MOTORS
DOUBLE JACKET WATER COOLED MOTORS
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The double jacket motors represents the latest generation of asynchronous motors. Our motors are specially designed for marine heavy duty applications where limited space and natural ventilation is some of the key factors.

The double jacket cooling system has proven to be a superior design for variable speed main propeller- and thruster applications with its high output /size ratio and a high degree of protection towards salient and humid environments.

Super silent motors! Up to five times less noise than conventional air cooled motors.

GENERAL FEATURES
Robust construction designed for heavy, hazardous and continuous duty in confined spaces.

Standards
- IEC 60034, IEC 60072

Approvals
- The motors are designed and built in accordance with marine register rules specifications and comply with: ABS, BV, CCS, DNV, GL, KR, LR, NK, RINA, RS.

Mountings
- Vertical or horizontal feet and/or flange mountings

Construction
- Steel frame
- Cast iron or steel terminal boxes and shields
- Protection degree IP55
- Windings impregnated with VPI system (Vacuum Pressure Impregnation)
- Insulation class F
- Anti-corrosion and rust frame treatment
- Stainless steel nameplate
- Simple earthing
- Drainage hole
- PTCs in windings with terminals in auxiliary terminal box

Supply
- Inverter

Cooling
- Fresh water

Sound Pressure
- Low noise level

Bearings
- Rolling bearings
- Regreasing system
- Arrangement for SPM sensors
TECHNICAL FEATURES

DUTY TYPE
The power outputs given in this catalogue refer to S1 duty type.

DEGREE OF PROTECTION
Motors are normally provided with IP55 enclosure. A higher degree of protection is available on request.

ENVIRONMENTAL CONDITIONS
Electrical tables refer to a cooling water of +38°C. Please contact Norwegian Electric Systems for different environmental conditions and where cooling water temperature is less than 10°C.

INSULATION
All motors have class F insulation which allows a maximum winding temperature rise of 100°C with cooling fluid temperature of 38°C. On request class H insulation is also available.

TEMPERATURE RISE
The outputs shown in this catalogue refer to temperature rise Class F.

PROTECTIVE TREATMENTS
External Surfaces
Standard finish is a heavy duty epoxy-vinyl paint. Colour is RAL5012. Special paint finishes can be provided to protect against: acids, alkalis, salt air, anhydrous gases and sea water.

Internal Surfaces
Special tropicalised treatment of internal surfaces and electrical windings. Inner cooling channels are coated with rust protector.

SOUND LEVELS
The electric tables show the sound pressure levels (Lp(A)) measured at no load conditions at one meter distance from the machine according to standard ISO R 1680 with tolerances of 3dB(A). The values do not depend on the supply frequency.

MATERIALS
Durability and reliability determine the choice of materials. Fabricated steel frames and cast iron shields are designed for reduced weight. Terminal boxes for frame sizes up to 400LB are in cast iron and from 400LC to 560 frame size in fabricated steel. Please contact MarelliMotori for different materials. Special steel shafts are available for high load applications.

BALANCING AND VIBRATION GRADE
The motors are dynamically balanced with a half key applied to the shaft extension in accordance with standard IEC 60034-14 to vibration grade reduced (A). On request vibration grade special (B) is also available.

COOLING SYSTEM
IC 7 At W7 (Self-circulating primary coolant with integral heat exchanger using remote fresh water). Reduces the noise level and it is ideal for constant torque, low speed, inverter applications. The cooling fluid must be clean water.

DO NOT USE:
- sea water.
- water with more than 120 mg/l of chloride.
- water with solid content over 10 mg/l.

Two flanged connections are provided for inlet and outlet of cooling water. On the appropriate name plate heat exchanger characteristics are indicated: flow rate, inlet/outlet temperature, min/max pressure.

DERATING FOR INVERTER SUPPLY
The NEMJ series have been designed to satisfy the requirements of speed control by frequency converter supply. Norwegian Electric Systems therefore provides various solutions to obtain the best performances, based on the following information: torque, constant torque or torque curve for all other cases) of the driven equipment; Electric supply and speed range; Converter supply characteristics (peak voltage values at the motor terminals, rise time, etc.); Maximum inverter overload (time and current value). Inverter fed motors will be supplied with enhanced winding insulation and N-end insulated bearing.

SAFETY
The whole series is supplied with PT100 in windings and internal water leakage sensor as standard.

Water leakage sensor
Advantages of Water Jacket Design
No heating dissipation in the installed area
Compact dimensions
No dust circulation

APPROVALS
In addition to meeting the electrical motor specifications, the B4J and B5J series also match the requirements of marine register rules for pressure vessels. In particular our motors comply with: ABS, BV, CCS, DNV, GL, KR, LR, NK, RINA, RS.

INPUT DATA NEEDED FOR QUOTATIONS
Output [kW], Voltage [V], Frequency [Hz], Speed [rpm], Mounting [V1, B3 etc], Enclosure [IP], Classification, Ambient temp [°C].
## TECHNICAL DATA / LOW VOLTAGE 690V

<table>
<thead>
<tr>
<th>Rated output 50 Hz kW</th>
<th>60 Hz kW</th>
<th>Motor type</th>
<th>Rated speed 50 Hz rpm</th>
<th>60 Hz rpm</th>
<th>Performances at rated outputs</th>
<th>DOL starting</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>50 Hz Torque Nm</td>
<td>Current A</td>
<td>Efficiency %</td>
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<td>cos</td>
<td>Is/In p.u.</td>
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<td>Tn/Tn p.u.</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Torque dB(A)</td>
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<tr>
<td></td>
<td></td>
<td></td>
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<td>Moment of inertia J kg m²</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Approx. Weight kg</td>
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### 8 poles

<table>
<thead>
<tr>
<th>330 400 NEMJ 35S LA4</th>
<th>400 480 NEMJ 35S LB4</th>
<th>450 540 NEMJ 35S LC4</th>
<th>500 600 NEMJ 35S LD4</th>
<th>550 660 NEMJ 35S LF4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1484 1784 3212 372</td>
<td>1496 1786 2568 395</td>
<td>1486 1786 2889 444</td>
<td>1486 1786 3210 487</td>
<td>1487 1787 3529 535</td>
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<tr>
<td>96   0.88    5.6     2.1     2.5     69  6.2     1600</td>
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### 6 poles

<table>
<thead>
<tr>
<th>600 720 NEMJ 400 LA4</th>
<th>700 830 NEMJ 400 LB4</th>
<th>770 920 NEMJ 400 LC4</th>
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</thead>
<tbody>
<tr>
<td>1486 1786 3852 604</td>
<td>1486 1786 4494 696</td>
<td>1486 1786 4943 774</td>
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### 4 poles

<table>
<thead>
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<th>980 1150 NEMJ 450 LA4</th>
<th>1050 1250 NEMJ 450 LB4</th>
<th>1180 1400 NEMJ 450 LC4</th>
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<td>1492 1792 7545 1138</td>
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<tr>
<td>63   0.88    5.7     0.7     2.4     72  30     4040</td>
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<tr>
<td>63   0.88    5.7     0.7     2.4     72  30     4040</td>
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### Phone: +47 55 61 30 00