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Technical Catalog

CMTKH MODULAR SERIES

MEDIUM AND HIGH VOLTAGE ASYNCHRONOUS MOTOR SERIES

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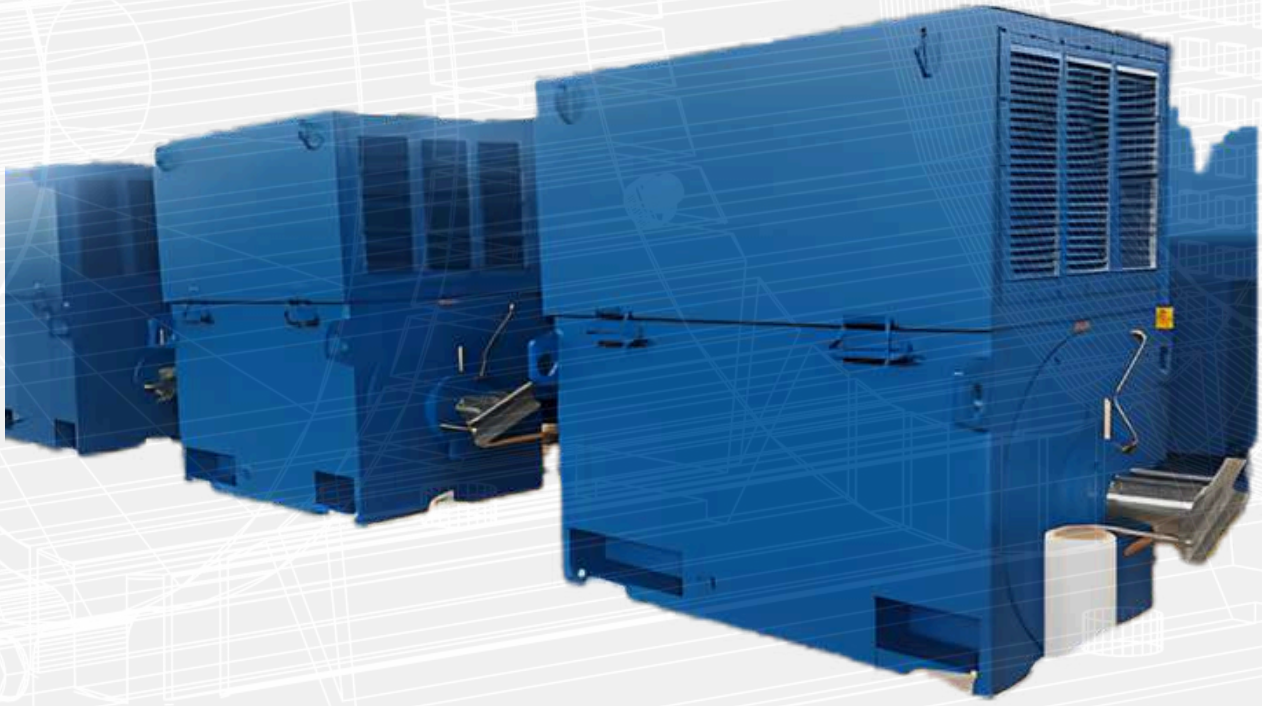
MEDIUM & HIGH VOLTAGE MOTORS

Three Phase Asynchronous Squirrel Cage Motors

The **CMTKH** Modular Medium & High Voltage motor series is built on a standardized and proven design platform that enables multiple cooling methods, protection classes, and mounting options while ensuring high reliability and cost-efficient production.

Designed for demanding applications in steel, cement, mining, water, and energy industries, these squirrel-cage motors set benchmarks in power density, efficiency, thermal performance, and long-term operational reliability.



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Asynchronous Squirrel Cage Motor Product Code Selection

Brand Code	Motor Power	Efficiency Class	Poles & Speed	Voltage	Cooling System	Ins. / Temp. Class	Motor Installation	Other Options
CMTKH ---	0075 ---	03 ---	04 ---	001 ---	C02 ---	T01 ---	IM01 ---	OP02
1	2	3	4	5	6	7	8	9

1 Product Family

CMTKH	Asynchronous motor code

2 Motor Power kW

0200	200 kW
0220	220 kW
0250	250 kW
0280	280 kW
0315	315 kW
0355	355 kW
0400	400 kW
0450	450 kW
0500	500 kW
0560	560 kW
0630	630 kW
0710	710 kW
0800	800 kW
0900	900 kW
1000	1000 kW
1120	1120 kW
1250	1250 kW
1400	1400 kW
1600	1600 Kw
0XX0	Special Power Requests

3 Efficiency Class

00	IEC
01	IE1
02	IE2
03	IE3
04	IE4

4 Poles / rpm

00	Default
02	2-poles / 3000 rpm
04	4-poles / 1500 rpm
06	6-poles / 1000 rpm
08	8-poles / 750 rpm
10	10-poles / 600 rpm
12	12-poles / 500 rpm

5 Voltage

001	400 V	002	500 V	003	690 V
004	1.000 V	005	3.000 V	006	3.300 V
007	6.000 V	008	6.600 V	009	10.000 V

6 Cooling System

C00	IC 01
C01	IC 411
C02	IC 416
C03	IC 06
C04	IC 611
C05	IC 616
C06	IC 666
C07	IC 8A1W7

7 Ins. / Temp. Class

T01	CL-F / B (155°C / 130°C)
T21	CL-H / F (180°C / 155°C)

8 Motor Installation

IM01	B3
IM02	V1
IM03	V3
IM04	B34
IM05	B35
IM06	Others

9 Other Options

OP01 --- Brake	OP02 --- Insulated End Shield on NDE	OP03 --- Insulated Bearings	OP04 --- Encoder
OP05 --- Duty Type S1 to S9	OP06 --- IP Class: from IP23 to IP66	OP07 --- Vibration Sensor	OP08 --- Load Tests

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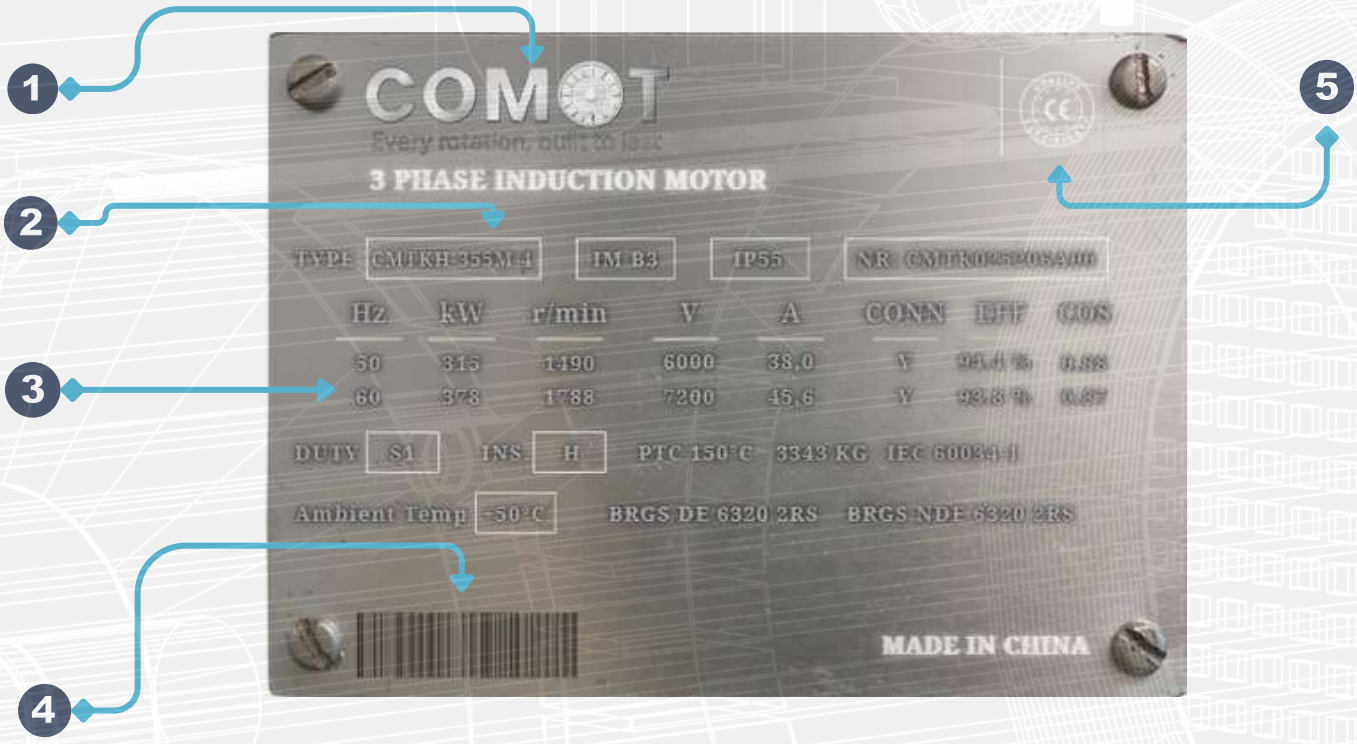
Rating Nameplate



Numbers	Description
1	BRAND NAME
2	MOTOR TYPE
3	TECHNICAL VALUES
4	PRODUCT BARCODE
5	CE NORM

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MEDIUM & HIGH VOLTAGE MOTORS

FEATURES

Specifical Key Features of Comot CMTKH Series

- High efficiency design for reduced energy consumption and optimized total cost of ownership
- Robust and compact construction suitable for high-power and high-voltage applications
- Heavy-duty bearing system designed for high radial and axial loads
- Low vibration levels ensuring smooth operation and extended service intervals
- High-grade insulation system (Class F with VPI, Class H on request) for enhanced thermal endurance
- Proven reliability and long service life under continuous and severe operating conditions
- High overload capability and excellent thermal performance
- Wide range of cooling methods, protection classes, and mounting arrangements available
- Custom-engineered solutions tailored to specific project and application requirements

STANDARDS

The motors comply with the latest European EN60034 and IEC60034 standards. Special versions (NEMA, CSA, etc.) are available upon request.

MOUNTING

The motors are available for the configuration of IM B3. Custom versions are available upon request.

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MEDIUM & HIGH VOLTAGE MOTORS

PROTECTION

The motors are designed for CMTK Series as IP 55 degree of protection, respectively. Other degrees of protection are available upon request.

COOLING TYPE

The motors are equipped with the IC 611 cooling system, in which the thermal energy generated inside the machine is transferred to the frame surface and released through the airflow guided by the external fan over the cooling ribs.

For two-pole designs, the motors can be supplied with a single-direction external fan, while all other pole numbers are generally delivered with dual-direction external fan units. The internal air path is designed to circulate in both directions.

For specific operating conditions—such as use with a frequency inverter—the motors can also be offered with an independent ventilation arrangement compliant with the IC 616, IC 666, IC81W cooling methods.

OVERLOAD CAPACITY

When operating at nominal voltage, the motors tolerate up to two minutes of overload at 1.5 times the nominal current

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MEDIUM & HIGH VOLTAGE MOTORS

INSULATION

The motor winding, designed for enhanced environmental resistance, is produced according to temperature class F and impregnated using the VPI (Vacuum Pressure Impregnation) process.

The thermal loading of the motors is kept within the limits of class B, providing an additional power reserve and contributing to slower insulation ageing.
If required, insulation systems in class H can also be supplied.

The winding structure is engineered to withstand very high mechanical forces, allowing the motor to restart safely against a remaining magnetic field of 100% after a power interruption.

The table below specifies the permissible temperature rise (ΔT*) and the maximum hotspot temperature (Tmax) in accordance with EN 60034-1.

Insulation Class	ΔT*	Tmax
B	80K	125 °C
F	105K	155 °C
H	125K	180 °C

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MEDIUM & HIGH VOLTAGE MOTORS

VIBRATION

Even in the standard configuration, the motors comply with vibration severity level N (normal). Vibration measurements are carried out with the motor running at no-load under rated voltage and frequency.

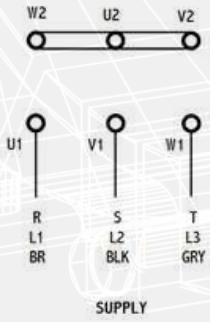
As delivered, the motors are balanced to the “half-key” quality level. Full-key balancing can be provided upon request.

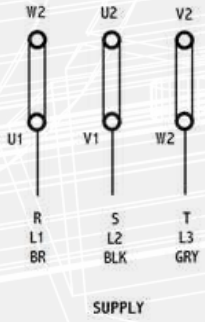
NOISE LEVEL

Even in its standard version, the motor features a refined structure that ensures reduced acoustic emission levels.

The noise measurement is performed with the motor running at no-load under rated voltage and frequency conditions.

VOLTAGE RATINGS





The motors are available for the following nominal voltage ratings:

50 Hz:
380 / 400 / 415 / 500 / 690 / 3000 / 3300 / 5000 / 5500 / 6000 / 6300 / 6600 / 10000 / 10500 / 11000 V 60 Hz: 440 / 480 / 2300 / 4160 / 6600 / 7200 / 10000 / 13800 V

The permissible voltage tolerance equals ± 5%. Special voltages and deviating voltage tolerances are available upon request.

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MEDIUM & HIGH VOLTAGE MOTORS

AMBIENT TEMPERATURE

The motors are designed to operate at an ambient temperature between -20 ˚C and +40 ˚C. For the higher ambient temperature values up to +60 ˚C necessitate a reduction of the power output as listed below.

Ambient temperature [°C]	Output [%]
40	100
45	95
50	90
55	85
60	80

STANDARD BEARINGS

Frame Size	DE Side 2 poles	DE Side 4&6 poles	NDE Side 2 poles	NDE Side 4&6 poles
250	6314 C3	6314 C3	6314 C3	6314 C3
280	6314 C3	6317 C3	6314 C3	6317 C3
315	6317 C3	6319 C3	6317 C3	6319 C3
355	6317 C3	6322 C3	6317 C3	6320 C3
400	6220 C3	6326 C3	6220 C3	6326 C3
450	6221 C3	6328 C3	6221 C3	6328 C3
500	ask for quote	ask for quote	ask for quote	ask for quote
560	ask for quote	ask for quote	ask for quote	ask for quote

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Technical Data for Medium Voltage Squirrel Cage Three Phase Motors

IP55, IC611; Insulation Class F, Temperature Rise Class B IE3 Cast Iron Motors

2 Poles - 3000rpm, 2kV to 6kV

MOTOR TYPE (2 Poles)	Power	Speed	Current @6kV	Current @3.3kV	Rated Torque	Max. Torque	Eff.Class at %100 Load	Power Factor	Inertia J	Weight (Apprx.)
CODE	kW	min-1	A	A	Nm	Mk/Mn	-%	cosΦ	kgm²	kg.
CMTKH 450 / 355- 2	450	2980	49,8	91	1442	2.6	95.6	0.91	6.00	3900
CMTKH 500 / 355- 2	500	2980	55,1	100	1602	2.6	95.9	0.91	6.50	4000
CMTKH 500 / 355- 2	560	2980	61,6	112	1795	2.6	96.1	0.91	7.00	4100
CMTKH 630 / 400- 2	630	2980	69,5	126	2019	2.7	95.9	0.91	8.00	4800
CMTKH 710 / 400- 2	710	2980	78,1	142	2275	2.8	96.1	0.91	8.50	4990
CMTKH 800 / 400- 2	800	2985	87,8	160	2559	2.5	96.3	0.91	9.00	5150
CMTKH 900 / 450- 2	900	2985	98,7	179	2879	2.5	96.4	0.91	10.00	5400
CMTKH 1000 / 450- 2	1000	2985	109	198	3199	2.5	96.6	0.91	13.00	6120
CMTKH 1120 / 450- 2	1120	2985	122	222	3583	2.5	96.7	0.91	16.00	6800
CMTKH 1250 / 450- 2	1250	2985	137	249	3999	2.5	96.8	0.91	19.00	7550
CMTKH 1400 / 500- 2	1400	2985	153	278	4479	2.5	96.8	0.91	20.00	7700
CMTKH 1600 / 500- 2	1600	2985	175	318	5119	2.5	96.8	0.91	27.00	8800
CMTKH 1800 / 500- 2	1800	2985	197	358	5759	2.5	96.8	0.91	34.00	9990
CMTKH 2000 / 560- 2	2000	2985	218	396	6399	2.5	96.9	0.91	40.00	10450
CMTKH 2250 / 560- 2	2250	2985	244	444	7198	2.5	97.1	0.91	47.00	10900
CMTKH 2350 / 560- 2	2350	2985	255	464	7518	2.5	97.3	0.91	54.00	11250
CMTKH 2500 / 630- 2	2500	2985	271	493	7998	2.5	97.4	0.91	56.00	11600
CMTKH 2800 / 630- 2	2800	2985	304	553	8958	2.5	97.5	0.91	60.00	12100
CMTKH 3150 / 630- 2	3150	2985	338	615	10078	2.5	97.6	0.92	64.00	12750
CMTKH 3550 / 710- 2	3550	2985	380	691	11358	2.5	97.7	0.92	73.00	15000
CMTKH 4000 / 710- 2	4000	2985	428	778	12797	2.5	97.7	0.92	78.00	15700
CMTKH 4500 / 710- 2	4500	2985	482	876	14397	2.5	97.7	0.92	84.00	16200
CMTKH 5000 / 710- 2	5000	2985	535	973	15997	2.5	97.7	0.92	89.00	16800
CMTKH 5600 / 710- 2	5600	2985	599	1089	17916	2.5	97.8	0.92	94.00	17250

- Please ask us for larger powers
- Please ask us for your 10 pole, 12 pole motor requests

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Technical Data for Medium Voltage Squirrel Cage Three Phase Motors

IP55, IC611; Insulation Class F, Temperature Rise Class B IE3 Cast Iron Motors

4 Poles - 1500rpm, 2kV to 6kV

MOTOR TYPE (4 Poles)	Power	Speed	Current @6kV	Current @3.3kV	Rated Torque	Max. Torque	Eff.Class at %100 Load	Power Factor	Inertia J	Weight (Apprx.)
CODE	kW	min-1	A	A	Nm	Mk/Mn	-%	cosΦ	kgm²	kg.
CMTKH 450 / 355- 4	450	1490	52,2	95	2884	2.2	94.2	0.88	21.00	3510
CMTKH 500 / 355- 4	500	1490	58	105	3205	2.2	94.3	0.88	23.00	3630
CMTKH 560 / 355- 4	560	1490	64,8	118	3589	2.2	94.5	0.88	24.00	3750
CMTKH 630 / 400- 4	630	1490	72,9	133	4038	2.2	94.5	0.88	26.00	4750
CMTKH 710 / 400- 4	710	1490	82	149	4551	2.2	94.7	0.88	28.00	4890
CMTKH 800 / 400- 4	800	1490	92,1	167	5128	2.2	95.0	0.88	30.00	5010
CMTKH 900 / 450- 4	900	1490	103	187	5768	2.2	95.1	0.88	32.00	5150
CMTKH 1000 / 450- 4	1000	1490	114	207	6409	2.2	95.2	0.89	34.00	5600
CMTKH 1120 / 450- 4	1120	1490	126	229	7179	2.2	95.3	0.90	35.00	6050
CMTKH 1250 / 450- 4	1250	1490	140	255	8012	2.2	95.4	0.90	37.00	6500
CMTKH 1400 / 500- 4	1400	1490	157	285	8973	2.2	95.6	0.90	38.00	7300
CMTKH 1600 / 500- 4	1600	1490	179	325	10255	2.2	95.6	0.90	57.00	8000
CMTKH 1800 / 500- 4	1800	1490	201	365	11537	2.2	95.7	0.90	76.00	8700
CMTKH 2000 / 560- 4	2000	1490	223	405	12819	2.2	95.8	0.90	80.00	8910
CMTKH 2250 / 560- 4	2250	1490	247	449	14421	2.2	95.9	0.91	105.00	9450
CMTKH 2350 / 560- 4	2350	1490	259	471	15062	2.2	96.0	0.91	130.00	9550
CMTKH 2500 / 630- 4	2500	1490	275	500	16023	2.2	96.0	0.91	134.00	10100
CMTKH 2800 / 630- 4	2800	1490	308	560	17946	2.2	96.1	0.91	154.00	10860
CMTKH 3150 / 630- 4	3150	1490	346	629	20190	2.2	96.2	0.91	173.00	11650
CMTKH 3550 / 710- 4	3550	1490	393	715	22753	2.2	96.7	0.90	170.00	14610
CMTKH 4000 / 710- 4	4000	1490	442	804	25638	2.2	96.8	0.90	195.00	15200
CMTKH 4500 / 710- 4	4500	1490	497	904	28842	2.2	96.9	0.90	220.00	15800
CMTKH 5000 / 800- 4	5000	1490	551	1002	32047	2.2	97.0	0.90	270.00	18800
CMTKH 5600 / 800- 4	5600	1490	617	1122	35893	2.2	97.1	0.90	295.00	19450
CMTKH 6300 / 800- 4	6300	1490	693	1260	40379	2.2	97.2	0.90	320.00	20150

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Technical Data for Medium Voltage Squirrel Cage Three Phase Motors

IP55, IC611; Insulation Class F, Temperature Rise Class B IE3 Cast Iron Motors

6 Poles - 1000rpm, 2kV to 6kV

MOTOR TYPE (6 Poles)	Power	Speed	Current @6kV	Current @3.3kV	Rated Torque	Max. Torque	Eff.Class at %100 Load	Power Factor	Inertia J	Weight (Apprx.)
CODE	kW	min-1	A	A	Nm	Mk/Mn	-%	cosΦ	kgm²	kg.
CMTKH 315 / 355-6	315	990	37,7	69	3039	2.2	93.5	0.86	19.00	3500
CMTKH 355 / 355-6	355	990	42,3	77	3424	2.2	93.8	0.86	20.00	3610
CMTKH 400 / 355-6	400	990	47,6	87	3859	2.2	94.1	0.86	21.00	3750
CMTKH 450 / 400-6	450	990	53,5	97	4341	2.2	94.2	0.86	35.00	4690
CMTKH 500 / 400-6	500	990	58,5	106	4823	2.2	94.5	0.87	38.00	4810
CMTKH 560 / 400-6	560	990	65,3	119	5402	2.2	94.8	0.87	40.00	4920
CMTKH 630 / 450-6	630	990	73,3	133	6077	2.2	95.1	0.87	42.00	5150
CMTKH 710 / 450-6	710	990	82,7	150	6849	2.2	95.0	0.87	45.00	5420
CMTKH 800 / 450-6	800	990	93	169	7717	2.2	95.1	0.87	49.00	5700
CMTKH 900 / 450-6	900	990	105	191	8682	2.2	95.2	0.87	52.00	6010
CMTKH 1000 / 500-6	1000	990	116	211	9646	2.2	95.3	0.87	55.00	6250
CMTKH 1120 / 500-6	1120	990	130	236	10804	2.2	95.4	0.87	78.00	6920
CMTKH 1250 / 500-6	1250	990	145	264	12058	2.2	95.5	0.87	102.00	7610
CMTKH 1400 / 560-6	1400	990	162	295	13505	2.2	95.6	0.87	125.00	8290
CMTKH 1600 / 560- 6	1600	990	185	336	15434	2.2	95.8	0.87	175.00	9410
CMTKH 1800 / 560- 6	1800	990	208	378	17364	2.2	95.9	0.87	192.00	9800
CMTKH 2000 / 560- 6	2000	990	230	418	19293	2.2	96.1	0.87	213.00	10210
CMTKH 2250 / 630- 6	2250	990	257	467	21705	2.2	96.3	0.87	228.00	11050
CMTKH 2500 / 630- 6	2500	990	287	522	24116	2.2	96.5	0.87	245.00	12410
CMTKH 2800 / 710- 6	2800	990	320	582	27010	2.2	96.7	0.87	260.00	13990
CMTKH 3150 / 710- 6	3150	990	360	655	30386	2.2	96.8	0.87	283.00	14650
CMTKH 3550 / 710- 6	3550	990	405	736	34245	2.2	96.9	0.87	305.00	15310
CMTKH 4000 / 800- 6	4000	990	457	831	38586	2.2	96.9	0.87	360.00	18400
CMTKH 4500 / 800- 6	4500	990	514	935	43409	2.2	96.9	0.87	395.00	18940
CMTKH 5000 / 800- 6	5000	990	570	1036	48232	2.2	97.0	0.87	430.00	19500

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- Please ask us for your 10 pole, 12 pole motor requests

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Technical Data for Medium Voltage Squirrel Cage Three Phase Motors

IP55, IC611; Insulation Class F, Temperature Rise Class B IE3 Cast Iron Motors

8 Poles - 750rpm, 2kV to 6kV

MOTOR TYPE (8 Poles)	Power	Speed	Current @6kV	Current @3.3kV	Rated Torque	Max. Torque	Eff.Class at %100 Load	Power Factor	Inertia J	Weight (Apprx.)
CODE	kW	min-1	A	A	Nm	Mk/Mn	-%	cosΦ	kgm²	kg.
CMTKH 185 / 355-8	185	740	24,3	44	2388	2.2	92.7	0.79	22.00	3260
CMTKH 200 / 355-8	200	740	25,9	47	2581	2.2	92.8	0.80	23.00	3340
CMTKH 250 / 355-8	250	740	32,3	59	3226	2.2	93.0	0.80	25.00	3550
CMTKH 315 / 400-8	315	740	40	73	4065	2.2	93.6	0.81	27.00	3760
CMTKH 355 / 400-8	355	740	45	82	4581	2.2	93.7	0.81	33.00	4300
CMTKH 400 / 400-8	400	740	50,7	92	5162	2.2	93.8	0.81	38.00	4850
CMTKH 450 / 450-8	450	740	56,1	102	5807	2.2	94.2	0.82	39.00	4950
CMTKH 500 / 450-8	500	740	61,5	112	6453	2.2	94.3	0.83	46.00	5210
CMTKH 560 / 450-8	560	740	68,7	125	7227	2.2	94.5	0.83	53.00	5450
CMTKH 630 / 450-8	630	740	76,2	139	8130	2.2	94.7	0.84	60.00	5720
CMTKH 710 / 500-8	710	740	83,7	152	9163	2.2	94.9	0.86	68.00	6010
CMTKH 800 / 500-8	800	740	94,2	171	10324	2.2	95.0	0.86	89.00	6690
CMTKH 900 / 500-8	900	740	107	195	11615	2.2	95.1	0.85	109.00	7320
CMTKH 1000 / 560-8	1000	740	119	216	12905	2.2	95.2	0.85	130.00	8010
CMTKH 1120 / 560-8	1120	740	133	242	14454	2.2	95.3	0.85	139.00	8200
CMTKH 1250 / 560-8	1250	740	147	267	16132	2.2	95.4	0.86	191.00	8890
CMTKH 1400 / 560-8	1400	740	164	298	18068	2.2	95.5	0.86	242.00	9550
CMTKH 1600 / 630-8	1600	740	187	340	20649	2.2	95.6	0.86	254.00	10010
CMTKH 1800 / 630-8	1800	740	213	387	23230	2.2	95.8	0.85	260.00	10800
CMTKH 2000 / 630-8	2000	740	236	429	25811	2.2	96.0	0.85	265.00	11610
CMTKH 2250 / 710-8	2250	740	267	485	29037	2.2	96.1	0.84	300.00	14350
CMTKH 2500 / 710-8	2500	740	298	542	32264	2.2	96.2	0.84	345.00	15300
CMTKH 2800 / 710-8	2800	740	333	605	36135	2.2	96.3	0.84	390.00	16250
CMTKH 3150 / 800-8	3150	740	374	680	40652	2.2	96.4	0.84	440.00	18650
CMTKH 3550 / 800-8	3550	740	421	765	45814	2.2	96.5	0.84	480.00	19350

- Please ask us for larger powers
- Please ask us for your 10 pole, 12 pole motor requests

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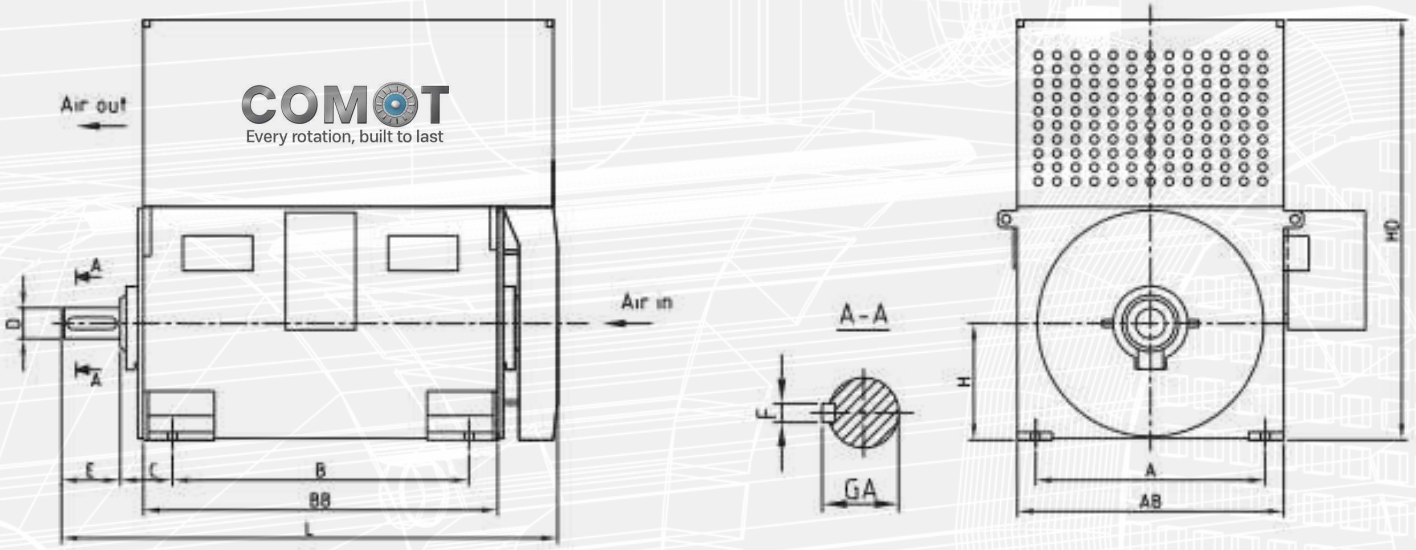
Technical Drawings of Medium & High Voltage Squirrel Cage Three Phase Motors

IP55, IC611; Insulation Class F, Temperature Rise Class B IE3 Cast Iron Motors

GENERAL MOTOR DIMENSIONS



Frame Size	poles	A	B	C*	D	E	H	L [IC 611]	L [IC 01, IC 81W]	AB	BB	HD**	GA	F
355	2	630	900	315	65	140	355	2200	1800	800	1420	1500	69	18
355	4 - 6	630	900	315	100	210	355	2200	1900	800	2150	1400	106	28
400	2	710	1000	335	75	140	400	2400	1950	900	1570	1600	79,5	20
400	4 - 8	710	1000	335	110	210	400	2400	2000	900	1570	1500	116	28
450	2	800	1120	475	85	170	450	2600	2200	1000	1720	1800	90	25
450	4	800	1120	355	120	210	450	2600	2200	1000	1720	1700	127	32
450	6 - 12	800	1120	355	130	250	450	2600	2200	1000	1720	1700	137	32
500	2	900	1250	560	110	210	500	2400	2400	1120	1780	1900	116	28
500	4	900	1250	475	130	250	500	2900	2600	1120	1820	1800	137	32
500	6 - 12	900	1250	475	140	250	500	2900	2600	1120	1820	1800	148	36
560	2	1000	1400	560	130	210	560	2600	2600	1250	1970	2000	137	28
560	4	1000	1400	500	150	250	560	3200	2900	1250	1970	1850	158	36
560	6 - 12	1000	1400	500	160	300	560	3200	2900	1250	1970	1850	169	40
630	2	1120	1600	560	140	250	630	2750	2750	1400	2080	2875	148	32
630	4	1120	1600	530	170	300	630	3100	3100	1400	2120	2700	179	40
630	6 - 12	1120	1600	530	180	300	630	3500	3100	1400	2120	2700	190	45
710	2	1250	1800	560	150	250	710	3300	3300	1600	2340	3100	158	36
710	4 - 12	1400	1800	530	200	350	710	3850	3000	1600	2330	3000	210	45
800	2 - 12	1600	2000	600	250	410	800	4050	3200	1800	2350	3200	262	56

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