

**PART II RULES FOR THE CONSTRUCTION
AND CLASSIFICATION OF VESSELS IDENTIFIED
BY THEIR MISSIONS**

TITLE 48 DIVING SUPPORT VESSELS

SECTION 7 ELECTRICITY

CHAPTERS

- A APPROACH
- B DOCUMENTS, REGULATIONS AND STANDARDS
- C MATERIALS AND MANUFACTURING
See Part II, Title 11, Section 7
- D PRINCIPLES OF DESIGN AND CONSTRUCTION FOR ELECTRICAL SYSTEMS SERVING DIVING SYSTEMS
- E BASIC DESIGN PRINCIPLES
See Part II, Title 11, Section 7
- F DESIGN AND INSTALLATION OF THE ELECTRICAL POWER SYSTEM
See Part II, Title 11, Section 7
- G DESIGN AND INSTALLATION OF THE ELECTRICAL POWER DISTRIBUTION SYSTEM
See Part II, Title 11, Section 7
- H DESIGN AND INSTALLATION OF THE POWER CONSUMERS – LIGHT AND MOTORS
See Part II, Title 11, Section 7
- I SYSTEMS WITH VOLTAGES ABOVE 1 KV UP TO 15 KV
See Part II, Title 11, Section 7
- T TEST OF ELECTRICAL INSTALLATIONS
See Part II, Title 11, Section 7

CONTENTS

CHAPTER A	5
APPROACH	5
A1. APPLICATION	5
100. <i>Scope</i>	5
CHAPTER B	5
DOCUMENTS, REGULATIONS AND STANDARDS ..	5
B1. DOCUMENTATION TO THE RBNA	5
100. <i>Submission of documents</i>	5
CHAPTER D	5
PRINCIPLES OF DESIGN AND CONSTRUCTION FOR ELECTRICAL SYSTEMS SERVING DIVING SYSTEMS	5
D1. PRINCIPLES OF DESIGN AND CONSTRUCTION	5
100. <i>Lighting</i>	5
200. <i>Supplies of services</i>	5
D2. HAZARDOUS AREAS	6
100. <i>Hazardous areas</i>	6

CHAPTER A APPROACH

CHAPTER CONTENTS

A1. APPLICATION

A2. DEFINITIONS
See Title 11

A1. APPLICATION

100. Scope

101. The present Title 48, Section 7, contains additional requirements for the electrical systems given in Part II, Title 11, Section 7, for the purpose of special needs associated with the design and installation of diving support vessels.

CHAPTER B DOCUMENTS, REGULATIONS AND STANDARDS

CHAPTER CONTENTS

B1. DOCUMENTATION TO THE RBNA

B2. REGULATION
See Part II, Title 48, Section 1

B3. STANDARDS AND UNITS
See Part II, Title 11, Section 7, B.3

B1. DOCUMENTATION TO THE RBNA

100. Submission of documents

101. The present Subchapter B1 gives additional documents to the list in Part II, Title 11, Section 7, B1, which are specific for the electrical systems of diving support vessels.

102. For electrical systems on diving support vessels, the following shall be documented:

- a. A description of the operational modes of the system, failure modes, redundancy systems, etc.;
- b. General arrangement showing location of all important electrical equipment for diving system;
- c. Hazardous areas

- d. Single line distribution system diagrams for the whole installation.
- e. Calculations on load balance, including emergency consumption and battery capacities
- f. Diagrams of control and alarm circuits related to the support of diving systems;
- g. Diagrams and arrangement of the communication systems

CHAPTER D PRINCIPLES OF DESIGN AND CONSTRUCTION FOR ELECTRICAL SYSTEMS SERVING DIVING SYSTEMS

CHAPTER CONTENTS

D1. INSTALLATIONS ON BOARD

D2. INSTALLATION OF EQUIPMENT IN
HAZARDOUS AREAS

D1. PRINCIPLES OF DESIGN AND CONSTRUCTION

100. Lighting

101. All working areas should be well lit in accordance with National / International standards.

102. Good lighting of the surface of the sea should be available, particularly in the vicinity of the divers' position to aid diver recovery and equipment handling.

103. Areas critical to the diving operation such as the Deck Compression Chamber, Dive Control, diver deployment and winch control positions should be included on the ship's emergency lighting circuits.

200. Supplies of services

201. Redundancy of supplies of all services, the failure of which could cause catastrophic failure, should be available.

202. Thus essential supplies should be available from two independent sources.

203. Precautions should be taken to avoid generators being overloaded.

204. Services for critical equipment should always be protected by redundancy, for example, diver deployment systems, alternative gas supplies, etc.

205. In case of failure of the main source of electrical power for the diving system an independent source of electrical power shall be available for safe conclusion of the diving operation.

206. It is permitted to use the ship's emergency source of electrical power supply to the diving system as an emergency source of electrical power if it has enough electrical power capacity to supply the diving system and the emergency load for the vessel at the same time.

207. The alternative source of electrical power should be located outside the machinery casings to ensure its functioning in the event of fire or other casualty causing failure to the main electrical installation.

208. Interface between diving system and the ship or floating structure should be provided with suitable electric lighting. Primary and emergency lighting in all critical handling areas shall be provided.

209. All electrical equipment and installation, including power supply arrangements, should be designed considering the environment where they will be used in order to minimize the risk of fire, explosion, electrical shock and emission of toxic gases to personnel, and galvanic action of the surface compression chamber or diving bell.

300. Cables

301. All cables providing diving support systems should be run in such a way and so protected as to minimize the risk of damage.

302. Routeing of cables should avoid areas of high physical activity.

303. Proper securing arrangements should be fitted to avoid movement.

304. Suitable protection from mechanical damage should be provided.

305. Electric junction boxes related to diving should be insulated to IP 65 rating and installed in positions which introduce minimum risk of damage.

306. Electrical cables and piping for gas shall be separated.

D2. HAZARDOUS AREAS

100. Hazardous areas

101. The electrical equipment intended for operation in areas with risk of explosion should be of "safe type" and approved for use in ships classified by RBNA.

102. Certificates of "safe type" should consider the characteristics of protection of the enclosures defined in accordance with IEC Publication 60079 or other equivalent standard.

103. Certificates of specific classification or type approval of equipment as being explosion-proof or intrinsically safety equipment and instruments will be accepted, provided that the design and manufacture are approved by RBNA and that are conducted tests of "safe type" in recognized laboratory in accordance with IEC Publication 60079 or other equivalent standard.

Rgmm14en-PIIT48S7-abd-00