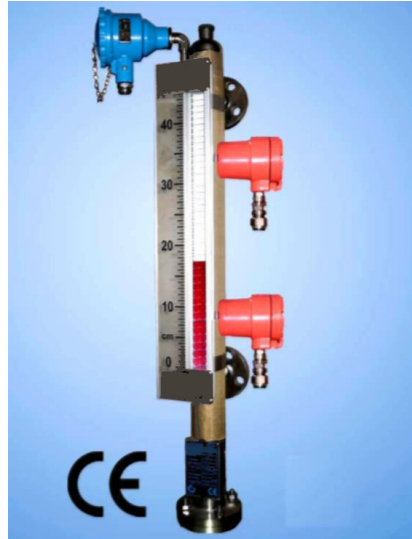


## AT-THZ Magnetic Float Type Level Gauge



### ➤ Working Range:

**AT-THZ** magnetic level gauge is a useful device to illustrate and control the level of liquids (from 0.3 up to 18 meters). Its working attributes are: PN16 to PN250 working nominal pressure, 150/1500 working class, 1/2" to 2" flanged connection and 1/2" to 1" screwed connection and 555°C or 1031° F working temperature. This device is produced base on DIN or ANSI standard and used in water, fuel, acid, chemical tanks and also in steam, hot water caldrons, oil, Gas, petrochemical and pharmaceutical industry.

### ➤ Function:

This device has been designed based on the physical principles, fluids pressure, electromagnetic property, attraction and repulsion of poles. The body of the level gauge is a tube which is connected to reservoir vertically from the related flanges. The fluid inside the reservoir is directed to the tube through the bottom nozzle, and it makes float the magnetic ball. When the level of liquid is changed, the floater ball is moved and it faces the flaps, then changes their color, and consequently the liquid level of tank can be observed. By using the sensors which are mounted on this device, required commands are directly sent to its main electrical panels or with other electronica panel, the liquid level inside reservoirs can be controlled and fixed at the slightly height automatically by start and stop of feeder electro pumps, or level transmitter can be installed on this device and sending output current (4...20 mA) or (0...10V) to PLC to see and control the level of liquid in various position.

## ➤ Installation

**AT-THZ** Level Gauge is manufactured base on center to center distance of flanges which client orders them. Then it is installable via flanges placed on the tanks. After attaching flanges of the device to flanges on the tank and getting assure of its sealing, open blind flange and place the ball within the main tube regarding the arrow mark on it. Then re-attach the blind flange carefully and fill the liquid within the level gauge. Then ball floats on the fluid and it goes up to the liquid level.

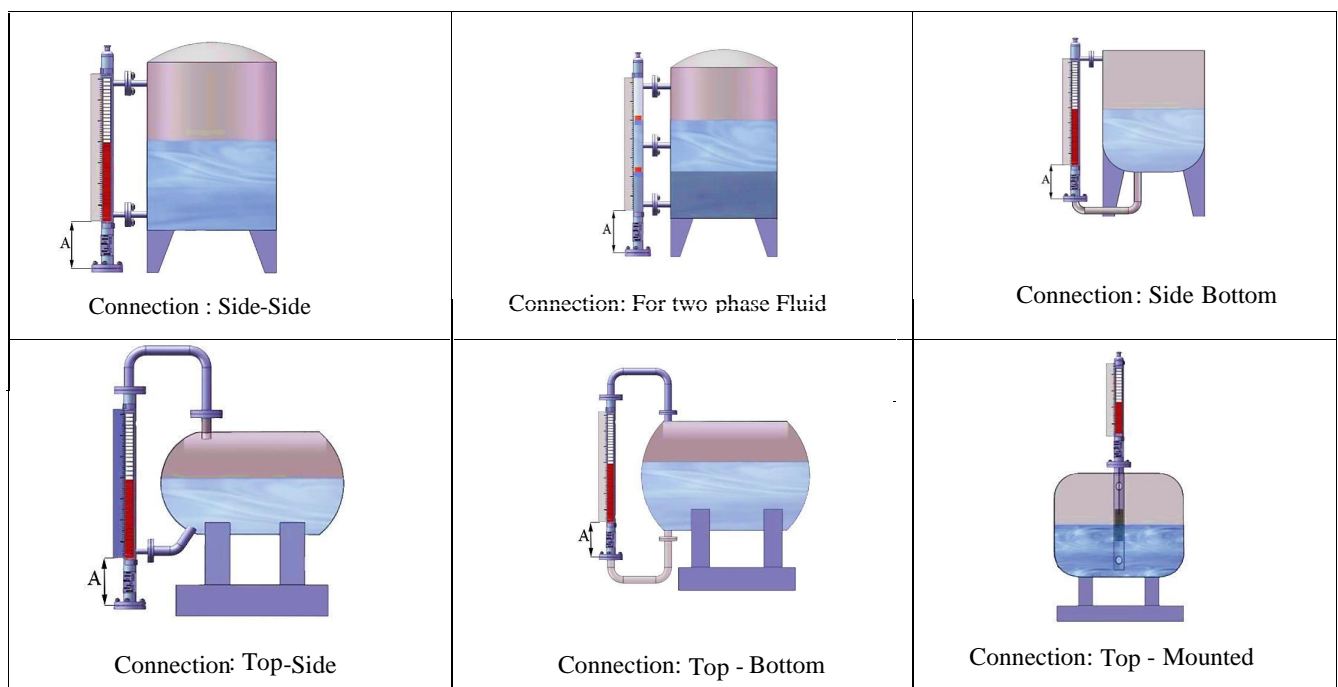
### Installation Samples:

This device is installable on tanks and other relevant places vertically from the connected flanges. To order this product, the position of tank and the distance of first connection flange from foundation (A) should be taken in to account. When such a distance is not possible, it is necessary to make major coordination with the manufacturer. When side to side installation of the device is not possible, top-mounted design can be manufactured. Below images are various types of level gauge installation.

## ➤ Advantages of using this device:

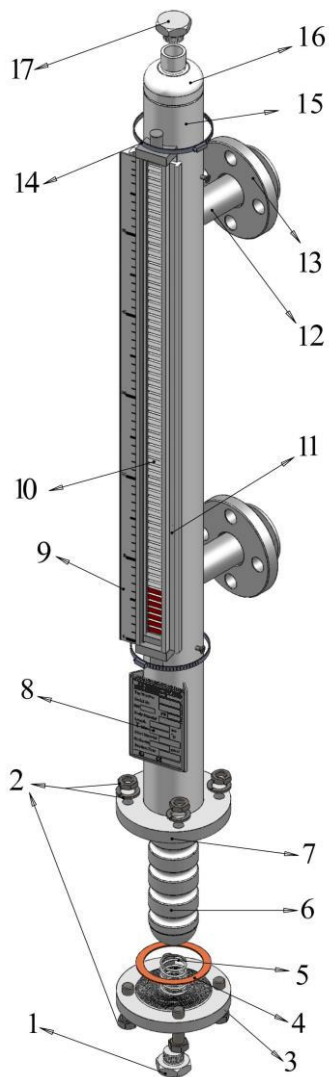
- 1- Due to the lack of mechanical and electrical connection between the parts inside and outside the liquid, this device can be installed with more safety.
- 2- Possibility of monitoring the liquid level of reservoirs from far distance
- 3- Possibility of change the sight angle of indicator plate
- 4- Resistant and leak proof.
- 5- Makeable for high temperature and working pressure
- 6- Makeable for top and side mounting
- 7- Possibility to send electrical commands (ON-OFF) or transmit (4-20 mA) or current (0...10V)
- 8- Possibility to adjust sensors mounting positions
- 9- Possibility to use

more sensors to increase the safety factor of the device.



## ➤ 4- Assembling Plan and Parts:

### 4-2. Assembly Plan

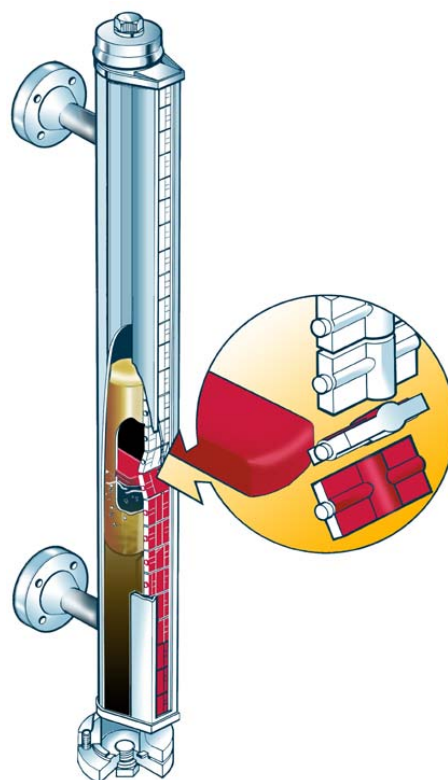


### 4 1. Parts

No	Part Name
1	Drain Bolt
2	Screw-Nut Gasket
3	Blind Flange
4	Gasket
5	Fender Spring
6	Floating Ball
7	Socket Flange
8	Name Plate
9	Scale
10	Flap
11	Indicator
12	Nozzle
13	Rotatable Connection Flange
14	Bracket
15	Body
16	Cap
17	Air Vent Bolt

## 5- Technical Characteristics:

0.3 ... 18m		Makeable length	
In Top mounted model, makeable height is up to the 2.5 m and Min. density is 0.8 g/cm3			
15 ... 50		DN	Flanged Connection
1/2" ... 2"		IN	
Rotatable/Socket Weld/Neck Weld (DIN-ASME)		Flange Type	
PN16...250	Class150...1500	Nominal pressure	
1/2", 3/4", 1"	NPT/BSP	Thread Connection	
±5mm	Device Accuracy		
0.5 g/cm3	Min. Density		
400 cSt	Max. Viscosity		
Linear (cm) or costume (%)		Indicator	
IP65	Protection		
-10 ... 555°C /14 ... 1022°F	Working Temperature		





### 6- Parts Material:

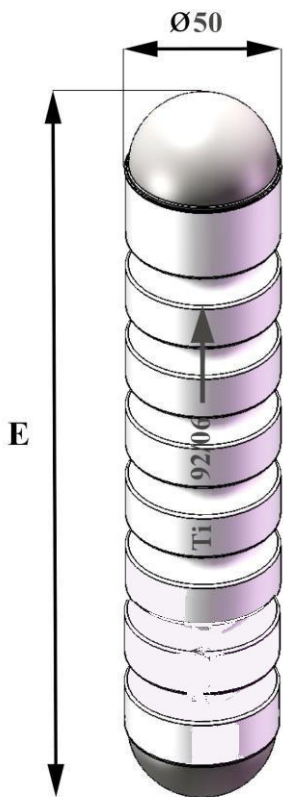
SS304L & SS316L	Main Body
SS304L & SS316L	Connection Nozzle
SS304 & SS316	Connection Flange
SS304 & SS316	Discharge Bolt
Ti B265 Grade1 / SS304L /SS316L	Ball
Alnico /Ferrite	Magnet
AlAA6063	Indicator
AlAA6063	Flap
Glass	Flaps House
SS304	Scale
SS304/S.S316	Name Plate

Note: If fluid is corrosive and have 60°C Max working temperature and 6 bar Max. Working pressure client can order for PP, PVC floating ball

### 7- Dimensional Plan:

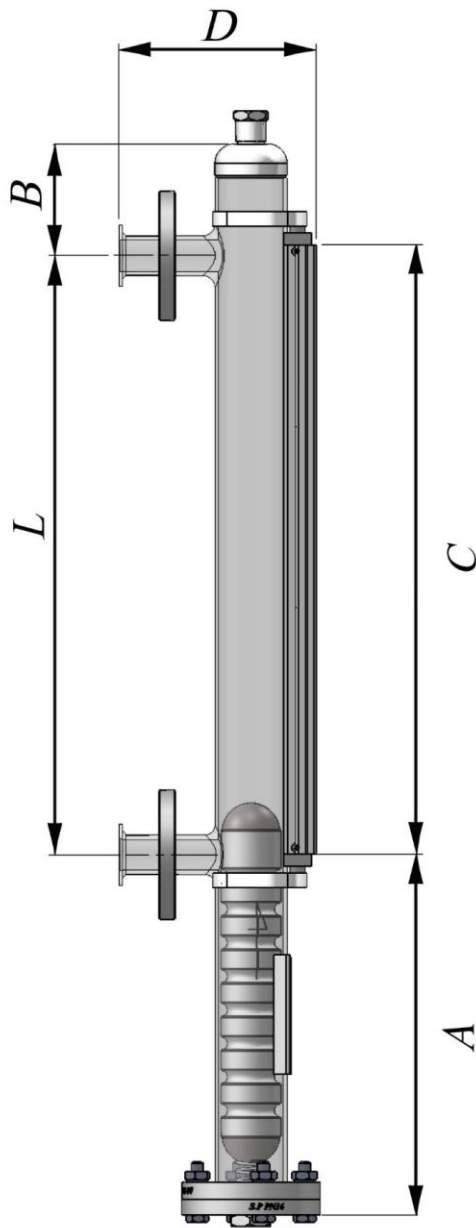
Parameter	Dimension	Tolerance
A	According Ball Length	± 5mm
L	Client Order	±2mm
B	100	±2mm
D	155	±2mm
C	* L+20mm	±3mm
E	Base on Density	±3mm

\*Just in case of side side connection



**Attention:**

If thread nozzles are in demand or vent and drain is needed, just in case of clients request dimensional plan will be submitted.



## 7-1. Descriptions:

### Flange sizes based on ANSI #150

L Center to center of nozzles connected to tank

B Distance between upper nozzle of level gage to the end of device

C Total length of device

D Distance between connection nozzles to the device

E Ball length (It is variable according to the fluid density)

## 8- Standards of Flanges:

### Flange sizes based on DIN PN 16-40

50	40	32	25	20	15	10	Size DN
165	150	140	115	105	95	90	Outside Diameter
Ø18*4	Ø18*4	Ø18*4	Ø14*4	Ø14*4	Ø14*4	Ø14*4	Diameter and number of Holes
125	110	100	85	75	65	60	C to C of Holes size
102	88	78	65	58	43	40	Diameter Ring of Nozzle

### Flange sizes based on ASME #150

2"	1 1/2"	1 1/4"	1"	3/4"	1/2"	Size IN
152/4	127	117/5	107/9	98/4	88/9	Outer Diameter
Ø19*4	Ø16*4	Ø16*4	Ø16*4	Ø16*4	Ø16*4	Diameter and number of Holes
120/6	98/4	88/9	79/4	69/8	60/3	C to C of Holes
92/1	73	63/5	51	43	43	Ring Diameter of Nozzle

Flange sizes based on ASME #300,600

2"	1½"	1¼"	1"	¾"	½"	Size IN
165/1	155/6	133/4	123/8	117/5	95/2	Outer Diameter
Ø19*8	Ø22/2*4	Ø19*4	Ø19*4	Ø19*4	Ø16*4	Diameter and Holes no.
127	114/3	98/4	88/9	82/5	66/7	C to C of Holes
92/1	73	63/5	50/8	42/9	34/9	Ring Diameter of Nozzle

## 9- Accessories:

### 9-1. Sensor MS-15:

This model provides a latching contact by means of magnetic fields (Change over Tripod). No cable is provided in product package. Hose clamps are used for fastening these sensor to the body of a magnetic level gauge. There are two variations: Regular and Ex. Regular type has M16 cable gland and IP65 ingress protection. Phase voltage and current are 250 VAC and 3A, and there is no need to a panel or other accessories. DPST or SPDT switches may be used. Max. Working pressure is 200 °C. Ex type has the same specifications as the regular type, except that its gland type is M20 and ingress protection is IP66. Area classification for this type is II 2G Ex db IIC T5 Gb.

### 9-2. CP23 Panel:

This Panel is usable with LT-44, Lt33 and LT20 and it is also usable to give a percentage display (0-100%). Moreover, this panel is programmable to define two set points to send start/stop or alarm signal to steering circuit of pumps and alarm sets. Feeding Voltage: 220V AC with flow 1A. Input Signal is 4~20mA or (0...10V), and output signal is 4~20mA. Max. Working temperature: 50°C.

### 9-3. LT20 Transmitter:

Level transmitter designed for level gauges (AT-THZ). This transmitter is able to change level fluctuations to output current (0~10 mA) or Voltage (0...10V) which are usable in PLCs, or percentage display in CP23. Body Cover: Stainless Steel; Box: Aluminum; Ex Box is optional for hazardous zones; Feeding Voltage and Current: 24VDC/50mA; Dust and Protection: IP65. Max. Working temperature: 150°C, and its manufacturing constraint is up to 3 meters. If needed, this transmitter can be also offered in the form of Ex d.



## Level Gauge Coding:

<b>AT-THZ</b>	<b>Magnetic Level Gauge</b>		
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**Type**

<b>Chamber Material</b>			
S4	304/304L SS	P	Polypropylene
S6	316/316L SS	U	UPVC

**Process Connection**

See "Process Connection Chart" on Pages 4 & 6

**Nominal Pressure**

PN	20	50	100	150	250
LB	150	300	600	900	1500

**Top of Chamber**

CP	Cap + Plug	BF	Blind Flange	FN	Flange + Nipple
BC	Blind Cap	FP	Flange + Plug	×	Others

**Bottom of Chamber**

BF	Blind Flange	FN	Flange + Nipple
FP	Flange + Plug	×	Others

**Process Temperature**

HT1	0~200°C / 32~482°F	HT2	0~500°C / 32~932°F
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**Float Material**

S4	Stainless Steel 304	S6	Stainless Steel 316
Ti	Titanium Grade A	U	UPVC
P	Polypropylene	×	Others

**Specification Gravity**

SG	Specification Gravity
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**Accessories**

LC	Low temperature insulation	VV	Vent Valve
MS 0	Magnetic coupling switch Number	DV	Drain valve
LT	Level Transmitter	0	none

**Center to Center Connection Distance**

L	mm
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