

Application-specific motors

Marine applications

Overview



SIMOTICS FD motors (air-cooled and water-cooled) in marine design have been developed for operation below deck onboard ships. An inquiry has to be submitted for motors for operation on deck or for offshore applications in order to clarify any special measures that may need to be taken regarding the conditions of use and installation. The thermal utilization of the motors is matched to the generally higher ambient temperatures on board. If the application demands compliance with additional regulations, such as explosion protection, the appropriate motor series must be chosen.

The motors onboard ships are subdivided into three classes of importance by the marine classification societies in collaboration with customers, depending on the application:

- **Essential Service for Propulsion** or also Primary Essential Service
- **Essential Service** or also Secondary Essential Service or Important Service
- **Non-essential Service** or also Non-important Service

As the assignment of a drive to one of the importance classes has a direct impact on the scope of the marine options, this must be known when ordering the motor.

The following services of the motor manufacturer are associated with the classes:

	Class of importance		
	Essential Service for Propulsion	Essential Service	Non-essential Service
General breakdown	Drives integrated into the propulsion system of the ship.	Safety-related drives whose failure must not cause loss of maneuverability of the ship, nor place onboard safety at risk.	Drives and systems that are outside the responsibility of the classification societies.
Typical applications	Propeller drive, dynamic positioning drives, booster drives and shaft generators	Lateral thrust units, anchor winches, oil and ballast pumps, fire-fighting pumps	Pumps for service water, winches, dredging pumps, fans
Design	In accordance with regulations of the classification society	Acceptance test certificate 3.2 according to EN 10204	In accordance with ambient conditions of the classification society
Acceptance test certificate	Acceptance test certificate 3.2 according to EN 10204		Acceptance test certificate 3.1 according to EN 10204 ¹⁾
Individual acceptance by classification society	Will be performed. Motor is assigned an individual certificate of the classification society.		Not required A declaration of conformity is provided with the motor.
Ordering several identical motors	Differentiation between the first motor and additional ones must be realized when ordering using an order code.		No distinction
Rating plate data	Information about ambient conditions of the classification society		
Stamp of the classification society	Stamp on the shaft ²⁾ and motor housing		No stamp

¹⁾ Certificate is not stipulated by every classification society, but is always issued according to the internal quality standards within the scope of a routine test.

²⁾ Provided that it is specified that the classification society supervises construction.

Overview (continued)

Classification societies

Society	Abbreviation	Location
American Bureau of Shipping	ABS	USA
Bureau Veritas	BV	France
China Classification Society	CCS	China
Det Norske Veritas	DNV GL	Germany
Korean Register	KR	Korea
Lloyds Register	LR	UK
Nippon Class	NK	Japan
Russian Maritime Register of Shipping	RMRS	Russia

Other national classifications can be provided on request.

Regulations of the individual classification societies for motors:

Classification society	Coolant temperature CT		Admissible temperature rise limit according to the classification society		Rated power limit for individual acceptance test	Mandatory construction supervision
	Water cooling	Air cooling	Temperature class	155 (F), $P_{rated} < 5000 \text{ kW}$		
	°C	°C	K	K	kW	kW
ABS	38	50	70	95	≥ 100	–
BV	38	45	75	100	≥ 100	≥ 500
CCS	38	45	75	100	≥ 50	≥ 50
DNV GL	38	45	75	100	≥ 100	–
KR	38	45	75	100	≥ 7,5	–
LR	38	45	70	95	≥ 100	≥ 100
NK	38	45	75	100	All power ratings	–
RMRS	38	45	75	95	≥ 100	–