

Specialty Switches

GEMS Excels in Switches for Special Requirements

The products below are examples of the custom engineering GEMS can provide to meet specific application needs. These units are ideal for use in oils and water.



Level monitoring and temperature switch in a single unit. Intermediate in size; single-setting temperature sensor is in bottom of stem.



Cushioned float and switch for turbulent liquids or excessive vibration. Easily grounded. Ideal for tank trucks, construction equipment or mobile applications.

LS-270 Series – Bracket Mounting Slosh Shield

U.L. Recognized – File No. E45168



Small, lightweight, and extremely stable in nonstatic, highly contaminated liquids. Slosh shielding minimizes effects of turbulence and helps prevent interference by foreign material. Bracket-mounted to any convenient surface.

Dimensions

TH800 Temperature/Level Switch	LS-38760 Series	LS-270 Series
Wire diagram on page B-21		
Electrical Termination 18 AWG, 24" L., Polymeric Lead Wires	18 AWG, 36" L., Polymeric Lead Wires	18/2 Cable, 6 ft. L., Neoprene with waterproof connection

†L₁ = Switch actuation level, nominal (based on a liquid specific gravity of 1.0).

LS-270 Series Note: Installed vertically with cable upward. Caution: Elastomer seals in the sensor and cable are subject to deterioration and aging, and therefore need to be checked regularly. Life expectancy of seals varies with application.

How To Order – Select Part Number based on specifications required.

Series	Material			Min. Liq. Sp. Gr.	Operating Temperature	Pressure PSI, Max.	Switch ¹		Part Number
	Stem and Mounting	Float	Other Wetted				Level SPST	Temperature ³	
TH800 Temp./Level	Brass	Buna N	Beryllium Copper, Copper, Hysol	.75	Water: to 180°F (82.2°C) Oil: -40°F to +230°F (-40°C to +110°C)	150	20 VA, N.O.	N.C., open on +150°F ±10°F, incr.	57143 ⚡
								N.O., close on +150°F ±10°F, incr.	57144 ⚡
LS-38760	Aluminum	Buna N	S.S., Hysol	.55	-40°F to +180°F (-40°C to +82.2°C)	150	20 VA, N.C.	—	38760 ⚡
LS-270	Copper Nickel	Buna N	Beryllium Copper, Copper Nickel, Polycarb. 304 S.S.	.55	-40°F to +140°F (-40°C to +60°C)	150	20 VA, N.O.	—	43765 ⚡
							20 VA, N.C.		43760 ⚡
							50 VA ² , N.O.		43980 ⚡
							50 VA ² , N.C.		43982 ⚡

Notes:

1. See "Electrical Data" on Page X-5 for more information.

2. Switches are not U.L. Recognized or CSA Listed.

3. See Page B-21 for thermostat ratings and wiring diagram. Other temperature settings are available; consult factory.

Specialty Switches – Continued

Portable Level Switch —
Integral Mounting Magnet



Precisely monitors liquid level and is ideal for controlling filling operations and preventing overflows. Permanent magnet attaches unit securely to steel tank wall at exact level required.

LS-750 Series — Weighted
for Suspension Cable



With a compact-sized float, slosh shield and weighted collar, the LS-750 provides liquid level detection for a wide variety of applications. Suspend in stand pipes or sumps for leak detection duty, or drop into wells for ground-water monitoring. Supplied with 25 feet of waterproof cable.

U.L. Recognized—
File No. E-45168.
CSA Listed-File No.
LR-30200.

LS-700F Series



Overfill Protection for Refrigerant Tanks. The LS-700F enables safe compliance with EPA directives to recover refrigerants. These units are designed to fit standard 30# and 50# D.O.T. approved refrigerant tanks. They provide 80% full shutoff capability when used as an integral part of a recovery system.

U.L. Recognized—
File No. SA8857.
CSA Listed-File No.
LR-30200-31.

Dimensions

Portable Level Switch	LS-750	LS-700F
SJO, 18/2 10' L., Neoprene	22 AWG, 2-Wire Cable	3- or 4-Pin, Quick-Connect Receptacle

†L₁ = Switch actuation level. In liquid with specific gravity of 1.0, switch actuation is approximately half the distance from end of stem to mounting, or at the halfway point of float travel.

How To Order — Select Part Number based on specifications required.

Series	Material			Min. Liquid Sp. Gr.	Operating Temperature	Pressure PSI, Max.	Switch*	Electrical Termination Option	Part Number
	Stem and Mounting	Float	Other Wetted						
Portable	Brass	Buna N	Aluminum, 316 S.S.	.85	Oil: -40°F to +230°F (-40°C to +110°C) Water: to 180°F (82.2°C)	10	SPST, 20 VA N.O., Dry	—	15208 ⚡
LS-750	Brass	Buna N	Nylon, PVC, Beryllium Copper	.45		150	SPST, 20 VA N.C., Dry	PVC Cable Jacket	149350 ⚡
	316 S.S.**	316 S.S.	PVDF, Viton®	.65	-40°F to 212°F (-40°C to +100°C)	375	SPST, 10 VA N.C., Dry	Teflon® Cable Jacket	197433
LS-700F	Brass	304 S.S.	—	.98	-40°F to +221°F (-40°C to +105°C)	400	SPST, 20 VA N.C., Dry	3-Pin	128500 ⚡
								4-Pin	144900 ⚡

*See "Electrical Data" on Page X-5 for more information.

⚡ — Stock Items.

** Stainless steel is generally recognized as safe (GRAS) with FDA for food contact regulations.

Specialty Switches – Continued

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SPECIFICATION

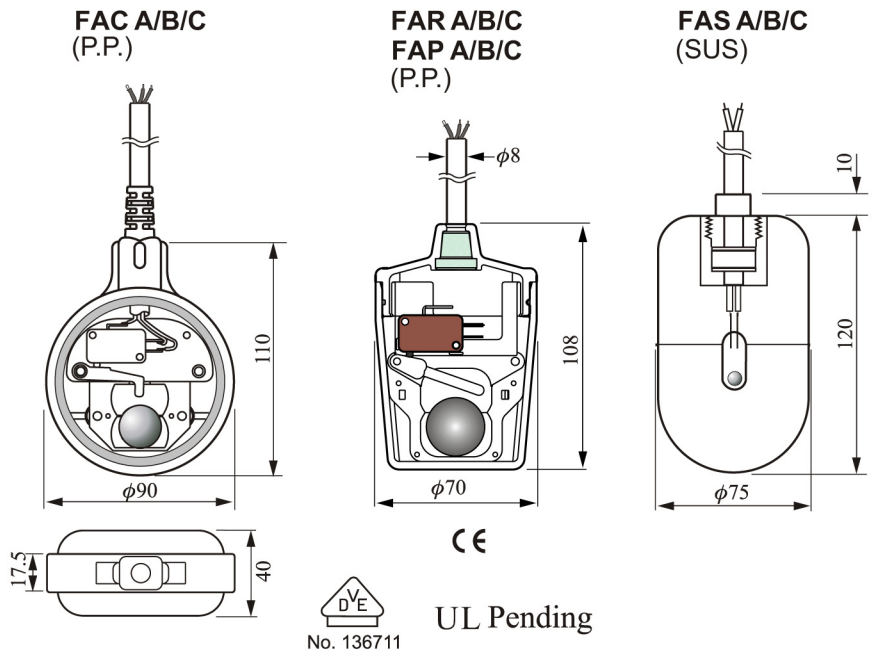
STRUCTURE & DIMENSION

FAS TYPE

- 1. Silicon Cable
- 2. Material: SUS304
Enclosure IP68
- 3. Mercury Switch: 2A/250Vac

FAC/R/P TYPE

- 1. Neoprene Cable or PVC (VCT) Cable
Neoprene cable is approve by "HAR" for its flexibility and it can last longer.
- 2. Float Housing
Material: PP, Enclosure: IP68
The Float Housing is reliable to protect the components(within) from shock and corrosion.
- 3. Micro Switch:
10A/250Vac or 15A/250Vac
- 4. Stainless Steel Ball



SPECIFICATION

Type	FAC A/B/C	FAP A/B/C	FAR A/B/C	FAS A/B/C
Float Material	Polypropylene	Polypropylene	Polypropylene	SUS304
Cable Specification	Neoprene Cable 1mm ² x3C or 2C	PVC Cable 1.25mm ² x3C or 2C	Neoprene Cable 1mm ² x3C or 2C	Silicon Cable 0.75mm ² x3C or 2C
Contact Rating	10A/250Vac (std.) or 15A/250Vac			2A/250Vac
Contact Form	N.O. N.C. or SPDT			
Operating Temp.	-10 C~80 C	0 C~60 C	0 C~80 C	0 C~170 C
Suitable S.G.	0.6			0.5
Weight Approx.	770g/5M	290g/1M		480g/5M
Pressure(Max.).	2 kg/cm ²	2 kg/cm ²	2 kg/cm ²	2 kg/cm ²

FLOAT TYPE CODE

FACA□□

Cable length
x6---0.6M 10--- 10M
03--- 3M Max. 20M
05--- 5M

A --- N.O.
B --- N.C.
C --- SPDT

Cable material
C ---Neoprene
<HAR>HO7RN

FAPA□□

Cable length

A --- N.O.
B --- N.C.
C --- SPDT

Cable material
P --- PVC
R --- Neoprene
<HAR>HO7RN

FASA□□

Cable length

A --- N.O.
B --- N.C.
C --- SPDT

Cable material
S --- Silicon

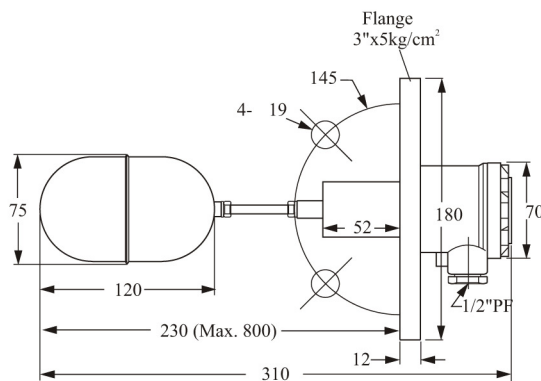
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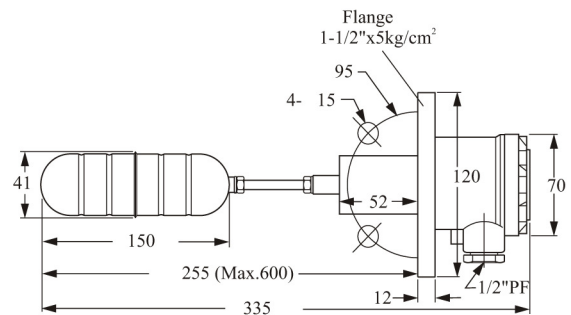
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Float Type



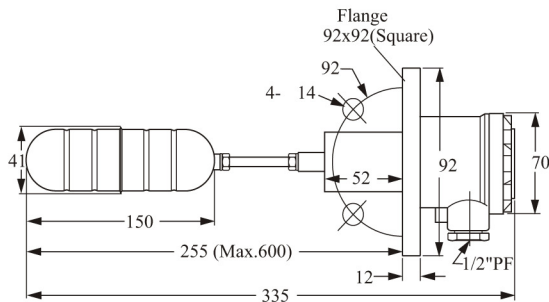
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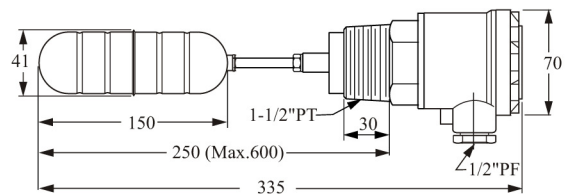
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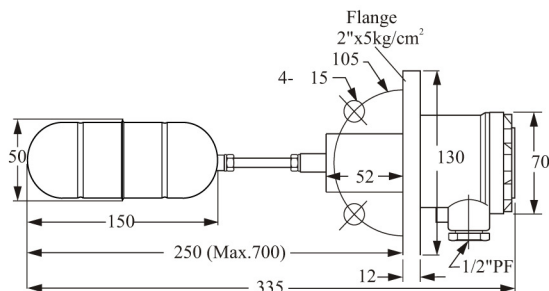
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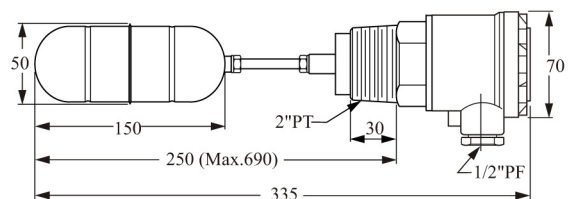
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Model No. LF10DFM



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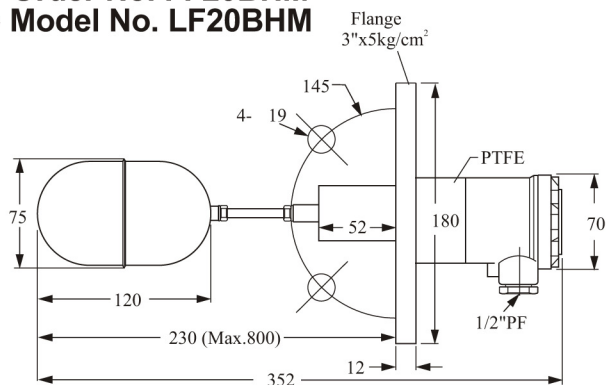
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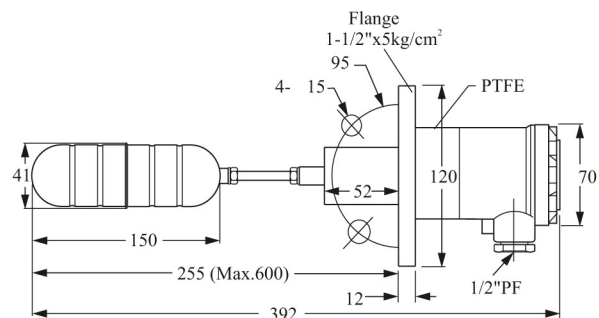
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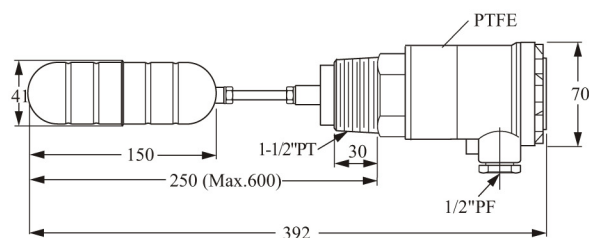
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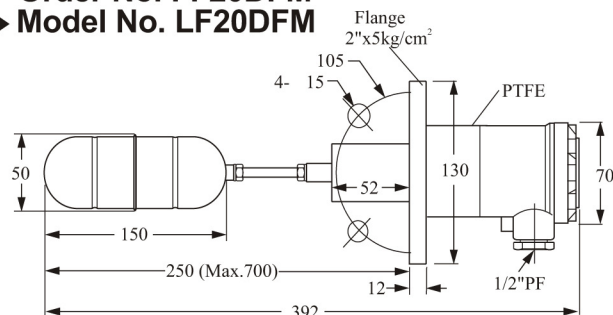
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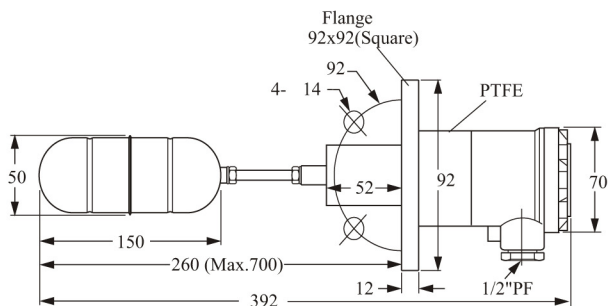
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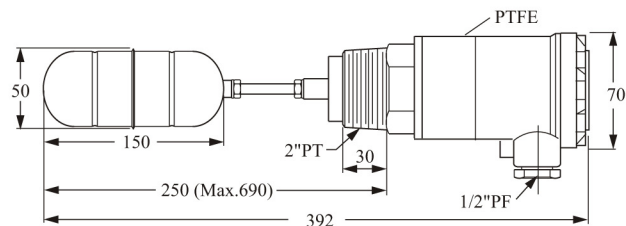
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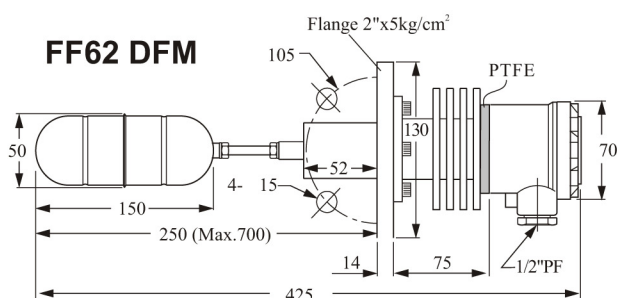
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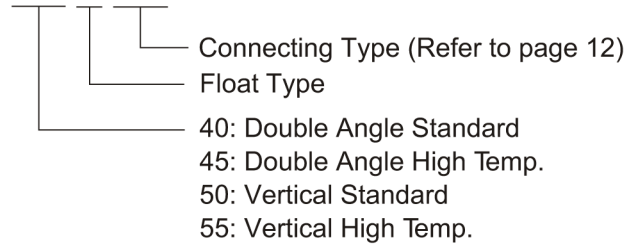
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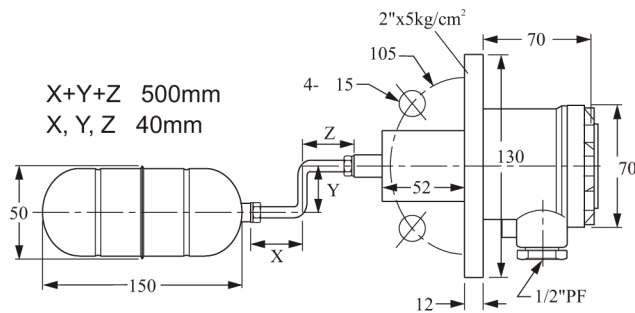
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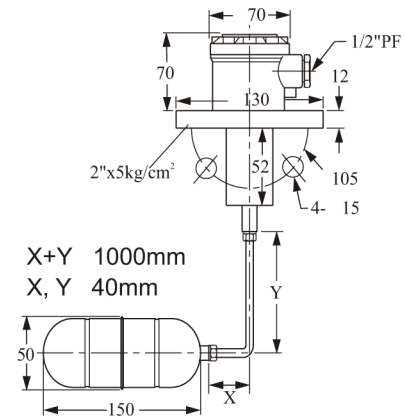
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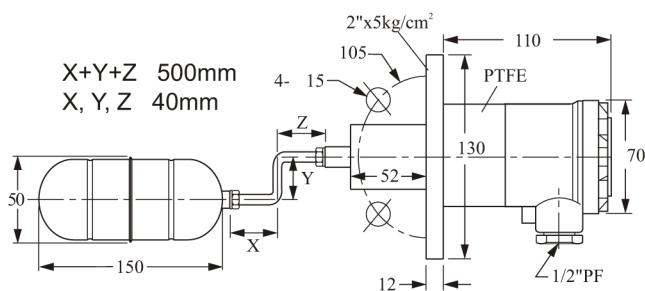
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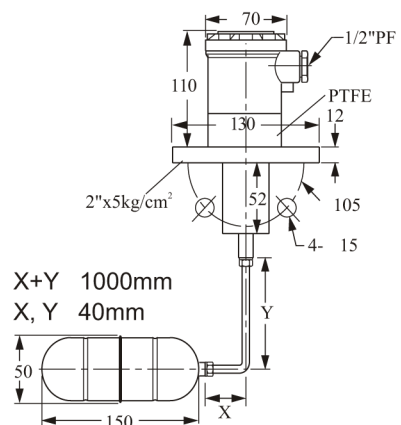
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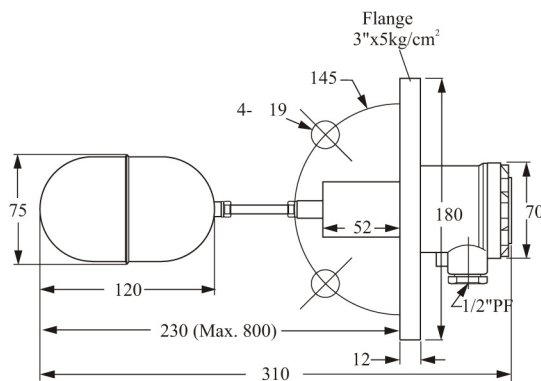
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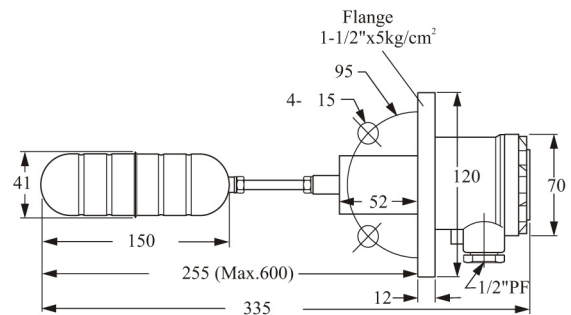
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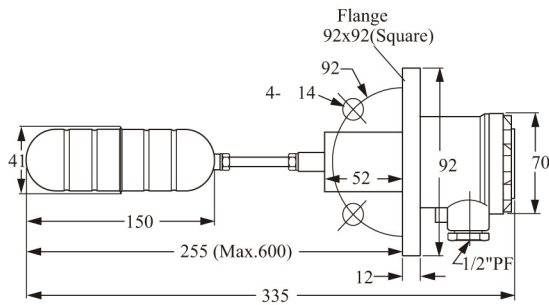
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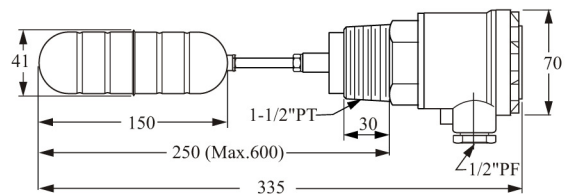
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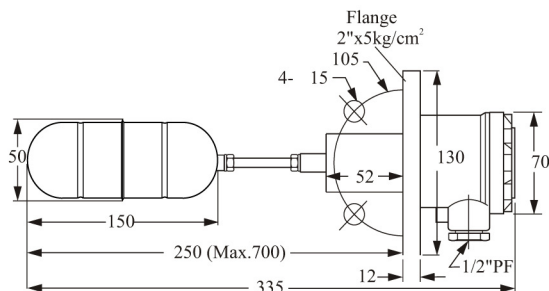
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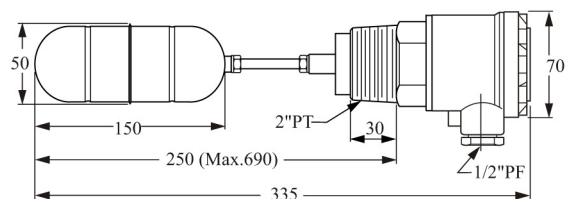
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► Order No. FF10DFM
Model No. LF10DFM



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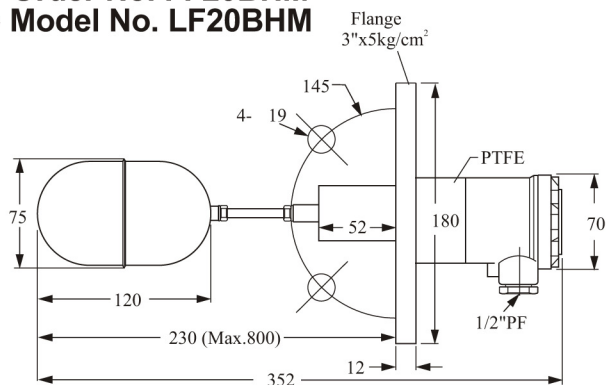
HIGH TEMP.

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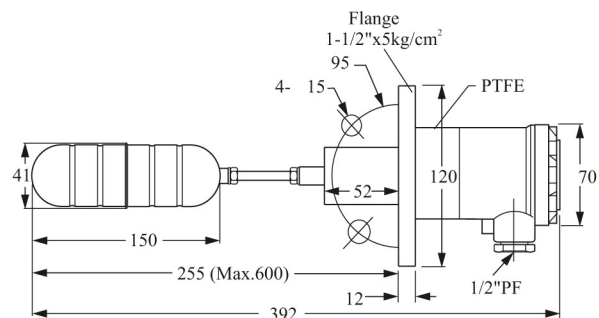
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Float Type



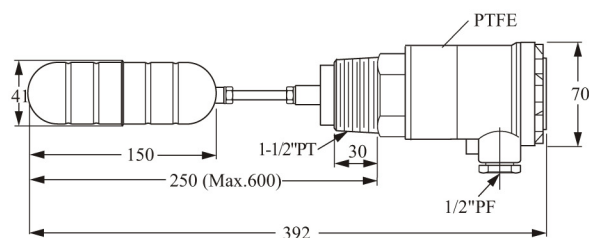
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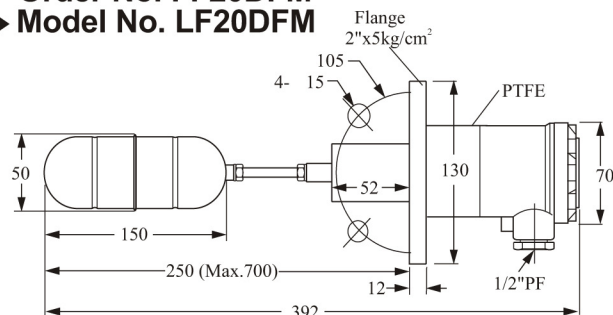
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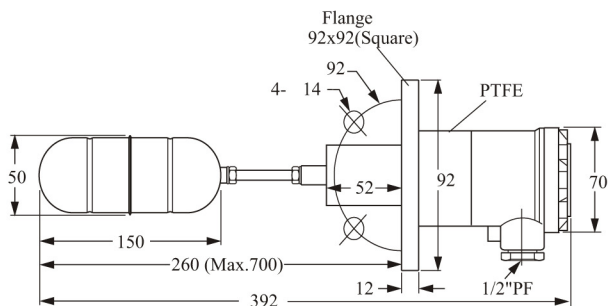
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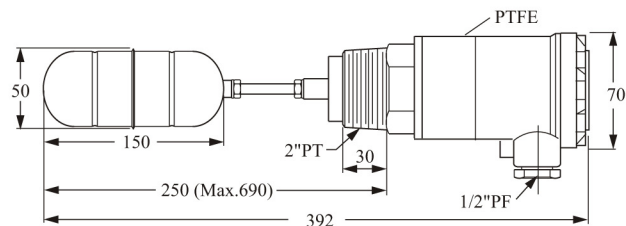
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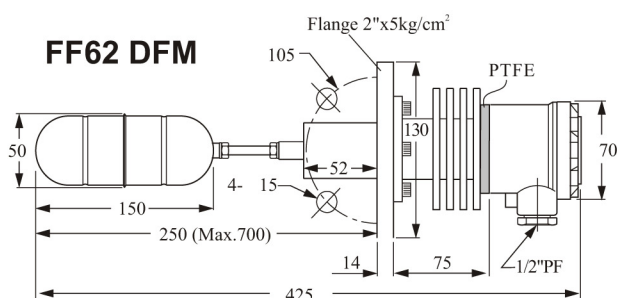
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Order No. FF20DFQ
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Order No. FF62DFM
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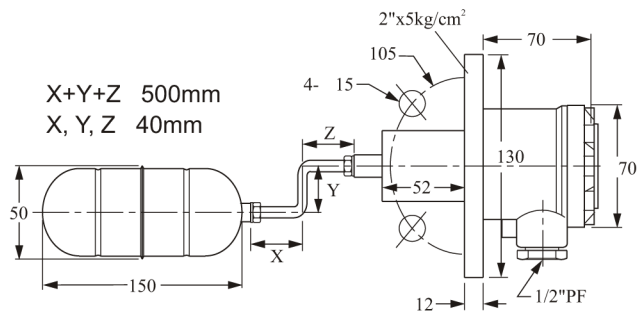


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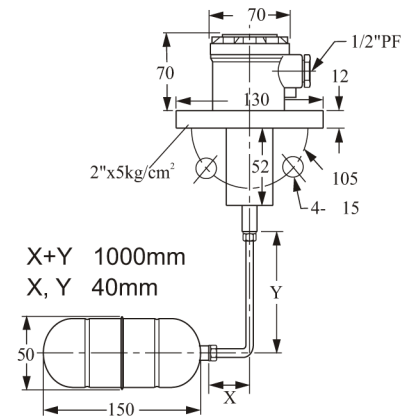
Float Type

40: Double Angle Standard
45: Double Angle High Temp.
50: Vertical Standard
55: Vertical High Temp.

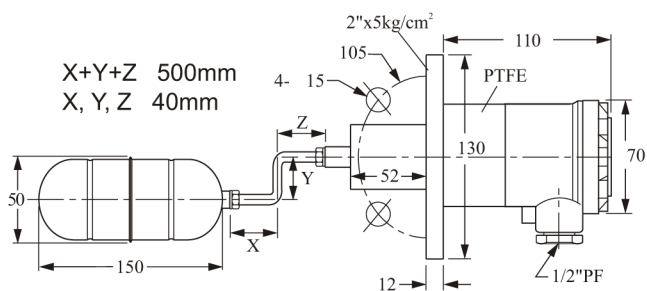
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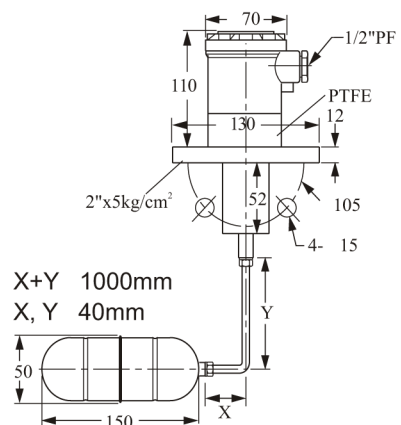
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Model No. LF50DFM



Order No. FF45DFM
▶ Model No. LF45DFM



Order No. FF55DFM
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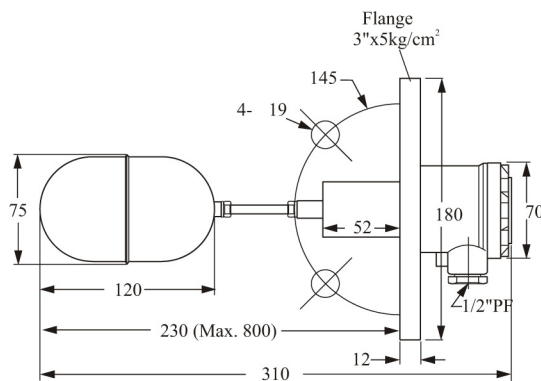
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Order No. F F10

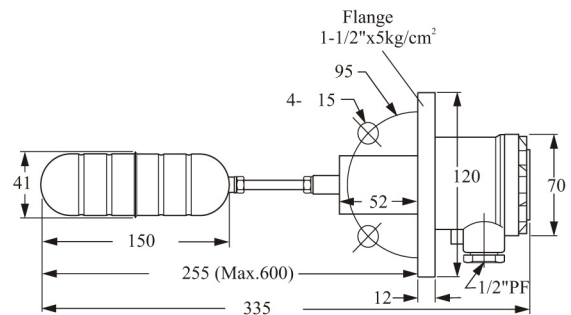
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Float Type



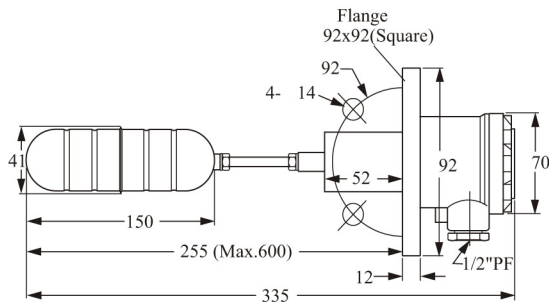
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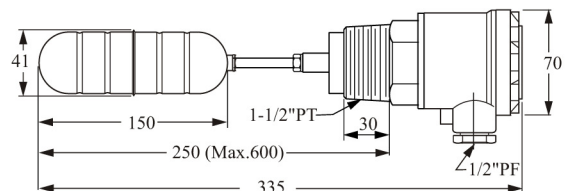
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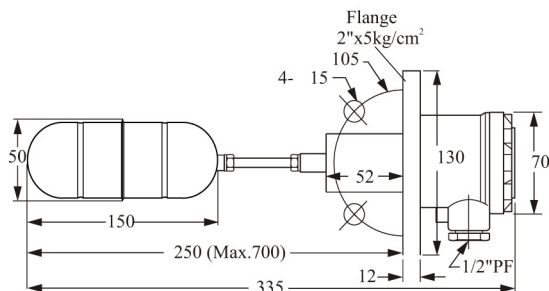
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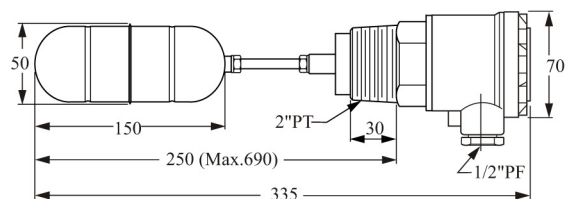
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► Order No. FF10DFM
Model No. LF10DFM



► Order No. FF10DFQ
Model No. LF10DFQ



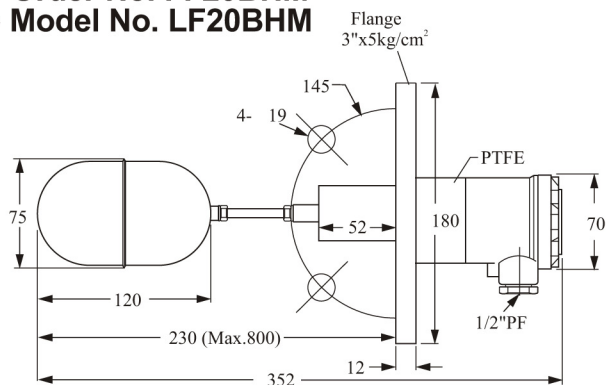
HIGH TEMP.

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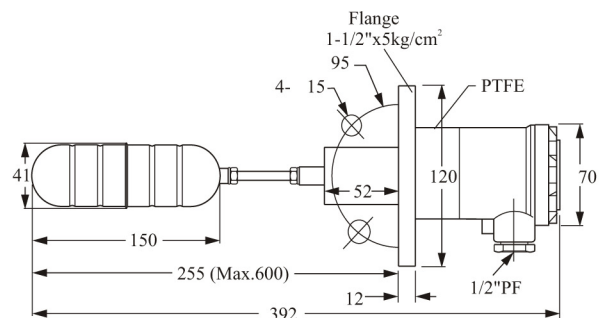
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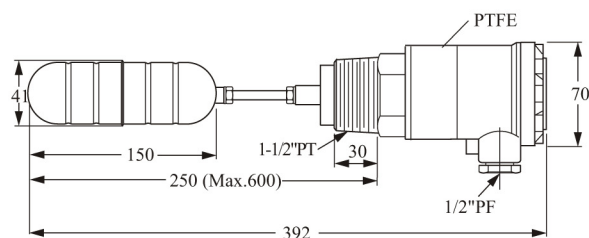
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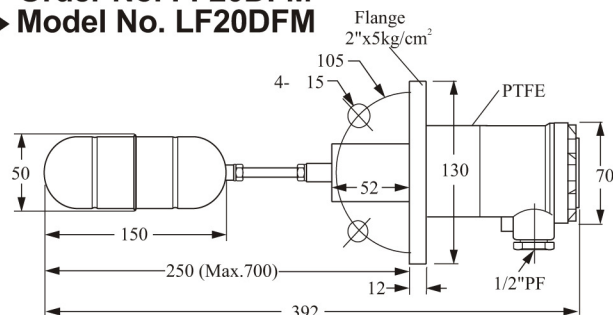
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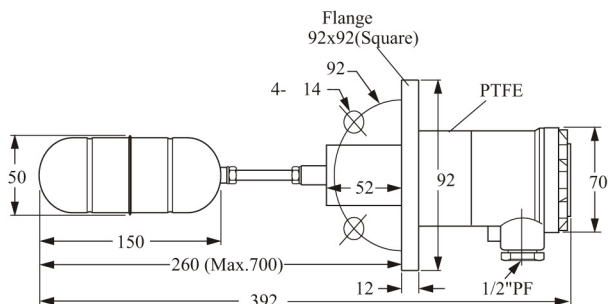
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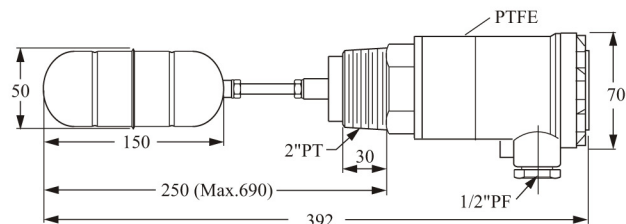
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Model No. LF20DFM



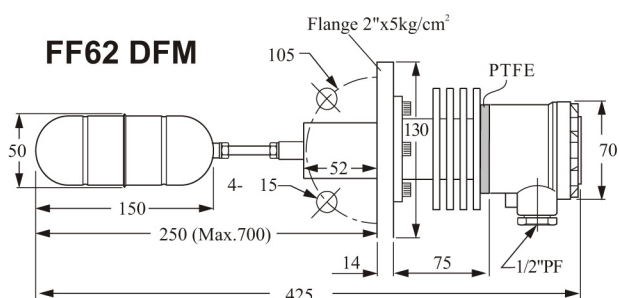
Order No. FF20DLO
Model No. LF120DLO



Order No. FF20DFQ
Model No. LF20DFQ



Order No. FF62DFM
Model No. LF62DFM



Order No. F F

Connecting Type (Refer to page 12)

Float Type

40: Double Angle Standard

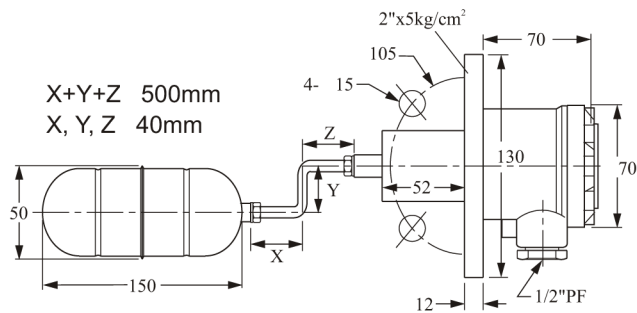
45: Double Angle High Temp.

50: Vertical Standard

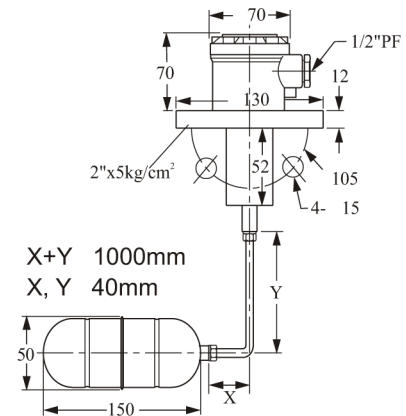
55: Vertical High Temp.

Order No. FF40DFM

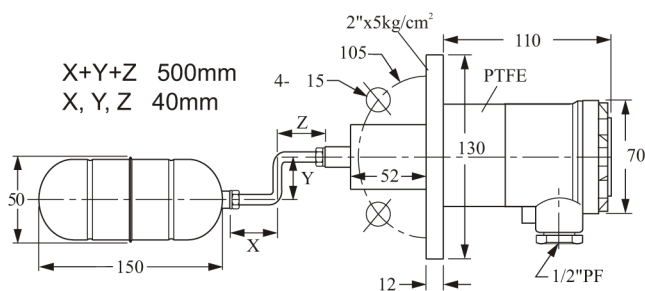
► **Model No. LF40DFM**

**Order No. FF50DFM**

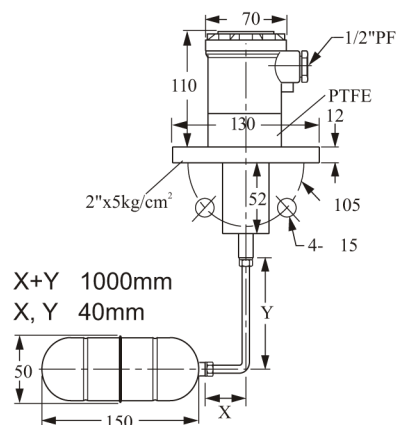
▶ **Model No. LF50DFM**

**Order No. FF45DFM**

► **Model No. LF45DFM**

**Order No. FF55DFM**

► **Model No. LF55DFM**



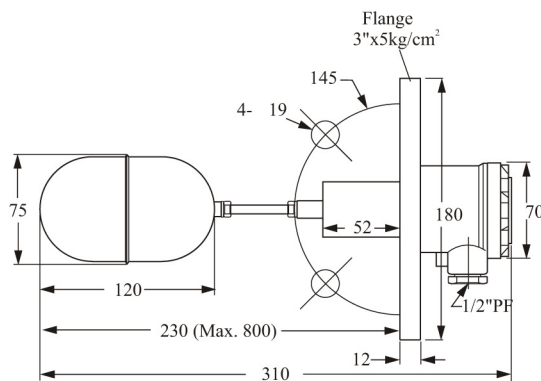
MARINE

Order No. F F10

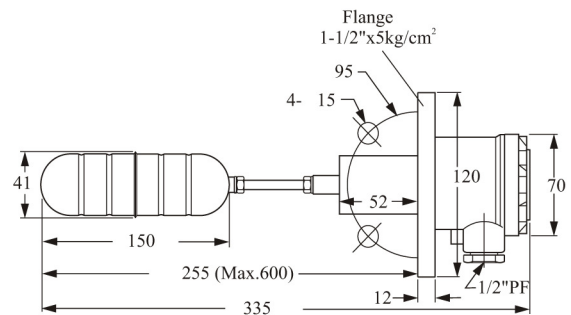
Connecting Type
(Refer to page 12)
Float Type



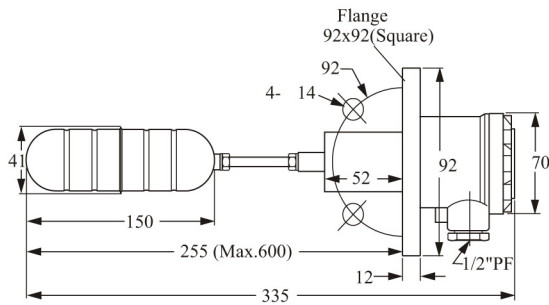
► Order No. FF10BHM
Model No. LF10BHM



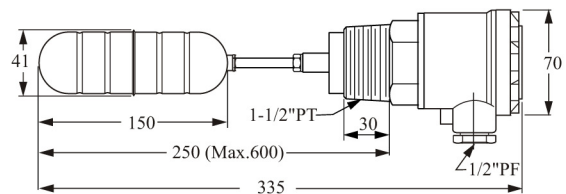
► Order No. FF10CEM
Model No. LF10CEM



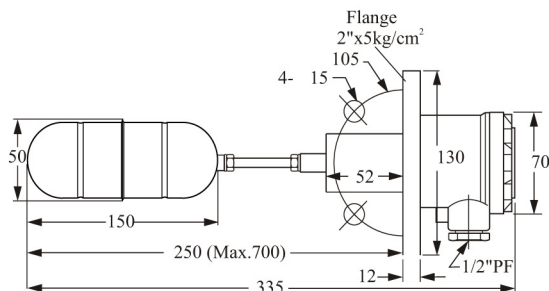
► Order No. FF10CLO
Model No. LF10CLO



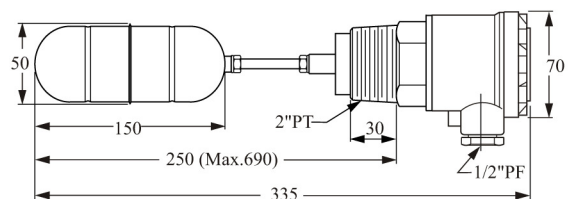
► Order No. FF10CEQ
Model No. LF10CEQ



► Order No. FF10DFM
Model No. LF10DFM



► Order No. FF10DFQ
Model No. LF10DFQ



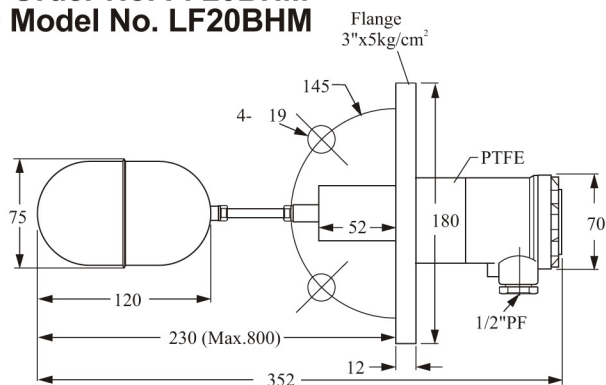
HIGH TEMP.

Order No. FF20

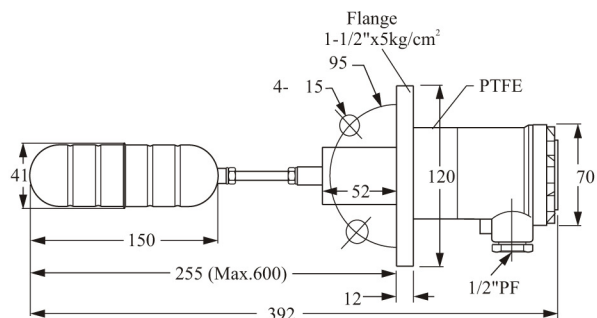
Connecting Type
(Refer to page 12)
Float Type



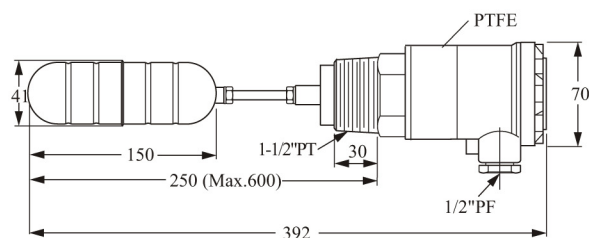
Order No. FF20BHM
Model No. LF20BHM



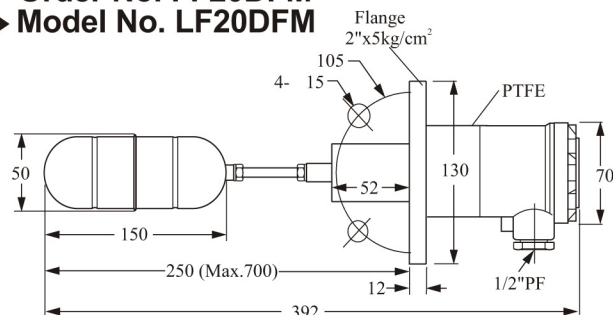
Order No. FF20CEM
Model No. LF20CEM



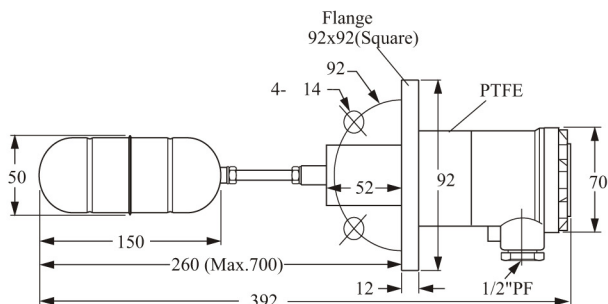
Order No. FF20CEQ
Model No. LF20CEQ



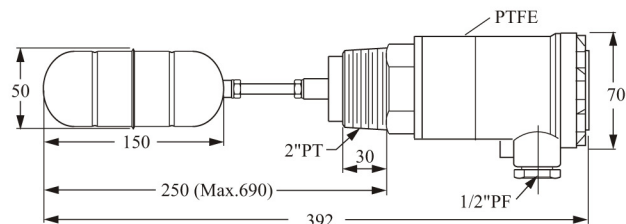
Order No. FF20DFM
Model No. LF20DFM



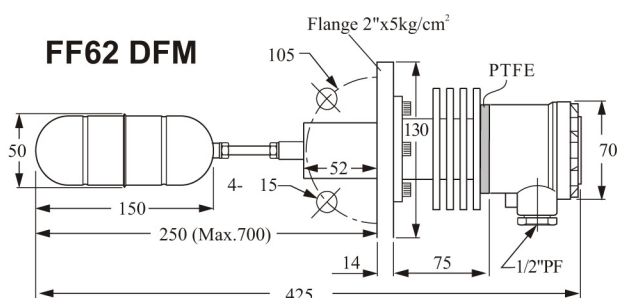
Order No. FF20DLO
Model No. LF120DLO



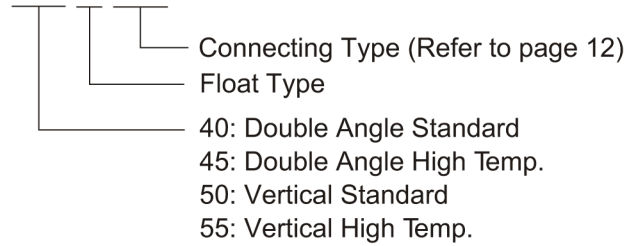
Order No. FF20DFQ
Model No. LF20DFQ



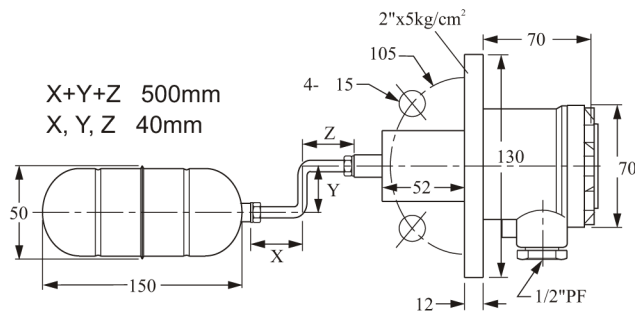
Order No. FF62DFM
Model No. LF62DFM



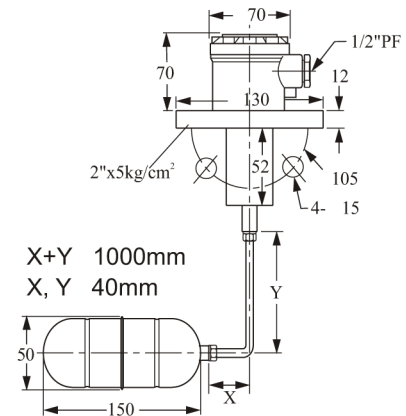
Order No. F F



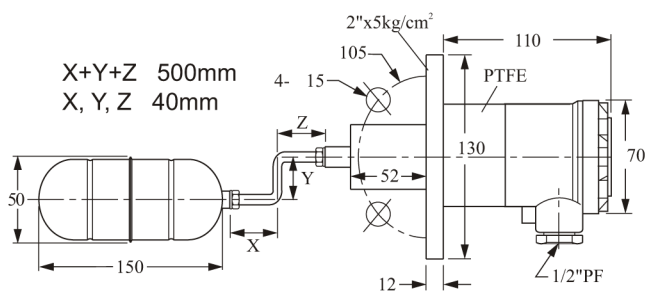
Order No. FF40DFM Model No. LF40DFM



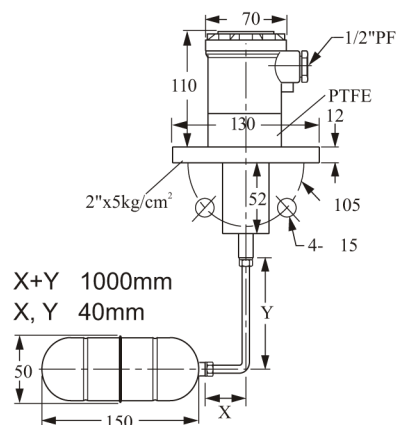
Order No. FF50DFM Model No. LF50DFM



Order No. FF45DFM Model No. LF45DFM



Order No. FF55DFM Model No. LF55DFM

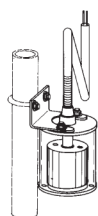
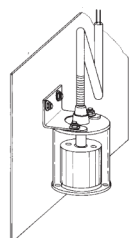


LS-240, LS-270 & LS-750 Bilge water level switches

The design of these bilge water level switches combines reliable switching in contaminated liquids with compact dimensions. These switches have been developed for general naval and industrial applications. They have protective housings which dampen the movements and turbulence of the medium and maintain their reliable operation even if there is solid matter in the bilge water.

Acceptance and Approvals

Various civil, military and naval approvals are on hand for many of these products. Please ask for further details.



ABS
American Bureau
of Shipping



LS-240-3E



Germanischer Lloyd
GL (Germany)



LS-270-E



Germanischer Lloyd
GL (Germany)



LS-750

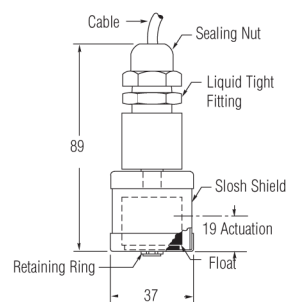
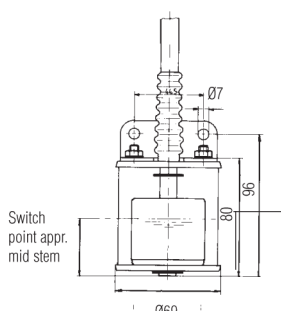
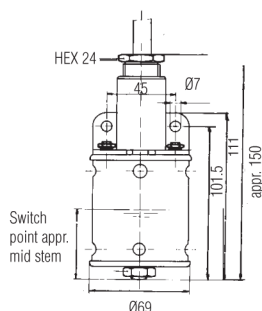
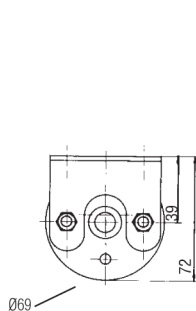
Applications

LS-240-3E: This switch has extremely robust construction. It is perfectly suitable for applications on ships and wherever heavy mechanical loads occur. The LS-240-3E has been accepted by the Germanischer Lloyd, among others, and approved for application by the German Navy.

LS-270-E: This bilge water level switch has been developed especially for low level alarms and can monitor levels as low as 35 mm. As the cable is vulcanized the switch is submersible to "IP67". The float can also be constructed as an interface level indicator.

The LS-270-E has been accepted by the Germanischer Lloyd, among others, and approved for application by the German Navy.

LS-750: With a compact-sized float, slosh shield and weighted collar, the LS-750 provides liquid level detection for a wide variety of applications. Suspend in stand pipes or sumps for leak detection duty, or drop into wells for ground-water monitoring. Supplied with 7.5m of waterproof cable.



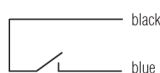
Specifications

	LS-240-3E	LS-270-E	LS-750
Material stem	S Steel	S Steel	Brass
Material float:	Buna N	Buna N	Buna N
Stilling chamber	S. Steel	Lucite	Brass
Bracket	S Steel	S Steel	
Operating pressure	10 bar	10 bar	10 bar
Temperature -40°C to	+80°C	+80°C	+80°C Water
Min. specific gravity of the liquid	0.53	Standard: 0.58 Interface level: 0.85/1	0.45
Protection rating	IP67	IP67	IP68 to 8m
Type of reed switch	SPST 100 VA	SPST 100 VA	N.C., 20VA
Electrical connection	(Length 2m) Cable: LMGSGo 2 x 1.5mm ²	(Length 2m) Cable: CR 3x1.5mm ²	(Length 7.5m) PVC Cable Jacket 22 AWG
Weight	650 g	530 g	830 g

How to Order

STD Float	010-3433 NO.	010-3434 NC	010-0349 NO	010-0350 NC	149350 NC
Interface Float Oil/Water			010-0351 NO	010-0352 NC	

Connecting Diagram



LS-240-E



LS-270-E



LS-750

Standard Products in **bold**