1. MAGNETIC LEVEL INDICATORS – AE-ML

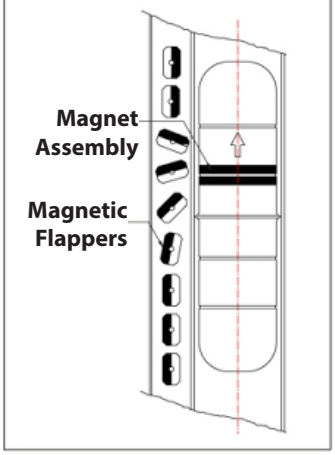
Magnetic Level Indicators are used in applications requiring continuous measurement, indication and control of liquid levels. The design relies on the hydrostatic pressure principle to display tank level in a side mounted measuring chamber. A float, containing a ring magnet, rises and falls with the liquid level in the bypass chamber. This approach allows an all metal construction which eliminates the breakage and leakage problems frequently experienced with glass tube designs. Transmission, Visual indication or Switching may be achieved by mounting magnetically sensitive devices on the exterior of the bypass chamber. These devices are activated by the magnet inside the float.

1.1 CONSTRUCTION AND OPERATION

MAGNETIC FLAPPER TYPE

A communicating bypass chamber is flanged to the side of a vessel, and as the liquid level in the tank rises or falls, a float with a built-in magnetic system inside the chamber rises or falls with it. (Refer fig.01). The chamber is completely sealed so that the only moving part of the apparatus in contact with the liquid is the float itself. On the dry side of the chamber is the Magnetic Flapper Display, a column of magnetic flappers which are white on one side and red on the other. The rollers are made from Stainless Steel with a distance of 10 mm between their axes. As the float moves up or down the bunched field of the permanent magnet mounted in its top section pulls the rollers through a rotation of 180°, thus changing their color. As the float rises the rollers are turned from white to red, and as the float falls, they are changed back to white again. This means that at any given time the amount of liquid in the tank is constantly represented by a red column without any external power supply.

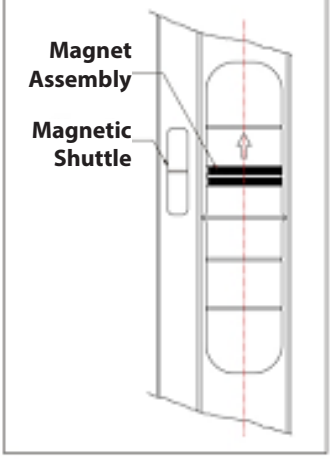
Fig.01



MAGNETIC SHUTTLE TYPE

This is an economy type Indicator with equally effective performance. The indicator consists of an encased follower / magnet inside a glass tube. The follower magnet is coupled with the float magnet inside the cage and move along with the float to indicate the correct liquid level.(Refer fig.02). The frame of this indicator is made of Aluminum.

Fig.02



FEATURES

- Circular Magnet System effective from all sides
- Up to 250 Bar Pressure
- Temperatures up to 400°C
- Permanent Local Indication without external power supply
- Switching and Transmitting options available
- Industrial Ruggedness
- Broad Indicators for increased visibility
- Customized color options for flapper indicators

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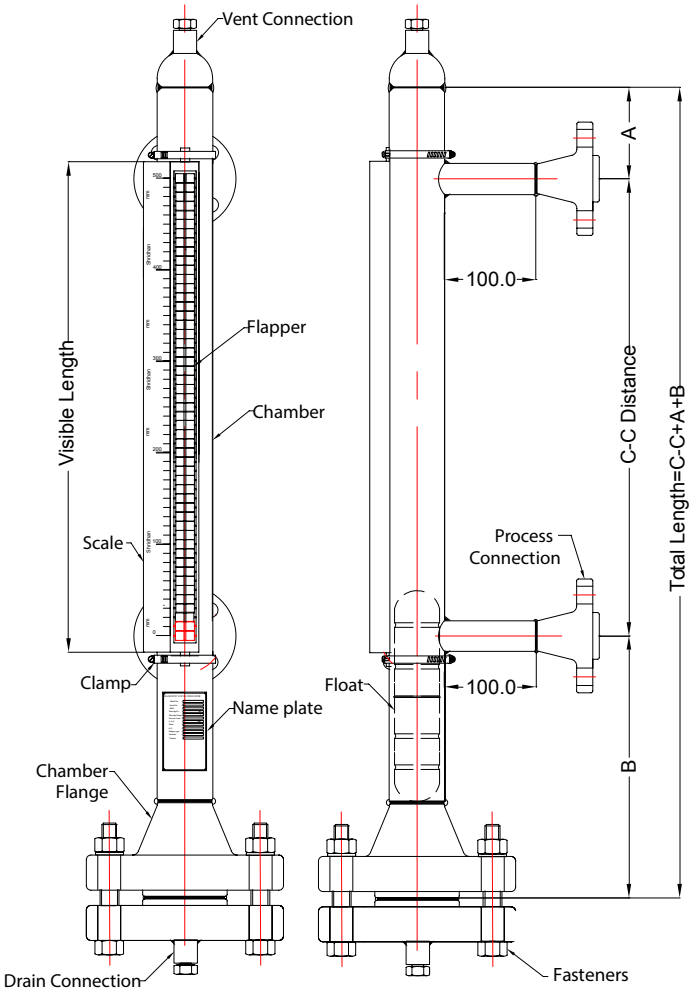
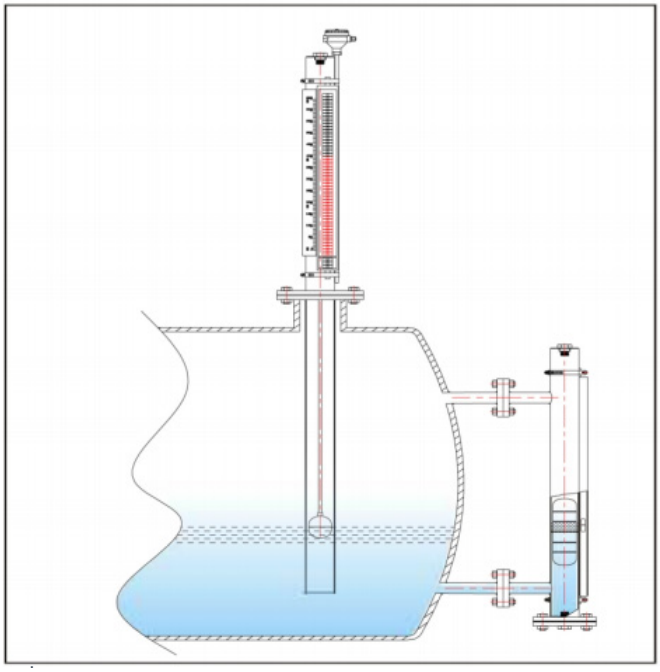
TYPICAL CONSTRUCTION OF A MAGNETIC LEVEL INDICATOR



1.2 TYPICAL INSTALLATION



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1.3 SPECIFICATIONS

Installation	: Side/ Top
Range (C=C DIST)	: 300- 5000mm (Magnetic Flappers Display)
Float Chamber	: 2" - 5" in SS304 / 316 / 316L , Hastealloy , Monel, Inconel, Titanium, PP, PVDF, PTFE lined SS chamber
Process Connection	: For Side Mounting- Flanges as per ANSI/DIN or ½" / ¾" / 1" BSP/ NPT (M/F) Threaded For Top Mounting - 100NB Flanged to BS/ANSI/DIN
Float	: SS316, SS316L, Titanium, Hastealloy 276, Monel 400, PP, PVDF, PTFE
Level Indication Display	: a) Bi-Color Magnetic Flappers - SS304/SS316 up to 400°C b) Magnetic Shuttle - Aluminum up to 200°C
Still Well (For Top Mounted only)	: SS304/SS316/SS316L/PP
Calibrated Scale	: SS304 (LC-10mm)
Shut Off Valve	: Various sizes from 1"
Isolation Valve	: Various sizes from 1"
Vent x Drain	: Various sizes from 1"
Max. Temperature	: 70°C (PP)/400^{0}C (SS and other Super Alloys)
Max. Operating Pressure	: Upto 250 Bar (Metallic Construction)/ Upto 2 Kg/cm^2 (Plastic Construction)
Min. Liquid Sp.Gravity	: 0.5 - Side mounted, 0.8 - Top mounted.

Note: For higher pressure ratings. Contact factory

ACCESSORIES

Reed Switches / Magnetostrictive level transmitters

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1.4 ORDERING INFORMATION FOR MAGNETIC LEVEL INDICATORS

SPECIFY PART NO. ⟶ AE- ML 1 2 3 4 5 6 7

AE-ML ☐ ☐ ☐ ☐ ☐ ☐ ☐

1 MATERIAL OF CONSTRUCTION

A : SS304
B : SS316
C : SS316L
D : PP
E : PVDF
F : Monel
G : Hastelloy
H : Inconel
I : Titanium
O : Others

2 MOUNTING

S : Side Mounted
T : Top Mounted

3 CHAMBER DESIGN (TOP)

1 : Flat with Plug
2 : Top Cap with plug
3 : Double Flange with Plug
4 : Double Flange with Angle Pipe
5 : Flat with Ball Valve
6 : Others

4 CHAMBER DESIGN (BOTTOM)

A : Double Flange with Plug
B : Bottom Cap with Ball Valve
C : Double Flange with Angle Pipe
D : Double Flange with Ball Valve
E : Others

5 PROCESS CONNECTION

Flanged	
1. 1″	A. #150
2. 1 1/2″	B. #300
3. 2″	C. #600
O. Others	D.#900
	E. #1500
	O. Others

Threaded	
4. 1/2″	F. BSP (M/F)
5. 3/4″	G. NPT (M/F)
6. 1″	H. Others
7.Others	

6 INDICATION TYPE

A : Rotating Flappers (Red / White)
B : Capsule
C : Hermetically Sealed Flapper Indicators
D : Hermetically Sealed Shuttle Indicators
E : Wide Indicators

7 MAGNETIC SWITCHES

N : Not Applicable
A : 100 VA (SPST) NO Contact,
Weather Proof Enclosure IP-65
B : 50 VA (SPDT) C/O Contacts ,
Weather Proof Enclosure IP-65
C : 100VA (SPST) NO Contact,
Ex.Proof Gr.IIA, IIB or IIC
D : 50 VA (SPDT) C/O Contacts,
Ex.Proof Gr. IIA, IIB or IIC
O : Others

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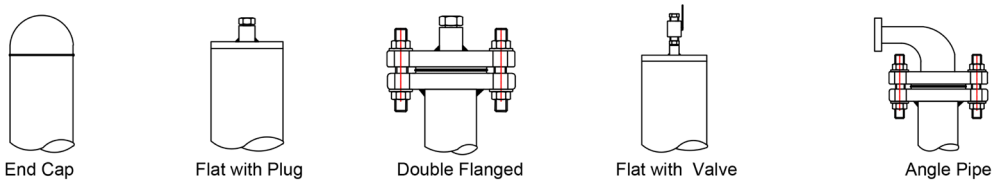
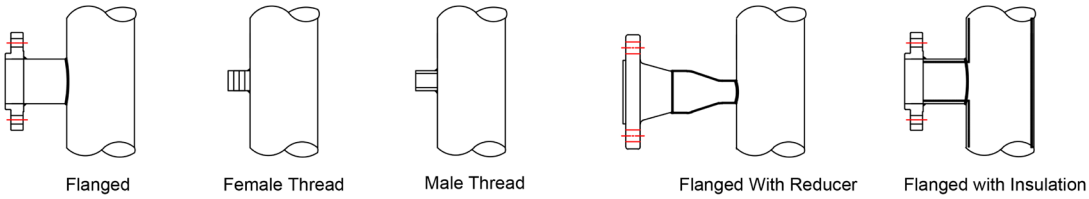
CONNECTION DETAILS

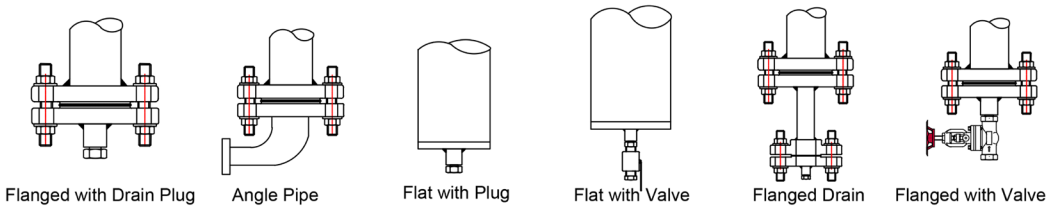
Top Connection Type



Process Connection Type



End Connection Type



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