

MG-25

Liquid Level Gauge

FEATURES

- * Magnetic Coupling Principle
- * Unique Construction eliminates seals and gaskets.
- * Corrosion Resistant Materials.
- * High Pressure and Temperature Capabilities:
1000 PSIG 300 °F.
- * Level Measurement relatively unaffected by:
 - 1) Specific Gravity Changes
 - 2) Temperature Changes
- * Indication Scaling: Linear, Volume and Percent
- * High Accuracy.
- * Up to 15 Foot Measuring Lengths.



PRO-MAG LTD

OPERATION

The principal of operation is that of two magnetic fields interacting to transfer the height of Liquids Levels in vessels to a circular dial gauge indication.

This transfer of magnetic energy, and the resultant circular motion output, is accomplished in the following way. A float, containing a magnet, is installed on a guide tube. Inside of the guide tube is a magnet suspended from a stainless steel wire, which in turn is attached to a drum mechanism mounted in the MG-25 head. An indication needle is attached to the center axis of the drum. As the float moves up and down with the liquid level in the vessel its internal magnet will attract the Guide Tube Magnet (GTM) moving the GTM up and down in direct relation to the vessel level. This direct linear up and down motion of the GTM is transmitted to the take up drum by means of the connecting wire, much like that of a yo-yo, and the drum in turn converts the linear motion on it's outer spool to a circular motion about its center axis. The dial needle indication will then rotate in an approximate 310 degree arc thus giving an indication of vertical level.

ADVANTAGES

The MG-25 is well suited for Hazardous Locations without the need for stringent code requirements. It gives the worker a safe means of observing vessel levels by the hermetically sealed design of the unit. The Guide Tube is welded to either a threaded plug or flange, and the bottom of the tube is welded shut, thus providing total isolation of the indicating mechanism from the process.

APPLICATIONS

Fluids that are aggressive, volatile, carcinogenic, and/or toxic are some of the applications that the MG25 is best suited for.

Some examples are :

Flammable Fuels Solvents
Caustics Acids
High Pressure

The flexibility and cost effective design of the MG-25 also allows it's use in Non-hazardous applications such as simple water tanks.

SPECIFICATIONS

Temperature	Up to 300 deg F Max
Pressure	1000 PSIG Max
Specific Gravity	0.295 Min
Accuracy	+/- .039 "
Measuring Range	Up to 15 Ft Max

MG-25 Part Number Selection

Model Type

MG-25

Process Connection

P - Plug F - Flange

Process Connection Material

4S - 304 SS	6LS - 316 LSS	4T - Teflon Coated 304	6T - Teflon coated 316
4LS - 304 LSS	HC - Hastelloy C	4H - 304 Halar Coated 304	6H - Halar Coated 316
6S - 316 SS	M - Monel		

Process Connection Size	Pressure Rating
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FLANGE SIZE		PLUG SIZE	FLANGE	PLUG
1 - 1"	4 - 4"	15 - 1 1/2"	A - 150 #	D - 3000 #
15 - 1 1/2"	6 - 6"	2 - 2"	B - 300 #	
2 - 2"	8 - 8"	3 - 3"	C - 600 #	
3 - 3"				

Float Guide Tube Material

4S - 304 SS	HC - Hastelloy C	6T - Teflon coated 316
4LS - 304 LSS	M - Monel	6H - Halar coated 316
6S - 316 SS	4T - Teflon Coated 304	
6LS - 316 LSS	4H - Halar Coated 304	

Float Model Number

S - Standard (See Standard Float Selection Table on Page 3)
 SP - Special (Consult Factory for design)

Float Guide Tube Length in Inches

Desired Measuring Length + Inactive Length 1 + Inactive Length 2
 (See Fig 1, and Fig 2) $GT = ML + IL_1 + IL_2$

Measuring Length in Inches

Maximum of 15 feet. Consult factory for minimum ZERO and maximum SPAN of Liquid Level that may be measured. Float design due to Pressure, Temperature, Specific Gravity, and unit mounting will be the factors determining minimum ZERO and maximum SPAN.

Standard Dial Faces

10"	25"	50"	80"	110"	140"
15"	30"	60"	90"	120"	150"
20"	40"	70"	100"	130"	160"

* S - Special Dial Face

PROCEDURE

Choose a Dial Face from the above selection:

- 1) The exact length if listed above.
- 2) The next longer length greater than your application.

Example: If the vessel that you will be monitoring has a 90" measurement you would select the standard 90" Dial Face. If the measurement were 97" you would select the 100" Dial Face. A 97" Dial Face would be a special scale and will require additional charges.

MG-25 F CS 1A 4S 4-SP-4 90 87 90

* Consult factory when a dial face in volume, percent, or non-linear is required (See Examples page 4)

Notes:

- (1) The process connection type and size will affect how the float is installed. If the float can be installed from within the tank, a minimum plug or flange size of 1 1/2" must be used. In other cases, the inside diameter of the process nozzle must be larger than the float diameter.
- (2) The Process conditions (Temperature, Pressure, and Specific Gravity) will affect the diameter and length of the float, as well as the length of the dead area at the bottom of the tank.

Please consult the factory for further application information.



MG-25 Standard Float Selection



SS SPHERICAL FLOATS

Float Model #	Fig.	Diameter "D"	Minimum Flange Size	Minimum Specific Gravity	Maximum Temp deg F	Max Operating Pressure (PSIG)	Float Material
4-SP-4	"A"	4.0"	6"	1.198	300	500	304 SS
45-SP-4	"A"	4.5"	6"	.868	300	482	304 SS
45-SP-6	"A"	4.5"	6"	.868	300	482	316 SS
5-SP-4	"A"	5.0"	6"	.758	300	709	304 SS
5-SP-6	"A"	5.0"	6"	.758	300	709	316 SS
6-SP-4	"A"	6.0"	8"	.616	300	1013	304 SS
6-SP-4	"A"	6.0"	8"	.616	300	1013	316 SS
8-SP-8	"A"	8.0"	10"	.295	300	352	316 SS

OTHER SS FLOATS

Float Model #	Fig.	Diameter "D"	Length "L"	Minimum Flange Size	Minimum Specific Gravity	Maximum Temp deg F	Max Operating Pressure (PSIG)	Float Material
69-42-PK-4	"D"	6.95"	4.20"	8"	.784	300	400	304 SS
36-64-DC-4	"B"	3.62"	4.50"	4"	.930	300	500	304 SS
36-64-DC-6	"C"	3.62"	6.37"	4"	.930	300	500	316 SS
4-52-DC-4	"C"	4.0"	5.21"	4"	.674	300	25	304 SS
4-53-DC-4	"C"	4.0"	5.28"	4"	.850	300	400	304 SS
37-46-DC-4	"B"	3.72"	4.59"	4"	1.242	300	500	304 SS

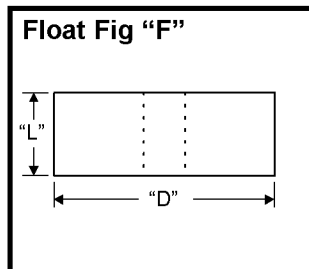
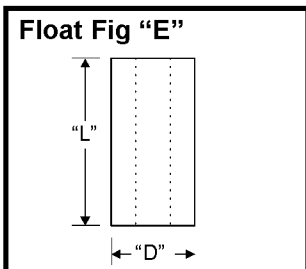
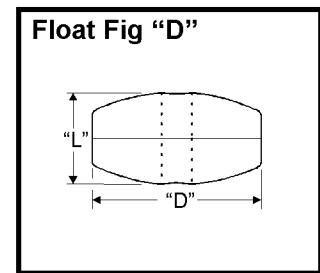
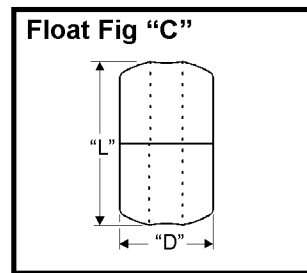
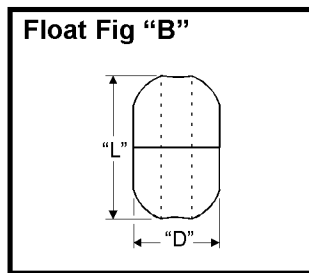
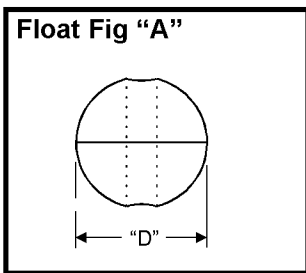
ALUMINUM FLOATS

Float Model #	Fig.	Diameter "D"	Length "L"	Minimum Flange Size	Minimum Specific Gravity	Maximum Temp deg F	Max Operating Pressure (PSIG)	Float Material
35-4-C-A	"E"	3.50"	4.00"	4"	.968	200	200	All Aluminum Construction
35-5-C-A	"E"	3.50"	5.00"	4"	.870	200	200	
35-6-C-A	"E"	3.50"	6.00"	4"	.792	200	200	
45-2-PK-A	"F"	4.50"	2.00"	6"	.962	200	150	
45-3-PK-A	"F"	4.50"	3.00"	6"	.739	200	150	
45-4-PK-A	"F"	4.50"	4.00"	6"	.627	200	150	
45-5-C-A	"E"	4.50"	5.00"	6"	.561	200	150	
6-2-PK-A	"F"	6.0"	2.0"	8"	.537	200	100	
6-3-PK-A	"F"	6.0"	3.0"	8"	.438	200	100	

PVC/CPVC FLOATS

Float Model #	Fig.	Diameter "D"	Length "L"	Minimum Flange Size	Minimum Specific Gravity	Maximum Temp deg F	Max Operating Pressure (PSIG)	Float Material
35-45-C-P	"E"	3.50"	4.50"	4"	.987	140 F	Atmospheric	PVC
35-45-C-CP	"E"	3.50"	4.50"	4"	1.051	210 F	Atmospheric	CPVC
35-6-C-P	"E"	3.50"	6.00"	4"	.865	140 F	Atmospheric	PVC
35-6-C-CP	"E"	3.50"	6.00"	4"	.928	210 F	Atmospheric	CPVC
45-3-PK-P	"F"	4.50"	3.00"	6"	.823	140 F	Atmospheric	PVC
45-3-PK-CP	"F"	4.50"	3.00"	6"	.874	210 F	Atmospheric	CPVC
662-2-PK-P	"F"	6.63"	2.00"	8"	.586	140 F	Atmospheric	PVC
662-2-PK-CP	"F"	6.63"	2.00"	8"	.624	210 F	Atmospheric	CPVC
662-4-PK-P	"F"	6.63"	4.00"	8"	.444	140 F	Atmospheric	PVC
662-4-PK-CP	"F"	6.63"	4.00"	8"	.481	210 F	Atmospheric	CPVC

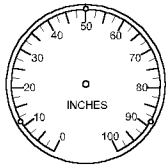
MG-25 Float Styles



NOTES :

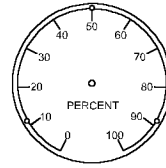
- 1) Minimum Flange Size listed in float selection table is assuming a Sch 40 nozzle.
- 2) Consult factory for special applications, float design, and materials. Hastelloy, Monel, Titanium, and other materials available.

MG-25 Dial Face Examples



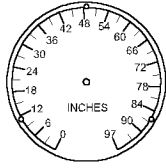
EXAMPLE 1

Standard
Inches



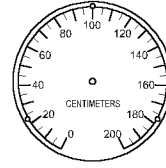
EXAMPLE 4

Special
Percent



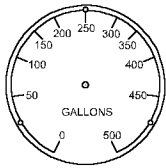
EXAMPLE 2

Special
Inches



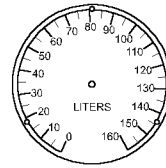
EXAMPLE 5

Special Metric
Liquid Height



EXAMPLE 3

Special
Non Linear Volume
for use in Spherical or
Horizontal Bullet Tanks



EXAMPLE 6

Special Metric
Volume

MG-25 Application Examples

Figure 1

MG-25 is installed with Float Mounted on Guide Tube.

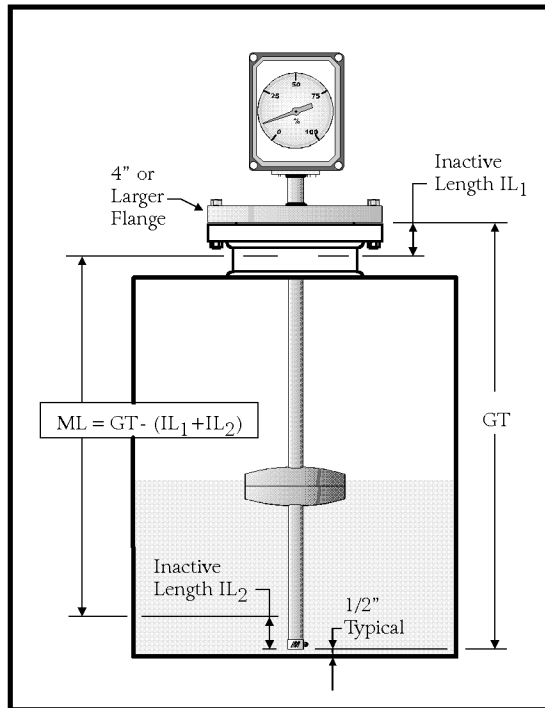
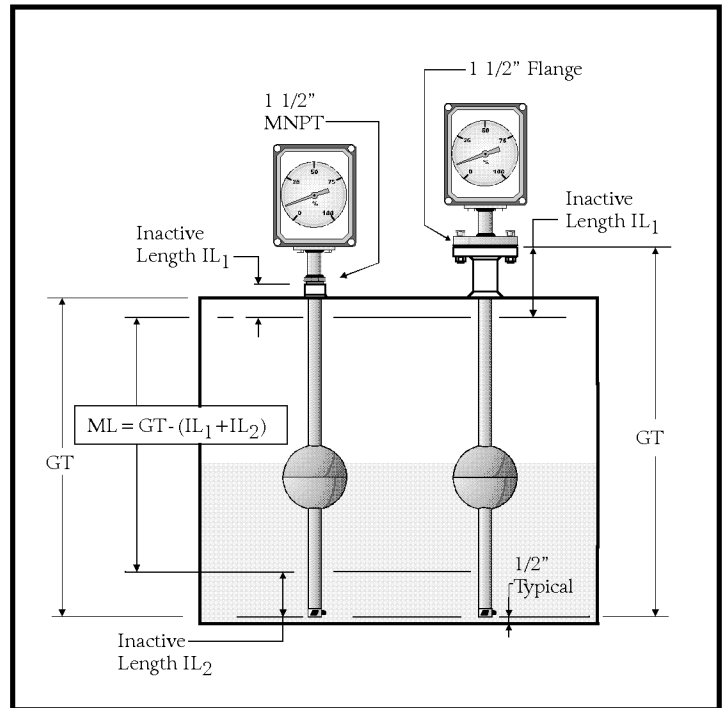


Figure 2

Float must be inserted on Guide Tube after MG-25 is installed in Vessel.



Notes :

- ML = Measuring Length
- GT = Guide Tube Length
- IL₁ = Inactive Length at Top
- IL₂ = Inactive Length at Bottom

Inactive Lengths depend on the following Conditions :

- 1) Float Design.
- 2) Process Conditions.
- 3) Nozzle Diameter and Height.