

5. Application standard Marine engine's strainers for lubricating and fuel oil

- 1. Scope** This Japanese Industrial Standard specifies type, installation standards and marking of the self-cleaning type and non-self-cleaning type strainers (hereinafter referred to as "strainer") at engine inlets used for lubricating oil piping and fuel oil piping of marine engines.

Remarks: 1. This standard applies to the secondary L.O. strainers and the secondary and tertiary F.O. strainers unspecified in JIS F 7201.

2. JIS F 7202, JIS F 7203, JIS F 7206, JIS F 7208, JIS F 7209, JIS F 7220 and JIS F 7225, are not included in this standard.

- 2. Reference standards** The following standards form part of the requirements of this Standard when quoted. The latest edition of these standards (including revisions and supplements) shall be applied.

JIS G 3101 – Rolled steel for general structure

JIS G 4303 – Stainless steel bars

JIS G 5101 – Carbon steel castings

JIS G 5501 – Gray iron castings

JIS G 5502 – Spheroidal graphite iron castings

JIS H 4551 – Nickel and nickel alloy sheet and strip

JIS K 2205 – Fuel oil

JIS K 2215 – Internal combustion engine oils

JIS K 6811 – Dimensions of polyamide (nylon 6, 66) sheets and rods

JIS L 3201 – Wool press felts

JIS R 3413 – Textile glass yarns

JIS Z 2550 – Sintered materials for structural parts

- 3. Definitions** For the purposes of this standard, the following definitions apply.

a) Self-cleaning strainer The self-cleaning strainer is a strainer capable of cleaning either manually or automatically without stopping the oil supply at the loading of strainer elements, and generally, the surface filtration system is used. Elements are made of thin gauze wires, notch wires or perforated plates so that self-cleaning can be done easily inside of the strainer.

b) Non-self-cleaning strainer The non-self-cleaning strainer is a strainer without the self-cleaning mechanism for loaded strainer elements. Both surface filtration system and deep filtration system are available. Strainers using the surface filtration system can be used repeatedly by disassembling and manually cleaning them. However, strainer elements consisted of textile fabrics in case of having superb filtration performance, cannot be cleaned at loaded condition because fluid is filtered by being passed through layers of textile fabrics, so that loaded elements must be replaced with new ones.

- 4. Classification** Strainers shall be broadly classified into the self-cleaning type and non-self-cleaning type, and shall be divided by cleaning type of strainer elements as given in Table 1.

Table 1 Type and cleaning methods

Type of strainer	Element cleaning method	Explanatory notes on the*cleaning method
Self-cleaning type strainer	Back-washing method	Strainer elements are cleaned by either oil or compressed air inside the strainer, which is blown from the side of the element opposite to the particle-capturing face. The captured particles are processed together with the washing oil outside the strainer, or are reserved in the drain reservoir of the strainer. Manual back-washing method and automatic back-washing method are available. If the strainer is back-washed at the loading of strainer elements or at the time-controlled intervals, it is called the intermittent back-washing method. If the strainer is back-washed continuously during filtering, irrespective of loading conditions, it is called the continuous back-washing method.
	Scraper method	With this method, captured particles are removed by a scraper while the strainer element is revolved.
	Centrifugal method	A rotating unit is provided inside the strainer and impurities are removed by the centrifugal force created by the high speed rotation of the filtering liquid. Impurities settled inside the strainer are removed by disassembling the strainer.
Non-self-cleaning type strainer	Disassembly and cleaning method	The strainer is disassembled, and the loaded strainer elements are cleaned with kerosene etc.
	Element replacement method	All strainer elements are made of glass wool and felt. Loaded strainer elements are replaced with new ones.

Remark: Even with the same cleaning method, there are the simplex type and multiplex type according to the flow rate of liquid at the strainer. Such a distinction is ignored here.

5. Application standards The application standards for strainers by pipeline are given in Table 2.

Table 2 Application standards for strainers by pipeline

Piping system	Classified application	Filtering capacity (Reference value)	Element		Material of strainer body
			Type	Material	
L.O.piping system (Nos. 3 and 4 of Class 2, Nos. 3 and 4 of Class 3 for marine use in JIS K 2215)	Secondary strainer	50μm	Gauze wire, notch wire, wedge wire	JIS G 4303-SUS304, SUS316L	JIS G 5501-FC200 (I) JIS G 5502-FCD400 JIS G 5101-SC450 JIS G 3101-SS400, or JIS G 4303-SUS304
			Perforated plate	JIS H 4551-NNCP	
			Synthetic resin	JIS K 6811-polyamide resin	
F.O.piping system (C Fuel oil of No. 3 of Class 3 in JIS K 2205)	Secondary strainer and tertiary strainer	30 ~ 50μm	Gauze wire, notch wire, wedge wire	JIS G 4303-SUS304, SUS316L	
		5 ~ 10μm	Perforated plate	JIS H 4551-NNCP	
			Synthetic resin	JIS K 6811-polyamide resin	
			Sintered metal	JIS Z 2550-SMS, SMK	
			Textile fabrics	JIS R 3413-glass yarns JIS L 3201-long sheep wool felt cellulosic fibre	

Note (*): FC200 specified in JIS G 5501 is subject to service restrictions for the temperature and pressure of fuel oil.

- Remarks:
1. For the secondary and tertiary strainers in the column of classified application, see Reference Figs. 1 to 3.
 2. Filtering capacities shall be based on engine builders' recommendations.
 3. Sieve openings of the strainers for filtering capacities shall be based on strainer manufacturers' recommendations.
 4. The materials for strainer elements and strainer bodies mentioned represent examples, and those of equivalent quality may be used.