SGP

Electric motor

Professional Manufacturing

Professional Products

OVERVIEW

The IE1/IE2/IE3/IE4/IE5 series of 3 phase motors are Totally Enclosed Fan Cooled (TEFC) with IP55 environmental protection.These motors are designed and manufactured in accordance with IEC standards.

Standard Features

- **Frame material** : Cast Iron & Aluminum
- **Terminal box material** : Cast Iron & Aluminum
  Plastic cable entry is standard (Metallic cable entry is optional)
- Specific wound stators supporting multiple 3PH mains supply voltages at 50Hz or 60Hz
- **Aluminum Frame sizes** : 63mm ~ 160mm
- **Cast Iron Frame sizes** : 80mm ~ 355mm
- **Rated power range** : 0.09kW ~ 355kW at 50Hz
- Standard mounting types and variations (IEC 60034-7)
  TEFC with IP55 degree of protection (IEC 60034-5)

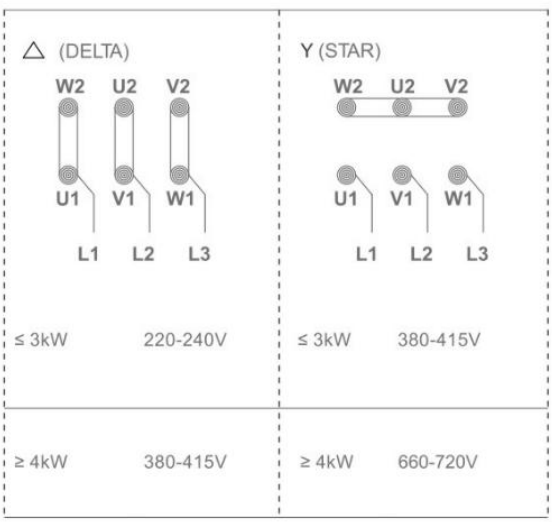
IP 55	Dust protected	Jetting Water
IP 56	Dust protected	Powerful Jetting
IP 65	Dust Tight	Jetting Water
IP 66	Dust Tight	Powerful Jetting

All Electric motor are protected to IP55 as a minimum Higher levels of protection are available on request ..

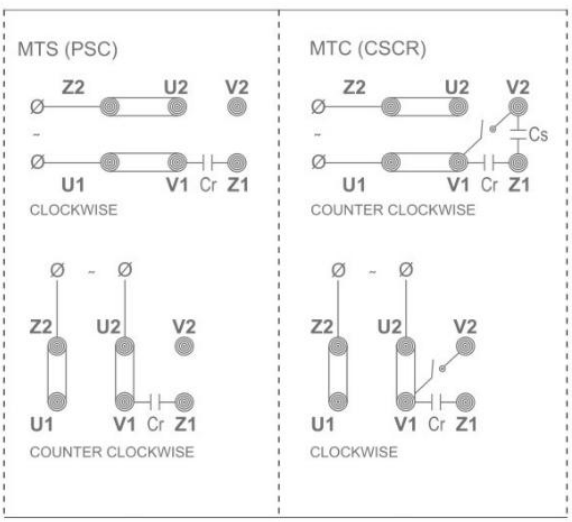
- Overload capacity of 1.5 times rated current for 2 minutes(IEC 60034-1)
- Oil seal as standard on DE and NDE rotor shaft for motor with FS 63-355
- Anti-condensation heater (space heater) as option
- Winding protection with PTC, PT130 or PT150 as option
- Insulation class: F, used according to temperature rise B
- Flexible cable entry (Rotatable terminal box)
- Rotor shaft with open or closed keyway (A type key) and NDE shaft extension
- Regreasing Nipples from size 160 and up

Typical SGP Wiring Diagram

Three-Phase Squirrel Cage Motors



Single-Phase Motors



Bearing type

Frame Size	Poles	Drive –end Bearing	Non-Drive-end bearing
63	2.4.6.8	6201 2RZC3	6201 2RZC3
71	2.4.6.8	6202 2RZC3	6202 2RZC3
80	2.4.6.8	6204 2RZC3	6204 2RZC3
90	2.4.6.8	6205 2RZC3	6205 2RZC3
100	2.4.6.8	6206 2RZC3	6206 2RZC3
112	2.4.6.8	6306 2RZC3	6306 2RZC3
132	2.4.6.8	6308 2RZC3	6308 2RZC3
160	2.4.6.8	6309 C3	6309 C3
180	2.4.6.8	6311 C3	6311 C3
200	2.4.6.8	6312 C3	6312 C3
225	2.4.6.8	6313 C3	6313 C3
250	2.4.6.8	6314 C3	6314 C3
280	2	6314 C3	6314 C3
280	4.6.8	6317 C3	6317 C3
315	2	6317 C3	6317 C3
315	4.6.8	6319 C3	6319 C3
355	2	6319 C3	6319 C3
355	4.6.8	6322 C3	6322 C3

General Specifications

Voltages / Frequencies

Standard Voltages are 220-380v 50Hz and 380-660v 50Hz .

Insulation

The components of the insulation system are selected so as to ensure good protection against chemically aggressive gases,vapours,dust,oil and air humidity.

All materials used for insulating the winding and winding ends correspond to insulating classes F or H according to IEC 60085:

- -Enamel-insulated copper wires with temperature index 200(Class H);
- -Insulating sheet on polyester base (Class F);
- -Impregnation with fenolic resins modified with polyester resins (Class H);

Limit temperature for insulating material according IEC60085

Insulation Class	Limit Temperature （℃）
B	130
F	155
H	180

Temperature Rise

Standard single-speed continuous duty (S1) motors have temperature rise within class B limit.Motors with higher output and pole-changing motors normaly have tempture rise within Class F limit .

Insulation Class	Max Temperature Rise (℃)
B	80
F	105
H	125

Temperature rises specified at a reference ambient air temperature of 40℃

PTC temperature sensor (thermistors):
It consist of 3 sensors connected in series embedded in the stator winding .
Once reaching the operating temperature,the device quickly changes its resistance;
it must be connected to a suitable releasing device (supplied on motors 11kW and above)

Duty Cycles

S1 Continuous Duty	Operation under constant load,lasting long enough to allow the machine to reach thermal equilibrium.
S2 Short-Time Duty	Operation under constant load,for a time too short to allow the machine to reach thermal equilibrium.Idle time of the machine is long enough to allow the machine to cooldown to ambient temperature. Standard duration of short-term operation:10,30,60 and 90 minutes.
S3 Intermittent Periodic Duty	Operation under repeated,constant load in specified cycles.Neither operating nor resting period are long enoughto allow the motor to reach thermal equilibrium.The starting losses are small and do not essentially influence the temperature rise.The nominal values of relative starting time are 15,25,40,60% at a daily 10-minute cycle.
S4 Intermittent Periodic Duty	Operation under repeated,constant load in specified cycles.The start of the motor influences the temperature rise.
S5 Intermittent Periodic Duty	Same as S4 operation,except that the electric braking of the machine has an essential influence on the temperature rise.
S6 Continuously Operation With Cyclic Load	Operation consisting of a continuous series of equal cycles.Each cycle is made up of noload and a constant load period.The cycle duration is not long enough to allow the machine to reach thermal equilibrium in one cycl.In order to define S6 operation , the relative starting time must be specified.
S7 Intermittent Periodic Duty with Starting and Braking	Uninterrupted operation with a series of constant loading and braking periods.The most demanding type of operation for the motor.In order to define this type of operation,The number of cycles per hour and the inertia constant must be specified.
S8 Intermittent Periodic Duty with pole Changing	This type of operation only exists with pole amplitude modulated motors.In this case the definition of operation must contain the following data for each pole: -Number of starts per hour -Inertia constant -Relative operation period

Electrical Design

Reliable quality and performance

To ensure reliable and long life, the windings are made of materials with class F temperature rise limited to class B (80K) .

Voltage and Frequency

Standard motor will operate on mains power supplies in accordance with IEC 60034-1 Category A (combination of voltage deviation ±5 % and frequency deviation ±2 %) voltage and frequency fluctuations

Rated Output

Rated output power refers to continuous duty (S1) operation in accordance with IEC 60034-1 when operated at 40°C ambient temperature and at site altitudes of 1000m or less. current overload is in accordance with IEC 60034-1(1.5 times for 2 minutes)

Environmental

- Suitable for IP55 installations
- Below or equal to1000m above sea level
- Operating temperature between -20°C and 40°C
- Relative humidity

Temperature	Relative Humidity
-20℃≤T≤20℃	100%
20℃ < T≤30℃	95%
30℃ < T≤40℃	55%

Note: For other requirements,Hanzel should be consulted

If environmental conditions vary from those listed above, please consult the chart below for output power derating factor.

	< 30℃	30~40℃	45℃	50℃	55℃	60℃
1000m	1.07	1.00	0.96	0.92	0.87	0.82
1500m	1.04	0.97	0.93	0.89	0.84	0.79
2000m	1.00	0.94	0.90	0.86	0.82	0.77
2500m	0.96	0.90	0.86	0.83	0.78	0.74
3000m	0.92	0.86	0.82	0.79	0.75	0.70
3500m	0.88	0.82	0.79	0.75	0.71	0.67
4000m	0.82	0.77	0.74	0.71	0.67	0.63

Space heater electrical data

Frame Size	80~90	100~112	132~160	180~200	225~280	315	355
Power(W)	20	30	40	50	60	80	110
Voltage(V)	220						

Converter fed application

IE1 /IE2 / IE3/ IE4/ IE5 motors are suitable for pumps, fans, compressors, texitle machine and mechanical machine applications where variable or constant speed is required. When motor operating with a constant load by a speed lower than 50% of rated speed, External seperately driven fan.

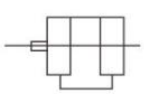
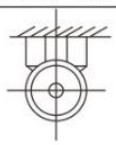
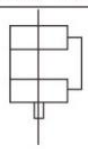
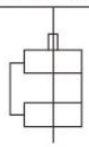
Note:

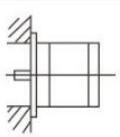
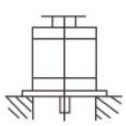
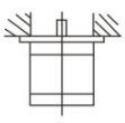
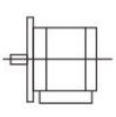
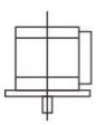
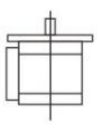
(1) In application where the motor is driven by a converter, the degree of electrical interference depends on the type of converter used (type, number of IGBTs, interference suppression measures, and manufacturer), cabling, distance and application requirements.(2) The installation guidelines of the converter manufacturer with regards to electromagnetic compatibility must be considered at all times during the design and implementation phases.

Technical data for separated fan

Motor frame size	Voltage (V)	Frequency (HZ)	Rated Output (kW)	Current Noise (A)	Speed (r/min)	Fan Power (m^3/h)	Fan Pressure (Pa)
80	380V	50	30	0.08	2400	330	60
90	380V	50	52	0.2	2800	390	60
100	380V	50	52	0.2	2800	600	70
112	380V	50	52	0.2	2800	800	80
132	380V	50	40	0.1	2400	1000	70
160	380V	50	80	0.23	1400	1000	50
180	380V	50	80	0.23	1400	1200	55
200	380V	50	230	0.71	1400	1800	65
225	380V	50	230	0.71	1400	1800	65
250	380V	50	230	0.71	1400	3300	85
280	380V	50	230	0.71	1400	4000	110
315	380V	50	370	1.1	1250	6200	180
355	380V	50	550	1.8	1350	7000	180

Construction or mounting type

Construction type	With feet and without flange on the end-shield (DE)					
Mounting type	IM B3 FS 80 ~ 355	IM B6 FS 80 ~ 160	IM B7 FS80 ~ 160	IM B8 FS 80 ~ 160	IM V5 FS 80 ~ 225	IM V6 FS 80 ~ 225
Diagram						

Construction type	Without feet and with flange on the end-shield (DE)			With feet and with flange on the end-shield (DE)		
Mounting type	IM B5 FS 80 ~ 280	IM V1[1]) FS 80 ~ 355	IM V3 FS 80 ~ 160	IM B35 FS 80 ~ 355	IM V15 FS 80 ~ 160	IM V36 FS 80 ~ 160
Diagram						

1) For IMV1 with canopy and without canopy, motor has different order number. Please find detailed information in "Technical data table".

Frequent malfunctions and solutions

Stoppage	Possible reasons	Check or calibration methods
1. No-load motor can't start	1. Circuit broken wires (one of the three is the root) 2. When the child three-phase winding of the a phase breakers (" Y "type of c onnection) 3. The power supply voltage and freque ncy is wrong	Check the power supply voltage or in-dividual connection. Check the fuse, feeders of current and each phase of the winding resistance. Check voltage and frequency
2、Motor load in cannot begin at low load or no-load to start when, but in load increase speed that are even stop to plunge	1. The low voltage power supply 2. The group turns around the son between short circuit 3. The stator three-phase winding out-of-phase break line (" Δ "then method) 4. Overload	Check the line voltage; Check each phase windings and each phase no-load current; Check each phase winding resistance; Check the load
3. Motor stay in low rotation speed	1. A connect the stator winding, motor hair crosstalk 2. The rotor ring and guide bar among fracture	Check feeders current and lead wire mark; Check short-circuit current
4. Stator overheating	1. Feeders three roots there was a break or stator winding a phase open circuit 2. The power supply voltage too big or too low 3. overload 4. Same stator circle or short circuit 5. And ventilated bad	Check the fuse, line voltage and current between wire; Check the current in a feeders, Check the stator alternate with and ground insulation resistance; Check the winding resistance and stable way
5. Bearing overheating	1. The assembly wrong 2. The motor shaft and the dragging is not parallel axis 3. No lubricating oil, oil impurities or oily bad there 4. Belts tight 5. Don't balance of magnetic big suction	Check whether the rotor to turn; Correction two axis balance; Use the car wash oil changing; The belt or loose move feet; Check the air gap eccentric degrees
6. When feeder insurance facilities trip	1. A connect the stator winding 2. Put a "Y" shall meet type stator windings to become " Δ " 3. Winding base to short circuit or alternate with short circuit	Check mark and lead wire by law; Check mark and lead wire by law; Check the phase windings of the insulation and the same base of insulation
7. Mechanical vibration	1. Relet not only in balance quite a low speed don't vibration 2. the axial moving there 3. transmission belt joint answered the bad 4.pulley is not even	Check the balance situation; Check the clearance of bearing, and to make adjustments. To meet the belt; Check the pulley

Note: There are many reasons for the malfunctions,sometimes there might be several reasongs for one proble,somet mes one reason might came several problem.These listed in the table are just those frequent appeared,please don't hesitate to contact us while in need.

SPEED 3000RPM2-POLE 50HZ

Type No. IE1	Rated output		Rated speed (r/min)	Efficiency ▯ %(IE2)	Efficiency at 75% load	Efficiency at 50% load	Power factor cos φ	Rated current			Rated Torque N.m	Ts/Tn	Tmax/Tn	Is/In	Weight (Kg)
	kW	HP						380V	400V	415V					
IE1-631-2	0.18	0.25	2720	52.8	52.8	51.7	0.80	0.65	0.62	0.59	0.63	2.3	2.2	5.5	4.3
IE1-632-2	0.25	0.37	2720	58.2	58.2	57.0	0.81	0.81	0.77	0.74	0.88	2.3	2.2	5.5	4.4
IE1-711-2	0.37	0.5	2740	63.9	63.9	62.6	0.81	1.09	1.03	0.99	1.29	2.3	2.2	6.1	9.6
IE1-712-2	0.55	0.75	2740	69.0	69.0	67.6	0.82	1.48	1.40	1.35	1.92	2.3	2.3	6.1	10.2
IE1-801-2	0.75	1	2840	72.1	72.1	70.7	0.83	1.90	1.81	1.74	2.52	2.2	2.3	6.1	13.1
IE1-802-2	1.1	1.5	2840	75.0	75.0	73.5	0.84	2.65	2.52	2.43	3.70	2.2	2.3	6.9	14.3
IE1-90S-2	1.5	2	2840	77.2	77.2	75.7	0.84	3.51	3.34	3.22	5.04	2.2	2.3	7.0	18.5
IE1-90L-2	2.2	3	2840	79.7	79.7	78.1	0.85	4.93	4.69	4.52	7.40	2.2	2.3	7.0	21.8
IE1-100L-2	3	4	2860	81.5	81.5	79.9	0.87	6.43	6.11	5.89	10.02	2.2	2.3	7.5	29.5
IE1-112M-2	4	5.5	2880	83.1	83.1	81.4	0.88	8.31	7.90	7.61	13.3	2.2	2.3	7.5	35.6
IE1-132S1-2	5.5	7.5	2900	84.7	84.7	83.0	0.86	11.5	10.9	10.5	18.1	2.2	2.3	7.5	56.5
IE1-132S2-2	7.5	10	2900	86.0	86.0	84.3	0.88	15.1	14.3	13.8	24.7	2.2	2.3	7.5	70
IE1-160M1-2	11	15	2930	87.6	87.6	85.8	0.89	21.4	20.4	19.6	35.9	2.2	2.3	7.5	100
IE1-160M2-2	15	20	2930	88.7	88.7	86.9	0.89	28.9	27.4	26.4	48.9	2.2	2.3	7.5	110
IE1-160L-2	18.5	25	2930	89.3	89.3	87.5	0.90	35.0	33.2	32.0	60.3	2.2	2.3	7.5	128
IE1-180M-2	22	30	2940	89.9	89.9	88.1	0.90	41.3	39.2	37.8	71.5	2.0	2.3	7.5	165
IE1-200L1-2	30	40	2950	90.7	90.7	88.9	0.90	55.8	53	51.1	97.1	2.0	2.3	7.5	204
IE1-200L2-2	37	50	2950	91.2	91.2	89.4	0.90	68.5	65.1	62.7	119.8	2.0	2.3	7.5	228
IE1-225M-2	45	60	2960	91.7	91.7	89.9	0.90	82.8	78.7	75.9	145.2	2.0	2.3	7.5	282
IE1-250M-2	55	75	2965	92.1	92.1	90.3	0.90	101	95.8	92.3	177.2	2.0	2.3	7.5	361
IE1-280S-2	75	100	2970	92.7	92.7	90.8	0.90	137	130	125	241.2	2.0	2.3	7.0	483
IE1-280M-2	90	125	2970	93.0	93.0	91.1	0.91	162	153	148	289.4	2.0	2.3	7.1	493
IE1-315S-2	110	150	2975	93.3	93.3	91.4	0.91	197	187	180	353.1	1.8	2.2	7.1	834
IE1-315M-2	132	180	2975	93.5	93.5	91.6	0.91	236	224	216	423.7	1.8	2.2	7.1	909
IE1-315L1-2	160	200	2975	93.8	93.8	91.9	0.92	282	268	258	513.6	1.8	2.2	7.1	957
IE1-315L2-2	200	270	2975	94.0	94.0	92.1	0.92	351	334	322	642.0	1.8	2.2	7.1	1084
IE1-355M-2	250	340	2980	94.0	94.0	92.1	0.92	439	417	402	801.2	1.6	2.2	7.1	1850
IE1-355L-2	315	430	2980	94.0	94.0	92.1	0.92	553	526	507	1009.5	1.6	2.2	7.1	2200

SPEED 1500RPM 4-POLE 50HZ

Type No. IE1	Rated output		Rated speed (r/min)	Efficiency ▯ %(IE2)	Efficiency at 75% load	Efficiency at 50% load	Power factor cos φ	Rated current			Rated Torque N.m	Ts/Tn	Tmax/Tn	Is/In	Weight (Kg)
	kW	HP						380V	400V	415V					
IE1-631-4	0.12	0.18	1310	50.0	50.0	49.0	0.72	0.51	0.48	0.46	0.87	2.1	2.2	4.4	4.2
IE1-632-4	0.18	0.25	1310	57.0	57.0	55.9	0.73	0.66	0.62	0.60	1.31	2.1	2.2	4.4	4.5
IE1-711-4	0.25	0.37	1330	61.5	61.5	60.3	0.74	0.83	0.79	0.76	1.80	2.1	2.2	5.2	11.2
IE1-712-4	0.37	0.5	1330	66.0	66.0	64.7	0.75	1.14	1.08	1.04	2.66	2.1	2.2	5.2	11.8
IE1-801-4	0.55	0.75	1390	70.0	70.0	68.6	0.75	1.59	1.51	1.46	3.78	2.4	2.3	5.2	13.8
IE1-802-4	0.75	1	1390	72.1	72.1	70.7	0.76	2.08	1.98	1.90	5.15	2.3	2.3	6.0	14.5
IE1-90S-4	1.1	1.5	1390	75.0	75.0	73.5	0.77	2.89	2.75	2.65	7.56	2.3	2.3	6.0	17.3
IE1-90L-4	1.5	2	1390	77.2	77.2	75.7	0.77	3.83	3.64	3.51	10.3	2.3	2.3	6.0	23
IE1-100L1-4	2.2	3	1390	79.7	79.7	78.1	0.81	5.18	4.92	4.74	15.1	2.3	2.3	7.0	30.3
IE1-100L2-4	3	4	1410	81.5	81.5	79.9	0.82	6.82	6.48	6.25	20.3	2.3	2.3	7.0	31.5
IE1-112M-4	4	5.5	1410	83.1	83.1	81.4	0.82	8.92	8.47	8.17	27.1	2.3	2.3	7.0	38
IE1-132S-4	5.5	7.5	1435	84.7	84.7	83.0	0.83	11.9	11.3	10.9	36.6	2.3	2.3	7.0	61.5
IE1-132M-4	7.5	10	1440	86.0	86.0	84.3	0.84	15.8	15.0	14.4	49.7	2.3	2.3	7.0	70.5
IE1-160M-4	11	15	1440	87.6	87.6	85.8	0.84	22.7	21.6	20.8	73.0	2.2	2.3	7.0	104
IE1-160L-4	15	20	1460	88.7	88.7	86.9	0.85	30.2	28.7	27.7	98.1	2.2	2.3	7.5	124
IE1-180M-4	18.5	25	1460	89.3	89.3	87.5	0.86	36.6	34.8	33.5	121.0	2.2	2.3	7.5	160
IE1-180L-4	22	80	1470	89.9	89.9	88.1	0.86	43.2	41.1	39.6	142.9	2.2	2.3	7.5	171
IE1-200L-4	30	40	1470	90.7	90.7	88.9	0.86	58.4	55.5	53.5	194.9	2.2	2.3	7.2	230
IE1-225S-4	37	50	1470	91.2	91.2	89.4	0.87	70.9	67.3	64.9	240.4	2.2	2.3	7.2	268
IE1-225M-4	45	60	1475	91.7	91.7	89.9	0.87	85.7	81.4	78.5	291.4	2.2	2.3	7.2	301
IE1-250M-4	55	75	1475	92.1	92.1	90.3	0.87	104	99.1	95.5	356.1	2.2	2.3	7.2	363
IE1-280S-4	75	100	1480	92.7	92.7	90.8	0.87	141	134	129	484.0	2.2	2.3	6.8	491
IE1-280M-4	90	125	1480	93.0	93.0	91.1	0.87	169	161	155	580.7	2.2	2.3	6.8	576
IE1-315S-4	110	150	1480	93.3	93.3	91.4	0.88	204	193	186	709.8	2.1	2.2	6.9.	805
IE1-315M-4	132	180	1480	93.5	93.5	91.6	0.88	244	232	223	851.8	2.1	2.2	6.9	913
IE1-315L1-4	160	200	1480	93.8	93.8	91.9	0.89	291	277	267	1032.4	2.1	2.2	6.9	1023
IE1-315L2-4	200	270	1480	94.0	94.0	92.1	0.89	363	345	333	1290.5	2.1	2.2	6.9	1169
IE1-355M-4	250	340	1 490	94.0	94.0	92.1	0.90	449	427	411	1602.3	2.1	2.2	6.9	1660
IE1-355L-4	315	430	1490	94.0	94.0	92.1	0.90	566	537	518	2019.0	2.1	2.2	6.9	1850

SPEED 1000RPM 6-POLE 50HZ

Type No. IE1	Rated output		Rated speed (r/min)	Efficiency ▯ %(IE2)	Efficiency at 75% load	Efficiency at 50% load	Power factor cos φ	Rated current			Rated Torque N.m	Ts/Tn	Tmax/Tn	Is/In	Weight (Kg)
	kW	HP						380V	400V	415V					
IE1-711-6	0.18	0.25	850	45.5	45.5	44.6	0.66	0.91	0.87	0.83	2.02	1.9	2.0	4.0	9
IE1-712-6	0.25	0.37	850	52.1	52.1	51.1	0.68	1.07	1.02	0.98	2.81	1.9	2.0	4.0	9.5
IE1-801-6	0.37	0.5	885	59.7	59.7	58.5	0.70	1.35	1.28	1.23	3.99	1.9	2.0	4.7	12.3
IE1-802-6	0.55	0.75	885	65.8	65.8	64.5	0.72	1.76	1.68	1.62	5.94	1.9	2.1	4.7	13.5
IE1-90S-6	0.75	1	910	70.0	70.0	68.6	0.72	2.26	2.15	2.07	7.87	2.0	2.1	5.3	17.5
IE1-90L-6	1.1	1.5	910	72.9	72.9	71.4	0.72	3.18	3.02	2.92	11.5	2.0	2.1	5.3	20
IE1-100L-6	1.5	2	920	75.2	75.2	73.7	0.75	4.04	3.84	3.70	15.6	2.0	2.1	5.5	29
IE1-112M-6	2.2	3	935	77.7	77.7	76.1	0.76	5.66	5.38	5.18	22.5	2.0	2.1	6.5	38
IE1-132S-6	3	4	960	79.7	79.7	78.1	0.76	7.52	7.15	6.89	29.8	2.1	2.1	6.5	59
IE1-132M1-6	4	5.5	960	81.4	81.4	79.8	0.76	9.82	9.33	9.00	39.8	2.1	2.1	6.5	68
IE1-132M2-6	5.5	7.5	960	83.1	83.1	81.4	0.77	13.1	12.4	12.0	54.7	2.1	2.1	6.5	77
IE1-160M-6	7.5	10	970	84.7	84.7	83.0	0.78	17.2	16.4	15.8	73.8	2.0	2.1	6.5	100
IE1- 160L-6	1	15	970	86.4	86.4	84.7	0.78	24.8	23.6	22.7	108.3	2.0	2.1	6.5	121
IE1-180L-6	5	20	970	87.7	87.7	85.9	0.81	32.1	30.5	29.4	147.7	2.0	2.1	7.0	163
IE1-200L1-6	18.5	25	980	88.6	88.6	86.8	0.81	39.2	37.2	35.9	180.3	2.1	2.1	7.0	207
IE1-200L2-6	22	30	980	89.2	89.2	87.4	0.83	45.1	42.9	41.3	214.4	2.0	2.1	7.0	223
IE1-225M-6	30	40	980	90.2	90.2	88.4	0.84	60.2	57.1	55.1	292.3	2.0	2.1	7.0	274
IE1-250M-6	37	50	980	90.8	90.8	89.0	0.86	72.0	68.4	65.9	360.6	2.1	2.1	7.0	350
IE1-280S-6	45	60	980	91.4	91.4	89.6	0.86	87.0	82.6	79.6	438.5	2.1	2.0	7.0	452
IE1-280M-6	55	75	980	91.9	91.9	90.1	0.86	106	100	96.8	536.0	2.1	2.0	7.0	507
IE1-315S-6	75	100	985	92.6	92.6	90.7	0.86	143	136	131	727.2	2.0	2.0	6.7	796
IE1-315M-6	90	125	985	92.9	92.9	91.0	0.86	171	163	157	872.6	2.0	2.0	6.7	889
IE1-315L1-6	110	150	985	93.3	93.3	91.4	0.86	208	198	191	1066.5	2.0	2.0	6.7	929
IE1-315L2-6	132	180	985	93.5	93.5	91.6	0.87	247	234	226	1279.8	2.0	2.0	6.7	1062
IE1-355M1-6	160	200	985	93.8	93.8	91.9	0.88	295	280	270	1551.3	1.9	2.0	6.7	1500
IE1-355M2-6	200	270	985	94.0	94.0	92.1	0.88	367	349	336	1939.1	1.9	2.0	6.7	1650
IE1-355L-6	250	340	985	94.0	94.0	92.1	0.88	459	436	420	2423.9	1.9	2.0	6.7	1880

SPEED 750RPM 8-POLE 50HZ

Type No. IE1	Rated output		Rated speed (r/min)	Efficiency ▯ %(IE2)	Efficiency at 75% load	Efficiency at 50% load	Power factor cos φ	Rated current			Rated Torque N.m	Ts/Tn	Tmax/Tn	Is/In	Weight (Kg)
	kW	HP						380V	400V	415V					
IE1-711-8	0.09	0.12	600	40.0	40.0	39.2	0.57	0.60	0.57	0.55	1.43	1.8	1.9	2.8	8.8
IE1-712-8	0.12	0.18	600	31.0	31.0	30.4	0.57	1.03	0.98	0.94	1.91	1.8	1.9	2.8	9.2
IE1-801-8	0.18	0.25	645	38.0	38.0	37.2	0.61	1.18	1.12	1.08	2.67	1.8	1.9	3.3	11.2
IE1-802-8	0.25	0.37	645	43.4	43.4	42.5	0.61	1.43	1.36	1.31	3.70	1.8	1.9	3.3	13
IE1-90S-8	0.37	0.5	670	49.7	49.7	48.7	0.61	1.85	1.76	1.70	5.27	1.8	1.9	4.0	18.5
IE1-90L-8	0.55	0.75	670	56.1	56.1	55.0	0.61	2.44	2.32	2.24	7.84	1.8	2.0	4.0	19.7
IE1-100L1-8	0.75	1	680	61.2	61.2	60.0	0.67	2.78	2.64	2.54	10.5	1.8	2.0	4.0	28.5
IE1-100L2-8	1.1	1.5	680	66.5	66.5	65.2	0.69	3.64	3.46	3.34	15.4	1.8	2.0	5.0	30
IE1-112M-8	1.5	2	690	70.2	70.2	68.8	0.70	4.64	4.41	4.25	20.8	1.8	2.0	5.0	38
IE1-132S-8	2.2	3	705	74.2	74.2	72.7	0.71	6.34	6.03	5.81	29.8	1.8	2.0	6.0	61.5
IE1-132M-8	3	4	705	77.0	77.0	75.5	0.73	8.11	7.70	7.43	40.6	1.8	2.0	6.0	75
IE1-160M1-8	4	5.5	720	79.2	79.2	77.6	0.73	10.5	9.99	9.63	53.1	1.9	2.0	6.0	91
IE1-160M2-8	5.5	7.5	720	81.4	81.4	79.8	0.74	13.9	13.2	12.7	73.0	1.9	2.0	6.0	103
IE1-160L-8	7.5	10	720	83.1	83.1	81.4	0.75	18.3	17.4	16.7	99.5	1.9	2.0	6.0	124
IE1-180L-8	11	15	730	85.0	85.0	83.3	0.76	25.9	24.6	23.7	143.9	2.0	2.0	6.5	165
IE1-200L-8	15	20	730	86.2	86.2	84.5	0.76	34.8	33.0	31.9	196.2	2.0	2.0	6.6	225
IE1-225S-8	18.5	25	730	86.9	86.9	85.2	0.76	42.6	40.4	39.0	242.0	1.9	2.0	6.6	256
IE1-225M-8	22	30	730	87.4	87.4	85.7	0.78	49.0	46.6	44.9	287.8	1.9	2.0	6.6	275
IE1-250M-8	30	40	735	88.3	88.3	86.5	0.79	65.3	62.1	59.8	389.8	1.9	2.0	6.5	350
IE1-280S-8	37	50	735	88.8	88.8	87.0	0.79	80.1	76.1	73.4	480.7	1.9	2.0	6.6	472
IE1-280M-8	45	60	735 .	89.2	89.2	87.4	0.79	97.0	92.2	88.8	584.7	1.9	2.0	6.6	520
IE1-315S-8	55	75	735	89.7	89.7	87.9	0.81	115	109	105	714.6	1.8	2.0	6.6	815
IE1-315M-8	75	100	735	90.3	90.3	88.5	0.81	156	148	143	974.5	1.8	2.0	6.2	906
IE1-315L1-8	90	125	735	90.7	90.7	88.9	0.82	184	175	168	1169.4	1.8	2.0	6.4	987
IE1-315L2-8	110	150	735	91.1	91.1	89.3	0.82	224	213	205	1429.3	1.8	2.0	6.4	995
IE1-355M1-8	132	180	740	91.5	91.5	89.7	0.82	267	254	245	1703.5	1.8	2.0	6.4	1700
IE1-355M2-8	160	220	740	91.9	91.9	90.1	0.82	323	306	295	2064.9	1.8	2.0	6.4	1850
IE1-355L-8	200	270	740	92.5	92.5	90.7	0.83	396	376	362	2581.1	1.8	2.0	6.4	1930

SPEED 3000RPM 2-POLE 50HZ

Type No. IE2	Rated output		Rated speed (r/min)	Efficiency ▯ %(IE2)	Efficiency at 75% load	Efficiency at 50% load	Power factor cos φ	Rated current			Rated Torque N.m	Ts/Tn	Tmax/Tn	Is/In	Weight (Kg)
	kW	HP						380V	400V	415V					
IE2-631-2	0.18	0.25	2725	60.4	60.4	59.2	0.80	0.57	0.54	0.52	0.63	2.2	2.2	5.5	5.1
IE2-632-2	0.25	0.37	2725	64.8	64.8	63.5	0.81	0.72	0.69	0.66	0.88	2.2	2.2	5.5	5.3
IE2-711-2	0.37	0.5	2745	69.5	69.5	68.1	0.81	1.00	0.95	0.91	1.29	2.2	2.3	6.1	10
IE2-712-2	0.55	0.75	2745	74.1	74.1	72.6	0.82	1.38	1.31	1.26	1.91	2.3	2.3	6.1	10.5
IE2-801-2	0.75	1	2875	77.4	77.4	75.9	0.83	1.77	1.69	1.62	2.49	2.3	2.3	6.8	16
IE2-802-2	1.1	1.5	2875	79.6	79.6	78.0	0.84	2.50	2.37	2.29	3.65	2.3	2.3	7.1	17
IE2-90S-2	1.5	2	2890	81.3	81.3	79. 7	0.84	3.34	3.17	3.06	4.96	2.3	2.3	7.3	20.3
IE2-90L-2	2.2	3	2890	83.2	83.2	81.5	0.85	4.73	4.49	4.33	7.27	2.3	2.3	7.6	23.2
IE2-100L-2	3	4	2891	84.6	84.6.	82.9	0.87	6.19	5.88	5.67	9.91	2.2	2.3	7.8	33
IE2-112M-2	4	5.5	2914	85.8	85.8	84.1	0.88	8.05	7.65	7.37	13.1	2.2	2.3	8.1	41.1
IE2-132S1-2	5.5	7.5	2937	87.0	87.0	85.3	0.86	1 1.2	10.6	10.2	17.9	2.2	2.3	8.2	55.5
IE2-132S2-2	7.5	10	2940	88.1	88.1	86.3	0.88	14.7	14.0	13. 5	24.4	2.2	2.3	7.8	61.7
IE2-160M1 -2	11	15	2930	89.4	89.4	87.6	0.89	21.0	20.0	19.2	35.9	2.2	2.3	7.9	108
IE2-160M2-2	15	20	2930	90.3	90.3	88.5	0.89	28.4	26.9	26.0	48.9	2.2	2.3	7.9	122
IE2-160L - -2	18.5	25	2937	90.9	90.9	89.1	0.89	34.7	33.0	31.8	60.2	2.2	2.3	8.0	140
IE2-180M-2	22	30	2940	91.3	91.3	89.5	0.88	41.6	39.5	38.1	71.5	2.2	2.3	8.1	178
IE2-200L1-2.	30	40	2950	92.0	92.0	90.2	0.88	56.3	53.5	51.6	97.1	2.0	2.3	7.5	229
IE2-200L2-2	37	50	2950	92.5	92.5	90.7	0.89	68.3	64.9	62.5	119.8	2.0	2.3	7.5	249
IE2-225M-2	45	60	2960	92.9	92.9	91.0	0.89	82.7	78.6	75.7	145.2	2.2	2.3	7.5	322
IE2-250M-2	55	75	2965	93.2	93.2	91.3	0.90	99.6	94.6	91.2	177.2	2.2	2.3	7.6	401
IE2-280S-2	75	100	2970	93.8	93.8	91.9	0.90	135	128	124	241.2	1.8	2.3	6.9	533
IE2-280M-2	90	125	2970	94.1	94.1	92.2	0.91	160	152	146	289.4	1.8	2.3	6.9	568
IE2-315S-2	110	150	2975	94.3	94.3	92.4	0.91	195	1 85	178	353.1	1.8	2.2	7.0	914
IE2-315M-2	132	180	2975	94.6	94.6	92.7	0.91	233	221	213	423.7	1.8	2.2	7.0	1029
IE2-315L1-2	160	200	2975	94.8	94.8.	92.9	0.92	279	265	255	513.6	1.8	2.2	7.1	1067
IE2-315L2-2	200	270	2975	95.0	95.0	93.1	0.92	348	330	318	642.0	1.8	2.2	7.1	1194
IE2-355M-2	250	340	2980	95.0	95.0	93.1	0.92	435	413	398	801.2	1.6	2.2	7.1	1597
IE2-355L-2	315	430	2980	95.0	95.0	93.1	0.92	548	520	501	1009.5	1.6	2.2	7.2	1702

SPEED 1500RPM 4-POLE 50HZ

Type No. IE2	Rated output		Rated speed (r/min)	Efficiency ▯ %(IE2)	Efficiency at 75% load	Efficiency at 50% load	Power factor cos φ	Rated current			Rated Torque N.m	Ts/Tn	Tmax/Tn	Is/In	Weight (Kg)
	kW	HP						380V	400V	415V					
IE2-631-4	0.12	0.18	1315	59.1	59.1	57.9	0.72	0.43	0.41	0.39	0.87	2.1	2.2	4.4	4.6
IE2-632-4	0.18	0.25	1315	64.7	64.7	63.4	0.73	0.58	0.55	0.53	1.31	2.1	2.2	4.4	4.9
IE2-711-4	0.25	0.37	1335	68.5	68.5	67.1	0.74	0.75	0.71	0.69	1.79	2.1	2.2	5.2	13.2
IE2-712-4	0.37	0.5	1335	72.7	72.7	71.2	0.75	1.03	0.98	0.94	2.65	2.1	2.2	5.2	14.5
IE2- 801-4	0.55	0.75	1400	77.1	77.1	75.6	0.75	1.45	1.37	1.32	3.75	2.3	2.3	5.2	14.7
IE2-802-4	0.75	1	1400	79.6	79.6	78.0	0.76	1.88	1.79	1.72	5.12	2.4	2.5	5.0	15.4
IE2-90S-4	1.1	1.5	1440	81.4	81.4	79.8	0.77	2.67	2.53	2.44	7.30	2.4	2.5	6.0	20.5
IE2-90L-4	1.5	2	1445	82.8	82.8	81.1	0.77	3.57	3.40	3.27	9.91	2.7	3.0	6.8	24.6
IE2-100L1-4	2.2	3	1440	84.3	84.3	82.6	0.81	4.90	4.65	4.48	14.6	2.7	3.0	7.0	34.6
IE2-100L2-4	3	4	1440	85.5	85.5	83.8	0.82	6.50	6.18	5.95	19.9	2.6	2.8	7.0	35
IE2-112M-4	4	5.5	1445	86.6	86.6	84.9	0.82	8.56	8.13	7.84	26.4	2.6	2.8	7.5	51.5
IE2-132S-4	5.5	7.5	1455	87.7	87.7	85.9	0.83	11.5	10.9	10.5	36.1	2.2	2.8	6.4	62.8
IE2- 132M-4	7.5	10	1455	88.7	88.7	86.9	0.84	15.3	14.5	14.0	49.2	2.2	2.8	7.0	81
IE2-160M-4	11	15	1460	89.8	89.8	88.0	0.84	22.2	21.0	20.3	72.0	2.1	2.8	6.9	114
IE2-160L-4	15	20	1460	90.6	90.6	88.8	0.85	29.6	28.1	27.1	98.1	2.1	2.8	7.5	136
IE2-180M-4	18.5	25	1470	91.2	91.2	89.4	0.86	35.8	34.0	32.8	120.2	2.1	2.8	7.8	176
IE2-180L-4	22	30	1470	91.6	91.6	89.8	0.86	42.4	40.3	38.9	142.9	2.1	2.8	7.5	196
IE2-200L-4	30	40	1470	92.3	92.3	90.5	0.86	57.4	54.6	52.6	194.9	2.0	2.5	7.1	259
IE2-225S-4	37	50	1480	92.7	92.7	90.8	0.87	59.7	66.2	63.8	238.8	2.0	2.5	7.5	302
IE2-225M-4	45	60	1480	93.1	93.1	91.2	0.87	84.4	80.2	77.3	290.4	2.0	2.5	7.6	329
IE2-250M-4	55	75	1480	93.5	93.5	91.6	0.87	103	97.6	94.1	354.9	1.8	2.2	7.3	418
IE2-280S-4	75	100	1480	94.0	94.0	92.1	0.87	139	132	128	484.0	1.8	2.2	7.6	546
IE2- 280M-4	90	125	1480	94.2	94.2	92.3	0.87	167	1 59	153	580.7	1.8	2.2	7.5	638
IE2-315S-4	110	1 50	1485	94.5	94.5	92.6	0.88	201	191	184	707.4	1.8	2.2	7.1	939
IE2-315M-4	132	1 80	1485	94.7	94.7	92.8	0.88	240	229	220	848.9	1.8	2.2	7.3	1033
IE2-315L1-4	160	200	1485	94.9	94.9	93.0	0.89	288	273	264	1029.0	1.8	2.2	7.4	1126
IE2-315L2-4	200	270	1485	95.1	95.1	93.2	0.89	359	341	329	1286.2	1.8	2.2	7.6	1229
IE2-355M-4	250	340	1490	95.1	95.1	93.2	0.90	444	422	406	1602.3	1.8	2.2	7.5	1670
IE2-355L-4	315	430	1490	95.1	95.1	93.2	0.90	559	531	512	2019.0	1.8	2.2	7.4	2848

SPEED 1000RPM 6-POLE 50HZ

Type No. IE2	Rated output		Rated speed (r/min)	Efficiency ▯ %(IE2)	Efficiency at 75% load	Efficiency at 50% load	Power factor cos φ	Rated current			Rated Torque N.m	Ts/Tn	Tmax/Tn	Is/In	Weight (Kg)
	kW	HP						380V	400V	415V					
IE2-711-6	0.18	0.25	850	56.6	56.6	55.5	0.66	0.73	0.70	0.67	2.0	2.0	1.9	4.0	9.5
IE2-712-6	0.25	0.37	850	61.6	61.6	60.4	0.68	0.91	0.86	0.83	2.8	2.8	1.9	4.0	10
IE2-801-6	0.37	0.5	885	67.6	67.6	66.2	0.70	1.19	1.13	1.09	4.0	4.0	1.9	4.7	13.2
IE2-802-6	0.55	0.75	885	73.1	73.1	71.6	0.72	1.59	1.51	1.45	5.9	5.9	1.9	4.7	14.4
IE2-90S-6	0.75	1	934	75.9	75.9	74.4	0.72	2.09	1.98	1.91	7.7	7.7	2.0	5.8	23.3
IE2-90L-6	1.1	1.5	945	78.1	78.1	76.5	0.72	2.97	2.82	2.72	11.1	11.1	2.0	5.9	26.6
IE2-100L-6	1.5	2	945	79.8	79.8	78.2	0.75	3.81	3.62	3.49	15.2	15.2	2.0	5.9	36.2
IE2-112M-6	2.2	3	960	81.8	81.8	80.2	0.76	5.38	5.11	4.92	21.9	21.9	2.0	6.2	51.2
IE2-132S-6	3	4	964	83.3	83.3	81.6	0.76	7.20	6.84	6.59	29.7	29.7	2.0	6.4	56.1
IE2-132M1-6	4	5.5	965	84.6	84.6	82.9	0.76	9.45	8.98	8.66	39.6	39.6	2.0	6.6	71.4
IE2-132M2-6	5.5	7.5	965	86.0	86.0	84.3	0.77	12.6	12.0	11.6	54.4	54.4	2.0	6.8	73.7
IE2-160M-6	7.5	10	970	87.2	87.2	85.5	0.78	16.8	15.9	15.3	73.8	73.8	2.0	6.8	112
IE2-160L-6	11	15	970	88.7	88.7	86.9	0.78	24.2	22.9	22.1	108.3	108.3	2.0	6.9	133
IE2-180L-6	15	20	975	89.7	89.7	87.9	0.81	31.4	29.8	28.7	146.9	146.9	2.0	7.3	183
IE2-200L1-6	18.5	25	980	90.4	90.4	88.6	0.81	38.4	36.5	35.1	180.3	180.3	2.0	7.2	224
IE2-200L2-6	22	30	980	90.9	90.9	89.1	0.83	44.3	42.1	40.6	214.4	214.4	2.0	7.3	240
IE2-225M-6	30	40	980	91.7	91.7	89.9	0.84	59.2	56.2	54.2	292.3	292.3	2.0	6.8	285
IE2-250M-6	37	50	980	92.2	92.2	90.4	0.86	70.9	67.4	64.9	360.6	360.6	2.0	7.0	389
IE2-280S-6	45	60	980	92.7	92.7	90.8	0.86	85.8	81.5	78.5	438.5	438.5	2.0	7.2	489
IE2-280M-6	55	75	980	93.1	93.1	91.2	0.86	104	99.2	95.6	536.0	536.0	2.0	7.2	550
IE2-315S-6	75	100	985	93.7	93.7	91.8	0.86	141	134	129	727.2	727.2	2.0	6.5	838
IE2-315M-6	90	125	985	94.0	94.0	92.1	0.86	169	161	155	872.6	872.6	2.0	6.6	941
IE2-315L1-6	110	150	985	94.3	94.3	92.4	0.86	206	196	189	1066.5	1066.5	2.0	6.6	986
IE2-315L2-6	132	1 80	985	94.6	94.6	92.7	0.87	244	231	223	1279.8	1279.8	2.0	6.6	1121
IE2-355M1-6	160	200	990	94.8	94.8	92.9	0.88	291	277	267	1543.4	1543.4	2.0	6.7	1650
IE2-355M2-6	200	270	990	95.0	95.0	93.1	0.88	363	345	333	1929.3	1929.3	2.0	6.8	1752
IE2-355L-6	250	340	990	95.0	95.0	93.1	0.88	454	432	416	2411.6	2411.6	2.0	6.8	1990

SPEED 750RPM 8-POLE 50HZ

Type No. IE2	Rated output		Rated speed (r/min)	Efficiency ▯ %(IE2)	Efficiency at 75% load	Efficiency at 50% load	Power factor cos φ	Rated current			Rated Torque N.m	Ts/Tn	Tmax/Tn	Is/In	Weight (Kg)
	kW	HP						380V	400V	415V					
IE2-712-8	0.12	0.18	605	39.8	39.8	39.0	0.57	0.80	0.76	0.74	1.89	1.8	1.9	2.8	9.6
IE2-801-8	0.18	0.25	650	45.9	45.9	45.0	0.61	0.98	0.93	0.89	2.64	1.8	1.9	3.3	12.7
IE2-802- 8	0.25	0.37	650	50.6	50.6	49.6	0.61	1.23	1.17	1.13	3.67	1.8	1.9	3.3	14.5
IE2-90S-8	0.37	0.5	675	56.1	56.1	55.0	0.61	1.64	1.56	1.50	5.23	1.8	1.9	4.0	24.5
IE2-90L-8	0.55	0.75	675	61.7	61.7	60.5	0.61	2.22	2.11	2.03	7.78	1.8	2.0	4.0	25.8
IE2-100L1-8	0.75	1	685	66.2	66.2	64.9	0.67	2.57	2.44	2.35	10.5	1.8	2.0	4.0	34.5
IE2-100L2-8	1.1	1.5	685	70.8	70.8	69.4	0.69	3.42	3.25	3.13	15.3	1.8	2.0	5.0	36
IE2-112M-8	1.5	2	695	74.1	74.1	72.6	0.70	4.39	4.1 7	4.02	20.6	1.8	2.0	5.0	50
IE2-132S-8	2.2	3	710	77.6	77.6	76.0	0.71	6.07	5.76	5.56	29.6	1.8	2.0	6.0	65
IE2-132M-8	3	4	710	80.0	80.0	78.4	0.73	7.80	7.41	7.15	40.4	1.8	2.0	6.0	81
IE2-160M1-8	4	5.5	725	81.9	81.9	80.3	0.73	10.2	9.66	9.31	52.7	1.9	2.0	6.0	92
IE2-160M2-8	5.5	7.5	725	83.8	83.8	82.1	0.74	13.5	12.8	12.3	72.4	1.9	2.0.	6.0	115
IE2-160L-8	7.5	10	725	85.3	85.3	83.6	0.75	17.8	16.9	16.3	98.8	1.9	2.0	6.0	124
IE2-180L-8	11	15	735	86.9	86.9	85.2	0.75	25.6	24.4	23.5	142.9	2.0	2.0	6.5	180
IE2-200L-8	15	20	730	88.0	88.0	86.2	0.76	34.1	32.4	31.2	196.2	2.0	2.0	6.6	213
IE2-225S-8	18.5	25	730	88.6	88.6	86.8	0.76	41.7	39.7	38.2	242.0	1.9	2.0	6.6	263
IE2-225M-8	22	30	730	89.1	89.1	87.3	0.78	48.1	45.7	44.0	287.8	1.9	2.0	6.6	301
IE2-250M-8	30	40	735	89.8	89.8	88.0	0.79	64.3	61.0	58.8	389.8	1.9	2.0	6.5	394
IE2-280S-8	37	50	735	90.3	90.3	88.5	0.79	78.8	74.9	72.2	480.7	1.9	2.0	6.6	480
IE2-280M-8	45	60	735	90.7	90.7	88.9	0.79	95.4	90.6	87.4	584.7	1.9	2.0	6.6	539
IE2-315S-8	55	75	735	91.0	91.0	89.2	0.81	113	108	104	714.6	1.8	2.0	6.6	820
IE2-315M-8	75	100	735	91.6	91.6	89.8	0.81	154	146	141	974.5	1.8	2.0	6.2	916
IE2-315L1-8	90	125	735	91.9	91.9	90.1	0.82	181	172	166	1169.4	1.8	2.0	6.4	1000
IE2-315L2-8	110	150	735	92.3	92.3	90.5	0.82	221	210	202	1429.3	1.8	2.0	6.4	1015
IE2-355M1-8	132	1 80	740	92.6	92.6	90.7	0.82	264	251	242	1703.5	1.8	2.0	6.4	1715
IE2-355M2-8	160	220	740	93.0	93.0	91.1	0.82	319	303	292	2064.9	1.8	2.0	6.4	1866
IE2-355L-8	200	270	740	93.5	93.5	91.6	0.83	392	372	359	2581.1	1.8	2.0	6.4	1948

SPEED 3000RPM 2-POLE 50HZ

Type No. IE3	Rated output		Rated speed (r/min)	Efficiency ▯ %(IE2)	Efficiency at 75% load	Efficiency at 50% load	Power factor cos φ	Rated current			Rated Torque N.m	Ts/Tn	Tmax/Tn	Is/In	Weight (Kg)
	kW	HP						380V	400V	415V					
IE3-631-2	0.18	0.25	2730	65.9	65.9	64.6	0.80	0.52	0.49	0.47	0.63	2.2	2.2	5.5	6.1
IE3-632-2	0.25	0.37	2730	69.7	69.7	68.3	0.81	0.67	0.64	0.62	0.87	2.2	2.2	5.5	6.4
IE3-711-2	0.37	0.5	2750	73.8	73.8	72.3	0.81	0.94	0.89	0.86	1.28	2.2	2.2	6.1	11
IE3-712-2	0.55	0.75	2750	77.8	77.8	76.2	0.82	1.31	1.24	1.20	1.91	2.3	2.3	6.1	12.1
IE3- -801-2	0.75	1	2880	80.7	80.7	79.1	0.82	1.72	1.64	1.58	2.49	2.3	2.3	7.0	18.1
IE3-802-2	1.1	1.5	2880	82.7	82.7	81.0	0.83	2.43	2.31	2.23	3.65	2.2	2.3	7.3	19.5
IE3-90S-2	1.5	2	2895	84.2	84.2	82.5	0.84	3.22	3.06	2.95	4.95	2.2	2.3	7.6	23.3
IE3-90L-2	2.2	3	2895	85.9	85.9	84.2	0.85	4.58	4.35	4.19	7.26	2.2	2.3	7.6	27.1
IE3-100L-2	3	4	2895	87.1	87.1	85.4	0.87	6.02	5.71	5.51	9.90	2.2	2.3	7.8	38.8
IE3-112M-2	4	5.5	2905	88.1	88.1	86.3	0.88	7.84	7.45	7.18	13.1	2.2	2.3	8.3	48.3
IE3-132S1-2	5.5	7.5	2930	89.2	89.2	87.4	0.88	10.6	10.1	9.75	17.9	2.0	2.3	8.3	55.1
IE3-132S2-2	7.5	10	2930	90.1	90.1	88.3	0.88	14.4	13.7	13.2	24.4	2.0	2.3	7.9	69.2
IE3-160M1-2	11	15	2945	91.2	91.2	89.4	0.89	20.6	19.6	18.9	35.7	2.0	2.3	8.1	113
IE3-160M2-2	15	20	2945	91.9	91.9	90.1	0.89	27.9	26.5	25.5	48.6	2.0	2.3	8.1	123
IE3-160L-2	18.5	25	2940	92.4	92.4	90.6	0.89	34.2	32.5	31.3	60.1	2.0	2.3	8.2	142
IE3-180M-2	22	30	2955	92.7	92.7	90.8	0.89	40.5	38.5	37.1	71.1	2.0	2.3	8.2	182
IE3-200L1-2	30	40	2960	93.3	93.3	91.4	0.89	54.9	52.1	50.3	96.8	2.0	2.3	7.6	246
IE3-200L2-2	37	50	2960	93.7	93.7	91.8	0.89	67.4	64.0	61.7	119.4	2.0	2.3	7.6	265
IE3-225M-2	45	60	2965	94.0	94.0	92.1	0.90	80.8	76.8	74.0	144.9	2.0	2.3	7.7	323
IE3-250M-2	55	75	2970	94.3	94.3	92.4	0.90	98.5	93.5	90.2	176.9	2.0	2.3	7.7	413
IE3-280S-2	75	100	2975	94.7	94.7	92.8	0.90	134	127	122	240.8	1.8	2.3	7.1	546
IE3-280M-2	90	125	2975	95.0	95.0	93.1	0.90	160	152	146	288.9	1.8	2.3	7.1	569
IE3-315S-2	110	150	2978	95.2	95.2	93.3	0.90	195	185	179	352.8	1.8	2.3	7.1	897
IE3-315M-2	132	180	2978	95.4	95.4	93.5	0.90	234	222	214	423.3	1.8	2.3	7.1	1029
IE3-315L1-2	160	200	2980	95.6	95.6	93.7	0.91	279	265	256	512.8	1.8	2.3	7.2	1067
IE3-315L2-2	200	270	2980	95.8	95.8	93.9	0.91	349	331	319	640.9	1.8	2.2	7.2	1194
IE3-355M-2	250	340	2982	95.8	95.8	93.9	0.91	436	414	399	800.6	1.6	2.2	7.2	1685
IE3-355L-2	315	430	2982	95.8	95.8	93.9	0.91	549	522	503	1009	1.6	2.2	7.2	1734

SPEED 1500RPM 4-POLE 50HZ

Type No. IE3	Rated output		Rated speed (r/min)	Efficiency ▯ %(IE2)	Efficiency at 75% load	Efficiency at 50% load	Power factor cos φ	Rated current			Rated Torque N.m	Ts/Tn	Tmax/Tn	Is/In	Weight (Kg)
	kW	HP						380V	400V	415V					
IE3-631-4	0.12	0.18	1320	64.8	64.8	63.5	0.72	0.39	0.37	0.36	0.87	2.1	2.2	4.4	4.8
IE3-632-4	0.18	0.25	1320	69.9	69.9	68.5	0.73	0.54	0.51	0.49	1.30	2.1	2.2	4.4	5.3
IE3-711-4	0.25	0.37	1340	73.5	73.5	72.0	0.74	0.70	0.66	0.64	1.78	2.1	2.2	5.2	15.2
IE3-712-4	0.37	0.5	1340	77.3	77.3	75.8	0.75	0.97	0.92	0.89	2.64	2.1	2.2	5.2	16.6
IE3-801-4	0.55	0.75	1400	80.8	80.8	79.2	0.75	1.38	1.31	1.26	3.75	2.4	2.3	5.2	17.6
IE3-802-4	0.75	1	1420	82.5	82.5	80.9	0.75	1.84	1.75	1.69	5.04	2.3	2.3	6.6	18.4
IE3-90S-4	1.1	1.5	1445	84.1	84.1	82.4	0.76	2.61	2.48	2.39	7.27	2.3	2.3	6.8	24.2
IE3-90L-4	1.5	2	1445	85.3	85.3	83.6	0.77	3.47	3.3	3.18	9.91	2.3	2.3	7.0	29.7
IE3-100L1-4	2.2	3	1450	86.7	86.7	85.0	0.81	4.76	4.52	4.36	14.6	2.3	2.3	7.6	41.5
IE3-100L2-4	3	4	1450	87.7	87.7	85.9	0.82	6.34	6.02	5.8	20.0	2.3	2.3	7.6	46
IE3-112M-4	4	5.5	1450	88.6	88.6	86.8	0.82	8.37	7.95	7.66	26.5	2.2	2.3	7.8	63.2
IE3-132S-4	5.5	7.5	1460	89.6	89.6	87.8	0.83	11.2	10.7	10.3	36.0	2.0	2.3	7.9	71.2
IE3-132M-4	7.5	10	1460	90.4	90.4	88.6	0.84	15.0	14.3	13.7	49.1	2.0	2.3	7.5	85.1
IE3-160M-4	11	15	1465	91.4	91.4	89.6	0.85	21.5	20.4	19.7	71.7	2.2	2.3	7.7	121
IE3-160L-4	15	20	1465	92.1	92.1	90.3	0.86	28.8	27.3	26.3	97.8	2.2	2.3	7.8	142
IE3-180M-4	18.5	25	1470	92.6	92.6	90.7	0.86	35.3	33.5	32.3	120.2	2.0	2.3	7.8	181
IE3-180L-4	22	30	1470	93.0	93.0	91.1	0.86	41.8	39.7	38.3	142.9	2.0	2.3	7.8	209
IE3-200L-4	30	40	1475	93.6	93.6	91.7	0.86	56.6	53.8	51.8	194.2	2.0	2.3	7.3	284
IE3-225S-4	37	50	1485	93.9	93.9	92.0	0.86	69.6	66.1	63.7	237.9	2.0	2.3	7.4	328
IE3-225M-4	45	60	1485	94.2	94.2	92.3	0.86	84.4	80.2	77.3	289.4	2.0	2.3	7.4	363
IE3-250M-4	55	75	1485	94.6	94.6	92.7	0.86	103	97.6	94.1	353.7	2.2	2.3	7.4	442
IE3-280S-4	75	100	1486	95.0	95.0	93.1	0.88	136	129	125	482.0	2.0	2.3	6.9	569
IE3-280M-4	90	125	1486	95.2	95.2	93.3	0.88	163	155	149	578.4	2.0	2.3	6.9	639
IE3-315S-4	110	150	1488	95.4	95.4	93.5	0.89	197	187	180	706.0	2.0	2.2	7.0	939
IE3-315M-4	132	180	1488	95.6	95.6	93.7	0.89	236	224	216	847.2	2.0	2.2	7.0	1033
IE3-315L1-4	160	200	1488	95.8	95.8	93.9	0.89	285	271	261	1027	2.0	2.2	7.1	1126
IE3-315L2-4	200	270	1490	96.0	96.0	94.1	0.90	352	334	322	1282	2.0	2.2	7.1	1238
IE3-355M-4	250	340	1490	96.0	96.0	94.1	0.90	440	418	403	1602	2.0	2.2	7.1	1830
IE3-355L-4	315	430	1490	96.0	96.0	94.1	0.90	554	526	507	2019	2.0	2.2	7.1	1950

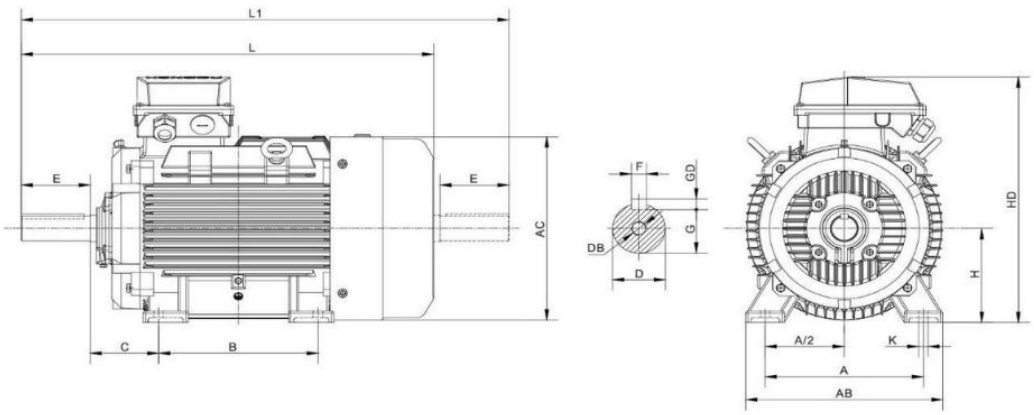
SPEED 1000RPM 6-POLE 50HZ

Type No. IE3	Rated output		Rated speed (r/min)	Efficiency ▯ %(IE2)	Efficiency at 75% load	Efficiency at 50% load	Power factor cos φ	Rated current			Rated Torque N.m	Ts/Tn	Tmax/Tn	Is/In	Weight (Kg)
	kW	HP						380V	400V	415V					
IE3-711-6	0.18	0.25	855	63.9	63.9	62.6	0.66	0.65	0.62	0.59	2.01	1.9	2.0	4.0	11
IE3-712-6	0.25	0.37	855	68.6	68.6	67.2	0.68	0.81	0.77	0.75	2.79	1.9	2.0	4.0	11.5
IE3-801-6	0.37	0.5	890	73.5	73.5	72.0	0.70	1.09	1.04	1.00	3.97	1.9	2.0	4.7	15.2
IE3-802-6	0.55	0.75	890	77.2	77.2	75.7	0.72	1.50	1.43	1.38	5.90	1.9	2.1	4.7	16.6
IE3-90S-6	0.75	1	935	78.9	78.9	77.3	0.71	2.03	1.93	1.86	7.66	2.0	2.1	6.0	24.1
IE3-90L-6	1.1	1.5	945	81.0	81.0	79.4	0.73	2.83	2.69	2.59	11.1	2.0	2.1	6.0	25.7
IE3-100L-6	1.5	2	949	82.5	82.5	80.9	0.73	3.78	3.59	3.47	15.1	2.0	2.1	6.5	34.9
IE3-112M-6	2.2	3	955	84.3	84.3	82.6	0.74	5.36	5.09	4.91	22.0	2.0	2.1	6.6	54.2
IE3-132S -6	3	4	968	85.6	85.6	83.9	0.74	7.20	6.84	6.59	29.6	2.0	2.1	6.8	62.3
IE3-132M1-6	4	5.5	968	86.8	86.8	85.1	0.74	9.46	8.99	8.66	39.5	2.0	2.1	6.8	75.2
IE3-132M2 -6	5.5	7.5	968	88.0	88.0	86.2	0.75	12.7	12.0	11.6	54.3	2.0	2.1	7.0	82.3
IE3-160M-6	7.5	10	970	89.1	89.1	87.3	0.79	16.2	15.4	14.8	73.8	2.0	2.1	7.0	112
IE3-160L-6	11	15	970	90.3	90.3	88.5	0.80	23.1	22.0	21.2	108.3	2.0	2.1	7.2	134
IE3-180L-6	15	20	978	91.2	91.2	89.4	0.81	30.9	29.3	28.2	146.5	2.0	2.1	7.3	197
IE3-200L1-6	18.5	25	980	91.7	91.7	89.9	0.81	37.8	35.9	34.7	180.3	2.0	2.1	7.3	234
IE3-200L2-6	22	30	980	92.2	92.2	90.4	0.81	44.8	42.5	41.0	214.4	2.0	2.1	7.4	251
IE3-225M-6	30	40	980	92.9	92.9	91.0	0.83	59.1	56.2	54.1	292.3	2.0	2.1	6.9	308
IE3-250M-6	37	50	985	93.3	93.3	91.4	0.84	71.7	68.1	65.7	358.7	2.0	2.1	7.1	383
IE3-280S-6	45	60	985	93.7	93.7	91.8	0.85	85.8	81.6	78.6	436.3	2.0	2.0	7.3	501
IE3-280M-6	55	75	985	94.1	94.1	92.2	0.86	103	98.1	94.6	533.2	2.0	2.0	7.3	573
IE3-315S-6	75	100	985	94.6	94.6	92.7	0.84	143	136	131	727.2	2.0	2.0	6.6	843
IE3-315M-6	90	125	988	94.9	94.9	93.0	0.85	170	161	155	869.9	2.0	2.0	6.7	941
IE3-315L1-6	110	150	988	95.1	95.1	93.2	0.85	207	196	189	1063	2.0	2.0	6.7	1017
IE3-315L2-6	132	180	988	95.4	95.4	93.5	0.86	244	232	224	1276	2.0	2.0	6.8	1121
IE3-355M1-6	160	200	990	95.6	95.6	93.7	0.86	296	281	271	1543	1.8	2.0	6.8	1715
IE3-355M2-6	200	270	990	95.8	95.8	93.9	0.87	365	346	334	1929	1.8	2.0	6.8	1846
IE3-355L-6	250	340	990	95.8	95.8	93.9	0.87	456	433	417	2412	1.8	2.0	6.8	2085

SPEED 750RPM 8-POLE 50HZ

Type No. IE3	Rated output		Rated speed (r/min)	Efficiency ▯ %(IE2)	Efficiency at 75% load	Efficiency at 50% load	Power factor cos φ	Rated current			Rated Torque N.m	Ts/Tn	Tmax/Tn	Is/In	Weight (Kg)
	kW	HP						380V	400V	415V					
IE3-712-8	0.12	0.18	605	50.7	50.7	49.7	0.57	0.63	0.60	0.58	1.89	1.8	1.9	2.8	11
IE3-801-8	0.18	0.25	650	58.7	58.7	57.5	0.61	0.76	0.73	0.70	2.64	1.8	1.9	3.3	14.5
IE3-802-8	0.25	0.37	650	64.1	64.1	62.8	0.61	0.97	0.92	0.89	3.67	1.8	1.9	3.3	16.7
IE3-90S-8	0.37	0.5	675	69.3	69.3	67.9	0.61	1.33	1.26	1.22	5.23	1.8	1.9	4.0	28.2
IE3-90L-8	0.55	0.75	675	73.0	73.0	71.5	0.61	1.88	1.78	1.72	7.78	1.8	2.0	4.0	29.7
IE3-100L1-8	0.75	1	685	75.0	75.0	73.5	0.67	2.27	2.15	2.08	10.5	1.8	2.0	4.0	40
IE3-100L2-8	1.1	1.5	685	77.7	77.7	76.1	0.69	3.12	2.96	2.85	15.3	1.8	2.0	5.0	41.4
IE3-112M-8	1.5	2	695	79.7	79.7	78.1	0.70	4.08	3.88	3.74	20.6	1.8	2.0	5.0	57.5
IE3-132S-8	2.2	3	710	81.9	81.9	80.3	0.71	5.75	5.46	5.26	29.6	1.8	2.0	6.0	74.8
IE3-132M-8	3	4	710	83.5	83.5	81.8	0.73	7.48	7.10	6.85	40.4	1.8	2.0	6.0	89.1
IE3-160M1-8	4	5.5	725	84.8	84.8	83.1	0.73	9.82	9.33	8.99	52.7	1.9	2.0	6.0	101
IE3-160M2-8	5.5	7.5	725	86.2	86.2	84.5	0.74	13.1	12.4	12.0	72.4	1.9	2.0	6.0	126.5
IE3-160L-8	7.5	10	725	87.3	87.3	85.6	0.75	17.4	16.5	15.9	98.8	1.9	2.0	6.0	136
IE3-180L-8	11	15	735	88.6	88.6	86.8	0.75	25.2	23.9	23.0	142.9	2.0	2.0	6.5	198
IE3-200L-8	15	20	730	89.6	89.6	87.8	0.76	33.5	31.8	30.6	196.2	2.0	2.0	6.6	234
IE3-225S-8	18.5	25	730	90.1	90.1	88.3	0.76	41.0	39.0	37.6	242.0	1.9	2.0	6.6	284
IE3-225M-8	22	30	730	90.6	90.6	88.8	0.78	47.3	44.9	43.3	287.8	1.9	2.0	6.6	325
IE3-250M-8	30	40	735	91.3	91.3	89.5	0.79	63.2	60.0	57.9	389.8	1.9	2.0	6.5	425
IE3-280S-8	37	50	735	91.8	91.8	90.0	0.79	77.5	73.6	71.0	480.7	1.9	2.0	6.6	518
IE3-280M-8	45	60	735	92.2	92.2	90.4	0.79	93.9	89.2	85.9	584.7	1.9	2.0	6.6	582
IE3-315S-8	55	75	735	92.5	92.5	90.7	0.81	112	106	102	714.6	1.8	2.0	6.6	852
IE3-315M-8	75	100	735	93.1	93.1	91.2	0.81	151	144	138	974.5	1.8	2.0	6.2	952
IE3-315L1-8	90	125	735	93.4	93.4	91.5	0.82	179	170	163	11 69	1.8	2.0	6.4	1040
IE3- 315L2-8	110	150	735	93.7	93.7	91.8	0.82	218	207	199	1429	1.8	2.0	6.4	1056
IE3-355M1-8	132	180	740	94.0	94.0	92.1	0.82	260	247	238	1704	1.8	2.0	6.4	1784
IE3-355M2-8	160	220	740	94.3	94.3	92.4	0.82	314	299	288	2065	1.8	2.0	6.4	1941
IE3-355L-8	200	270	740	94.6	94.6	92.7	0.83	387	368	354	2581	1.8	2.0	6.4	2026

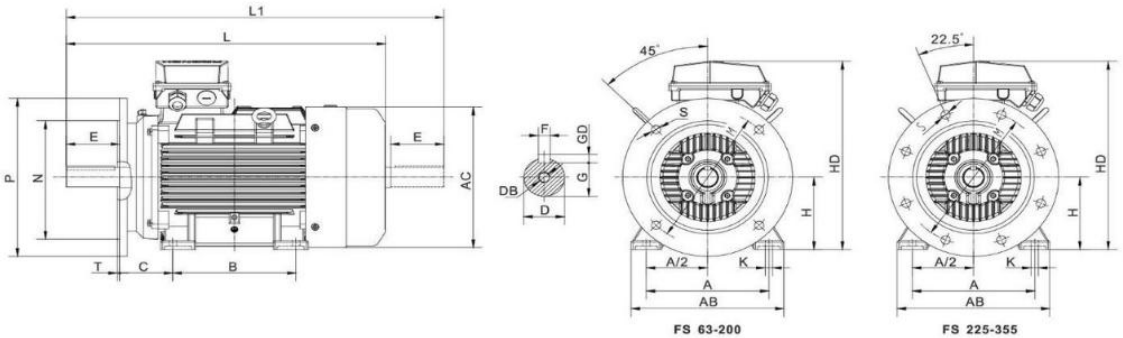
DIMENSIONS MOUNT **B3**



FS 63-355
NOTES:FS 63-90 motor without eyebolts

Frame size	Poles	Mounting Dimensions																OVERALL DIMENSIONS				
		A	A/2	B	C	D		E	F	G	H	K		DB	GD	AB	AC	HD	L	L1
63M	2、4	100	50	80	40	11	+0.008 -0.003	23	6	8.5	63	7	Φ0.5 M	M4	4	135	130	180	230	255
71M	2、4、6	112	56	90	45	14		30	0 -0.030	11	71			M5	5	150	145	195	255	290
80M		125	62.5	100	50	19		40		15.5	80	10		M6	6	165	175	220	295	340
90S		140	70	100	56	24	+0.009 -0.004	50	8	20	99			M8	7	180	195	250	320	375
90L				125															345	400
100L		160	80	140	63	28		60		24	100	12	Φ1.0 M	M10		205	215	270	385	450
112M		190	95	140	70						112					230	240	300	400	465
132S	2、4、6、8	216	108	140	89	38		80	10	33	132			M12	8	270	275	345	470	555
132M				178															510	595
160M		254	127	210	108	42	+0.018 +0.002	110	12	37	160	15		M16		320	330	420	615	730
160L				254															670	785
180M		279	139.5	241	121	48			14	42.5	180		Φ1.5 M		9	355	380	455	700	815
180L				279															740	855
200L		318	159	305	133	55			16	49	200	19			10	395	420	505	770	885
225S	4、8	356	178	286	149	60		140	18	53	225				11	435	470	560	815	960
225M	2			311		55		110	16	49					10				820	935
	4、6、8					60		140	18	53					11				845	990
250M	2	406	203	349	168						250	24				490	510	615	910	1055
	4、6、8					65				58										1055
280S	2	457	228.5	368	190						280				12	550	580	680	985	1130
	4、6、8					75			20	67.5										
280M	2			419		65	+0.030 +0.011		18	58				M20	11				1035	1180
	4、6、8					75			20	67.5					12					
315S	2	508	254	406	216	65			18	58	315	28			11	635	645	800	1160	1315
	4、6、8、10					80		170	22	71					14				1190	1375
315M	2			457		65		140	18	58					11				1270	1425
	4、6、8、10					80		170	22	71					14				1300	1485
315L	2			508		65		140	18	58					11				1270	1425
	4、6、8、10					80		170	22	71					14				1300	1485
355M	2	610	305	560	254	75		140	20	67.5	355				12	730	710	880	1500	1650
	4、6、8、10					95	+0.035 +0.013	170	25	86				M24	14				1530	1710
355L	2			630		75	+0.030 +0.013	140	20	67.5				M20	12				1500	1650
	4、6、8、10					95	+0.035 +0.013	170	25	86				M24	14				1530	1710

DIMENSIONS MOUNT **B35**



FS 63-355
NOTES:FS 63-90 motor without eyebolts

Frame size	Poles	Mounting Dimensions																												OVERALL DIMENSIONS				
		A	A/2	B	C		D		E	F		G		H		K			M	N		P	R	S		T		Flange holes	DB	GD	AB	AC	HD	L	L1
63M	2.4	100	50	80	40		11	+0.008 -0.003	23	4	0 -0.030	8.5	0 -0.010	63	0 -0.5	7	+0.360 0	ϕ05	115	95	+0.013 -0.003	140	±1.5	10	+0.360 0	3	0 -0.100	4	M4	4	135	130	180	230	255
71M	2.4.6	112	56	90	45		14		30	5		11		71					130	110		160							M5	5	150	145	195	255	290
80M	2.4.6.8	125	62.5	100	50	±1.5	19	+0.009 -0.004	40	6	0 -0.036	15.5	0 -0.020	80		10		ϕ10	165	130	+0.014 -0.011	200		12	+0.430 0	3.5		7	M6	6	165	175	220	295	340
90S		140	70	100	56		24		50	8		20		90															M8		180	195	250	320	375
90L				125																													345	400
100L		160	80	140	63		28		60			24		100		12			215	180		250		15		4			M10		205	215	270	385	450
112M		190	95	140	70	±2.0								112									±2.0								230	240	300	400	465
132S		216	108	140	89		38		80	10		33		132			+0.430 0		265	230		300							M12	8	270	275	345	470	555
132M				178																													510	595
160M		254	127	210	108		42	+0.018 -0.002	110	12		37		160		15			300	250	+0.016 -0.013	350	±3.0	19	+0.520 0	5	0 -0.120		M16		320	330	420	615	730
160L				254																													670	785
180M		279	139.5	241	121	±3.0	48			14		42.5		180				ϕ15											9		355	380	455	700	815
180L				279																													740	855
200L		318	159	305	133		55			16		49		200					350	300	±0.016	400							10		395	420	505	770	885
225S	4.8	356	178	286	149		60		140	18	0 -0.043	53		225		19			400	350	±0.018	450	0					8	11		435	470	560	815	960
225M	2			311			55		110	16		49																	10					820	935
	4.6.8						60			18		53	0 -0.020																					845	990
250M	2	406	203	349	168									250					500	450	±0.020	550							11		490	510	615	910	1055
	4.6.8						65					58				24																		1055
280S	2	457	228.5	368	190		75	+0.030 -0.011	140	20	0 -0.052	67.5		280	0 -0.5		+0.520 0	ϕ20											12	M20		550	580	680	985	1130
	4.6.8																																	
280M	2			419			65			18	0 -0.043	58																	11					1035	1180
	4.6.8	508	254		216	±4.0	75			20	0 -0.052	67.5							600	550	±0.022	660	±4.0	24		6	0 -0.150		12		635	645	800		
315S	2			406			65		170	18	0 -0.043	58		315		28													11					1160	1315
	4.6.8.10						80			22	0 -0.052	71																	14					1190	1375
315M	2			457			65		140	18	0 -0.043	58																	11					1270	1425
	4.6.8.10						80		170	22	0 -0.052	71																	14					1300	1485
315L	2			508			65		140	18	0 -0.043	58																	11					1270	1425
	4.6.8.10						80		170	22		71																	14					1300	1485
355M	2	610	305	560	254		75		140	20	0 -0.052	67.5		355					740	680	±0.025	800							12		7300	710	880	1500	1650
	4.6.8.10						95	+0.035 -0.013	170	25		86																	M24	14				1530	1710
355L	2			630			75	+0.030 -0.013	140	20		67.5																	M20	12				1500	1650
	4.6.8.10						95	+0.035 -0.013	170	25		86																	M24	14				1530	1710