SPECIFICATION		Spec No.	LSS-PDCE-M (MN)				
		DWG No.	PDC13A31	EC		P.	1/2
Product Name	Lightning Suppression Type Lightning Rod PDCE-M (MN) (For ships)	Created	08/08/2010	Rev.	05/12/2018		
		Department	Engineering Dept.				

1. Outline

The product is a device for suppressing lightning strikes. By using it as a lightning rod, it demonstrates the ability to suppress lightning strikes. The operating principle is that when a thundercloud forms, a high- voltage electric field in proportion to an electric charge in the cloud is generated. The positive charge (+) on the ground induced by the charge (e.g. -) at the bottom of the thundercloud is collected by the hemispherical electrode in the lower half of PDCE-M installed on a high position. Then, the capacitor makes the electrode on the head to be charged with equivalent negative charge (-). This disables ionization at the top and apply it to PDCE-M that suppress lightning strikes on the mounting and surrounding areas.

2. Installation Location

Install the product at the highest part of the outdoor structure. (Recommended to be located at a height of 2 meters or higher from nearby objects to be protected)
For buildings, 5 meters or higher is recommended.

3. Rated Operating Temperature Range, Storage Temperature Range

Rated operating temperature and storage temperature -40°C to 60°C

4. Installation Requirements

Wind speed block:	Nationwide	(V_0=70m/sec)
Ground surface roughness classification:	I	(Including I, II, III, and IV)
Earthquake resistance strength:	Horizontal seismic intensity	k=2.0

5. Structure

5.1 Appearance, Structure, Dimensions and Materials

The appearance, structure and dimensions are as shown in the outline drawing of PDC13A3.
Radioactive substances are not used in the materials.
The materials and dimensions meet the criteria for the lightning receiver in JIS A4201(2003) and JIS Z9290-3(2014).
Austenitic stainless steel is used for metal materials.

5.2 Display

(1) Serial number

Serial number display

6. Performance

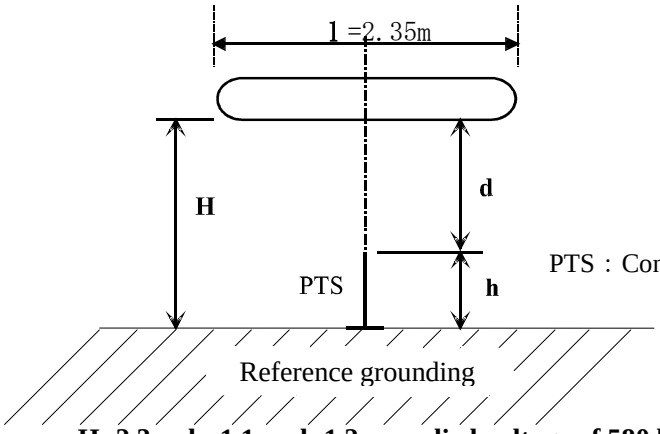
6.1 The performance of PDCE-M (MN) is shown in Table 1:

Table 1

Item	Performance
Insulation Resistance	Top electrode to bottom electrode: 10 MΩ or higher at 1000 VDC (100 MΩ or higher for shipment)
Discharge Test	According to the French standard NF C 17-100, under the testing conditions that current must be discharged to PTS (conventional lightning rod), there is no electric discharge in the main unit of PDCE-M (refer to the drawing below).
Withstand Voltage Test	Apply 10 kV between the top and bottom electrodes for one second and ensure no electric discharge is observed.
Salt Spray Test	After the 96-hour neutral saltwater spray test of JIS Z2371(2000), no obvious corrosion is observed. The insulation resistance after the test between the top and bottom electrodes: 10 MΩ or higher at 500 VDC.

Note) The temperature and humidity at the time of measurement should be the standard temperature/humidity condition of 20±15℃ and 65±20%, specified in JIS Z 8703 (Standard atmospheric conditions for testing).

6.2 Discharge Test facility



H=2.3m, h=1.1m, d=1.2m applied voltage of 580 kV

7. Product Inspection
The product inspection of PDCE-M(MN) is shown in Table 2:

Table 2

Item	Types of inspections	Acceptance criteria
Appearance	100% inspection	Refer to PDC13A31
Dimensions	100% inspection	Refer to PDC13A31
Discharge Test	Occasional inspection	Refer to Table 1
Insulation Resistance	100% inspection	Refer to Table 1
Withstand Voltage Test	100% inspection	Refer to Table 1
Salt Spray Test	Occasional inspection	Refer to Table 1

Note) Occasional inspections are conducted during development or when an important structure or a manufacturing method is changed.

8. Packaging Forms
The product is individually packed.

9. Quality Assurance Period and Warranty Details
The warranty period for the product is one year from the date of receipt. If the cause of the defect occurred during this period is clearly determined to the manufacturer's responsibility, the replacement the defective product shall be carried out free of charge by the specified date.

10. Other Notes
10.1 Mount PDCE to the support tube by using the supplied bolts and nuts.
10.2 The support tube should be designed and constructed to withstand weight or wind pressure.

11. Disclaimer
The product is manufactured based on the technology of the lightning suppression type lightning rod (PDCE). Although this basic technology has many effective achievements, if a lightning strikes and causes damage as with other lightning rods, there is no warranty for the damage.

