

Marine Float Level Gauges

1. Scope

This Japanese Industrial Standard specifies float level gauges (hereinafter referred to as "gauge") mainly used for oil tanks in ships.

Reference This standard makes reference to the standards as follows

- JIS B 1256 — Plain Washers
- JIS B 1521 — Deep Groove Ball Bearings
- JIS B 2220 — Steel Welding Pipe Flanges
- JIS F 3006 — Ship's Drain Plugs
- JIS G 3101 — Rolled Steel for General Structure
- JIS G 3106 — Rolled Steel for Welded Structure
- JIS G 3131 — Hot-Rolled Mild Steel Plate, Sheet and Strip
- JIS G 3350 — Light Gauge Steels for General Structure
- JIS G 3452 — Carbon Steel Pipes for Ordinary Piping
- JIS G 3454 — Carbon Steel Pipes for Pressure Service
- JIS G 3505 — Low Carbon Steel Wire Rods
- JIS G 3532 — Iron Wires
- JIS G 3535 — Wire Ropes for Aeronautical Use
- JIS G 4309 — Stainless Steel Wires
- JIS H 3100 — Copper and Copper Alloy-Sheets, Plates, Strip and Coiled Sheets
- JIS H 3250 — Copper and Copper Alloy-Rods and Bars
- JIS H 3260 — Copper and Copper Alloy Wires
- JIS H 3300 — Copper and Copper Alloy-Seamless Pipes and Tubes
- JIS H 4080 — Aluminium and Aluminium Alloy Seamless Pipes and Tubes

2. Classification

The gauge shall be classified as given in Table.

Table

Class		Nominal dia.	Symbol	Application
Type				
A (Inner balance weight type)		150	FFGA 150	Large tanks
B (Outer balance weight type)	L	100	FFGBL 100	Large and medium tanks
	R		FFGBR 100	
C (Direct acting type)		100	FFGC 100	Removable tanks
		150	FFGC 150	Double bottom (lubricating oil, water) tanks
		200	FFGC 200	

3. Construction, Shape and Dimensions

The construction, shape and dimensions shall be as shown in Figs. 1 to 5.

4. Materials

The materials shall, as a rule, be as shown in Figs. 1 to 5.

5. Tests and Inspection

The float level gauges shall be subjected to the following items of

- (1) **Visual Inspection** The products shall be free from external defects and working parts shall be in good fit.
- (2) **Hydraulic Inspection** The gauge shall be tested as follows:
 - (a) For float of Types A, B and C100: Water fill-up test
For float of Types C150 and C200: 0.3MPa [3 kgf/cm²]
 - (b) For float guide Type B: Hydraulic pressure equivalent to that applied in the inspection of the tanks body.

6. Designation

The gauge shall be designated by the title or the abbreviated symbol, JIS number, type and nominal diameter.

Examples: 1. For Type A, nominal diameter 150:

Marine Float Level Gauge Type A 150
or JIS F 7217 A150 or FFG A 150

nominal diameter
type
marine float level gauge

2. For Type B, left-hand, nominal diameter 100:

Marine Float Level Gauge Type B L100
or JIS F 7217 BL100 or FFG BL100

3. For Type C, nominal diameter 100:

Marine Float Level Gauge Type C 100
or JIS F 7217 C100 or FFG C100

No.	Component	Particulars	Remarks
1	Float guide	JIS G 3101 - S400	
2	Wire fitting piece for float	JIS G 3101 - S400	
3	Nipple	JIS G 3101 - S400	
4	Float	JIS G 3101 - S400	
5	Ball bearing	JIS G 3101 - S400	
6	Bushing for float	JIS G 3101 - S400	
7	Pin	JIS G 3101 - S400	
8	Washer	JIS G 3101 - S400	
9	Wire rope	JIS G 3101 - S400	
10	Washer plate	JIS G 3101 - S400	
11	Scale plate	JIS G 3101 - S400	
12	Indicator	JIS G 3101 - S400	
13	Shank	JIS G 3101 - S400	
14	Plate washer	JIS G 3101 - S400	
15	End nut	JIS G 3101 - S400	
16	Wire rope	JIS G 3101 - S400	
17	Clamp	JIS G 3101 - S400	
18	End plate	JIS G 3101 - S400	

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Remark: The gauge with a water tank, the float (part No. 4) could be specified with or without anticorrosive treatment.

Fig. 1 (continued)

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Unit: mm

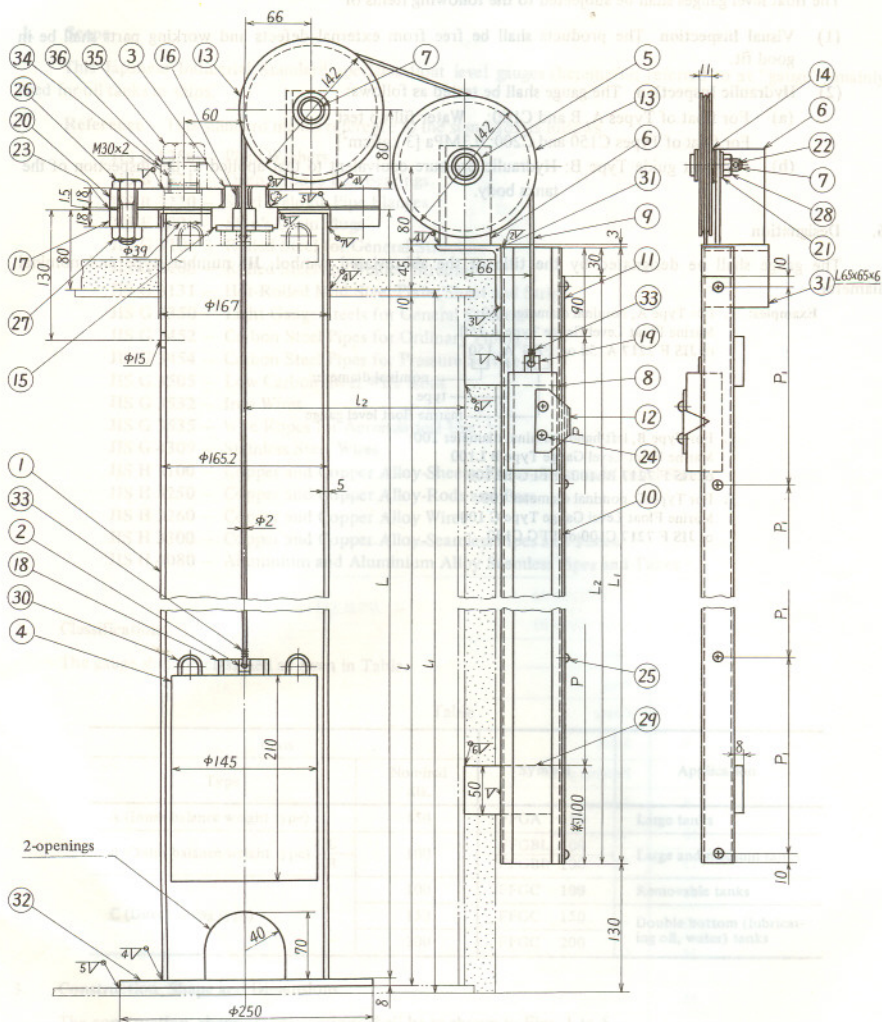


Fig. 1 Type A 150

Unit: mm

Determination of dimensions

$$L = l + 82$$

$$L_1 = l_1 - 88$$

$$L_2 = L_1 - 30$$

$$P = 600 \sim 700$$

$$P_1 = \text{Approx. } 200 \text{ (equal spaces)}$$

$$\text{Length of wire} \approx l_1 + l_2 + 500$$

- Remarks:**
1. Dimensions of l , l_1 and l_2 shall be specified by purchasers.
 2. After installation is completed, the position of the indicator shall be adjusted against its variation due to sinking of the float.
 3. The float shall be tested being filled up with water prior to fitting the wire fitting piece of part No. 2.
 4. The seal rubber shall be firmly secured to its position by using a nitrile rubber adhesive agent.
 5. Graduation for the scale plate shall be specified by purchasers.
 6. Joining of the float guide (Part No. 1) sections and weight guide (Part No. 10) sections shall be specified by purchasers.
 7. A wire clip may be used for disposition of the wire rope end to be connected to the weight.
 8. Boss (Part No. 34) for air vent plug shall be specified by purchasers, if required.

Materials

No.	Component	Material	Description	No.	Component	Material	Description
1	Float guide	JIS G 3452 – SGP		19	Wire fitting piece for weight		
2	Wire fitting piece for float	JIS G 3101 – SS400		20	Float guide cover	JIS G 3101 – SS400	
3	Nipple			21	Plain washer		JIS B 1256 – Finished round 12
4	Float	JIS G 3131 – SPHC		22	Split pin	JIS G 3505 – SWRM10,12,15	3x18
5	Ball bearing	–	JIS B 1521 – 6202 Type ZZ	23	Gasket	JIS F 7102 – 350 SJR	167x265x1.5
6	Bearing for sheave			24	Cross pan head machine screw	JIS H 3260 – C2700W	M4x4
7	Pin	JIS G 3101 – SS400		25	Cross pan head machine screw		M4x4
8	Weight			26	Hexagon bolt		Medium, Grade 3, M 16x55
9	Wire rope	JIS G 4309 – SUS 304-W $\frac{1}{2}$ H	JIS G 3535 – ϕ 2 wire rope A2	27	Hexagon nut	JIS G 3101 – SS400	1st Class, Medium, Grade 3 M16
10	Weight guide	JIS G 3350 – SSC400	Lip channel steel bar 60x30x10x2.3	28	Hexagon nut		1st Class, Medium, Grade 3 M12
11	Scale plate	JIS H 3100 – C2600P		29	Weight guide support		
12	Indicator			30	Lifting lug	JIS G 3532 – SWM-B	
13	Sheave	JIS G 3101 – SS400		31	Seat for bearing for sheave	JIS G 3101 – SS400	
14	Plain washer			32	Base for float guide		
15	Seal rubber	NBR (nitrile)		33	Bind wire	JIS H 3260 – C1100W	
16	Wire sleeve	JIS H 3300 – C1201T or C1202T		34	Boss for air vent plug	JIS G 3101 – SS400	
17	Flange	JIS G 3101 – SS400	Nominal dia. 150 as specified in JIS B 2221	35	Plug	JIS H 3422 BsBME 1	JIS F 3006 – Drain plug Type B
18	Seal piece	JIS G 3452 – SGP		36	Gasket	JIS F 7102 – 350 STR	

Remark: For use with a water tank, the float (Part No. 4) shall be provided with suitable anticorrosive treatment.

Fig. 1 (continued)