

§ 111.33-5

- (4) Rated AC volts.
- (5) Rated AC amperes.
- (6) Number of phases.
- (7) Frequency.
- (8) Rated DC volts.
- (9) Rated DC amperes.
- (10) Ambient temperature range.
- (11) Duty cycle.
- (12) Cooling medium.

(c) If, on small rectifiers, the information required by paragraph (a) of this section cannot be shown because of space limitations, the nameplate must be at least large enough to contain the manufacturer's name and serial number. The remaining information must be shown on the schematic diagram.

[CGD 74-125A, 47 FR 15236, Apr. 8, 1982, as amended by CGD 94-108, 61 FR 28279, June 4, 1996; USCG-2003-16630, 73 FR 65197, Oct. 31, 2008]

§ 111.33-5 Installation.

Each semiconductor rectifier system must meet the installation requirements, as appropriate, of—

- (a) Sections 10.20.2, 10.20.7, and 10.20.8 of IEEE 45-2002 (incorporated by reference; see 46 CFR 110.10-1); or
- (b) IEC 92-304 (incorporated by reference; see 46 CFR 110.10-1).

[CGD 94-108, 61 FR 28279, June 4, 1996, as amended by USCG-2003-16630, 73 FR 65197, Oct. 31, 2008]

§ 111.33-7 Alarms and shutdowns.

Each power semiconductor rectifier must have a high temperature alarm or shutdown, except as provided in § 111.33-11.

§ 111.33-9 Ventilation exhaust.

The exhaust of each forced-air semiconductor rectifier system must:

- (a) Terminate in a location other than a hazardous location under Subpart 111.105 of this part; and
- (b) Not impinge upon any other electric device.

§ 111.33-11 Propulsion systems.

Each power semiconductor rectifier system in a propulsion system must meet sections 4-8-5/5.17.9 and 4-8-5/5.17.10 of ABS Steel Vessel Rules (incorporated by reference; see 46 CFR 110.10-1), except that each one for mobile offshore drilling units must meet

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the requirements in Part 4, Chapter 3, section 4/3.5.3 of ABS MODU Rules (incorporated by reference; see 46 CFR 110.10-1).

[USCG-2003-16630, 73 FR 65197, Oct. 31, 2008]

Subpart 111.35—Electric Propulsion

§ 111.35-1 Electrical propulsion installations.

Each electric propulsion installation must meet sections 4-8-5/5.5, 4-8-5/5.11, 4-8-5/5.13, 4-8-5/5.17.8(e), 4-8-5/5.17.9, and 4-8-5/5.17.10 of ABS Steel Vessel Rules (incorporated by reference; see 46 CFR 110.10-1), except that each one for mobile offshore drilling units must meet the requirements in part 4, chapter 3, section 4/3.5.3 of ABS MODU Rules (incorporated by reference; see 46 CFR 110.10-1).

[USCG-2003-16630, 73 FR 65197, Oct. 31, 2008]

Subpart 111.40—Panelboards

§ 111.40-1 Panelboard standard.

Each panelboard must meet section 17.1 of IEEE 45-2002 (incorporated by reference; see 46 CFR 110.10-1).

[USCG-2003-16630, 73 FR 65197, Oct. 31, 2008]

§ 111.40-5 Enclosure.

Each panelboard must have a non-combustible enclosure that meets §§ 111.01-7 and 111.01-9.

[CGD 94-108, 61 FR 28279, June 4, 1996]

§ 111.40-7 Location.

Each panelboard must be accessible but not in a bunker or a cargo hold, except a cargo hold on a roll-on/roll-off vessel.

[CGD 94-108, 61 FR 28279, June 4, 1996]

§ 111.40-9 Locking device.

The door of each panelboard enclosure that is accessible to any passenger must have a locking device.

§ 111.40-11 Numbered switching unit and panelboard directory.

- (a) Each panelboard switching unit must be numbered.
- (b) Each panelboard must have:

- (1) A circuit directory cardholder; and
- (2) A circuit directory that has:
 - (i) The circuit designation of each circuit;
 - (ii) A description of the load of each circuit; and
 - (iii) The rating or setting of the overcurrent protective device for each circuit.

§ 111.40-13 Rating.

Each panelboard must have a current rating not less than the feeder circuit capacity.

§ 111.40-15 Overcurrent device.

The total load on any overcurrent device located in a panelboard must not exceed 80 percent of its rating if, in normal operation, the load will continue for 3 hours or more; except if the assembly, including the overcurrent device, is rated for continuous duty at 100% of its rating.

Subpart 111.50—Overcurrent Protection

§ 111.50-1 Protection of equipment.

Overcurrent protection of electric equipment must meet the following listed subparts of this chapter:

- (a) Appliances, Subpart 111.77.
- (b) Generators, Subpart 111.12.
- (c) Motors, motor circuits, and controllers, Subpart 111.70.
- (d) Transformers, Subpart 111.20.

§ 111.50-2 Systems integration.

The electrical characteristics of each overcurrent protective device must be compatible with other devices and its coordination must be considered in the design of the entire protective system.

NOTE TO § 111.50-2: The electrical characteristics of overcurrent protective devices may differ between standards. The interchangeability and compatibility of components complying with differing standards cannot be assumed.

[CGD 94-108, 61 FR 28279, June 4, 1996]

§ 111.50-3 Protection of conductors.

(a) *Purpose.* The purpose of overcurrent protection for conductors is to open the electric circuit if the current reaches a value that will cause an ex-

cessive or dangerous temperature in the conductor or conductor insulation. A grounded conductor is protected from overcurrent if a protective device of a suitable rating or setting is in each ungrounded conductor of the same circuit.

(b) *Overcurrent protection of conductors.* Each conductor must be protected in accordance with its current carrying capacity, except a conductor for the following circuits which must meet the following listed subparts of this chapter:

- (1) Propulsion circuits, Subpart 111.35.
- (2) Steering circuits, subchapter F of this chapter.
- (3) Motor circuits, Subpart 111.70.
- (4) Flexible cord and fixture wire for lighting circuits, Subpart 111.75.
- (5) Switchboard circuits, Subpart 111.30.

(c) *Fuses and circuitbreakers.* If the allowable current-carrying capacity of the conductor does not correspond to a standard rating for fuses or circuitbreakers that meets Section 240.6 of NFPA NEC 2002 or IEC 92-202 (both incorporated by reference; see 46 CFR 110.10-1), then the next larger such rating is acceptable, except that:

- (1) This rating must not be larger than 150 percent of the current-carrying capacity of the conductor; and
- (2) The effect of temperature on the operation of fuses and thermally controlled circuitbreakers must be taken into consideration.

(d) *Parallel overcurrent protective devices.* An overcurrent protective device must not be connected in parallel with another overcurrent protective device.

(e) *Thermal devices.* No thermal cut-out, thermal relay, or other device not designed to open a short circuit may be used for protection of a conductor against overcurrent due to a short circuit or ground, except in a motor circuit as described in Article 430 of NFPA NEC 2002 or in IEC 92-202.

(f) *Ungrounded conductors.* A fuse or overcurrent trip unit of a circuit breaker must be in each ungrounded conductor. A branch switch or circuit breaker must open all conductors of the circuit, except grounded conductors.