/INOX

A=min. 90 mm max. 100 mm

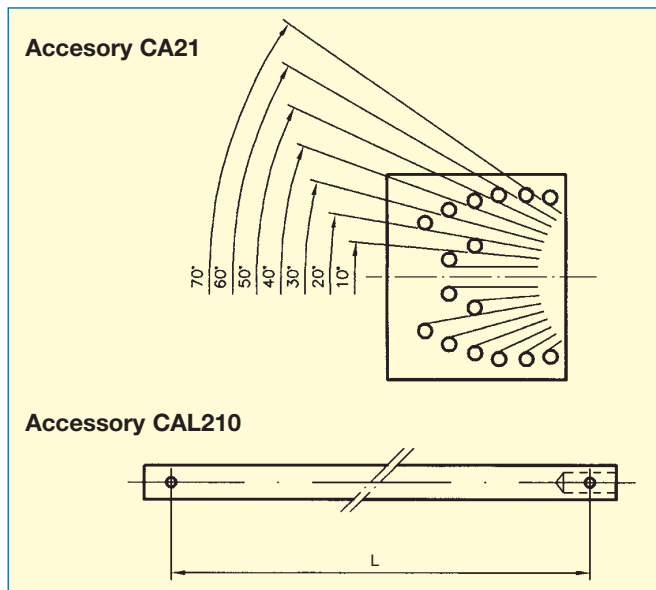
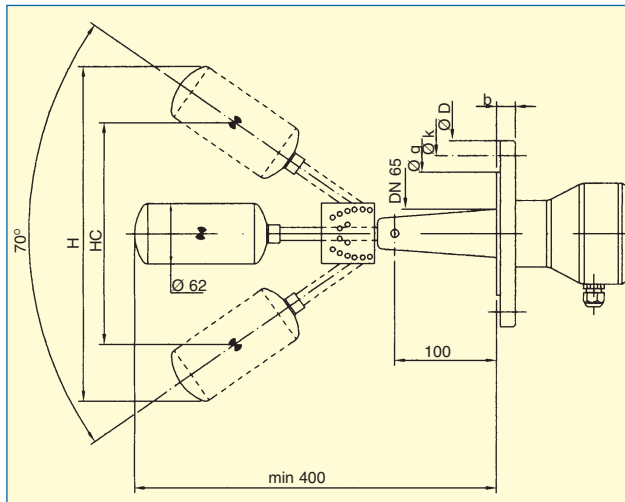
LC40/PVC, PP, PTFE, PVDF

A=min. 70 mm max. 80 mm

Note: The dimension A, depends on the flange thickness and type of screws. Other dimensions on demand.



Accessories for Horizontal Installations LC40-A21/INOX

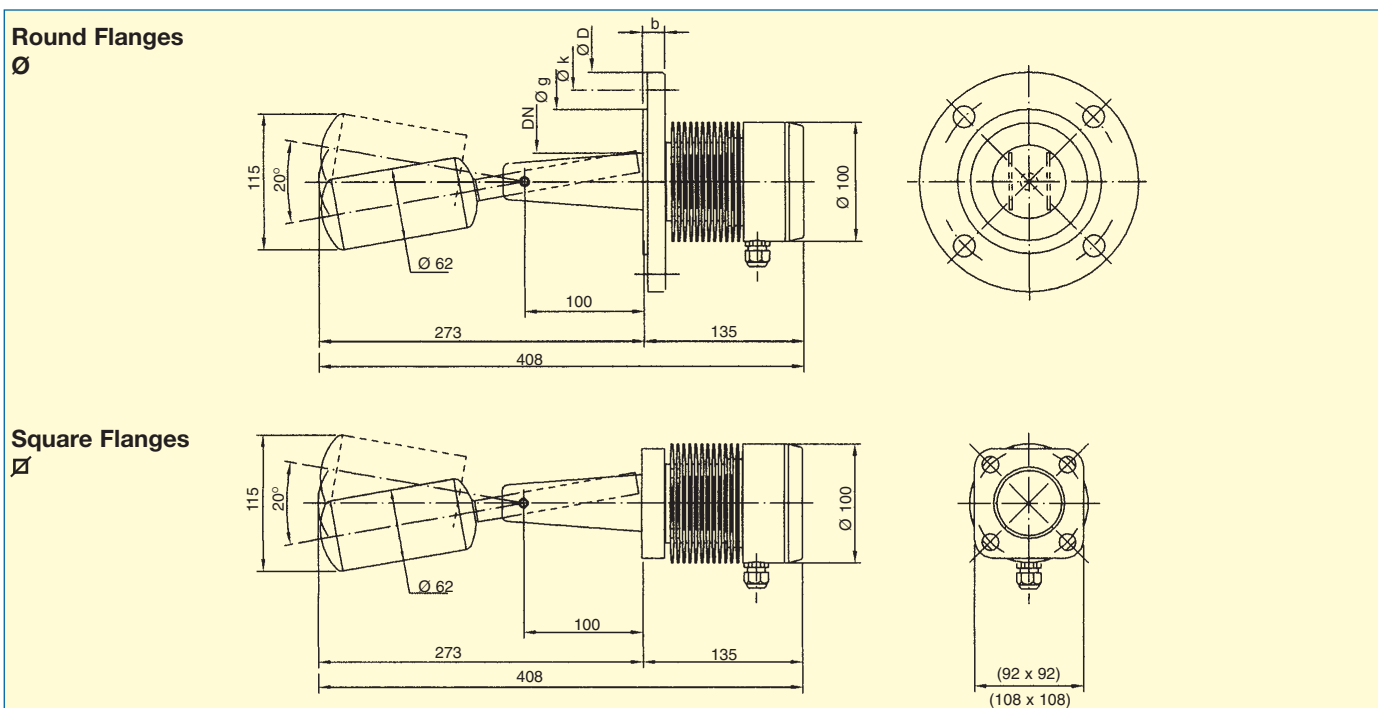


Level Differential with CA21 and CAL210

Angular Variation with CA21(*)	Level Differential		Level Differential H (mm±10%) with CA21 + CAL210 with length L						
	H (mm±10%)	HC	L= 200	300	400	500	600	800	1000
20°(10+10)	52	20	102	136	171	205	240	307	376
30°(10+20)	75	30	150	200	250	300	350	400	450
40°(10+30)	96	40	192	257	321	385	449	578	707
50°(20+30)	114	50	229	306	383	459	536	689	842
55°(10+45)	122	60	245	327	409	491	573	737	901
60°(30+30)	130	70	259	346	433	519	606	780	952
75°(30+45)	144	80	290	386	482	579	676	869	1062
90°(45+45)	150	90	300	400	500	600	700	900	1100

* The standard angular variation without the CA21 is 20° with a level differential of 52mm.

Dimensional of enclosure for high temperature

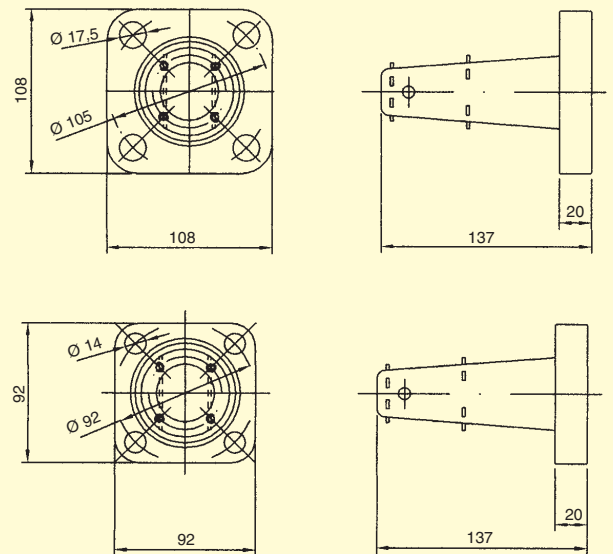


Standard Enclosures



Special Flanges

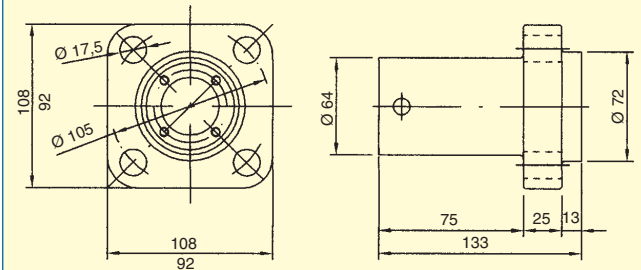
EN 1.4404 (SS 316L)



High Temperature Enclosures



PP, PTFE ...



Explosion Proof Enclosure EEx d IIC T6 (ATEX)



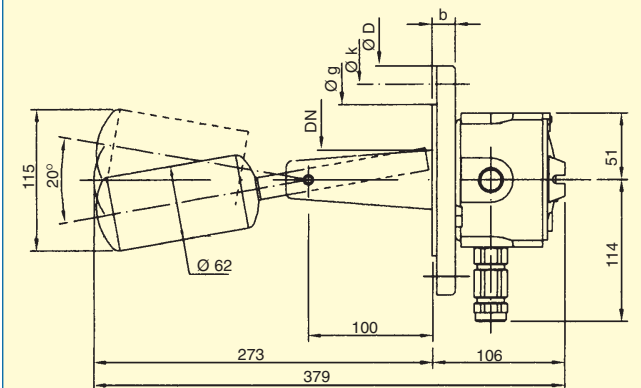
Explosion Proof Enclosure

According to European Directive 94/9/EC (ATEX)

Group and category II 2GD EExd IIC T6 IP 67 T 85°C

Zones where applicable: Zones 1 and 2

Identification number 0163 (Laboratorio Oficial J.M. Madariaga)



Corrosive Environment Enclosures



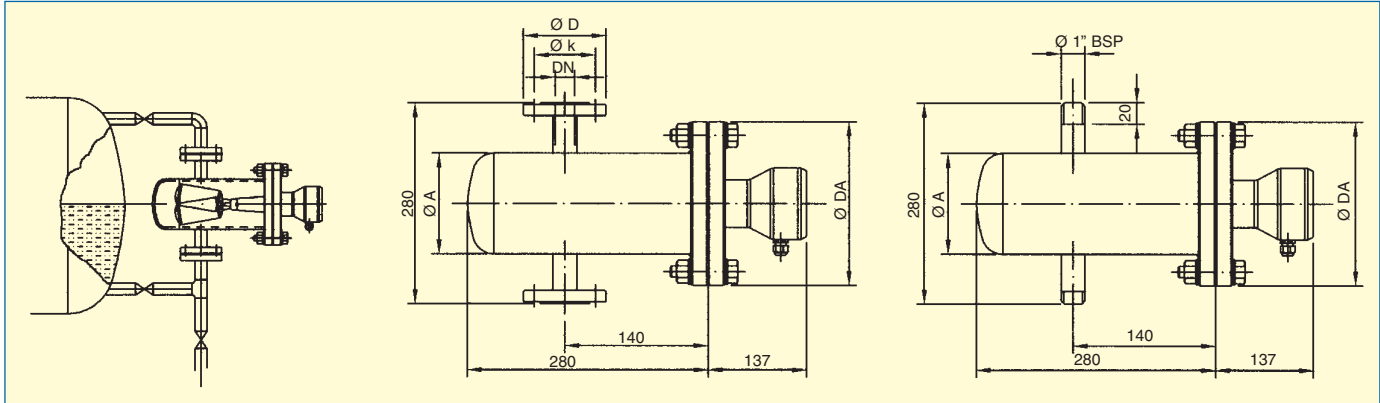
Flanges according to standards, except \varnothing 92x92

External Mounting on Tanks & Vessels

Tank / Vessel

LC40-CB2

LC40-CR1



Mounting dimensions / Materials

DN	PN	D	k	L x N°	b	R BSP/NPT	Material	A	AD
25	16	115	85	14x4	16	1"	EN 1.4404	160	185
25	25	115	85	14x4	17	1"	(SS 316L)	160	185
25	40	115	85	14x4	18	1"	or	160	185
25	63	140	100	18x4	18	1"	Steel	160	205
25	100	140	100	18x4	28	1"		165	220

Instrumentation for fluids

Level switch Vibrating fork system

Serie LD60/LD61

Level Switch for Solids and Liquids Vibrating Fork System

Working pressure manufacturing according to PED 97/23/CE (Lloyd's Register Certificate N° 031)

Introduction
The LD60/LD61 is a level switch using the vibrating fork technique.

It is a robust and compact switch for the measurement of liquids and solids (only LD61). Some typical applications are:

- Pump control
- Tanks open and pressurized
- Tanks with agitation
- Open channel and pipe empty/full detection
- Distillation columns
- Evaporators
- Chemical dosing tanks

Benefits

- No moving parts
- Not affected by temperature or pressure changes
- Suitable for liquids with viscosity up to 10,000 cSt
- Maximum density 0.8 kg/l
- Detection of solids (powders) only LD60
- Corrosion resistant materials
- Maintenance free
- Integral electronics
- Selection of normally open or normally closed operation
- LED status indication (indicator)
- Functions test with external magnet
- Connections:
 - Thread: BSP / NPT
 - Flange: DIN / ANSI
 - Sanitary: Clamp Head, DIN 11851
- Wide range of sensor lengths

Instrumentation for fluids

Level Gauge & Transmitter

Serie LT10/LTL10

LT10 Liquid Level Gauge & Transmitter

Working pressure manufacturing according to PED 97/23/CE (Lloyd's Register Certificate N° 031)

Simply constructed and resistant to adverse conditions of temperature and pressure. Materials in EN 1.4404 (SS 316L), PVC, PP, PVDF or PTFE for most applications in industries such as:

- Chemical, petrochemical and other processes
- Refrigeration, Fats and Heat Treatment
- Boilers, marine & industrial
- Evaporators & Condensers
- Storage Tanks

Features

- Full process isolation, no risk of leakage
- Alarm contacts adjustable over the full range
- Clear indication with magnetic float or magnetic strips
- Transmitter output 0-4-20 mA
- Excellent chemical and mechanical resistance

Operation
A vertical measuring chamber, connected to the tank at each end, contains a magnetic float that rises and falls with the liquid level. An indicating chamber is attached, but not directly connected, to the measuring chamber. The indicating chamber contains a magnetic strip, inductor or magnetic float that follows the position of the float in the measuring chamber to provide an indication of the tank level.

Adjustable contacts, actuated by the float's magnetic field, can provide switch points for control or alarm. A sensor sensing the float position can provide a 4-20 mA signal for proportional control. (On request HART PROFIBUS, FIELDBUS protocols)

Instrumentation for fluids

Level Indicator Transmitter & Switches

Serie LP80

MEVEGGT HART ABILITY

Series LP80 Liquid Level Gauges with Alarm & Transmitters Outputs

Manufacturing according to PED 97/23/CE (Lloyd's Register Certificate N° 031)

The level measurement is made by reading the position of a submerged float (float) supported by a spring. The position is read with a magnetic coupling through a EN 1.4404 (SS 316L) seal, separating the instrumentation from the process. This design enables operation under adverse process conditions (very high temperatures, pressure and with corrosive fluids).

The standard instrumentation is in EN 1.4404 (SS 316L) with the indicator enclosure in painted aluminum. The design is robust, simple and provides a reliable measurement of level under harsh process conditions. A local indication with the options of:

- High and low alarm contacts
- Electric output signal of 4-20 mA 2 wires and 2 wires ATCA (externally field)
- Pneumatic output signal of 3-15 psi or 0.2-1 bar

The LP80 is used in a broad range of applications, such as:

- Chemical and Petrochemical
- Oil and Gas
- Steam/Water
- Food and Beverage
- Storage of toxic products
- Monitoring and control of common processes

Measurement Principle
According to Archimedes principle of body submerged in a liquid.

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TECFLUID develops and manufactures instruments for gases and liquids, using the most advanced techniques.

Request information by telephone nº: +34 93 372 45 11