



# Technical Catalog

## CMTKH SERIES

MEDIUM AND HIGH VOLTAGE ASYNCHRONOUS MOTOR SERIES





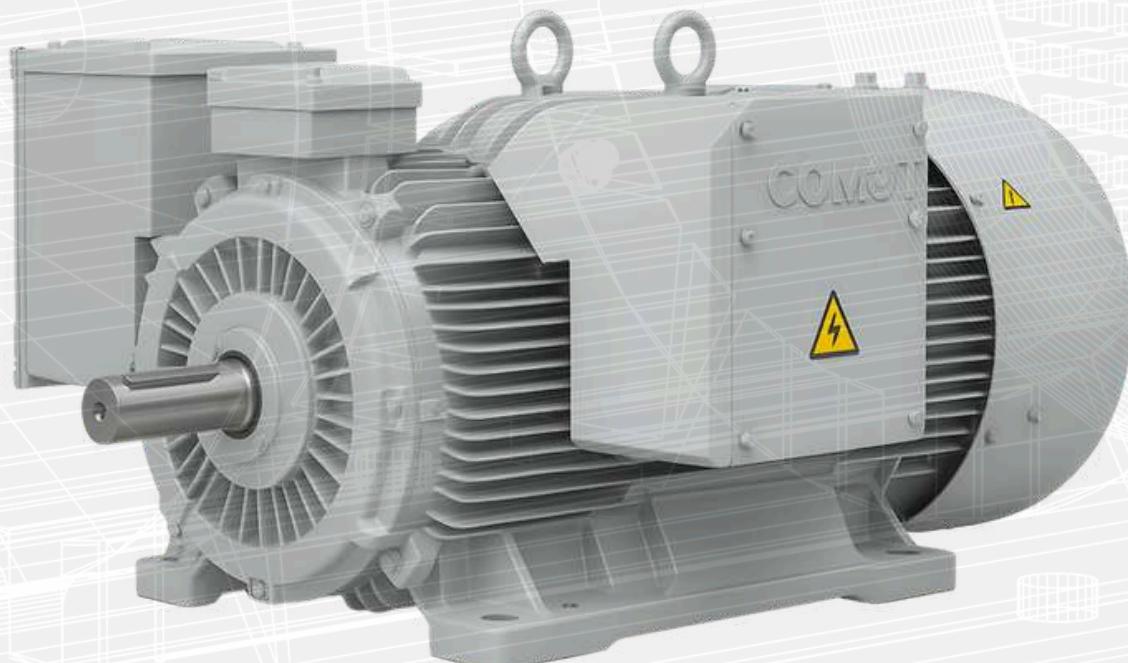
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## MEDIUM & HIGH VOLTAGE MOTORS

### Three Phase Asynchronous Squirrel Cage Motors

The **CMTKH** 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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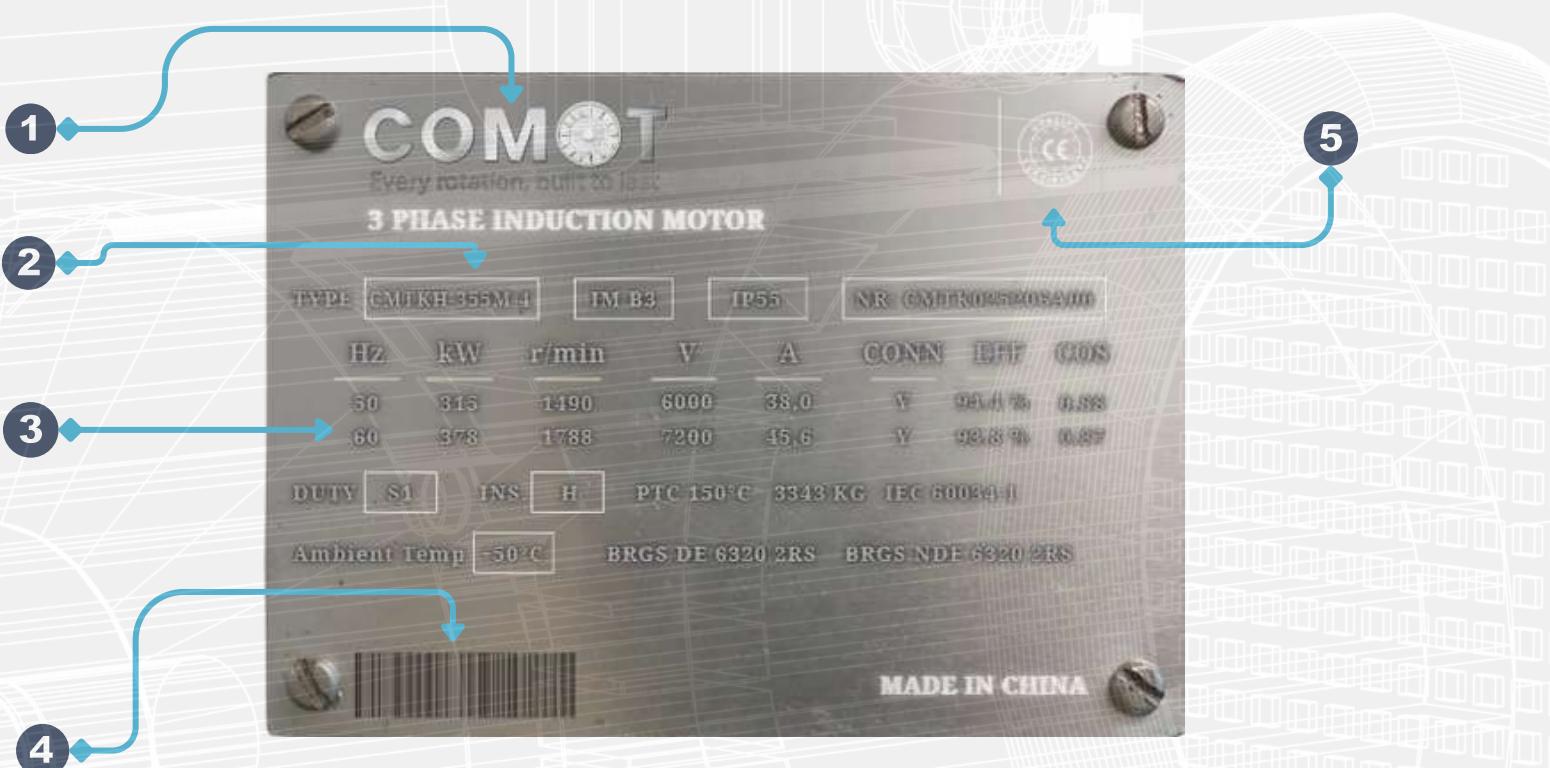
## Asynchronous Squirrel Cage Motor Product Code Selection

Brand Code	Motor Power	Efficiency Class	Poles & Speed	Voltage	Cooling System	Ins. / Temp. Class	Motor Installation	Other Options
<b>CMTKH--- 0075 --- 03 --- 04 --- 001 --- C02 --- T01 --- IM01 --- OP02</b>								
1	2	3	4	5	6	7	8	9
1 Product Family	3 Efficiency Class	6 Cooling System						
<b>CMTKH</b> Asynchronous motor code	00 IEC	<b>C00</b> IC 01						
2 Motor Power kW	01 IE1	<b>C01</b> IC 411						
0200 200 kW	02 IE2	<b>C02</b> IC 416						
0220 220 kW	03 IE3	<b>C03</b> IC 06						
0250 250 kW	04 IE4	<b>C04</b> IC 611						
0280 280 kW		<b>C05</b> IC 616						
0315 315 kW		<b>C06</b> IC 666						
0355 355 kW		<b>C07</b> IC 8A1W7						
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								
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	<b>BRAND NAME</b>
2	<b>MOTOR TYPE</b>
3	<b>TECHNICAL VALUES</b>
4	<b>PRODUCT BARCODE</b>
5	<b>CE NORM</b>



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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 411 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 416 cooling method.



### 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 ( $\Delta T^*$ ) and the maximum hotspot temperature (Tmax) in accordance with EN 60034-1.

Insulation Class	$\Delta T^*$	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

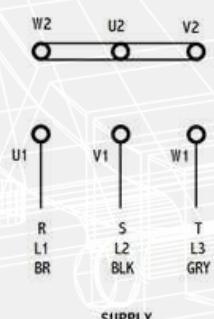


Even in its standard version, the motor features a refined structure that ensures reduced acoustic emission levels.

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  $\pm 5\%$ . 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, IC411; 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.)
<b>CODE</b>	<b>kW</b>	<b>min-1</b>	<b>A</b>	<b>A</b>	<b>Nm</b>	<b>Mk/Mn</b>	<b>%</b>	<b>cosΦ</b>	<b>kgm<sup>2</sup></b>	<b>kg.</b>
CMTKH 200 / 315 - 2	200	2980	24	44	641	2.5	94.5	0.84	2.00	1820
CMTKH 220 / 315 - 2	220	2980	27	48	705	2.6	94.7	0.84	2.00	1880
CMTKH 250 / 315 - 2	250	2980	30	55	801	2.6	94.9	0.84	3.00	1910
CMTKH 280 / 315 - 2	280	2980	33	60	897	2.7	95.2	0.86	3.00	2020
CMTKH 315 / 315 - 2	315	2980	37	67	1009	2.7	95.5	0.86	3.00	2110
CMTKH 355 / 355- 2	355	2980	42	75	1138	2.5	95.7	0.86	5.00	2490
CMTKH 400 / 355- 2	400	2980	47	85	1282	2.5	95.8	0.86	5.00	2560
CMTKH 450 / 355- 2	450	2980	53	95	1442	2.6	95.9	0.86	6.00	2610
CMTKH 500 / 355- 2	500	2980	58	106	1602	2.6	96.0	0.86	6.00	2690
CMTKH 560 / 400- 2	560	2980	65	118	1795	2.7	95.8	0.87	8.00	3410
CMTKH 630 / 400- 2	630	2980	72	130	2019	2.7	96.0	0.88	8.00	3520
CMTKH 710 / 400- 2	710	2980	80	145	2275	2.8	96.2	0.89	9.00	3590
CMTKH 800 / 450- 2	800	2985	91	166	2559	2.5	96.0	0.88	16.00	4610
CMTKH 900 / 450- 2	900	2985	102	186	2879	2.5	96.1	0.88	18.00	4890
CMTKH 1000 / 450- 2	1000	2985	114	207	3199	2.5	96.2	0.88	20.00	5100
CMTKH 1120 / 450-2	1120	2985	127	231	3583	2.6	96.3	0.88	22.00	5410

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★ Please contact with us for your 10 pole and 12 pole requests

## Technical Data for Medium Voltage Squirrel Cage Three Phase Motors

**IP55, IC411; 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	kgm <sup>2</sup>	kg.
CMTKH 200 / 315 - 4	200	1485	24	44	1286	2.2	93.9	0.84	6.00	1810
CMTKH 220 / 315 - 4	220	1485	27	49	1415	2.2	94.1	0.84	7.00	1860
CMTKH 250 / 315 - 4	250	1485	30	55	1608	2.2	94.3	0.84	7.00	1910
CMTKH 280 / 315 - 4	280	1485	33	60	1801	2.2	94.5	0.86	8.00	1990
CMTKH 315 / 315 - 4	315	1485	38	69	2026	2.2	94.6	0.85	8.00	2100
CMTKH 315 / 355 - 4	315	1490	38	69	2019	2.2	94.5	0.85	10.00	2590
CMTKH 355 / 355- 4	355	1490	42	76	2275	2.2	94.8	0.85	12.00	2760
CMTKH 400 / 355- 4	400	1490	48	87	2564	2.2	95.0	0.85	14.00	2910
CMTKH 450 / 355- 4	450	1490	54	98	2884	2.2	95.2	0.85	15.00	3060
CMTKH 500 / 355- 4	500	1490	58	105	3205	2.2	95.4	0.87	16.00	3190
CMTKH 560 / 400- 4	560	1490	65	118	3589	2.2	96.1	0.86	18.00	3710
CMTKH 630 / 400- 4	630	1490	74	135	4038	2.2	95.5	0.86	19.00	3910
CMTKH 710 / 400- 4	710	1490	82	149	4551	2.2	95.8	0.87	20.00	4090
CMTKH 800 / 450- 4	800	1490	94	171	5128	2.2	95.7	0.86	31.00	5010
CMTKH 900 / 450- 4	900	1490	104	189	5768	2.2	96.1	0.87	32.00	5320
CMTKH 1000 / 450- 4	1000	1490	117	213	6409	2.2	95.9	0.86	34.00	5710
CMTKH 1120 / 500- 4	1120	1490	131	238	7179	2.2	96.0	0.86	37.00	6030
CMTKH 1250 / 500- 4	1250	1490	141	256	8012	2.2	96.8	0.88	53.00	7220
CMTKH 1400 / 560- 4	1400	1490	161	293	8973	2.2	96.2	0.87	58.00	7410
CMTKH 1600 / 560- 4	1600	1490	182	331	10255	2.2	96.2	0.88	62.00	7720
CMTKH 1800 / 560- 4	1800	1490	206	375	11537	2.2	96.5	0.87	78.00	8590
CMTKH 2000 / 560- 4	2000	1490	227	413	12819	2.2	96.3	0.88	82.00	9020

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## Technical Data for Medium Voltage Squirrel Cage Three Phase Motors

**IP55, IC411; 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	kgm <sup>2</sup>	kg.
CMTKH 185 / 315 - 6	185	990	24	44	1785	2.2	93.5	0.80	7.00	2010
CMTKH 200 / 315 - 6	200	990	25	45	1929	2.2	93.6	0.81	8.00	2090
CMTKH 220 / 315 - 4	220	990	28	51	2122	2.2	93.8	0.81	9.00	2200
CMTKH 250 / 355-6	250	990	31	56	2412	2.2	93.9	0.82	10.00	3020
CMTKH 280 / 355-6	280	990	35	64	2701	2.2	94.1	0.82	12.00	3110
CMTKH 315 / 355-6	315	990	39	71	3039	2.2	94.3	0.83	15.00	3220
CMTKH 355 / 355-6	355	990	44	80	3424	2.2	94.5	0.83	18.00	3410
CMTKH 400 / 400-6	400	990	48	87	3859	2.2	95.9	0.83	20.00	3720
CMTKH 450 / 400-6	450	990	54	98	4341	2.2	95.9	0.84	24.00	3910
CMTKH 500 / 400-6	500	990	60	109	4823	2.2	96.1	0.84	28.00	4110
CMTKH 560 / 450-6	560	990	67	122	5402	2.2	96.1	0.84	35.00	5490
CMTKH 630 / 450-6	630	990	75	136	6077	2.2	96.2	0.84	45.00	5720
CMTKH 710 / 450-6	710	990	85	155	6849	2.2	96.2	0.84	50.00	5900
CMTKH 800 / 450-6	800	990	95	173	7717	2.2	96.4	0.84	58.00	6110
CMTKH 900 / 500-6	900	990	106	193	8682	2.2	96.3	0.85	63.00	7120
CMTKH 1000 / 500-6	1000	990	118	215	9646	2.2	96.3	0.85	72.00	7290
CMTKH 1120 / 500-6	1120	990	130	236	10804	2.2	96.4	0.86	77.00	7520
CMTKH 1250 / 500-6	1250	990	145	264	12058	2.2	96.5	0.86	81.00	7710
CMTKH 1400 / 560-6	1400	990	160	291	13505	2.2	96.5	0.87	115.00	8800
CMTKH 1600 / 560-6	1600	990	183	333	15484	2.2	96.7	0.87	124.00	9120

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## Technical Data for Medium Voltage Squirrel Cage Three Phase Motors

IP55, IC411; 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	kgm <sup>2</sup>	kg.
CMTKH 160 / 355-8	160	740	22	40	2065	2.2	94.2	0.80	15.00	3410
CMTKH 185 / 355-8	185	740	25	45	2388	2.2	94.3	0.80	16.00	3490
CMTKH 200 / 355-8	200	740	26	47	2581	2.2	94.5	0.80	19.00	3590
CMTKH 220 / 355-8	220	740	29	53	2839	2.2	94.7	0.90	20.00	3720
CMTKH 250 / 355-8	250	740	32	58	3226	2.2	94.9	0.90	24.00	3810
CMTKH 280 / 400-8	280	740	36	65	3614	2.2	95.0	0.90	28.00	4190
CMTKH 315 / 400-8	315	740	40	73	4065	2.2	95.0	0.90	30.00	4310
CMTKH 355 / 400-8	355	740	45	82	4581	2.2	95.1	0.90	32.00	4400
CMTKH 400 / 400-8	400	740	50	91	5162	2.2	95.2	0.90	34.00	4520
CMTKH 450 / 450-8	450	740	56	102	5807	2.2	95.6	0.90	38.00	5010
CMTKH 500 / 450-8	500	740	62	113	6453	2.2	95.8	0.90	40.00	5190
CMTKH 560 / 450-8	560	740	69	125	7227	2.2	96.0	0.80	43.00	5520
CMTKH 630 / 450-8	630	740	77	140	8130	2.2	96.2	0.80	44.00	5710
CMTKH 710 / 500-8	710	740	87	158	9163	2.2	96.2	0.80	58.00	6610
CMTKH 800 / 500-8	800	740	96	175	10324	2.2	96.2	0.80	67.00	6790
CMTKH 900 / 500-8	900	740	108	196	11615	2.2	96.3	0.80	74.00	7010
CMTKH 1000 / 560-8	1000	740	120	218	12905	2.2	96.6	0.90	126.00	8220
CMTKH 1120 / 560-8	1120	740	134	244	14454	2.2	96.7	1.00	130.00	8410
CMTKH 1250 / 560-8	1250	740	150	273	16132	2.2	96.8	1.00	148.00	8590

**High Voltage Series from 10kV to 13.8kV**

MOTOR TYPE	2 Poles	4 Poles	6 Poles	8 Poles
mm	kW	kW	kW	kW
450	900	900	630	450
500		1250	1000	710
560		1600	1400	900

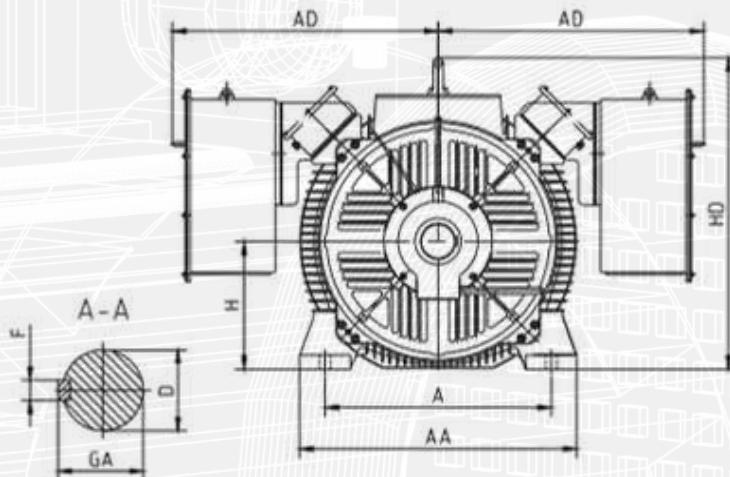
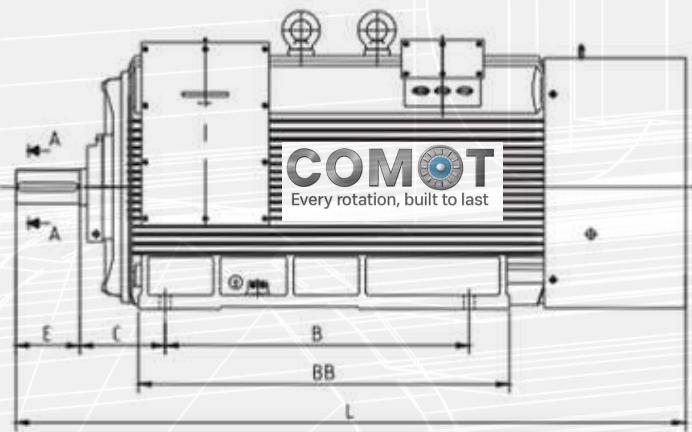
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## Technical Drawings of Medium & High Voltage Squirrel Cage Three Phase Motors

**IP55, IC411; Insulation Class F, Temperature Rise Class B IE3 Cast Iron Motors**

### GENERAL MOTOR DIMENSIONS



Frame Size	poles	A	B	C	D	E	F	H	L	AA	BB	HD	AD	GA
315	2	560	800	216	70	140	20	315	2000	680	1080	775	765	74,5
315	4 - 6	560	800	216	90	170	25	315	2000	680	1080	775	765	95
355	2	630	900	254	75	140	20	355	2100	760	1140	895	790	79,5
355	4 - 8	630	900	254	100	210	28	355	2100	760	1140	895	790	106
400	2	710	1000	280	85	170	22	400	2200	870	1220	980	840	90
400	4 - 8	710	1000	280	120	210	32	400	2200	870	1220	980	840	127
450	2	800	1120	280	95	170	25	450	2500	980	1495	1140	890	100
450	4 - 8	800	1120	280	130	250	32	450	2500	980	1495	1140	890	137
500	4 - 8	900	1250	315	140	250	36	500	2800	1080	1600	1200	920	148
560	4 - 8	1000	1400	355	160	300	40	560	2900	1180	1680	1400	990	169

### Please ask for the options below:

- ◆ Different cooling options  
IC 416 external fan cooling option
- ◆ IP Protection class options  
IP 23, IP54, IP56, IP65
- ◆ Different Installations  
IM B5, B34, B35, V1, V3, V6...etc
- ◆ Encoder & Sensor Options  
PT100, PTC, Encoder and Vibration Sensors
- ◆ Insulation / Temp. range options  
CL H insulation / F Temp. range
- ◆ Bearing Options  
Anti-friction and insulated bearings



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## HEAD OFFICE



### COMOT MOTORS EU



Gerda-Penzel-Str. 35  
85591 Vaterstetten | DEUTSCHLAND



+49 (0)1577 4222554



[ed@comot-motors.eu](mailto:ed@comot-motors.eu)