



Ships' cast steel cargo blocks with roller bearings

1. **Scope** This Japanese Industrial Standard specifies ships' cast steel cargo blocks with roller bearings (hereinafter referred to as "block").

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

JIS B 1534 – Rolling bearings – Tapered roller bearings

JIS B 2801 – Shackles

JIS G 3101 – Rolled steel for general structure

JIS G 3506 – High carbon steel wire rods

JIS G 4051 – Carbon steel for machine structural use

JIS G 4303 – Stainless steel bars

JIS G 5101 – Carbon steel castings

JIS G 5501 – Grey iron castings

JIS H 3250 – Copper and copper alloy rods and bars

2. In this standard units and numerical values in () are in accordance with the conventional system of units, and represent the required values.

2. **Classification** The block shall be classified as given in **Table 1**

Table 1

Type	Nominal dia.			
1RA	340	410	430	460
1RB	340	410	430	460
2RA	340	410	430	460
2RB	340	410	430	460

- Remarks:** 1. The first letter 1 in the type symbol denotes single block, and 2 double block.
 2. The second letter R in the type symbol denotes the block with roller bearings.
 3. The third letter A in the type symbol denotes the block without becket, and B with becket.

3. **Construction, shape, and dimensions** The construction, shape and dimensions shall be as shown in Figs. 1 to 5 and, in addition, conform to the following standards:

(1) Shackles shall conform to **JIS B 2801-SB** or **BB**.

(2) Conical roller bearings shall conform to the requirements of **JIS B 1534**.

7. **Marking** The following particulars shall be marked on a readily visible part of the block:

- (1) Nominal diameter of roller bearing
 (2) Safe working load
 (3) Year and month of manufacture or abbreviation for it
 (4) Manufacturer's name or abbreviation for it

4. Materials

The materials shall be as given in Table 2.

Table 2

No.	Component	Material
1	Swivel	JIS G 4051-S 25 C
2	Side plate	JIS G 5101-SC 410 or SC 450
3	Partition plate	JIS G 5101-SC 410 or SC 450
4	Axle pin and nut	JIS G 4051-S 25 C
5	Set screw	JIS G 4303-SUS or JIS H 3250-C3604BD
6	Hexagon head bolt and nut	JIS G 3101-SS 400
7	Reamer bolt and hexagon nut	JIS G 3101-SS 400
8	Sheave	JIS G 5501-FC 200 or JIS G 5101-SC 410
9	Conical roller bearing	—
10	Packing	Felt
11	Shackle	Conform to JIS B 2801
12	Grease nipple	Brass
13	Nut	JIS G 3101-SS 400
14	Spring lock washer	JIS G 3506-SWRH57(A,B)~77(A,B)
15	Bucket	Conform to JIS G 3101-SS 400

5. Tests and inspection

5.1 Loading Test

The block coupled with shackle shall be tested by applying the proof load in such a manner as given in Table 3.

100	450	410	340	18 A
150	450	410	340	18 B
200	450	410	340	18 C

Remarks: 1. The first load is in the type specified in the table.
2. The second load is in the type specified in the table.
3. The third load is in the type specified in the table.
4. The fourth load is in the type specified in the table.
5. The fifth load is in the type specified in the table.

Construction, shape and dimensions shall be as shown in Fig. 1 and 2 and in addition conform to the following standards:
(1) Shackles shall conform to JIS B 2801-SB or HB.
(2) Conical roller bearings shall conform to the requirements of JIS B 1334.

Reference Standards

- JIS B 0203 — Pipe Thread
- JIS B 0204 — Pipe Thread
- JIS B 0207 — Metric Fine Screw Thread
- JIS B 1312 — Coarse Thread Head Wood Screw
- JIS B 1313 — Fine Thread Head Wood Screw
- JIS B 2801 — Shackle
- JIS B 2802 — Shackle
- JIS G 3101 — Rolled Steel for General Purpose
- JIS G 3102 — Carbon Steel for Machine Structural Use
- JIS H 3100 — Copper and Copper Alloy Sheet, Strip and Plate
- JIS H 3101 — Copper and Copper Alloy Sheet and Plate

Table 3

Item	Type							
	1RA				1RB			
Testing method								
Nominal dia. mm	340	410	430	460	340	410	430	460
Safe working load kN	34,3	49,0	53,9	58,8	34,3	49,0	53,9	58,8
Proof load kN	137,2	196	215,6	235,2	205,8	294	323,4	352,8

Item	Type							
	2RA				2RB			
Testing Method								
Nominal dia. mm	340	410	430	460	340	410	430	460
Safe working load kN	127,5	186	206	226	157	226	245	275
Proof load kN	255	372	412	452	314	452	490	521,6

Remark: The safe working load for a single-sheave block is the maximum load that can be loaded at one end of a rope passing the block. In the case of a double-sheave block, it is the maximum load that can be loaded at the shackle of the block.

5.2 Overhaul Inspection After the loading test is finished, all parts shall be inspected by overhauling and be free from any defect.

6. Designation The block shall be designated by the title or JIS number, type, nominal diameter, symbol for material of sheave such as F for FC 200 and S for SC 410, and symbol of shackle.

Example: Ships' cast steel cargo block with roller bearings 1 RA 340 F-SB
or JIS F 3428-1 RA 340 F-SB

7. Marking The following particulars shall be marked on a readily visible part of the block:

- (1) Nominal diameter or identification symbol
- (2) Safe working load
- (3) Year and month of manufacture or abbreviation for it
- (4) Manufacturer's name or abbreviation for it

Remark: The calculation of safe working load is based on the assumption that the rope is of the same material as the block.