PART II RULES FOR THE CONSTRUCTION AND CLASSIFICATION OF SHIPS IDENTIFIED BY THEIR MISSION

TITLE 43 DREDGERSAND MUD BARGES

SECTION 3 HULL EQUIPMENT

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CHAPTER A
SCOPE

CHAPTER CONTENTS

A1. APPLICATION

A2. DEFINITIONS

A1. APPLICATION

100. Nature of the systems

101. This section applies, in addition to the equipment indicated in Part II, Title 11, Section 3, those typical of dredgers, as:

a. handling of dredging booms;

b. dredging booms;

c. lifting booms;

d. cigars and positioning booms.

A2. DEFINITIONS

100. Terms

101. The following terms are in addition to those set forth in Part II, Title 11, Section 3:

a. **Draghead** is the suction mouth of the trailing suction hopper dredger.

b. **Dredging booms**: Booms at the side or at the stem of the dredger along with the suction pipe.

c. **Lifting booms**: Booms at the side of the dredger for the lifting and lowering the suction pipe.

d. **Positioning booms**: Booms to position the mobilizing anchors in dredgers of suction and pumping.

e. **Spud**: massive steel cylinders at the stern edge usually aft of the suction and pump dredgers, whose purpose is to moor the dredge while allowing it to swing and advance. Only one spud can be down while swinging, and this is called the working spud, while the other is called the walking spud.

f. **Suction pipe**: the purpose of the suction pipe) is to make a connection between the seabed and the ship in order to make transport of dredge slurry possible.

g. **Suction elbow gantry** consists of a fixed and a moveable part. The fixed part is welded to the main deck and is fitted with tracks for the wheels of the moveable part. (Figure 2.82). When the moveable part has reached the lowest [position than the trunnion slide can be lowered into the guides in the hull

h. **Suction pipe gantries** serve to move the suction pipe either inboard or outboard. The draghead gantry and the middle gantry are carried out mostly as an A-frame, connected with the main deck by a hinge-construction. A hydraulic cylinder or the hoisting wires controls the motion when moving the suction pipe in- or outboard.

i. **Suction pipe winches** have a grooved winding drum, with a length and /or diameter such that the there are 5 windings left on the drum (Figure 2.85) when the suction pipe is in its lowest position. When the suction pipe is out of the water. The load of the winches becomes heavier. To overcome this problem the wire is transport to a drum with a smaller diameter, which results in a lower torque for the winch drive.

j. **Swell compensator** The most important goal of the swell compensator is to maintain the contact between the seabed and the ship, due to either both ship motions or the irregularities of the bottom contour. The swell compensator is positioned in the hoist-cable system of the draghead winch gantry. The swell compensator prevents the uncontrolled slackening and re-tensioning of the hoist cables

CHAPTER D
REQUIREMENTS FOR SYSTEMS

CHAPTER CONTENTS

D1 SERVICE HANDLING

D2. ANCHORING, MOORING AND TOWING

D3. DUMPING SYSTEM

D4. DRAUGHT GAUGES

D5. WAVE HEIGHT INFORMATION

D1 SERVICE HANDLING

100. Application

101. This Subchapter applies to appliances of mobility of the dredging system.

200. Definitions

201. Terms herein used.

Pendant - cable system that gives the variation of angle of the lifting boom.

300. Arrangements

301 The lifting boom system includes pendant cable and load cable.

400. Design assumptions

401. The working systems are defined by force diagrams, which ate to be submitted to RBNA.

500. Dimensioning

501. The stresses in several components, calculated for design tensile, are not to exceed the values:

$$\sigma c = \sqrt{\sigma^2 + 3 \times \tau^2} \quad \leq 12{,}8 \text{ daN/mm}^2 \quad (13 \text{ kgf/mm}^2)$$

of which:
$\sigma \leq 0{,}60 \times \sigma y$

$\tau \leq 0{,}40 \times \sigma y$

D2. ANCHORING, MOORING AND TOWING

100. Application
-See Part II, Title 11, Section 3

200. Arrangements
-See Part II, Title 11, Section 3

300. The Equipment Numeral

301. -see Part II, Title 11, Section 3

302. For vessels employed in the dredging service it is recommended to increase the diameter of the chain cables to the numeral immediately higher to the diameter required in the Table.

400. to 800.
- See Part II, Title 11, Section 3

D3. DUMPING SYSTEM

100. Dumping system

101. The cargo dumping system shall be capable of discharging the cargo by gravity, such that the dredger shall increase its freeboard from the dredging load line to the summer load line within 8 minutes using normal operation of the dumping system.

102. Emergency devices, controlled from the navigating bridge, shall be fitted so that the discharge of cargo is also possible in case of failure of the main electric power supply and/or the main hydraulic unit and/or single failure of the normal control systems.

103. Means of overflow and spillways shall not be regarded equivalent to a cargo dumping system.

200. Dredge valves emergency closing

201. Emergency closing devices shall be provided for dredge valves in piping systems penetrating the shell below the freeboard deck and which are normally open when loading cargo by dredging. The emergency closing devices shall be operable from the navigating bridge. They shall be capable of operation in case of failure of the main electric power supply and/or the main hydraulic unit and/or single failure of the normal control systems.

D4. DRAUGHT GAUGES

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100. Draught gauges

101. An accurate draught indicator, capable of showing the corresponding position of the dredging draught, shall be fitted at the navigating bridge.

102. This draught indicator shall also be capable of providing a record of draught as a function of time.

103. It shall be acceptable to the RBNA.

D5. WAVE HEIGHT INFORMATION

100. Wave hight information

101. During operations at dredging load line in operational areas defined by a limiting significant wave height, the master shall be provided with meteorological information and a forecast of the relevant seaway condition in terms of significant wave height.

102. Where such information may not be obtained a wave measuring system, acceptable to the Administration, shall be used.

CHAPTER T
TESTS AND INSPECTION

CHAPTER CONTENTS

T1. SEA TRIALS

T1. SEA TRIALS

100. Ship trials

101. Upon completion of construction, in addition to the sea trials required in Part I, Title 02, Section 02 the RBNA may require specific tests in relation to the ship's mission. In particular, tests may be required to check the manoeuvring capability and the speed of the ship during the dredging operation.

102. As regards the dredging equipment, , RBNA may carry out trials to verify the proper operation of all relevant equipment in different sea and weather conditions, according to a specification submitted by the interested party. However, the proper working of the instruments on the bridge according to Part II, Title 43, Section 1, Chapter B, B1.400 is to be checked.