



Certificate No:
TAE00004GH

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Motor

with type designation(s)
Y-H series

Issued to

Dezhou Hengli Electrical Machinery CO.,Ltd.
Dezhou, 120, China

is found to comply with

DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Hamburg** on **2022-04-20**

This Certificate is valid until **2027-04-19**.

DNV local station: **Dalian NB & CMC**

for **DNV**

Approval Engineer: **Harald Amberger**

.....
Arne Schaarmann
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: TA 251

Revision: 2021-03

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Page 1 of 5

Product description

Marine electric motors 3ph

Voltage	200V - 690V
Frequency	50/60Hz
Amb temp	-25°C+55°C
Enclosure	Cast iron frame standard IP55 (IP56 or IP66)
Cooling method	IC411 (standard)
Temperature rise	Class F
Insulation class	Class F
Duty cycle	S1 to S6

Type	Ratings					
	Current	Power	Speed		Power Factor	
	[A]	[kW]	[min ⁻¹ 50Hz]	[min ⁻¹ 60Hz]	[cosφ 50Hz]	[cosφ 60Hz]
Y801-2-H	0.99 - 4.1	0.75 - 0.86	2820	3460	0.84	0.82
Y802-2-H	1.44 - 5.5	1.1 - 1.27	2820	3460	0.85	0.85
Y801-4-H	0.83 - 3.5	0.55 - 0.63	1390	1710	0.75	0.71
Y802-4-H	1.16 - 4.5	0.75 - 0.86	1390	1710	0.75	0.72
Y801-6-H	0.7 - 2.9	0.37 - 0.43	890	1070	0.70	0.70
Y802-6-H	0.87 - 3.4	0.55 - 0.63	890	1070	0.70	0.70
Y801-8-H	0.4 - 2.1	0.18 - 0.21	650	770	0.61	0.61
Y802-8-H	0.6 - 2.3	0.25 - 0.29	650	770	0.61	0.61
Y90S-2-H	1.93 - 7.8	1.5 - 1.73	2840	3470	0.82	0.80
Y90L-2-H	2.7 - 10.9	2.2 - 2.53	2840	3470	0.83	0.81
Y90S-4-H	1.49 - 6.1	1.1 - 1.27	1400	1710	0.78	0.75
Y90L-4-H	1.99 - 8.2	1.5 - 1.73	1400	1710	0.80	0.77
Y90S-6-H	1.22 - 4.9	0.75 - 0.86	910	1130	0.70	0.70
Y90L-6-H	1.77 - 7.4	1.1 - 1.27	910	1130	0.71	0.71
Y90S-8-H	0.8 - 3.8	0.37 - 0.43	670	790	0.62	0.62
Y90L-8-H	1.2 - 4.6	0.55 - 0.63	670	790	0.63	0.63
Y100L-2-H	3.5 - 13.6	3.0 - 3.45	2880	3490	0.87	0.86
Y100L1-4-H	2.8 - 10.9	2.2 - 2.53	1420	1730	0.81	0.78
Y100L2-4-H	3.8 - 14.8	3.0 - 3.45	1420	1730	0.81	0.78
Y100L-6-H	2.2 - 8.8	1.5 - 1.73	940	1150	0.73	0.70
Y100L1-8-H	1.3 - 6.3	0.75 - 0.86	690	830	0.67	0.67
Y100L2-8-H	1.8 - 8.0	1.1 - 1.27	690	830	0.67	0.67
Y112M-2-H	4.5 - 17.9	4.0 - 4.6	2890	3500	0.86	0.84
Y112M-4-H	4.9 - 19.4	4.0 - 4.6	1440	1750	0.81	0.78
Y112M-6-H	3.2 - 12.7	2.2 - 2.53	940	1150	0.72	0.68
Y112M-8-H	2.4 - 10.5	1.5 - 1.73	690	830	0.69	0.6
Y132S1-2-H	6.1 - 24.1	5.5 - 6.33	2900	3520	0.88	0.87
Y132S2-2-H	8.1 - 31.8	7.5 - 8.6	2900	3520	0.89	0.88
Y132S-4-H	6.5 - 25.7	5.5 - 7.33	1440	1750	0.83	0.82
Y132M-4-H	8.5 - 33.6	7.5 - 8.6	1440	1750	0.85	0.84
Y132S-6-H	4 - 15.8	3.0 - 3.45	960	1170	0.76	0.74
Y132M1-6-H	5.2 - 20.8	4.0 - 4.6	960	1170	0.76	0.74
Y132M2-6-H	6.9 - 27.4	5.5 - 6.33	960	1170	0.78	0.77
Y132S-8-H	3.2 - 12.7	2.2 - 2.53	710	860	0.72	0.68
Y132M-8-H	4.2 - 16.6	3.0 - 3.45	710	860	0.73	0.69

Type	Ratings					
	Current [A]	Power [kW]	Speed		Power Factor	
			[min ⁻¹ 50Hz]	[min ⁻¹ 60Hz]	[cosφ 50Hz]	[cosφ 60Hz]
Y160M1-2-H	11.9 - 49.1	11 - 12.7	2930	3540	0.87	0.87
Y160M2-2-H	15.9 - 64.7	15 - 17.3	2930	3540	0.88	0.88
Y160L-2-H	19.3 - 79.2	18.5 - 21.3	2930	3540	0.88	0.89
Y160M-4-H	12.4 - 50.6	11 - 12.7	1460	1760	0.83	0.83
Y160L-4-H	16.7 - 67.7	15 - 17.3	1460	1760	0.84	0.83
Y160M-6-H	9.4 - 38.6	7.5 - 8.6	970	1170	0.76	0.75
Y160L-6-H	13.7 - 56.1	11 - 12.7	970	1170	0.76	0.75
Y160M1-8-H	5.8 - 25.1	4.0 - 4.6	720	870	0.69	0.67
Y160M2-8-H	7.3 - 30.1	5.5 - 6.33	720	870	0.73	0.72
Y160L-8-H	9.7 - 40.3	7.5 - 8.6	720	870	0.75	0.73
Y180M-2-H	24 - 91.3	22 - 25.3	2940	3550	0.88	0.88
Y180M-4-H	20 - 68.2	18.5 - 21.3	1470	1770	0.86	0.86
Y180L-4-H	24 - 93	22 - 25.3	1470	1770	0.87	0.86
Y180L-6-H	19 - 69.3	15 - 17.3	970	1180	0.78	0.76
Y180L-8-H	14.5 - 56.6	11 - 12.7	730	880	0.75	0.74
Y200L1-2-H	32 - 123.5	30 - 34.5	2960	3560	0.88	0.88
Y200L2-2-H	38.6 - 151.4	37 - 42.6	2960	3560	0.88	0.88
Y200L-4-H	32.3 - 161.1	30 - 34.5	1480	1780	0.87	0.86
Y200L1-6-H	21.3 - 83.8	18.5 - 21.3	980	1180	0.83	0.82
Y200L2-6-H	25.1 - 98.4	22 - 25.3	980	1180	0.83	0.82
Y200L-8-H	19.6 - 76.6	15 - 17.3	730	880	0.77	0.75
Y225M-2-H	49.6 - 182.9	45 - 51.8	2969	3572	0.88	0.86
Y225S-4-H	39.9 - 155.6	37 - 42.6	1480	1783	0.87	0.87
Y225M-4-H	47.6 - 187.9	45 - 51.8	1480	1783	0.88	0.87
Y225M-6-H	34.8 - 133.8	30 - 34.5	985	1187	0.82	0.81
Y225S-8-H	23.7 - 89.6	18.5 - 21.3	735	886	0.77	0.75
Y225M-8-H	27.9 - 105.9	22 - 25.3	735	886	0.78	0.76
Y250M-2-H	56.6 - 222.2	55 - 63	2970	3570	0.88	0.87
Y250M-4-H	56.6 - 227.3	55 - 63	1480	1780	0.88	0.88
Y250M-6-H	39 - 159.3	37 - 42.6	980	1180	0.87	0.87
Y250M-8-H	35.5 - 141.3	30 - 34.5	730	890	0.77	0.75
Y280S-2-H	76.6 - 301.4	75 - 86	2970	3580	0.89	0.89
Y280M-2-H	91.5 - 354.5	90 - 104	2970	3580	0.88	0.89
Y280S-4-H	76.6 - 302.1	75 - 86	1480	1790	0.88	0.88
Y280M-4-H	90.5 - 365.5	90 - 104	1480	1790	0.89	0.89
Y280S-6-H	47.5 - 188.1	45 - 51.8	980	1180	0.86	0.85
Y280M-6-H	56.8 - 229.1	55 - 63	980	1180	0.88	0.87
Y280S-8-H	44 - 173.4	37 - 42.6	740	890	0.77	0.77
Y280M-8-H	51.5 - 209.9	45 - 51.8	740	890	0.78	0.79
Y315S-2-H	112 - 234	110 - 127	2970	3580	0.89	0.88
Y315M-2-H	133 - 279	132 - 152	2970	3580	0.89	0.88
Y315L1-2-H	161 - 336	160 - 184	2970	3580	0.89	0.88
Y315L2-2-H	201 - 412	200 - 230	2970	3580	0.89	0.88
Y315S-4-H	111 - 232	110 - 127	1480	1790	0.89	0.88
Y315M-4-H	132 - 276	132 - 152	1480	1790	0.89	0.88
Y315L1-4-H	159 - 332	160 - 184	1480	1790	0.89	0.88
Y315L2-4-H	199 - 415	200 - 230	1480	1790	0.89	0.88
Y315S-6-H	77.7 - 162	75 - 86	980	1190	0.87	0.86
Y315M-6-H	93 - 195	90 - 104	980	1190	0.87	0.86
Y315L1-6-H	113 - 237	110 - 127	980	1190	0.87	0.86
Y315L2-6-H	136 - 283	132 - 152	980	1190	0.87	0.86

Type	Ratings					
	Current	Power	Speed		Power Factor	
	[A]	[kW]	[min ⁻¹ 50Hz]	[min ⁻¹ 60Hz]	[cosφ 50Hz]	[cosφ 60Hz]
Y315S-8-H	62.8 - 131	55 - 63	740	890	0.80	0.80
Y315M-8-H	83.7 - 174	75 - 86	740	890	0.81	0.81
Y315L1-8-H	98.6 - 207	90 - 104	740	890	0.82	0.82
Y315L2-8-H	120 - 252	110 - 127	740	890	0.82	0.82
Y315S-10-H	54.9 - 115	45 - 51.8	580	700	0.75	0.75
Y315M-10-H	66.7 - 139	55 - 63	580	700	0.75	0.75
Y315L1-10-H	89.3 - 186	75 - 86	580	700	0.76	0.76
Y315L2-10-H	105 - 221	90 - 104	580	700	0.77	0.77
Y355M-2-H	248 - 519	250 - 287	2980	3576	0.90	0.90
Y355L-2-H	312 - 651	315 - 362	2970	3576	0.90	0.90
Y355M-4-H	256 - 534	250 - 287	1485	1782	0.87	0.87
Y355L1-4-H	285 - 596	280 - 322	1485	1782	0.87	0.87
Y355L2-4-H	321 - 670	315 - 362	1485	1782	0.87	0.87
Y355L3-4-H	353 - 736	355 - 408	1485	1782	0.87	0.87
Y355M1-6-H	166 - 347	160 - 184	990	1188	0.86	0.86
Y355M2-6-H	208 - 434	200 - 230	990	1188	0.86	0.86
Y355L1-6-H	232 - 484	220 - 253	990	1188	0.86	0.86
Y355L2-6-H	258 - 539	250 - 287	990	1188	0.86	0.86
Y355L3-6-H	280 - 585	280 - 322	990	1188	0.86	0.86
Y355M1-8-H	146 - 305	132 - 152	740	888	0.81	0.81
Y355M2-8-H	176 - 368	160 - 184	740	888	0.81	0.81
Y355L1-8-H	220 - 459	200 - 230	740	888	0.81	0.81
Y355L2-8-H	242 - 505	220 - 253	740	888	0.81	0.81
Y355M1-10-H	124 - 260	110 - 127	590	708	0.78	0.78
Y355M2-10-H	149 - 311	132 - 152	590	708	0.78	0.78
Y355L1-10-H	178 - 372	160 - 184	590	708	0.78	0.78
Y355L2-10-H	205 - 429	185 - 213	590	708	0.78	0.78
Y400-4-H	355 - 2942	355 - 852	1490	1790	0.88	0.88
Y400-6-H	287 - 2374	280 - 672	990	1190	0.86	0.86
Y400-8-H	269 - 2001	250 - 540	740	890	0.82	0.82
Y400-10-H	220 - 1618	200 - 426	590	710	0.80	0.80
Y450-4-H	631 - 3729	630 - 1080	1490	1790	0.88	0.88
Y450-6-H	512 - 2120	500 - 960	990	1190	0.86	0.86
Y450-8-H	430 - 2490	400 - 672	740	890	0.82	0.82
Y450-10-H	391 - 2051	355 - 540	590	710	0.80	0.80
Y500-4-H	901 - 5180	900 - 1500	1490	1790	0.88	0.88
Y500-6-H	819 - 4749	800 - 1344	990	1190	0.86	0.86
Y500-8-H	602 - 3558	560 - 960	740	890	0.82	0.82
Y500-10-H	495 - 2872	450 - 756	590	710	0.80	0.80

Application/Limitation

When use as ship's propulsion motor documentation according to DNV Rules must be submitted for approval for each project with special attention to DNV RU-Ship Pt.4 Ch.8 Sec. 5 [3].

Product certification shall be carried out for motors of 300kW and above, as required by DNV rules Pt.4 Ch.8 Sec.1 Table 3.

Type Approval documentation

Tests carried out

Visual inspection, IP degree, overspeed, resistance measurements of windings, withstand voltage test, measurement of winding resistance, insulation resistance, overload test, temperature rise test.

Marking of product

Type designation - technical data including rated voltage - RPM, rated power - ambient temperature - rated current - rated frequency - insulation class - IP class, cooling method.

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE