

TECHNICAL INFO

Side Mounting Level Switch

TechSide - LSS

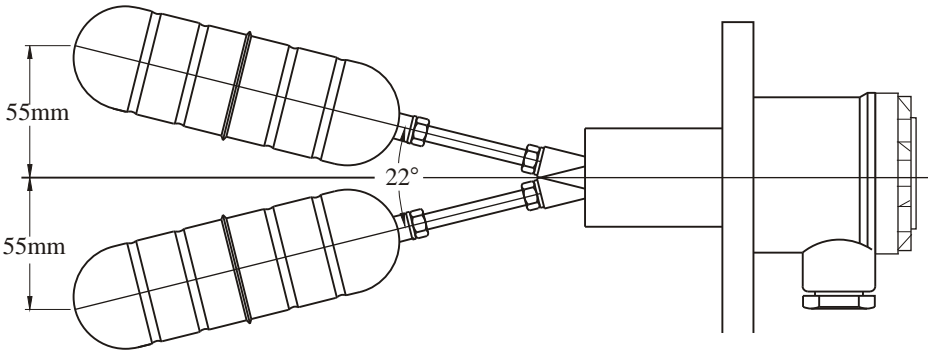
PRINCIPLE

Simple theory as liquid buoyancy is utilized for the main principle of this "LSS" series. A change of liquid level correspondingly travels the float to extreme levels up and down. The reed switch is thus "NC" and "NO" exchanged as well as the permanent magnet on pivot will have mutual repulsion to the other one inside on the housing for like poles, which the Microswitch is button-pushed by magnet to states "NO" and "NC" exchanging likewise.

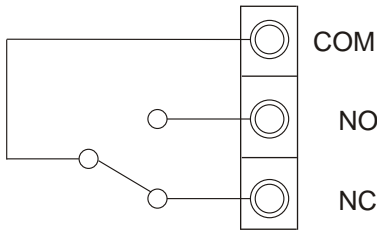
FEATURES

The side mounted float level sensor (LSS series) are manufactured specifically for horizontal mounting in a tank or vessel. They work well as high or low level control.

1. Both MicroSwitch type and Reed Switch are available. The MicroSwitch type is usable even at ambient temp. of 100°C max.
2. Mounting flanges are custom-made. (JIS, DIN, ANSI).
3. A rich variety of floats suits different specific gravity (S.G.) of liquid.(Custom-made)
4. Liquid-wetted party material can be selected from SUS304 or SUS316 as well as enclosure explosion proof model.



WIRING



REED SWITCH ---- 1A, 30W 220Vac/200Vdc (LSS20, 45, 55, 80)
MICRO SWITCH ---- 5A/250Vac



CONFIGURATION CUTTING DRAWINGS

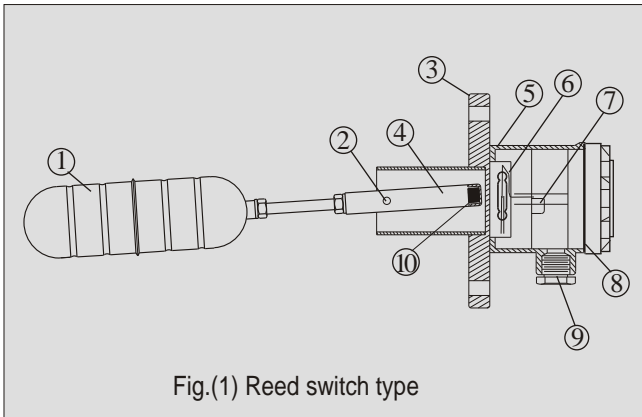


Fig.(1) Reed switch type

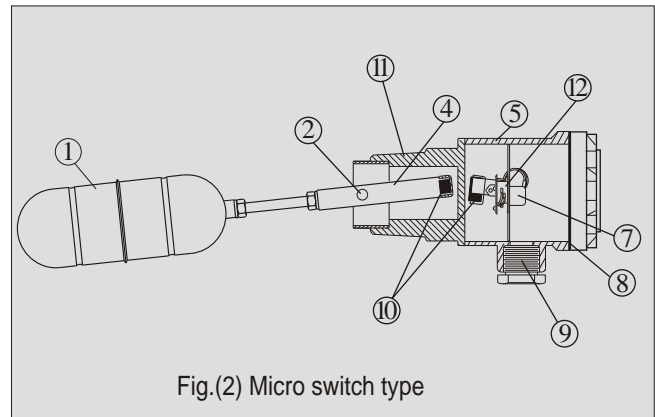


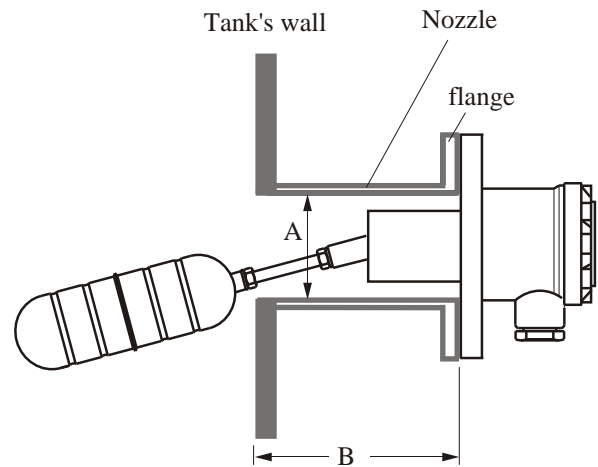
Fig.(2) Micro switch type

- | | | | |
|-----------|----------------|-------------|-----------------|
| 1. Float | 4. Pivot | 7. Terminal | 10. Magnet |
| 2. Shaft | 5. Housing | 8. O-ring | 11. Screw |
| 3. Flange | 6. Reed Switch | 9. Conduit | 12. Microswitch |

► The diameter and length of the connecting pipe (of a tank) are in a direct ratio.

UNIT: mm

Pipe dia. (A)	45-50	50-55	55-60	60-65	65-70
Length (B) (Max.)	130	140	150	160	170



SPECIFICATION

MODEL	SPEC.	Operating Temp.	Electrical Contact	Contact Capacity	Contact Element	Housing Spec.	Applicable S.G.
LSS10BHM		-20°C~100°C	SPDT(1C)	5A/250Vac	Microswitch	Aluminum Alloy IP65	0.25
LSS10CEM		-20°C~100°C	SPDT(1C)	5A/250Vac	Microswitch	Aluminum Alloy IP65	0.65
LSS10CEQ		-20°C~100°C	SPDT(1C)	5A/250Vac	Microswitch	Aluminum Alloy IP65	0.65
LSS10CLO		-20°C~100°C	SPDT(1C)	5A/250Vac	Microswitch	Aluminum Alloy IP65	0.65
LSS10DFM		-20°C~100°C	SPDT(1C)	5A/250Vac	Microswitch	Aluminum Alloy IP65	0.55
LSS10DFQ		-20°C~100°C	SPDT(1C)	5A/250Vac	Microswitch	Aluminum Alloy IP65	0.55
LSS10HEQ		-20°C~100°C	SPDT(1C)	5A/250Vac	Microswitch	SUS304 IP65	0.8
LSS12CEM		-40°C~100°C	SPDT(1C)X2	5A/250Vac	Microswitch	Aluminum Alloy IP65	0.65
LSS20BHM		-40°C~200°C	SPDT(1C)	1A, 60W 220Vac/200Vdc	Reed Switch	Aluminum Alloy IP65	0.25
LSS20CEM		-40°C~200°C	SPDT(1C)	1A, 30W 220Vac/200Vdc	Reed Switch	Aluminum Alloy IP65	0.65
LSS20CEQ		-40°C~200°C	SPDT(1C)	1A, 30W 220Vac/200Vdc	Reed Switch	Aluminum Alloy IP65	0.65
LSS20DFM		-40°C~200°C	SPDT(1C)	1A, 30W 220Vac/200Vdc	Reed Switch	Aluminum Alloy IP65	0.55
LSS20DFQ		-40°C~200°C	SPDT(1C)	1A, 30W 220Vac/200Vdc	Reed Switch	Aluminum Alloy IP65	0.55
LSS20DLO		-40°C~200°C	SPDT(1C)	1A, 30W 220Vac/200Vdc	Reed Switch	Aluminum Alloy IP65	0.55

※ Above-mentioned models are approved by marine grade : DNV 、 LR 、 GL 、 BV 、 ABS 。



SPECIFICATION

MODEL \ SPEC.	Operating Temp.	Electrical Contact	Contact Capacity	Contact Element	Housing Spec.	Applicable S.G.
LSS30A3Q	-20°C~100°C	SPST(1A)	1A, 50W 240Vac/200Vdc	Reed Switch	SUS304 IP65	0.65
LSS40DFM	-20°C~100°C	SPDT(1C)	5A/250Vac	Microswitch	Aluminum Alloy IP65	0.55
LSS45DFM	-40°C~200°C	SPDT(1C)	1A, 60W 220Vac/200Vdc	Reed Switch	Aluminum Alloy IP65	0.55
LSS50DFM	-20°C~100°C	SPDT(1C)	5A/250Vac	Microswitch	Aluminum Alloy IP65	0.55
LSS55DFM	-40°C~200°C	SPDT(1C)	1A, 60W 220Vac/200Vdc	Reed switch	Aluminum Alloy IP65	0.55
LSS62DFM	-40°C~350°C	SPDT(1C)	5A/250Vac	Microswitch	Aluminum Alloy IP65	0.55
LSS70/71BHM	-20°C~100°C	SPDT(1C)	3A/250Vac	Microswitch	SUS316 Ex d IIB T3~T6	0.25
LSS70/71CFM	-20°C~100°C	SPDT(1C)	3A/250Vac	Microswitch	SUS316 Ex d IIB T3~T6	0.65
LSS70/71DFM	-20°C~100°C	SPDT(1C)	3A/250Vac	Microswitch	SUS316 Ex d IIB T3~T6	0.55
LSS73GLO	-20°C~100°C	SPDT(1C)	3A/250Vac	Microswitch	SUS316 Ex d IIB T3~T6	0.7
LSS75DFM	-20°C~100°C	SPDT(1C)	3A/250Vac	Microswitch	SUS316 Ex d IIB T3~T6	0.55
LSS80EFM	-20°C~80°C	SPDT(1C)	1A, 30W 220Vac/200Vdc	Reed switch	PC IP65	0.60
LSS81EFM	-20°C~80°C	SPDT(1C)	1A, 30W 220Vac/200Vdc	Reed switch	—	0.60
LSS90GLO	-20°C~100°C	SPDT(1C)	5A/250Vac	Microswitch	Aluminum Alloy IP65	0.65

※ Above-mentioned models are approved by marine grade : DNV 、 LR 、 GL 、 BV 、 ABS 。



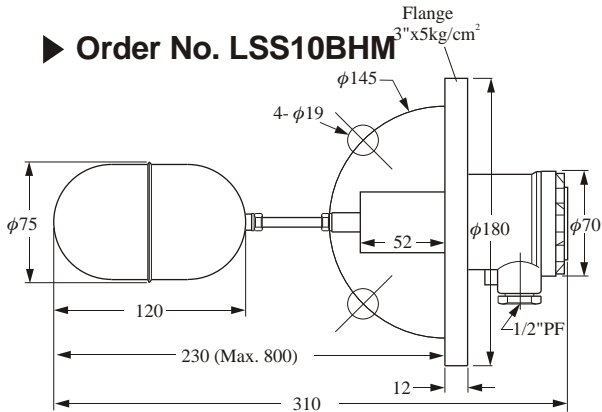
STANDARD

Order No. LSS

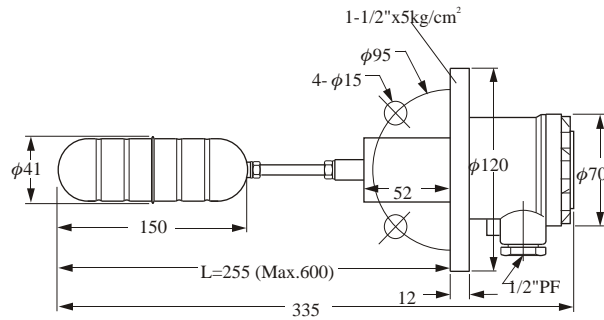
Connecting Type (Refer to page 12)
 Float Type
 10: Single Switch
 12: Dual Switch



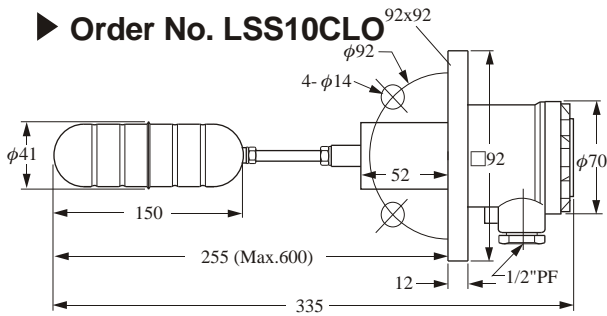
► Order No. LSS10BHM



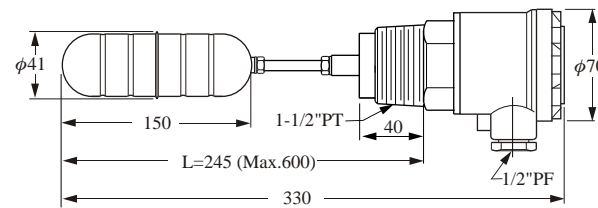
► Order No. LSS10CEM



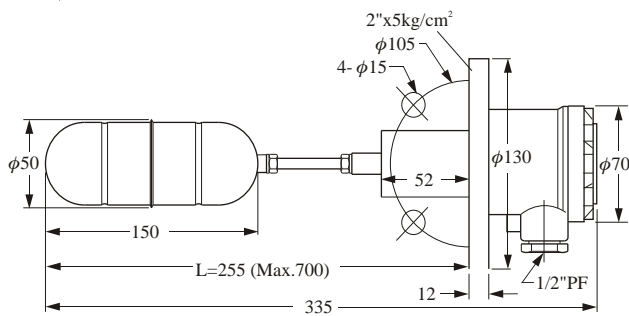
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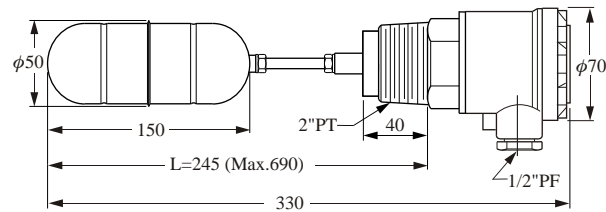
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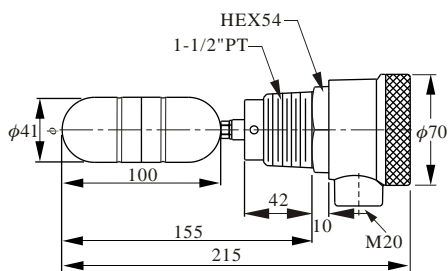
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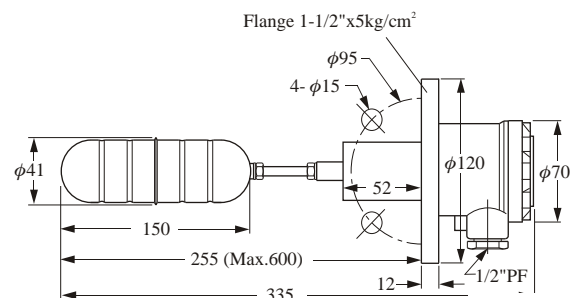
► Order No. LSS10DFQ



► Order No. LSS10HEQ



► Order No. LSS12CEM



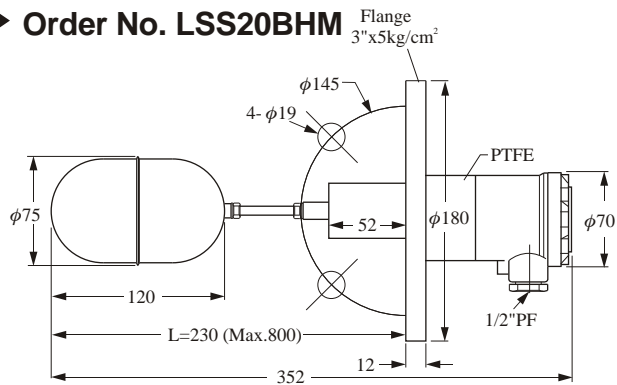
HIGH TEMP.

Order No. LSS20

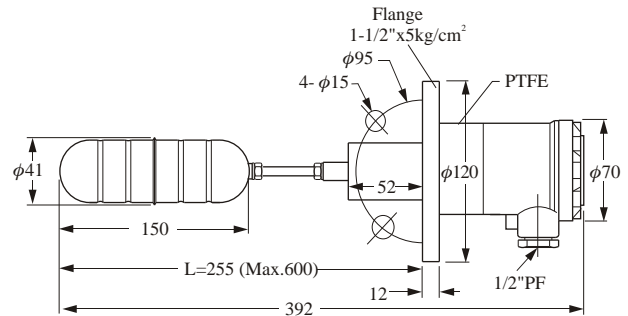
Connecting Type
(Refer to page 12)
Float Type



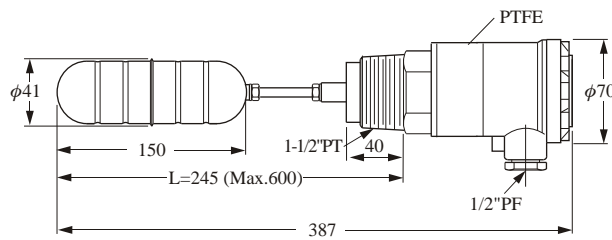
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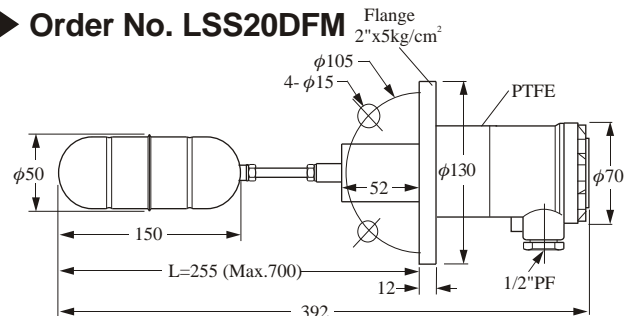
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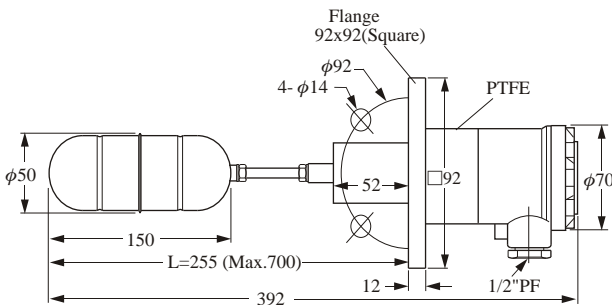
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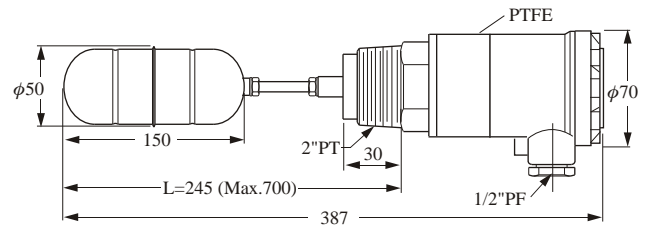
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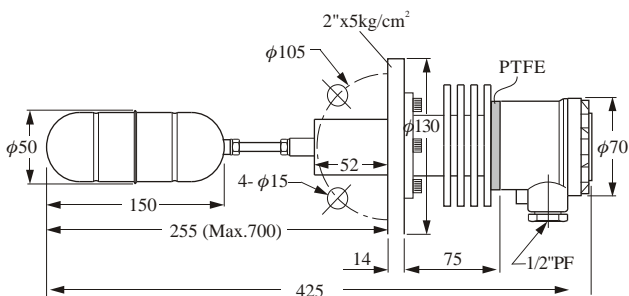
► Order No. LSS20DLO



► Order No. LSS20DFQ



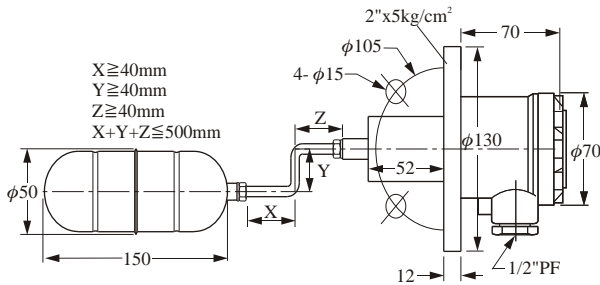
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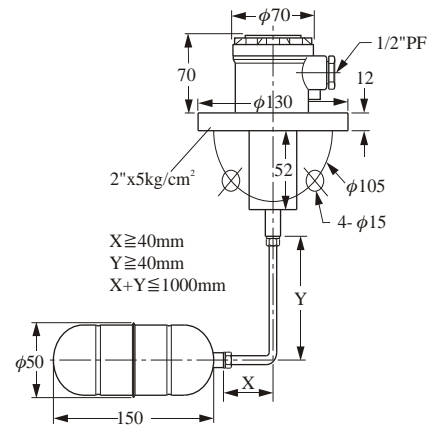
Order No. LSS

- Connecting Type (Refer to page 12)
- Float Type
- 30: Mini Type
- 40: Double Angle Standard
- 45: Double Angle High Temp.
- 50: Vertical Standard
- 55: Vertical High Temp.

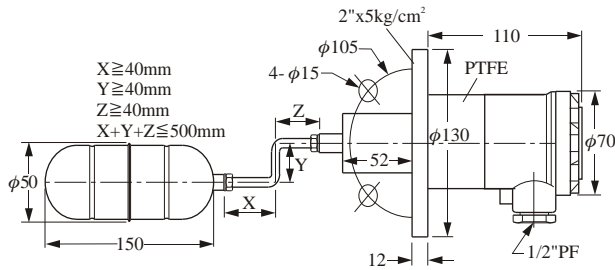
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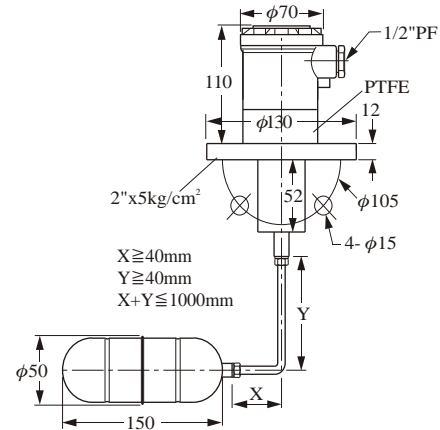
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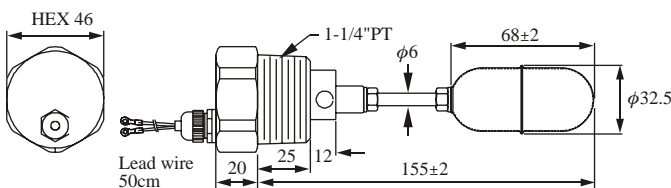
► Order No. LSS45DFM



► Order No. LSS55DFM



► Order No. LSS30A3Q



ANTI-ACID / ALKALINE

PRINCIPLE

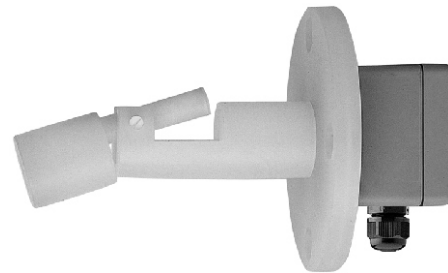
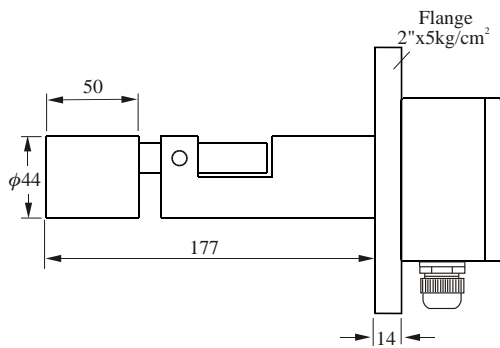
When the solid polypropylene float is flooded by a liquid, its weight is reduced by the buoyancy of the liquid and the float moves upward. Thus, a permanent magnet that built in the float actuates the reed switch in the sensor body to work the "NO" and "NC" exchanges.

LSS80EFM --- PC Housing
LSS81E --- Without Housing

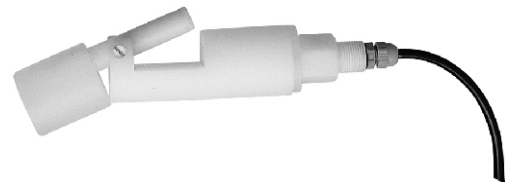
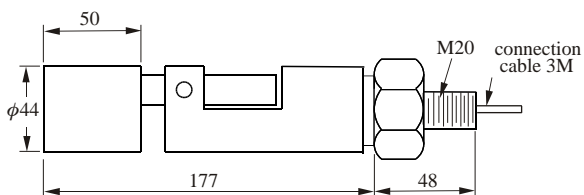
Wetted parts : P.P.

Cable spec. : PVC 3x0.75 mm²

► Order No. LSS80EFM

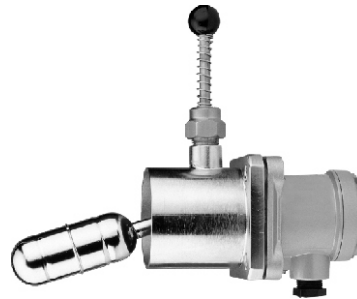
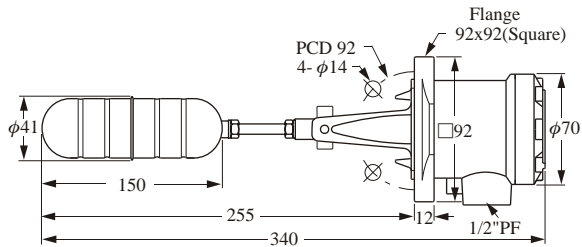


► Order No. LSS81E



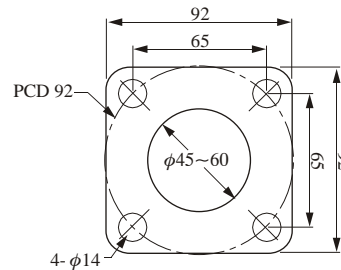
SQUARE FLANGE & TEST ACCESSORY

► Order No. LSS90CLO



1. Housing material: Aluminum (IP65)
2. Suitable S.G.: >0.65
3. Operation temp.: -20~100°C
4. Contact form: SPDT(1C)
5. Contact rating: 5A/250Vac
6. Operation pressure: 15kg/cm²
7. Wetted parts: SUS304
8. Weight: approx. 1.2 kg

Drill Hole



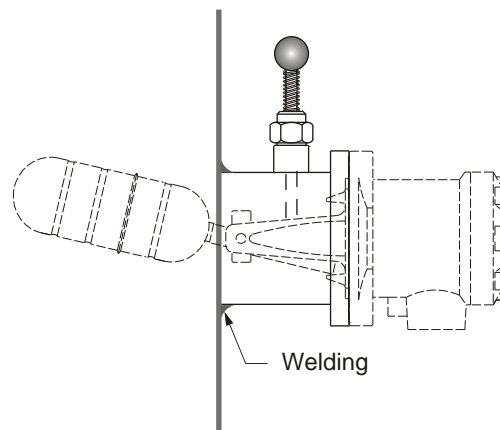
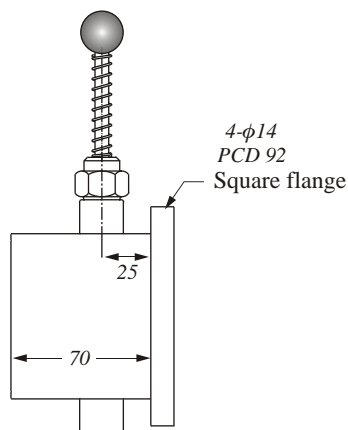
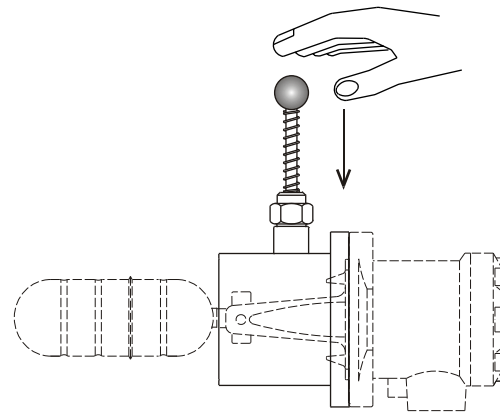
Test Board (Optional)

Material: SS41

Please weld test board with level instrument.
Without level dropping, level instrument can
be checked regularly if functions well.

Check list

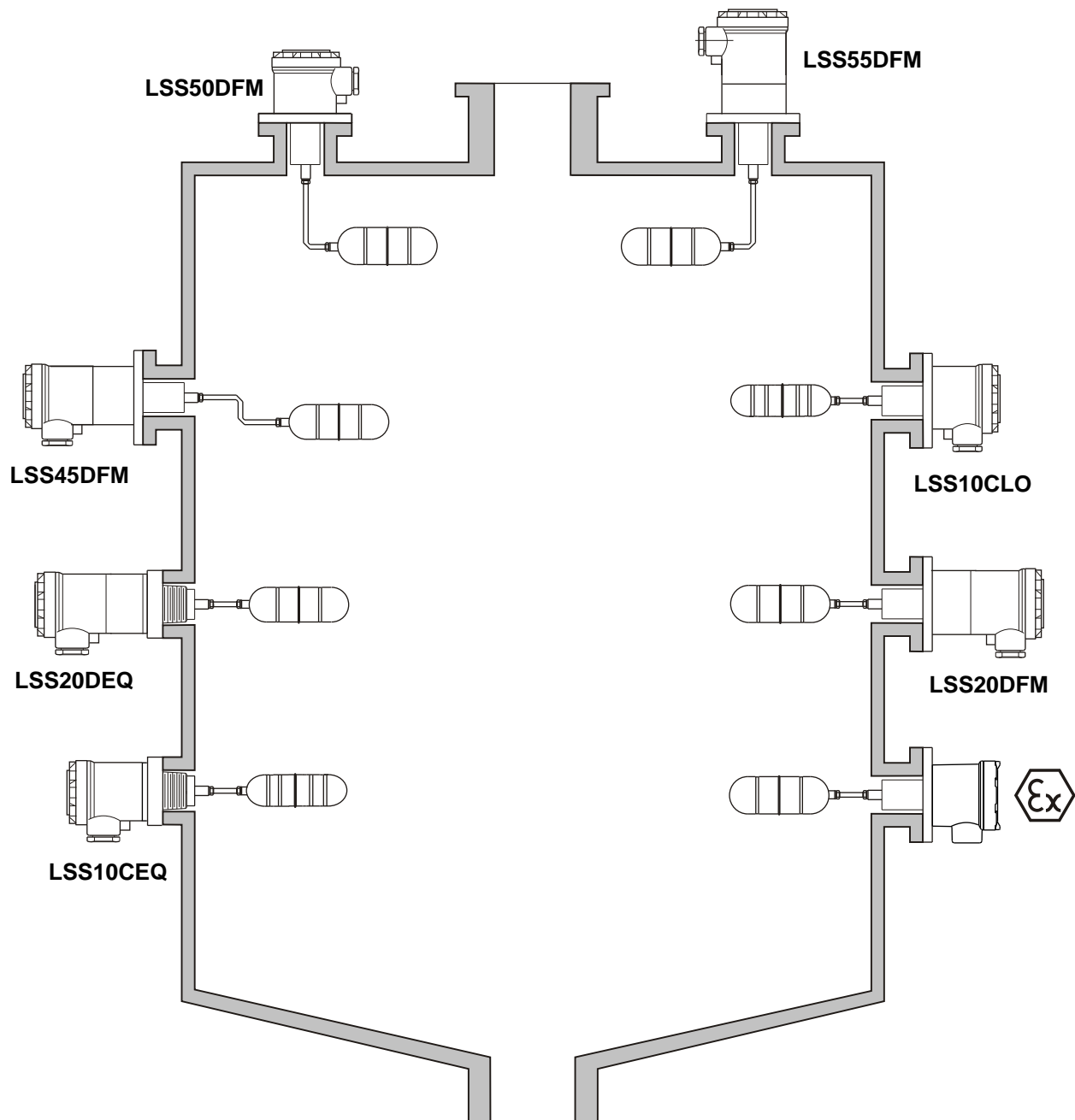
- Check if mechanical parts of level switch function well?
- Check if float functions well?



IMPORTANCE FOR INSTALLATION

1. SUS304/SUS316 materials is not available for corrosive application.
2. The cable duct(s) must face downward to prevent moisture sipping in.
3. The float and extension rod must be inserted into a bin completely.
4. Be sure the liquid object's S.G. before installation.
5. The mounting hole must be larger than the external diameter of float.(Please refer to page 2)
6. Don't mount the devices near the bin's inlet or outlet.

Typical Positioning



HOW TO MAKE YOUR ORDER

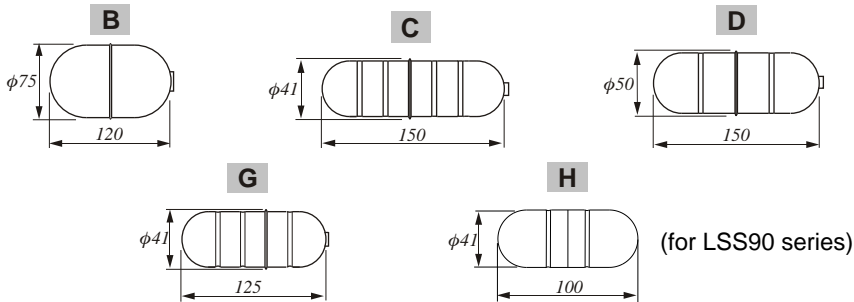
Order No. **LSS** **10** **C** **EM** **(S)** **(T)**

ORDER NO.

10/12: STANDARD	80: ANTI-ACID/ALKALINE
20/26: HIGH TEMP.	81: ANTI-ACID/ALKALINE
40: DOUBLE ANGLE STANDARD	90/96: SQUARE FLANGE
45: DOUBLE ANGLE HIGH TEMP.	
50: VERTICAL STANDARD	
55: VERTICAL HIGH TEMP.	
62/66: HIGH TEMP RADIATOR	
70: LF70 Screw Type (Ex d II C T3~T6)	
71: LF71 Flange Type (Ex d II C T3~T6)	
73: LF73 Square Flange Type (Ex d II C T3~T6)	
75: LF75 Top Mounting Type (Ex d II C T3~T6)	

FLOAT TYPE

B: $\phi 75 \times 120$ (OPERATION PRESSURE 10 kg/cm^2 S.G. 0.25)
 C: $\phi 41 \times 150$ (OPERATION PRESSURE 15 kg/cm^2 S.G. 0.65)
 D: $\phi 50 \times 150$ (OPERATION PRESSURE 30 kg/cm^2 S.G. 0.55)
 G: $\phi 41 \times 125$ (OPERATION PRESSURE 15 kg/cm^2 S.G. 0.7)
 H: $\phi 41 \times 100$ (OPERATION PRESSURE 15 kg/cm^2 S.G. 0.8)



CONNECTING TYPE

E: 1-1/2" (40A)	M: 5 kg/cm^2	W: PN 10 (10Bar)
F: 2" (50A)	N: 10 kg/cm^2	X: PN 16 (16Bar)
G: 2-1/2" (65A)	O: 150 Lbs	Y: PN 25 (25Bar)
H: 3" (80A)	P: 300 Lbs	Z: PN 40 (40Bar)
I: 4" (100A)	Q: PT	S: Others
J: 5" (125A)	R: PF(G)	
K: 6" (150A)	T: BSP	
L: 92x92	U: NPT	

CUSTOM LENGTH(L) (UNIT: mm)



TEST BOARD

- ※ Tolerance of the total product length is $\pm 5 \text{ mm}$
- ※ Characteristics, specifications and dimensions are subject to change without notice.



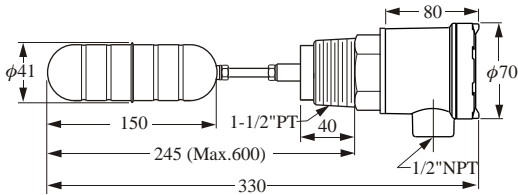
ENCLOSURE EXPLOSION PROOF

Order No. LSS

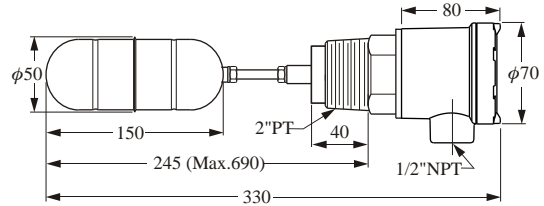
NEPSI PROOF No. GYJ06235 Ex d IIC T3~T6
PTB PROOF No. 05 ATEX 1025  II 2G EEx d IIB T3~T6
 II 2D IP65 T3~T6

Connecting Type (Refer to page 14)
Float Type
7 : Explosion Proof (EX d IIB T4)

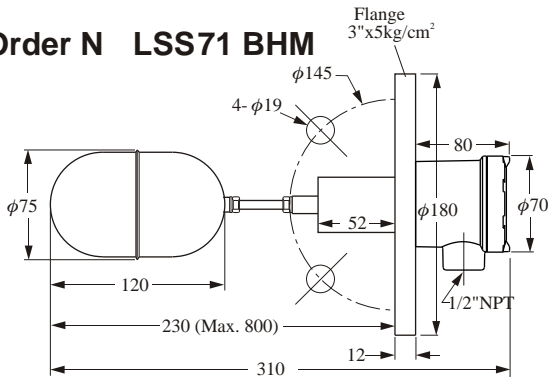
► Order N LSS70 CEQ



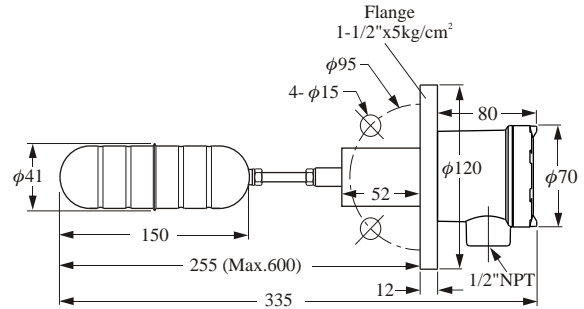
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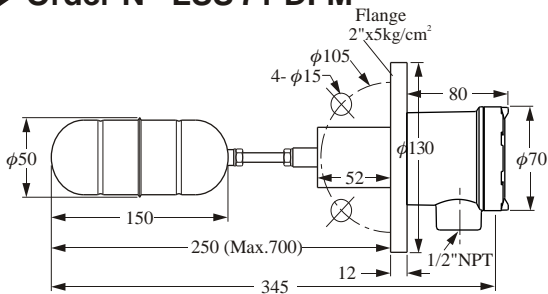
► Order N LSS71 BHM



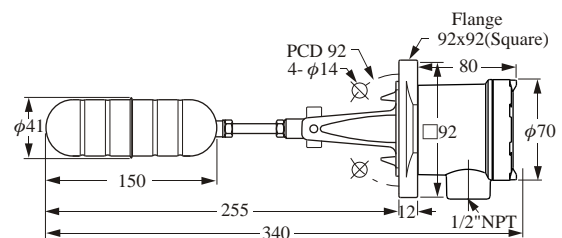
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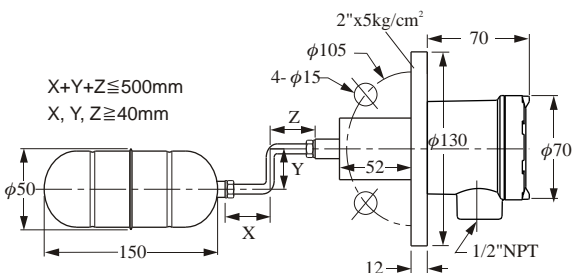
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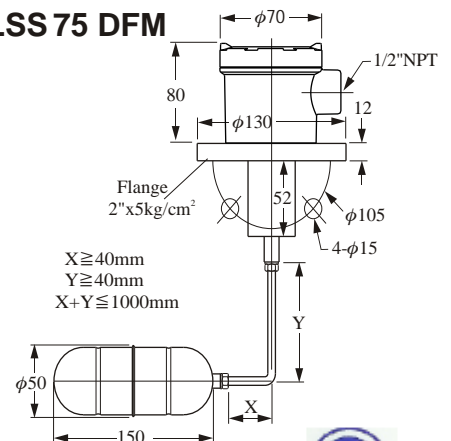
► Order N LSS73 CLO



► Order N LSS 74 DFM



► Order N LSS 75 DFM



HOW TO MAKE YOUR ORDER

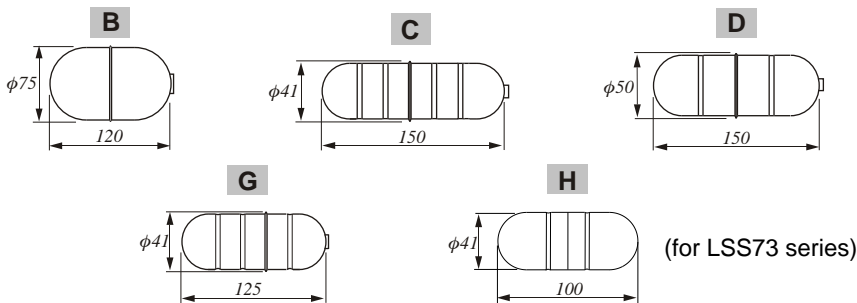
LSS 70 C E M S T

ORDER NO. _____

- 70: ENCLOSURE EXPLOSION PROOF (Ex d IIC T3~T6)
- 71: ENCLOSURE EXPLOSION PROOF (Ex d IIC T3~T6)
- 73: ENCLOSURE EXPLOSION PROOF (Ex d IIC T3~T6)
- 74: ENCLOSURE EXPLOSION PROOF (Ex d IIC T3~T6)
- 75: ENCLOSURE EXPLOSION PROOF (Ex d IIC T3~T6)

FLOAT TYPE _____

- B: $\phi 75 \times 120$ (OPERATION PRESSURE 10 kg/cm^2 S.G. 0.25)
- C: $\phi 41 \times 150$ (OPERATION PRESSURE 15 kg/cm^2 S.G. 0.65)
- D: $\phi 50 \times 150$ (OPERATION PRESSURE 30 kg/cm^2 S.G. 0.55)
- G: $\phi 41 \times 125$ (OPERATION PRESSURE 15 kg/cm^2 S.G. 0.7)
- H: $\phi 41 \times 100$ (OPERATION PRESSURE 15 kg/cm^2 S.G. 0.8)



CONNECTING TYPE _____

- | | | |
|-----------------|-------------------------|-----------------|
| E: 1-1/2" (40A) | M: 5 kg/cm^2 | W: PN10 (10Bar) |
| F: 2" (50A) | N: 10 kg/cm^2 | X: PN16 (16Bar) |
| G: 2-1/2" (65A) | O: 150 Lbs | Y: PN25 (25Bar) |
| H: 3" (80A) | P: 300 Lbs | Z: PN40 (40Bar) |
| I: 4" (100A) | Q: PT | S: Others |
| J: 5" (125A) | R: PF(G) | |
| K: 6" (150A) | T: BSP | |
| L: 92x92 | U: NPT | |

CUSTOM LENGTH(L) (UNIT: mm) _____

TEST ACCESSORY _____

- ※ Tolerance of the total product length is $\pm 5 \text{ mm}$
- ※ Characteristics, specifications and dimensions are subject to change without notice.

Head Office



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