

CATEGORY

IEC low voltage Marine motors

Energy efficient reliability in heavy duty operations



ABB low voltage motors comply with all major classification societies, ship owners, shipyards and manufacturers of ship based products for applications such as fans, pumps and compressors, hydraulic pumps, lifting and cargo systems, offering economical and reliable high performance in heavy duty operation.

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01 Low voltage motors in pump application in the engine room.

High efficiency

ABB motors offer optimal energy efficiency. Increased efficiency reduces the power required to operate a motor.

Reduced power requirements allow use of smaller generators and less fuel. These advantages combine to reduce the customer's initial investment cost and reduce ongoing operating expenses. High efficiency motors, combined with variable speed drives provide optimum speed and torque control. This helps customers in the marine industry to further reduce energy consumption, operating expenses and harmful emission levels.

Reduced emission IMO regions

The shipping industry is facing tightened environmental regulations, as emission limits are being imposed worldwide.

IMO (International Maritime Organization) has proposed emission limits for ships operating inside ECAs (emission controlled areas). For more information please visit web site www.imo.org.

ABB motors offer significant environmental benefits and high efficiency to meet these tightened regulations.

Product scope

ABB offers a complete range of low voltage motors, ensuring the right motor can be found for every need, including harsh environments and explosive atmospheres. Motors are available with an output range of 0.09 to 1200 kW.

Applications

In the marine industry low voltage motors are used, both on and under deck, in applications such as engine room pumps, steering pumps, cargo pumps, ventilation fans, deck cranes, thrusters, winches, hydraulic power packs, and compressors.

Certification

Depending on the motor application, the classification societies normally classify equipment as suitable for "Primary Essential Service" and "Secondary Essential Service".

The requirements for certification and documentation are classified accordingly on next page to "Product certificate" and "Works certificate".

For any specific customer needs, application specific certification or case-by-base certification, please contact ABB.

Type approvals

ABB low voltage motors are type approved according to most of the classification societies as listed below where applicable.

Table 1. Permissible temperature rises

Classification societies and standards	Ambient temperature, °C	Permissible temperature rise in K for stator windings	
		B	F
IEC Publ. 60034-1	40	80	105
IEC 60092-301 ¹⁾	45	70	90
American Bureau of Shipping (ABS)	45	75	100
Bureau Veritas (BV)	45	75	100
China Classification Society (CCS)	45	75	100
DNV-GL	45	75	100
Korean Register of Shipping (KR)	45	75	95
Lloyd's Register (LR)	45	70	95
Nippon Kaiji Kyokai (NK)	45	75	100
Registro Italiano Navale (RINA)	45	75	100
Russian Maritime Register of Shipping (RS)	45	75	95

¹⁾ Electrical installation in ships

Table 2. Marine rules

Classification societies	Type approval	Manufacturer's (or Works') certificate	Product (Unit) Certificate	Shaft material inspection certificate acc. to EN 10204:2004
American Bureau of Shipping (ABS)	Not required	All Non-Ess, Ess: below 100 kW	Ess: 100 kW and above	^{1), 2)} 375 kW and above 3.2 inspection certificate
Bureau Veritas (BV)	Required for Ess	All Non-Ess	Ess: 100 kW and above	^{1), 2)}
China Classification Society (CCS)	Not required	All Non-Ess, Ess: below 50 kW	Ess: 50 kW and above	^{1), 2)}
DNV-GL	Not required below 100 kW, 100 kW < 300 kW required	All Non-Ess, Ess: below 300 kW	300 kW and above	^{1), 2)}
Korean Register of Shipping (KR)	Required above 7,5 kW	All Non-Ess, Ess: below 7,5 kW	Ess: 7,5 kW and above	100 kW and above 3.2 inspection certificate
Lloyd's Register (LR)	Not required	All Non-Ess, Ess: below 100 kW	100 kW and above	^{1), 2)} 250 kW and above 3.2 inspection certificate
Nippon Kaiji Kyokai (NK)	All motors	All motors below 100 kW	100 kW and above	^{1), 2)}
Registro Italiano Navale (RINA)	Not required	All Non-Ess, Ess: below 100 kW	Ess: 100 kW and above	^{1), 2)}
Russian Maritime Register of Shipping (RS)	All motors	All motors below 100 kW	100 kW and above	

¹⁾ 3.1 marine shaft on all motors 100 kW and above

²⁾ 3.2 inspection certificate for all shafts which are part of the main mechanical propulsion line or dynamic positioning, electric propulsion motors and for main engine driven generators

Ex motors: check with Production unit REQUIREMENT

KR: type approval (if not, then witnessed testing)

NK: type approval (if not, then witnessed testing)