W21

Aluminium Multimounting Three-phase Electric Motors European Market

Motors | Automation | Energy | Transmission & Distribution | Coatings

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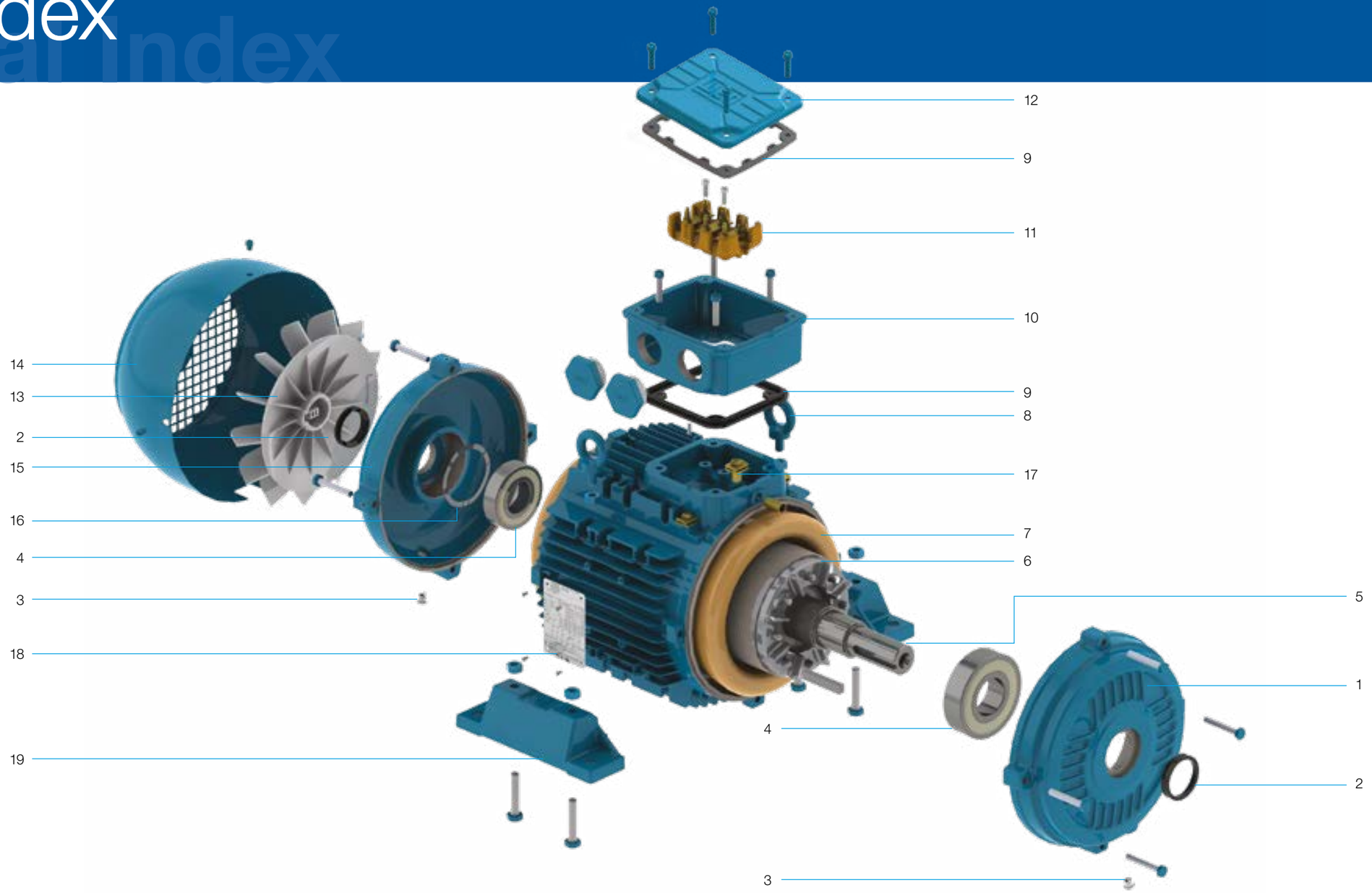
Visual Index



1 - Drive endshield
2 - Bearing seal (v'ring)
3 - Drain plug
4 - Bearings
5 - Shaft
6 - Squirrel cage rotor
7 - Wound stator
8 - Eye bolts
9 - Rubber gasket
10 - Terminal box
11 - Terminal block
12 - Terminal box cover
13 - Cooling Fan
14 - Fan cover
15 - Non-drive endshield
16 - Spring washer
17 - Grounding terminal
18- Nameplate
19 - Removable feet

W21 Aluminium Multimounting - Three-Phase Electric Motors

Looking for the optimum solution to satisfy a diversity of requirements and applications, WEG offers its W21 Aluminium Multimounting three phase motor platform. Recognised for their high quality, reliability and flexibility, these motors are utilised throughout the world in a variety of industrial applications.

Standard Features

- Rated output: 0,12 to 37 kW
- Number of poles: 2, 4, 6 and 8
- Frame sizes IEC 63 to 200M/L
- Efficiency levels IE2 or IE3
- Ambient Temperature Range: -20°C to +40°C
- Frequency: 50 Hz
- Voltage at 50 Hz: 220-240/380-415 V (up to 100 L)
  380-415/660 V (from 112M and up);
- Insulation class F (DT 80 K)
- Design N
- Degree of protection: IP55
- Cooling method: IC411 according to DIN EN 60034-6
- Mounting: B3T
- Frame material: Die cast aluminium
- Endshields material: Aluminium (up to 132)
  FC-200 cast iron (160 to 200)
- Terminal box material: Aluminium
- Terminal block for motor connection
- Grounding: Simple grounding inside the terminal box
- Fan Material: Polypropylene
- Fan Cover Material: Steel
- Drain: Rubber drain plug
- V'ring seal on both endshields
- Shaft material: AISI 1040/45
- ZZ Ball bearings
- Eyebolts for frames 112M to 200L
- Painting Plan: WEG internal painting plans 207A semi-matt (frames 63 up to 132) and 203A semi-gloss (frames 160 up to 200), both meeting the 'C2' performance criteria defined in the DIN EN ISO 12944-2 standard
- Thermal Protection: Thermistors PTC (155 °C) in windings for frames 160 up to 200
- WISE® Insulation System - Suitable for frequency inverter operation*

**For further information about frequency inverter operation, please contact WEG.*

Optional Features

- Number of poles: 10, 12 or multispeed motors
- Non standard voltages
- Insulation Class H
- Thermal protections: Thermostats, Thermistors (PTC) or Thermoresistances (Pt-100) in windings
- Space Heaters
- Higher degrees of protection, up to IP66
- Forced ventilation, encoders or brakes
- Other mounting configurations, including foot/flange, flange, pad
- Accessories terminal box
- Cable glands
- Canopy for vertical shaft down applications
- Fan material: Conductive plastic, aluminium or cast iron
- Shaft material: Stainless steel
- Double shaft end
- Painting plans for aggressive environments e.g. C5M / C5I acc. ISO 12944
- Internal anticorrosive epoxy painting

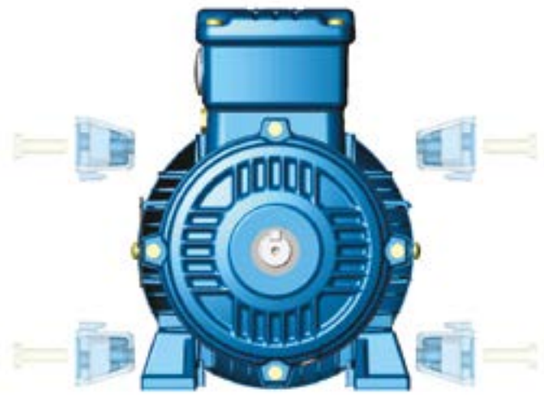
Features and Benefits

Reliability

WEG W21 Aluminium Motors are the result of high technological design, premium quality components and a wide application experience. Recognized for its quality, reliability and efficiency, the W21 Aluminium motor range incorporates the benefits of the W22 General Purpose cast iron line but with a lightweight construction and the with the flexibility offered by its multi-mounting mechanical design.

Flexible Construction

The W21 Aluminium motor line was developed in response to Market requirements regarding mounting flexibility. Consequently, and as its name suggests, the design incorporates a multimount feature which permits the motor to be mounted with the terminal box oriented on the top or on either side. Additionally, the motor terminal box can be rotated in 90° increments, permitting connection of the incoming power cables in any position.
This unique system enables the mounting configuration to be easily changed with no machining or modification to the motor feet required.
Furthermore, the innovative design of the W21 Aluminium Multimounting line offers the additional advantage on standardization and stock flexibility, considering that a single motor may be utilised for all mounting possibilities whilst also offering full interchangeability with existing cast iron frame motors.



Definite Purpose Designs

Complimenting what is already a comprehensive range of industrial motors, the W21 aluminium multi-mounting line features, besides the standard version, several definite purpose derived designs, such as Brake Motors, Single Phase Motors, Marine Motors and TEAO (IC 418) Motors for Fan & Exhaust applications.
These definite purpose designs are perfectly adapted to suit all application needs, and incorporate the same reliability, easy maintenance, reduced energy consumption and flexibility offered by the standard W21 Aluminium Multi-mounting line.

Construction Features

Frame			63	71	80	90	100	112	132	160	180	200
Mechanical features												
Mounting form			B3T									
Frame material			Die cast aluminium									
Degree of protection			IP55									
Grounding			Simgle grounding - one earth terminal inside the terminal box									
Cooling method			Totally enclosed fan cooled - IC411									
Fan material			Polypropylene									
Fan cover material			Steel									
Endshields material			Aluminum (up to 132) , FC-200 (EN GJL 200) cast iron (160 to 200)									
Drain hole			Rubber drain plug									
Bearings	Drive end side	2p	6201-ZZ	6203-ZZ	6204-ZZ	6205-ZZ	6206-ZZ	6207-ZZ	6308-ZZ	6309-ZZ-C3	6311-ZZ-C3	6312-ZZ-C3
		4 - 12p										
	Non drive end side	2p		6202-ZZ	6203-ZZ	6204-ZZ	6205-ZZ	6206-ZZ	6207-ZZ	6209-ZZ-C3	6211-ZZ-C3	6212-ZZ-C3
		4 - 12p										
Shaft Seal			'V' Ring									
Lubrication	Type of grease		Mobil Polyrex EM									
	Grease fitting		Without grease fitting									
Terminal block			BMC terminal block - six-pin									
Terminal box material			Die cast aluminium									
Cable entries	Main	Size	2 x M20 x 1.5			2 x M25 x 1.5		2 x M32 x 1.5		2 x M40 x 1.5		2 x M50 x 1.5
	Plug		Plasctic plug for transport and storage									
Shaft	Material		AISI 1040/45									
	DE Threaded hole	2p	M4	M5	M6	M8	M10	M10	M12	M16		M20
		4 - 12p										
Direction of rotation			Bidirectional									
Vibration level			Grade A									
Nameplate material			Stainless steel AISI 304									
Painting	Type		207 A								203 A	
	Performance Criteria		Corrosive category C2 according to DIN EN ISO 12944-2									
	Colour		RAL 5009									
Electrical features												
Design			N									
Voltage / Frequency			220-240/380-415//460 V (50 // 60Hz)					380-415/660//460 V (50 // 60Hz)				
Winding	Impregnation		Dip and bake									
	Insulation class		F (DT 80K)									
Service factor			1.00									
Rotor			Aluminium die cast									
Thermal protection			Without thermal protection								Thermistor PTC, 1 per phase, for tripping at 155 °C	

Optional Features

Frame	63	71	80	90	100	112	132	160	180	200
Mechanical optionals										
Terminal box										
Auxiliary terminal box	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oversized Terminal Box	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Terminal block										
BMC terminal block - twelve-pin	NA	NA	NA	0	0	0	0	0	0	0
Cable glands										
Plastic cable gland	0	0	0	0	0	0	0	0	0	0
Brass cable gland	0	0	0	0	0	0	0	0	0	0
Stainless steel cable gland	NA	NA	NA	0	0	0	0	0	0	0
Flange										
Flange FF (IEC)	0	0	0	0	0	0	0	0	0	0
Flange FF (IEC) - superior	0	0	0	0	NA	0	0	0	0	0
Flange FF (IEC) - inferior	NA	0	0	0	0	0	0	0	0	0
Flange C-DIN (IEC)	0	0	0	0	0	0	0	NA	NA	NA
Flange C-DIN (IEC) - superior	0	NA	0	0	0	0	NA	NA	NA	NA
Flange C-DIN (IEC) - inferior	NA	0	0	0	0	0	0	NA	NA	NA
Flange C (NEMA)	0	0	0	0	0	0	0	0	0	0
Flange C (NEMA) - superior	0	0	0	NA	0	NA	NA	NA	0	0
Flange C (NEMA) - inferior	NA	NA	NA	0	NA	0	0	NA	NA	NA
Flange D (NEMA)	0	0	0	0	0	0	0	0	0	0
Flange D (NEMA) - superior	0	0	0	0	NA	0	0	0	0	0
Flange D (NEMA) - inferior	NA	0	0	0	0	0	0	0	0	0
Cooling fan										
Conductive plastic	0	0	0	0	0	0	0	0	0	0
Aluminium	0	0	0	0	0	0	0	0	0	0
Cast iron	0	0	0	0	0	0	0	0	0	0
Bronze	NA	NA	NA	0	0	0	0	0	0	0
Bearings										
ZZ ball bearings at both ends	S	S	S	S	S	S	S	NA	NA	NA
ZZ-C3 ball bearings at both ends	0	0	0	0	0	0	0	S	S	S
2RS ball bearings at both ends	0	0	0	0	0	0	0	NA	NA	NA
2RS-C3 ball bearings at both ends	0	0	0	0	0	0	0	0	0	0
Without bearing cap at DE	S	S	S	S	S	S	S	NA	NA	NA
With bearing cap at DE	NA	0	0	0	0	0	0	S	S	S
Clearance C4 (for ball bearings)	NA	NA	NA	NA	NA	NA	NA	0	0	0
Shaft sealing										
Nitrillic rubber lip seal	0	0	0	0	0	0	0	0	0	0
Nitrillic rubber oil seal	0	0	0	0	0	0	0	0	0	0
Viton lip seal	0	0	0	0	0	0	0	0	0	0
Viton oil seal	0	0	0	0	0	0	0	0	0	0
Taconite labyrinth	NA	NA	NA	0	0	0	0	0	0	0
W3 Seal® (brass)	NA	NA	NA	0	0	0	0	0	0	0
Other sealing										
Joints sealing with Loctite 5923 (permatex)	0	0	0	0	0	0	0	0	0	0
Degree of protection										
IP56	0	0	0	0	0	0	0	0	0	0
IP65	0	0	0	0	0	0	0	0	0	0
IP66	0	0	0	0	0	0	0	0	0	0
Shaft										
AISI 4140	0	0	0	0	0	0	0	0	0	0
AISI 304 (stainless steel)	0	0	0	0	0	0	0	0	0	0
AISI 316 (stainless steel)	0	0	0	0	0	0	0	0	0	0
AISI 420 (stainless steel)	0	0	0	0	0	0	0	0	0	0
Second shaft end	0	0	0	0	0	0	0	0	0	0
Grease / Lubrication										
Grease - Isoflex NBU-15	0	0	0	0	0	0	0	0	0	0
Grease - Aeroshell 22	0	0	0	0	0	0	0	0	0	0
Carbon steel grease nipple	NA	NA	NA	NA	NA	NA	NA	0	0	0
Stainless steel grease nipple	NA	NA	NA	NA	NA	NA	NA	0	0	0

Optional Features

Frame		63	71	80	90	100	112	132	160	180	200
Drain											
Stainless steel threaded drain plug		0	0	0	0	0	0	0	0	0	0
“T” format threaded drain plug		0	0	0	0	0	0	0	0	0	0
Threaded drain plug		0	0	0	0	0	0	0	0	0	0
Painting plan											
Inside of terminal box painted		0	0	0	0	0	0	0	0	0	0
Internal tropical protection - complete		0	0	0	0	0	0	0	0	0	0
Balance and Vibration											
Without balance	2P	S	S	S	NA	NA	NA	NA	NA	NA	NA
	4P	S	S	NA	NA	NA	NA	NA	NA	NA	NA
Balance with a half key	2P	NA	NA	S	S	S	S	S	S	S	S
	4P	NA	S	S	S	S	S	S	S	S	S
Balance without key		NA	NA	NA	0	0	0	0	0	0	0
Balance with full key		NA	NA	NA	0	0	0	0	0	0	0
Vibration level grade B		0	0	0	0	0	0	0	0	0	0
Key Type A		S	S	S	S	S	S	S	S	S	S
Key Type C		0	0	0	0	0	0	0	0	0	0
Grounding											
Double grounding (one inside terminal box and another on the motor frame)		0	0	0	0	0	0	0	0	0	0
Nameplates											
Direction of Rotation plate		0	0	0	0	0	0	0	0	0	0
Other mechanical optionals											
Drip cover (recommended for vertical shaft down applications)		0	0	0	0	0	0	0	NA	NA	NA
Rubber slinger (recommended for vertical shaft up applications)		NA	NA	NA	0	0	0	0	0	0	0
Stainless steel hardware		0	0	0	0	0	0	0	0	0	0
Grease outlet by plastic plug		NA	NA	NA	NA	NA	NA	NA	0	0	0
Electrical optionals											
Winding thermal protection											
Thermostat - alarm / trip (NO or NC) - 130 °C		0	0	0	0	0	0	0	0	0	0
Thermostat - alarm / trip (NO or NC) - 155 °C		0	0	0	0	0	0	0	0	0	0
Thermostat - trip (NO or NC) - 180 °C		0	0	0	0	0	0	0	0	0	0
Pt-100 two wires, one per phase		0	0	0	0	0	0	0	0	0	0
Pt-100 three wires, one per phase		NA	NA	NA	NA	NA	NA	NA	0	0	0
PTC Thermistor - alarm/trip (130 °C)		0	0	0	0	0	0	0	0	0	0
PTC Thermistor - alarm (155 °C)		0	0	0	0	0	0	0	0	0	0
PTC Thermistor - trip (155 °C)		0	0	0	0	0	0	0	S	S	S
PTC Thermistor - trip (180 °C)		0	0	0	0	0	0	0	0	0	0
Space heaters											
110-127 V		0	0	0	0	0	0	0	0	0	0
220-240 V		0	0	0	0	0	0	0	0	0	0
110-127 / 220-240 V		NA	NA	NA	NA	NA	0	0	0	0	0
380-480 V		0	0	0	0	0	0	0	0	0	0
Service factor											
Service factor 1.15		0	0	0	0	0	0	0	0	0	0
Insulation class											
H		0	0	0	0	0	0	0	0	0	0
Variable Speed Options											
Forced ventilation kit with encoder provision (inform auxiliary motor voltage)		NA	NA	NA	0	0	0	0	0	0	0
Forced ventilation kit without encoder provision (inform auxiliary motor voltage)		NA	NA	NA	0	0	0	0	0	0	0
Encoder		NA	NA	NA	0	0	0	0	0	0	0

IE3 - Premium Efficiency - 50 Hz [1) 2)]

Output		Frame	Full Load Torque (kgfm)	Locked Rotor Current Il/In	Locked Rotor Torque Tl/Tn	Break-down Torque Tb/Tn	Inertia J (kgm2)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	400 V							
												Rated speed (rpm)	% of full load						Full load current In (A)
													Efficiency			Power Factor			
kW	HP							Hot	Cold				50	75	100	50	75	100	
II Poles																			
0.18	0.25	63	0.060	5.5	2.6	3.0	0.0002	20	44	7.0	52.0	2730	64.0	66.0	66.0	0.54	0.68	0.78	0.505
0.25	0.33	63	0.090	4.8	2.3	2.8	0.0002	15	33	7.2	52.0	2710	66.0	69.0	69.7	0.56	0.70	0.81	0.639
0.37	0.5	71	0.130	6.3	3.0	3.5	0.0004	12	26	9.5	56.0	2840	73.0	74.5	74.5	0.63	0.70	0.79	0.907
0.55	0.75	71	0.190	5.9	2.7	2.7	0.0005	15	33	11.2	56.0	2830	75.0	76.0	77.8	0.68	0.80	0.86	1.19
0.75	1	80	0.250	7.5	3.3	3.4	0.0008	25	55	12.1	59.0	2870	80.0	82.0	81.0	0.61	0.74	0.82	1.63
1.1	1.5	80	0.380	7.4	3.6	3.6	0.0009	23	51	13.5	59.0	2830	81.0	83.5	83.5	0.63	0.76	0.82	2.32
1.5	2	90S/L	0.500	8.0	2.6	3.5	0.0020	15	33	19.5	62.0	2900	83.0	84.2	84.2	0.64	0.75	0.82	3.14
2.2	3	90S/L	0.750	7.5	3.4	3.5	0.0026	12	26	22.0	62.0	2870	86.0	86.5	86.3	0.65	0.77	0.83	4.43
3	4	100L	1.01	7.9	2.9	3.6	0.0064	15	33	32.7	67.0	2895	85.0	86.5	87.2	0.65	0.78	0.85	5.84
4	5.5	112M	1.34	7.7	2.5	3.5	0.0080	14	31	42.6	62.0	2900	87.0	88.0	88.3	0.69	0.80	0.86	7.60
5.5	7.5	132S	1.82	8.5	2.4	3.3	0.0216	15	33	59.3	63.0	2940	87.0	88.0	89.2	0.72	0.82	0.87	10.2
5.5	7.5	S132S	1.82	8.5	2.4	3.3	0.0216	15	33	59.3	63.0	2940	87.0	88.0	89.2	0.72	0.82	0.87	10.2
7.5	10	132S	2.49	8.5	3.0	3.4	0.0252	11	24	66.0	63.0	2935	89.1	90.5	90.8	0.69	0.80	0.86	13.9
9.2	12.5	132M	3.06	8.5	2.9	3.3	0.0306	16	35	70.2	63.0	2930	90.4	91.1	91.1	0.75	0.84	0.88	16.6
11	15	160M/L	3.63	8.0	2.5	3.2	0.0506	12	26	115	70.0	2955	90.0	91.2	91.2	0.72	0.81	0.86	20.2
15	20	160M/L	4.96	8.3	2.4	2.9	0.0565	11	24	118	70.0	2945	91.0	92.0	92.2	0.71	0.81	0.84	28.0
18.5	25	160M/L	6.12	9.0	2.3	2.7	0.0650	11	24	126	70.0	2945	91.5	92.6	92.6	0.67	0.79	0.85	33.9
22	30	180M/L	7.26	8.0	2.4	3.0	0.1192	9	20	161	70.0	2950	91.0	92.5	92.7	0.68	0.78	0.84	40.8
30	40	200M/L	9.85	8.0	2.8	2.9	0.2063	15	33	219	74.0	2965	92.0	93.0	93.3	0.75	0.84	0.87	53.3
37	50	200M/L	12.2	8.0	2.6	2.8	0.2114	20	44	231	74.0	2960	92.5	93.5	93.7	0.72	0.81	0.85	67.1
High-Output Design																			
0.75	1	90S/L	0.250	8.2	3.3	3.4	0.0015	24	53	15.0	62.0	2900	79.0	82.5	83.0	0.63	0.75	0.82	1.59
1.1	1.5	90S/L	0.370	7.8	3.3	3.3	0.0018	19	42	17.1	62.0	2880	82.0	84.2	84.5	0.63	0.75	0.82	2.29
4	5.5	132S	1.33	7.9	2.3	3.1	0.0180	15	33	56.2	63.0	2935	86.0	87.5	88.1	0.76	0.85	0.88	7.45
4	5.5	S132S	1.33	7.9	2.3	3.1	0.0180	15	33	56.2	63.0	2935	86.0	87.5	88.1	0.76	0.85	0.88	7.45
5.5	7.5	132M	1.82	8.5	2.4	3.3	0.0216	15	33	59.3	63.0	2940	87.0	88.0	89.2	0.72	0.82	0.87	10.2
7.5	10	132M	2.49	8.5	3.0	3.4	0.0252	11	24	66.0	63.0	2935	89.1	90.5	90.8	0.69	0.80	0.86	13.9
11	15	132M	3.66	8.2	2.7	3.0	0.0306	11	24	74.1	63.0	2925	90.6	91.1	91.2	0.75	0.85	0.89	19.6
IV Poles																			
0.12	0.16	63	0.080	5.5	2.8	3.5	0.0004	20	44	7.3	44.0	1415	53.0	60.0	64.8	0.47	0.58	0.68	0.393
0.18	0.25	63	0.130	4.3	2.2	2.2	0.0006	30	66	7.6	44.0	1380	65.0	67.0	69.9	0.53	0.63	0.72	0.516
0.25	0.33	71	0.180	4.8	2.3	2.3	0.0007	30	66	10.7	43.0	1390	69.0	72.0	73.5	0.52	0.65	0.72	0.682
0.37	0.5	71	0.260	4.8	2.9	3.0	0.0008	30	66	10.9	43.0	1395	76.3	76.8	77.3	0.45	0.60	0.69	1.00
0.55	0.75	80	0.380	6.6	2.8	3.0	0.0026	20	44	16.2	44.0	1420	77.0	79.0	80.8	0.61	0.74	0.80	1.23
0.75	1	80	0.510	7.0	3.2	3.4	0.0032	18	40	13.8	44.0	1430	80.0	82.0	82.5	0.59	0.71	0.80	1.64
1.1	1.5	90S/L	0.740	7.6	2.5	3.3	0.0055	15	33	19.4	49.0	1455	83.0	84.5	84.8	0.57	0.70	0.78	2.40
1.5	2	90S/L	1.01	7.4	2.6	3.0	0.0066	13	29	20.9	49.0	1445	84.0	85.0	85.5	0.58	0.72	0.79	3.21
2.2	3	100L	1.49	7.6	2.5	3.0	0.0090	16	35	32.4	53.0	1435	85.0	86.5	86.7	0.55	0.68	0.78	4.70
3	4	L100L	2.03	7.8	3.5	3.7	0.0120	15	33	37.0	53.0	1440	87.0	88.0	88.0	0.58	0.71	0.78	6.31
4	5.5	112M	2.69	7.0	2.3	3.1	0.0182	15	33	39.9	56.0	1450	88.7	89.1	89.1	0.60	0.72	0.79	8.20
5.5	7.5	132S	3.66	8.5	2.4	3.4	0.0528	15	33	56.0	56.0	1465	90.0	90.7	90.7	0.67	0.79	0.85	10.3
5.5	7.5	S132S	3.66	8.5	2.4	3.4	0.0528	15	33	56.0	56.0	1465	90.0	90.7	90.7	0.67	0.79	0.85	10.3
7.5	10	132M	4.99	8.5	2.5	3.4	0.0642	13	29	76.8	56.0	1465	87.5	90.0	90.6	0.67	0.78	0.84	14.2
11	15	160M/L	7.29	7.5	2.8	3.0	0.1071	12	26	111	67.0	1470	89.5	91.0	91.5	0.62	0.73	0.80	21.7
15	20	160M/L	9.97	6.3	2.4	2.5	0.1263	11	24	120	67.0	1465	89.7	91.2	92.1	0.65	0.76	0.82	28.7
18.5	25	180M/L	12.2	8.3	3.0	3.2	0.2088	12	26	168	64.0	1474	91.0	92.2	92.6	0.63	0.75	0.82	35.2
22	30	180M/L	14.6	8.5	3.2	3.6	0.2393	11	24	181	64.0	1470	91.5	92.5	93.0	0.64	0.76	0.82	41.6
30	40	200M/L	19.8	7.0	3.2	3.4	0.3743	8	18	233	69.0	1475	92.5	93.6	93.6	0.63	0.75	0.81	57.1
High-Output Design																			
0.75	1	90S/L	0.500	7.8	2.7	3.4	0.0049	21	46	17.5	49.0	1460	82.5	84.0	84.5	0.54	0.68	0.77	1.66
1.5	2	100L	1.01	7.8	2.5	3.4	0.0082	10	22	27.9	53.0	1445	84.0	85.3	85.3	0.54	0.67	0.76	3.34
2.2	3	112M	1.47	7.8	2.2	3.1	0.0143	15	33	37.9	56.0	1460	84.0	86.5	87.0	0.52	0.66	0.74	4.93
3	4	112M	2.01	7.1	2.3	3.1	0.0169	25	55	38.7	56.0	1455	88.5	89.1	89.1	0.62	0.74	0.81	6.00
5.5	7.5	132M	3.66	8.5	2.4	3.4	0.0528	15	33	56.0	56.0	1465	90.0	90.7	90.7	0.67	0.79	0.85	10.3
7.5	10	L132M	4.99	8.5	2.5	3.4	0.0638	13	29	80.0	56.0	1465	87.5	90.0	90.6	0.67	0.78	0.84	14.2

Notes:

(1) Efficiency values are given according to IEC 60034-2-1. They are calculated according to indirect method, with stray load losses determined by measurement.

(2) With effect from 1st January 2017, IE2 motors placed onto the European Market and rated at 0.75 kW or above, must be used with a variable speed drive unless their design falls outside of the scope of the European Regulation or their final installation will be outside of the EU / EEA.

(3) Motor with class F (105K) temperature rise.

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IE3 - Premium Efficiency - 50 Hz [1) 2)]

Output		380 V								415 V							
		Rated speed (rpm)	% of full load						Full load current In (A)	Rated speed (rpm)	% of full load						Full load current In (A)
			Efficiency			Power Factor					Efficiency			Power Factor			
kW	HP		50	75	100	50	75	100			50	75	100	50	75	100	
II Poles																	
0.18	0.25	2705	65.0	66.0	66.0	0.58	0.72	0.82	0.505	2745	62.0	66.0	66.0	0.51	0.65	0.76	0.499
0.25	0.33	2680	67.0	69.0	69.7	0.60	0.75	0.84	0.649	2730	64.0	68.0	69.7	0.53	0.68	0.78	0.640
0.37	0.5	2825	73.6	74.3	73.8	0.68	0.79	0.81	0.940	2850	72.4	74.5	75.0	0.60	0.67	0.77	0.891
0.55	0.75	2805	75.6	75.7	77.8	0.73	0.83	0.88	1.22	2845	74.4	76.0	77.8	0.64	0.77	0.84	1.17
0.75	1	2855	80.0	80.5	80.7	0.66	0.78	0.85	1.66	2880	79.1	81.0	81.1	0.57	0.71	0.79	1.63
1.1	1.5	2810	82.0	83.7	83.1	0.69	0.80	0.85	2.37	2840	80.0	83.0	83.4	0.58	0.72	0.79	2.32
1.5	2	2885	83.7	84.2	84.2	0.69	0.79	0.84	3.22	2910	82.2	84.2	84.2	0.59	0.71	0.79	3.14
2.2	3	2855	86.5	86.4	85.9	0.70	0.81	0.86	4.52	2880	85.3	86.4	86.5	0.61	0.74	0.81	4.37
3	4	2885	84.5	86.0	87.2	0.71	0.82	0.88	5.94	2905	84.5	86.5	87.2	0.60	0.74	0.82	5.84
4	5.5	2890	87.0	88.0	88.3	0.73	0.83	0.88	7.82	2910	87.0	88.0	88.3	0.65	0.77	0.84	7.50
5.5	7.5	2935	87.0	88.0	89.2	0.76	0.85	0.89	10.5	2945	87.0	88.0	89.2	0.68	0.79	0.85	10.1
5.5	7.5	2935	87.0	88.0	89.2	0.76	0.85	0.89	10.5	2945	87.0	88.0	89.2	0.68	0.79	0.85	10.1
7.5	10	2925	89.6	90.6	90.6	0.74	0.84	0.88	14.3	2940	88.6	90.3	90.8	0.65	0.77	0.83	13.8
9.2	12.5	2920	90.7	91.0	90.8	0.79	0.87	0.90	17.1	2935	90.1	91.0	91.3	0.71	0.82	0.87	16.1
11	15	2950	90.0	91.2	91.2	0.79	0.85	0.88	20.8	2960	90.0	91.2	91.2	0.68	0.77	0.84	20.0
15	20	2940	91.0	92.0	92.2	0.74	0.82	0.85	29.1	2950	91.0	92.0	92.2	0.68	0.80	0.83	27.3
18.5	25	2940	91.5	92.6	92.6	0.70	0.81	0.86	35.3	2950	91.5	92.6	92.6	0.63	0.77	0.84	33.1
22	30	2940	91.5	92.5	92.7	0.73	0.82	0.86	41.9	2950	90.0	92.0	92.7	0.63	0.75	0.81	40.8
30	40	2960	92.0	93.0	93.3	0.80	0.86	0.89	54.9	2970	92.0	93.0	93.3	0.72	0.82	0.86	52.0
37	50	2955	92.5	93.5	93.7	0.77	0.85	0.88	68.2	2965	92.5	93.5	93.7	0.66	0.77	0.83	66.2
High-Output Design																	
0.75	1	2885	79.5	82.5	82.5	0.68	0.78	0.84	1.64	2910	78.4	82.3	83.1	0.60	0.72	0.79	1.59
1.1	1.5	2865	82.6	84.2	84.0	0.68	0.79	0.84	2.37	2890	81.4	84.0	84.7	0.59	0.72	0.80	2.26
4	5.5	2930	86.0	87.5	88.1	0.79	0.87	0.89	7.75	2940	86.0	87.5	88.1	0.75	0.83	0.87	7.26
4	5.5	2930	86.0	87.5	88.1	0.79	0.87	0.89	7.75	2940	86.0	87.5	88.1	0.75	0.83	0.87	7.26
5.5	7.5	2935	87.0	88.0	89.2	0.76	0.85	0.89	10.5	2945	87.0	88.0	89.2	0.68	0.79	0.85	10.1
7.5	10	2925	89.6	90.6	90.6	0.74	0.84	0.88	14.3	2940	88.6	90.3	90.8	0.65	0.77	0.83	13.8
11	15	2915	90.9	91.0	91.2	0.80	0.87	0.90	20.4	2930	90.2	91.1	91.4	0.72	0.82	0.87	19.2
IV Poles																	
0.12	0.16	1405	55.0	61.0	64.8	0.50	0.62	0.71	0.396	1420	52.0	59.0	64.8	0.45	0.56	0.65	0.396
0.18	0.25	1360	65.0	67.0	69.9	0.57	0.67	0.75	0.522	1390	65.0	67.0	69.9	0.50	0.61	0.70	0.512
0.25	0.33	1375	67.0	69.1	73.5	0.56	0.69	0.75	0.689	1400	65.1	68.6	73.4	0.50	0.62	0.69	0.687
0.37	0.5	1380	76.3	76.8	77.3	0.49	0.64	0.72	1.01	1405	76.3	76.8	77.3	0.42	0.57	0.67	0.994
0.55	0.75	1410	78.0	79.1	80.8	0.65	0.77	0.83	1.25	1430	76.0	78.9	80.8	0.57	0.71	0.77	1.23
0.75	1	1425	80.8	82.0	82.5	0.62	0.75	0.81	1.71	1435	79.1	81.8	82.5	0.53	0.67	0.78	1.62
1.1	1.5	1450	84.0	84.7	84.3	0.62	0.74	0.81	2.45	1460	82.0	84.1	84.8	0.55	0.67	0.75	2.41
1.5	2	1440	85.0	85.3	85.3	0.63	0.76	0.81	3.30	1450	83.1	85.0	85.7	0.54	0.68	0.77	3.16
2.2	3	1425	86.0	86.5	86.7	0.60	0.72	0.80	4.82	1440	84.0	85.8	86.7	0.51	0.65	0.75	4.71
3	4	1430	87.7	88.0	87.7	0.63	0.75	0.81	6.42	1445	86.3	87.7	88.1	0.54	0.68	0.76	6.23
4	5.5	1445	89.3	89.0	88.6	0.65	0.76	0.81	8.47	1455	88.2	88.9	89.3	0.57	0.70	0.77	8.09
5.5	7.5	1460	90.4	90.7	90.3	0.71	0.82	0.87	10.6	1470	89.6	90.7	90.8	0.64	0.76	0.83	10.2
5.5	7.5	1460	90.4	90.7	90.3	0.71	0.82	0.87	10.6	1470	89.6	90.7	90.8	0.64	0.76	0.83	10.2
7.5	10	1460	88.5	90.0	90.6	0.71	0.81	0.86	14.6	1470	86.5	90.0	90.6	0.63	0.75	0.83	13.9
11	15	1465	89.5	91.0	91.5	0.64	0.75	0.82	22.3	1475	89.5	91.0	91.5	0.60	0.70	0.78	21.4
15	20	1460	89.7	91.2	92.1	0.70	0.79	0.84	29.5	1470	89.7	91.2	92.1	0.60	0.73	0.80	28.3
18.5	25	1470	91.0	92.2	92.6	0.67	0.79	0.84	36.1	1476	91.0	92.2	92.6	0.60	0.72	0.80	34.7
22	30	1465	92.0	92.5	93.0	0.70	0.80	0.84	42.8	1475	91.0	92.5	93.0	0.61	0.73	0.79	41.7
30	40	1475	92.5	93.6	93.6	0.68	0.79	0.84	58.0	1480	92.0	93.6	93.6	0.58	0.71	0.79	56.4
High-Output Design																	
0.75	1	1455	83.2	84.1	84.0	0.59	0.72	0.80	1.70	1465	81.8	83.8	84.6	0.50	0.65	0.74	1.67
1.5	2	1440	84.0	85.3	85.3	0.58	0.71	0.79	3.38	1450	83.0	85.3	85.3	0.51	0.64	0.73	3.35
2.2	3	1455	84.0	86.0	86.7	0.56	0.69	0.77	5.01	1465	84.0	86.5	87.0	0.49	0.63	0.72	4.89
3	4	1450	88.6	89.0	89.0	0.66	0.77	0.83	6.17	1460	88.1	89.1	89.1	0.59	0.71	0.79	5.93
5.5	7.5	1460	90.4	90.7	90.3	0.71	0.82	0.87	10.6	1470	89.6	90.7	90.8	0.64	0.76	0.83	10.2
7.5	10	1460	88.5	90.0	90.6	0.71	0.81	0.86	14.6	1470	86.5	90.0	90.6	0.63	0.75	0.83	13.9

IE3 - Premium Efficiency - 50 Hz [1) 2)]

Output		Frame	Full Load Torque (kgfm)	Locked Rotor Current Il/In	Locked Rotor Torque Tl/Tn	Break-down Torque Tb/Tn	Inertia J (kgm2)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	400 V							
												Rated speed (rpm)	% of full load						Full load current In (A)
													Efficiency			Power Factor			
kW	HP							Hot	Cold				50	75	100	50	75	100	
VI Poles																			
0.12	0.16	63	0.130	3.1	2.1	2.3	0.0007	30	66	7.8	43.0	925	50.0	55.0	57.7	0.40	0.50	0.59	0.509
0.18	0.25	71	0.190	3.2	2.0	2.1	0.0009	30	66	10.5	43.0	900	56.0	62.0	63.9	0.38	0.48	0.57	0.713
0.25	0.33	80	0.250	4.3	1.7	2.4	0.0029	25	55	12.0	43.0	955	63.6	68.5	68.8	0.47	0.60	0.71	0.739
0.37	0.5	80	0.390	4.5	1.9	2.1	0.0025	25	55	13.9	43.0	925	66.0	69.5	73.5	0.51	0.65	0.75	0.969
0.55	0.75	L80	0.570	5.1	2.9	3.1	0.0034	20	44	18.0	43.0	945	70.5	75.2	77.2	0.45	0.58	0.69	1.49
0.75	1	90S/L	0.780	5.2	2.5	2.8	0.0066	31	68	21.4	45.0	940	76.5	79.0	79.0	0.49	0.62	0.71	1.93
1.1	1.5	100L	1.12	6.0	2.1	3.2	0.0110	18	40	25.3	44.0	960	77.0	80.0	81.0	0.50	0.62	0.70	2.80
1.5	2	100L	1.54	5.5	2.3	2.8	0.0143	31	68	29.4	44.0	950	81.5	82.5	82.5	0.49	0.62	0.71	3.70
2.2	3	112M	2.23	6.4	2.4	2.9	0.0257	26	57	39.5	49.0	960	83.0	84.5	84.5	0.53	0.64	0.72	5.22
3	4	132S	3.01	6.0	1.9	2.5	0.0566	28	62	62.4	53.0	970	85.0	85.8	85.8	0.52	0.65	0.73	6.91
4	5.5	132M	4.06	6.5	2.2	2.5	0.0566	30	66	66.0	53.0	960	86.0	86.8	86.8	0.53	0.66	0.74	8.99
5.5	7.5	L132M	5.52	7.3	2.1	2.5	0.0755	26	57	73.2	53.0	970	86.0	87.0	88.0	0.50	0.64	0.72	12.5
7.5	10	160M/L	7.53	6.6	2.5	2.9	0.1614	19	42	117	54.0	970	86.0	88.5	89.1	0.61	0.74	0.81	15.0
11	15	160M/L	11.1	7.0	2.8	3.0	0.1689	13	29	123	54.0	970	89.0	90.0	90.3	0.60	0.73	0.80	22.0
15	20	180M/L	15.0	7.7	2.6	3.2	0.3310	10	22	174	56.0	975	90.5	91.0	91.2	0.65	0.78	0.84	28.3
18.5	25	200M/L	18.5	6.3	2.3	2.5	0.3861	17	37	206	58.0	975	90.5	91.8	92.0	0.67	0.78	0.82	35.4
22	30	200M/L	22.0	6.2	2.3	2.6	0.4388	15	33	219	58.0	975	90.4	92.0	92.2	0.65	0.75	0.82	42.0
High-Output Design																			
1.1	1.5	112M	1.10	7.5	2.2	3.7	0.0220	20	44	32.2	49.0	970	79.0	82.0	82.5	0.43	0.55	0.64	3.01
1.5	2	112M	1.52	6.0	2.1	2.8	0.0202	28	62	35.8	49.0	960	84.5	85.5	85.5	0.51	0.63	0.71	3.57
2.2	3	132S	2.20	6.5	2.2	3.3	0.0491	20	44	55.7	53.0	975	80.0	83.0	84.3	0.49	0.61	0.69	5.46
2.2	3	S132S	2.20	6.5	2.2	3.3	0.0491	20	44	55.7	53.0	975	80.0	83.0	84.3	0.49	0.61	0.69	5.46
3	4	132M	3.01	6.0	1.9	2.5	0.0566	28	62	62.4	53.0	970	85.0	85.8	85.8	0.52	0.65	0.73	6.91
5.5	7.5	160M/L	5.49	7.5	2.1	2.6	0.1264	15	33	112	54.0	975	87.0	88.0	88.0	0.62	0.74	0.81	11.1
VIII Poles																			
0.12	0.16	71	0.180	2.4	1.8	2.0	0.0009	30	66	11.5	41.0	650	44.0	50.0	52.5	0.35	0.43	0.50	0.660
0.18	0.25	80	0.260	3.3	2.0	2.2	0.0029	30	66	15.0	42.0	680	51.0	57.0	58.7	0.45	0.55	0.65	0.681
0.25	0.33	80	0.350	3.5	2.0	2.2	0.0034	30	66	15.5	42.0	695	53.0	60.0	64.1	0.42	0.52	0.63	0.894
0.37	0.5	90S/L	0.520	3.7	2.1	2.4	0.0055	30	66	19.0	44.0	690	61.0	66.0	69.3	0.41	0.53	0.62	1.24
0.55	0.75	90S/L	0.780	3.6	1.8	2.1	0.0066	29	64	23.0	44.0	685	63.0	72.5	73.0	0.44	0.57	0.67	1.62
0.75	1	100L	1.03	4.6	1.9	2.3	0.0127	30	66	28.8	50.0	710	72.5	75.5	75.5	0.41	0.53	0.62	2.31
1.1	1.5	100L	1.51	4.6	1.9	2.0	0.0143	30	66	30.8	50.0	710	73.0	76.0	77.7	0.41	0.53	0.62	3.30
1.5	2	112M	2.07	5.0	2.5	2.8	0.0238	28	62	37.4	46.0	705	79.0	80.5	80.5	0.45	0.59	0.68	3.96
2.2	3	132S	3.02	6.2	2.3	2.5	0.0690	27	59	58.9	48.0	710	82.0	82.6	82.6	0.51	0.65	0.72	5.34
2.2	3	S132S	3.02	6.2	2.3	2.5	0.0690	27	59	58.9	48.0	710	82.0	82.6	82.6	0.51	0.65	0.72	5.34
3	4	132M	4.12	6.4	2.4	2.6	0.0838	21	46	66.2	48.0	710	82.5	83.5	83.5	0.51	0.64	0.72	7.20
4	5.5	160M/L	5.34	5.5	2.3	3.1	0.1221	15	33	97.3	53.0	730	81.0	84.0	84.8	0.43	0.56	0.65	10.5
5.5	7.5	160M/L	7.34	5.6	2.5	2.8	0.1652	22	48	112	53.0	730	85.0	87.7	87.7	0.42	0.55	0.65	13.9
7.5	10	160M/L	10.1	5.2	2.0	2.4	0.1652	19	42	121	53.0	725	87.5	88.0	88.0	0.54	0.66	0.73	16.9
11	15	180M/L	14.7	8.0	2.6	2.8	0.3034	12	26	158	51.0	730	90.0	90.3	90.3	0.62	0.73	0.80	22.0
15	20	200M/L	19.9	5.0	2.0	2.2	0.5023	28	62	228	56.0	735	89.5	90.5	90.9	0.53	0.65	0.71	33.5

Notes:

(1) Efficiency values are given according to IEC 60034-2-1. They are calculated according to indirect method, with stray load losses determined by measurement.

(2) With effect from 1st January 2017, IE2 motors placed onto the European Market and rated at 0.75 kW or above, must be used with a variable speed drive unless their design falls outside of the scope of the European Regulation or their final installation will be outside of the EU / EEA.

(3) Motor with class F (105K) temperature rise.

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IE3 - Premium Efficiency - 50 Hz [1) 2)]

Output		380 V								415 V							
		Rated speed (rpm)	% of full load						Full load current In (A)	Rated speed (rpm)	% of full load						Full load current In (A)
			Efficiency			Power Factor					Efficiency			Power Factor			
kW	HP		50	75	100	50	75	100			50	75	100	50	75	100	
VI Poles																	
0.12	0.16	910	48.7	54.7	57.7	0.40	0.53	0.63	0.502	930	50.0	55.0	57.7	0.39	0.47	0.56	0.517
0.18	0.25	885	57.7	62.8	63.9	0.43	0.55	0.64	0.669	910	54.5	61.2	63.9	0.38	0.48	0.57	0.688
0.25	0.33	950	65.9	68.0	68.6	0.51	0.64	0.74	0.748	960	61.7	68.2	68.8	0.45	0.57	0.68	0.743
0.37	0.5	915	67.6	69.9	73.5	0.55	0.69	0.79	0.968	930	64.3	68.8	73.5	0.48	0.62	0.72	0.973
0.55	0.75	940	73.4	76.7	77.2	0.49	0.63	0.73	1.48	950	67.9	75.0	77.2	0.42	0.55	0.65	1.52
0.75	1	930	77.5	79.2	78.9	0.53	0.66	0.74	1.95	945	75.3	78.6	79.1	0.46	0.59	0.69	1.91
1.1	1.5	955	77.0	80.0	81.0	0.53	0.66	0.74	2.79	965	76.0	80.0	81.0	0.46	0.59	0.68	2.78
1.5	2	945	82.3	82.6	82.5	0.53	0.66	0.74	3.73	955	80.6	82.3	82.8	0.46	0.59	0.68	3.71
2.2	3	955	83.6	84.4	84.3	0.57	0.68	0.75	5.29	965	82.3	84.3	84.7	0.50	0.62	0.70	5.16
3	4	965	85.0	85.8	85.8	0.56	0.69	0.76	6.99	975	85.0	85.8	85.8	0.49	0.62	0.71	6.85
4	5.5	955	86.6	86.9	86.8	0.57	0.70	0.76	9.21	965	85.4	86.6	86.9	0.50	0.63	0.71	9.02
5.5	7.5	965	85.5	87.0	88.0	0.55	0.68	0.75	12.7	970	86.0	87.0	88.0	0.47	0.61	0.69	12.6
7.5	10	965	86.5	88.5	89.1	0.65	0.77	0.82	15.6	975	85.5	88.5	89.1	0.58	0.71	0.79	14.8
11	15	970	89.0	90.0	90.3	0.65	0.77	0.83	22.3	975	89.0	90.0	90.3	0.57	0.70	0.78	21.7
15	20	970	90.0	91.0	91.2	0.68	0.80	0.85	29.4	975	90.5	91.0	91.2	0.69	0.80	0.85	26.9
18.5	25	970	90.5	91.8	92.0	0.72	0.81	0.84	36.4	980	90.0	91.8	92.0	0.64	0.75	0.80	35.0
22	30	970	91.0	92.0	92.2	0.70	0.78	0.84	43.2	980	89.5	91.5	92.2	0.60	0.72	0.80	41.5
High-Output Design																	
1.1	1.5	970	80.0	82.5	82.5	0.47	0.59	0.68	2.98	975	78.0	81.0	82.5	0.40	0.52	0.61	3.04
1.5	2	955	85.1	85.4	84.9	0.54	0.66	0.74	3.63	960	84.0	85.4	85.8	0.48	0.60	0.69	3.52
2.2	3	970	80.0	83.0	84.3	0.53	0.65	0.72	5.51	975	79.0	83.0	84.3	0.46	0.58	0.67	5.42
2.2	3	970	80.0	83.0	84.3	0.53	0.65	0.72	5.51	975	79.0	83.0	84.3	0.46	0.58	0.67	5.42
3	4	965	85.0	85.8	85.8	0.56	0.69	0.76	6.99	975	85.0	85.8	85.8	0.49	0.62	0.71	6.85
5.5	7.5	970	87.0	88.0	88.0	0.66	0.77	0.83	11.4	975	87.0	88.0	88.0	0.59	0.72	0.79	11.0
VIII Poles																	
0.12	0.16	640	46.6	51.7	52.9	0.38	0.46	0.54	0.638	660	41.8	48.2	51.4	0.34	0.41	0.48	0.677
0.18	0.25	670	52.8	58.0	58.7	0.48	0.59	0.69	0.675	685	49.3	56.0	58.7	0.43	0.53	0.62	0.688
0.25	0.33	685	54.0	60.0	64.1	0.44	0.57	0.67	0.884	705	56.0	62.0	64.3	0.39	0.50	0.60	0.902
0.37	0.5	680	62.9	66.9	69.3	0.44	0.56	0.66	1.23	695	59.0	64.7	69.3	0.39	0.50	0.59	1.26
0.55	0.75	675	64.8	70.0	73.0	0.48	0.61	0.70	1.64	690	61.4	72.5	73.0	0.42	0.54	0.64	1.64
0.75	1	705	73.9	76.1	75.1	0.44	0.57	0.66	2.30	715	71.1	74.8	75.5	0.38	0.50	0.59	2.34
1.1	1.5	700	74.9	76.8	77.7	0.45	0.58	0.66	3.26	710	71.1	76.0	77.7	0.38	0.50	0.59	3.34
1.5	2	700	79.9	80.6	79.8	0.49	0.63	0.71	4.02	710	77.9	80.2	80.8	0.42	0.56	0.65	3.97
2.2	3	705	82.9	82.6	81.9	0.57	0.68	0.76	5.37	715	81.2	82.3	82.9	0.48	0.62	0.70	5.27
2.2	3	705	82.9	82.6	81.9	0.57	0.68	0.76	5.37	715	81.2	82.3	82.9	0.48	0.62	0.70	5.27
3	4	705	82.7	83.0	83.5	0.56	0.68	0.75	7.28	715	81.5	83.2	83.7	0.48	0.61	0.70	7.12
4	5.5	730	81.0	84.0	84.8	0.47	0.60	0.68	10.5	730	80.0	83.5	84.8	0.41	0.53	0.62	10.6
5.5	7.5	725	86.0	87.7	87.7	0.46	0.60	0.69	13.8	730	84.0	87.7	87.7	0.40	0.52	0.62	14.1
7.5	10	725	88.0	88.0	88.0	0.58	0.70	0.76	17.0	730	86.5	87.9	87.9	0.50	0.62	0.71	16.7
11	15	725	90.0	90.3	90.0	0.66	0.76	0.81	22.9	730	90.0	90.3	90.3	0.58	0.71	0.78	21.7
15	20	735	89.5	90.0	90.6	0.56	0.67	0.73	34.5	735	89.0	90.0	90.9	0.50	0.63	0.69	33.3

IE2 - High Efficiency - 50 Hz 1) 2)

Output kW	Output HP	Frame	Full Load Torque (kgfm)	Locked Rotor Current Il/In	Locked Rotor Torque Tl/Tn	Break-down Torque Tb/Tn	Inertia J (kgm2)	Allowable locked rotor time (s) Hot	Allowable locked rotor time (s) Cold	Weight (kg)	Sound dB(A)	400 V Rated speed (rpm)	400 V Efficiency 50	400 V Efficiency 75	400 V Efficiency 100	400 V Power Factor 50	400 V Power Factor 75	400 V Power Factor 100	400 V Full load current In (A)
II Poles																			
0.12	0.16	63	0.040	4.8	3.0	2.9	0.0001	37	81	6.2	52.0	2790	53.0	60.0	60.7	0.53	0.66	0.75	0.380
0.18	0.25	63	0.060	5.0	2.6	3.4	0.0001	18	40	6.5	52.0	2745	57.0	62.0	64.0	0.48	0.62	0.73	0.556
0.25	0.33	63	0.090	5.0	2.3	2.9	0.0002	15	33	6.5	52.0	2710	64.0	66.0	66.0	0.51	0.66	0.78	0.701
0.37	0.5	71	0.130	5.8	2.5	2.6	0.0004	12	26	8.4	56.0	2830	68.0	70.0	71.0	0.60	0.75	0.84	0.895
0.55	0.75	71	0.190	5.8	2.4	2.4	0.0005	9	20	9.2	56.0	2780	70.0	72.0	74.1	0.68	0.82	0.88	1.22
0.75	1	80	0.260	6.5	2.8	2.8	0.0008	14	31	11.2	59.0	2800	76.0	78.5	79.5	0.67	0.80	0.86	1.58
1.1	1.5	80	0.380	6.5	2.8	2.8	0.0009	10	22	11.9	59.0	2800	78.0	80.0	80.0	0.67	0.79	0.85	2.33
1.5	2	90S/L	0.510	7.0	2.6	3.1	0.0021	7	15	18.0	62.0	2880	80.0	82.0	82.0	0.63	0.76	0.83	3.18
2.2	3	L90S/L	0.750	8.4	3.2	3.2	0.0035	5	11	22.8	62.0	2875	82.2	82.7	83.2	0.64	0.77	0.84	4.54
3	4	100L	1.01	7.5	2.3	3.0	0.0051	7	15	26.3	67.0	2900	83.0	84.5	85.0	0.70	0.81	0.86	5.92
4	5.5	112M	1.35	7.0	2.0	2.8	0.0088	10	22	34.1	64.0	2880	86.0	86.0	86.0	0.73	0.83	0.88	7.63
5.5	7.5	S132S	1.83	7.2	2.2	3.0	0.0197	17	37	50.8	67.0	2930	86.5	88.0	88.0	0.68	0.79	0.85	10.6
7.5	10	S132S	2.51	6.8	2.2	2.9	0.0251	13	29	58.2	67.0	2910	88.0	88.5	88.5	0.72	0.82	0.87	14.1
9.2	12.5	132M	3.06	7.9	2.7	3.8	0.0234	6	13	64.7	67.0	2925	88.5	89.0	89.0	0.71	0.82	0.87	17.1
11	15	160M/L	3.64	7.8	2.2	3.0	0.0421	8	18	95.0	70.0	2945	89.0	89.5	89.5	0.72	0.81	0.86	20.6
15	20	160M/L	4.97	7.9	2.3	2.9	0.0506	7	15	105	70.0	2940	89.5	90.3	90.3	0.73	0.82	0.87	27.6
18.5	25	160M/L	6.13	8.5	2.5	3.2	0.0590	8	18	110	70.0	2940	91.0	91.2	91.2	0.73	0.83	0.85	34.4
22	30	180M/L	7.26	7.8	2.5	3.3	0.0975	9	20	150	70.0	2950	91.5	91.6	91.6	0.73	0.82	0.85	40.8
30	40	200M/L	9.89	6.0	2.2	2.5	0.1532	18	40	188	74.0	2955	91.5	92.0	92.2	0.69	0.79	0.84	55.9
37	50	200M/L	12.2	6.7	2.4	2.7	0.1703	12	26	197	74.0	2955	92.0	92.5	92.5	0.74	0.83	0.86	67.1
High-Output Design																			
0.37	0.5	63	0.130	5.0	2.2	2.2	0.0002	7	15	7.2	52.0	2740	64.0	67.0	69.5	0.56	0.71	0.81	0.949
0.75	1	71	0.260	5.8	2.8	2.8	0.0005	14	31	9.6	56.0	2800	77.0	77.5	77.6	0.67	0.80	0.87	1.60
0.75	1	90S/L	0.250	7.0	2.0	3.5	0.0012	15	33	14.9	62.0	2880	77.0	78.0	78.0	0.62	0.74	0.81	1.71
1.1	1.5	90S/L	0.370	6.1	2.5	2.6	0.0014	12	26	17.0	62.0	2860	80.0	80.5	80.5	0.65	0.77	0.83	2.38
1.5	2	80	0.530	6.5	3.1	3.0	0.0009	15	33	12.4	59.0	2770	80.0	81.0	81.5	0.65	0.78	0.85	3.13
2.2	3	100L	0.740	7.8	2.4	3.0	0.0043	8	18	24.9	67.0	2900	80.0	82.5	83.2	0.66	0.78	0.84	4.54
2.2	3	90S/L	0.750	6.6	3.0	3.0	0.0022	9	20	19.4	62.0	2840	83.0	83.6	83.6	0.63	0.76	0.83	4.58
3	4	L90S/L	1.03	7.1	3.4	3.4	0.0030	9	20	29.5	62.0	2840	84.0	84.6	84.6	0.61	0.75	0.82	6.24
4	5.5	100L	1.36	7.8	2.8	3.3	0.0064	9	20	27.7	67.0	2870	85.2	85.8	85.8	0.67	0.80	0.86	7.82
5.5	7.5	112M	1.86	7.3	2.7	3.0	0.0088	11	24	39.0	64.0	2880	86.5	87.0	87.0	0.72	0.82	0.87	10.5
5.5	7.5	132M	1.83	7.2	2.2	3.0	0.0197	17	37	51.0	67.0	2930	86.5	88.0	88.0	0.68	0.79	0.85	10.6
5.5	7.5	132S	1.83	7.2	2.2	3.0	0.0197	17	37	51.0	67.0	2930	86.5	88.0	88.0	0.68	0.79	0.85	10.6
7.5	10	132M	2.51	6.8	2.2	2.9	0.0251	13	29	58.9	67.0	2910	88.0	88.5	88.5	0.72	0.82	0.87	14.1
7.5	10	132S	2.51	6.8	2.2	2.9	0.0251	13	29	58.2	67.0	2910	88.0	88.5	88.5	0.72	0.82	0.87	14.1
7.5	10	L112M	2.55	7.9	3.0	3.4	0.0109	10	22	52.5	64.0	2870	87.3	88.1	88.1	0.67	0.79	0.85	14.5
11	15	132M	3.69	7.2	2.4	2.9	0.0270	11	24	67.8	67.0	2905	89.3	89.6	89.6	0.75	0.84	0.88	20.1
IV Poles																			
0.12	0.16	63	0.080	5.0	2.8	3.5	0.0004	20	44	6.1	44.0	1395	53.0	58.0	59.1	0.45	0.56	0.67	0.437
0.18	0.25	63	0.130	4.1	2.0	2.0	0.0006	20	44	7.1	44.0	1400	53.0	59.0	64.7	0.47	0.60	0.68	0.591
0.25	0.33	71	0.170	4.5	2.0	2.2	0.0007	68	150	8.5	43.0	1410	59.0	65.0	68.5	0.49	0.62	0.71	0.742
0.37	0.5	71	0.260	4.3	2.0	2.0	0.0008	48	106	10.7	43.0	1400	63.0	68.0	72.7	0.50	0.62	0.72	1.02
0.55	0.75	80	0.370	5.8	1.9	3.0	0.0029	12	26	13.7	44.0	1440	71.0	73.8	77.1	0.47	0.62	0.74	1.39
0.75	1	80	0.520	6.0	2.6	2.6	0.0029	15	33	12.8	44.0	1410	79.0	79.6	79.8	0.63	0.76	0.81	1.67
1.1	1.5	90S/L	0.740	6.5	2.0	2.9	0.0060	9	20	18.3	49.0	1455	80.0	81.6	81.6	0.53	0.67	0.76	2.56
1.5	2	L90S/L	1.00	7.3	2.3	3.0	0.0074	8	18	21.3	49.0	1460	81.8	82.3	82.8	0.54	0.68	0.77	3.40
2.2	3	100L	1.50	7.0	2.9	3.0	0.0105	11	24	29.8	53.0	1430	83.0	84.5	84.5	0.60	0.73	0.81	4.64
3	4	L100L	2.02	8.1	3.5	3.8	0.0120	6	13	29.5	53.0	1445	83.0	84.5	85.5	0.54	0.68	0.76	6.66
4	5.5	L112M	2.69	6.9	2.1	2.8	0.0207	9	20	41.0	56.0	1450	85.5	86.0	86.7	0.61	0.74	0.81	8.24
5.5	7.5	S132S	3.67	7.3	1.9	3.0	0.0528	8	18	56.1	56.0	1460	86.5	87.3	87.7	0.68	0.80	0.86	10.5
7.5	10	132M	4.97	7.8	2.1	3.0	0.0528	7	15	61.0	56.0	1470	86.5	88.0	88.7	0.55	0.69	0.80	15.3
9.2	12.5	132M	6.16	7.7	2.2	3.2	0.0604	7	15	68.6	56.0	1455	89.2	89.5	89.5	0.69	0.80	0.85	17.3
9.2	12.5	160M/L	6.12	6.5	2.0	2.4	0.0638	11	24	81.4	67.0	1465	89.0	89.3	89.3	0.63	0.76	0.82	18.1
11	15	160M/L	7.31	6.3	2.5	2.7	0.0828	12	26	109	67.0	1465	89.0	89.7	89.8	0.68	0.78	0.83	21.3
15	20	160M/L	9.97	6.1	2.5	2.6	0.1069	12	26	111	67.0	1465	90.0	90.7	90.7	0.63	0.75	0.80	29.8
18.5	25	180M/L	12.3	8.0	2.9	3.3	0.1573	8	18	150	64.0	1470	90.5	91.2	91.2	0.67	0.78	0.83	35.3
22	30	180M/L	14.6	8.0	3.0	3.3	0.2010	8	18	165	64.0	1470	91.0	91.6	91.6	0.68	0.79	0.84	41.3
30	40	200M/L	19.9	7.0	2.5	2.8	0.2941	8	18	206	69.0	1470	92.0	92.3	92.3	0.69	0.80	0.84	55.8
37	50	200M/L	24.4	6.0	2.4	2.7	0.3721	14	31	228	69.0	1475	92.8	93.0	93.0	0.70	0.80	0.83	69.2
High-Output Design																			
0.75	1	90S/L	0.510	6.2	2.2	2.6	0.0038	19	42	15.5	49.0	1445	78.0	80.0	80.0	0.59	0.70	0.78	1.73
1.1	1.5	L80	0.770	6.6	2.6	2.8	0.0037	11	24	14.9	44.0	1400	80.5	81.4	81.4	0.66	0.79	0.84	2.32
1.5	2	100L	1.01	7.5	2.8	3.2	0.0067	10	22	25.0	53.0	1440	79.0	82.5	82.8	0.55	0.68	0.76	3.44
1.5	2	90S/L	1.01	6.3	2.4	2.8	0.0055	10	22	20.3	49.0	1440	81.5	83.0	83.0	0.57	0.71	0.80	3.26
2.2	3	112M	1.47	7.0	1.9	2.6	0.0117	23	51	34.5	56.0	1460	84.5	85.0	85.0	0.63	0.75	0.81	4.61
2.2	3	L90S/L	1.50	7.4	2.4	2.9	0.0077	9	20	22.6	49.0	1430	83.8	84.3	84.3	0.56	0.70	0.79	4.77
3	4	100L	2.06	6.5	3.2	3.3	0.0097	14	31	33.8	53.0	1420	85.0	85.6	85.6	0.63	0.75	0.82	6.17
4	5.5	112M	2.71	6.6	2.0	2.6	0.0156	13	29	35.3	56.0	1440	86.0	86.7	86.7	0.62	0.74	0.80	8.32
4	5.5	132S	2.64	7.5	1.9	3.0	0.0341	14	31	50.5	56.0	1475	86.5	87.0	87.2	0.58	0.72	0.80	8.28
4	5.5	S132S	2.64	7.5	1.9	3.0	0.0341	14	31	50.5	56.0	1475	86.5	87.0	87.2	0.58	0.72	0.80	8.28
5.5	7.5	132S	3.67	7.3	1.9	3.0	0.0528	8	18	57.8	56.0	1460	86.5	87.3	87.7	0.68	0.80	0.86	10.5
5.5	7.5	L112M	3.72	7.1	2.7	3.0	0.0208	11	24	52.0	56.0	1440	87.0	87.7	87.7	0.55	0.68	0.76	11.6
7.5	10	132S	4.97	7.8	2.1	3.0	0.0528	7	15	61.0	56.0	1470	86.5	88.0	88.7	0.55	0.69	0.80	15.3
7.5	10	160M/L	4.97	6.8	2.0	2.4	0.0783	10	22	104	67.0	1470	88.0	88.7	88.7	0.64	0.76	0.82	14.9

IE2 - High Efficiency - 50 Hz 1) 2)

Output kW	Output HP	380 V Rated speed (rpm)	380 V Efficiency 50	380 V Efficiency 75	380 V Efficiency 100	380 V Power Factor 50	380 V Power Factor 75	380 V Power Factor 100	380 V Full load current In (A)	415 V Rated speed (rpm)	415 V Efficiency 50	415 V Efficiency 75	415 V Efficiency 100	415 V Power Factor 50	415 V Power Factor 75	415 V Power Factor 100	415 V Full load current In (A)
II Poles																	
0.12	0.16	2765	54.7	60.7	60.7	0.57	0.71	0.79	0.380	2805	51.4	59.0	60.6	0.50	0.63	0.72	0.383
0.18	0.25	2720	57.0	62.0	64.0	0.52	0.66	0.77	0.555	2755	57.0	62.0	64.0	0.45	0.58	0.70	0.559
0.25	0.33	2685	65.0	66.0	66.0	0.55	0.71	0.82	0.702	2730	63.0	66.0	66.0	0.48	0.62	0.74	0.712
0.37	0.5	2805	69.0	70.1	70.3	0.66	0.79	0.87	0.919	2845	66.9	69.7	71.2	0.57	0.72	0.82	0.882
0.55	0.75	2750	70.8	71.9	74.1	0.73	0.85	0.91	1.24	2795	68.9	71.7	74.1	0.63	0.79	0.86	1.20
0.75	1	2770	77.7	78.0	78.0	0.66	0.81	0.87	1.68	2810	75.0	78.5	79.5	0.64	0.77	0.84	1.56
1.1	1.5	2775	78.9	79.2	79.6	0.73	0.83	0.87	2.41	2815	77.1	80.2	80.2	0.62	0.75	0.82	2.33
1.5	2	2865	80.5	81.6	81.6	0.68	0.79	0.85	3.29	2890	79.3	81.9	82.5	0.58	0.73	0.81	3.12
2.2	3	2860	82.2	82.7	83.2	0.70	0.81	0.87	4.62	2890	82.2	82.7	83.2	0.59	0.73	0.82	4.49
3	4	2885	83.9	84.5	85.0	0.76	0.85	0.88	6.09	2910	82.1	84.1	85.0	0.66	0.78	0.84	5.85
4	5.5	2865	86.6	86.0	85.8	0.78	0.87	0.90	7.87	2890	85.3	85.9	86.3	0.69	0.80	0.86	7.50
5.5	7.5	2915	87.1	87.6	87.6	0.74	0.83	0.88	10.8	2935	85.6	87.6	88.0	0.63	0.76	0.83	10.5
7.5	10	2900	88.4	88.4	88.1	0.77	0.85	0.89	14.5	2915	87.3	88.3	88.7	0.67	0.79	0.85	13.8
9.2	12.5	2915	88.5	89.0	89.0	0.76	0.85	0.89	17.6	2930	88.5	89.0	89.0	0.66	0.78	0.85	16.9
11	15	2935	89.0	89.5	89.5	0.76	0.84	0.88	21.2	2945	89.0	89.5	89.5	0.68	0.78	0.84	20.4
15	20	2935	89.5	90.3	90.3	0.78	0.85	0.88	28.7	2945	89.5	90.3	90.3	0.69	0.79	0.85	27.2
18.5	25	2930	91.0	91.1	91.1	0.78	0.86	0.87	35.5	2945	91.2	91.4	91.4	0.69	0.80	0.83	33.9
22	30	2945	91.2	91.5	91.5	0.76	0.84	0.86	42.5	2955	91.5	91.6	91.6	0.70	0.80	0.84	39.8
30	40	2950	91.7	92.0	92.1	0.74	0.83	0.86	57.5	2960	91.3	92.1	92.3	0.64	0.77	0.82	55.1
37	50	2955	92.0	92.5	92.5	0.79	0.86	0.89	68.3	2960	92.0	92.5	92.5	0.69	0.79	0.84	66.2
High-Output Design																	
0.37	0.5	2705	65.0	67.6	69.5	0.62	0.76	0.83	0.975	2760	61.1	66.2	69.5	0.52	0.66	0.77	0.962
0.75	1	2780	77.0	77.4	77.4	0.73	0.84	0.90	1.64	2830	76.0	77.6	77.6	0.62	0.76	0.85	1.58
0.75	1	2865	77.0	78.0	78.0	0.67	0.78	0.84	1.74	2890	77.0	78.0	78.0	0.58	0.71	0.79	1.69
1.1	1.5	2850	80.7	80.3	79.6	0.70	0.80	0.85	2.47	2870	79.2	80.4	81.0	0.60	0.74	0.81	2.33
1.5	2	2750	81.0	81.5	81.3	0.71	0.83	0.88	3.19	2790	80.0	81.0	81.7	0.59	0.74	0.82	3.11
2.2	3	2890	80.0	82.5	83.2	0.72	0.82	0.87	4.62	2905	80.0	82.5	83.2	0.62	0.75	0.82	4.49
2.2	3	2820	83.7	83.5	83.2	0.69	0.80	0.85	4.75	2855	82.2	83.4	83.9	0.59	0.72	0.80	4.56
3	4	2830	84.5	84.5	84.6	0.67	0.79	0.85	6.34	2860	84.0	84.7	84.7	0.57	0.71	0.79	6.24
4	5.5	2860	85.5	85.8	85.8	0.73	0.83	0.88	8.05	2880	85.0	86.0	86.0	0.63	0.76	0.83	7.80
5.5	7.5	2865	87.0	86.9	87.0	0.76	0.86	0.89	10.8	2885	85.9	86.8	87.2	0.67	0.79	0.85	10.3
5.5	7.5	2915	87.1	87.6	87.6	0.74	0.83	0.88	10.8	2935	85.6	87.6	88.0	0.63	0.76	0.83	10.5
5.5	7.5	2915	87.1	87.6	87.6	0.74	0.83	0.88	10.8	2935	85.6	87.6	88.0	0.63	0.76	0.83	10.5
7.5	10	2900	88.4	88.4	88.1	0.77	0.85	0.89	14.5	2915	87.3	88.3	88.7	0.67	0.79	0.85	13.8
7.5	10	2900	88.4	88.4	88.1	0.77	0.85	0.89	14.5	2915	87.3	88.3	88.7	0.67	0.79	0.85	13.8
7.5	10	2860	87.5	88.1	88.1	0.72	0.83	0.88	14.7	2885	87.0	88.1	88.1	0.62	0.75	0.83	14.3
11	15	2895	89.4	89.5	89.6	0.79	0.87	0.89	21.0	2910	88.7	89.4	89.8	0.71	0.81	0.86	19.8
IV Poles																	
0.12	0.16	1385	55.0	58.0	59.1	0.48	0.60	0.70	0.441	1405	52.0	58.0	59.1	0.43	0.54	0.64	0.441
0.18	0.25	1380	60.4	61.3	64.7	0.52	0.65	0.74	0.571	1410	57.7	60.6	64.7	0.40	0.51	0.60	0.645
0.25	0.33	1400	60.0	65.0	68.5	0.53	0.66	0.74	0.749	1420	57.8	64.5	68.5	0.46	0.59	0.69	0.736
0.37	0.5	1380	66.0	68.5	72.7	0.55	0.66	0.76	1.02	1405	63.0	68.0	72.7	0.46	0.58	0.69	1.03
0.55	0.75	1430	73.0	73.1	77.1	0.51	0.66	0.78	1.39	1445	69.0	73.8	77.1	0.45	0.59	0.71	1.40
0.75	1	1400	80.1	79.9	79.8	0.68	0.80	0.84	1.70	1415	77.9	79.2	80.1	0.60	0.73	0.79	1.65
1.1	1.5	1450	80.0	81.5	81.5	0.59	0.71	0.78	2.63	1460	76.5	80.0	81.4	0.51	0.64	0.73	2.58
1.5	2	1450	81.8	82.3	82.8	0.59	0.73	0.81	3.40	1460	81.8	82.3	82.8	0.50	0.64	0.74	3.41
2.2	3	1420	83.5	84.3	84.3	0.65	0.77	0.83	4.78	1435	82.3	84.5	84.9	0.56	0.71	0.79	4.56
3	4	1435	84.0	84.5	85.5	0.59	0.72	0.80	6.66	1450	82.5	84.0	85.5	0.49	0.64	0.73	6.69
4	5.5	1440	85.5	86.0	86.6	0.65	0.78	0.83	8.46	1455	85.5	86.0	86.7	0.58	0.71	0.79	8.12
5.5	7.5	1455	88.1	87.7	87.7	0.73	0.83	0.88	10.8	1460	86.5	87.3	87.7	0.65	0.77	0.84	10.4
7.5	10	1465	87.0	88.2	88.7	0.59	0.71	0.81	15.9	1470	85.3	87.5	88.7	0.50	0.64	0.77	15.3
9.2	12.5	1450	89.6	89.4	89.3	0.74	0.82	0.87	17.8	1455	88.7	89.5	89.8	0.65	0.77	0.84	16.8
9.2	12.5	1460	89.0	89.3	89.3	0.68	0.79	0.84	18.6	1470	89.0	89.3	89.3	0.60	0.73	0.80	17.9
11	15	1460	89.0	89.7	89.8	0.73	0.82	0.84	22.2	1470	89.6	89.8	89.8	0.66	0.77	0.82	20.8
15	20	1460	90.6	90.8	90.6	0.68	0.78	0.83	30.3	1465	88.8	90.6	90.6	0.58	0.71	0.78	29.5
18.5	25	1465	90.5	91.2	91.2	0.71	0.81	0.85	36.3	1470	89.5	91.2	91.2	0.62	0.75	0.81	34.8
22	30	1465	91.0	91.6	91.6	0.72	0.82	0.86	42.4	1470	91.0	91.6	91.6	0.64	0.76	0.82	40.7
30	40	1465	92.0	92.3	92.3	0.74	0.83	0.86	57.4	1475	92.0	92.3	92.3	0.65	0.77	0.83	54.5
37	50	1470	93.1	92.9	92.7	0.74	0.83	0.85	71.3	1475	92.5	93.0	93.2	0.67	0.78	0.81	68.2
High-Output Design																	
0.75	1	1440	79.1	79.9	79.6	0.62	0.73	0.81	1.77	1450	76.9	79.6	80.4	0.55	0.67	0.75	1.73
1.1	1.5	1395	81.0	81.0	81.4	0.71	0.82	0.86	2.39	1410	80.0	81.0	81.4	0.62	0.75	0.83	2.27
1.5	2	1430	80.0	82.5	82.8	0.60	0.72	0.79	3.48	1445	78.0	82.5	82.8	0.51	0.65	0.74	3.41
1.5	2	1430	82.8	83.2	82.8	0.63	0.77	0.83	3.32	1445	80.1	82.3	83.1	0.53	0.68	0.78	3.22
2.2	3	1455	85.0	84.8	84.3	0.67	0.78	0.83	4.78	1465	83.9	84.9	85.4	0.59	0.72	0.79	4.54
2.2	3	1420	84.0	84.3	84.3	0.62	0.75	0.81	4.90	1440	83.4	84.4	84.4	0.53	0.67	0.75	4.84
3	4	1410	85.4	85.5	85.5	0.67	0.78	0.84	6.35	1425	84.3	85.5	86.0	0.58	0.72	0.80	6.07
4	5.5	1435	86.5	86.6	86.6	0.67	0.78	0.82	8.56	1445	85.3	86.6	87.0	0.58	0.71	0.78	8.20
4	5.5	1470	86.0	86.5	86.6	0.63	0.76	0.83	8.46	1475	86.4	87.1	87.4	0.54	0.68	0.78	8.16
4	5.5	1470	86.0	86.5	86.6	0.63	0.76	0.83	8.46	1475	86.4	87.1	87.4	0.54	0.68	0.78	8.16
5.5	7.5	1455	88.1	87.7	87.7	0.73	0.83	0.88	10.8	1460	86.5	87.3	87.7	0.65	0.77	0.84	10.4
5.5	7.5	1440	87.0	87.7	87.7	0.60	0.73	0.79	11.8	1445	86.0	87.8	87.8	0.50	0.63	0.72	11.8
7.5	10	1465	87.0	88.2	88.7	0.59	0.71	0.81	15.9	1470	85.3	87.5	88.7	0.50	0.64	0.77	15.3
7.5	10	1465	88.0	88.7	88.7	0.68	0.80	0.85	15.1	1470	88.0	88.7	88.7	0.60	0.73	0.80	14.7

IE2 - High Efficiency - 50 Hz [1) 2)]

Output		Frame	Full Load Torque (kgfm)	Locked Rotor Current Il/In	Locked Rotor Torque Tl/Tn	Break-down Torque Tb/Tn	Inertia J (kgm2)	Allowable locked rotor time (s)		Weight (kg)	Sound dB(A)	400 V							
												Rated speed (rpm)	% of full load						Full load current In (A)
													Efficiency			Power Factor			
kW	HP							Hot	Cold				50	75	100	50	75	100	
VI Poles																			
0.12	0.16	63	0.130	3.0	1.9	2.0	0.0006	52	114	7.2	43.0	905	42.0	50.0	52.0	0.43	0.53	0.63	0.529
0.18	0.25	71	0.190	3.2	2.0	2.0	0.0008	96	211	9.9	43.0	915	52.0	58.0	59.0	0.40	0.51	0.58	0.759
0.25	0.33	71	0.270	3.2	1.9	2.1	0.0008	70	154	11.9	43.0	890	53.0	60.0	61.6	0.37	0.48	0.58	1.01
0.37	0.5	80	0.390	4.1	2.0	2.4	0.0022	24	53	12.0	43.0	925	65.0	67.0	67.6	0.47	0.62	0.72	1.10
0.55	0.75	80	0.580	4.5	2.3	2.5	0.0030	21	46	13.6	43.0	930	65.0	71.0	73.1	0.50	0.62	0.72	1.51
0.75	1	90S/L	0.790	4.5	2.0	2.1	0.0055	23	51	18.5	45.0	925	74.5	76.0	76.0	0.51	0.64	0.73	1.95
1.1	1.5	90S/L	1.16	4.7	2.3	2.2	0.0066	17	37	20.9	45.0	925	76.0	78.1	78.1	0.50	0.63	0.73	2.78
1.5	2	100L	1.54	6.0	2.0	2.4	0.0110	15	33	29.0	44.0	950	76.0	79.8	79.8	0.52	0.65	0.73	3.72
2.2	3	112M	2.24	6.0	2.0	2.4	0.0257	10	22	38.0	49.0	955	80.0	81.8	81.8	0.52	0.65	0.73	5.32
3	4	S132S	3.04	5.7	2.0	2.4	0.0359	31	68	53.0	53.0	960	82.5	83.6	83.6	0.50	0.63	0.71	7.30
4	5.5	132M	4.04	6.0	2.1	2.5	0.0453	21	46	57.4	53.0	965	84.0	84.8	84.8	0.51	0.64	0.72	9.46
5.5	7.5	132M	5.55	6.4	2.5	2.8	0.0604	19	42	67.0	53.0	965	85.5	86.1	86.1	0.51	0.64	0.72	12.8
7.5	10	160M/L	7.57	6.6	2.5	2.9	0.1055	8	18	90.0	56.0	965	86.5	88.0	88.0	0.61	0.74	0.81	15.2
9.2	12.5	160M/L	9.24	6.2	2.5	2.7	0.1266	10	22	109	57.0	970	88.0	88.3	88.3	0.60	0.73	0.80	18.8
11	15	160M/L	11.1	6.0	2.4	2.7	0.1689	10	22	116	57.0	965	88.5	89.0	89.0	0.58	0.72	0.79	22.6
15	20	180M/L	15.0	8.5	3.1	3.4	0.2705	6	13	160	56.0	975	89.0	89.7	89.7	0.68	0.80	0.86	28.1
18.5	25	200M/L	18.4	7.5	2.7	2.7	0.3335	8	18	178	58.0	980	89.0	90.4	90.4	0.62	0.74	0.80	36.9
22	30	200M/L	21.9	8.0	3.0	3.1	0.3868	8	18	199	58.0	980	88.5	90.0	90.9	0.59	0.71	0.78	44.8
High-Output Design																			
3	4	132M	3.04	5.7	2.0	2.4	0.0359	31	68	53.0	53.0	960	82.5	83.6	83.6	0.50	0.63	0.71	7.30
3	4	132S	3.04	5.7	2.0	2.4	0.0359	31	68	53.0	53.0	960	82.5	83.6	83.6	0.50	0.63	0.71	7.30
VIII Poles																			
0.12	0.16	71	0.180	2.2	1.6	1.9	0.0008	60	132	10.3	41.0	660	40.0	48.0	50.0	0.33	0.41	0.50	0.693
0.18	0.25	80	0.250	3.1	1.9	2.0	0.0024	48	106	12.8	42.0	690	47.0	53.0	55.0	0.44	0.55	0.65	0.727
0.25	0.33	80	0.360	3.3	1.9	2.2	0.0029	32	70	13.2	42.0	675	47.0	52.5	55.0	0.43	0.55	0.66	0.994
0.37	0.5	90S/L	0.520	3.5	1.8	2.0	0.0044	37	81	16.6	44.0	690	56.0	62.0	62.0	0.41	0.52	0.62	1.39
0.55	0.75	90S/L	0.780	3.5	1.9	2.0	0.0060	31	68	18.7	44.0	685	61.0	64.0	64.0	0.44	0.56	0.66	1.88
0.75	1	100L	1.01	5.0	2.0	2.5	0.0110	18	40	27.4	50.0	720	60.0	68.0	70.0	0.40	0.49	0.58	2.67
1.1	1.5	100L	1.50	5.0	2.0	2.4	0.0127	14	31	22.5	50.0	715	62.0	69.0	70.8	0.40	0.51	0.59	3.80
1.5	2	112M	2.09	4.7	2.4	2.3	0.0202	12	26	45.0	46.0	700	77.0	79.0	79.0	0.44	0.57	0.67	4.09
2.2	3	S132S	3.06	5.5	2.2	2.4	0.0592	12	26	66.0	48.0	700	81.0	81.5	81.0	0.52	0.65	0.72	5.44
3	4	132M	4.12	6.2	2.4	2.9	0.0740	19	42	66.0	48.0	710	82.0	82.5	82.0	0.54	0.65	0.72	7.33
4	5.5	160M/L	5.37	5.2	2.2	2.8	0.0985	12	26	85.8	51.0	725	82.0	84.5	84.5	0.44	0.57	0.66	10.4
5.5	7.5	160M/L	7.34	5.5	2.2	2.7	0.1266	10	22	102	51.0	730	82.0	83.8	83.8	0.50	0.63	0.71	13.3
7.5	10	160M/L	10.1	5.2	2.0	2.4	0.1555	15	33	109	53.0	725	84.0	86.5	86.5	0.52	0.64	0.71	17.6
9.2	12.5	180M/L	12.3	7.0	2.4	2.6	0.2308	8	18	133	51.0	730	86.0	86.5	86.5	0.60	0.73	0.80	19.2
11	15	180M/L	14.7	7.4	2.1	3.1	0.3259	8	18	178	51.0	730	86.5	86.9	86.9	0.59	0.73	0.80	22.8
15	20	200M/L	19.9	6.0	2.3	2.3	0.4228	12	26	225	53.0	735	86.5	87.5	88.0	0.53	0.66	0.73	33.7
High-Output Design																			
2.2	3	132S	3.06	5.5	2.2	2.4	0.0592	12	26	53.2	48.0	700	81.0	81.5	81.0	0.52	0.65	0.72	5.44

IE2 - High Efficiency - 50 Hz [1) 2)]

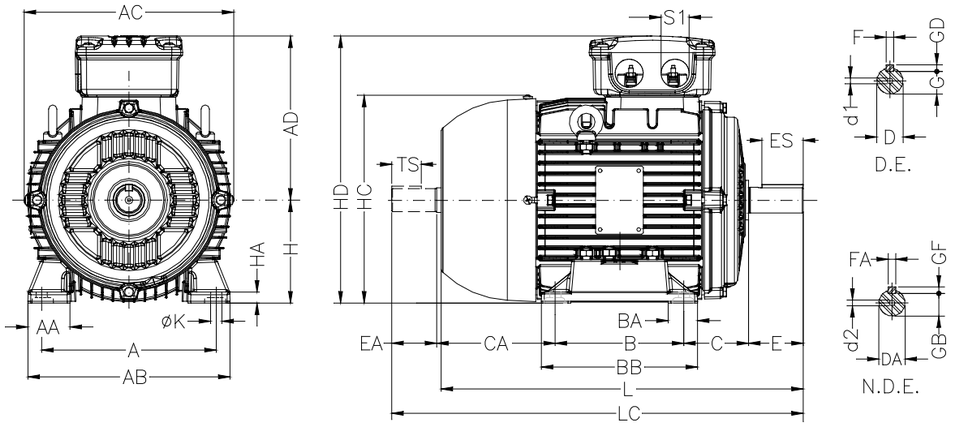
Output		380 V								415 V							
		Rated speed (rpm)	% of full load						Full load current In (A)	Rated speed (rpm)	% of full load						Full load current In (A)
			Efficiency			Power Factor					Efficiency			Power Factor			
kW	HP		50	75	100	50	75	100			50	75	100	50	75	100	
VI Poles																	
0.12	0.16	895	45.4	52.1	52.9	0.46	0.57	0.67	0.514	910	39.1	47.5	50.7	0.41	0.50	0.59	0.558
0.18	0.25	905	54.2	59.0	58.7	0.37	0.50	0.57	0.817	920	50.1	56.8	58.6	0.38	0.48	0.57	0.750
0.25	0.33	875	56.3	61.6	61.6	0.41	0.52	0.62	0.995	900	50.1	60.0	61.6	0.35	0.45	0.54	1.05
0.37	0.5	920	65.0	67.0	67.6	0.52	0.66	0.76	1.09	935	62.0	67.0	67.6	0.45	0.58	0.67	1.14
0.55	0.75	920	67.5	71.8	73.1	0.55	0.66	0.76	1.50	935	62.5	69.6	73.1	0.47	0.61	0.72	1.45
0.75	1	915	75.8	75.9	75.9	0.55	0.68	0.76	1.98	930	73.2	75.6	76.4	0.48	0.61	0.71	1.92
1.1	1.5	915	77.9	78.5	78.5	0.55	0.67	0.77	2.76	930	74.3	77.3	78.1	0.46	0.59	0.70	2.80
1.5	2	945	76.0	79.8	79.8	0.57	0.69	0.76	3.76	955	75.0	79.8	79.8	0.48	0.62	0.70	3.74
2.2	3	945	81.0	81.8	81.8	0.57	0.69	0.76	5.38	955	79.0	81.8	81.8	0.50	0.62	0.71	5.27
3	4	955	83.4	83.8	83.3	0.54	0.67	0.74	7.39	960	81.4	83.1	83.6	0.46	0.59	0.68	7.34
4	5.5	965	84.9	85.0	84.6	0.55	0.68	0.74	9.71	970	83.0	84.4	84.9	0.47	0.61	0.69	9.50
5.5	7.5	960	86.4	86.3	86.0	0.56	0.68	0.75	13.0	970	84.6	85.7	86.2	0.47	0.61	0.69	12.9
7.5	10	960	87.0	87.2	87.2	0.68	0.79	0.84	15.6	970	86.0	87.6	87.3	0.58	0.71	0.79	15.1
9.2	12.5	965	88.6	88.9	87.7	0.67	0.78	0.84	19.0	970	86.4	88.0	87.9	0.57	0.70	0.78	18.7
11	15	960	88.5	88.7	88.7	0.68	0.80	0.85	22.2	970	86.8	88.7	88.7	0.59	0.72	0.79	22.1
15	20	975	89.0	89.7	89.7	0.73	0.83	0.88	28.9	980	89.0	89.7	89.7	0.64	0.77	0.84	27.7
18.5	25	975	89.0	90.4	90.4	0.66	0.77	0.83	37.5	980	88.0	90.4	90.4	0.58	0.71	0.78	36.5
22	30	980	88.5	90.0	90.9	0.64	0.76	0.81	45.4	980	88.5	89.5	90.9	0.55	0.68	0.75	44.9
High-Output Design																	
3	4	955	83.4	83.8	83.3	0.54	0.67	0.74	7.39	960	81.4	83.1	83.6	0.46	0.59	0.68	7.34
3	4	955	83.4	83.8	83.3	0.54	0.67	0.74	7.39	960	81.4	83.1	83.6	0.46	0.59	0.68	7.34
VIII Poles																	
0.12	0.16	650	42.9	50.1	50.6	0.35	0.44	0.53	0.680	670	37.1	45.7	48.8	0.31	0.38	0.47	0.728
0.18	0.25	680	49.3	54.4	54.9	0.47	0.59	0.69	0.722	695	45.0	51.8	54.5	0.42	0.53	0.62	0.741
0.25	0.33	665	49.0	53.0	55.0	0.47	0.59	0.70	0.987	680	45.0	52.0	55.0	0.42	0.53	0.63	1.00
0.37	0.5	680	59.5	63.8	62.4	0.44	0.56	0.67	1.34	695	53.1	59.9	60.9	0.39	0.49	0.59	1.43
0.55	0.75	675	63.3	65.1	63.5	0.47	0.61	0.70	1.88	690	58.5	62.8	63.9	0.41	0.53	0.63	1.90
0.75	1	715	65.0	70.0	72.0	0.43	0.54	0.62	2.55	720	56.0	64.0	68.0	0.38	0.46	0.54	2.84
1.1	1.5	710	66.0	70.0	70.8	0.44	0.55	0.64	3.69	715	59.0	67.0	70.8	0.38	0.48	0.56	3.86
1.5	2	695	78.8	79.6	78.5	0.49	0.61	0.70	4.15	705	75.3	78.2	78.9	0.41	0.53	0.63	4.20
2.2	3	695	81.8	81.5	79.9	0.57	0.69	0.75	5.58	705	80.1	81.4	81.4	0.49	0.62	0.70	5.37
3	4	705	82.7	82.4	80.8	0.57	0.68	0.75	7.52	715	81.1	82.4	82.5	0.50	0.62	0.70	7.23
4	5.5	725	82.6	84.8	84.7	0.50	0.63	0.72	9.97	730	78.4	82.4	83.7	0.41	0.54	0.64	10.4
5.5	7.5	725	83.0	83.8	83.8	0.55	0.67	0.74	13.5	730	81.0	83.8	83.8	0.47	0.60	0.68	13.4
7.5	10	720	86.7	87.3	86.1	0.59	0.71	0.78	17.0	725	83.5	85.8	86.0	0.49	0.62	0.71	17.1
9.2	12.5	730	86.0	86.5	86.5	0.65	0.77	0.83	19.5	730	85.5	86.5	86.5	0.57	0.70	0.78	19.0
11	15	727	86.3	86.8	86.9	0.64	0.77	0.83	23.2	732	86.3	86.9	86.9	0.55	0.69	0.77	22.9
15	20	730	87.5	88.0	88.0	0.58	0.70	0.76	34.1	735	85.5	87.5	88.0	0.50	0.62	0.70	33.9
High-Output Design																	
2.2	3	695	81.8	81.5	79.9	0.57	0.69	0.75	5.58	705	80.1	81.4	81.4	0.49	0.62	0.70	5.37

Notes:

(1) Efficiency values are given according to IEC 60034-2-1. They are calculated according to indirect method, with stray load losses determined by measurement.
(2) With effect from 1st January 2017, IE2 motors placed onto the European Market and rated at 0.75 kW or above, must be used with a variable speed drive unless their design falls outside of the scope of the European Regulation or their final installation will be outside of the EU / EEA.
(3) Motor with class F (105K) temperature rise.

Mechanical Data

Foot Mounted Motors



Frame	A	AA	AB	AC	AD	B	BA	BB	C	CA	Shaft Dimensions												H	HA	HC	HD	K	L	LC	S1	d1	d2	Bearings	
											D	E	ES	F	G	GD	DA	EA	TS	FA	GB	GF											D.E.	N.D.E.
63	100	19	116	125	119	80	23	95	40	78	11j6	23	14	4	8.5	4	9j6	20	12	3	7.2	3	63	6	124	182	6	216	241	2xM20x1.5	EM4	EM3	6201-ZZ	
71	112	28	134	141	127	90	24.5	108	45	88	14j6	30	18	5	11	5	11j6	23	14	4	8.5	4	71		139	198		248	276		DM5	EM4	6203-ZZ	6202-ZZ
80	125	32	155	159	136	100	28	124	50	93	19j6	40	28	6	15.5	6	14j6	30	18	5	11	5	80	8	157	216	10	276	313	2xM25x1.5	DM6	DM4	6204-ZZ	6203-ZZ
90S/L	140	35	170	179	155	125	24	146	56	129 104	24j6	50	36	8	20	7	16j6	40	28	5	13	5	90	9	177	245	10	330	375		DM8	DM6	6205-ZZ	6204-ZZ
100L	160	40	196	200	165	140	30	170	63	118	28j6	60	45		24		22j6	50	36	6	18.5	6	100	12	198	265	12	376	431	2xM32x1.5	DM10	DM8	6206-ZZ	6205-ZZ
112M	190	46	220	223	184		50		70	128							24j6			8	20	7	112		235	296		393	448				6307-ZZ	6206-ZZ
S132S	216	44	248	270	212		40		89	150	38k6	80	63	10	33	8	28j6	60	45		24		132		274	344		452	519		DM12	DM10	6308-ZZ	6207-ZZ
132S	216	44	248	270	212		40		89	188	38k6	80	63	10	33	8	28j6	60	45		24		132		274	344		490	557		DM12	DM10	6308-ZZ	6207-ZZ
132M							32	210		150																							
160M/L	216	62	308	347	255	210 254	60	298	108	218 174	42k6	110	80	12	37	8	42k6	110	80	12	37	8	160	18	313	414	14.5	634	756	2xM40x1.5	DM16	DM16	6309-C3	6209-Z-C3
180M/L	279	68	350	306	274	241 279	49	322	121	238 200	48k6			14	42.5	9	48k6	110	80	14	42.5	9	180	20	354	454		694	820	2xM40x1.5			6311-C3	6211-Z-C3
200M/L	318	73	385	386	300	267 305	60	370	133	260 222	55m6			16	49	10		110	80	14			200	25	393	500	18.5	758	880	2xM50x1.5	DM20	DM20	6312-C3	6212-Z-C3

**The following motors have longer lamination core length, and consequently, a larger frame.*

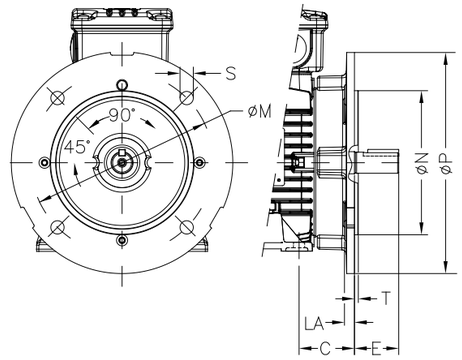
Standard frames:
L90S/L (IE2 – 2.2 kW, 2 poles) - L dimension is 360 mm and LC dimension is 405 mm
L90S/L (IE2 – 1.5 kW, 4 poles) - L dimension is 360 mm and LC dimension is 405 mm
L100L (IE2 – 3 kW, 4 poles) - L dimension is 420 mm and LC dimension is 475 mm
L112M (IE2 – 4 kW, 4 poles) - L dimension is 425 mm and LC dimension is 480 mm
L100L (IE3 – 3.0 kW, 4 poles) - L dimension is 420 mm and LC dimension is 475 mm

Optional frames:
80 (IE2 – 1.1 kW, 4 poles) - L dimension is 325 mm and LC dimension is 362 mm
90S/L (IE2 – 3.0 kW, 2 poles and IE2 – 2.2 kW, 4 poles) - dimension is 360 mm and LC dimension is 406 mm
112M (IE2 – 7.5 kW, 2 poles and 5.5 kW, 4 poles) - L dimension is 423 mm and LC dimension is 478 mm

Flange mounted motors

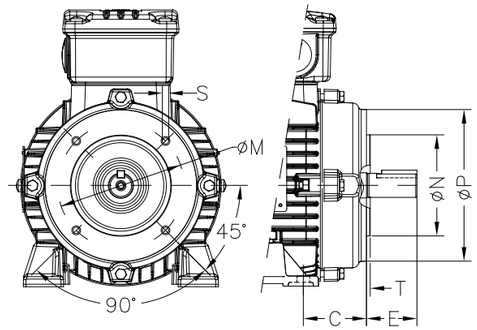
“FF” Flange

Frame	"FF" Flange Dimensions									N° of Holes
	Flange	C	LA	M	N	P	T	S	a	
63	FF-115	40	9	115	95	140	3	10	45°	4
71	FF-130	45		130	110	160	3.5			
80	FF-165	50	10	165	130	200		12		
90S/L		56								
100L	FF-215	63	11	215	180	250	4	15		
112M		70								
S132S	FF-265	89	12	265	230	300				
132S/M	FF-265	89	12	265	230	300				
160M/L	FF-300	108	18	300	250	350	5	19		
180M/L		121								
200M/L	FF-350	133		350	300	400				



“C-DIN” Flange

Frame	"C" DIN Flange Dimensions							N° of Holes
	Flange	C	M	N	P	S	T	
63	C-90	40	75	60	90	M5	2.5	4
71	C-105	45	85	70	105	M6		
80	C-120	50	100	80	120		3	
90S/L	C-140	56	115	95	140	M8		
100L	C-160	63	130	110	160		3.5	
112M		70						
S132S	C-200	89	165	130	200	M10		
132S/M	C-200	89	165	130	200	M10		



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