



C3M C4M C5M - C3W C4W C5W - C3MH C4MH C5MH - C4WH C5WH

Model	C3M C4M C5M C3W C4W C5W C3MH C4MH C5MH C4WH C5WH
Power	Up to 10.000 kW
Voltages	Up to 15.000 V
Frame	315 ± 1000
Poles	4, 6, 8, 10 and 12
Cooling	IC 01 / IC 06
IP	IP 23 / IP 44
Enclosure	ODP Open Drip Proof
Other applications	Small propulsion
Main Applications	Fi-Fi system, Thrusters
Sector	Marine

Poles	4 Poles	6 Poles	8 Poles	10 Poles	12 Poles
kW 60 Hz	7.000	10.000	9.000	7.500	

Certificates and testing	
Certificate	Marine Survey Certificate supplied with the machine. Shaft, housing (propulsion) and exchanger are certified by the Marine Classification Society.
Main components	
Housing	Rigid frame, rugged welded steel fabrication (EN 10025 - S235 JR). Frame is provided with side ribs to increase the strength. Marelli Motori motors for continuous duty operation are designed to meet vibration levels per IEC 60034-14, ISO 10816-1 and BS 5000-3.
Shield	Made of grey cast-iron (EN 1561 – GJL 200) up to 500 frame size motors. Made of hot-rolled structural steel (EN 10025 – S235 JR) from size 560 and above.
Shaft	General data Made in carbon steel (EN 10083 – 2 C40 – TN) up to 450 frame and hot-rolled structural steel from 500 frame (EN 10025 – S355 JR). Shaft design Cylindrical shaft with key.
Main terminal box	Mounted on top. Made of cold-rolled formable steels EN 10025 – S235JR.
Fan	Made of aluminum alloy up to 400 frame. Made of hot-rolled structural steel above (EN 10025 – S235 JR).
Construction	
Enclosure	ODP – Open Drip Proof Motors.
Cooling System	IC 01 as per IEC60034-6 Free circulation. Internal air is flowing by a fan mounted on the shaft of the motor at the driven side. The cooling air is taken on the ND-end, the air outlet is on the D-end. On request for variable speed application an external ventilation unit can be supplied to get the IC 06 cooling type.

Degree of protection	IP 23 as per IEC60034-5. The series can be supplied with air inlet filters to achieve the IP 44 rating. The motor series name will be C3W - C4W.												
Mounting	IM B3, V1 and V10 as per IEC60034-7.												
Technical data													
Stator/Rotor core	Laminated and enamel-insulated on both sides to minimise eddy-current losses. The stator winding is made of flat copper or round copper wire depending on the machine size. The completely wound stator pack with housing is thereby impregnated in an epoxy-resin VPI. The subsequent heat treatment hardens the resin.												
Rotor	Short circuit rotor type. Depending on machine size, the rotor construction is either a solid shaft or welded ribbed shaft. The rotor winding can be either a pressure die cast aluminum or a copper bar construction.												
Bearing	<p>General data</p> <p>Antifriction bearings grease lubricated (ball or roller type) or oil lubricated sleeve bearing.</p> <p>The theoretical lifetime of bearings, L10h according to ISO 281/1 standard, of standard horizontal construction generators, without external forces (radial and / or axial) is in excess of 50.000 hours. On request, the lifetime of bearings, L10h can be in excess of 100.000 hours.</p> <p>Locating bearings are on the D end side and floating bearings on the ND end side.</p> <p>Both bearings are fitted with a regreasing system. The used grease is removed through a valve locked in the outer bearing cover. Sleeve bearings available as an option.</p> <p>On request special bearings are designed where high radial and axial forces are applied. All configurations are designed to withstand the following marine inclination.</p> <table><tr><td colspan="2">Static</td><td colspan="2">Dynamic</td></tr><tr><td>List</td><td>15°</td><td>Rolling</td><td>±22.5°</td></tr><tr><td>Trim</td><td>5°</td><td>Pitch</td><td>±7.5°</td></tr></table> <p>Dedicated constructions available for different values.</p>	Static		Dynamic		List	15°	Rolling	±22.5°	Trim	5°	Pitch	±7.5°
Static		Dynamic											
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Impregnation system	Stator and rotor are VPI treated with an unsaturated polyester amide resin which is polymerised in an oven.
Insulation system	Low voltage. Stator: F class insulated with a synthetic enamel. (H class insulation available on request)
Protective treatments	Marine dedicated protective enamel is applied on the winding.
Optional features	
List	<ul style="list-style-type: none"> Dual/multiple winding configuration flanged shaft or special shaft end on both sides increase protection degree up to IP 56 encoder vibration sensors special frame design to suite the application special bearings (sleeve or angular contact bearings) reinforced winding for VFD operation insulated bearings design for VFD application shaft earth brush for VFD application other options available on request.