



HIGEN MOTOR

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HIGH VOLTAGE MOTOR

SQUIRREL CAGE INDUCTION



HIGEN MOTOR

HIGEN MOTOR

Transforming from
one of the hidden champions
to a global leader

HIGEN MOTOR has proven its excellence in its product and service quality.

The company has been a leader in the Korean electric motor industry,
from the product design to installation and operation, with its initiative
for advanced technological development.

Now, HIGEN MOTOR plans to save your precious energy in the future,
by devising a cutting-edge energy-saving electric motors, in the intention
of bringing the era of low-carbon green growth around the world.



The Changwon Factory in Korea

1963  **LG GROUP**



2008 **HIGEN MOTOR**

The legacy of HIGEN MOTOR dates back to 1963, when LG Group of Korea started motor production for import substitution.

Later in 2008 the motor division was spun off as an independent corporation under the name of HIGEN MOTOR opening the new horizon of HIGEN era.

HIGEN MOTOR is the only motor specialist company in Korea encompassing this broad spectrum of motors and has international certificates in each product categories such as ISO, CE, ATEX, EtherCAT among others.

For EtherCAT particularly, HIGEN MOTOR is the first company in Korea certified for reliable compatibility with many European controller units.

History of **HIGEN MOTOR**

- 1962** Commenced the production of induction motors from Geumsung
- 1968** Affiliated for compressor motor technology with Hitachi, Japan
- 1976** Commenced the production of elevator motor
- 1979** Completed the Gimhae Plant
- 1986** Start of general purpose induction motor production
- 1996** Developed vector inverter motor
- 1997** Development of High Speed spindle motor for machine tools
Commenced the production of high voltage Motor with YASKAWA Technology
- 1998** Changed the corporation to LG Industrial Systems
Moved to Changwon Plant
- 2000** Launched LG · OTIS
- 2008** Establish HIGEN Motor Co., Ltd.
- 2010** Winning the Presidential award in the National Quality Management Contest
- 2011** ISO/TS 16949 Certificate acquired for Ev motor
Developed 1,250kW Deep Sea Water Pump Motor for FPSO
- 2012** ATEX Certificate acquired (0.2 ~ 260kW)
Registered with KEPCO as Qualified Vendor (~ 2,500kW)
Passed EtherCAT Conformance Test for servo driver
- 2013** HYUNDAI MOTORS SQ certificate acquired for Ev motor
Registered with HITACHI as subcontractor for mill motor
Registered with HYUNDAI MOBIS as subcontractor for Ev motor
- 2014** Obtained IE3 certificate
- 2015** Supplied high voltage motors for pulverizer
(Doosan – Vietnam Vinh Tan power plant)
- 2016** Supplied High Voltage motor for Morocco SAFI power plant
- 2017** Obtained IECEx certificate for dust explosion proof/Ex tb

N-series High Voltage Induction Motor

HIGEN

has supplied high voltage induction motors to power stations, pumping stations and many other industrial fields. Through this experience, HIGEN could improve the quality of high voltage motors significantly and accumulated the reliability in design, manufacturing, testing, and installation. Especially, HIGEN has successfully developed a high voltage insulation system of 15,000volts class for power plants. HIGEN's HV motors adopt class F top level insulation systems, and its structure is designed and manufactured for low vibration and noise. Its deep slot or double cage rotor structure and special varnish treatment make HIGEN's HV motors able to run thoroughly in various load conditions, particularly high moment of inertia. HIGEN provides the motors either cast iron frame or steel fabricated frame complying with IEC standards. HIGEN's experience more than half a century can design, produce and build highly versatile, easy-to-maintain range of motors suitable for the most heavy duty applications.

HIGEN N-Series

mean High Performance and Small Size. For the significance of energy conservation and environment protection, the needs for smaller frame sizes, and the high efficiency and quality reliability are the current market requirements. These are the key reasons that led to the development of the HIGEN N-series. HIGEN N-series are supplied to a variety of industries including the oil & gas, paper, chemical and steel industries. They are installed to drive pumps, compressors, blowers, refiners, mills, conveyor belts and other machines. Indeed, the innovative technology of the HIGEN N-series sets new standards for HV motors.

FEATURE

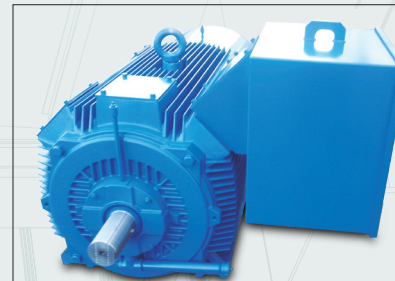
- High power efficiency and low maintenance costs
- Compact design, small dimensions and low weight
- Reliable and durable bearing structure
- Low vibration and noise
- Windings at temperature class F (VPI)
- Reliability and long life
- High load capacity
- Customized design

APPLICABLE STANDARD

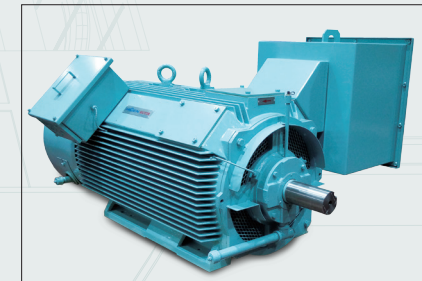
The motors comply with IEC34 standards. And special versions (NEMA, CSA, etc.) are available upon request.

Types of N Series

NF Series

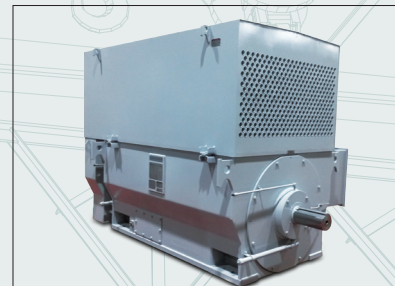


NFE (TEFC, IC411, IP44/65)

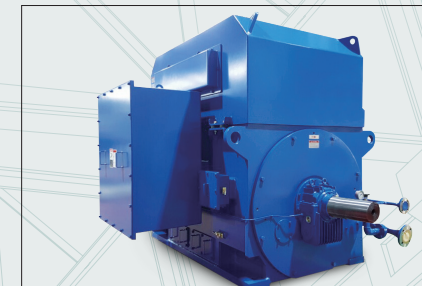


NFD (ODP, IC01, IP22)

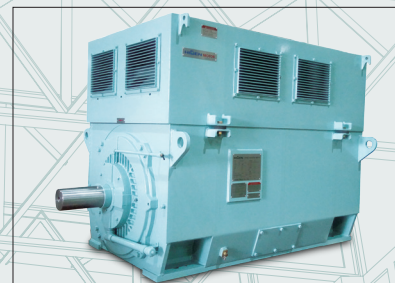
NH Series



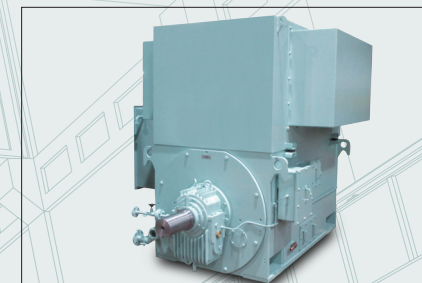
NHE (TEAAC, IC611, IP44/65)



NHEW (TEWAC, IC81W, IP44/65)

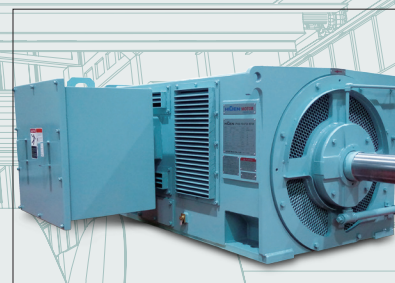


NHD (ODP, IC01, IP22/23)

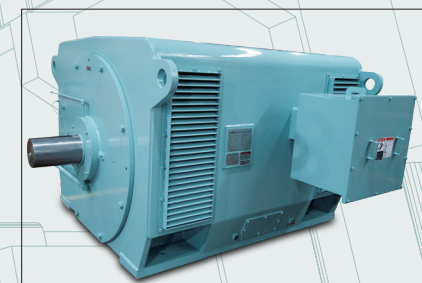


NHDO (ODP, IC01, IP24W)

NB Series



NBD (ODP, IC01, IP22)



NBDA (ODP, IC01, IP22)

Model Nomenclature

N H D V - 450 E

SERIES

N - New Series

STRUCTURE

F - Fin cooling on the frame surface

H - Hat cooler/silencer on the top of frame

B - Air pass beside of the frame

ENCLOSURE / COOLING

E - Enclosed air cooling - IP44/65, IC411/6 or IC611/6

EA - Advanced model of E (structure F only)

EW - Enclosed water cooling - IP44/65, IC81/86W

D - Drip proof, open machine - IP22/23, IC01/06

DA - Advanced model of D (structure B only)

DO - Outdoor use of open machine - IP24W, IC01/06

SPECIAL SPECIFICATION (if necessary)

B - For belt pulley use

V - Vertical mounting (V1,V5,V15,V3,V6,V36)

F - Horizontal mounting with flange (B5,B35)

Xn - Explosion proof, Ex-n

Xe - Explosion proof, Ex-e

Xd - Explosion proof, Ex-d

Xtd - Explosion proof, Ex-td

FRAME SIZE

IEC - 280 to 630

NEMA - 4400 to 10800

FEET LENGTH

IEC - E, F, G

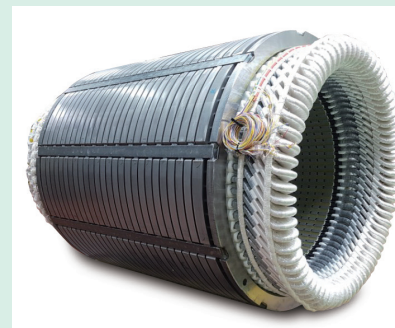
NEMA - 08, 09, 10, 11

Construction of N-Series



Frame

Steel fabricated or cast iron as a structural component of the motor is available and both of frame types can hold, support and protect the active magnetic part. With rugged structure, it provides the motor with high strength and low vibration levels.



Stator

It is the active magnetic static part of the motor. It consists of a core of pressed steel laminations in which slots the coils forming the stator winding are inserted. The stator core is mounted directly in the frame.



Winding

The winding process adopted by HIGEN is especially developed for the voltage and application of the motor. The low and high voltage motors can have circular and form-wound coils manufactured of copper wire; after the winding, they are completely insulated with porous mica tape. Conductive tapes are also used in the winding process, covering the coils and ensuring their resistivity.



Insulation system

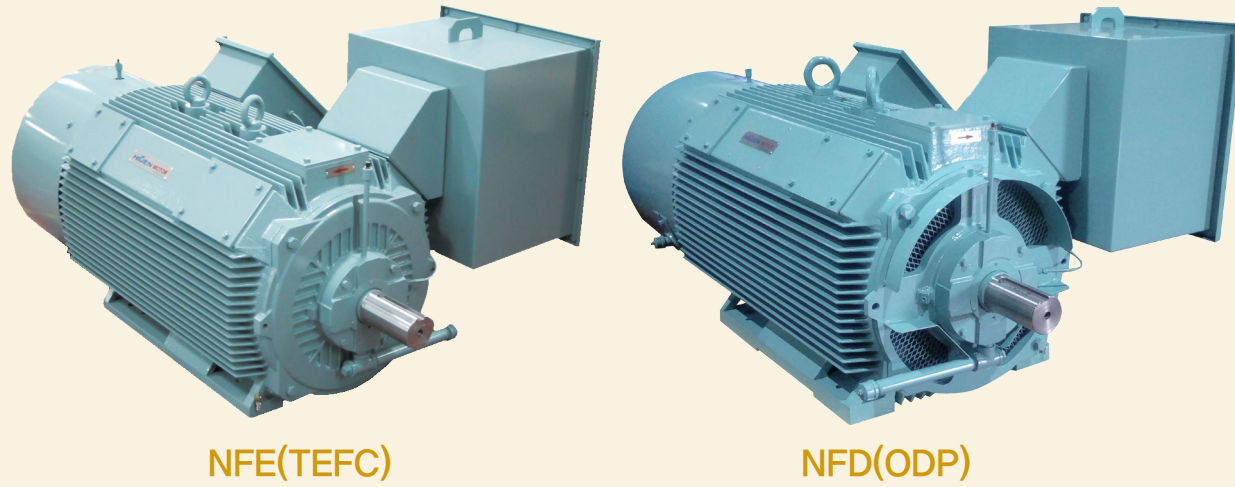
HIGEN "Polytight T" insulation system is based on the VPI process (Vacuum Pressure Impregnation), which was developed together with the world's most renowned suppliers of insulating materials. Using special epoxy resins, this system ensures perfect insulation of the motor coils, in a process totally free from emission of gases harmful to the environment.



Rotor

It is the rotating component of the electric motor consist of the shaft and pressed steel lamination core. The cage is mounted in the slots of the core. The cage can be made of cast aluminum, copper or brass. Computerized balancing equipment controls the accurate balancing of the motors. As a result, HIGEN motors present very low vibration levels. The standard balancing process is conducted in two planes.

NF Series

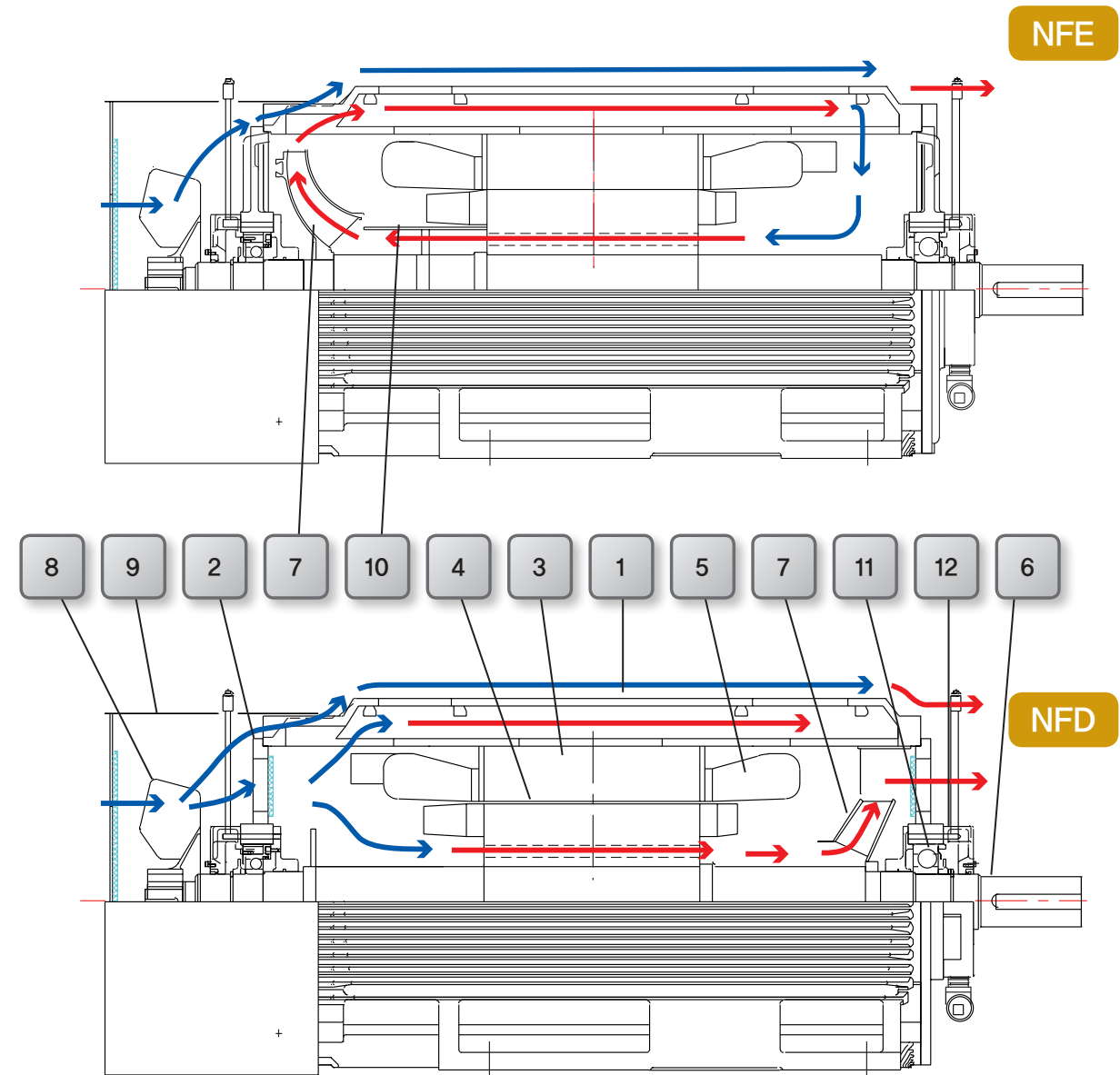


NFE/NFEA ; Totally Enclosed Fan Cooled (TEFC)
NFD ; Open Drip Proof (ODP)

- Robust solid high strength cast iron frame
- Interchangeability with existing motors (steel frame)
- High efficiency and reduced noise level design
- Self cooling (forced cooling for VFD applications as optional)
- Easy maintenance structure

Squirrel cage Rotor	Aluminum Die casting (CU Bar as optional)
Poles	2p ~ 16p
Voltage	380V ~ 13.2 kV
Output Range	75 ~ 1,000 kW
Construction	B3 (V1 as Optional)
Frame Number	Fr.280 ~ Fr.450 (only Fr.280 & 315 for NFD)

Sectional Drawing



Parts No & Name

1. Frame	4. Rotor	7. Internal Fan	10. Air Guide
2. Bracket	5. Coil	8. External Fan	11. Bearing
3. Stator	6. Shaft	9. Fan Cover	12. Bearing Cover

Frame Assignment

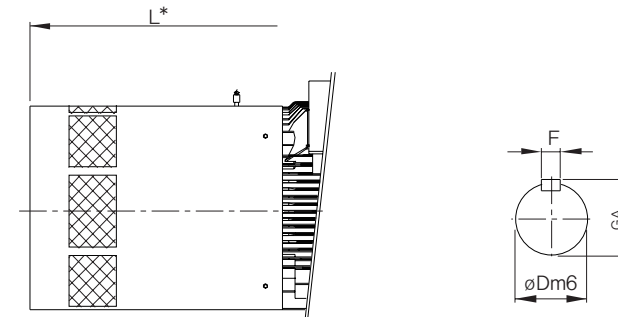
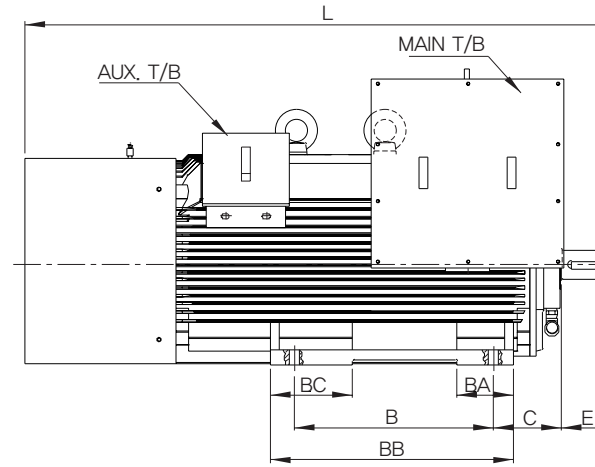
NFE

kW	60Hz, 3300V/6600V				50Hz, 3000V/6000V			
	2P	4P	6P	8P	2P	4P	6P	8P
90	NFE 280	NFE 280	NFE 280	NFE 280	NFE 280	NFE 280	NFE 280	NFE 280
110				NFE 280				
132				NFE 280				
160				NFE 280				
185				NFE 280				
200	NFE 315	NFE 315	NFE 315	NFE 315	NFE 315	NFE 315	NFE 315	NFE 315
220				NFE 315				
250				NFE 315				
280				NFE 315				
300				NFE 315				
320	NFEA 355	NFEA 355	NFEA 355	NFEA 355	NFEA 355	NFEA 355	NFEA 355	NFEA 355
350				NFEA 355				
400				NFEA 355				
420				NFEA 355				
450				NFEA 355				
500	NFEA 400	NFEA 400	NFEA 400	NFEA 400	NFEA 400	NFEA 400	NFEA 400	NFEA 400
520				NFEA 400				
550				NFEA 400				
600				NFEA 400				
620				NFEA 400				
650	NFEA 450	NFEA 450	NFEA 450	NFEA 450	NFEA 450	NFEA 450	NFEA 450	NFEA 450
700				NFEA 450				
750				NFEA 450				
800				NFEA 450				
850				NFEA 450				
900	NFE 450	NFE 450	NFE 450	NFE 450	NFE 450	NFE 450	NFE 450	NFE 450
950								
1000	NFE 450	NFE 450	NFE 450	NFE 450	NFE 450	NFE 450	NFE 450	NFE 450

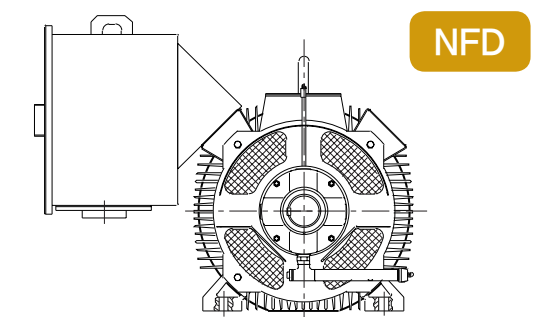
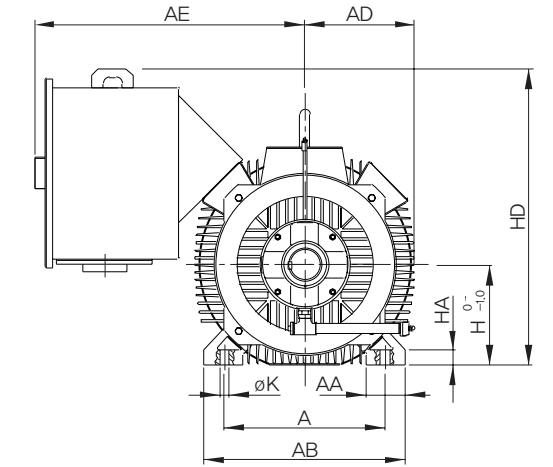
NFD

kW	60Hz, 3300V/6600V				50Hz, 3000V/6000V			
	2P	4P	6P	8P	2P	4P	6P	8P
132	NFD 280	NFD 280	NFD 280	NFD 280	NFD 280	NFD 280	NFD 280	NFD 280
160				NFD 280				
185				NFD 280				
200				NFD 280				
220				NFD 280				
250	NFD 315	NFD 315	NFD 315	NFD 315	NFD 315	NFD 315	NFD 315	NFD 315
280				NFD 315				
300				NFD 315				
320				NFD 315				
350				NFD 315				
400	NFD 315	NFD 315	NFD 315	NFD 315	NFD 315	NFD 315	NFD 315	NFD 315
420				NFD 315				
450				NFD 315				
500				NFD 315				

Outline Dimension



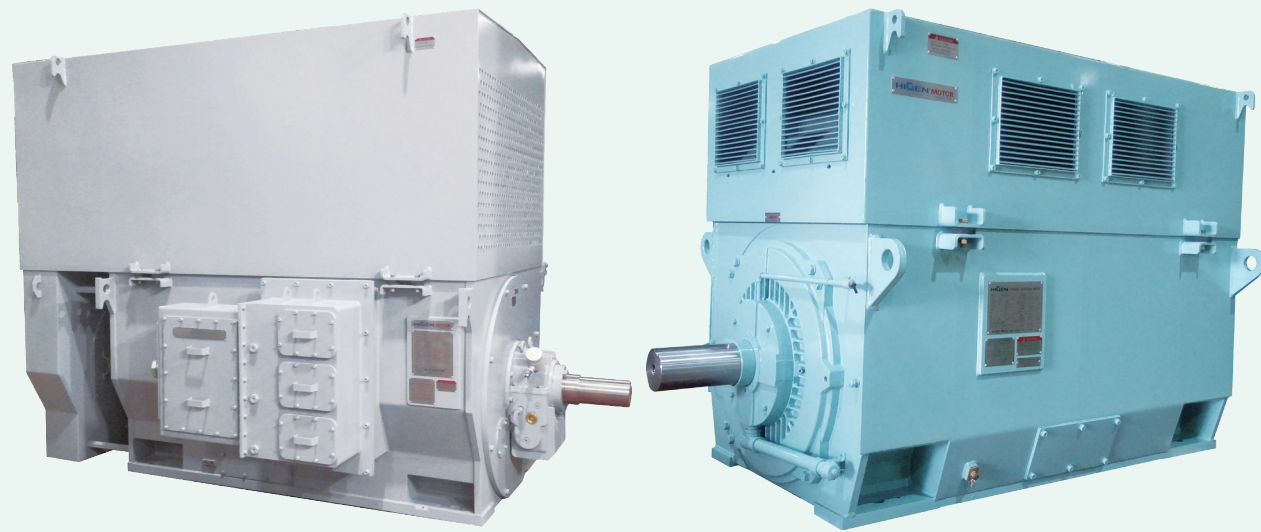
(View of Low noise cover)



* : with LOW NOISE COVER

SERIES	Frame	Pole	Coupled	Weight (kg)	Front View								Side View					Shaft Extension				Bearing				
					A	AA	AB	AD	AE	K	H	HA	HD	B	BA	BB	BC	C	L (L*)	D	E	F	GA	DE side	OPP side	
NFE NFD	280	2P	Direct	1550												1620	70	140	20	74.5	6216C3	6216C3				
			4P ~	Direct	1600	457	100	570	330	830	24	280	30	880	630	200	770	350	190	1650	85	170	22	90	6218C3	6218C3
			4P ~	Belt	1680													1650	95	170	25	100	6318C3	6318C3		
NFE NFD	315	2P	Direct	1900												1750	75	140	20	79.5	6218C3	6218C3				
			4P ~	Direct	2160	508	124	635	355	860	30	315	45	945	630	180	770	260	216	1780	90	170	25	95	6220C3	6220C3
			4P ~	Belt	2240													1820	100	210	28	106	6320C3	6320C3		
NFEA	355	2P	Direct	3000												2415*	80	170	22	85	6317C4	6317C4				
			4P ~	Direct	3400	686	140	830	385	870	30	355	35	990	1000	330	1180	320	224	2400	100	210	28	106	6222C3	6222C3
			6P ~	Belt	3500													2400	120	210	32	127	6322C3	6322C3		
NFEA	400	2P	Direct	4000												2515*	80	170	22	85	6317C4	6317C4				
			4P ~	Direct	4400	750	150	960	430	910	35	400	40	1070	1120	330	1320	410	254	2500	110	210	28	116	6224C3	6224C3
NFE	450	4P ~	Direct	5650	800	190	990	480	970	35	450	52	1185	1250	315	1495	615	280	2700*	120	250	32	127	6326C3	6326C3	

NH Series

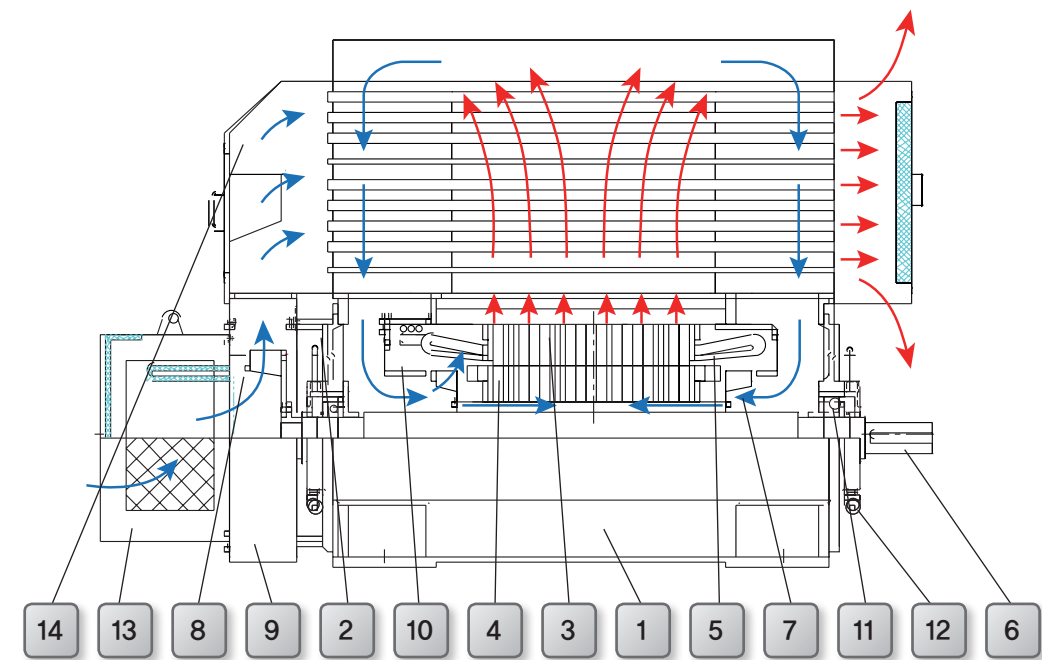
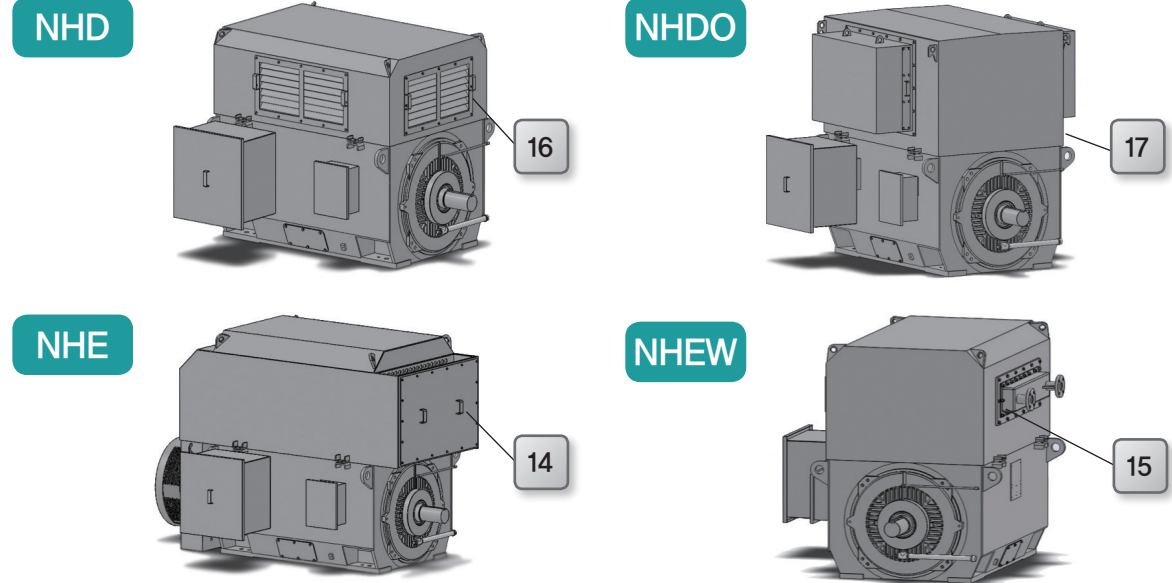


NHE ; Totally Enclosed Air-Air Cooled (TEAAC)
NHEW ; Totally Enclosed Water-Air Cooled (TEWAC)
NHD ; Open with Silencer (WP I)
NHDO ; Open For Outdoor Use (WP II)

- Extremely robust, welded housing construction
- Modular basis construction
- Optimum cooling through modification of cooler module
- Optimum ventilation with intensive cooling of winding ends
- Easy maintenance structure

Squirrel cage Rotor	Brazed rotor with CU bar & ring
Poles	2p ~ 16p
Voltage	600V ~ 13.2 kV
Output Range	350 ~ 4,000 kW
Construction	B3 (V1 as Optional)
Frame Number	Fr.355 ~ Fr.630 (Fr.315 as optional)

Sectional Drawing



Parts No & Name

1. Frame	5. Coil	9. Fan Cover	13. Low Noise Cover	17. Top Cover For
2. Bracket	6. Shaft	10. Air Guide	14. Air-Air Cooler	Outdoor Use
3. Stator	7. Internal Fan	11. Bearing	15. Water-Air Cooler	With Filter
4. Rotor	8. External Fan	12. Bearing Cover	16. Silencer	

Frame Assignment (NHE)

Series	Frame	60Hz, 3300V/6600V			
		2P	4P	6P	8P
NHE	355F	–	600	400	–
	355E	700	750	550	400
	400F	–	900	750	600
	400E	1250	1250	950	750
	450F	–	1500	1200	900
	450E	2000	1900	1550	1200
	500G	–	2300	1800	1400
	500F	–	2600	2100	1600
	500E	3000	3000	2500	2000
	560G	3800	3500	2750	2250
	560F	–	4000	3200	2700
	560E	4000	–	4000	3200
	630G	–	–	–	3450
	630F	–	–	–	4000
	630E	–	–	–	–

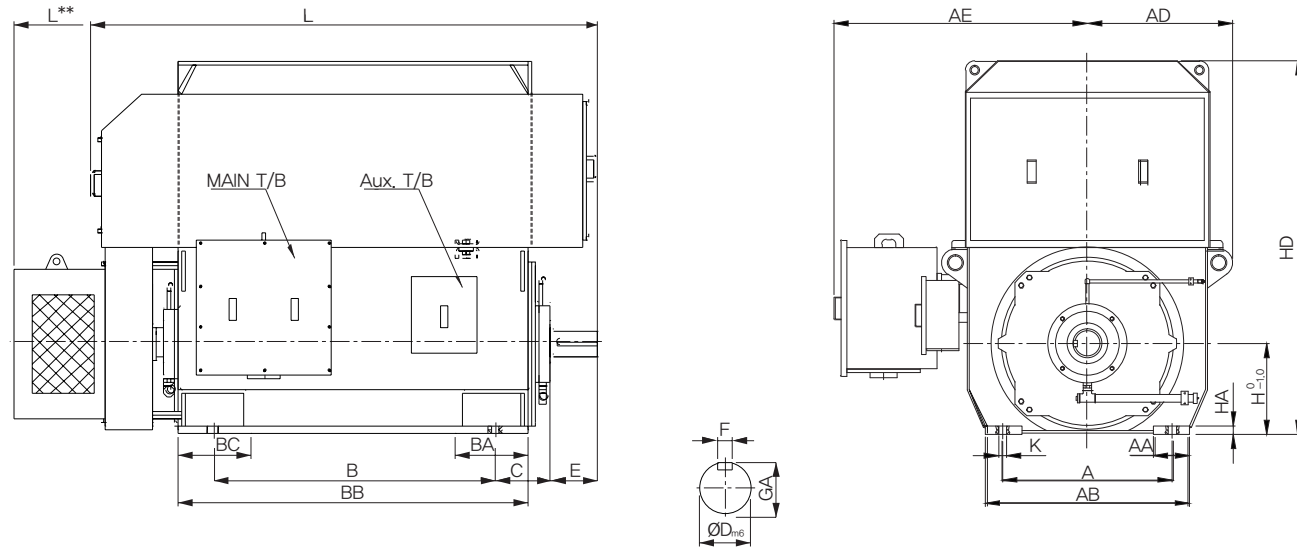
Series	Frame	50Hz, 3000V/6000V			
		2P	4P	6P	8P
NHE	355F	–	550	350	–
	355E	600	650	450	350
	400F	–	780	650	480
	400E	1000	1040	820	600
	450F	–	1300	980	770
	450E	1600	1600	1250	980
	500G	–	2000	1500	1100
	500F	–	2120	1650	1260
	500E	2400	2600	2050	1600
	560G	3200	3100	2250	1800
	560F	–	3600	2650	2150
	560E	3700	4000	3300	2600
	630G	4000	–	3600	3000
	630F	–	–	4000	3300
	630E	–	–	–	3900

Frame Assignment (NHEW, NHD, NHDO)

Series	Frame	60Hz, 3300V/6600V			
		2P	4P	6P	8P
NHEW NHD NHDO	355F	–	–	–	–
	355E	1000	710	560	450
	400F	–	1250	950	700
	400E	1650	1500	1200	900
	450F	–	1950	1500	1150
	450E	2450	2450	1900	1400
	500G	–	2900	2450	1500
	500F	–	3150	2700	1850
	500E	3750	3900	3100	2300
	560G	4000	4000	3500	2550
	560F	–	–	4000	3200
	560E	–	–	–	3800
	630G	–	–	–	4000
	630F	–	–	–	–
	630E	–	–	–	–

Series	Frame	50Hz, 3000V/6000V			
		2P	4P	6P	8P
NHEW NHD NHDO	355F	–	–	–	–
	355E	830	600	470	380
	400F	–	1030	800	580
	400E	1450	1300	1000	730
	450F	–	1650	1210	900
	450E	2000	2100	1550	1150
	500G	–	2550	1700	1250
	500F	–	2630	1900	1550
	500E	3000	3300	2400	1950
	560G	4000	3800	3000	2250
	560F	–	4000	3400	2550
	560E	–	–	3800	3200
	630G	–	–	4000	3350
	630F	–	–	–	3800
	630E	–	–	–	4000

Outline Dimension (NHE)

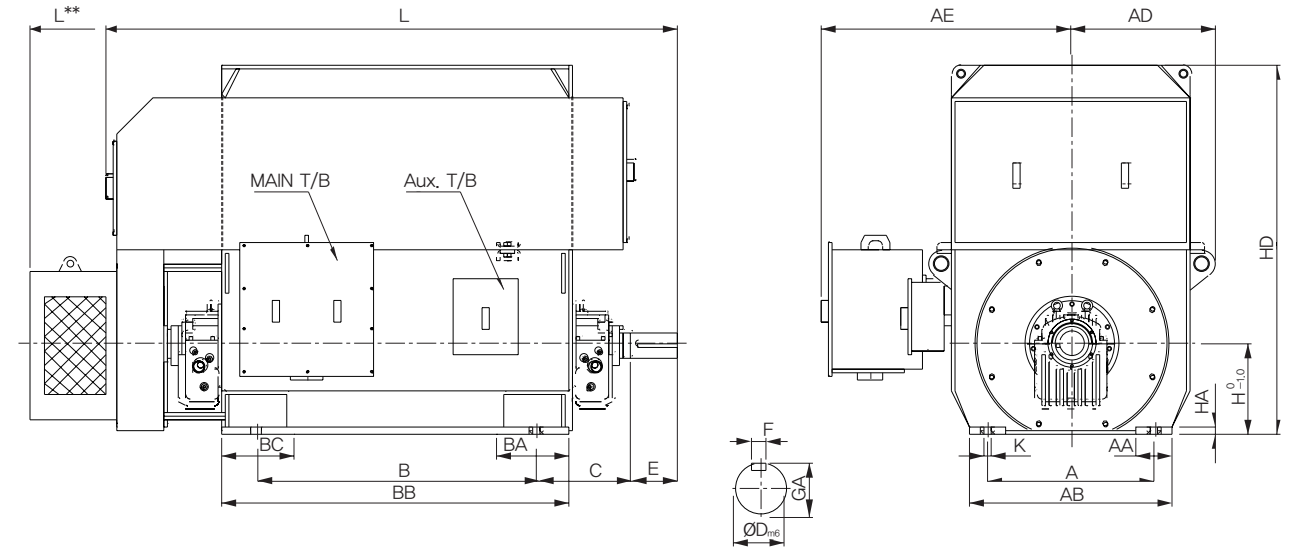


(Figure-1. Antifriction Bearing)

** : with LOW NOISE COVER
* : SLEEVE BRG

Frame	Weight (kg)	Front View										Side View							
		A	AA	AB	AD	AE	K	H	HA	HD	B	BA	BB	BC	C	L (L**)			
		** 2P, 4P	6P~																
355	F 3300	670	140	790	570	1040	35	355	30	1535	1120	300	1400	300	254	2680	2720		
	E 3500										1250		1530				2810	2850	
400	F 5000	750	160	900	645	1125	35	400	35	1650	1250	320	1550	320	* 335 254	2685	2595		
	E 5400										1400		1700				2835	2745	
450	F 6200	850	180	1000	705	1180	42	450	40	1840	1400	350	1730	350	* 450 280	3180	2920		
	E 6800										1600		1930				3380	3120	
500	G 7700										1400	400	1780	400	* 475 280	3275	3040		
	F 8200	950	180	1120	775	1250	48	500	45	2060	1600		1980					3575	3240
	E 9200										1800		2180					3775	3440
560	G 10400										1600	450	2030	450	* 500 335	3675	3370		
	F 12100	1060	210	1280	875	1375	48	560	50	2240	1800		2230					3875	3570
	E 13500										2000		2430					4075	3770
630	G 15200										1800	500	2280	500	* 560 335	4155	3810		
	F 16000	1250	240	1480	985	1465	48	630	55	2415	2000		2480					4355	4010
	E 18000										2240		2720					4595	4250

Outline Dimension (NHE)

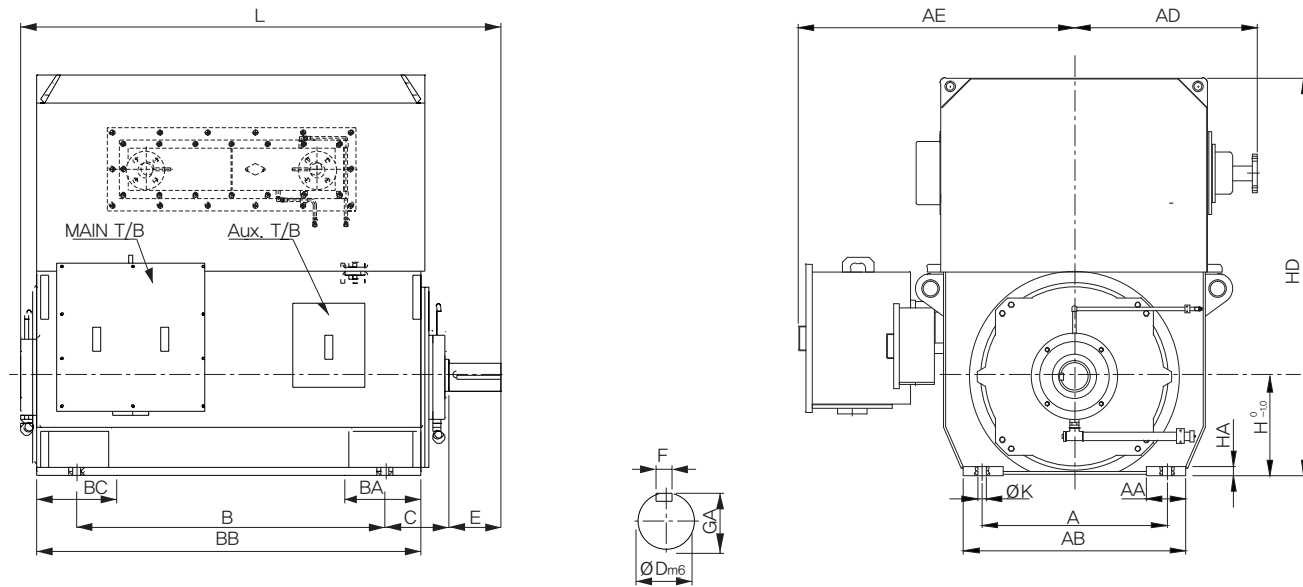


(Figure-2. Sleeve Bearing)

* : OIL LUB.

Frame	Pole	Fig	Shaft Extension				Bearing	
			D	E	F	GA	DE side	OPP side
355	2P	1	85	170	22	90	6218C3	6218C3
	4P	1	110	210	28	116	6324C3	6224C3
	6P ~	1	110	210	28	116	6324C3	6224C3
400	2P	2	100	170	28	106	* SLEEVE	* SLEEVE
	4P	1	110	210	28	116	6324C3	6224C3
	6P ~	1	110	210	28	116	6324C3	6224C3
450	2P	2	110	210	28	116	* SLEEVE	* SLEEVE
	4P	1	130	250	32	137	6328C3	6228C3
	6P ~	1	140	250	36	148	6330C3	6230C3
500	2P	2	120	210	32	127	* SLEEVE	* SLEEVE
	4P	1	140	250	36	148	6330C3	6230C3
	6P ~	1	160	300	40	169	6334C3	6234C3
560	2P	2	140	250	36	148	* SLEEVE	* SLEEVE
	4P	1	160	300	40	169	NU1034+6034	NU1034
	6P ~	1	180	300	40	189	NU1038+6038	NU1038
630	2P	2	160	300	40	169	* SLEEVE	* SLEEVE
	4P	1	180	350	45	190	NU1038+6038	NU1038
	6P	1	200	350	50	211	NU1044+6044	NU1044
	8P ~	1	200	350	50	211	NU1044+6044	NU1044

Outline Dimension (NHEW)

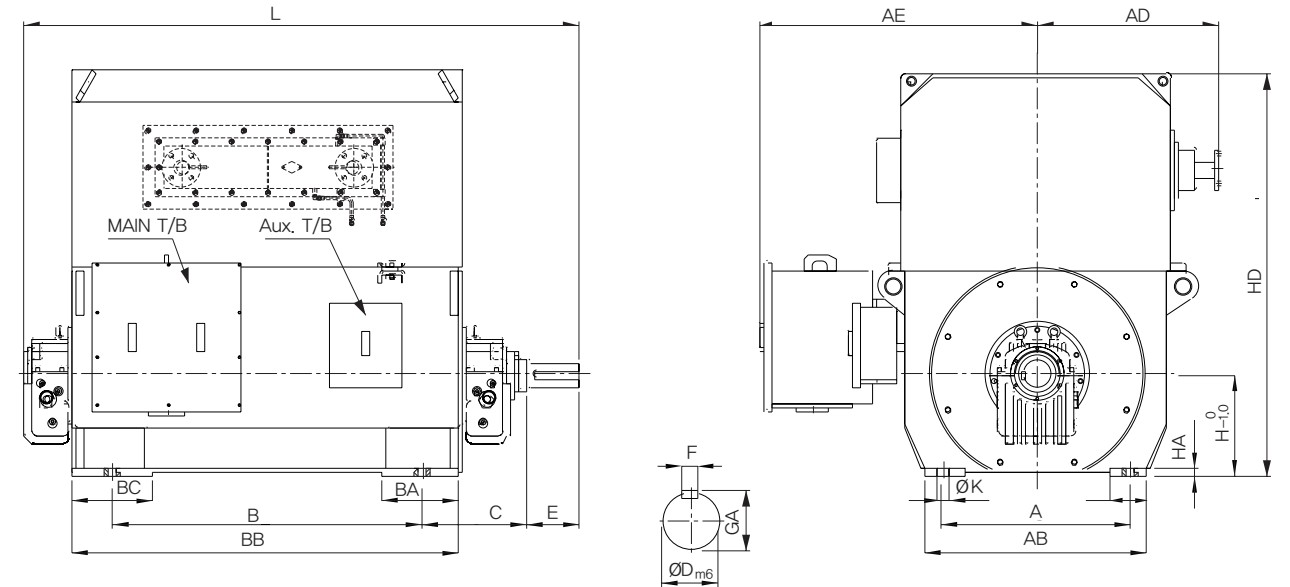


(Figure-1. Antifriction Bearing)

* : SLEEVE BRG

Frame	Weight (kg)	Front View										Side View							
		A	AA	AB	AD	AE	K	H	HA	HD	B	BA	BB	BC	C	L			
																2p	4P	6P~	
355	F	2700									1120		1400			1830	1870	1870	
	E	2900	670	140	790	570	1040	35	355	30	1535	300		300	254	1960	2000	2000	
400	F	4500									1250		1550			* 2055	2010	2010	
	E	5000	850	180	1000	705	1180	35	400	35	1650	320		320	* 335 254	* 2205	2160	2160	
450	F	5800									1400		1730			* 2490	2245	2245	
	E	6400	1060	210	1280	875	1375	42	450	40	1840	350		350	* 450 280	* 2720	2445	2445	
500	G	6500									1400		1780			* 2570	2270	2320	
	F	7300	950	180	1120	775	1250	48	500	45	2060	1600	400	1980	400	* 475 280	* 2770	2470	2520
	E	8100									1800		2180			* 2970	2670	2720	
560	G	9000									1600		2030			* 2960	2580	2580	
	F	10000	1060	210	1280	875	1375	48	560	50	2240	1800	450	2230	450	* 500 335	* 3160	2780	2780
	E	11500									2000		2430			* 3360	2980	2980	
630	G	12600									1800		2280			* 3300	2875	2875	
	F	14500	1250	240	1480	985	1465	48	630	55	2415	2000	500	2480	500	* 560 335	* 3500	3075	3075
	E	16000									2240		2720			* 3740	3315	3315	

Outline Dimension (NHEW)

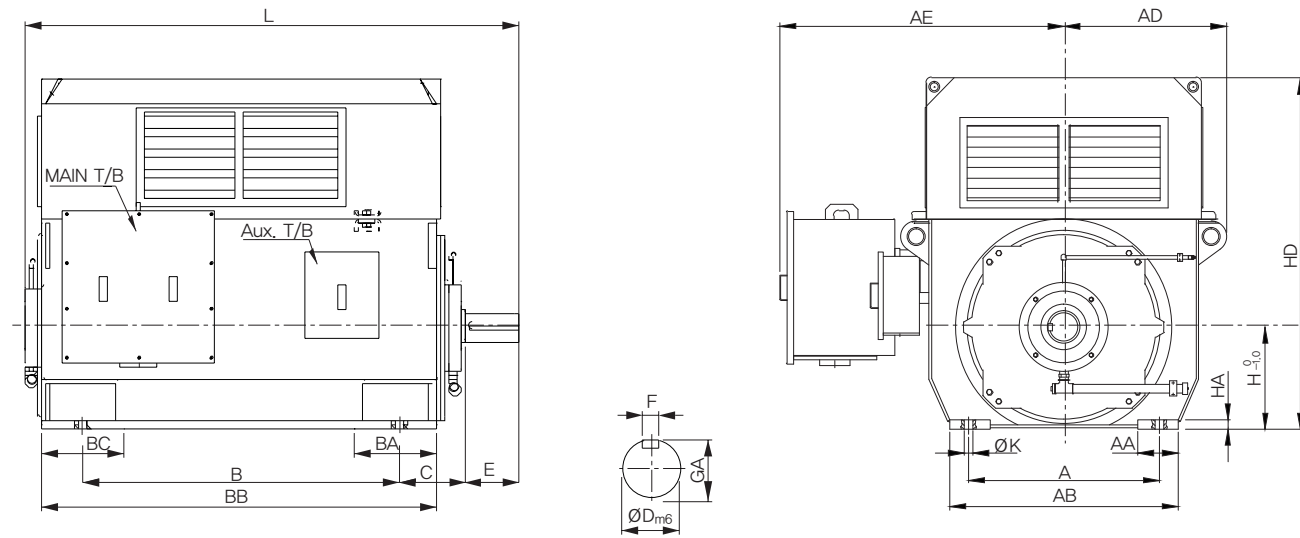


(Figure-2. Sleeve Bearing)

* : OIL LUB.

Frame	Pole	Fig	Shaft Extension				Bearing	
			D	E	F	GA	DE side	OPP side
355	2P	1	85	170	22	90	6218C3	6218C3
	4P	1	110	210	28	116	6324C3	6224C3
	6P ~	1	110	210	28	116	6324C3	6224C3
400	2P	2	100	170	28	106	* SLEEVE	* SLEEVE
	4P	1	110	210	28	116	6324C3	6224C3
	6P ~	1	110	210	28	116	6324C3	6224C3
450	2P	2	110	210	28	116	* SLEEVE	* SLEEVE
	4P	1	130	250	32	137	6328C3	6228C3
	6P ~	1	140	250	36	148	6330C3	6230C3
500	2P	2	120	210	32	127	* SLEEVE	* SLEEVE
	4P	1	140	250	36	148	6330C3	6230C3
	6P ~	1	160	300	40	169	6334C3	6234C3
560	2P	2	140	250	36	148	* SLEEVE	* SLEEVE
	4P	1	160	300	40	169	NU1034+6034	NU1034
	6P ~	1	180	300	40	189	NU1038+6038	NU1038
630	2P	2	160	300	40	169	* SLEEVE	* SLEEVE
	4P	1	180	350	45	190	NU1038+6038	NU1038
	6P	1	200	350	50	211	NU1044+6044	NU1044
	8P ~	1	200	350	50	211	NU1044+6044	NU1044

Outline Dimension (NHD/NHDO)

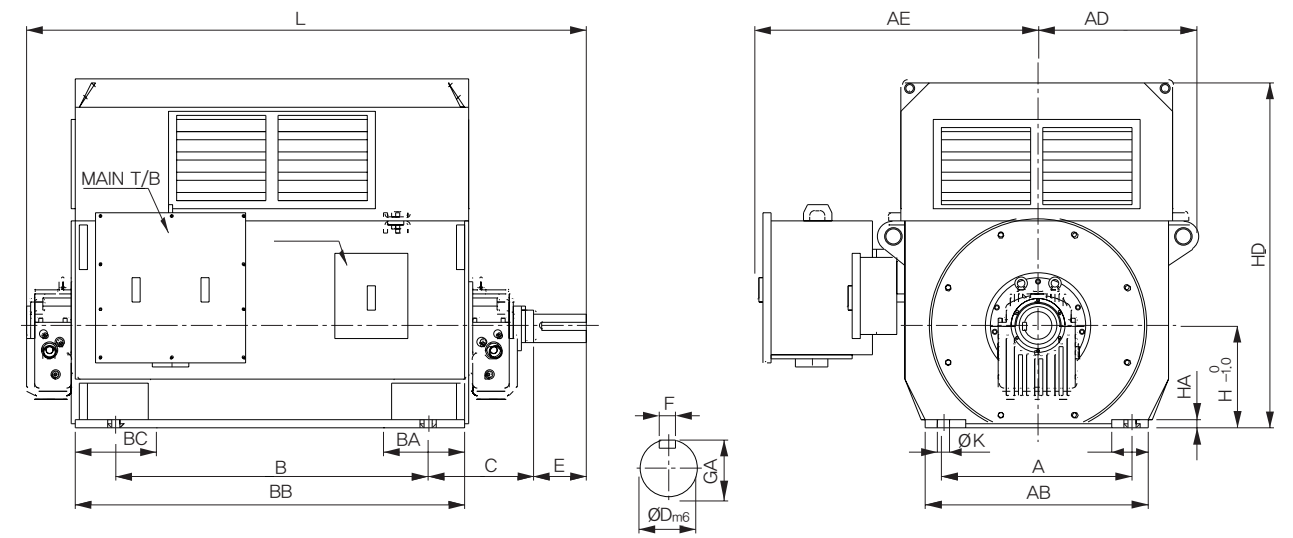


(Figure-1. Antifriction Bearing)

* : SLEEVE BRG

Frame	Weight (kg)	Front View										Side View						
		A	AA	AB	AD	AE	K	H	HA	HD	B	BA	BB	BC	C	L		
																2P	4P	6P~
355	F	2700									1120		1400			1830	1870	1870
	E	2900	670	140	790	570	1040	35	355	30	1535	300	300	254	1960	2000	2000	
400	F	4200									1250		1550			* 2055	2010	2010
	E	4600	750	160	900	645	1125	35	400	35	1650	320	1700	320	* 335 254	* 2205	2160	2160
450	F	5200									1400		1730			* 2490	2245	2245
	E	5800	850	180	1000	705	1180	42	450	40	1840	350	1930	350	* 450 280	* 2720	2445	2445
500	G	6000									1400		1780			* 2570	2270	2320
	F	6900	950	180	1120	775	1250	48	500	45	2060	1600	1980	400	* 475 280	* 2770	2470	2520
	E	7800									1800		2180			* 2970	2670	2720
560	G	8900									1600		2030			* 2960	2580	2580
	F	9800	1060	210	1280	875	1375	48	560	50	2240	1800	2230	450	* 500 335	* 3160	2780	2780
	E	11000									2000		2430			* 3360	2980	2980
630	G	12000									1800		2280			* 3300	2875	2875
	F	13500	1250	240	1480	985	1465	48	630	55	2415	2000	2480	500	* 560 335	* 3500	3075	3075
	E	15000									2240		2720			* 3740	3315	3315

Outline Dimension (NHD/NHDO)

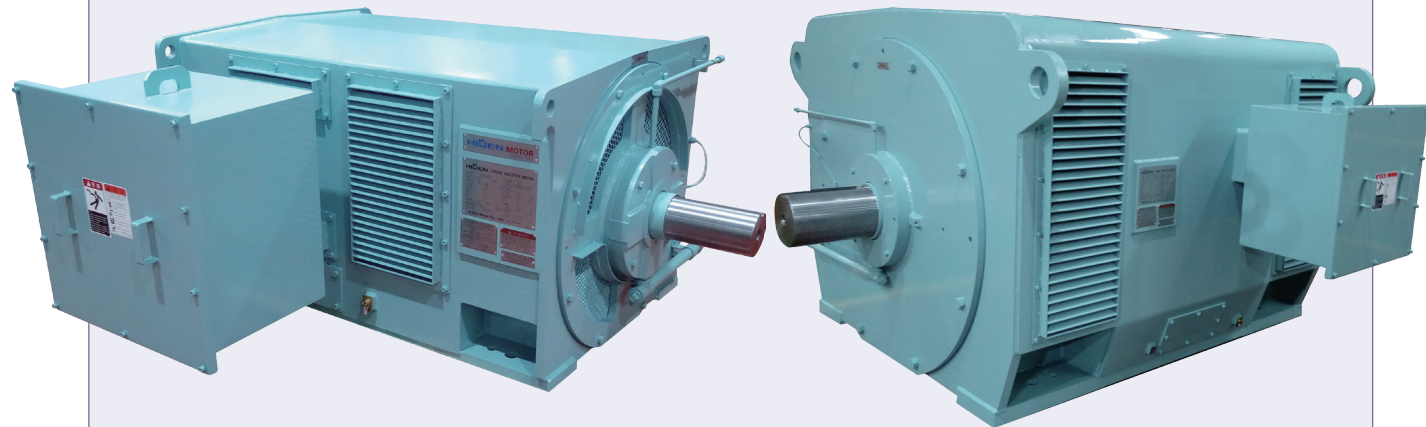


(Figure-2. Sleeve Bearing)

* : OIL LUB.

Frame	Pole	Fig	Shaft Extension				Bearing	
			D	E	F	GA	DE side	OPP side
355	2P	1	85	170	22	90	6218C3	6218C3
	4P	1	110	210	28	116	6324C3	6224C3
	6P ~	1	110	210	28	116	6324C3	6224C3
400	2P	2	100	170	28	106	* SLEEVE	* SLEEVE
	4P	1	110	210	28	116	6324C3	6224C3
	6P ~	1	110	210	28	116	6324C3	6224C3
450	2P	2	110	210	28	116	* SLEEVE	* SLEEVE
	4P	1	130	250	32	137	6328C3	6228C3
	6P ~	1	140	250	36	148	6330C3	6230C3
500	2P	2	120	210	32	127	* SLEEVE	* SLEEVE
	4P	1	140	250	36	148	6330C3	6230C3
	6P ~	1	160	300	40	169	6334C3	6234C3
560	2P	2	140	250	36	148	* SLEEVE	* SLEEVE
	4P	1	160	300	40	169	NU1034+6034	NU1034
	6P ~	1	180	300	40	189	NU1038+6038	NU1038
630	2P	2	160	300	40	169	* SLEEVE	* SLEEVE
	4P	1	180	350	45	190	NU1038+6038	NU1038
	6P	1	200	350	50	211	NU1044+6044	NU1044
	8P ~	1	200	350	50	211	NU1044+6044	NU1044

NB Series



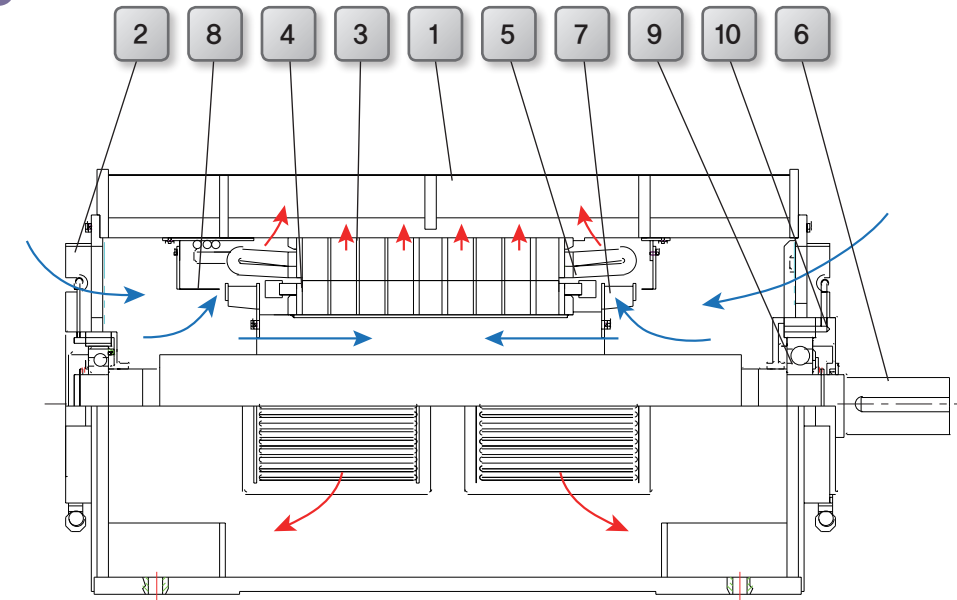
NBD ; Open Drip Proof (Both ventilation)
NBDA ; Open Drip Proof (One-way ventilation)

- Robust solid and high strength of Steel frame
- Cost reduction type specialized for low speed
- Reduction of installation area with small size and light weight
- Easy and low cost maintenance

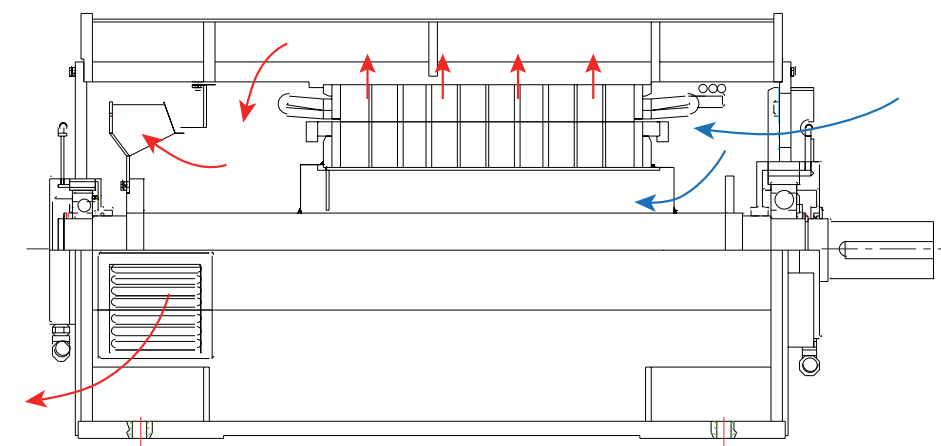
Squirrel cage Rotor	Brazed rotor with CU bar & ring
Poles	6p ~ 24p
Voltage	600V ~ 13.2 kV
Output Range	250 ~ 3,500 kW
Construction	B3 (V1 as Optional)
Frame Number	Fr.355 ~ Fr.560

Sectional Drawing

NBD



NBDA



Parts No & Name

1. Frame	4. Rotor	7. Internal Fan	10. Bearing Cover
2. Bracket	5. Coil	8. Air Guide	
3. Stator	6. Shaft	9. Bearing	

Frame Assignment(NBD)

Series	Frame	60Hz, 3300V/6600V	
		6P	8P
NBD	355F	–	–
	355E	560	450
	400F	950	700
	400E	1200	900
	450F	1500	1150
	450E	1900	1400
	500G	2450	1500
	500F	2700	1850
	500E	3100	2300
	560G	3500	2550
	560F	–	3200
	560E	–	3500

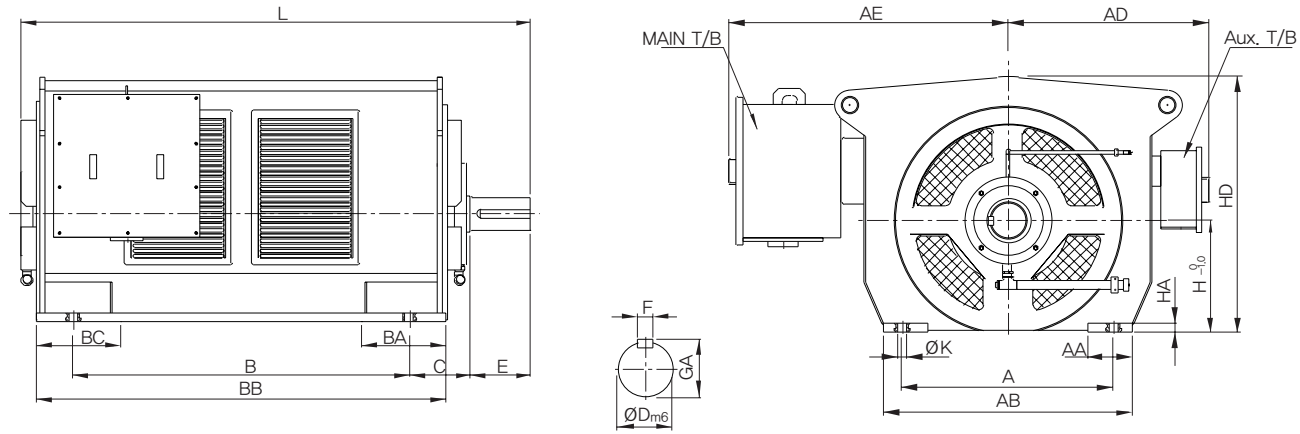
Series	Frame	50Hz, 3000V/6000V	
		6P	8P
NBD	355F	–	–
	355E	470	380
	400F	800	580
	400E	1000	730
	450F	1210	900
	450E	1550	1150
	500G	1700	1250
	500F	1900	1550
	500E	2400	1950
	560G	3000	2250
	560F	3400	2550
	560E	3500	3200

Frame Assignment(NBDA)

Series	Frame	60Hz, 3300V/6600V			
		10P	12P	14P	16P
NBDA	355F	250	180	130	100
	355E	320	240	180	140
	400F	450	330	250	190
	400E	620	460	350	270
	450F	730	580	410	320
	450E	980	710	520	410
	500G	1200	850	640	500
	500F	1350	950	700	620
	500E	1700	1200	880	710
	560G	2000	1320	1000	820
	560F	2300	1750	1150	940
	560E	2800	2200	1450	1100

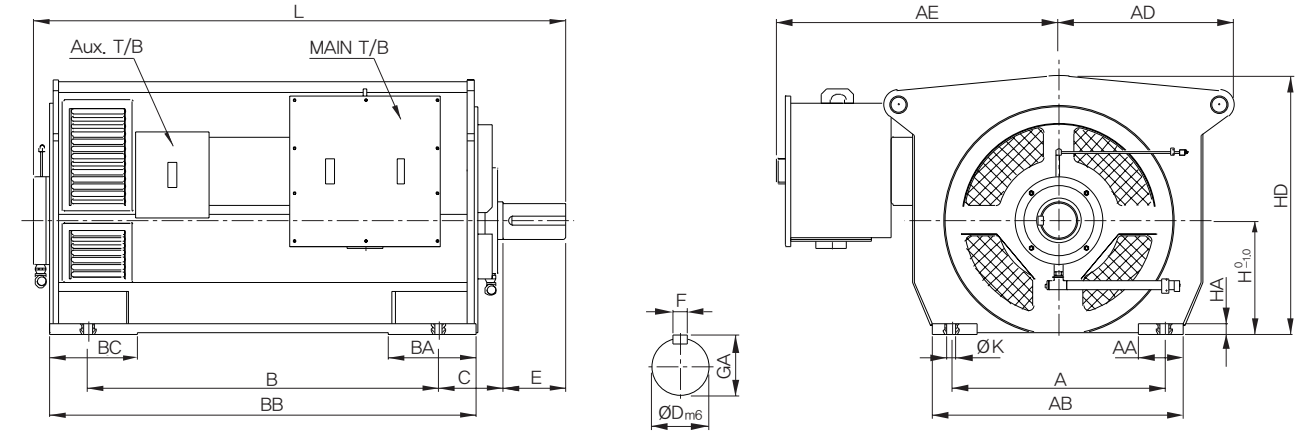
Series	Frame	50Hz, 3000V/6000V			
		10P	12P	14P	16P
NBDA	355F	210	150	110	–
	355E	270	200	150	110
	400F	380	280	210	160
	400E	520	390	290	220
	450F	660	470	340	270
	450E	840	600	440	340
	500G	1000	700	500	420
	500F	1150	770	550	500
	500E	1350	900	700	600
	560G	1650	1100	800	700
	560F	1800	1430	910	800
	560E	2300	1800	1150	900

Outline Dimension (NBD)



Frame	Weight (kg)	Front View										Side View					Shaft Extension				Bearing	
		A	AA	AB	AD	AE	K	H	HA	HD	B	BA	BB	BC	C	L	D	E	F	GA	DE side	OPP side
355	F 2200	670	140	790	650	1120	35	355	30	955	1120	1400	300	300	254	1870	110	210	28	116	6324C3	6224C3
	E 2400									1250	1530				2000							
400	F 2900	750	160	900	725	1205	35	400	35	1000	1250	1550	320	320	254	2010	110	210	28	116	6324C3	6224C3
	E 3200									1400	1700				2160							
450	F 4300	850	180	1000	785	1260	42	450	40	1050	1400	1730	350	350	280	2245	140	250	36	148	6330C3	6230C3
	E 5100									1600	1930				2445							
500	G 5200										1400	1780				2320						
	F 6100	950	180	1120	855	1330	48	500	45	1100	1600	1980	400	400	280	2520	160	300	40	169	6334C3	6234C3
	E 7000										1800	2180				2720						
560	G 8500										1600	2030				2580						
	F 9700	1060	210	1280	955	1485	48	560	50	1160	1800	2230	450	450	315	2780	180	300	40	189	NU1038+6038	NU1038
	E 10500										2000	2430				2980						

Outline Dimension (NBDA)



Frame	Weight (kg)	Front View										Side View					Shaft Extension				Bearing	
		A	AA	AB	AD	AE	K	H	HA	HD	B	BA	BB	BC	C	L	D	E	F	GA	DE side	OPP side
355	F 2200	670	140	790	570	1040	35	355	30	955	1120	1400	300	300	254	1870	110	210	28	116	6324C3	6224C3
	E 2400									1250	1530				2000							
400	F 2900	750	160	900	645	1125	35	400	35	1000	1250	1550	320	320	254	2010	110	210	28	116	6324C3	6224C3
	E 3200									1400	1700				2160							
450	F 4300	850	180	1000	705	1180	42	450	40	1050	1400	1730	350	350	280	2245	140	250	36	148	6330C3	6230C3
	E 5100									1600	1930				2445							
500	G 5200										1400	1780				2320						
	F 6100	950	180	1120	775	1250	48	500	45	1100	1600	1980	400	400	280	2520	160	300	40	169	6334C3	6234C3
	E 7000										1800	2180				2720						
560	G 8500										1600	2030				2580						
	F 9700	1060	210	1280	875	1375	48	560	50	1160	1800	2230	450	450	315	2780	180	300	40	189	NU1038+6038	NU1038
	E 10500										2000	2430				2980						