

**FURUNO**

# *Installation Manual* **NAVIGATIONAL ECHO SOUNDER**

*Model FE-700*

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# SAFETY INSTRUCTIONS

The operator and installer must read the applicable safety instructions before attempting to install or operate the equipment.

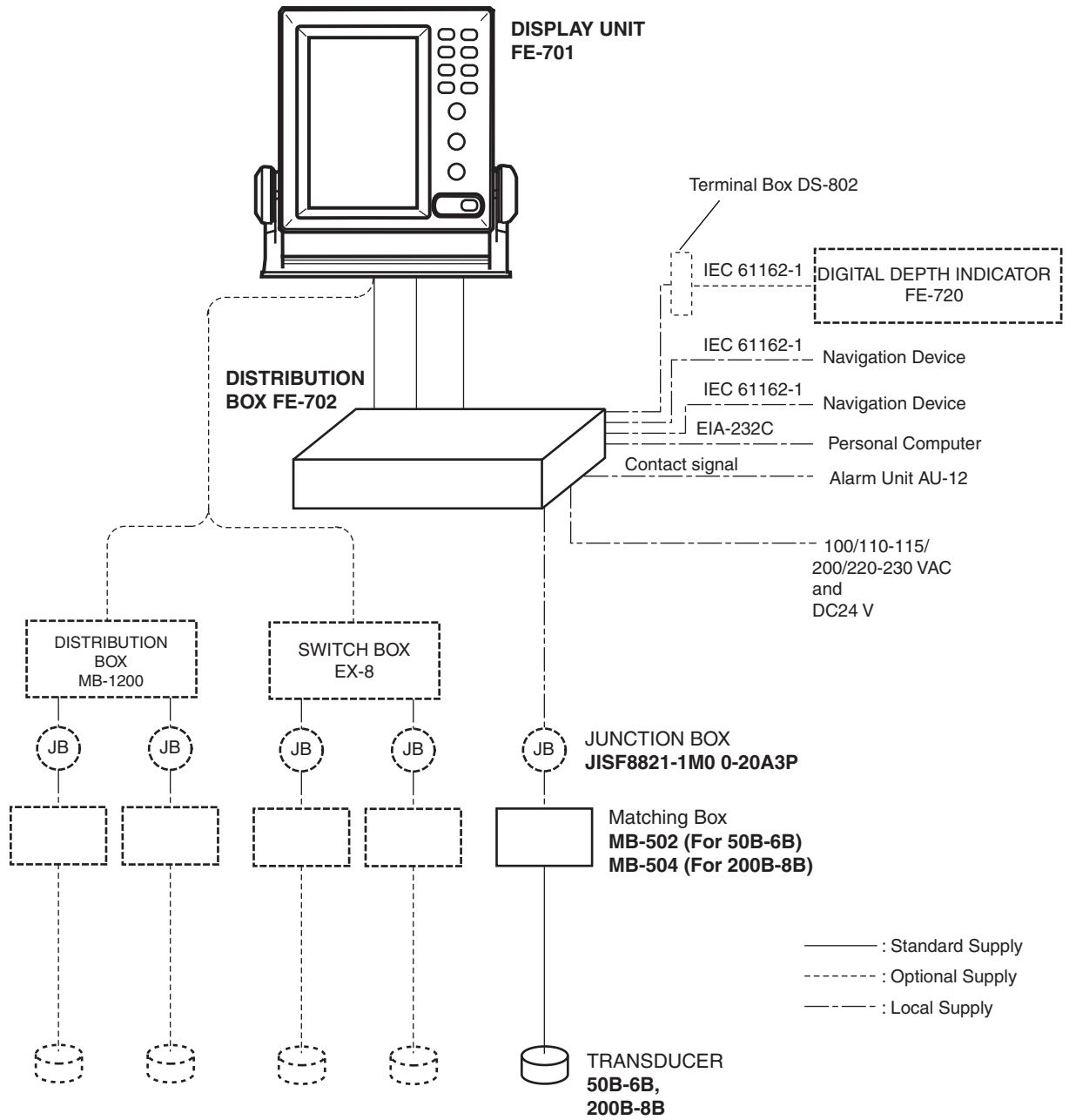
 <b>WARNING</b>	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 <b>CAUTION</b>	Indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.

 Warning, Caution	 Prohibitive Action	 Mandatory Action
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 <b>WARNING</b>	
	<b>Do not open the equipment unless totally familiar with electrical circuits and service manual.</b>  Only qualified personnel should work inside the equipment.
	<b>Turn off the power at the switchboard before beginning the installation.</b>  Fire or electrical shock can result if the power is left on.
	<b>Do not install the equipment where it may get wet from rain or water splash.</b>  Water in the equipment can result in fire, electrical shock or equipment damage.
	<b>Be sure no water leaks in at the transducer mounting location.</b>  Water leakage can sink the vessel. Also confirm that the transducer will not loosen by ship's vibration. The installer of the equipment is solely responsible for the proper installation of the equipment. FURUNO will assume no responsibility for any damage associated with improper installation.
	<b>Be sure that the power supply is compatible with the voltage rating of the equipment.</b>  Connection of an incorrect power supply can cause fire or equipment damage. The voltage rating of the equipment appears on the label above the power connector.

 <b>CAUTION</b>		
	<b>Observe the following compass safe distances to prevent deviation of a magnetic compass:</b>	
	Standard compass	Steering compass
Display unit	0.55 m	0.35 m
Distribution Box	1.00 m	0.65 m
Matching Box	0.50 m	0.40 m
Transducer Switch Box (option)	1.00 m	0.60 m
Junction Box (option)	0.30 m	0.30 m
Digital depth indicator (option)	0.50 m	0.40 m
Distribution box (option)	0.30 m	0.30 m
	<b>When handling the transducer cable, keep in mind following points:</b>	
	<ul style="list-style-type: none"> <li>- Keep the cable away from oil and fuel.</li> <li>- Keep the cable away from the place where it may be damaged during the installation.</li> <li>- Do not paint the cable.</li> <li>- The sheath of the transducer cable is made of chlorophrene rubber (or vinyl chloride). Therefore, do not paint the sheath with organic liquid (such as toluene) since it may harm the sheath.</li> </ul>	

# SYSTEM CONFIGURATION



# EQUIPMENT LISTS

## Standard Supply

Name	Type	Code No.	Qty	Remarks
Display Unit	FE-701	—	1	w/Installation Materials CP02-06400 (000-015-872) and Accessories FP02-04800 (000-015-469)
Distribution Box	FE-702	—	1	
Matching Box	MB-502	000-013-602	1	For 50B-6B
	MB-504	000-013-604	1	For 200B-8B
Transducer	50B-6B	—	1	w/15 m or 30 m cable
	200B-8B	—	1	w/15 m, 30 m or 50 m cable
Transducer Tank	TTF-5600	000-015-586	1	For 50B-6B, w/Installation Materials CP02-08801 (001-106-490)
	TTF-2000	000-015-587	1	For 200B-8B, w/Installation Materials CP02-08802 (001-106-500)
Spare Parts	SP02-04101	001-228-890	1 set	For distribution box
Installation Materials	CP02-06301	001-228-950	1 set	For distribution box

## Optional Supply

Name	Type	Code No.	Qty	Remarks
Transducer Switch Box	EX-8	000-012-179	1	Flush mount, color specified
		000-012-176		Bulkhead mount, color specified
		000-012-183		7.5BG7/2, Flush mount
		000-012-182		7.5BG7/2, Bulkhead mount
		000-012-180		N.G, Flush mount
		000-012-181		N.G, Bulkhead mount
Cable Assy.	FM-C6FPS003-020	000-143-821	1	2 m cable w/6P connector, for EX-8
Junction Box	JIS F8821-1MO 0-20A3P	000-804-877	1	
Transducer Tank	TTF-5001	000-015-877	1	For 50B-6B, w/o flange
	TTF-2001	000-015-878	1	For 200B-8B, w/o flange
	TTF-5002	000-015-885	1	For 50B-6B, w/ flange, T25
	TTF-2002	000-015-887	1	For 200B-8B, w/ flange, T25
	TTF-5600 (T-30)	000-037-903	1	For 50B-6B, w/ flange, T30
	TTF-2000 (T-30)	000-036-530	1	For 200B-8B, w/ flange, T30
Bulkhead Kit	OP02-78-1	001-229-270	1	2.5GY5/1.5
	OP02-78-2	001-229-280		7.5BG7/2
Flush Mount Kit (F)	OP02-79-1	001-229-290	1	N3.0
	OP02-79-2	001-229-300		2.5GY5/1.5
	OP02-79-3	001-229-310		7.5BG7/2
Flush Mount Kit (S)	OP02-80	001-229-320	1	

## EQUIPMENT LISTS

Name	Type	Code No.	Qty	Remarks
Data Recording Software for PC	02-522-990	001-229-090	1	For Windows 95/98/NT4.0
Digital Depth Indicator	FE-720	000-029-025	1 set	w/Installation Materials CP02-06700 (000-029-068) Spare Parts SP65-00601 (002-889-730) Accessories FP65-00400 (000-029-067)
Dimmer	MF-22L-1-100V	000-069-401	1	100 VAC-120 VAC, Flush mount type
	MF-22L-1-200V	000-069-403		200 VAC-240 VAC, Flush mount type
	MF-22L-2-100V	000-069-402		100 VAC-120 VAC, Bulk head type
	MF-22L-2-200V	000-069-404		200 VAC-240 VAC, Bulk head type
Terminal Box	DS-802	000-029-064	1 set	With Installation Materials CP65-00903 (000-029-064)
EGC Printer	PP-505-FE	000-055-892	1 set	
Gate Valve	GV-50B-6B	000-015-265	1	With Installation Materials CP02-07601 (002-891-620)
	GV-200B-8B	000-015-273	1	
Distribution Box	MB-1200	000-016-185	1 set	For connection of transducer 50B-6B, 200B-8B, instructions included.
Installation Materials	CP02-06430	000-021-731	1	20 m cable for the connection between the distribution box and display unit.

# 1. MOUNTING

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## NOTICE

**Do not apply paint, anti-corrosive sealant or contact spray to coating or plastic parts of the equipment.**

Those items contain organic solvents that can damage coating and plastic parts, especially plastic connectors.

## 1.1 Category of Equipment

### Equipment for protected area

- Display Unit
- Distribution Box
- Matching Box
- Transducer Switch Box (option)
- Digital Depth Indicator (option)

### Equipment to be submerged

- Transducer

## 1.2 Display Unit

### 1.2.1 Mounting consideration

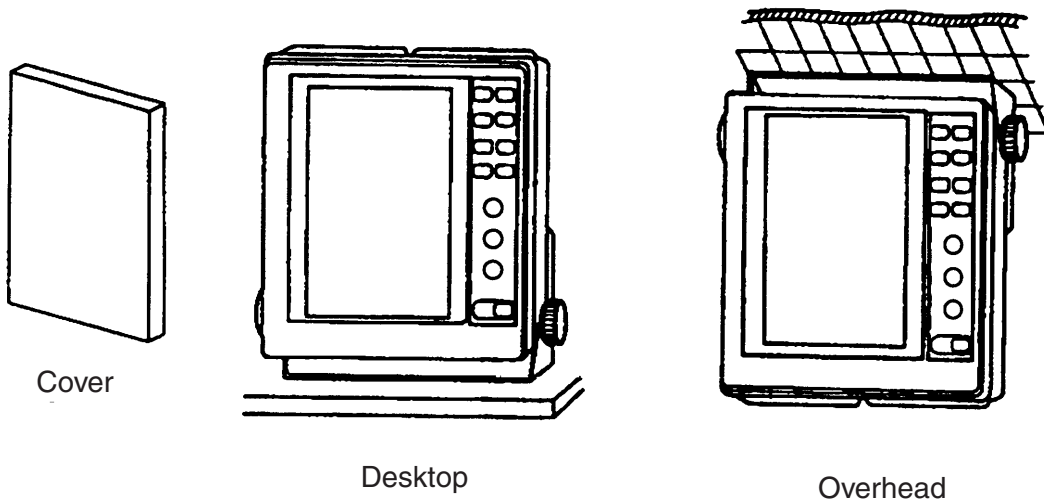
The display unit can be installed on a tabletop, on the overhead, on the bulkhead or flush mounted in a console or panel.

When selecting a mounting location for the display unit keep the following in mind.

- Keep the display unit out of direct sunlight.
- The temperature and humidity should be moderate and stable.
- Locate the unit away from exhaust pipes and vents.
- The mounting location should be well ventilated.
- Mount the unit where shock and vibration are minimal.
- Keep the unit away from electromagnetic field-generating equipment such as motors and generators.
- For maintenance and checking purposes, leave sufficient space at the sides and rear of the unit and leave slack in cables.

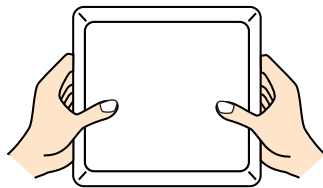
## 1. MOUNTING

- A magnetic compass will be affected if placed too close to the display unit. Observe the following compass safe distances to prevent disturbance to the magnetic compass.  
Standard compass: 0.55 meters  
Steering compass: 0.35 meters



### 1.2.2 Removing the cover

While pressing the center of the cover with your thumbs as illustrated, pull the cover towards you to remove it.

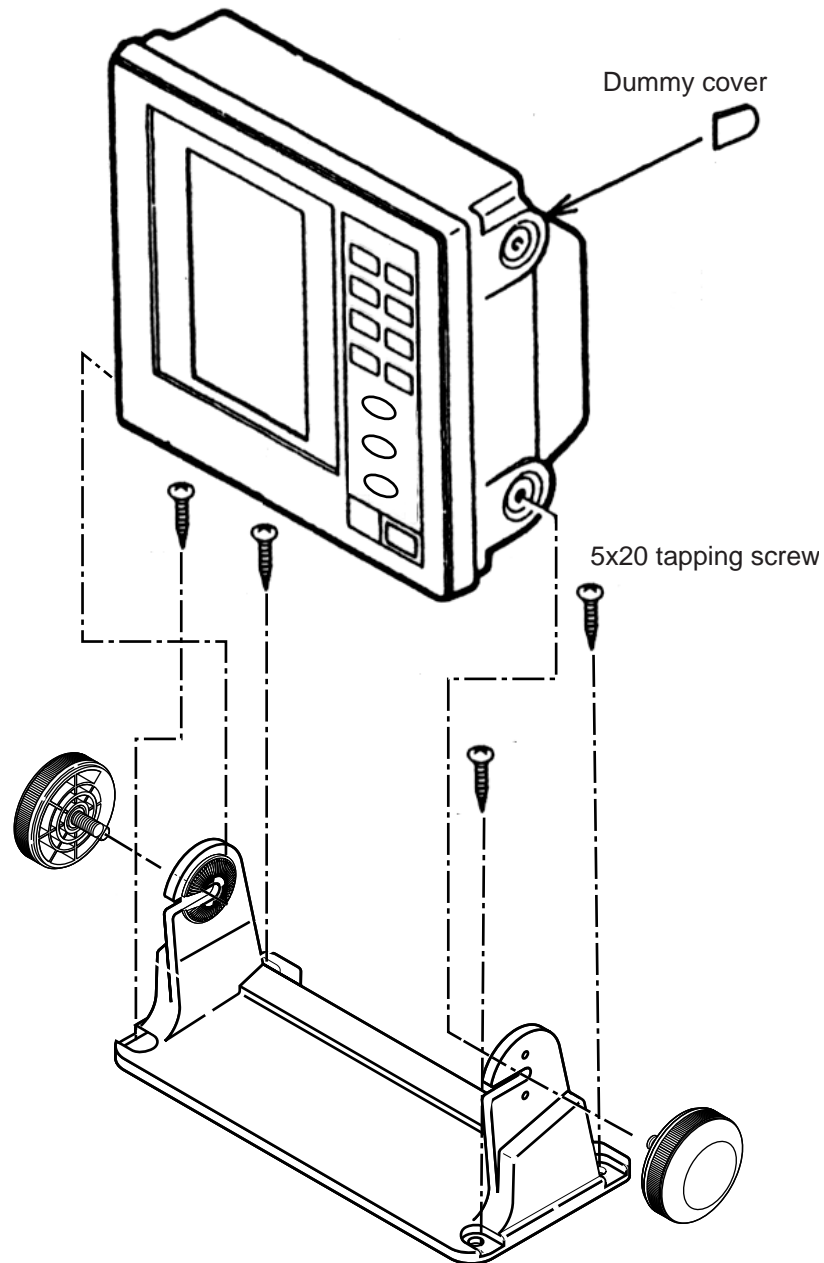


### 1.2.3 Desktop mounting

1. Fix the hanger with four tapping screws (5x20).
2. Screw knob bolts in display unit, set it to hanger, and tighten knob bolts.



3. Attach the dummy covers to the unused holes.



### 1.2.4 Flush mounting

There are two types of flush mount kits, F type and S type. For details, see the outline diagrams at the back of this manual.

## 1. MOUNTING

### **F type**

Flush Mount Kit (F): OP02-79-1 (001-229-290)  
 OP02-79-2 (001-229-300)  
 OP02-79-3 (001-229-310)

No.	Name	Type	Code no.	Qty	Remarks
1	Cosmetic panel	02-129-1041-0	100-279-270	1	OP02-79-1:N3.0
			100-279-280		OP02-79-2:2.5GY5/1.5
			100-279-290		OP02-79-3:7.5GY7/2
2	Hex bolt	M6x12	000-162-897-10	4	
3	Spring washer	M6	000-158-855-10	4	

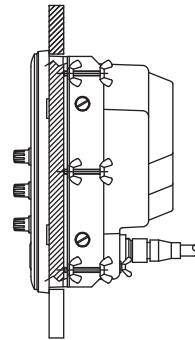
1. Prepare a cutout in the mounting location whose dimensions are 210 (W) x 194 (H) mm.
2. Attach the cosmetic panel (02-129-1041-0) to the display unit with four hex bolts (M6x12) and four spring washers (M6).
3. Fix the display unit to the mounting location with four tapping screws (5x20).

### **S type**

Flush Mount Kit (S): OP02-80 (001-229-320)

No.	Name	Type	Code no.	Qty	Remarks
1	Fixing plate	02-129-1045-0	100-279-300	2	
2	Wing bolt	M4x30	000-804-799	6	
3	Hex bolt	M6x12	000-162-897-10	4	
4	Spring washer	M6	000-158-855-10	4	
5	Wing nut	M4	000-863-306	6	

1. Prepare a cutout in the mounting location whose dimensions are 194 x 194 mm.
2. Insert the display unit to the cutout.
3. Attach two fixing plates (02-129-1045-0) to the display unit with four hex bolts (M6x12) and spring four washers (M6).
4. Screw six wing bolts (M4x30) to wing nuts (M4).
5. Fasten the display unit with six wing bolts and nuts.



## 1.3 Transducer

The installation of the transducer and the tank should be accomplished by a dockyard referring to the installation drawings at the back of this manual. An example of transducer installation method is also shown in paragraph 1.3.2.

**Note:** Discussions should take place and agreement reached with the dockyard for sufficient reinforcement and watertightness of the hull to comply with the regulations concerned.

### 1.3.1 Mounting Location

To decide the location of the transducer, the following points should be taken into account.

- The most important matter is where the transducer is installed. The position should be free from aeration possibly occurring beneath the hull and also not affected by engine and propeller noise.
- It is known that air bubble streams start approximately from a quarter length from the bow, and spreads over the hull bottom approximately to three quarters. Air bubble streams vary in form and intensity according to ship's speed, draught, trim, shape of bow and hull, as well as sea state.
- In a laden ship, a position somewhere near a quarter of the ship's length from the stern often gives satisfactory results. As for vessels such as oil tankers whose fore draught is especially shallow, an after position about three quarters of ship's length from the stern is often suitable.
- It is recommended to install the transducer on the keel line or between 600 mm and 900 mm from the keel to minimize the effect of aerated water.
- Sitting near obstructions such as the forward propeller, bow thruster, water intake pipes and speed log sensor should be avoided
- Select a place giving minimum mechanical vibration.
- Do not lay the transducer cable near or in parallel with other electric cables.

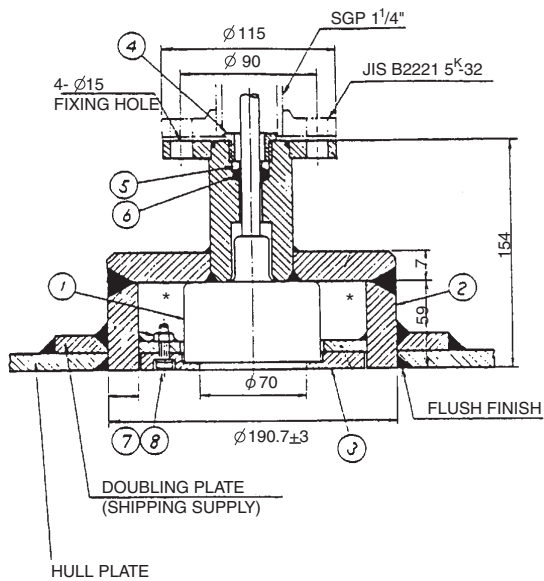
### 1.3.2 Example of Transducer Installation (TTF-5600)

**Note:** Never fail to remove the transducer and rubber gasket prior to welding the transducer tank to the hull.

1. Install the transducer tank on the hull. The tank bottom should be flush with the hull bottom. Feed the transducer cable through the cable gland.
2. Apply sealing tape to the threads of the gland nut for watertightness.
3. Pass the cable thru the gasket, washer and gland nut.
4. Fix the transducer to the tank with the transducer fixing flange.
5. Coat the gland nut with silicone grease.
6. Tighten the gland nut.
7. It is recommended to enclose the transducer cable in a conduit pipe for waterproofness and electrical shielding as well as for protecting the cable from mechanical damage. The conduit pipe should be fixed to the flange on the transducer tank. The pipe should be of such a length to clear the water level when the ship is fully loaded. The pipe end should be finished with filling compound. It is recommended to fill the pipe with sand between the transducer and

## 1. MOUNTING

the junction box (or matching box). This will protect the transducer from vibration and damage.



1	Transducer (50B-6B)
2	Transducer Tank
3	Fixing Flange
4	Gland Nut
5	Washer
6	Rubber Gasket
7	Hex. Bolt (M6x25)
8	Spring Washer (For M6)

\*Sea water comes into the area marked with "\*" inside the tank.

## 1.4 Distribution Box

A magnetic compass will be affected if placed too close to the distribution box. Observe the following compass safe distance to prevent disturbance to the magnetic compass.

- Standard compass: 1.00 meter
- Steering compass: 0.65 meters

Fasten the distribution box with four tapping screws (6x30) referring to the outline drawing at the end of this manual.

## 1.5 Matching Box

The matching box should be selected depending on the transducer type;

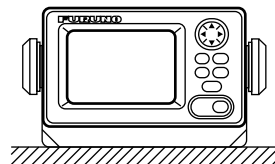
- 50B-6B transducer: MB-502
- 200B-8B transducer: MB-504

Fasten the matching box with four Trapping screws (6x20: local supply). Compass safe distances are as follows; standard compass: 0.50 m, Steering compass: 0.40 m.

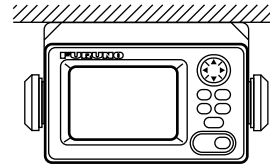
## 1.6 Digital Depth Indicator FE-720 (option)

The indicator can be installed on a tabletop, on the overhead. Refer to outline drawings at the end of this manual for installation instructions. When selecting a mounting location, keep in mind the following points:

- Locate the unit away from exhaust pipes and vents.
  - The mounting location should be well ventilated.
  - Mount the unit where shock and vibration are minimal.
  - Locate the unit away from equipment which generates electromagnetic fields such as a motor or generator.
  - Allow sufficient maintenance space at the sides and rear of the unit and leave sufficient slack in cables, to facilitate maintenance and servicing.
  - Observe the following compass safe distances to prevent deviation of a magnetic compass. Standard compass: 0.50 m, Steering compass: 0.40 m.
1. Fasten the hanger with four self-tapping screws (5x20).
  2. Fasten the digital depth indicator to the hanger with two knobs.



Tabletop



Overhead

### < Flush mounting >

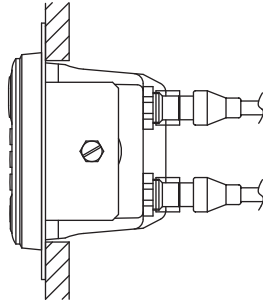
There are two types of flush mount kits, F type and S type. For details, see the outline diagrams at the back of this manual.

## 1. MOUNTING

### **F type**

Use the accessories FP65-00401 (See page A-7).

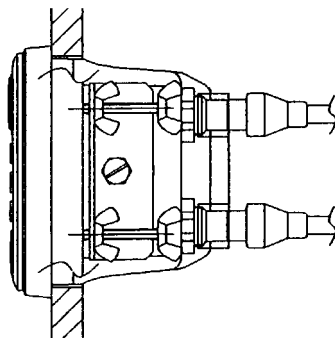
1. Prepare a cutout in the mounting location whose dimensions are 183 (W) x 92 (H) mm.
2. Attach the cosmetic panel (20-016-1051) to the indicator with two hex bolts (M6x12) and two spring washers (M6).
3. Fix the indicator to the mounting location with four tapping screws (5x20).



### **S type**

Use the accessories FP65-00402 (See page A-8).

1. Prepare a cutout in the mounting location whose dimensions are 167 (w) x 92 (H) mm.
2. Insert the indicator to the cutout.
3. Attach two fixing plates (20-007-2401) to the indicator with two hex bolts (M6x12) and two spring washers (M6).
4. Screw four wing bolts (M4x30) to wing nuts (M4).
5. Fasten the indicator with four wing bolts and nuts.



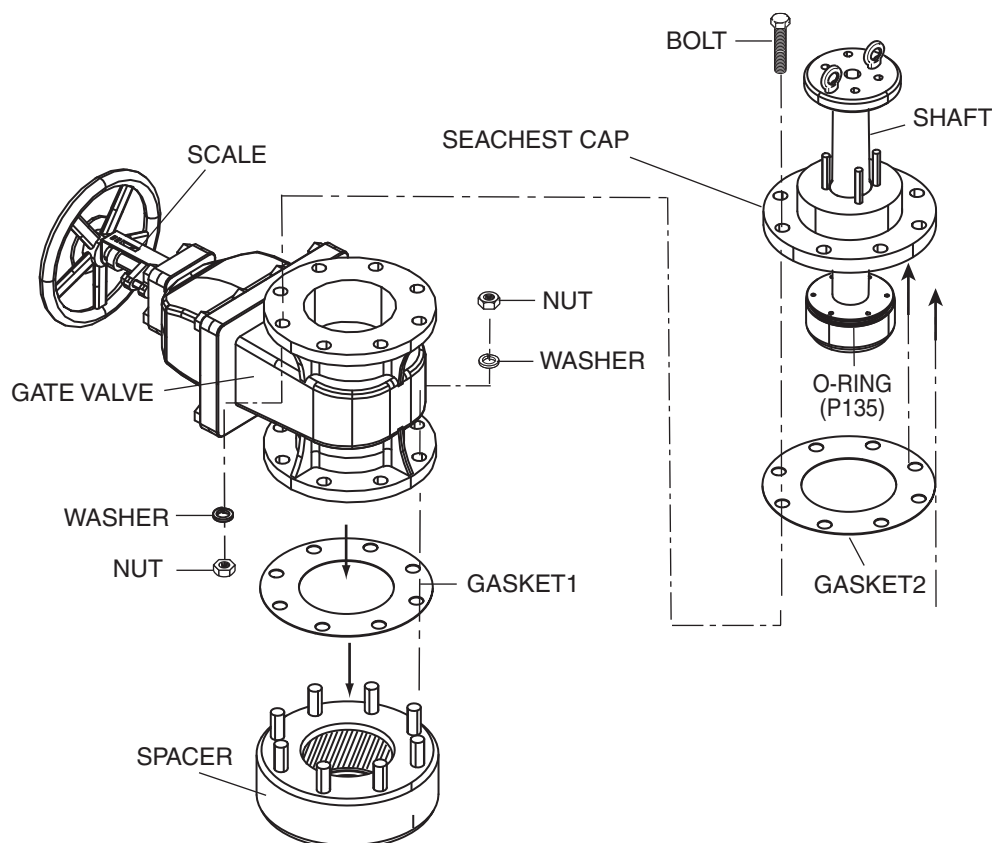
## 1.7 Transducer Switch Box EX-8 (option)

If two transducers are installed, the transducers switch box is required. Locate the transducer switch box near the display unit considering length of the interconnection cable. Select the bright place where the panel of equipment can be watched. Use only the screws supplied on the terminal inside to make connections. Use of other screws may cause a short circuit. Compass safe distances are as follows; standard compass: 1.00 m, Steering compass: 0.60 m.

## 1.8 Gate Valve GV-50B-6B, GV-200B-8B (option)

Assemble the Gate Valve as shown below. Refer to the drawing at the end of this manual.

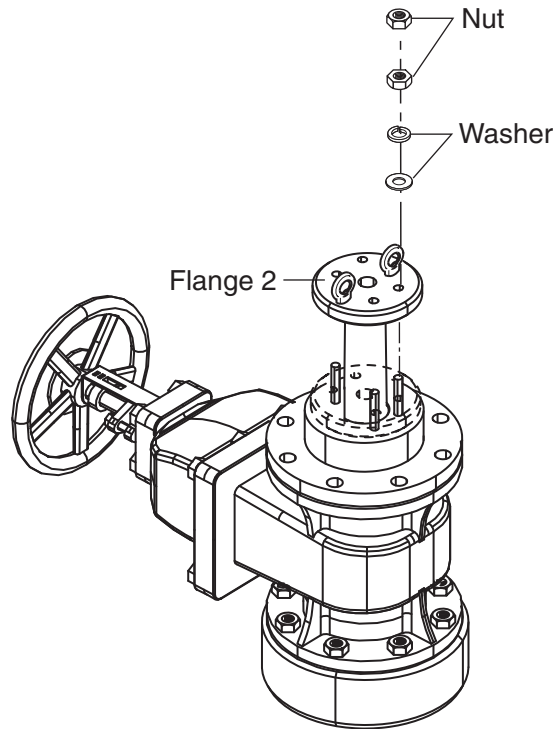
1. Disassemble the gate valve assembled tentatively: spacer, gasket1, gate valve, gasket 2, seachest cap and shaft assembly.  
When assembling the gate valve, use original washers, bolts and nuts. Keep the bottom of the seachest cap and the shaft free of dust and be careful not to damage them.



2. Weld the spacer to the hull bottom.  
The hull side of the spacer should be flush with the hull bottom. Be careful not to damage the side fixed to the gate valve.
3. Clean the side of the spacer to be fixed to the gate valve.
4. Grease (supplied) both sides of the gasket 1 and the inner side of the spacer.  
Place the gasket 1 onto the spacer.
5. Clean the flange side of the gate valve, and place it on the gasket 1. The scale side of the gate valve should be up.

## 1. MOUNTING

6. Fix stud bolts with washers and bolts loosely.
7. Keep seachest cap and shaft assembly free of dirt and dust.
8. Grease (supplied) both sides of the gasket 2 and place it onto the gate valve.
9. Place seachest cap and shaft assembly onto the gasket 2.
10. Fix the assembly with bolts, nuts and washers loosely.
11. Unscrew nuts from flange 2, and confirm that shaft can be moved up and down smoothly by hand.  
You will feel some resistance because of the O-ring (P135). (See the illustration on the previous page.)



12. Fasten the gate valve with bolts, nuts and washers above and below.

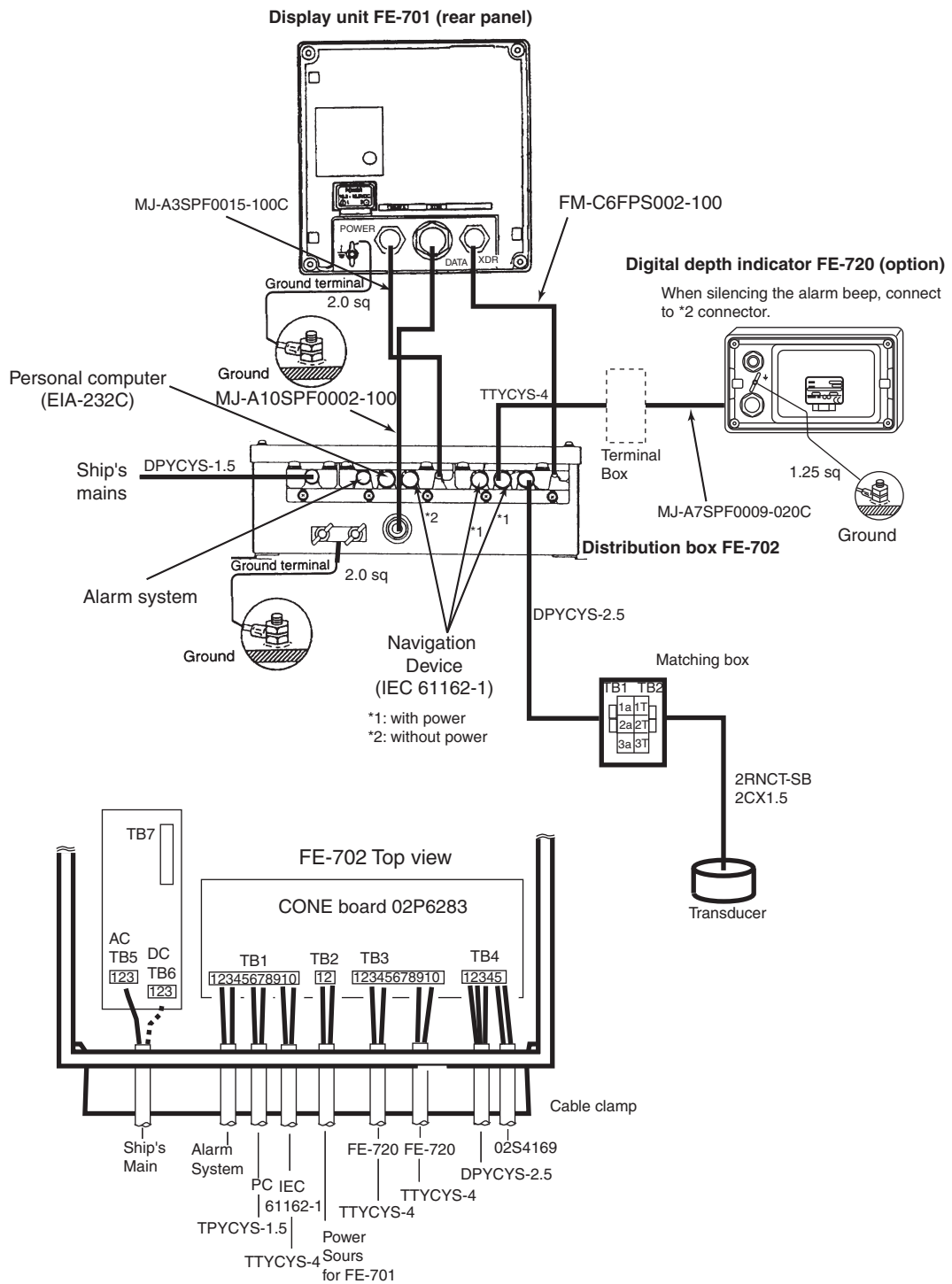
**Note:** When installing a transducer, do it before step 7 or after removing the seachest cap and the shaft assembly.



# 2. WIRING

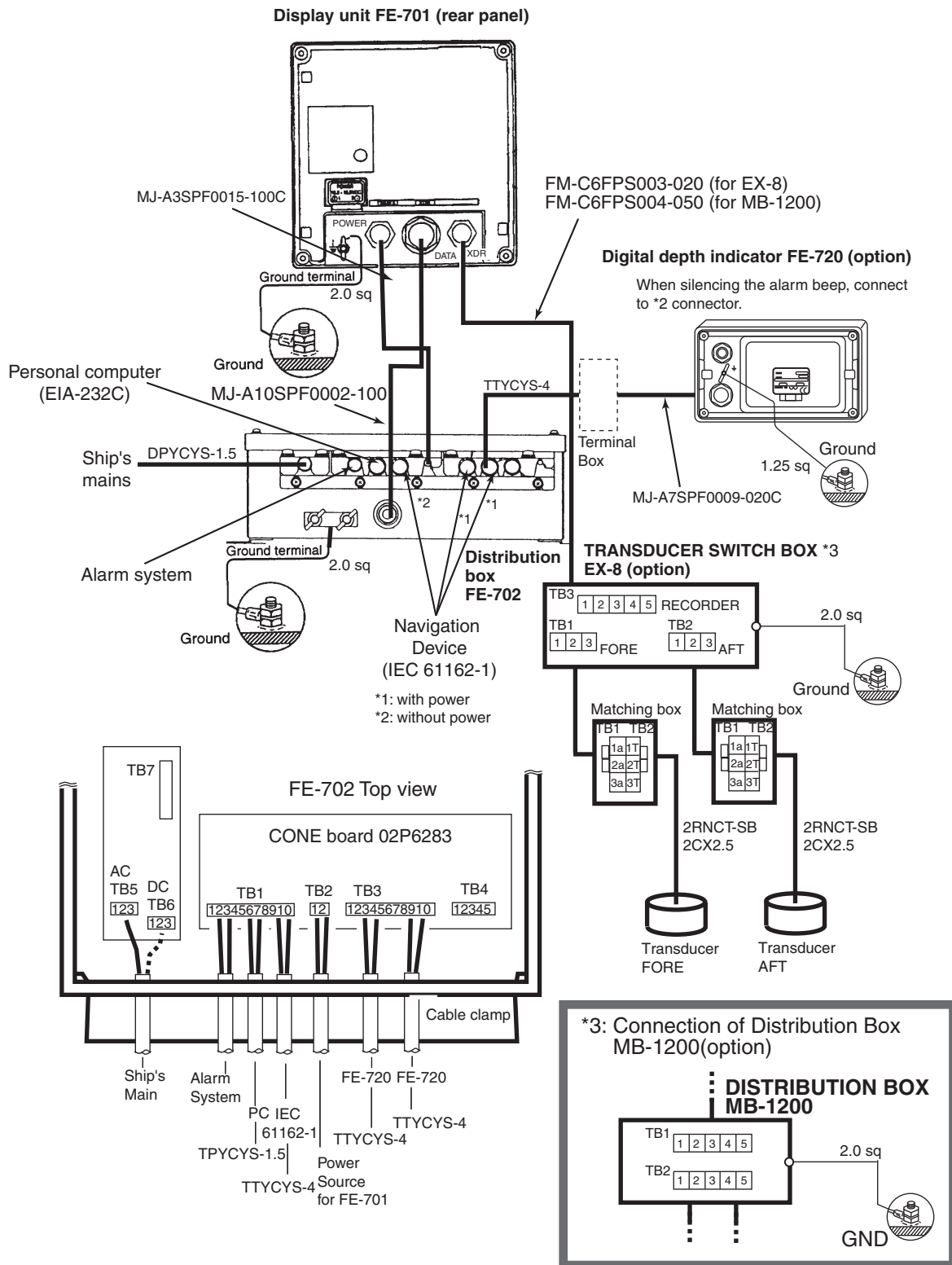
## 2.1 Wiring

Connect three cable assemblies (supplied) between the display unit and distribution box. See the interconnection diagram for details.



## 2. WIRING

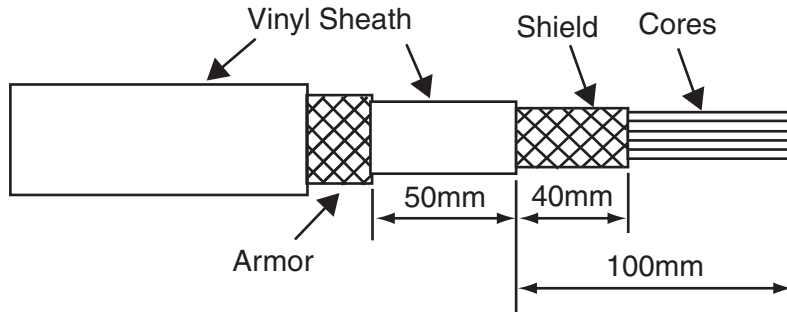
When the Transducer Switch Box EX-8 or Distribution Box MB-1200 is used, the interconnections are as follows.



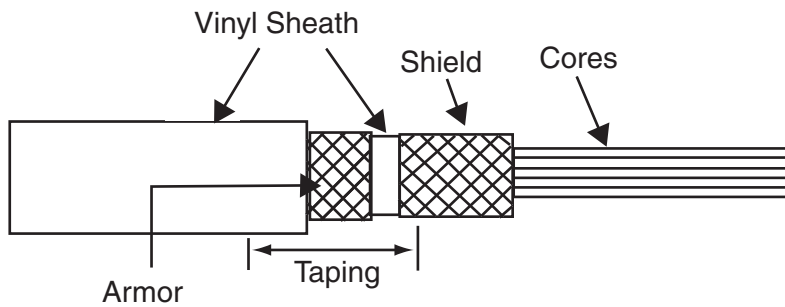
## 2.2 Cable Fabrication

### 2.2.1 DPYCYS-2.5, DPYCYS-1.5, MJ-A3SPF0015-100C , FM-C6FPS0002-100 and TPYCYS-1.5

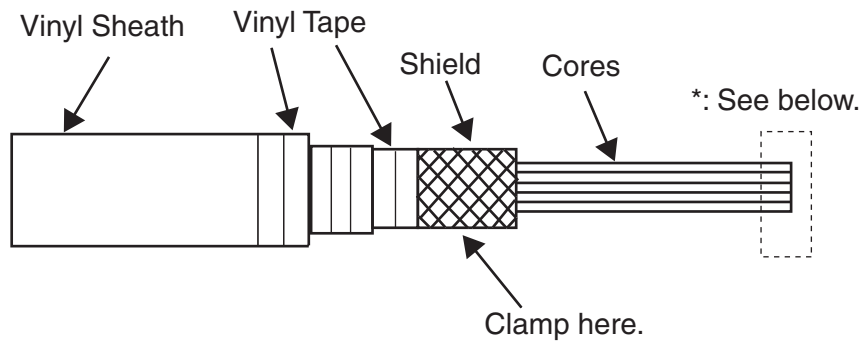
Fabricate the power and other cables as illustrated below to connect them to the Distribution box.



↓ Fold back shield over on vinyl sheath.

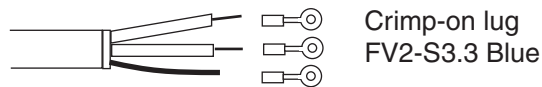


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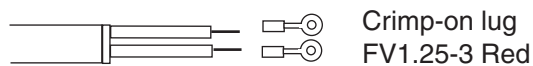


\*: Depending on cables, fabrications are as follows.

- DPYCYS-2.5, DPYCYS-1.5, TPYCYS-1.5

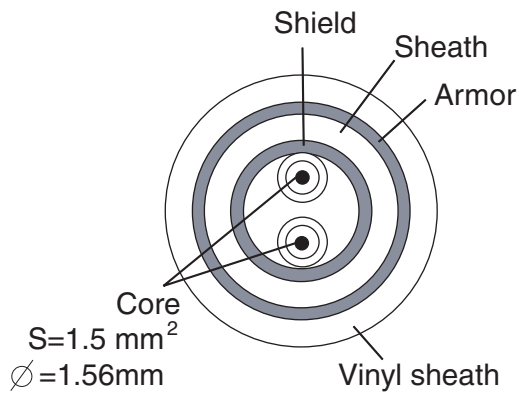


- Others

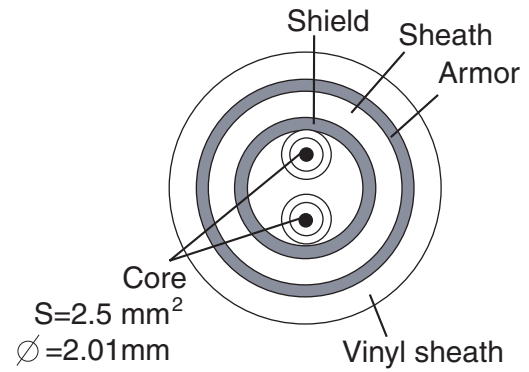


## 2. WIRING

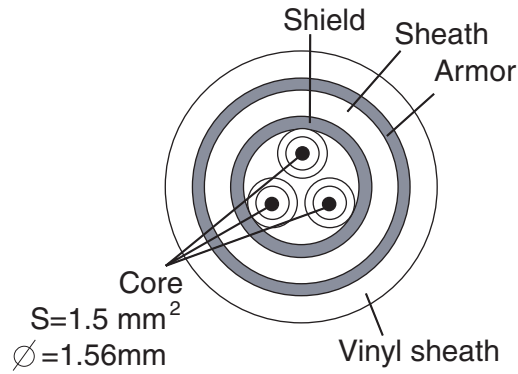
Several cables are required to supply at local. In this manual, JIS (Japan Industrial Standard ) cables are specified. Use equipment cables referring to the figures below.



DPYCYS-1.5 sectional view



DPYCYS-2.5 sectional view

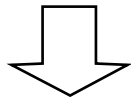
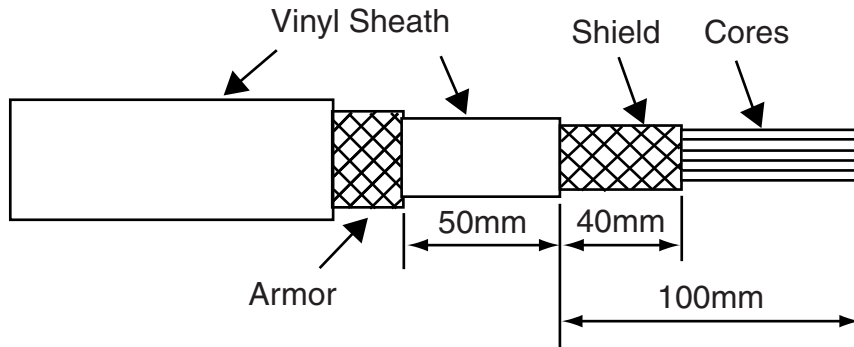


TPYCYS-1.5 sectional view

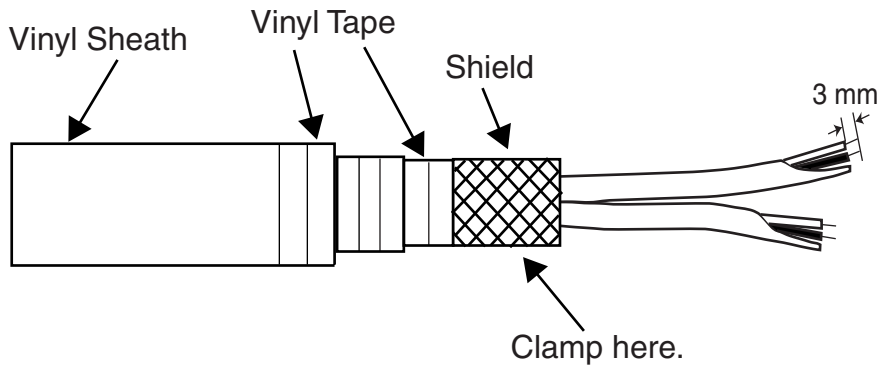
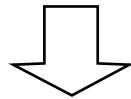
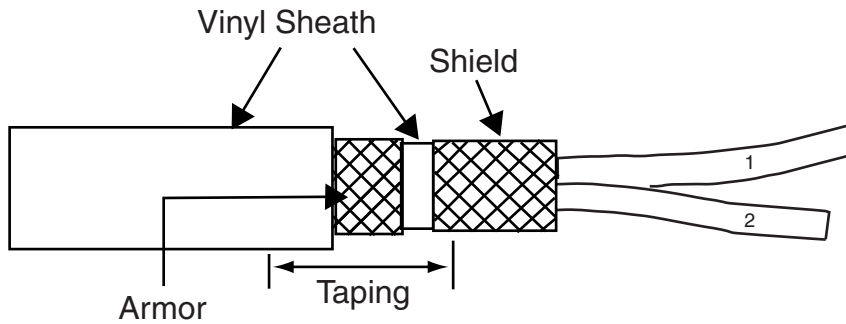
*JIS Cables (Cross section)*

**2.2.2 TTYCYS-4**

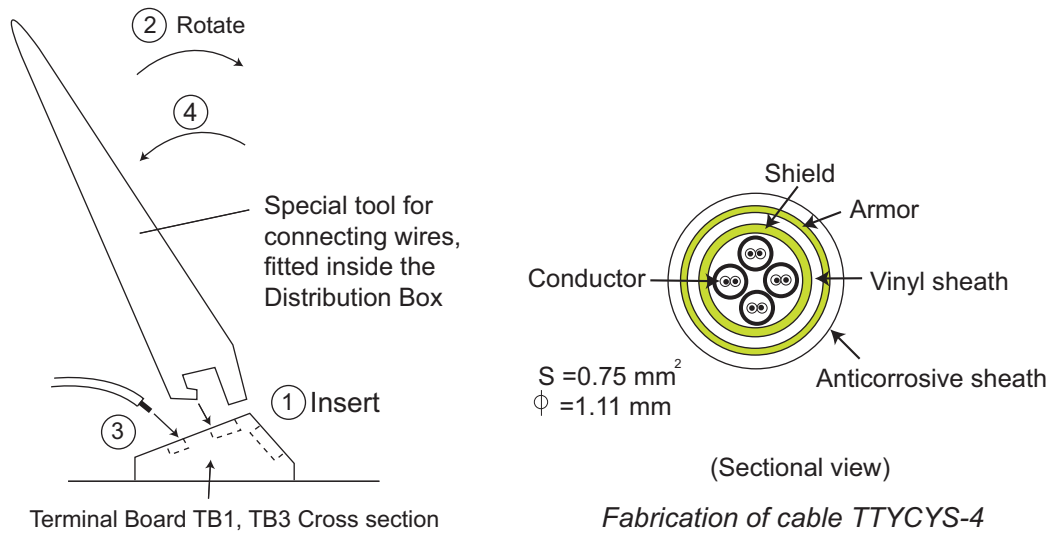
TTYCYS is a Japan Industrial Standard (JIS) cable. Use the equipment one.



Fold back shield over on vinyl sheath.



## 2. WIRING



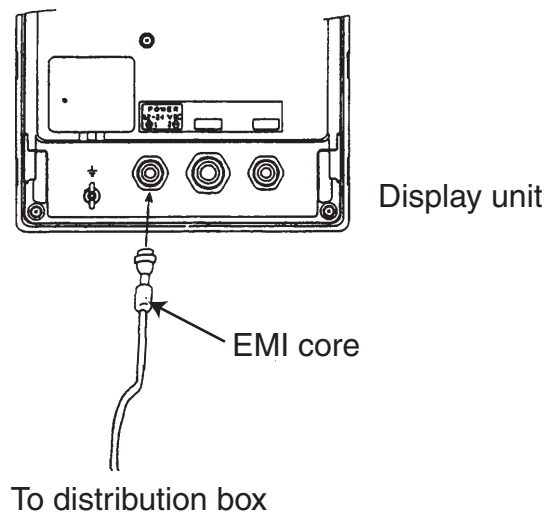
### **Power Supply Cable from Ship's Mains**

If the ship's mains is AC, the power supply cable must be connected to TB5 in the Distribution Box. In case of DC ship's mains, cable must be connected to TB6 in the Distribution Box. For further information, refer to page 16.

### **Attaching EMI core**

Attach EMI core (supplied) to the power cable to prevent noise.

1. Tape the power cable where the EMI core is to be attached, to hold the core in place.
2. Fasten the core close to the power cable connector.



## 2.3 Transducer

Connect the transducer cable to the distribution box. If necessary, attach the junction box between the distribution box and matching box.

## 2.4 Ground

Connect the ground wire (2.0 sq.) from both the display unit and distribution box to ship's ground to prevent interference to the picture. Shorten the ground wire as much as possible.

The optional digital depth indicator FE-720 should be grounded by 1.25 sq. wire.

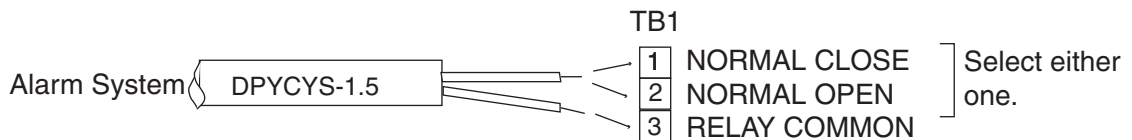
**Note 1:** Ground the equipment to prevent mutual interference.

**Note 2:** Use "closed-type" lugs (supplied) to make the ground connection at the display unit and distribution box. Do not use an "open-type" lugs.

## 2.5 Alarm system connection

The power error and shallow water alarms, which produce audio and visual alarms in the event of power failure and shallow water, can be output by connecting the distribution box to the ship's alarm system.

Connect the DPYCYS-1.5 cable between TB1 in the Distribution Box and the alarm system of the ship referring to the schematic diagram at the end of this manual.

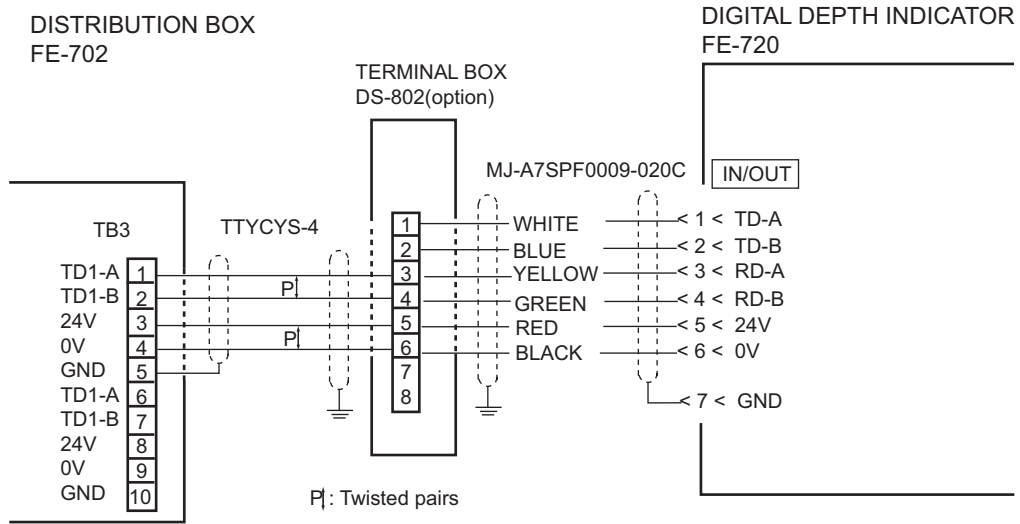


## 2.6 Digital Depth Indicator FE-720

There are two methods to connect the digital depth Indicator FE-720.

### Case 1: Input signal from the main display unit to FE-720

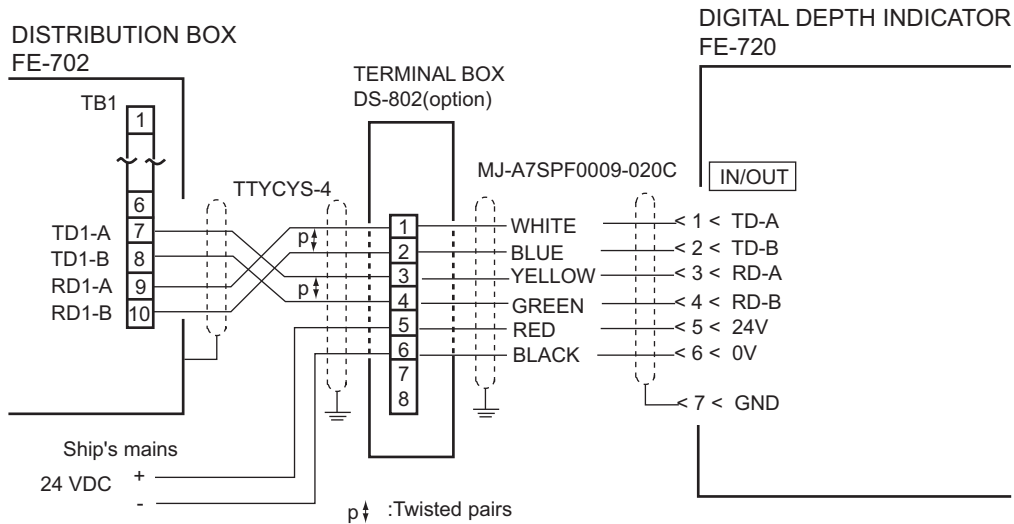
The interconnection is as follows.



### Case2: Silencing the alarm from the digital depth indicator FE-720

When the main display unit FE-701 activates an alarm, it can be deactivated at the FE-701 itself and also, it can be deactivated from the digital depth indicator FE-720. To do this, connect as follows.

#### < Connection >



**Note:** In this case, a positioning device can not be connected.

#### < FE-720 setting >

In the menu of the FE-720, ALARM should be set to ON. If an alarm activates, press any key on the FE-720, then the alarm will be deactivated at the FE-701 and FE-720.

MENU	
DIM CONTROL	PANEL ONLY
ゲンゴ/LANG.	ENGLISH
UNITS	
ALARM SET	ON
TEST	



### 3. CHANGING POWER SPECIFICATIONS

---

This unit is set at factory to operate from 220-230 VAC ship's mains. For connection to a 100 VAC, 110-115 VAC, 200 VAC or 24 VDC ship's mains, modify the connections in the distribution box as shown below.

**Note:** Tick the appropriate box on the inside of the FE-702 distribution box cover to denote the power use.

<input type="checkbox"/>	200-230 VAC (50/60 Hz)
<input type="checkbox"/>	100-115 VAC (50/60 Hz)
<input type="checkbox"/>	24 VDC

*Label inside the distribution box FE-702*

#### **100 VAC, 110-115 VAC, 200 VAC Ship's Mains**

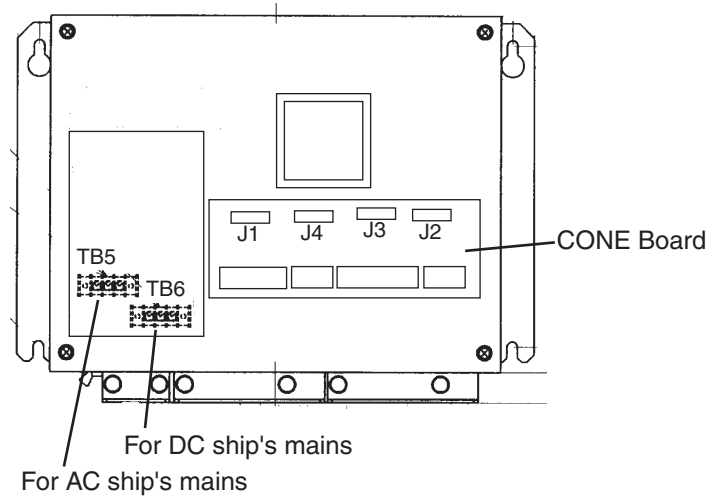
1. Connect the power cable to #1 & #3 on TB5 in the distribution box.
2. Modify the wiring at TB7 according to ship's mains as shown in the table below.

Ship's mains	TB7 #1	TB7 #2	TB7 #3	TB7 #4	TB7 #5
220-230 VAC (Default)	Orange	Red	Black	Brown	White
200 VAC	Red	Orange	Black	Brown	White
110-115 VAC	Black	Red	Orange	Brown	White
100VAC	Brown	Red	Black	Orange	White

### 3. CHANGING POWER SPECIFICATIONS

#### **24 VDC Ship's Mains**

1. Remove the cover of the distribution box.
2. Remove P3 connector from J4 on the CONE Board.
3. Reattach P3 connector to J3 on the CONE Board.
4. Connect the power cable to TB6.



*Distribution box, inside view*

# 4. ADJUSTMENTS

This section provides the procedures for initial set up of the equipment. The type of transducer used should be properly set before operating the equipment.

## 4.1 Transducer Setting

Select the type of transducer used as follows.

1. Press the POWER Switch while pressing any key. Release the key when the following display appears.

EXTENSION MODE	
+	TRANSDUCER SETTING
-	TEST
▲	CLEAR MEMORY
▼	DEMO/ALARM SETTING

2. Press the + key to select [TRANSDUCER SETTING].

TRANSDUCER SETTING	
CHANGEOVER :	<u>AUTO</u> MANUAL
[FORE] XDR :	N/A <u>50kHz</u> 200kHz
KEEL DIST. :	0.0 m(0.0-10.0)
[AFT] XDR :	N/A 50 kHz <u>200kHz</u>
KEEL DIST. :	0.0 m(0.0-10.0)
DEPTH(BELOW)	<u>TRANSDUCER</u> KEEL
DISP MODE :	<u>DUAL</u> SINGLE
DISP ORDER*:	<u>AFT/FORE</u> FORE/AFT
OUTPUT*:	<u>FORE</u> AFT
MEMORIZE*:	<u>DUAL</u> FORE AFT
▼▲ :	To select item
- + :	To set option

\*: Does not appear when [DISP MODE] is set to [SINGLE].

3. Set the transducer(s) as shown below. Use ▲ or ▼ key to select an item and + or - key to set option.

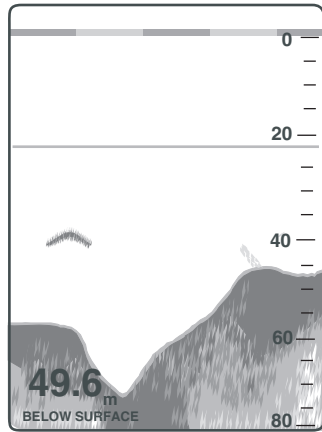
### **EX8 or MB-1200 connected to transducer(s)**

- a) [CHANGEOVER] sets how transducer(s) is connected to the FE-700. Select [MANUAL] for single transducer or transducers connected via Switch Box EX-8. Select [AUTO] for connection via Distribution Box MB-1200.
- b) **One transducer installed:** Set [[FORE] XDR] (or [[AFT] XDR]) to 50 kHz or 200 kHz, depending on actual installation. Leave [[AFT] XDR] (or [[FORE] XDR]) set to [N/A].  
**Two transducers installed:** Set [[FORE] XDR] and [[AFT] XDR] to 50 kHz or 200 kHz, depending on actual installation.
- c) [KEEL DIST] sets the distance from transducer to keel of the ship.

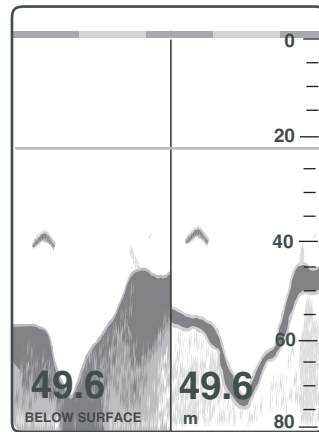
## 4. ADJUSTMENTS

- d) [DEPTH (BELOW)] selects the method of depth indication. [TRANSDUCER] for depth indication below the transducer (except DBS mode), or [KEEL] for depth indication below the keel.
- e) [DISP MODE] sets the function of the MODE switch in case of dual frequencies. Select [DUAL] to show the dual frequency display ([FORE] and [AFT]), or [SINGLE] to show single frequency display.

**Note:** If [CHANGEOVER] is set for [MANUAL], select [SINGLE].



*SINGLE: Single frequency*



*DUAL: Dual frequency*

- f) [DISP ORDER] sets where to locate the fore and aft displays (right or left side) in the dual frequency display.
- g) [OUTPUT] sets what data to output to external equipment (in IEC/NMEA data format) in case of dual frequencies. Select [FORE] to output [FORE] data, or [AFT] to output [AFT] data.
- h) [MEMORIZE] sets the source (transducer) for data recording (depth, etc.) in case of dual frequencies. Select [DUAL], [FORE] or [AFT] as appropriate. [DUAL] records both [FORE] and [AFT] data for 12 hours. [FORE] or [AFT] records respective data for 24 hours.

### **When using a single transducer (no EX8 or MB-1200 connected)**

Perform the following settings:

- CHANGEOVER: [AUTO]
- FORE, AFT: if not connected, set [N/A]
- DISP MODE: [Single]
- Other settings: Perform as shown in "EX8 or MB-1200 connected to transducer(s)" on page 4-21 .

4. Reset the power.

**Note:** The default settings in the [TRANSDUCER SETTING] window are [N/A]. At the first power-up after installation, the window appears to set transducer(s).

## 4.2 Setting the Time

1. Open the [SYSTEM MENU 2] referring to the operator's manual.

SYSTEM MENU 2		
MENU SELECT	1	2 3
TIME ADJUST	INTERNAL	EXTERNAL
DAY	1	
MONTH	JAN	
YEAR	2009	( 2100)
HOUR	0	(0 23)
MINUTE	1	(0 59)
SECOND	42	(0 59)
01 JAN 2009 00:01:06		
▼▲: To select item		
- +: To set option		
Select other mode to exit.		

### System menu 2

2. Press ▼ key to select [TIME ADJUST]. Select [INTERNAL] to use the internal clock. Set day, month, year, hour, minute and second with + or – key. Select [EXTERNAL] to use time data from equipment that outputs time in ZDA format. At [TIME DIFFERENCE] field, select [AUTO] or [MANUAL]. [MANUAL] requires entry of time difference.

SYSTEM MENU 2		
MENU SELECT	1	2 3
TIME ADJUST	INTERNAL	EXTERNAL
TIME DIFFERENCE	AUTO	MANUAL
01 JAN 2009 00:02:10		
▼▲: To select item		
- +: To set option.		
Select other mode to exit.		

[TIME ADJUST] set to [EXTERNAL]

SYSTEM MENU 2		
MENU SELECT	1	2 3
TIME ADJUST	INTERNAL	EXTERNAL
TIME DIFFERENCE	AUTO	MANUAL
TIME DIFF HOUR	0	(0~13)
TIME DIFF MIN	0	(0~59)
TIME DIFF SIGN	-	(0~59)
01 JAN 2009 00:02:10		
▼▲: To select item		
- +: To set option.		
Select other mode to exit.		

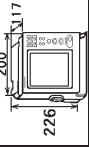

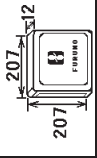

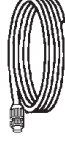


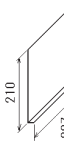
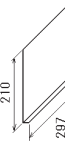
[TIME DIFFERENCE] set to [MANUAL]

# PACKING LIST

FE-701/FE-701-HK

02F1-X-9851 -12 1/1

A-1

NAME	OUTLINE	DESCRIPTION/CODE No.	Q'TY
<b>ユニット</b>			
指示器 DISPLAY UNIT		FE-701/FE-701-HK 000-020-368-00 **	1
<b>付属品</b>			
<b>ACCESSORIES</b>			
付属品 ACCESSORIES		FP02-04801	1
ハードカバー HARD COVER		001-163-460-00 FP02-04802 001-390-000-00	1
<b>工事材料</b>			
<b>INSTALLATION MATERIALS</b>			
工事材料 INSTALLATION MATERIALS		CP02-06401	1
ケーブル(組品) CABLE ASSEMBLY		001-163-470-00 FM-06FPS002-100 000-177-061-10	1
ケーブル(組品) CABLE ASSY.		MJ-A10SPF0002-100+ 001-122-750-10	1
ケーブル(組品) CABLE ASSY.		MJ-A3SPF0015-100C 000-156-054-11	1
<b>図書</b>			
<b>DOCUMENT</b>			
取扱説明書 OPERATOR'S MANUAL		OME-23660-* 000-808-908-1*	1
整備要領書 INSTALLATION MANUAL		IME-23660-* 000-808-910-1*	1

コード番号末尾の[\*\*]は、選択品の代表コードを表します。  
CODE NUMBER ENDING WITH "\*\*" INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.

型式/コード番号が2版の場合、下段より上段に代わる透過部品であり、どちらが入っています。なお、品質は変わりません。  
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.


(略図の寸法は、参考値です。DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

KR

C2366-Z01-L

# FURUNO

A-2

CODE NO.	001-229-260-00	02F1-X-9402-4			
TYPE	CP02-06401	1/1			
<b>工事材料表</b>					
<b>INSTALLATION MATERIALS</b>					
番号 NO.	名称 NAME	略図 OUTLINE	型名/規格 DESCRIPTIONS	数量 Q'TY	用途/備考 REMARKS
1	EM1 CORE		ESD-SR-150 CODE NO. 000-177-283-10	1	

型式/コード番号が2版の場合、下段より上段に代わる透過部品であり、どちらが入っています。なお、品質は変わりません。  
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.  
(略図の寸法は、参考値です。DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO ELECTRIC CO., LTD.

JP

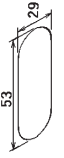
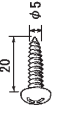
C2366-M02-C

**FURUNO**

CODE NO.	001-163-460-00	02FG-X-9501-4	1/1
TYPE	FP02-04801		

**付属品表**

## ACCESSORIES

番号 NO.	名称 NAME	略図 OUTLINE	型名/規格 DESCRIPTIONS	数量 Q'TY	用途/備考 REMARKS
1	7' dummy film (K) DUMMY FILM (K)		03-116-1103-0 ROMS CODE NO. 100F-165-386-10	1	
2	+トタカビネジ 1/2 SELF-TAPPING SCREW		5X20 SUS304 CODE NO. 000F-162-606-10	4	

型式/コード番号が2段の場合、下段より上段に代わる過渡部品であり、どちらかが入っています。なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME. DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

(略図の寸法は、参考値です。)

FURUNO ELECTRIC CO., LTD.

KR

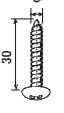


C2358-F01-E

**FURUNO**

CODE NO.	001-228-950-00	02FI-X-9401-3	1/1
TYPE	CP02-06301		

**工事材料表**

## INSTALLATION MATERIALS

番号 NO.	名称 NAME	略図 OUTLINE	型名/規格 DESCRIPTIONS	数量 Q'TY	用途/備考 REMARKS
1	+トタカビネジ 1/2 SELF-TAPPING SCREW		6X30 SUS304 CODE NO. 000F-162-614-10	4	
2	圧着端子 CRIMP-ON LUG		FV1-25-3 (LF) CODE NO. 000F-166-756-10	10	
3	圧着端子 CRIMP-ON LUG		FV2-S3.3 CODE NO. 000F-167-234-10	10	

型式/コード番号が2段の場合、下段より上段に代わる過渡部品であり、どちらかが入っています。なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME. DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

(略図の寸法は、参考値です。)

FURUNO ELECTRIC CO., LTD.

JP

C2366-M01-D

PACKING LIST  
FE-720/HK

02F1-X-9852 -9 1/1

A-5

NAME	UNIT	OUTLINE	DESCRIPTION/CODE No.	QTY
深産表示器	ユニット		FE-720/FE-720-HK 000-020-370-00 **	1
<b>付属品 ACCESSORIES</b>				
フラッシュマウント			FP65-00401 001-163-590-00	1
フラッシュマウント			FP65-00402 001-163-610-00	1
付属品			FP65-00403 001-163-600-00	1
<b>工事材料 INSTALLATION MATERIALS</b>				
<b>工事材料</b>				
工事材料			CP65-00801 001-163-580-00	1
ケーブル組品			IMJ-A6SPF0003-020C 000-154-029-10	1
ケーブル組品			IMJ-A7SPF0009-020C 000-159-686-10	1

コード番号末尾の「\*\*」は、選用品の代表コードを表します。  
CODE NUMBER ENDING WITH " \*\*" INDICATES THE CODE NUMBER OF REPRESENTATIVE MATERIAL.

型式/コード番号が2段の場合、下段より上段に代わる過渡期品であり、どちらが入っています。なお、品質は変わりません。  
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

KR

C2366-Z02-J

FURUNO

A-6

CODE NO.	TYPE	001-163-580-00	CP65-00801	65AD-X-9406 -3	1/1
<b>工事材料表</b>					
<b>INSTALLATION MATERIALS</b>					
番号 NO.	名称 NAME	略図 OUTLINE	型名/規格 DESCRIPTIONS	数量 QTY	用途/備考 REMARKS
1	圧着端子 CRIMP-ON LUG		FV0.9-4 (LP) K 000-166-685-11	20	

(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO ELECTRIC CO., LTD.

C7247-M06-D KR






**FURUNO**

CODE NO.	001-163-590-00	65AD-X-9502-4	1/1
TYPE	FP65-00401		

## 付属品表

## ACCESSORIES

番号 NO.	名称 NAME	略図 OUTLINE	型名/規格 DESCRIPTIONS	数量 Q'TY	用途/備考 REMARKS
1	化粧パネル COSMETIC PANEL		20-016-1061-0 CODE NO. 100-281-370-10	1	
2	ハネ座金 SPRING WASHER		M6 SUS304 CODE NO. 000-155-855-10	2	
3	六角スリットボルト HEX BOLT (SLOTTED HEAD)		M6X12 SUS304 CODE NO. 000-162-897-10	2	

型式/コード番号が2段の場合、下段より上段に代わる選定部品であり、どちらかが入っています。なお、品質は変わりません。

TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.

(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO ELECTRIC CO., LTD.

KR

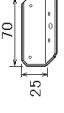
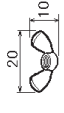
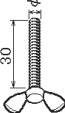

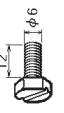
C7247-F03-E

**FURUNO**

CODE NO.	001-163-610-00	65AD-X-9504-7	1/1
TYPE	FP65-00402		

## 付属品表

## ACCESSORIES

番号 NO.	名称 NAME	略図 OUTLINE	型名/規格 DESCRIPTIONS	数量 Q'TY	用途/備考 REMARKS
1	フラッシュマウント FLUSH MOUNT		20-007-2401-0 R0HS CODE NO. 100-183-190-10	2	
2	蝶ナット 2種 WING NUT 2 SYU		M4 1BSG2 CODE NO. 000-192-183-10	4	
3	蝶ボルト WING BOLT		M4X30 1BSG2 CODE NO. 000-186-243-10	4	
4	ハネ座金 SPRING WASHER		M6 SUS304 CODE NO. 000-155-855-10	2	
5	六角スリットボルト HEX BOLT (SLOTTED HEAD)		M6X12 SUS304 CODE NO. 000-162-897-10	2	

(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

FURUNO ELECTRIC CO., LTD.

KR

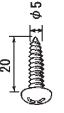
C7247-F02-H

**FURUNO**

CODE NO.	001-163-600-00	65AD-X-9503-2
TYPE	FP65-00403	1/1

**付属品表**

## ACCESSORIES

番号 NO.	名称 NAME	略図 OUTLINE	型名/規格 DESCRIPTIONS	数量 QTY	用途/備考 REMARKS
1	+付ネジ 1/2 SELF-TAPPING SCREW		5X20 SUS304 CODE NO. 000-162-609-10	4	

型式/コード番号が2取の場合、下取より上取に代わる通線部品であり、どちらが入っています。なお、品質は変わりません。  
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.  
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

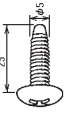
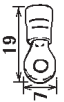
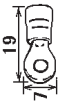
FURUNO ELECTRIC CO., LTD.  
KR C7247-F04-C

**FURUNO**

CODE NO.	002-888-480-00	65AD-X-9403-2
TYPE	CF65-00903	1/1

**工事材料表**

## INSTALLATION MATERIALS

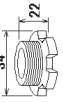

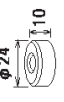
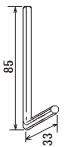
番号 NO.	名称 NAME	略図 OUTLINE	型名/規格 DESCRIPTIONS	数量 QTY	用途/備考 REMARKS
1	+付ネジ 1/2 SELF-TAPPING SCREW		5X25 SUS304 CODE NO. 000-162-610-10	4	
2	圧着端子 CRIMP-ON LUG		FV0.5-4(LF) CODE NO. 000-166-665-10	20	
3	圧着端子 CRIMP-ON LUG		FV2-M4 FV2-M4 CODE NO. 000-157-229-10 000-536-716-30	30	

型式/コード番号が2取の場合、下取より上取に代わる通線部品であり、どちらが入っています。なお、品質は変わりません。  
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT. QUALITY IS THE SAME.  
(略図の寸法は、参考値です。 DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)

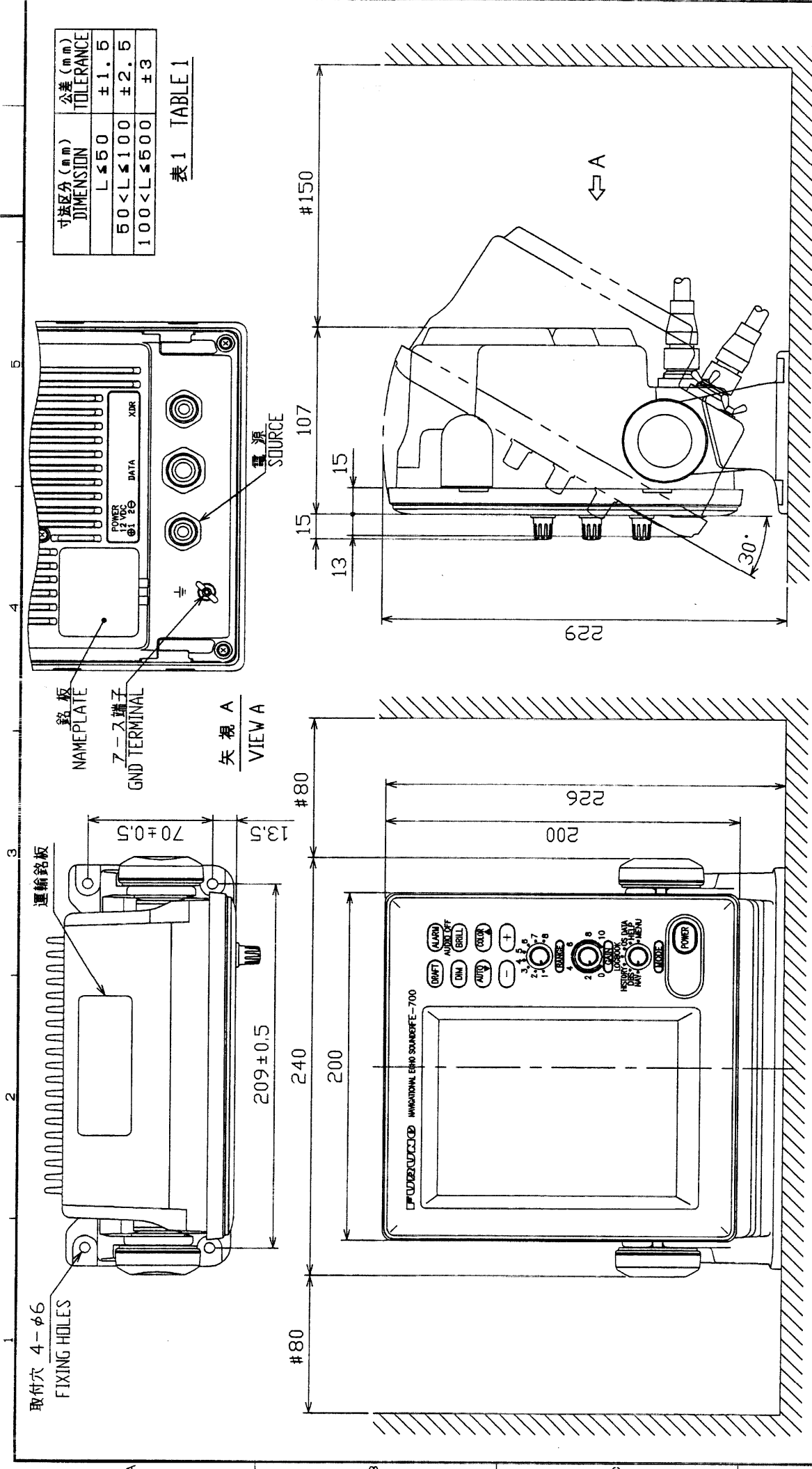
FURUNO ELECTRIC CO., LTD.  
C7247-M03-C



# FURUNO

CODE NO.		001-106-500-00		02F1-X-9408-1	
TYPE		CP02-08802		1/1	
TTF-5600					
工事材料表 INSTALLATION MATERIALS					
番号 NO.	名称 NAME	略図 OUTLINE	型名/規格 DESCRIPTIONS	数量 QTY	用途/備考 REMARKS
1	ケーブル用継付 CABLE GLAND NIPPLE		JIS F8801 2097 CODE NO. 000-177-374-10	1	
2	電線貫通金盛金 WASHER		TPB-11-07 R0HS CODE NO. 270-100-270-10	1	
3	貫通金物用ハットキ RUBBER PACKING		TPB-11-08 R0HS CODE NO. 270-100-230-10	1	
4	六角レンチ SOCKET SCREW WRENCH		対辺5.0MM CODE NO. 000-177-316-10	1	

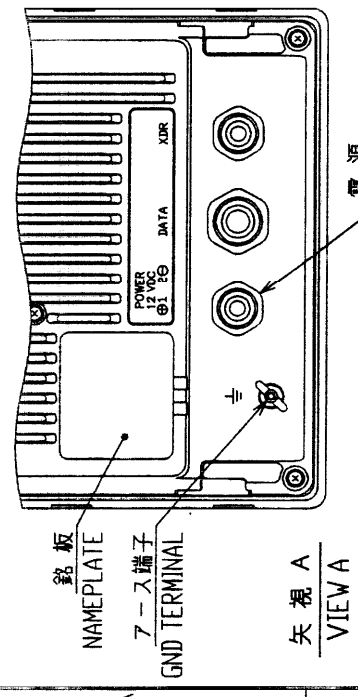
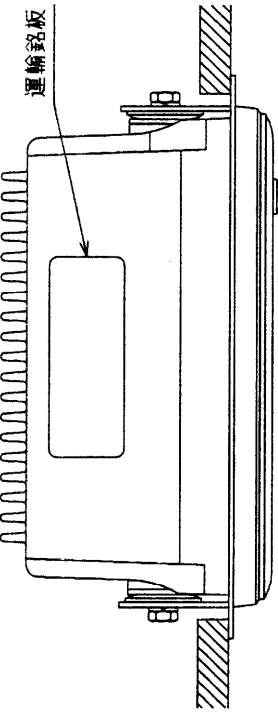
型式/コード番号が2段の場合、下段より上段に代わる通線部品であり、どちらかが入っています。なお、品質は変わりません。  
TWO TYPES AND CODES MAY BE LISTED FOR AN ITEM. THE LOWER PRODUCT MAY BE SHIPPED IN PLACE OF THE UPPER PRODUCT.  
QUALITY IS THE SAME.  
(略図の寸法は、参考値です。DIMENSIONS IN DRAWING FOR REFERENCE ONLY.)



DRAWN	SEP. 17 '01	T. YAMASAKI	TITLE	FE-701
CHECKED			名称	指示器 (卓上装備)
APPROVED			外寸図	
SCALE	1/3	MASS 2.6 kg	NAME	DISPLAY UNIT (DESKTOP MOUNT)
DWG No.	C2366-001-B	02-129-1700-2	OUTLINE DRAWING	

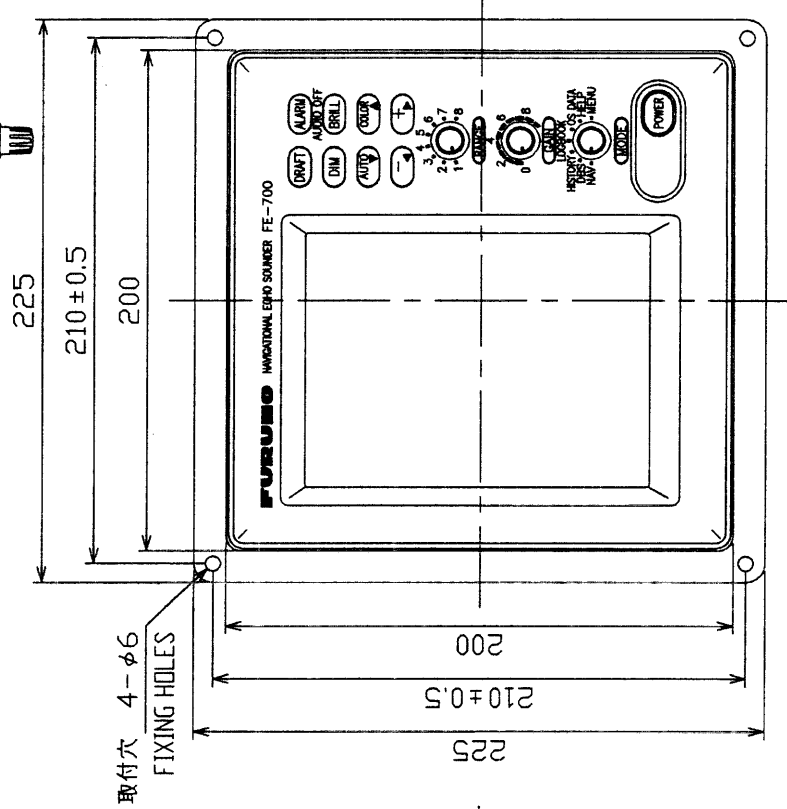
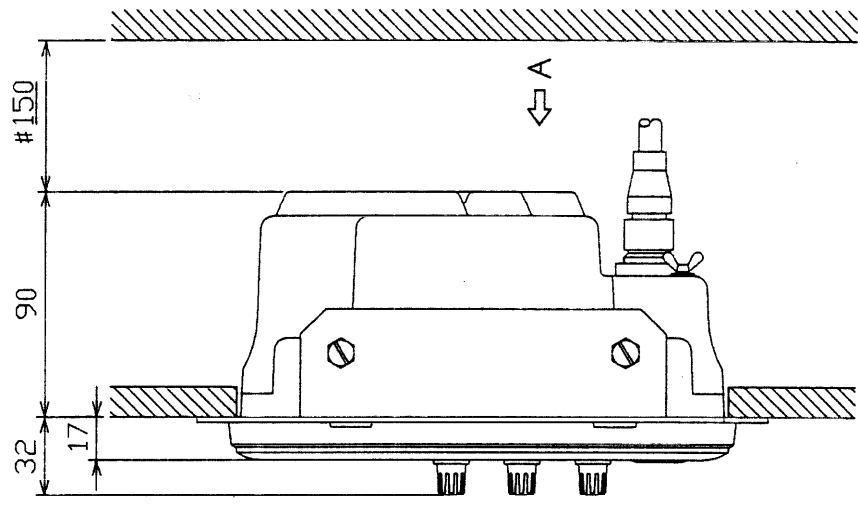
注記 1) #印寸法は最小サービスペース寸法とする。  
 2) 指定外の寸法公差は表1による。  
 3) 取付用ネジはトラスタックピンネジ呼び径5×20を使用のこと。

NOTE 1. # INDICATES TOLERANCE OF DIMENSIONS.  
 2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.  
 3. USE TAPPING SCREWS 5x20 FOR FIXING THE UNIT.

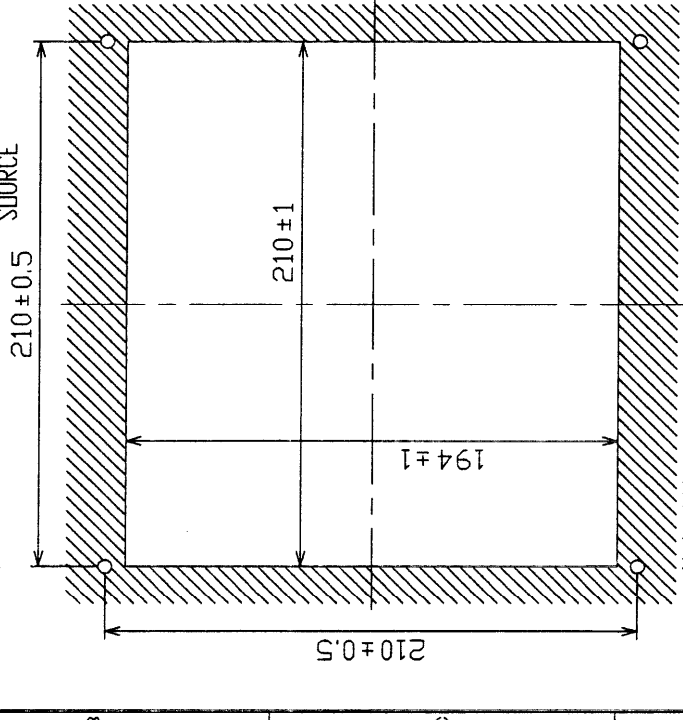


寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

表 1 TABLE 1



取付穴 4-φ6  
FIXING HOLES

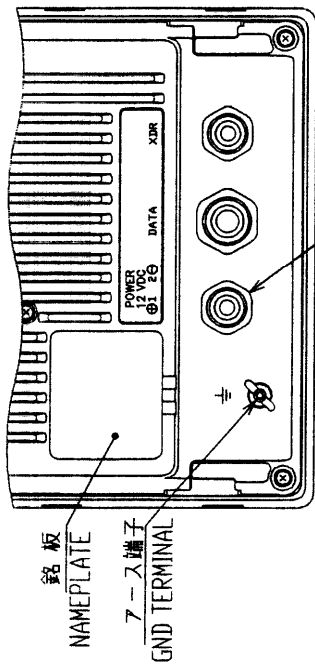


取付穴寸法図 CUTOUT DIMENSIONS

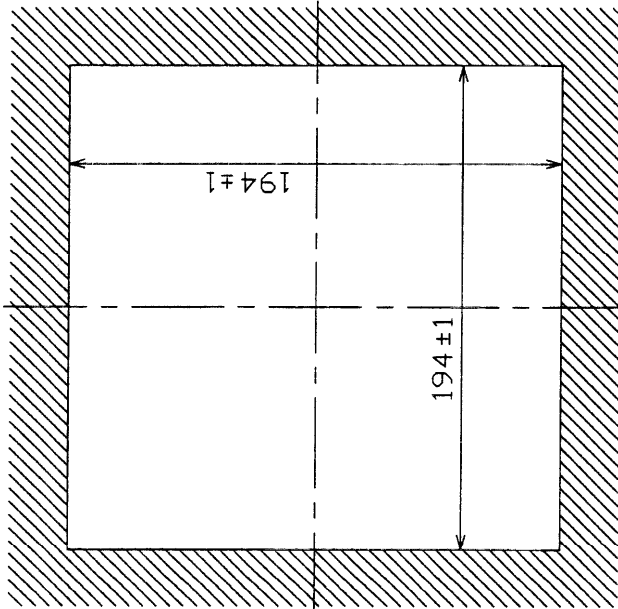
- 注 記 1) #印寸法は最小サージス空周寸法とする。  
 2) 指定外の寸法公差は表 1 による。  
 3) 取付用ネジは M5 ボルトまたはタッピングネジ呼び径 5 × 2.0 を使用のこと。

- NOTE 1. #1 RECOMMENDED SERVICE CLEARANCE.  
 2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.  
 3. USE TAPPING SCREWS 5x2.0 FOR FIXING THE UNIT.

DRAWN Sep. 17. 01. I. YAMASAKI	TITLE FE-701
CHECKED 10/1 Y. K.	名称 指示器 (埋込装備 F)
APPROVED 10/1 Y. K.	外寸図
SCALE 1/3 MASS 2.4 kg	NAME DISPLAY UNIT (FLUSH MOUNT F)
DWG No. C2366-003-B	OUTLINE DRAWING



矢視 A  
VIEW A



取付穴寸法図 CUTOUT DIMENSIONS

注記 1) #印寸法は最小サービス空間寸法とする。  
2) 指定外の寸法公差は表1による。

NOTE 1. #1 RECOMMENDED SERVICE CLEARANCE.  
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

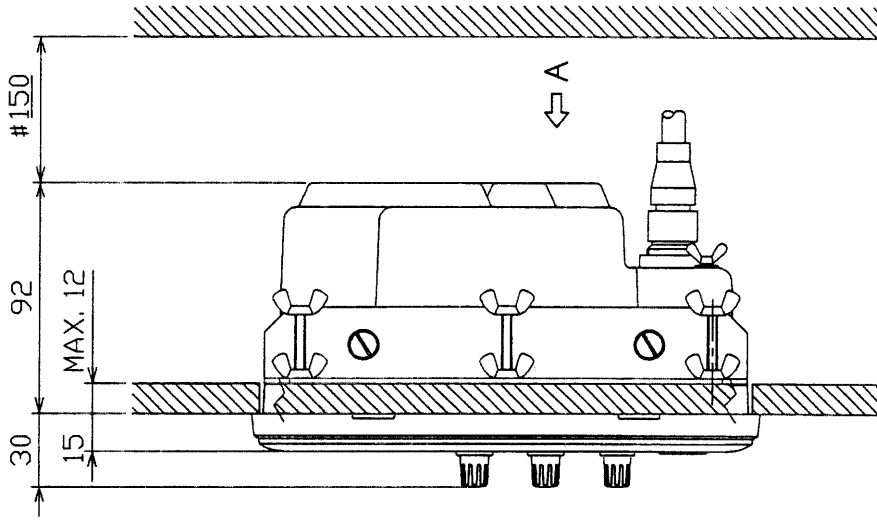
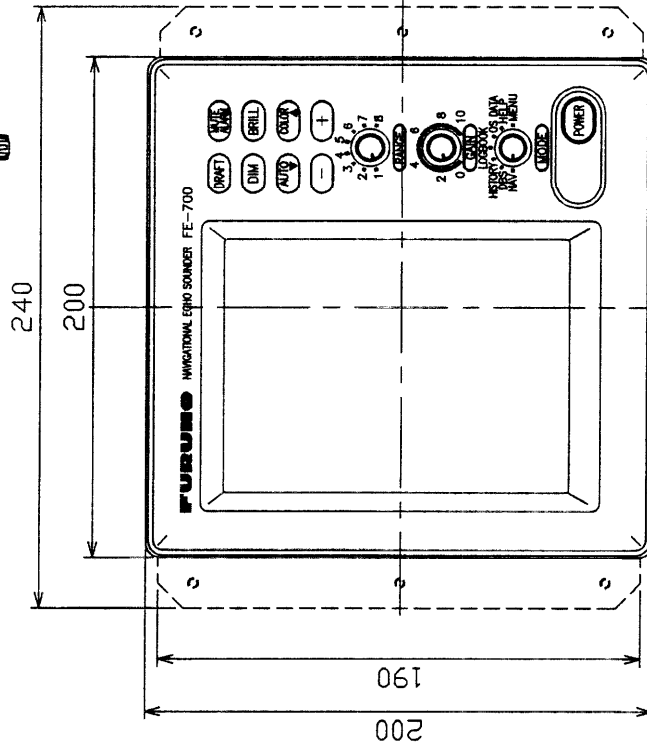
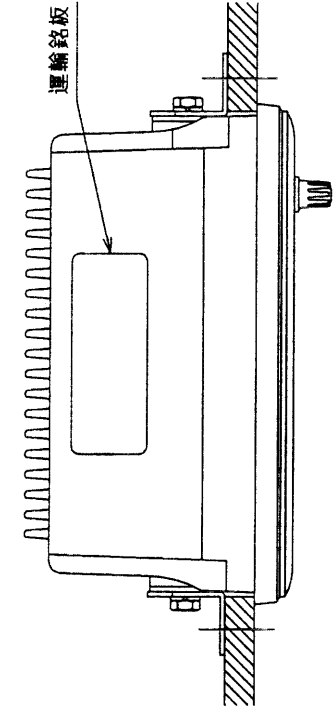


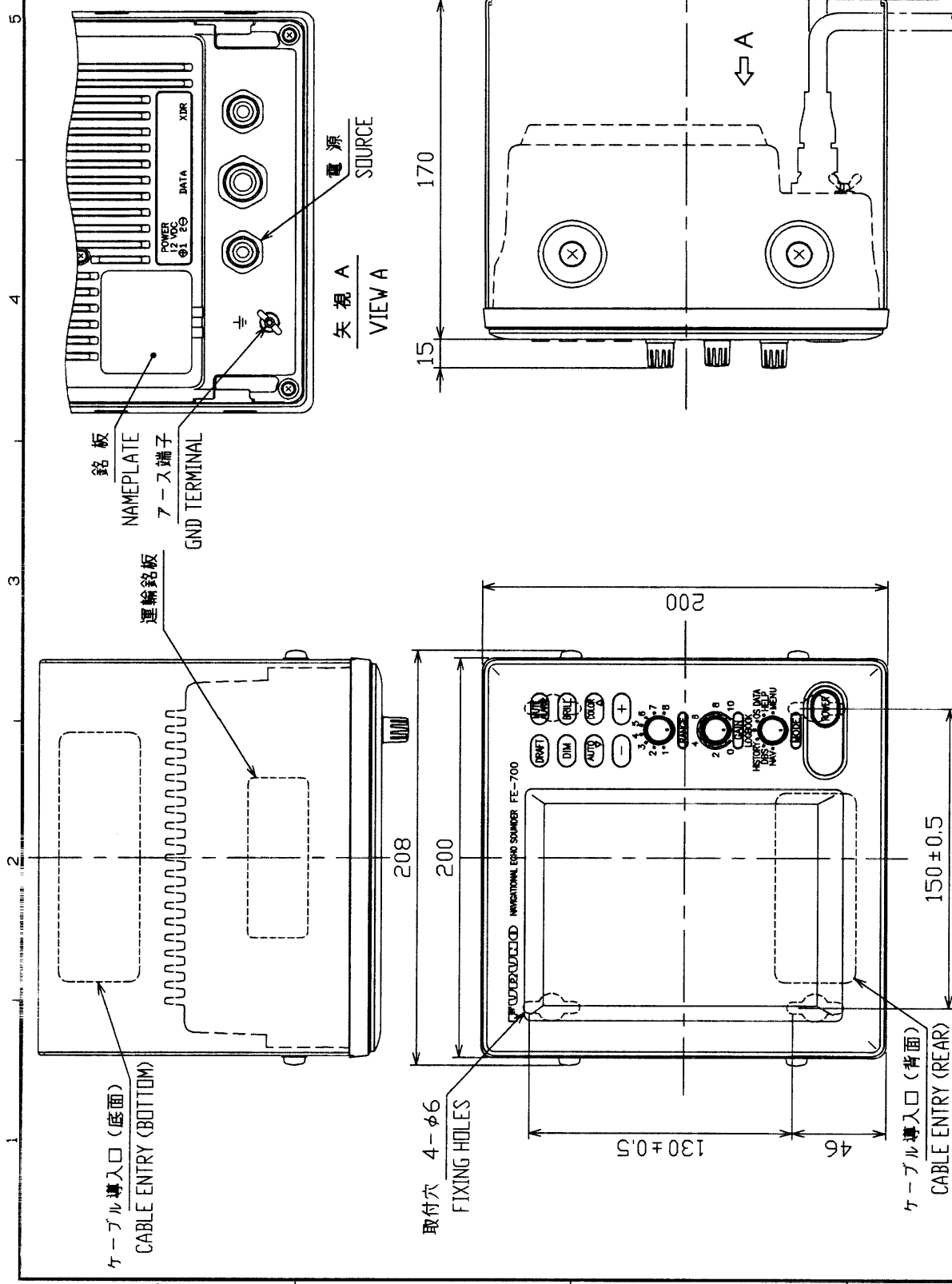
表1 TABLE 1

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

DRAWN Sep. 17 '04 I. YAMASAKI	TITLE 名称 指示器 (埋込装備S)
CHECKED S. 2016.01.14 Y. K.	外寸図
APPROVED S. 2016.01.14 Y. K.	NAME DISPLAY UNIT (FLUSH MOUNT S)
SCALE 1/3	OUTLINE DRAWING
DWG No. C2366-604-B	02-129-190G-2

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

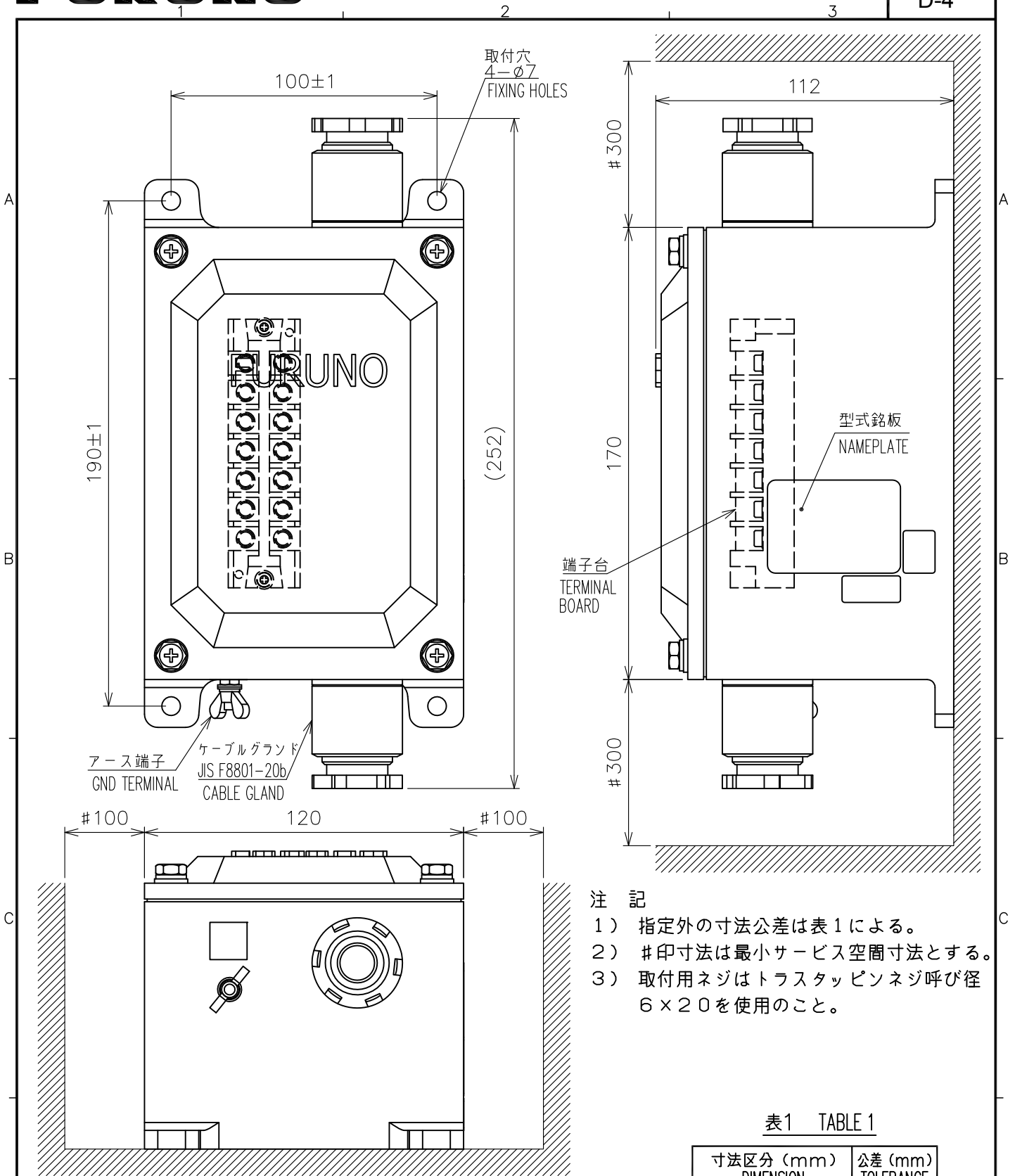
表 1 TABLE 1



注記 1) 取付用ネジはM5ボルトまたはタッピンネジ呼び径5×20を使用のこと。  
 2) 指定外の寸法公差は表1による。  
 NOTE 1. USE M5 BOLTS OR TAPPING SCREWS 5×20 FOR FIXING UNIT.  
 2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

DRAWN Sep. 17 '91 I. YAMASAKI	TITLE FE-700
CHECKED Y. KAWA	名称 指示器 (壁掛装備)
APPROVED M. KAWA	外寸図
SCALE 1/3	NAME DISPLAY UNIT (BULKHEAD MOUNT)
FIG. No. C2366-G08-B	OUTLINE DRAWING 02-129-140G-1





注 記

- 1) 指定外の寸法公差は表1による。
- 2) #印寸法は最小サービス空間寸法とする。
- 3) 取付用ネジはトラスタッピンネジ呼び径  $6 \times 20$  を使用のこと。

表1 TABLE 1

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
$L \leq 50$	$\pm 1.5$
$50 < L \leq 100$	$\pm 2.5$
$100 < L \leq 500$	$\pm 3$

NOTE

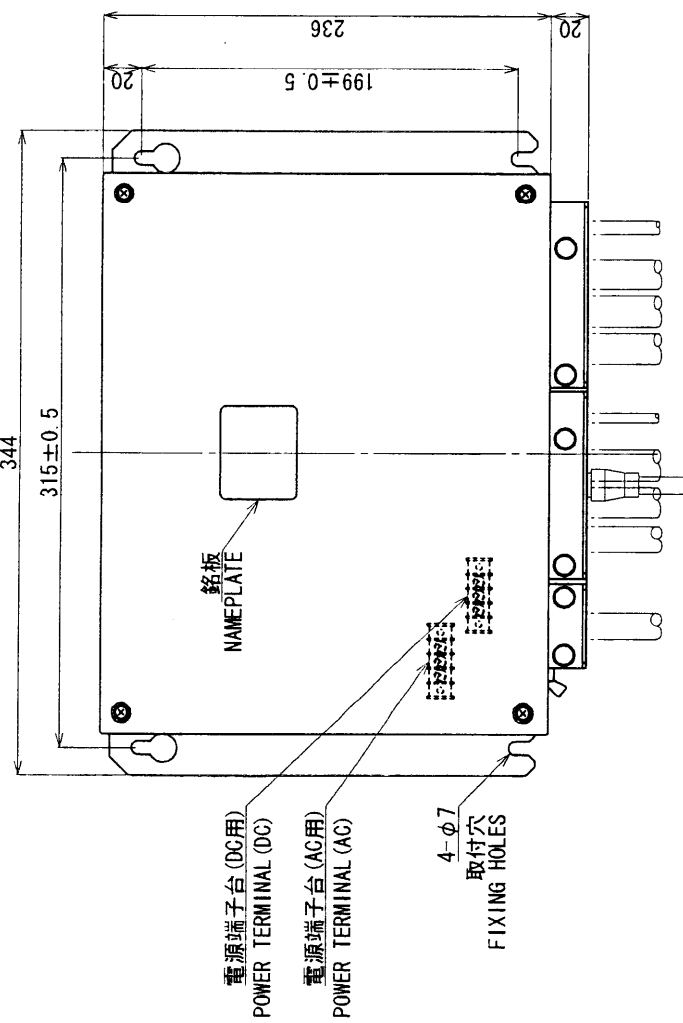
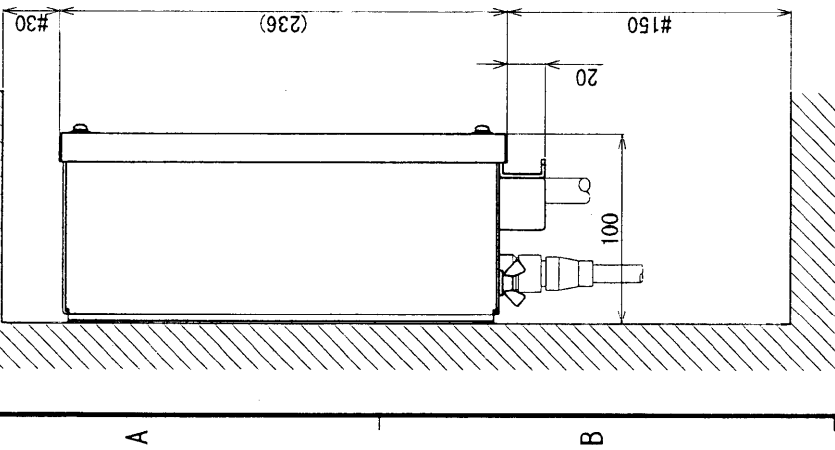
1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.
2. # MINIMUM SERVICE CLEARANCE.
3. USE TAPPING SCREWS  $\phi 6 \times 20$  FOR FIXING THE UNIT.

DRAWN 18/Mar/2014 I.YAMASAKI	TITLE MB-502/504
CHECKED 18/Mar/2014 H.MAKI	名称 整合箱
APPROVED 18/Mar/2014 H.MAKI	FE-700/800/880 外寸図
SCALE 1/2	MASS 2.6 $\pm 10\%$ kg
DWG. No. C2006-006-F	REF. No. 12-005-300G-1
NAME MATCHING BOX OUTLINE DRAWING	

4

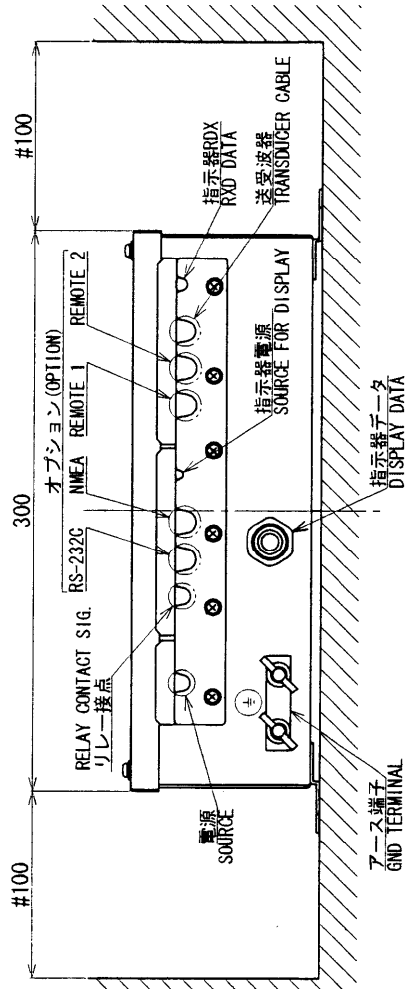
3

2



寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

表 1  
TABLE 1

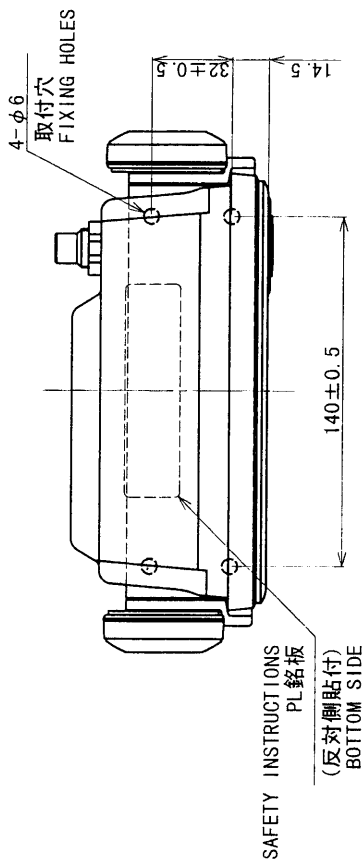


- 注 記
- 1) #印寸法は最小サービスペース寸法とする。
  - 2) 指定外の寸法公差は表 1 による。
  - 3) 取付用ネジはトラスタッピンネジ 6×30 を使用のこと。

- NOTE
1. #: RECOMMENDED SERVICE CLEARANCE.
  2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.
  3. USE TAPPING SCREWS 6x30 FOR FIXING UNIT.

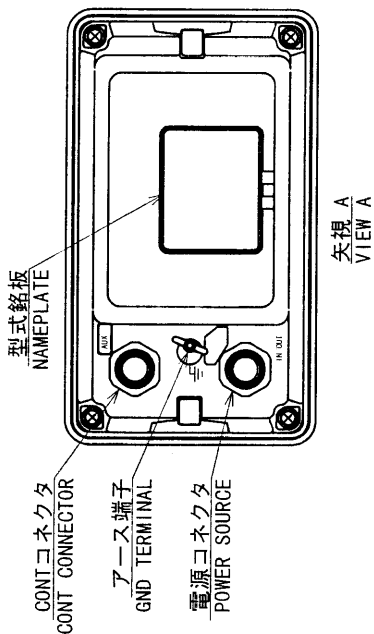
DRAWN	Rev. 2/76 T. HAYASHI	TITLE	FE-702
CHECKED	Approved	名称	分配箱
APPROVED	1987.9.10 Y. K.	外寸図	
SCALE	1/4 MASS ±10% 6.0 kg	NAME	DISTRIBUTION BOX
DWG. No.	C2366-602-B		OUTLINE DRAWING
			02-129-2000-G2

2 3 4

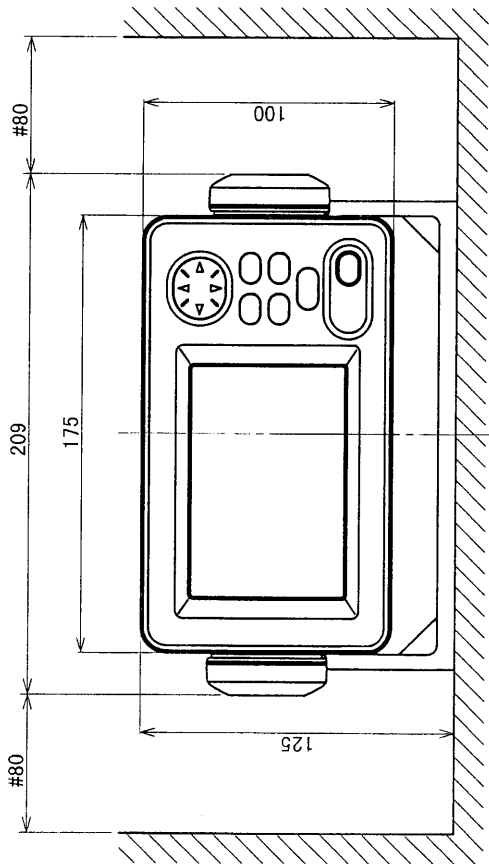
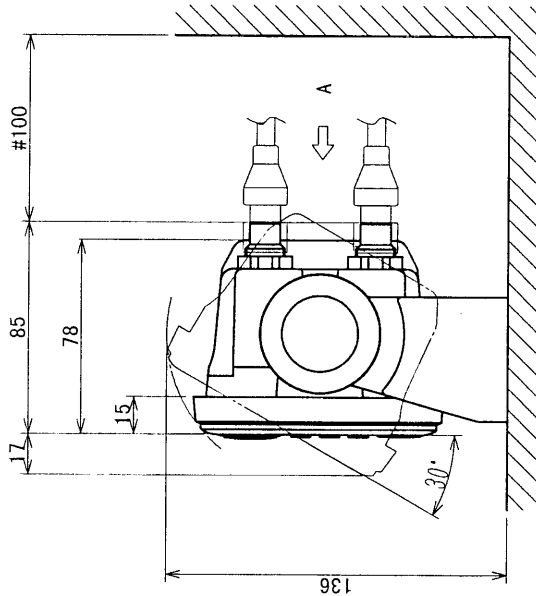


寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

表 1  
TABLE 1



矢視 A  
VIEW A



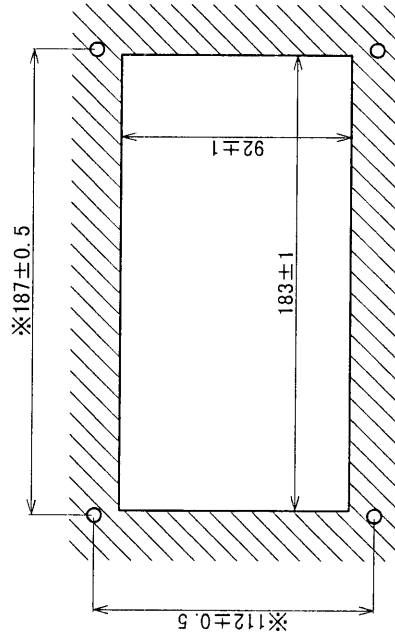
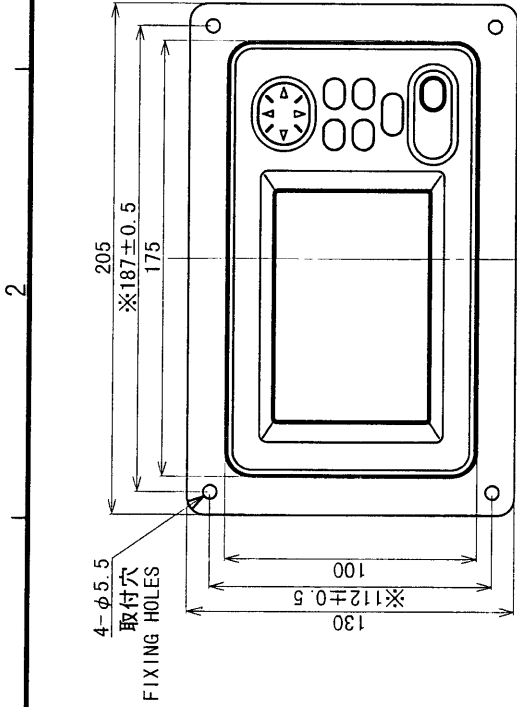
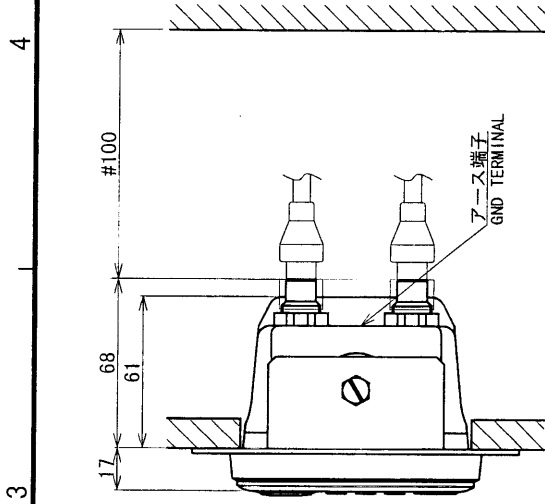
注 記

- 1) #印寸法は最小サービスクリアランスとする。
- 2) 指定外寸法公差は表 1 による。
- 3) 取付用ネジはトラスタッピングネジ 5×20 を使用のこと。
- 4) 装備ケーブルはサービスクリアランスを前方に十分引き出せるよう余裕を持たせること。

NOTE

1. #: RECOMMENDED SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.
3. USE TAPPING SCREWS 5x20 FOR FIXING UNIT.
4. KEEP ENOUGH CABLE LENGTH BEHIND UNIT.

DRAWN <i>Dec 7 '99 T. YAKASAKI</i>	TITLE FE-720
CHECKED <i>Dec 7 '99 K. HISUMOTO</i>	名称 深度表示器 (卓上装備)
APPROVED <i>Dec 7 '99 K. HISUMOTO</i>	外寸図 FE-700
SCALE 1/3	NAME DEPTH INDICATOR (DESKTOP MOUNT)
MASS ±10% 0.60 kg	OUTLINE DRAWING
DWG. No. C2366-605-A	02-129-3000-G1



取付穴寸法図 (参考図)  
CUTTING DIMENSIONS

注記

- 1) #印寸法は最小サービス空間寸法とする。
- 2) 指定外の寸法公差は表1による。
- 3) 取付用ネジはトラスタッピングネジ5×20を使用のこと。
- 4) ※印寸法は取付穴位置寸法とする。

NOTE

1. #: RECOMMENDED SERVICE CLEARANCE.
2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.
3. USE TAPPING SCREWS 5x20 FOR FIXING UNIT.
4. \*: DIMENSION OF FIXING HOLES PITCH.

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
$L \leq 50$	$\pm 1.5$
$50 < L \leq 100$	$\pm 2.5$
$100 < L \leq 500$	$\pm 3$

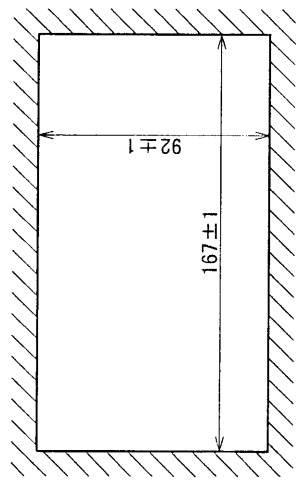
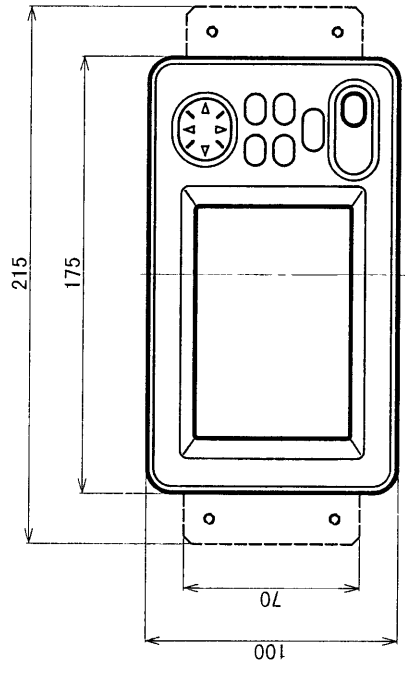
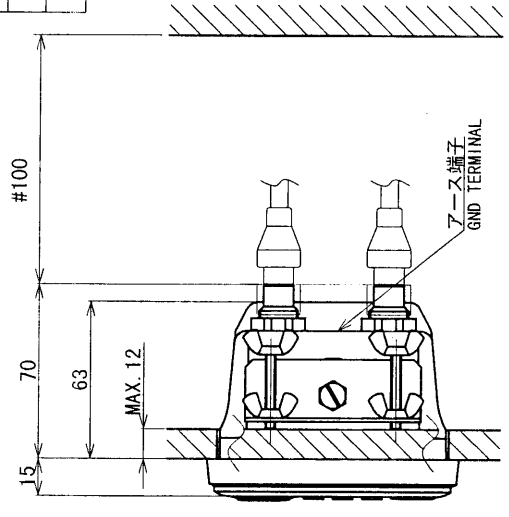
表 1  
TABLE 1

DRAWN Dec 1999 TAMASAKI	TITLE FE-720
CHECKED Dec 1999 KASUMI	名称 深度表示器 (埋込装備 F)
APPROVED Dec 1999 KASUMI	外寸図
SCALE 1/3	NAME DEPTH INDICATOR (FLUSH MOUNT F)
MASS ±10% 0.55 kg	OUTLINE DRAWING
DWG. No. C2366-G06-A	02-129-3010-G1

2 3 4

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
$L \leq 50$	$\pm 1.5$
$50 < L \leq 100$	$\pm 2.5$
$100 < L \leq 500$	$\pm 3$

表 1  
TABLE 1



取付穴寸法図 (参考図)  
CUTTING DIMENSIONS

DRAWN <i>Dec 7 1998 Yamazaki</i>	TITLE FE-720
CHECKED <i>Dec 7 1998 Kawano</i>	名称 深度表示器 (埋込装備 S)
APPROVED <i>Dec 7 1998 Kawano</i>	外寸図
SCALE 1/3 MASS $\pm 10\%$ 0.55 kg	NAME DEPTH INDICATOR (FLUSH MOUNT S)
DWG. No. C2366-G07-A	02-129-3020-G1 OUTLINE DRAWING

- 注 記
- #印寸法は最小サービスペース寸法とする。
  - 指定外の寸法公差は表 1 による。
- NOTE
- #: RECOMMENDED SERVICE CLEARANCE.
  - TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

表 1 TABLE 1

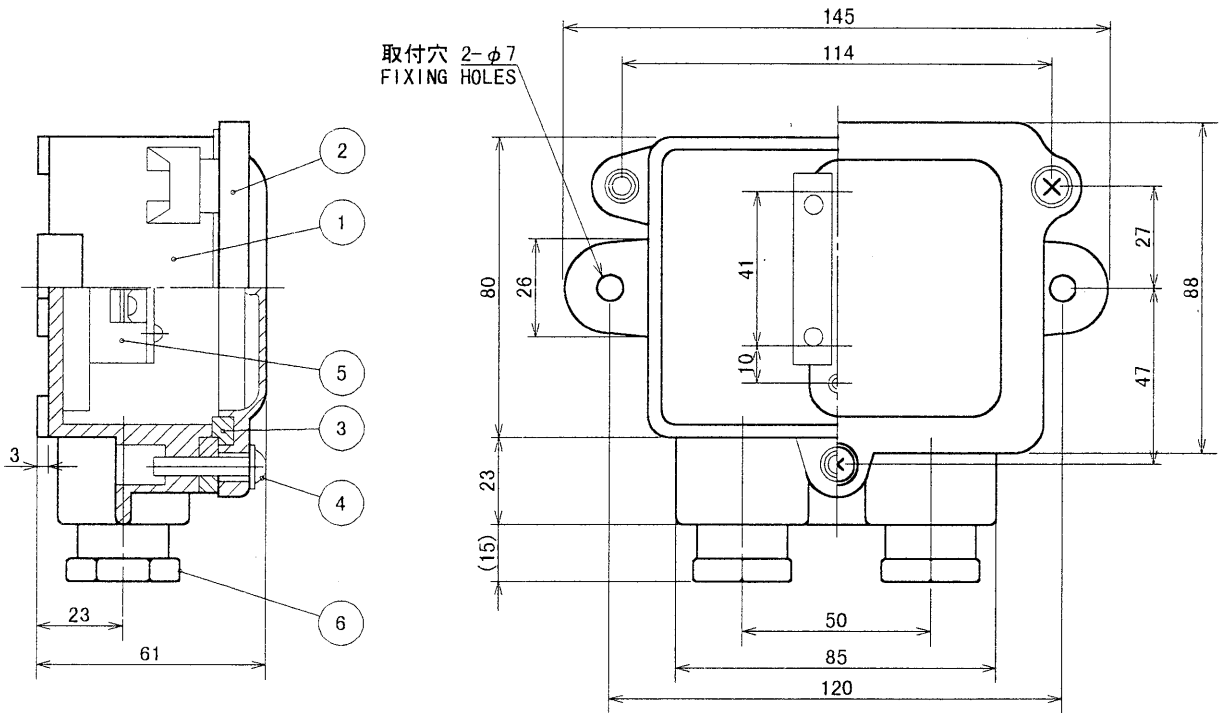
寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
0 < L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

A

B

C

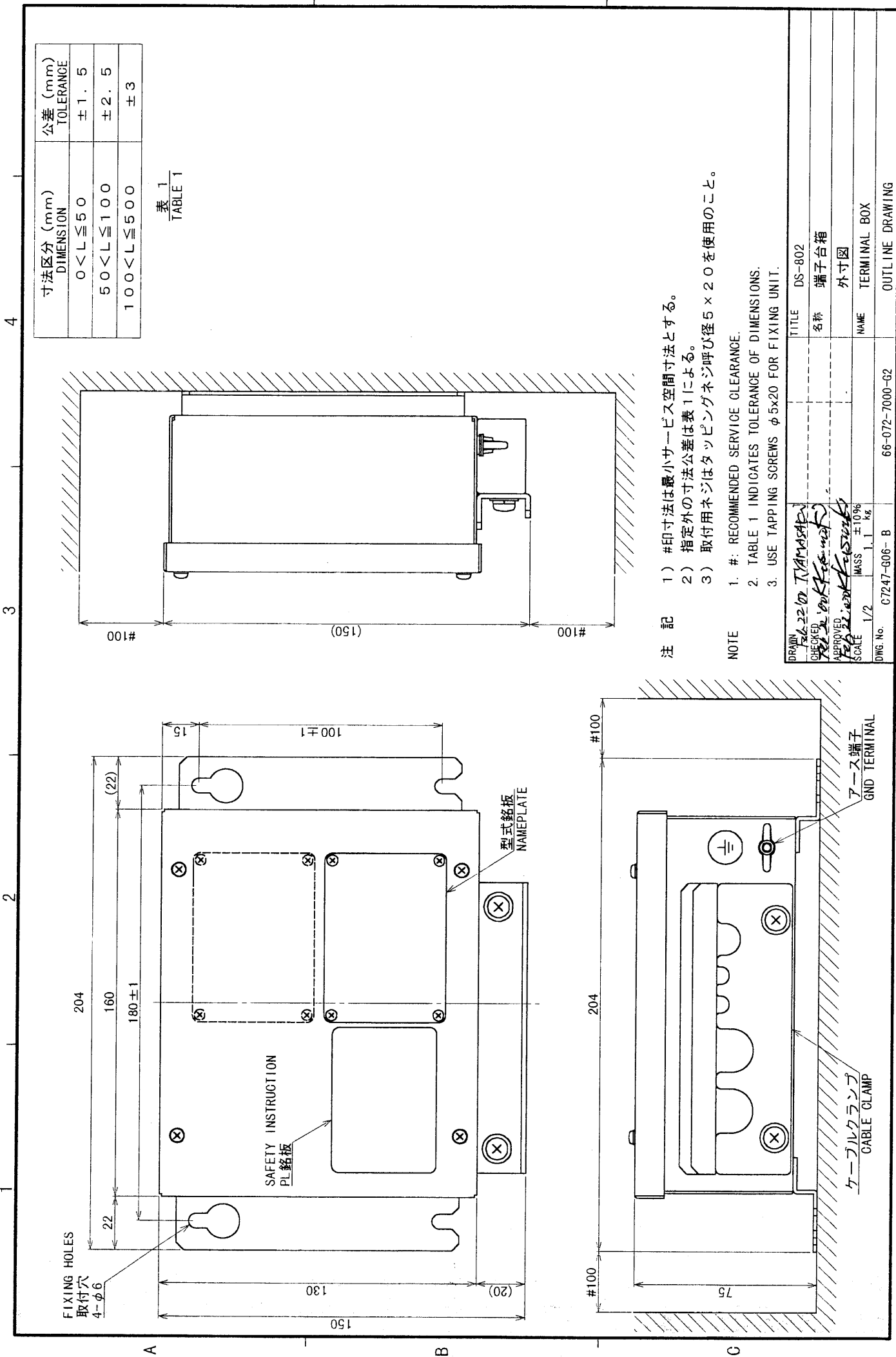
D



6	電線貫通金物 CABLE GLAND	P. B. T. 樹脂 RESIN	2		JIS F8801-20
5	端子盤 TERMINAL BOARD		1		JIS F8812-020-3
4	締付ねじ CLAMPING SCREW	真鍮 BRASS	3		
3	ガスケット GASKET	ネオプレン NEOPRENE	1		
2	蓋 COVER	P. B. T. 樹脂 RESIN	1		
1	箱体 BOX	P. B. T. 樹脂 RESIN	1		
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	摘要 REMARKS

DRAWN  
*July 5 '00 T. YAMASAKI*  
 CHECKED  
*July 6 '00 Y. Kim*  
 APPROVED  
*July 6 '00 Y. Kim*  
 SCALE 1/2 MASS ±10%  
 0.4 kg  
 DWG. No. C0002-G01- B

TITLE  
 JIS F8821-1  
 名称  
 防水型船用小型接続箱  
 外寸図  
 NAME  
 WATERTIGHT JUNCTION BOX  
 OUTLINE DRAWING



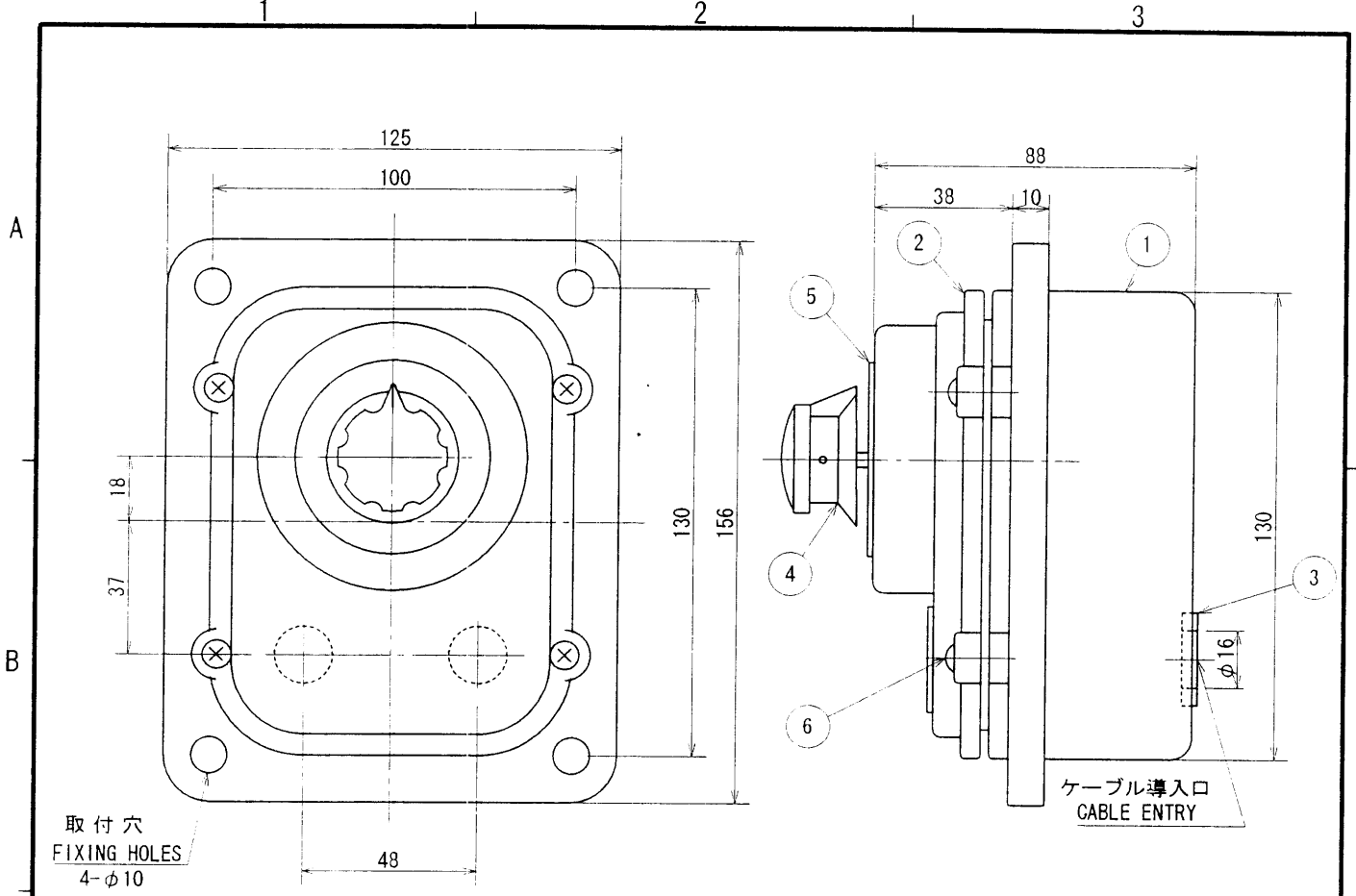
寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
0 < L ≤ 50	± 1.5
50 < L ≤ 100	± 2.5
100 < L ≤ 500	± 3

表 1  
TABLE 1

注 記 1) #印寸法は最小サージ空間寸法とする。  
 2) 指定外の寸法公差は表 1 による。  
 3) 取付用ネジはタッピングネジ呼び径 5 × 2.0 を使用のこと。

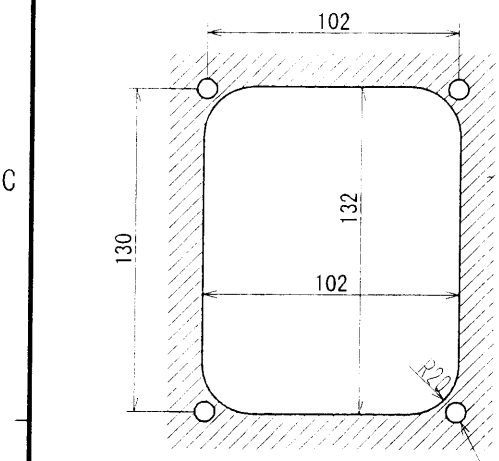
NOTE 1. #: RECOMMENDED SERVICE CLEARANCE.  
 2. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.  
 3. USE TAPPING SCREWS φ5x2.0 FOR FIXING UNIT.

DRAWN Feb. 22 '67 T. Yamashita	TITLE DS-802
CHECKED R. Takagi	名称 端子台箱
APPROVED H. Kato	外寸図
SCALE 1/2	NAME TERMINAL BOX
DWG. No. C7247-606-B	OUTLINE DRAWING
MASS 1.1 kg	
	66-072-7000-62



取付穴  
FIXING HOLES  
4-φ10

ケーブル導入口  
CABLE ENTRY



取付穴寸法  
CUTOUT DIMENSIONS

縮尺 1/3  
SCALE: 1/3

4-M8 取付穴  
FIXING HOLES

注記

1) 指定なき寸法公差は表1による。

NOTE

1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

表1 TABLE 1

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
0 < L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. No.	摘要 REMARKS
6	取付ネジ SET SCREW	BSBM2	1		
5	銘板 NAMEPLATE	SUS	1		
4	ノブ KNOB		1		
3	ブッシュ BUSH	RUBBER	2		
2	フタ COVER	AC7AF	1		
1	体 BODY	AC7AF	1		

DRAWN July 12 '00 T. IYAMASAKI	TITLE MF-22L-1
CHECKED July 13 '00 Y. Kuri	名称 調光器 (埋込型)
APPROVED July 10 '00 Y. Kuri	外寸図
SCALE 1/2 MASS 1.2 kg	NAME DIMMER (FLUSH MOUNT)
DWG. No. C7213-027-F	OUTLINE DRAWING



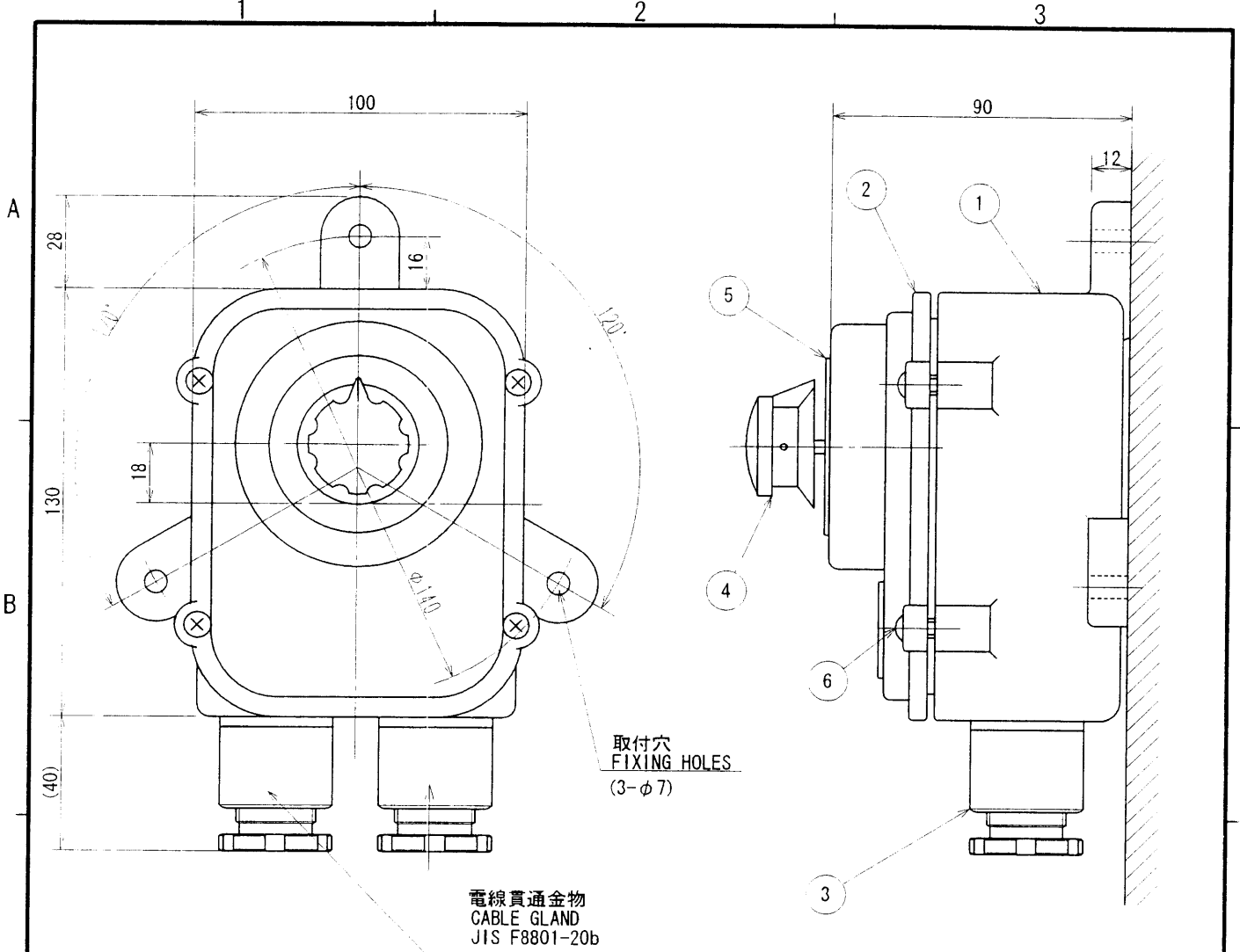


表 1 TABLE 1

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
0 < L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

注記

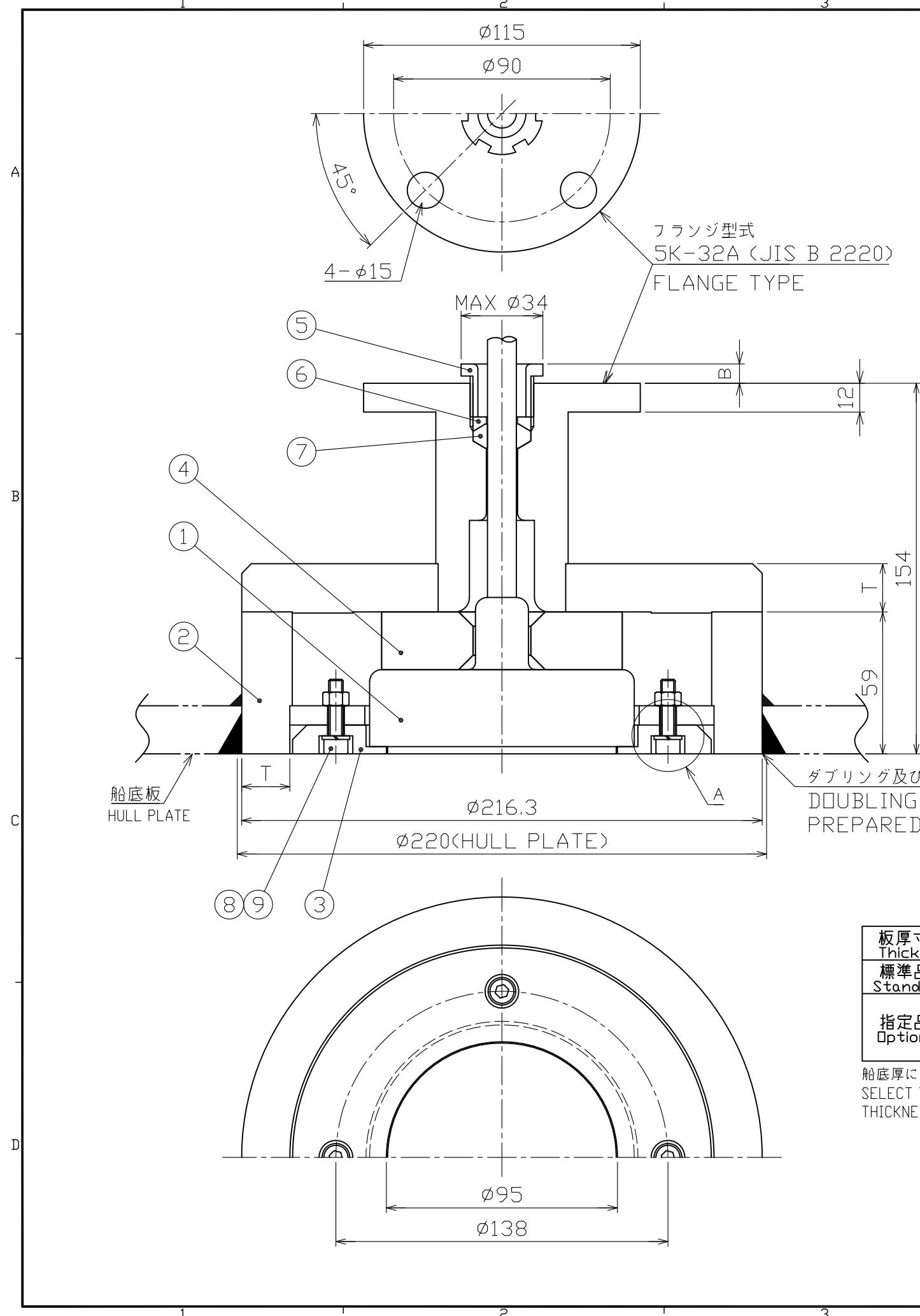
1) 指定なき寸法公差は表 1 による。

NOTE

1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. No.	摘要 REMARKS
6	取付ネジ SET SCREW	BUBM2	1		
5	銘板 NAMEPLATE	SUS	1		
4	ノブ KNOB		1		
3	グラウンド GLAND	AC7AF	2	JIS F8801-20b	
2	フタ COVER	AC7AF	1		
1	体 BODY	AC7AF	1		

DRAWN July 12 '00 T. TAMASAKI	TITLE MF-22L-2
CHECKED July 12 '00 Y. Kuni	名称 調光器 (壁掛型)
APPROVED July 13 '00 Y. Kuni	外寸図
SCALE 1/2 MASS 1.3 kg	NAME DIMMER (BULKHEAD MOUNT)
DWG. No. C7213-033-G	OUTLINE DRAWING



- 注記: 1. タンク下面是船底板と面一とし、船底板より凹まないように装備してください。  
 2. 船底板とタンクを溶接する際は、②タンク本体溶接部分の表面処理を剥がし、歪み防止のため  
 ①送受波器ノ④押えゴムノ⑦ゴムパッキンを取り外し、“③取付フランジ”を必ず取付けて  
 施行してください。  
 3. ②タンク本体の材質はNK(日本海事協会)規格のKSTPG370です。  
 4. タンクにはジンクリッチプライマー(JIS K 5552 2種)を塗布しています。  
 5. 塗装する際は、送受波器面を塗装しないように注意してください。  
 6. ⑤締付けグラントは、図中B寸法が7.5~7.0mmになるように締付けてください。  
 7. ①送受波器取付け後、A部および②タンク本体と③取付フランジの隙間をシリコン等  
 で埋めてください。  
 8. 寸法公差は表1の通りです。

表1 (Table 1)

寸法区分 (mm) Dimension	公差 (mm) Tolerance
L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

- NOTE: 1. THE TRANSDUCER TANK SHOULD BE WELDED FLUSH WITH SHIP'S HULL PLATE.  
 2. PEEL OFF SURFACE PLATING OF WELDING PART OF CASING ② BEFORE WELDING.  
 TO AVOID DISTORTION BY HEAT, PUT "FIXING FLANGE ③" WITHOUT TRANSDUCER ①  
 DAMPER ④ AND GASKET ⑦ ONTO CASING ② WHILE WELDING.  
 3. MATERIAL OF CASING ② MEETS NK (NIPPON KAIJI KYOKAI) STANDARD KSTPG370.  
 4. THE TRANSDUCER TANK IS FINISHED BY ZINC RICH PRIMER (JIS K 5552 TYPE 2).  
 5. DO NOT PAINT TRANSDUCER FACE.  
 6. TIGHTEN GLAND NUT ⑤ SO THAT DIMENSION 'B' BECOMES BETWEEN 7.0 mm AND 7.5 mm.  
 7. FILL THE SPACE OF POSITION 'A' AND THE GAP BETWEEN CASING ② AND FIXING FLANGE ③  
 WITH SILICONE AFTER ATTACHING THE TRANSDUCER ①.  
 8. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

ダブリング及び溶接方法については造船所一任  
 DOUBLING PLATE AND WELDING  
 PREPARED BY SHIPYARD.

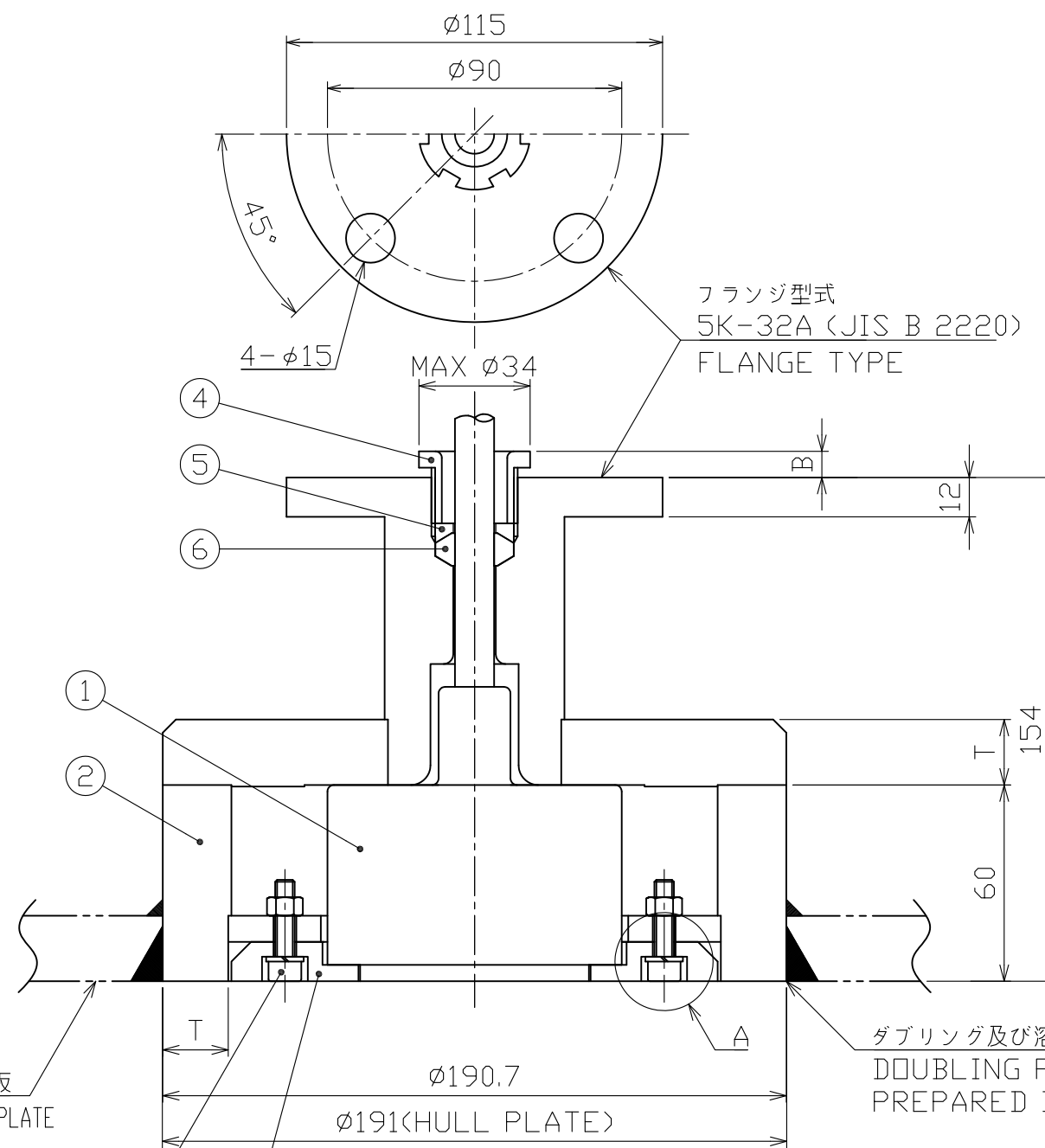
表2 (Table 2)

板厚寸法 (mm) Thickness	本体質量 (kg±10%) Mass of tank
標準品 Standard	T=20 20
指定品 Optional	T=12 16
	T=25 22

船底厚に応じて板厚Tを選択ください  
 SELECT THICKNESS "T" ACCORDING TO  
 THICKNESS OF HULL PLATE.

品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.ND.	摘要 REMARKS
9	バネ座金 SPRING WASHER	SUS316L	4	M6	
8	六角穴付きボルト HEX.S.H.C.SCREW	SUS316L	4	M6×25	
7	ゴムパッキン GASKET	CR	1	TPB-11-08	
6	座金 WASHER	C3604B	1	TPB-11-07	
5	締付けグラント GLAND NUT	C3604B	1	JIS F8801 20 1a	
4	押えゴム DAMPER	CR	1	TTF-2000-03	
3	取付フランジ FIXING FLANGE	SUS316L	1	TTF-2000-02	
2	タンク本体 CASING EPOXY ZINC RICH PRIMER	KSTPG370	1	TTF-2000-05	船級認定材 CLASSIFICATION SOCIETY APPROVED MATERIAL
1	送受波器 TRANSDUCER		1	200B-8B	下記質量には含まず NOT INCLUDED IN MASS.

DRAWN	1/ Jun/2020	I.YAMASAKI	TITLE	TTF-2000 (5K-32A)
CHECKED	1/ Jun/2020	H.MAKI	名称	送受波器タンク
APPROVED	5/ Jun/2020	H.MAKI		送受波器装備図
APPROVED	1/2	MASS 表2参照 Table 2	質量は送受波器を含まず。 MASS DOES NOT INCLUDE TRANSDUCER.	NAME TRANSDUCER TANK
DWG. No.	C2001-T48-A	REF. No.	02-TTF-205G-3	TRANSDUCER INSTALLATION



- 注記: 1. タンク下面は船底板と面一とし、船底板より凹まないように装備してください。  
 2. 船底板とタンクを溶接する際は、②タンク本体溶接部分の表面処理を剥がし、歪み防止のため①送受波器ノ⑥ゴムパッキンを取り外し、“③取付フランジ”を必ず取付けて施行してください。  
 3. ②タンク本体の材質はNK (日本海事協会) 規格のKSTPG370です。  
 4. タンクにはジンクリッチプライマー (JIS K 5552 2種) を塗布しています。  
 5. 塗装する際は、送受波器面を塗装しないように注意してください。  
 6. ④締付けグラウンドは、図中B寸法が7.5~7.0mmになるように締付けてください。  
 7. ①送受波器取付け後、A部および②タンク本体と③取付フランジの隙間をシリコン等で埋めてください。  
 8. 寸法公差は表1の通りです。

表1 (Table 1)

寸法区分 (mm) Dimension	公差 (mm) Tolerance
$L \leq 50$	$\pm 1.5$
$50 < L \leq 100$	$\pm 2.5$
$100 < L \leq 500$	$\pm 3$

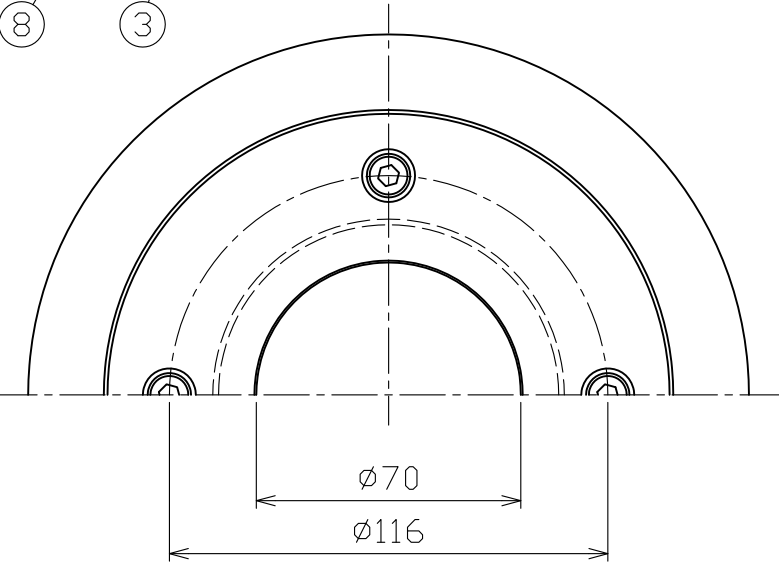
- NOTE: 1. THE TRANSDUCER TANK SHOULD BE WELDED FLUSH WITH SHIP'S HULL PLATE.  
 2. PEEL OFF SURFACE PLATING OF WELDING PART OF CASING ② BEFORE WELDING. TO AVOID DISTORTION BY HEAT, PUT "FIXING FLANGE ③" WITHOUT TRANSDUCER ① AND GASKET ⑥ ONTO CASING ② WHILE WELDING.  
 3. MATERIAL OF CASING ② MEETS NK (NIPPON KAIJI KYOKAI) STANDARD KSTPG370.  
 4. THE TRANSDUCER TANK IS FINISHED BY ZINC RICH PRIMER (JIS K 5552 TYPE 2).  
 5. DO NOT PAINT TRANSDUCER FACE.  
 6. TIGHTEN GLAND NUT ④ SO THAT DIMENSION 'B' BECOMES BETWEEN 7.0 mm AND 7.5 mm.  
 7. FILL THE SPACE OF POSITION 'A' AND THE GAP BETWEEN CASING ② AND FIXING FLANGE ③ WITH SILICONE AFTER ATTACHING THE TRANSDUCER ①.  
 8. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

ダブリング及び溶接方法については造船所一任  
DOUBLING PLATE AND WELDING PREPARED BY SHIPYARD.

表2 (Table 2)

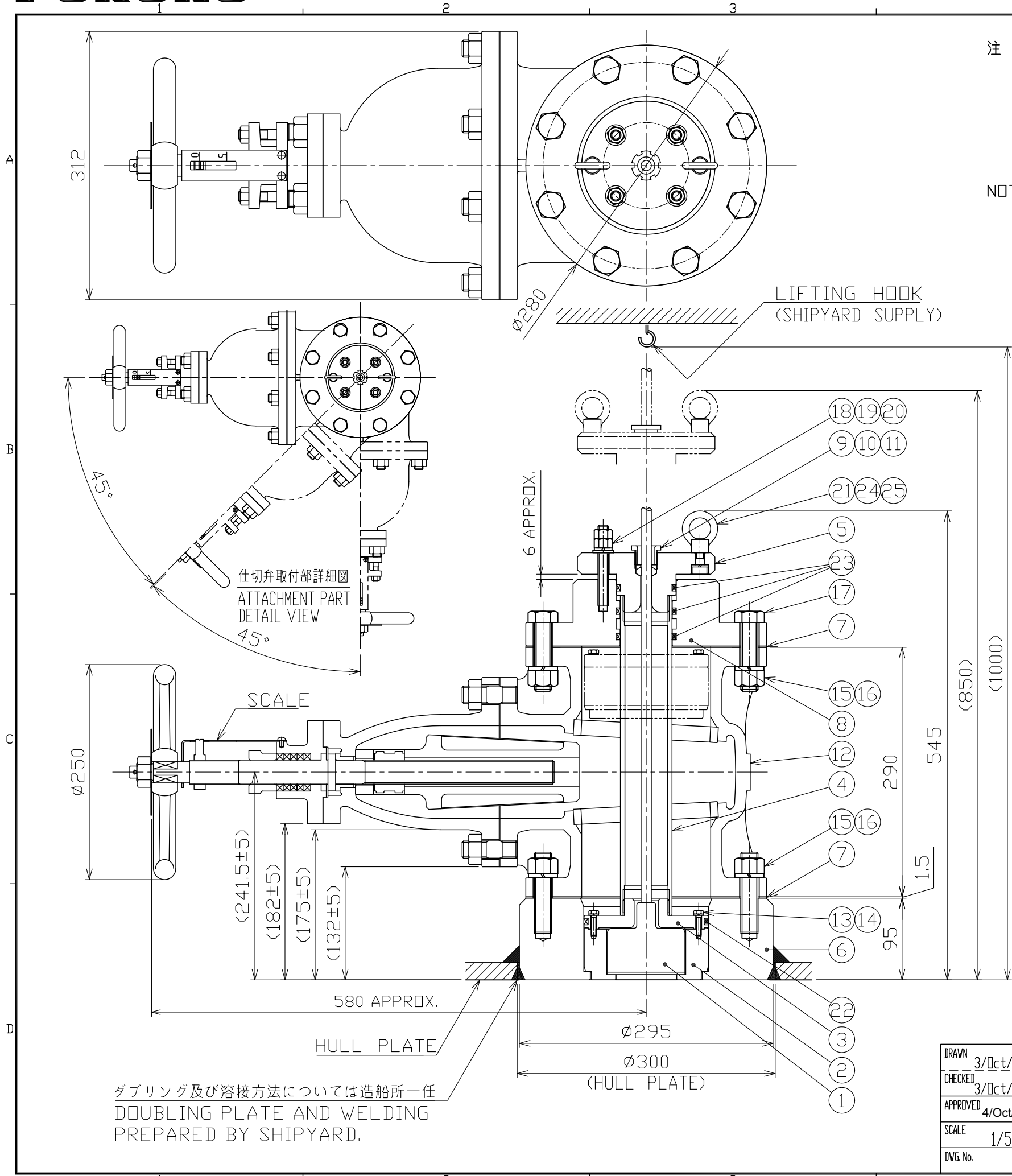
板厚寸法 (mm) Thickness	本体質量 (kg $\pm 10\%$ ) Mass of tank
標準品 Standard T=20	18
指定品 Optional T=12	15
T=25	20

船底厚に応じて板厚Tを選択ください  
SELECT THICKNESS "T" ACCORDING TO THICKNESS OF HULL PLATE.



品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS
8	バネ座金 SPRING WASHER	SUS316L	4	M6	
7	六角穴付きボルト HEX.S.H.C.SCREW	SUS316L	4	M6×25	
6	ゴムパッキン GASKET	CR	1	TPB-11-08	
5	座金 WASHER	C3604(CdL)	1	TPB-11-07	
4	締付けグラウンド GLAND NUT	C3604(CdL)	1	JIS F8801 20 1a	
3	取付フランジ FIXING FLANGE	SUS316L	1	TTF-5600-02	
2	タンク本体 CASING EPOXY ZINC RICH PRIMER	KSTPG370	1	TTF-5600-05	船級認定材 CLASSIFICATION SOCIETY APPROVED MATERIAL
1	送受波器 TRANSDUCER		1	50B-6B	下記質量には含まず NOT INCLUDED IN MASS.

DRAWN	2/Jun/2020 I.YAMASAKI	TITLE	TTF-5600 (5K-32A)	
CHECKED	2/Jun/2020 H.MAKI	名称	送受波器タンク	
APPROVED	5/Jun/2020 H.MAKI		送受波器装備図	
SCALE	1/2	質量は送受波器を含まず。 MASS DOES NOT INCLUDE TRANSDUCER	NAME	TRANSDUCER TANK
DWG. No.	C2001-T46-B	REF. No.	02-TTF-565G-5	TRANSDUCER INSTALLATION



- 注記
- ゲートバルブ ⑫ を取付ける際はナット ⑮ の回り止め対策として、ボルト ⑰、寸切りボルト ⑥ (に付属) およびナット ⑮ を脱脂後、ロックタイト#271を塗布して完全に締めてください。
  - ゲートバルブ部以外の部分は  $4.9 \times 10^5 \text{ Pa}$  の水圧試験がされています。
  - ゲートバルブ ⑫ は  $45^\circ$  ピッチで任意の方向に取付け可能です。
  - 指定外の寸法公差は表1の通りです。

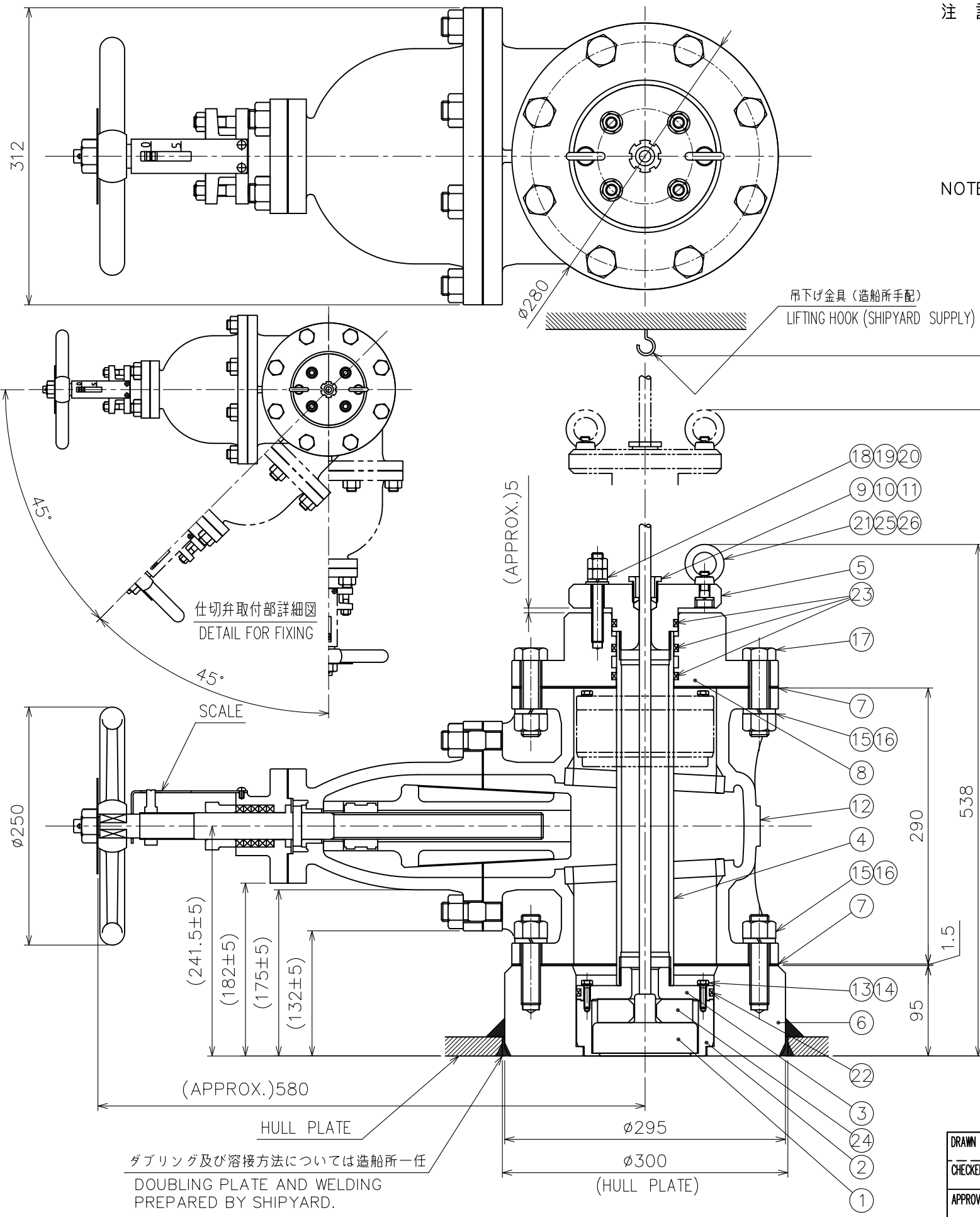
- NOTE
- CLEAN NUTS ⑮ AND BOLTS WITH SOLVENT, COAT THEIR THREADS WITH ADHESIVE/SEALANT (LOCTITE#271) AND THEN TIGHTEN THEM SECURELY WHEN MOUNTING GATE VALVE ⑫.
  - SEACHEST EXCEPT GATE VALVE IS TESTED UNDER  $4.9 \times 10^5 \text{ Pa}$  WATER PRESSURE.
  - GATE VALVE ⑫ CAN BE ATTACHED IN THE ANY DIRECTION IN INCREMENT OF  $45^\circ$ .
  - TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.

表1 (Table 1)

寸法区分 (mm) Dimension	公差 (mm) Tolerance
$L \leq 50$	$\pm 1.5$
$50 < L \leq 100$	$\pm 2.5$
$100 < L \leq 500$	$\pm 3$
$500 < L \leq 1000$	$\pm 4$

品番 ITEM	品名 NAME	材質 MATERIAL	数量 QTY	図番 DWG. No.	備考 REMARKS
25	HEX.S.H.C.SCREW M10×30	SUS316L	2		
24	SPRING WASHER M10	SUS316L	2		
23	O-RING	NBR	3	JIS B2401 P60	
22	O-RING	NBR	1	JIS B2401 P135	
21	EYENUT M10	SUS304	2		
20	FLAT WASHER M12	SUS316L	4		
19	SPRING WASHER M12	SUS316L	4		
18	NUT M12	SUS316L	8		
17	BOLT M20×80	SUS316L	8		
16	SPRING WASHER M20	SUS316L	16		
15	NUT M20	SUS316L	16		
14	SPRING WASHER M6	SUS316L	6		
13	BOLT M6×25	SUS316L	6		
12	GATE VALVE $9.8 \times 10^5 \text{ Pa}$ ZINC RICH PRIMER	SC480	1	02-129-6311 (JIS F 7366-150S)	CLASSIFICATION SOCIETY APPROVED
11	WASHER	C3604(CdL)	1	TPB-11-07	
10	PACKING	CR	1	TPB-11-08	
9	GRAND	C3604(CdL)	1	JIS F8801 20 1a	
8	SEACHEST CAP ZINC RICH PRIMER	KA	1	02-129-6307	CLASSIFICATION SOCIETY APPROVED MATERIAL
7	GASKET	JOINT SHEET	2	02-129-6306	T/#1995 t=1.5mm
6	SPACER ZINC RICH PRIMER	KA	1	02-129-6305	CLASSIFICATION SOCIETY APPROVED MATERIAL
5	FLANGE2	SUS316L	1	02-129-6304	
4	SHAFT	SUS316L TP	1	02-129-6303	
3	FLANGE1	SUS316L	1	02-129-6302	
2	TRANSDUCER CASE	SUS316L	1	02-129-6301	
1	TRANSDUCER		1	50B-6B	NOT INCLUDED IN MASS

DRAWN	3/Oct/2018 T.YAMASAKI	TITLE	GV-50B-6B
CHECKED	3/Oct/2018 H.MAKI	名称	ゲートバルブ
APPROVED	4/Oct/2018 H.MAKI	FE-700	送受波器装備図
SCALE	1/5	MASS	170 ±10% kg
DWG. No.	C2366-T01-H	REF. No.	02-129-630G-6
		NAME	GATE VALVE
			TRANSDUCER INSTALLATION



- 注記 1. ゲートバルブ ⑫ を取付ける際はナット ⑮ の回り止め対策として、ボルト ⑮、寸切りボルト (⑥ に付属) およびナット ⑮ を脱脂後、ロックタイト #271 を塗布して完全に締めてください。  
 2. ゲートバルブ部以外の部分は  $4.9 \times 10^5 \text{ Pa}$  の水圧試験がされています。  
 3. ゲートバルブ ⑫ は  $45^\circ$  ピッチで任意の方向に取付け可能です。  
 4. 指定外の寸法公差は表1の通りです。  
 5. 質量には送受波器 ① を含みません。

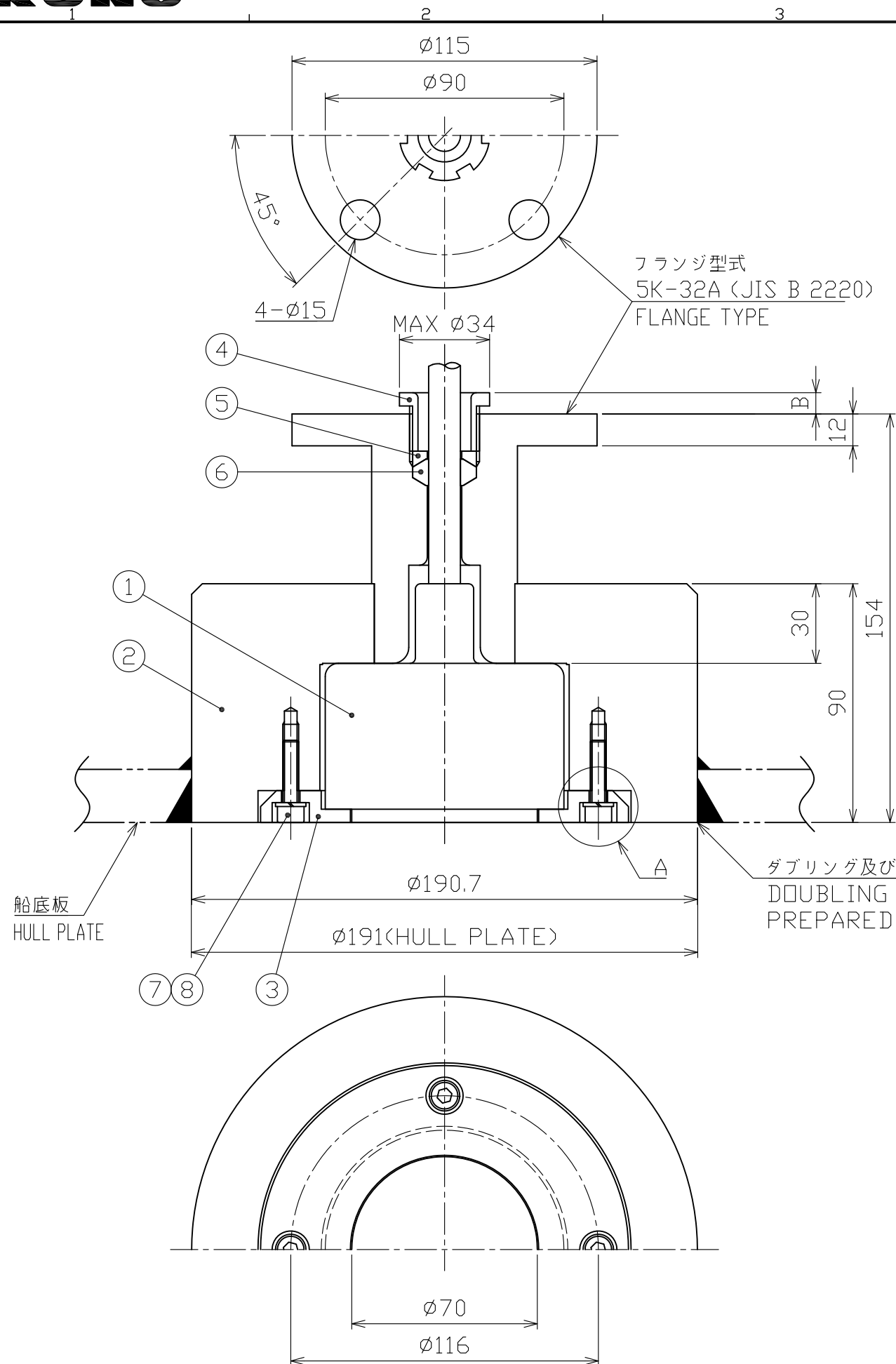
- NOTE 1. CLEAN NUTS ⑮ AND BOLTS WITH SOLVENT, COAT THEIR THREADS WITH ADHESIVE/SEALANT (LOCTITE #271) AND THEN TIGHTEN THEM SECURELY WHEN MOUNTING GATE VALVE ⑫ .  
 2. SEACHEST EXCEPT GATE VALVE IS TESTED UNDER  $4.9 \times 10^5 \text{ Pa}$  WATER PRESSURE.  
 3. GATE VALVE ⑫ CAN BE ATTACHED IN THE ANY DIRECTION IN INCREMENT OF  $45^\circ$ .  
 4. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.  
 5. MASS DOES NOT INCLUDE TRANSDUCER ① .

表 1 (Table 1)

寸法区分 (mm) DIMENSION	公差 (mm) TOLERANCE
$L \leq 50$	$\pm 1.5$
$50 < L \leq 100$	$\pm 2.5$
$100 < L \leq 500$	$\pm 3$
$500 < L \leq 1000$	$\pm 4$

26	HEX.S.H.C.SCREW M10×30	SUS316L	2		
25	SPRING WASHER M10	SUS316L	2		
24	DAMPER	CR	1	TTF-2000-03	
23	O-RING	NBR	3	JIS B2401 P60	
22	O-RING	NBR	1	JIS B2401 P135	
21	EYENUT M10	SUS304	2		
20	FLAT WASHER M12	SUS316L	4		
19	SPRING WASHER M12	SUS316L	4		
18	NUT M12	SUS316L	8		
17	BOLT M20×80	SUS316L	8		
16	SPRING WASHER M20	SUS316L	16		
15	NUT M20	SUS316L	16		
14	SPRING WASHER M6	SUS316L	6		
13	BOLT M6×25	SUS316L	6		
12	GATE VALVE $9.8 \times 10^5 \text{ Pa}$ ZINC RICH PRIMER	SC480	1	02-129-6311 (JIS F 7366-150S)	CLASSIFICATION SOCIETY APPROVED
11	WASHER	C3604B	1	TPB-11-07	
10	PACKING	CR	1	TPB-11-08	
9	GRAND	C3604B	1	JIS F8801 20 1a	
8	SEACHEST CAP ZINC RICH PRIMER	KA	1	02-129-6307	CLASSIFICATION SOCIETY APPROVED MATERIAL
7	GASKET	JOINT SHEET	2	02-129-6306	T/#1995 t=1.5mm
6	SPACER ZINC RICH PRIMER	KA	1	02-129-6305	CLASSIFICATION SOCIETY APPROVED MATERIAL
5	FLANGE 2	SUS316L	1	02-129-6304	
4	SHAFT	SUS316LTP	1	02-129-6303	
3	FLANGE 1	SUS316L	1	02-129-6302	
2	TRANSDUCER CASE	SUS316L	1	02-129-7301	
1	TRANSDUCER		1		200B-8B
品番 ITEM	品名 NAME	材質 MATERIAL	数量 QTY	図番 DWG. No.	摘要 REMARKS

DRAWN	17/May/2018 T.YAMASAKI	TITLE	GV-200B-8B
CHECKED	17/May/2018 T.TAKAHASHI	名称	ゲートバルブ
APPROVED	17/May/2018 H.MAKI		送受波器装備図
SCALE	1/5 MASS 170 ±10% kg	NAME	GATE VALVE
DWG. No.	C2366-T02-G	REF. No.	02-129-730G-5
			TRANSDUCER INSTALLATION



- 注記: 1. タンク下面は船底板と面一とし、船底板より凹まないように装備してください。  
 2. 船底板とタンクを溶接する際は、②タンク本体溶接部分の表面処理を剥がし、歪み防止のため①送受波器ノ⑥ゴムパッキンを取り外し、③取付フランジを必ず取付けて施行してください。  
 3. ②タンク本体の材質はNK(日本海事協会)規格のKAです。  
 4. タンクにはジンクリッチプライマー(JIS K 5552 2種)を塗布しています。  
 5. 塗装する際は、送受波器面を塗装しないように注意してください。  
 6. ④締付けグランドは、図中B寸法が7.5~7.0mmになるように締付けてください。  
 7. ①送受波器取付け後、A部および②タンク本体と③取付フランジの隙間をシリコン等で埋めてください。  
 8. 寸法公差は表1の通りです。
- NOTE: 1. THE TRANSDUCER TANK SHOULD BE WELDED FLUSH WITH SHIP'S HULL PLATE.  
 2. PEEL OFF SURFACE PLATING OF WELDING PART OF CASING ② BEFORE WELDING. TO AVOID DISTORTION BY HEAT, PUT "FIXING FLANGE ③" WITHOUT TRANSDUCER ① AND GASKET ⑥ ONTO CASING ② WHILE WELDING.  
 3. MATERIAL OF CASING ② MEETS NK (NIPPON KAIJI KYOKAI) STANDARD KA.  
 4. THE TRANSDUCER TANK IS FINISHED BY ZINC RICH PRIMER (JIS K 5552 TYPE 2)  
 5. DO NOT PAINT TRANSDUCER FACE.  
 6. TIGHTEN GLAND NUT ④ SO THAT DIMENSION 'B' BECOMES BETWEEN 7.0 mm AND 7.5 mm.  
 7. FILL THE SPACE OF POSITION 'A' AND THE GAP BETWEEN CASING ② AND FIXING FLANGE ③ WITH SILICONE AFTER ATTACHING THE TRANSDUCER ①.  
 8. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

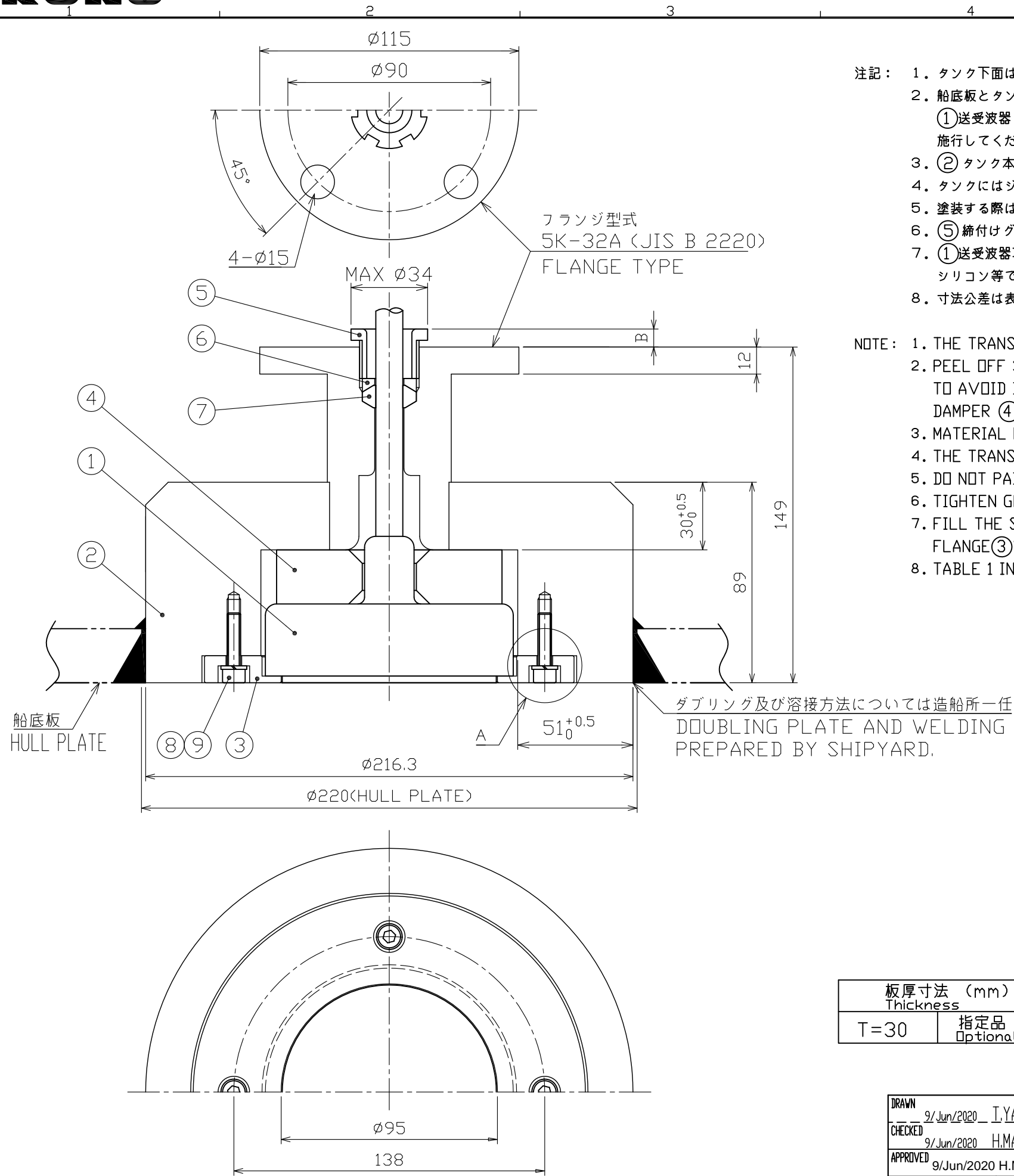
表1 (Table1)

寸法区分 (mm) Dimension	公差 (mm) Tolerance
L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

ダブリング及び溶接方法については造船所一任  
DOUBLING PLATE AND WELDING  
PREPARED BY SHIPYARD.

8	バネ座金 SPRING WASHER	SUS316L	4	M6	
7	六角穴付きボルト HEX.S.H.C.SCREW	SUS316L	4	M6×25	
6	ゴムパッキン GASKET	CR	1	TPB-11-08	
5	座金 WASHER	C3604(CdL)	1	TPB-11-07	
4	締付けグランド GLAND NUT	C3604(CdL)	1	JIS F8801 20 1a	
3	取付フランジ FIXING FLANGE	SUS316L	1	TTF-5600-02	板厚寸法 THICKNESS T=25
2	タンク本体T30用 CASING EPOXY ZINC RICH PRIMER	KA	1	02-133-0991	船級認定材 CLASSIFICATION SOCIETY APPROVED MATERIAL
1	送受波器 TRANSDUCER		1	50B-6B	下記質量には含まず NOT INCLUDED IN MASS.
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS

DRAWN	2/Jun/2020 I.YAMASAKI	TITLE	TTF-5600 (5K-32A)	
CHECKED	2/Jun/2020 H.MAKI	名称	送受波器タンク	
APPROVED	5/Jun/2020 H.MAKI		送受波器装備図	
SCALE	1/2	質量は送受波器を含まず。 MASS W/O TRANSDUCER	NAME	TRANSDUCER TANK
DWG. No.	C2001-T47-B	REF. No.	02-133-0990-2	TRANSDUCER INSTALLATION



- 注記: 1. タンク下面は船底板と面一とし、船底板より凹まないように装備してください。  
 2. 船底板とタンクを溶接する際は、②タンク本体溶接部分の表面処理を剥がし、歪み防止のため①送受波器ノ④押えゴムノ⑦ゴムパッキンを取り外し、“③取付フランジ”を必ず取付けて施行してください。  
 3. ②タンク本体の材質はNK(日本海事協会)規格のKA材です。  
 4. タンクにはジンクリッチプライマー(JIS K 5552 2種)を塗布しています。  
 5. 塗装する際は、送受波器面を塗装しないように注意してください。  
 6. ⑤締付けグラントは、図中B寸法が7.5~7.0mmになるように締付けてください。  
 7. ①送受波器取付け後、A部および②タンク本体と③取付フランジの隙間をシリコン等で埋めてください。  
 8. 寸法公差は表1の通りです。

- NOTE: 1. THE TRANSDUCER TANK SHOULD BE WELDED FLUSH WITH SHIP'S HULL PLATE.  
 2. PEEL OFF SURFACE PLATING OF WELDING PART OF CASING ② BEFORE WELDING. TO AVOID DISTORTION BY HEAT, PUT 'FIXING FLANGE ③' WITHOUT TRANSDUCER ① DAMPER ④ AND GASKET ⑦ ONTO CASING ② WHILE WELDING.  
 3. MATERIAL OF CASING ② MEETS NK (NIPPON KAIJI KYOUKAI) STANDARD KA.  
 4. THE TRANSDUCER TANK IS FINISHED BY ZINC RICH PRIMER (JIS K 5552 TYPE 2).  
 5. DO NOT PAINT TRANSDUCER FACE.  
 6. TIGHTEN GLAND NUT ⑤ SO THAT DIMENSION 'B' BECOMES BETWEEN 7.0 mm AND 7.5 mm.  
 7. FILL THE SPACE OF POSITION 'A' AND THE GAP BETWEEN CASING ② AND FIXING FLANGE ③ WITH SILICONE AFTER ATTACHING THE TRANSDUCER ①.  
 8. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS.

表1 (Table1)

寸法区分 (mm) Dimension	公差 (mm) Tolerance
L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

ダブリング及び溶接方法については造船所一任  
 DOUBLING PLATE AND WELDING  
 PREPARED BY SHIPYARD.

板厚寸法 (mm) Thickness	
T=30	指定品 Optional

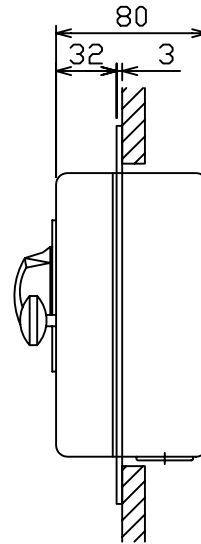
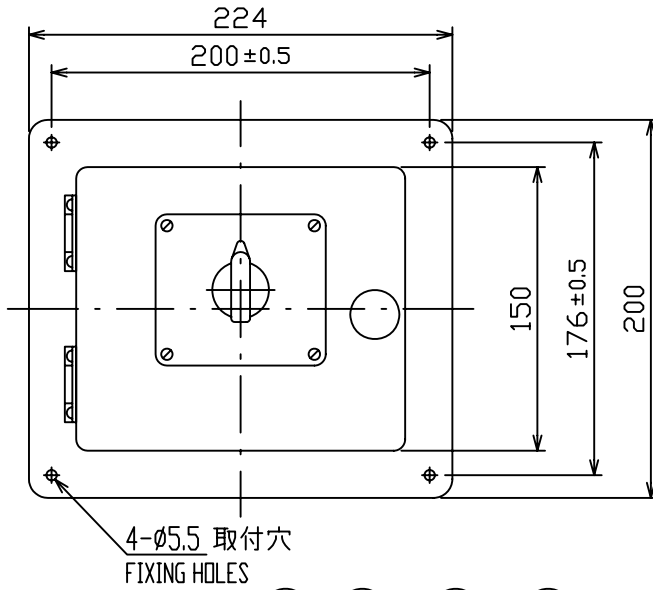
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG.NO.	摘要 REMARKS
9	バネ座金 SPRING WASHER	SUS316L	4	M6	
8	六角穴付きボルト HEX.S.H.C.SCREW	SUS316L	4	M6X25	
7	ゴムパッキン GASKET	CR	1	TPB-11-08	
6	座金 WASHER	C3604B	1	TPB-11-07	
5	締付けグラント GLAND NUT	C3604B	1	JIS F8801 20 1a	
4	押えゴム DAMPER	CR	1	TTF-2000-03	
3	取付フランジ FIXING FLANGE	SUS316L	1	TTF-2000-12	
2	タンク本体 CASING EPOXY ZINC RICH PRIMER	KA	1	02-133-0601	船級認定材 CLASSIFICATION SOCIETY APPROVED MATERIAL
1	送受波器 TRANSDUCER		1	200B-8B	質量に含まず NOT INCLUDED IN MASS.

DRAWN	9/Jun/2020	T.YAMASAKI	TITLE	TTF-2000 (5K-32A, T=30) (TK-085)	
CHECKED	9/Jun/2020	H.MAKI	名称	送受波器タンク	
APPROVED	9/Jun/2020	H.MAKI		送受波器装備図	
SCALE	1/2	MASS 24 ±10% kg	質量は送受波器を含まず。 MASS DOES NOT INCLUDE TRANSDUCER.	NAME	TRANSDUCER TANK
DWG. No.	C2001-T49-A		REF. No.	02-133-0600-3	
				TRANSUCER INSTALLATION	

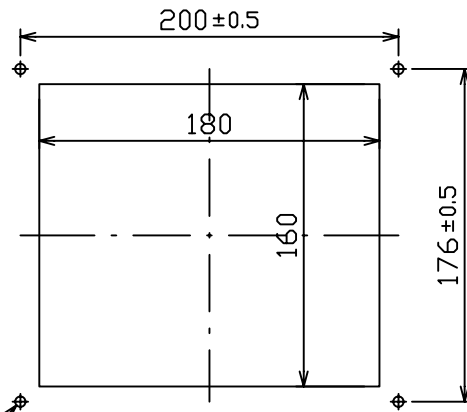
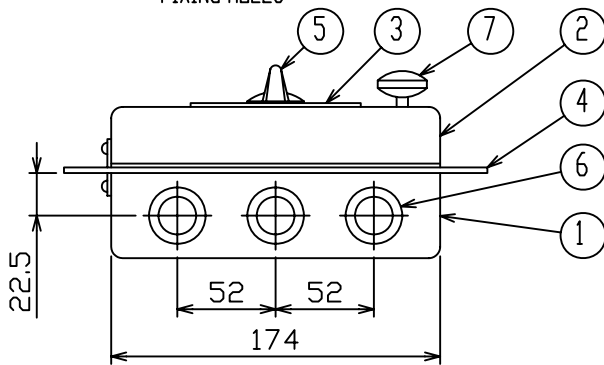
表1 TABLE 1

寸法区分(mm) DIMENSION	公差(mm) TOLERANCE
0 < L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

A



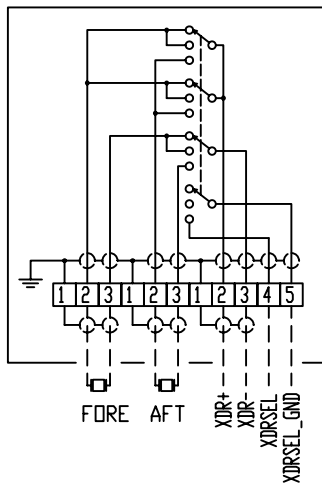
B



4-M5 (φ5.5)

取付穴寸法  
CUTOUT DIMENSIONS

C



注記 1) 指定なき寸法公差は表1による。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.

D

7	把手 KNOB	BsBM2	1		
6	ゴムブッシュ RUBBER BUSHING	CR	3		
5	切換スイッチ SWITCH	PM-EG	1		
4	フランジ FLANGE	SS34P	1		
3	銘板 NAMEPLATE	SSP34P	1		
2	ケース蓋 CABINET DOOR	SS34P	1		
1	本体 CABINET	SS34P	1		
品番 ITEM	品名 NAME	材質 MATERIAL	数量 Q'TY	図番 DWG. NO.	備考 REMARKS

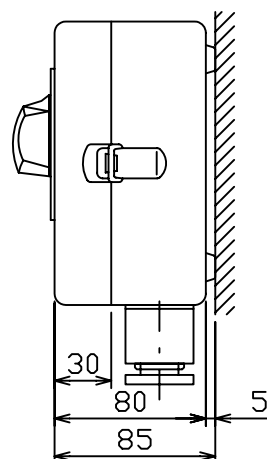
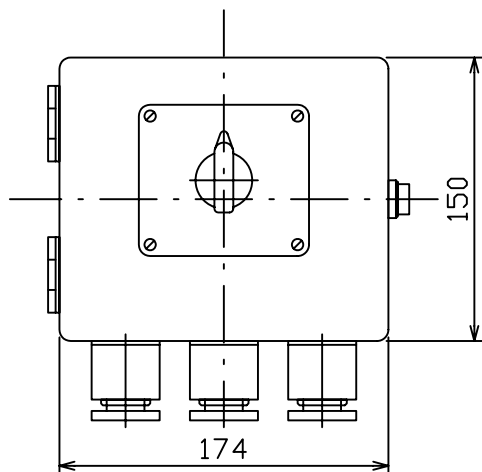
DRAWN	Apr. 21 '06 T.YAMASAKI	TITLE	EX-8
CHECKED	Apr. 21 '06 T.TAKENO	名称	送受波器切換器 (埋込装備)
APPROVED	Apr. 28 '06 T.Matsuguchi		外寸図
SCALE	1/4 MASS 3 ±10% kg	NAME	TRANSUDCER SWITCH BOX (FLUSH MOUNT)
DWG.No.	C2009-001-F		OUTLINE DRAWING



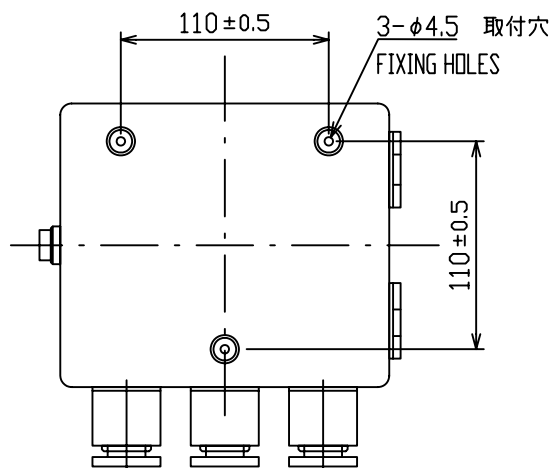
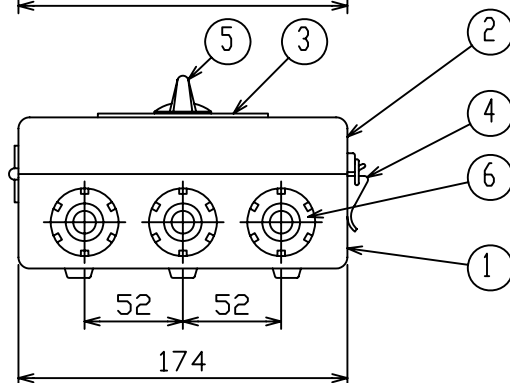
表1 TABLE 1

寸法区分(mm) DIMENSION	公差(mm) TOLERANCE
0 < L ≤ 50	±1.5
50 < L ≤ 100	±2.5
100 < L ≤ 500	±3

A

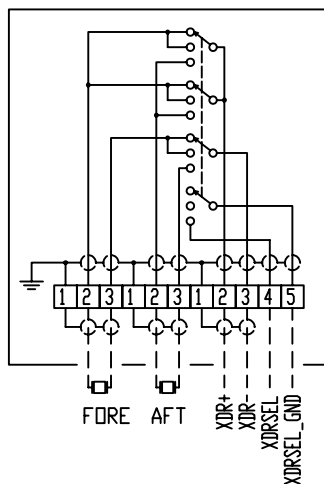


B



背面図  
REAR VIEW

C



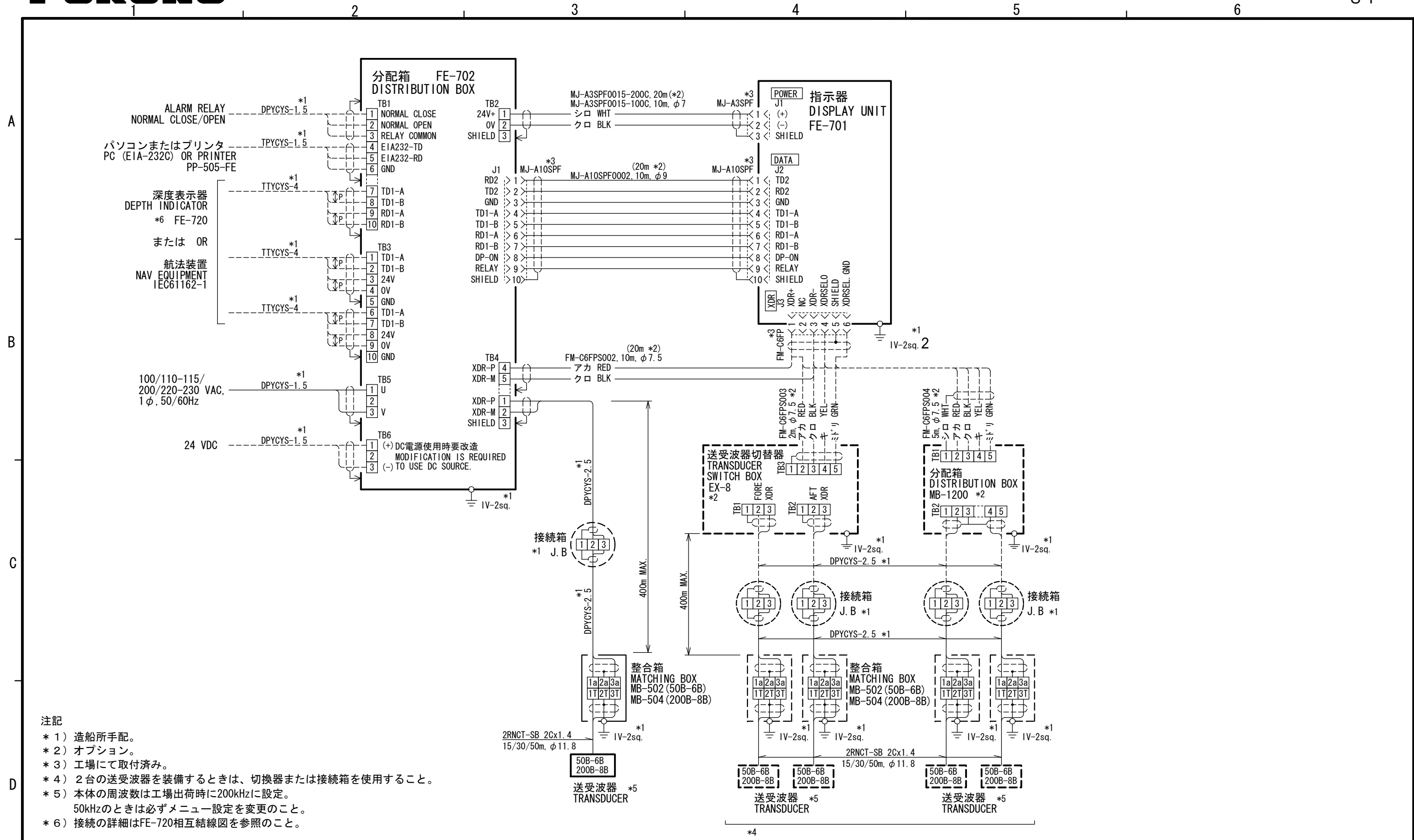
注記 1) 指定なき寸法公差は表1による。

NOTE 1. TABLE 1 INDICATES TOLERANCE OF DIMENSIONS WHICH IS NOT SPECIFIED.

D

6	電線貫通金物 CABLE GLAND		3	JIS F8801-A20b	
5	切換スイッチ SWITCH	PM-EG	1		
4	蝶番 HINGE		1		
3	銘板 NAMEPLATE	SSP34P	1		
2	ケース蓋 CABINET DOOR	SS34P	1		
1	本体 CABINET	SS34P	1		
品番 ITEM	品名 NAME	材質 MATERIAL	数量 QTY	図番 DWG. NO.	摘要 REMARKS

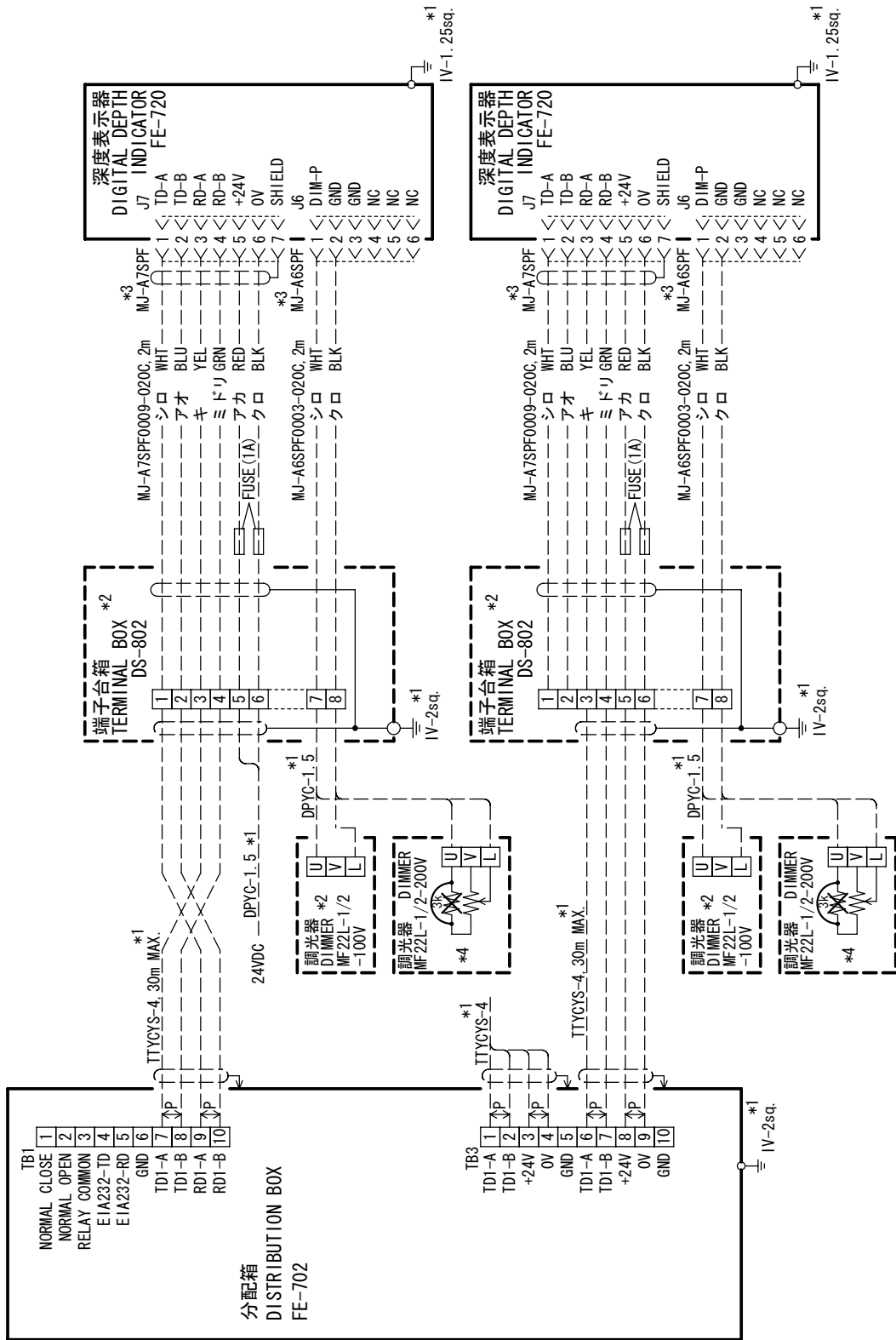
DRAWN	Apr. 24 '06 T.YAMASAKI	TITLE	EX-8
CHECKED	Apr. 24 '06 T.TAKENO	名称	送受波器切換器 (壁掛装備)
APPROVED	Apr. 28 '06 T.Matsuguchi		外寸図
SCALE	1/4 MASS 2.7 ±10% kg	NAME	TRANSUDCER SWITCH BOX (BULKHEAD MOUNT)
DWG.No.	C2009-002-F		OUTLINE DRAWING



- 注記
- \* 1) 造船所手配。
  - \* 2) オプション。
  - \* 3) 工場にて取付済み。
  - \* 4) 2台の送受波器を装備するときは、切換器または接続箱を使用すること。
  - \* 5) 本体の周波数は工場出荷時に200kHzに設定。  
50kHzのときは必ずメニュー設定を変更のこと。
  - \* 6) 接続の詳細はFE-720相互結線図を参照のこと。

- NOTE
- \*1. SHIPYARD SUPPLY.
  - \*2. OPTION.
  - \*3. FITTED AT FACTORY.
  - \*4. USE A DISTRIBUTION BOX OR A MATCHING BOX WHEN TWO TRANSDUCERS ARE INSTALLED.
  - \*5. TRANSMIT FREQUENCY IS SET TO 200 kHz AT FACTORY.  
CHANGE THE SETTING FROM MENU FOR 50 kHz USE.
  - \*6. REFER TO FE-720 INTERCONNECTION DIAGRAM FOR DETAIL.

DRAWN	21/Apr/2014 T. YAMASAKI	TITLE	FE-700
CHECKED	21/Apr/2014 H. MAKI	名称	音響測深機
APPROVED	21/Apr/2014 H. MAKI		相互結線図
SCALE	MASS kg	NAME	NAVIGATIONAL ECHO SOUNDER
DWG. No.	C2366-C01- T		INTERCONNECTION DIAGRAM



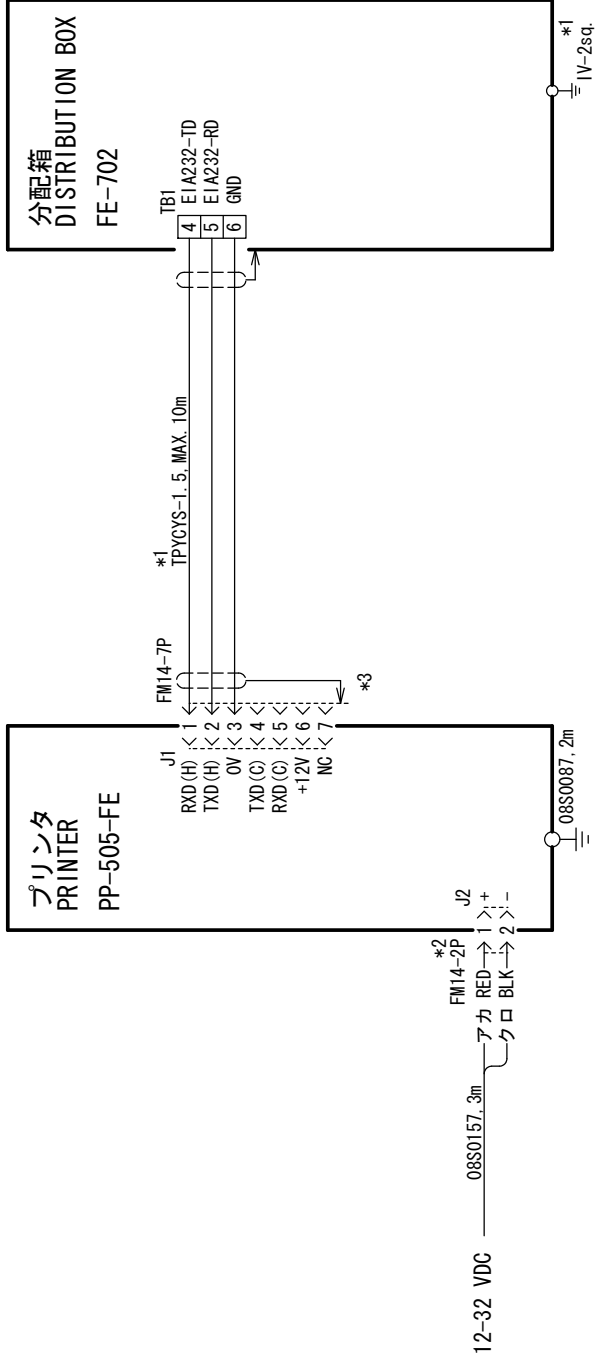
**注記**

- \* 1) 造船所手配。
- \* 2) オプション。
- \* 3) 工場にて取付済み。
- \* 4) 200V仕様では、固定抵抗3kΩを削除する。

**NOTE**

- \*1. SHIPYARD SUPPLY.
- \*2. OPTION.
- \*3. FITTED AT FACTORY.
- \*4. REMOVE RESISTANCE 3kΩ FOR USING 200V SET.

DRAWN	Apr. '10 '07 I. YAMASAKI	TITLE	FE-720
CHECKED	Apr. '10 '07 I. TAKENO	名称	深度表示器
APPROVED	Apr. '17 '07 R. Esumi	相互結線図	
SCALE	1/MASS	NAME	DIGITAL DEPTH INDICATOR
DRWG. No.	C2366-C02-K	INTERCONNECTION DIAGRAM	
	REF. No. 02-129-1004-0		



注記

- \* 1) 造船所手配。
- \* 2) 工場にて取付済み。
- \* 3) コネクタケースでアースをとる。

NOTE

- \* 1: SHIPYARD SUPPLY.
- \* 2: FITTED AT FACTORY.
- \* 3: GROUND THRU CONNECTOR CLAMP.

DRAWN	21/Apr/2014	I. YAMASAKI	TITLE	PP-505-FE
CHECKED	21/Apr/2014	H. MAKI	名称	プリンタ
APPROVED	21/Apr/2014	H. MAKI		相互結線図
SCALE		MASS	NAME	PRINTER
DWG. No.	C2366-C03-F	REF. No.	16-006-3022-0	INTERCONNECTION DIAGRAM