

Rubber sleeves for dredge discharge pipes

- Scope** This Japanese Industrial Standard specifies the rubber sleeves (hereinafter referred to as "sleeve") having metal coupling flanges to be used for coupling of the dredger's discharge pipes specified in JIS F 3993, excluding particular sleeves such as spherical sleeves, composed steel wire, etc.

Remark: 1. This standard makes reference to the following standards.

JIS B 7507 – Vernier dial and digital callipers

JIS B 7512 – Steel tape measures

JIS F 3993 – Dredger's delivery pipes

JIS G 3101 – Rolled steel for general structure

JIS K 6330 – Testing methods for rubber hose

- Units and numerical values in () in this standard are in accordance with the conventional system of units and are given for reference only.

- Working pressure** The maximum working pressure of the sleeves shall be as given in Table 1.

Table 1 Maximum working pressure of sleeves

Nominal dia.	Max. working pressure MPa (kgf/cm ²)
200	0.5 (5.1)
250	
300	
350	0.6 (6.1)
400	
510	0.8 (8.2)
560	
610	1.0 (10.2)
630	
660	
685	1.2 (12.2)
710	
760	1.5 (15.3)
840	
860	

Remark: The nominal diameter except Table 1 shall comply with agreements between the parties concerned. The maximum working pressure in this case shall be nearest standard value with inside diameter corresponding to the nominal diameter.

- Quality**

- General conditions** The sleeves shall have wear-resistant inside rubber layer and weather-proof outside layer.

- 3.2. Performance** The sleeves shall be tested in accordance with 8.3 and 8.4, and shall meet the requirements of Table 2.

Table 2 Performance of sleeves

Characteristic item	Performance	Test pressure	Test applied
Pressure resistance	To be free from fault such as leakage, local deformation	1.5 times the max. working pressure in Table 1	8.3
Rate of length variation under pressure %	± 10	The max. working pressure in Table 1	
	± 15	1.5 times the max. working pressure in Table 1	
Rate of outside diameter variation under pressure %	± 5	The max. working pressure in Table 1	
	± 7.5	1.5 times the max. working pressure in Table 1	8.4
Permissible bending angle degree	10 or more	—	

- 4. Construction** The sleeves shall be constructed with the rubber main body comprising the inside rubber layer, reinforcement layer, outside layer and metal coupling flanges as shown in Attached Fig. 1. The rubber main body and metal coupling flange shall be stuck by vulcanizing.

- 5. Metal coupling flange** The metal coupling flange used shall comprise a flange and neck, made, as a rule, of SS 41 (°) specified in JIS G 3101, and its welded joints shall have been worked perfectly not to cause defects such as leakage and separation during pressure resistance test in accordance with 8.3.

Note (°) SS41 shall be interpreted as SS400 from January 1991.

- 6. Dimensions** The dimensions of the sleeves shall be complied with Attached Fig. 1 and measured in accordance with 8.1, and shall meet the requirements of Attached Fig. 1 and Attached Table 1.

- 7. Appearance and shape** The appearance and shape of the sleeves shall be as follows:

- (1) Any defect such as detrimental flaw, blow hole crack etc. shall not appeared on the sleeves.
- (2) The sleeves shall keep smooth surface at inside and balanced inside diameter and thickness.

8. Testing methods

- 8.1. Measuring dimensions** Measuring dimensions shall be as follows:

- (1) Inside diameter of sleeve shall be measured by the method specified in JIS K 6330, 4.1.1 (3), Method C at a position 100 mm inward of the flange surface.
- (2) The length of sleeve shall be measured with a steel tape measure specified in JIS B 7512.
- (3) The dimension of metal coupling flange shall be measured with a vernier calliper specified in JIS B 7507.

- 8.2. Appearance and shape** Appearance and shape of the sleeve shall be tested visually.

- 8.3. Pressure resistance test** The sleeves shall be tested for pressure resistance by the method specified in JIS K 6330, 4.2.1 (1) under the test pressure given in Table 2. The rate of variation of the length of sleeve shall be measured on the whole length (L) and that of the outside diameter in the middle of the sleeve.