

**GreenMotor**



# GreenMotor

## Features

Mega-Guard GreenMotor is a highly efficient permanent magnet motor for ship's propulsion and generator applications. GreenMotor is able to directly drive the propeller shaft in full electric or serial hybrid projects. Mega-Guard GreenMotor can also be used in combined motor and generator applications where GreenMotor is connected to a hybrid gearbox of a combustion engine or directly inline with the propeller shaft. In this parallel hybrid application Mega-Guard GreenMotor can be used as a propulsion motor (discharging the batteries) with stopped combustion engine and it is used as a generator (charging the batteries) when the combustion engine is powering the propeller.

Electric propulsion is applied in case of requirements regarding zero emission, better manoeuvrability and/or less fuel consumption for vessels with large difference in sailing profile. Silent running is another application of electric propulsion in combination with Mega-Guard GreenBatteries electric energy storage.

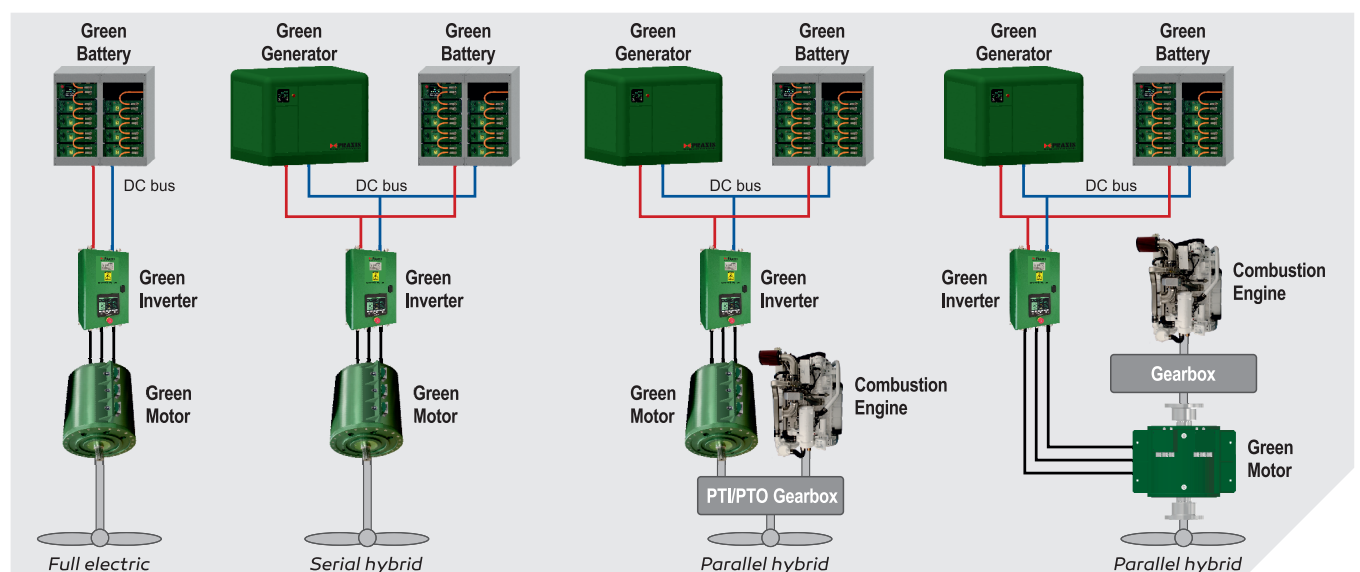
GreenMotor is controlled by other Mega-Guard products: GreenInverter, Propulsion Control System, Energy Management System and/or GreenGenerator. Various sizes of GreenMotor are available to suit all projects for full electric, serial hybrid or parallel hybrid propulsion.



## Sizes and options

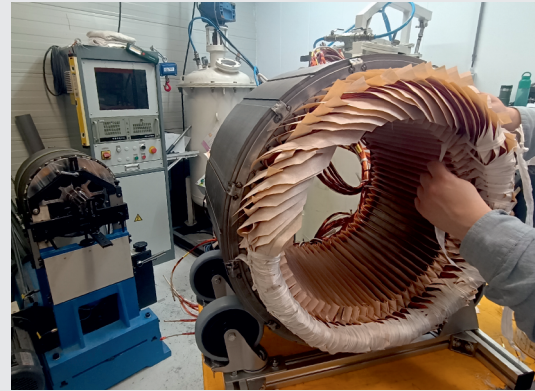
Mega-Guard GreenMotor is available in 4 different diameters and with variable length in order to suit propulsion applications ranging from 450Nm to 82700Nm (70kW to 3050kW depending on nominal RPM).

Multiple options are available for GreenMotor. For the shaft there is a choice of a splined output as standard and optional a flanged shaft connection is available. Also sensors for bearing temperature and the use of a built-in heater are options for the GreenMotor. Class approval for GreenMotor are also available like LRS, DNV-GL, BV, ABS, CCS and Komsa/KR.



## Specification

GreenMotor Specifications	
Application	Marine propulsion and power generation: <ul style="list-style-type: none"> <li>- Low speed direct propeller drive</li> <li>- Medium speed hybrid gearbox drive (motor and generator)</li> <li>- Medium speed generator</li> <li>- Low speed direct propeller drive with high speed motor with built-in planetary gear</li> <li>- Low speed hybrid direct propeller drive with hollow shaft and mounted inline between propeller and combustion engine</li> </ul>
Type	Permanent magnet synchronous machine Torque motor/generator supporting sensor less control with nominal torque delivered in between 0 and maximum RPM
Construction	Lightweight due to efficient design and strong aluminium housing Aluminium alloy: 6082-T6 Finishing with green coating
Power ranges	Up to 3270Nm ; motor diameter 420mm and motor length up to 753mm Up to 4555Nm ; motor diameter 590mm and motor length up to 800mm Up to 30500Nm ; motor diameter 960mm and motor length up to 1506mm Up to 82700Nm ; motor diameter 1280mm and motor length up to 1740mm
Duty rating	Continuous
Cooling	Liquid cooled water/glycol. Maximum Inlet temperature: 40°C
Output shaft and bearings	Splined output shaft according DIN 5480 or flanged output shaft according ASTM-A 182 Drive side equipped with isolated bearing Non drive side equipped with non isolated bearing and shaft grounding Maintenance free bearings Optional: bearing temperature sensors
Mounting	Side mounting brackets with vibration dampers Front flange mounting according SAE sizing; SAE flange mounting is only available when the motor length is smaller than the motor diameter.
Connection	Connection Box mounted on rear side AC cabling: A 95mm <sup>2</sup> EMC cable gland is installed for each 250A current in parallel IO cabling: EMC cable glands
Voltage Range	From 566VAC up to 700VAC supporting DC bus voltages from 768VDC to 960VDC Designed for a string of 8 or 10 GreenBatteries
Windings	Isolated windings: isolation test voltage > 2kV Thermal class H Each winding equipped with 2 temperature sensors Maximum winding temperature: 155°C
Heater	Optional heating element on drive side and non drive side
Testing	Maximum RPM = 110% of nominal RPM Maximum torque = 150% of nominal torque for 15 seconds Duration test at nominal power and nominal RPM on test bench
Protection	IP65
Ambient temperature	0 - 55°C
Environmental conditions	IEC60945
Class approval	LRS, DNV-GL, ABS, BV, CCS, Komsa/KR when required



GreenMotor stator assembly



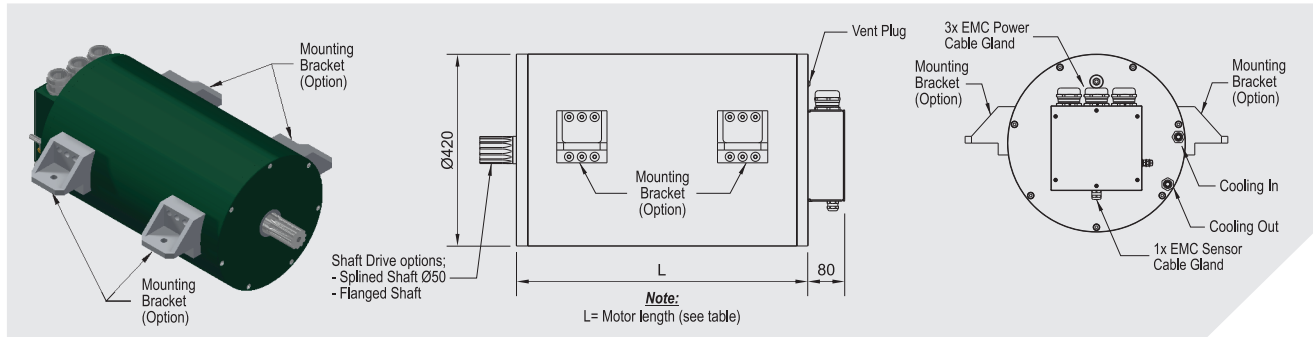
GreenMotor cooling tube milling



CNC machine for GreenMotor

# Permanent Magnet Motor Generator

## Features EMG-420d series: 450Nm to 3270Nm



Specification EMG-420d-263l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	(Vrms)	(Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=263mm	1200	69,5	553	470	665	101	94,9	HPI-225A
Weight: approx. 125kg	1800	103	549	472	667	147	96,3	HPI-225A
Cooling liquid flow: 16l/min	2700	144	509	511	723	186	97,2	HPI-225A
Cooling liquid Inlet temp.: max. 40°C	3600	172	458	534	755	208	97,4	HPI-225A

Specification EMG-420d-361l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	(Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=361mm	1200	149	1189	469	663	217	96,1	HPI-225A
Weight: approx. 198kg	1800	223	1183	473	669	318	97,0	HPI-450A
Cooling liquid flow: 16l/min	2700	301	1065	449	635	441	97,5	HPI-450A
Cooling liquid Inlet temp.: max. 40°C	3600	333	875	527	745	398	97,5	HPI-450A

Specification EMG-420d-410l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	(Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=410mm	1200	186	1480	469	663	268	96,1	HPI-450A
Weight: approx. 271kg	1800	275	1459	473	669	379	97,0	HPI-450A
Cooling liquid flow: 16l/min	2700	354	1252	449	635	461	97,5	HPI-1000A
Cooling liquid Inlet temp.: max. 40°C	3600	411	1090	527	745	528	97,5	HPI-1000A

Specification EMG-420d-459l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	(Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=459mm	1200	225	1789	476	673	318	96,7	HPI-450A
Weight: approx. 343kg	1800	328	1739	457	646	439	97,3	HPI-450A
Cooling liquid flow: 16l/min	2700	407	1440	542	766	481	97,8	HPI-1000A
Cooling liquid Inlet temp.: max. 40°C	3600	495	1312	475	671	658	97,8	HPI-1000A

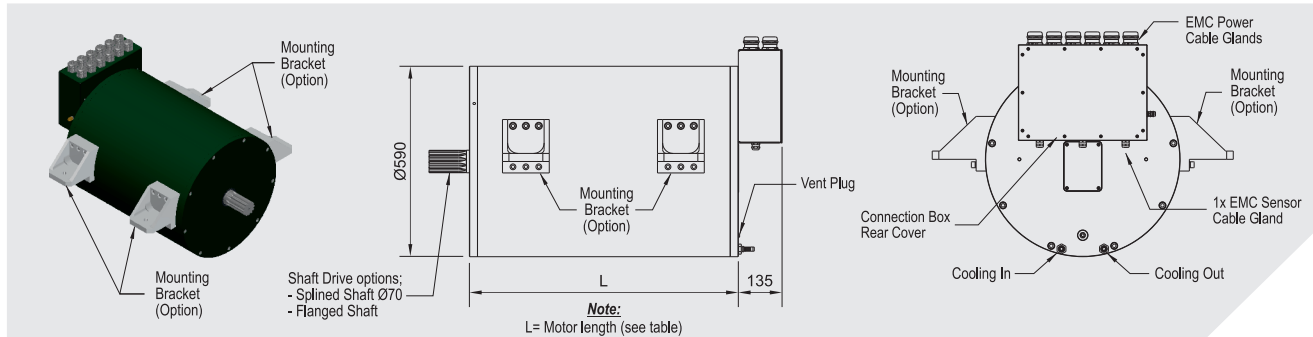
Specification EMG-420d-557l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	(Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=557mm	1200	289	2269	519	734	371	96,8	HPI-450A
Weight: approx. 417g	1800	416	2205	494	699	554	97,6	HPI-1000A
Cooling liquid flow: 16l/min	2700	559	1978	483	683	744	97,9	HPI-1000A
Cooling liquid Inlet temp.: max. 40°C	3600	620	1644	528	747	742	97,8	HPI-1000A

Specification EMG-420d-655l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	(Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=655mm	1200	349	2781	464	656	503	97,0	HPI-1000A
Weight: approx. 490g	1800	507	2389	413	584	811	97,7	HPI-1000A
Cooling liquid flow: 16l/min	2700	664	2348	504	713	848	97,9	HPI-1000A
Cooling liquid Inlet temp.: max. 40°C	3600	730	1937	524	741	875	97,7	HPI-1000A

Specification EMG-420d-753l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	(Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=753mm	1200	412	3271	499	706	548	97,2	HPI-1000A
Weight: approx. 564kg	1800	595	3157	493	697	793	97,7	HPI-1000A
Cooling liquid flow: 16l/min	2700	748	2645	479	677	994	97,7	HPI-1000A
Cooling liquid Inlet temp.: max. 40°C	3600	785	2081	465	658	1045	97,5	HPI-2000A

Mentioned nominal voltages and current matches a nominal DC Bus voltage of 768VDC which corresponds to a string of 8 GreenBatteries. Nominal voltages and currents will be adapted in case of string of 6 or 10 GreenBatteries.

## Features EMG-590d series: 1280Nm to 4555Nm



Specification EMG-590d-350I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	(Vrms)	(Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=350mm	600	82	1314	529	748	103	94,7	HPI-225A
Weight: approx. 343kg	900	122	1292	517	731	154	96,2	HPI-225A
Cooling liquid flow: 16l/min	1400	187	1280	410	580	286	97,3	HPI-450A
Cooling liquid Inlet temp.: max. 40°C	1800	253	1342	479	677	333	97,7	HPI-450A

Specification EMG-590d-395I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	(Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=395mm	600	104	1652	518	732	128	95,3	HPI-225A
Weight: approx. 423kg	900	158	1681	434	614	231	96,6	HPI-450A
Cooling liquid flow: 23l/min	1400	246	1680	464	656	333	97,6	HPI-450A
Cooling liquid Inlet temp.: max. 40°C	1800	322	1709	463	655	436	97,9	HPI-450A

Specification EMG-590d-440I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	(Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=440mm	600	124	1966	511	723	154	95,7	HPI-225A
Weight: approx. 488kg	900	190	2019	520	735	231	96,7	HPI-450A
Cooling liquid flow: 25l/min	1400	301	2053	433	612	436	97,5	HPI-450A
Cooling liquid Inlet temp.: max. 40°C	1800	374	1982	395	559	590	97,6	HPI-1000A

Specification EMG-590d-530I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	(Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=530mm	600	169	2690	465	658	231	96,1	HPI-225A
Weight: approx. 593kg	900	253	2690	478	676	333	97,2	HPI-450A
Cooling liquid flow: 25l/min	1400	384	2618	491	981	487	97,9	HPI-1000A
Cooling liquid Inlet temp.: max. 40°C	1800	498	2641	525	742	590	98,2	HPI-1000A

Specification EMG-590d-620I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	(Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=620mm	600	211	3362	401	567	333	96,4	HPI-450A
Weight: approx. 728kg	900	322	3420	465	658	436	97,4	HPI-450A
Cooling liquid flow: 30l/min	1400	484	3302	511	723	589	98,0	HPI-1000A
Cooling liquid Inlet temp.: max. 40°C	1800	628	3330	525	742	743	98,3	HPI-1000A

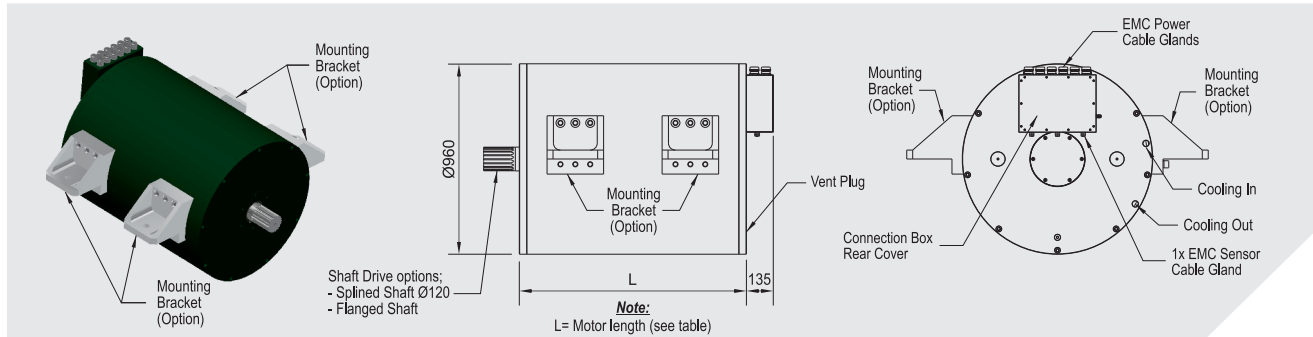
Specification EMG-590d-710I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	(Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=710mm	600	248	3953	479	677	326	96,7	HPI-450A
Weight: approx. 838kg	900	363	3849	474	670	477	97,5	HPI-1000A
Cooling liquid flow: 30l/min	1400	574	3916	489	691	728	98,1	HPI-1000A
Cooling liquid Inlet temp.: max. 40°C	1800	744	3950	471	666	979	98,3	HPI-1000A

Specification EMG-590d-800I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	(Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=800mm	600	286	4553	433	612	415	96,9	HPI-450A
Weight: approx. 937kg	900	414	4396	458	648	561	97,7	HPI-1000A
Cooling liquid flow: 30l/min	1400	656	4472	426	602	951	98,2	HPI-1000A
Cooling liquid Inlet temp.: max. 40°C	1800	851	4510	365	516	1439	98,3	HPI-2000A

Mentioned nominal voltages and current matches a nominal DC Bus voltage of 768VDC which corresponds to a string of 8 GreenBatteries. Nominal voltages and currents will be adapted in case of string of 6 or 10 GreenBatteries.

# Permanent Magnet Motor Generator

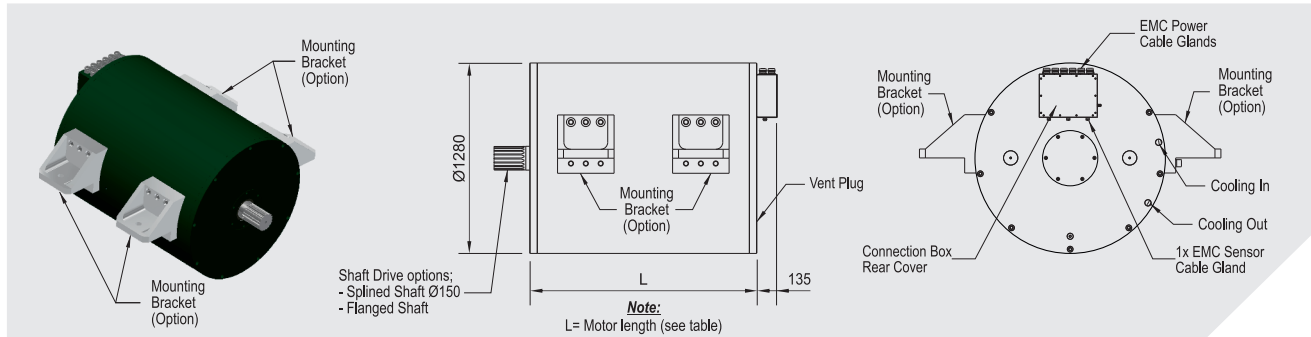
## Features EMG-960d series: 3600Nm to 30500Nm



Specification EMG-960d-456l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms) (Vdc)		Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=456mm	290	118	3899	522	748	165	93,8	HPI-450A
Weight: approx. 1153kg	760	298	3740	531	761	396	96,9	HPI-450A
Cooling liquid flow: 50l/min	1145	446	3720	530	759	591	97,5	HPI-1000A
Cooling liquid Inlet temp.: max. 40°C	1540	582	3608	530	758	763	97,7	HPI-1000A
Specification EMG-960d-606l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms) (Vdc)		Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=606mm	290	248	8164	516	742	348	95,6	HPI-450A
Weight: approx. 1701kg	735	600	7791	511	735	827	97,6	HPI-1000A
Cooling liquid flow: 50l/min	1140	903	7566	524	752	1203	97,9	HPI-2000A
Cooling liquid Inlet temp.: max. 40°C	1520	1027	6452	511	733	1357	97,9	HPI-2000A
Specification EMG-960d-756l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms) (Vdc)		Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=756mm	370	454	11725	517	742	622	96,9	HPI-1000A
Weight: approx. 2228kg	760	927	11643	526	756	1236	97,9	HPI-2000A
Cooling liquid flow: 50l/min	1040	1149	10549	531	756	1484	98,0	HPI-2000A
Cooling liquid Inlet temp.: max. 40°C	1500	1456	9268	500	721	1945	98,0	HPI-2000A
Specification EMG-960d-906l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms) (Vdc)		Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=906mm	280	469	15996	525	754	638	96,5	HPI-1000A
Weight: approx. 2826kg	750	1195	15209	517	741	1612	98,0	HPI-2000A
Cooling liquid flow: 50l/min	1140	1621	13578	514	731	2146	98,0	HPI-3000A
Cooling liquid Inlet temp.: max. 40°C	-	-	-	-	-	-	-	-
Specification EMG-960d-1056l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms) (Vdc)		Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=1056mm	220	461	19998	517	742	638	96,1	HPI-1000A
Weight: approx. 3383kg	610	1185	18546	523	749	1569	97,9	HPI-2000A
Cooling liquid flow: 50l/min	910	1665	17469	515	733	2211	98,0	HPI-3000A
Cooling liquid Inlet temp.: max. 40°C	-	-	-	-	-	-	-	-
Specification EMG-960d-1206l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms) (Vdc)		Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=1206mm	185	454	23458	521	746	622	95,9	HPI-1000A
Weight: approx. 3941kg	360	900	23869	502	721	1268	97,4	HPI-2000A
Cooling liquid flow: 50l/min	500	1195	22824	517	741	1612	97,8	HPI-2000A
Cooling liquid Inlet temp.: max. 40°C	760	1762	22135	520	744	2341	98,0	HPI-3000A
Specification EMG-960d-1356l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms) (Vdc)		Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=1356mm	210	628	28579	519	745	869	96,3	HPI-1000A
Weight: approx. 4498kg	425	1214	27284	515	740	1654	97,7	HPI-2000A
Cooling liquid flow: 50l/min	650	1712	25151	517	738	2276	98,0	HPI-3000A
Cooling liquid Inlet temp.: max. 40°C	-	-	-	-	-	-	-	-
Specification EMG-960d-1506l	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms) (Vdc)		Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=1506mm	220	736	31931	514	739	1018	96,6	HPI-2000A
Weight: approx. 5056kg	375	1195	30440	518	742	1612	97,6	HPI-2000A
Cooling liquid flow: 50l/min	565	1747	29524	516	738	2341	98,0	HPI-3000A
Cooling liquid Inlet temp.: max. 40°C	-	-	-	-	-	-	-	-

Mentioned nominal voltages and current matches a nominal DC Bus voltage of 768VDC which corresponds to a string of 8 GreenBatteries. Nominal voltages and currents will be adapted in case of string of 6 or 10 GreenBatteries.

## Features EMG-1280d series: 9350Nm to 82700Nm



Specification EMG-1280d-480I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	Nom. Voltage (Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=480mm	235	254	10336	645	924	276	95,4	HPI-450A
Weight: approx. 2182kg	440	464	10074	658	946	482	97,3	HPI-1000A
Cooling liquid flow: 60l/min	740	800	10320	662	951	827	98,0	HPI-1000A
Cooling liquid Inlet temp.: max. 40°C	1125	1101	9344	657	954	1113	98,2	HPI-2000A
Specification EMG-1280d-660I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	Nom. Voltage (Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=660mm	220	486	21075	664	949	507	96,6	HPI-1000A
Weight: approx. 3371kg	415	888	20434	657	943	919	98,0	HPI-1000A
Cooling liquid flow: 60l/min	675	1423	20132	663	955	1447	98,4	HPI-2000A
Cooling liquid Inlet temp.: max. 40°C	1130	1912	16156	641	931	1909	98,4	HPI-2000A
Specification EMG-1280d-840I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	Nom. Voltage (Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=840mm	200	625	29846	649	941	652	97,1	HPI-1000A
Weight: approx. 4560kg	445	1472	31590	661	946	1522	98,3	HPI-2000A
Cooling liquid flow: 60l/min	750	2226	28342	654	947	2250	98,5	HPI-3000A
Cooling liquid Inlet temp.: max. 40°C	-	-	-	-	-	-	-	-
Specification EMG-1280d-1020I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	Nom. Voltage (Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=1020mm	335	1478	42134	664	950	1522	98,1	HPI-2000A
Weight: approx. 5749kg	419	1847	42087	663	948	1900	98,3	HPI-2000A
Cooling liquid flow: 60l/min	562	2360	40096	660	950	2400	98,5	HPI-3000A
Cooling liquid Inlet temp.: max. 40°C	860	3047	33832	653	950	3000	98,5	HPI-3000A
Specification EMG-1280d-1200I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	Nom. Voltage (Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=1200mm	190	1026	51558	660	946	1060	97,4	HPI-2000A
Weight: approx. 6938kg	450	2378	50466	661	951	2417	98,5	HPI-3000A
Cooling liquid flow: 60l/min	680	3014	42319	646	939	3000	98,5	HPI-3000A
Cooling liquid Inlet temp.: max. 40°C	-	-	-	-	-	-	-	-
Specification EMG-1280d-1380I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	Nom. Voltage (Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=1380mm	205	897	41799	654	935	942	97,3	HPI-1000A
Weight: approx. 8127kg	420	1858	42252	665	952	1909	98,3	HPI-2000A
Cooling liquid flow: 60l/min	845	2994	33834	642	933	3000	98,5	HPI-3000A
Cooling liquid Inlet temp.: max. 40°C	-	-	-	-	-	-	-	-
Specification EMG-1280d-1560I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	Nom. Voltage (Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=1560mm	190	1372	68943	654	941	1410	97,7	HPI-2000A
Weight: approx. 9316kg	315	2386	72335	652	934	2481	98,3	HPI-3000A
Cooling liquid flow: 60l/min	490	3042	59291	652	947	3000	98,6	HPI-3000A
Cooling liquid Inlet temp.: max. 40°C	-	-	-	-	-	-	-	-
Specification EMG-1280d-1740I	Speed (RPM)	Cont. Motor Power (kW)	Cont. Torque (Nm)	Nom. Voltage (Vrms)	Nom. Voltage (Vdc)	Nom. Current (Arms)	Efficiency (%)	GreenInverter (Model)
Motor length: L=1740mm	210	1819	82697	665	951	1861	97,9	HPI-2000A
Weight: approx. 10505kg	430	3052	67777	654	950	3000	98,6	HPI-3000A
Cooling liquid flow: 60l/min	-	-	-	-	-	-	-	-
Cooling liquid Inlet temp.: max. 40°C	-	-	-	-	-	-	-	-

Mentioned nominal voltages and current matches a nominal DC Bus voltage of 960VDC which corresponds to a string of 10 GreenBatteries. Nominal voltages and currents will be adapted in case of string of 6 or 8 GreenBatteries.

Vessel Management System



Power Management System



Fire Alarm System



CCTV Video Distribution



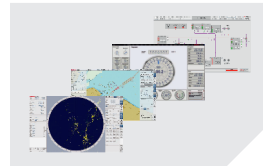
Ship Performance Monitor



Fleet Management System



Integrated Navigation System



Heading Control System



Propulsion Control System



Dynamic Positioning System



BNWAS Watch Alarm System



Navigation Light Control



Wiper Control System



Energy Management System



GreenAzithruster



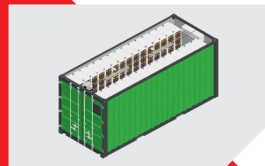
GreenGenerator



GreenInverter



GreenBattery Container



GreenBattery



GreenMotor



*Ship automation,  
navigation and  
electric propulsion*