



VAN HOUCKE

Van Houcke NV

Van Houcke UK Ltd

MEZ Electric Motors

Technical Data

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www.mez-motors.com



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1. General

The standard paint system is suitable for climate group "Worldwide" according to IEC 721-2-1 Issue 1982. This system is extensively resistant to aggressive chemicals. Heat resistance is 120°C continuously and 140°C short term.



2. Surface pretreatment

- 2.1 Gray cast-iron and steel parts are shot blasted (grain size 0.9 to 1.2 mm). Steel surfaces are cleaned to purity degree SA 3 (metallic bright).
Gray cast-iron to SA 2 ½ (metallic clean) to SIS 055 900.
- 2.2 Sheet steel parts are degreased and phosphated.
- 2.3 Aluminium parts are degreased and passivised.

3. Paint system

- 3.1 Aluminium motors: Standard-paintwork "Worldwide" acc. to IEC 721-2-1 (issue 1982). Motors with aluminium housings are coated with a two component epoxy resin based top coat (dried film thickness: 30µm). Pre-treated and primed cast iron, sheet steel parts and other parts are coated with a two component epoxy resin based top coat (dried film thickness: 30µm). Total film thickness: 30/60µm.
- 3.2 Cast Iron Motors: Standard paint system „moderate“ acc. to IEC 721-2-1 (issue 1982). Pretreated and primed cast-iron, sheet steel parts and other parts: Acryl resin (red-brown) primer, dried film thickness: 20-30µm, Acryl resin-based top coat (RAL7030 as standard) -dried film thickness: 30µm. Total film thickness: 60µm.
- 3.3 Cast Iron Motors (special paint): Special paintwork "Worldwide", which is a special execution acc. to IEC 721-2-1 (issue 1982). Pretreated and primed cast iron parts, steel parts and other parts: Alkyd-resin (red-brown) primer -dried film thickness: 20-30µm. 2K-polyurethane-based top coat (RAL7030 as standard). Dried film thickness: 30µm. Passivised aluminium parts get a 2K-polyurethane-based top coat (RAL7030 as standard) -dried film thickness: 30µm. Total film thickness: 90µm.

For **Zone1**  II 2G Ex d IIC T4 Gb or  II 2G Ex de IIC T4 Gb Motors please refer to our website.

A range of HEW motors (Made in Germany) is available at short lead times.

- PTB certified ATEX Zone1 motors
- Certified for up to 60°C without deration
Available as Exde [II 2G Ex de IIC T4 Gb]
(Motor in pressure tight enclosure, T Box is Increased Safety)
- Available as Exd [II 2G Ex d IIC T4 Gb]
(both motor and Terminal Box are in pressure tight enclosure)
- Output range is 0.09kW to 200kW, 2pole, 4pole, 6pole & 8pole
- 71 to 315 frame.
- ATEX Brakes available
- ATEX Forced ventilation motors available
- ATEX Encoders available
- Execution for Temperature class T5 available
- Execution for Temperature class T6 available



MOUNTING POSITIONS



1st digit	IM1... Foot mounted	IM2... Foot & Flange mounted				IM3... Flange mounted		
2nd digit	IM10	IM20	IM21	IM21	IM30	IM36	IM36	
3rd digit	IM1001	IM2001	IM2101	IM2101	IM3001	IM3601	IM3601	
4th digit								
0	 B3	 B3/B5	 B3/B14A	 B3/B14B	 B5	 B14A	 B14B	
1	 V5	 V15	 V15	 V15	 V1	 V18	 V18	
3	 V6	 V36	 V36	 V36	 V3	 V19	 V19	
5	 B6				<p>The specified mounting is to be mentioned when ordering an electric motor. The actual motor mounting may influence the protection class and bearing design. Flange mounted electric motors need further specification of the required pitch circle diameter of the fixing holes in the flange (FF or FT type of flange + Dimension M). FF (Flange Free holes) - B5 flanges, FT (Flange Tapped holes) - B14A & B14B flanges The pitch circle diameter (M) is specified in the Standard</p> <p>Abbreviated mounting positions: IM B35 B3/B5 IM B34A B3/B14A IM B34B B3/B14B</p>			
6	 B7							
7	 B8							

4th digit

- Standard IEC shaft
- 2nd shaft end
- Conical shaft at DE
- Special shaft end(s)

Vertical motors with shaft down are to be specified as

Motor without Canopy

Motor with Canopy

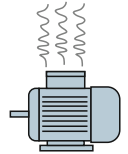
No motor should be exposed to direct sunlight!



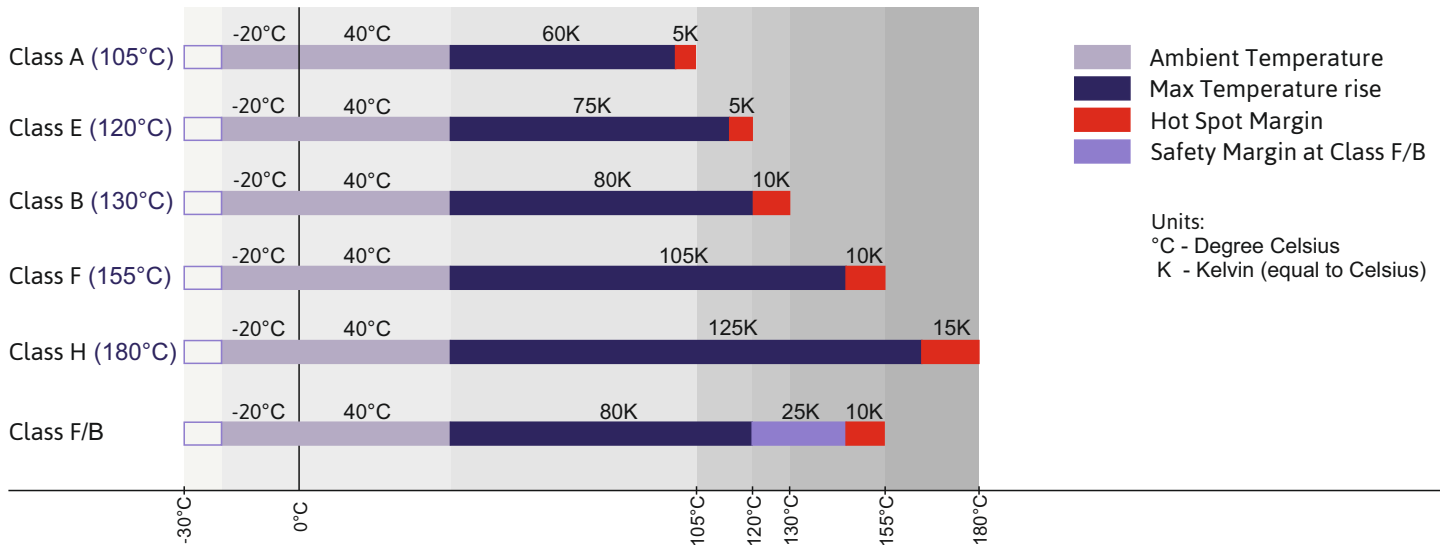
INSULATION (TEMPERATURE) CLASSES

Various insulation materials are used in electric motors and each has its own function.

- Enamel wire insulation
- Slot and phase insulation materials (insulation between the winding and the stator lamination pack and phase insulation between the windings heads).
- Winding impregnation.
- Insulating sleeve used to cover wire/lead connections.
- Insulation of winding leads (between the winding and the terminal board).



These materials are specified in thermal classes referenced as Y-A-E-B-F-H-C. Every thermal class has its own temperature limit. Each material of a specific class needs to retain its mechanical and electrical properties within the temperature limit.



The maximum permissible temperature rise of the winding is determined based on the thermal class temperature limits. The temperature of the winding increases as a result of the copper and iron losses in the electric motor during operation. The winding temperature rise is determined through measuring the winding resistance, which increases with increasing temperature. To allow for any Hot Spots in winding lower temperature limits are specified for the insulation materials.

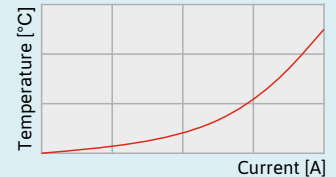
MEZ motors have been produced with insulation class F with winding temperature rise in accordance with the class B (max 80K). This means that the motors have a temperature reserve of 25K. This reserve can be utilised for short-term overload, a higher ambient temperature (above 40°C), for supply voltage/frequency fluctuation etc.



The most commonly used Thermal Protection which protects electric motor winding against overloading:

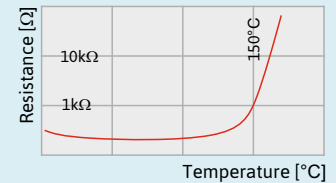
Thermal Cutout (activated by passing current)

This protection is suitable for relatively small motors as these elements are limited by the current which can be passing through. The elements are equipped with bimetallic switch which is activated with the heat caused by passing current. There are automatic Thermal Cutouts which automatically reset when the motor cools down and there are Manual Reset ones for adding safety.



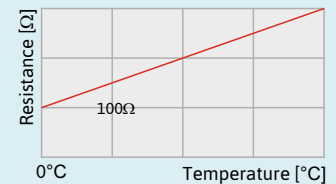
PTC Thermistors (Positive Temperature Coefficient thermistors)

These are relatively inexpensive thermistors suitable for alarm and/or tripping. They do not have ability to measure the actual temperature and are suitable for signalling/tripping purposes only. They reach the required resistance (typically $1k\Omega$) at the set temperature (typically 145°C or 150°C) and come in sets of 3off (one for each phase) or 6off (3off set for lower temperature - for alarm and 3off set for higher temperature - for tripping).



PT100 are RTDs (Resistance Temperature Detectors or Resistance Thermometers).

They measure temperature by correlating the resistance of the RTD element with temperature. Platinum type PT100 have resistance 100Ω at 0°C . The linear characteristics is ideal for temperature monitoring. They again come in sets of 3off or 6off and single thermistors are often used for bearing temperature monitoring.

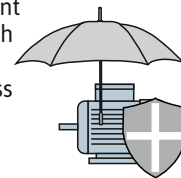


The use of Thermal Protection is recommended for VSD (variable Speed Drive) applications. The use of Thermistors is mandatory for ATEX motors when they are used for VSD applications.



DEGREE OF PROTECTION

Depending on the operating conditions and the environment, the most suitable degree of protection must be chosen to prevent any damage due to water ingress, foreign objects or dust, and to prevent accidental contact with internal rotating parts or with live parts. The degrees of protection for electrical machines are designated by a code with two letters and two numerals and in some cases, an extra letter: IP (International Protection). Protection against contact with live or moving parts and the ingress of foreign bodies and water (not oil!). W, S and M are extra letters for denoting special degrees of protection. W for weather-protected machines; The extra letter W is inserted between the letters IP and the figures denoting the degree of protection, e.g. IPW23. For special applications (such as open-circuit air cooled machines on ships' decks having the air inlets and outlets covered when not in use) an extra letter can be inserted after the figures denoting the degree of protection to indicate whether the protection against harmful water ingress with the machine stationary (letter S) or moving (letter M) has been certified or tested.

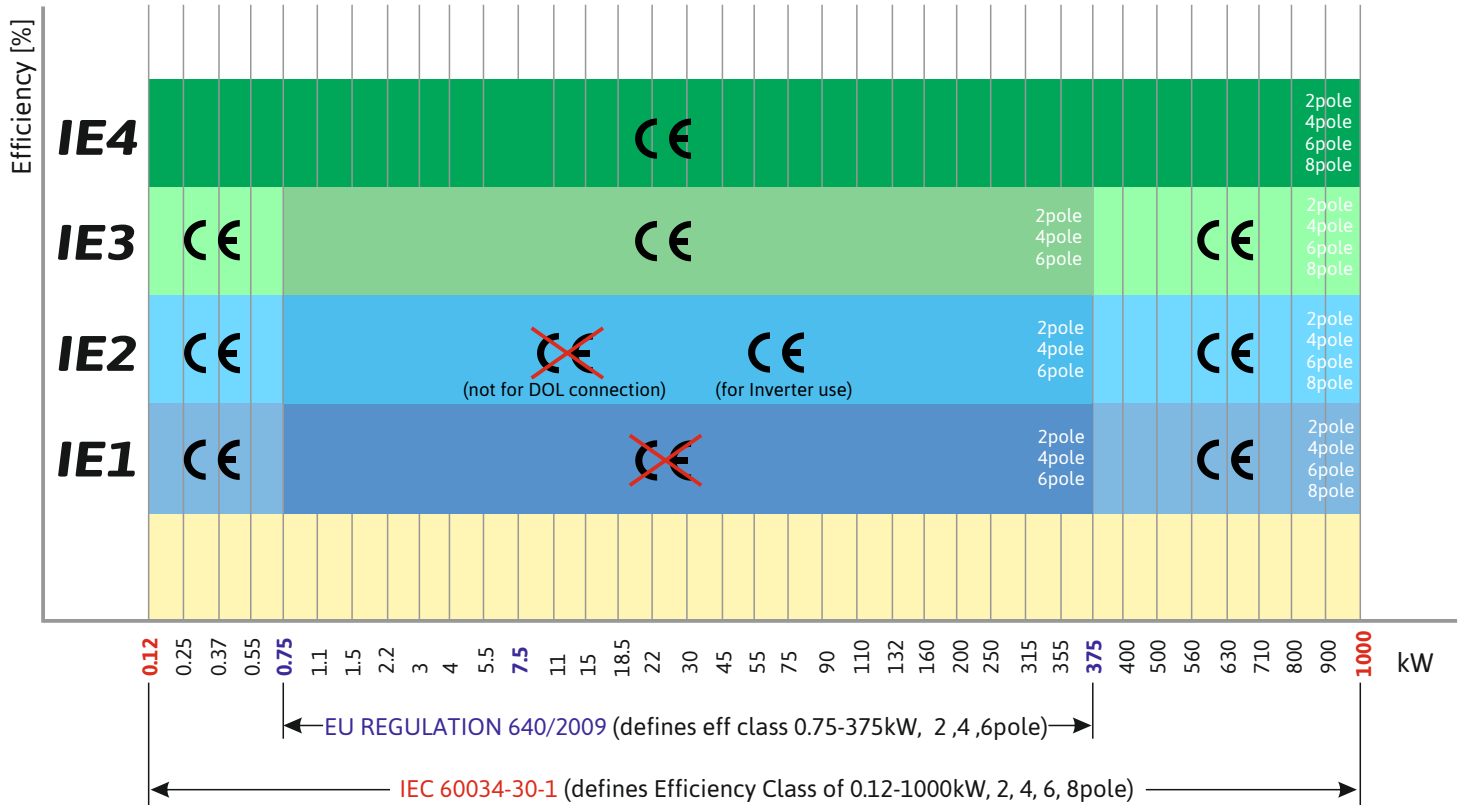


	Protection against	
	Mechanical particles	Water
0	No protection	No protection
1	Protection against solid objects larger than 50 mm	Protection against vertically falling drops of rain
2	Protection against solid objects larger than 12 mm	Protection against drops of rain falling at 15° angle
3	Protection against solid objects larger than 2.5 mm	Protection against drops of rain falling at 60° angle
4	Protection against solid objects larger than 1 mm	Protection against water splashed from any direction
5	Protection against harmful deposits of dusts	Protection against water jet sprayed from any direction
6	Protection against penetration of dusts	Protection against heavy seas and powerful jets sprayed from any direction
7		Protection against immersion in water for specific time and pressure
8		Protection against continuous submersion in water

Motor	Degree of protection	Protection against mechanical particles		Protection against water
		accidental contact	solid foreign particles	
ODP motors (Open Drip Proof)	IP 23	Against contact with fingers	Against solid bodies larger than 12mm in diameter	Against spraying water at up to 60° from the vertical
TEFC motors Totally Enclosed Fan Cooled	IP 44	Against contact with tools or similar objects	Against solid bodies larger than 1mm in diameter	Against splashing water from all directions
	IP 54	Complete protection against accidental contact	Against harmful dust deposits	Against water jets from all directions
	IP 55			Against non heavy seas, strong jets
	IP 56			Against heavy seas, strong jets
	IP 65	Against the ingress of dust	Against water jets from all directions	
	IP 67		Against submersion for specific time and pressure	
	IP 68		Against continuous submersion under conditions specified by the manufacturer	



Electrical devices without the CE Marking cannot be installed and used in the European Union.



Single-phase motors, brake motors, ATEX motors, motors rated for 60Hz only (not 50Hz or 50/60Hz) are all exempt from ErP Directive (from [EU REGULATION 640/2009](#)) but according to the [IEC 60034-30-1 : 2014](#) standard the efficiency class is to be displayed on the rating plate and published in Type Test Reports, Catalogues, Websites etc.



MARKING OF ELECTRIC MOTORS FOR POTENTIALLY EXPLOSIVE ATMOSPHERES

Conditions and Subdivisions			Marking on operating equipment			
Flammable Materials	Temporary behaviour of explosive atmosphere	Classification of Hazardous Areas	Group (Directive 94/9/EC)	Equipment Category (Directive 94/9/EC)	Equipment Group (EN60079-0)	Equipmet Protection (EN60079-0)
Gases & vapours	present continuously or for long periods or frequently	Zone 0	II	1G	II	Ga
	present occasionally in normal operation	Zone 1	II	2G (or 1G)	II	Gb (or Ga)
	not likely to be present in normal operation or will be short term only	Zone 2	II	3G (or 2G or 1G)	II	Gc (or Gb or Ga)
Dust	continuously present in clouds, or present for long periods or frequently	Zone 20	II	1D	III	Da
	occasionally develops into a cloud during normal operation	Zone 21	II	2D (or 1D)	III	Db (or Da)
	is not likely to develop into a cloud during normal operation or is short term only	Zone 22	II	3D (or 2D or 1D)	III	Dc (or Db or Da)
Methane Carbon dust	operation where there is a risk of explosion	--	I	M1	I	Ma
	disconnection where there is a risk of explosion	--	I	M2 (or M1)	I	Mb (or Ma)

ATEX Electric Motors
Price on Application!



Temp Class	Max Surface Temp
T1	450°C
T2	300°C
T3	200°C
T4	135°C
T5	100°C
T6	85°C

Use of the Equipment	
without	-no restrictions
X	-special conditions of use
U	-partial certification CE conformity after installation into operating equipment

Explosion Groups
IIA; IIB; IIC



Notified Body (Testing Authority) Identification number

Specific marking of explosive protection

Dust Groups
IIIA - combustible flyings
IIIB - non-conductive dust
IIIC - conductive dust

Notified Body

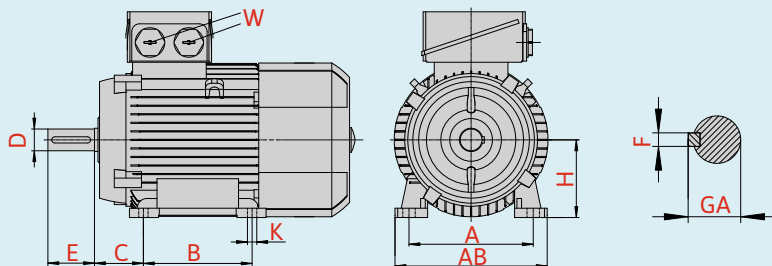
Exd - Flameproof to EN 60079-1
Exe - Increased safety to EN 60079-7
ExnA - Non-sparking to EN 60079-15
Exde - Flameproof motor with Increased safety Terminal box
Exta, Extb, Extc - Dust protection EN 60079-31

Dust ignition temperature
Permissible temperature of the layer T_{layer}
Permissible temperature of the cloud T_{cloud}
Max permissible temperature of the equipment $T_{layer} \geq T_{max} \leq T_{cloud}$

BASIC DIMENSIONS



B3



B3

- Foot mounted motor

B5 ("D" flange) - Flange mounted motor

B14A ("C" face) - Flange mounted motor

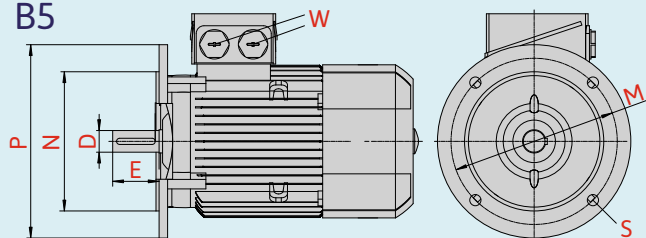
B14B - Flange mounted motor

B3/B5 - Foot & flange mounted motor

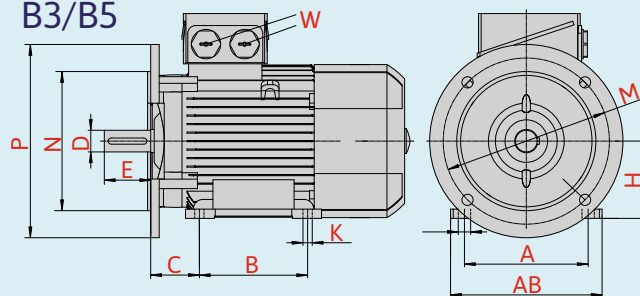
B3/B14A - Foot & flange mounted motor

B3/B14B - Foot & flange mounted motor

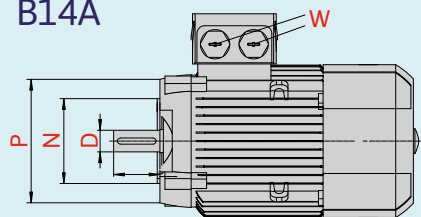
B5



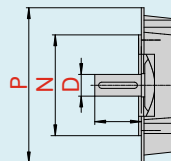
B3/B5



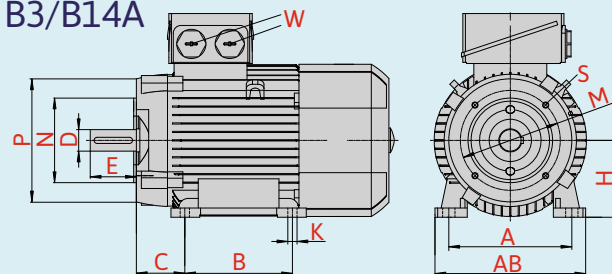
B14A



B14B



B3/B14A

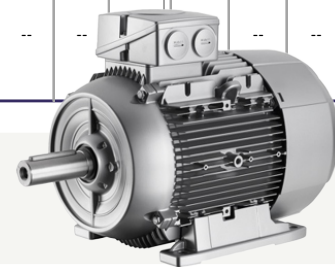




BASIC DIMENSIONS

BASIC DIMENSIONS												B5 FLANGE ("D" flange)				B14A FLANGE ("C" face)				B14B FLANGE						
Frame-(poles)		H	A	AB	B	C	K	W	SHAFT		KEY		PCD M	Spigot N	Dia P	Hole S	PCD M	Spigot N	Dia P	Hole S	PCD M	Spigot N	Dia P	Hole S		
									D	E	F	GA														
63 frame	63M	63	100	120	80	40	7 (M6)	M16+M25	11	23	4	12.5	115	95	140	10	75	60	90	M5	100	80	120	M6		
71 frame	71M	71	112	132	90	45	7 (M6)	M16+M25	14	30	5	16	130	110	160	10	85	70	105	M6	115	95	140	M8		
80 frame	80M	80	125	150	100	50	10 (M8)	M16+M25	19	40	6	21.5	165	130	200	12	100	80	120	M6	130	110	160	M8		
90 frame	90S 90L	90	140	165	100 125	56	10 (M8)	M16+M25	24	50	8	27	165	130	200	12	115	95	140	M8	130	110	160	M8		
100 frame	100L	100	160	192	140	63	12 (M10)	M32	28	60	8	31	215	180	250	14.5	130	110	160	M8	165	130	200	M10		
112 frame	112M	112	190	225	140	70	12 (M10)	M32	28	60	8	31	215	180	250	14.5	130	110	160	M8	165	130	200	M10		
132 frame	132S 132M	132	216	255	140 178	89	12 (M10)	M32	38	80	10	41	265	230	300	14.5	165	130	200	M10	215	180	250	M12		
160 frame	160M 160L	160	254	300	210 254	108	14.5 (M12)	M40	42	110	12	45	300	250	350	18.5	215	180	250	M12	--	--	--	--		
180 frame	180M 180L	180	279	339	241 279	121	14.5 (M12)	M40	48	110	14	51.5	300	250	350	18.5	--	--	--	--	--	--	--	--		
200 frame	200L	200	318	378	305	133	18.5 (M16)	M50	55	110	16	59	350	300	400	18.5	--	--	--	--	--	--	--	--		
225 frame	225S-4/6/8	225	356	436	286	149	18.5 (M16)	M50	60	140	18	64	400	350	450	18.5	--	--	--	--	--	--	--	--		
	225M-2				55				110	16	59															
	225M-4/6/8				60				140	18	64															
250 frame	250M-2	250	406	490	349	168	24 (M20)	M63	60	140	18	64	500	450	550	18.5	--	--	--	--	--	--	--	--		
	250M-4/6/8								65			140													18	69
280 frame	280S-2	280	457	540	368	190	24 (M20)	M63	65	140	18	69	500	450	550	18.5	--	--	--	--	--	--	--	--		
	280S-4/6/8				75				20			79.5														
	280M-2				65				140			18													69	
	280M-4/6/8				75				20			79.5														
315 frame	315S-2	315	508	610	457	216	28 (M24)	M63	65	140	18	69	600	550	660	24	--	--	--	--	--	--	--	--		
	315S-4/6/8								80			170													22	85
	315M-2								65			140													18	69
	315M-4/6/8								80			170													22	85
	315L-2								65			140													18	69
	315L-4/6/8								80			170													22	85

PCD - Pitch Circle Diameter



Detailed drawings (2D and 3D) can be downloaded from our website www.vanhouscke.co.uk.

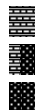
Material	TYPE	Output	Output	Frame Size	Speed	Speed	Rated current 50Hz/60Hz				Power Factor cosφ	Efficiency at 50Hz			Rated torque Nm	Ratio			Weight kg	
		50Hz kW	60Hz kW		50Hz rpm	60Hz rpm	380V A	400V A	415V A	460V A		Class	100% Load %	75% Load %		50% Load %	Starting current	Starting torque		B/down torque
	1000/1200rpm, 6-pole, 50/60Hz, IP55, Insulation F/B																			
	1T29002-0BC22-2_A4	0.09	0.11	63M	895	1074	0.51	0.48	0.47	0.54	0.63	n/a	42.7	38.5	30.4	0.96	2.0	1.8	1.9	4
	1T29002-0CC22-2_A4	0.18	0.21	71M	800	960	0.90	0.84	0.82	0.89	0.67	IE1	45.5	44.4	38.3	2.1	2.0	1.9	2.0	5
	1T29002-0CC32-2_A4	0.25	0.29	71M	860	1032	1.03	0.98	0.94	1.00	0.71	IE1	52.1	52.8	48.4	2.8	2.2	2.0	2.0	6
	1T29001-0DC22-2_A4	0.37	0.43	80M	925	1110	1.14	1.08	1.05	1.03	0.69	IE2	71.4	71.5	66.5	3.85	4.0	2.1	2.4	9
	1T29001-0DC32-2_A4	0.55	0.63	80M	935	1122	1.71	1.63	1.57	1.53	0.66	IE2	74.0	74.0	70.5	5.6	4.4	2.5	2.9	12
	1T29001-0EOC2-2_A4	0.75	0.86	90S	925	1110	2.15	2.05	1.97	1.9	0.70	IE2	75.9	76.0	73.0	7.7	4.1	2.0	2.5	13
	1T29001-0EC42-2_A4	1.1	1.27	90L	935	1122	3.06	2.90	2.80	2.60	0.70	IE2	78.1	78.5	75.0	11.2	4.4	2.2	2.6	16
	1T29001-1AC42-2_A4	1.5	1.75	100L	970	1164	3.92	3.7	3.59	3.44	0.73	IE2	79.8	80.2	79.0	15	6.2	2.0	2.9	25
	1T29001-1AC62-2_A4	2.2	2.55	100L	965	1158	5.4	5.1	4.9	4.8	0.76	IE2	81.8	82.5	81.5	22	5.7	1.9	2.9	30
	1T29001-1BC22-2_A4	2.2	2.55	112M	965	1158	5.5	5.2	5.0	4.8	0.75	IE2	81.8	82.5	81.3	22	6.0	2.1	3.1	29
	1T29001-1BC63-4_A4	3	3.45	112M	960	1152	6.9	6.6	6.3	6.2	0.79	IE2	83.3	84.1	83.6	30	6.0	2.1	3.1	34
	1T29001-1CC03-4_A4	3	3.45	132S	970	1164	7.4	7.0	6.8	6.6	0.74	IE2	83.3	84.0	82.8	30	5.6	1.6	2.6	38
	1T29001-1CC23-4_A4	4	4.55	132M	970	1164	9.2	8.7	8.4	8.3	0.78	IE2	84.6	85.8	85.0	39	5.6	1.6	2.5	43
	1T29001-1CC33-4_A4	5.5	6.3	132M	970	1164	13	12	12	11	0.77	IE2	86.0	87.4	87.0	54	6.1	1.9	2.8	52
	1T29001-1CC63-4_A4	7.5	8.6	132M	970	1164	17	16	16	16	0.77	IE2	87.2	87.8	87.3	74	6.5	2.1	3.0	64
	1T29001-1DC23-4_A4	7.5	8.6	160M	975	1170	17	16	16	16	0.77	IE2	87.2	87.7	86.9	73	6.3	1.8	2.8	77
	1T29001-1DC43-4_A4	11	12.6	160L	975	1170	24	23	22	22	0.80	IE2	88.7	89.5	89.4	108	6.2	1.7	2.7	93
	1T29001-1DC63-4_A4	15	17.3	160L	975	1170	31	30	29	29	0.81	IE2	89.7	90.6	90.5	147	6.5	1.9	2.9	115
	1T29501-1EC43-4_A4	15	18	180L	975	1170	33	31	30	32	0.78	IE2	89.7	90.1	90.2	147	6.0	2.5	3.1	155
	1T29501-1EC63-4_A4	18.5	22	180L	975	1170	40	39	37	38	0.77	IE2	90.4	91.1	90.8	181	6.0	2.3	2.9	165
	1T29501-2AC43-4_A4	18.5	22	200L	978	1174	38	36	35	36	0.82	IE2	90.4	91.3	91.2	181	5.8	2.4	2.6	200
	1T29501-2AC53-4_A4	22	26.5	200L	978	1174	45	43	41	44	0.82	IE2	90.9	91.6	91.2	215	6.2	2.5	2.6	220
	1T29501-2AC63-4_A4	30	34.5	200L	975	1170	65	61	59	59	0.77	IE2	91.7	92.5	92.5	294	6.3	2.6	2.7	245
	1T29501-2BC23-4_A4	30	36	225M	980	1176	60	57	55	58	0.83	IE2	91.7	92.5	92.3	292	6.1	2.5	2.8	285
	1T29501-2BC63-4_A4	37	44.5	225M	978	1174	74	70	67	73	0.83	IE2	92.2	93.0	92.9	361	6.3	2.5	2.9	325
	1T29501-2CC23-4_A4	37	44.5	250M	982	1178	74	70	67	72	0.83	IE2	92.2	93.1	93.1	360	6.0	2.8	2.5	370
	1T29501-2CC63-4_A4	45	54	250M	985	1182	88	83	81	87	0.84	IE2	92.7	93.7	94.0	436	6.9	2.9	3.0	410
	1T29501-2DC03-4_A4	45	54	280S	985	1182	88	83	81	85	0.84	IE2	92.7	93.4	93.2	436	6.3	2.7	2.6	460
	1T29501-2DC23-4_A4	55	66	280M	985	1182	105	99	96	102	0.86	IE2	93.1	93.9	94.0	533	6.4	2.5	2.6	510
	1T29501-2DC63-4_A4	75	90	280M	986	1183	143	136	131	140	0.85	IE2	93.7	94.3	94.4	726	7.0	3.2	2.9	570
	1T29501-3AC03-4_A4	75	90	315S	988	1186	145	138	133	141	0.84	IE2	93.7	94.0	93.6	725	6.7	2.5	2.8	660
	1T29501-3AC23-4_A4	90	108	315M	988	1186	173	165	159	170	0.84	IE2	94.0	94.3	93.6	870	6.9	2.6	2.8	730
	1T29501-3AC43-4_A4	110	132	315L	988	1186	206	196	189	201	0.86	IE2	94.3	94.6	94.5	1063	7.0	2.7	2.8	920
	1T29501-3AC53-4_A4	132	158	315L	988	1186	247	235	226	240	0.86	IE2	94.6	94.9	94.7	1276	7.5	3.0	2.9	990
	1T29501-3AC63-4_A4	160	192	315L	988	1186	299	285	273	292	0.86	IE2	94.8	94.7	94.4	1546	7.7	3.1	3.3	1160



IE2

MEZ MOTORS - 8 POLE

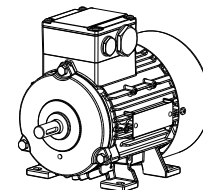
Material	TYPE	Output	Output	Frame Size	Speed	Speed	Rated current				Power	Efficiency at 50Hz			Rated torque	Ratio			Weight	
		50Hz kW	60Hz kW		50Hz rpm	60Hz rpm	380V A	400V A	415V A	460V A	cosφ	Class	100% Load %	75% Load %	50% Load %	Nm	Starting current	Starting torque	B/down torque	kg
	750/900rpm, 8-pole, 50/60Hz, IP55, Insulation F/B																			
	1TZ9002-0CD22-2_A4	0.09	0.11	71M	635	762	0.56	0.53	0.51	0.60	0.63	n/a	39	35.7	28.6	1.40	1.8	1.8	2.0	5
	1TZ9002-0CD32-2_A4	0.12	0.14	71M	625	750	0.87	0.82	0.79	0.89	0.68	IE1	31	30.5	27.1	1.80	2.0	1.7	1.7	6
	1TZ9001-0DD22-2_A4	0.18	0.21	80M	690	840	0.99	0.94	0.91	0.97	0.60	IE2	45.9	43.6	37.8	2.50	2.2	1.7	2.1	8.5
	1TZ9001-0DD32-2_A4	0.25	0.29	80M	705	855	1.37	1.30	1.25	1.27	0.55	IE2	50.6	48.1	41.9	3.4	2.5	2.0	2.5	10.4
	1TZ9001-0ED02-2_A4	0.37	0.43	90S	675	830	1.41	1.34	1.29	1.33	0.71	IE2	56.1	55.6	49.6	5.2	2.6	1.4	1.7	11.5
	1TZ9001-0ED42-2_A4	0.55	0.63	90L	665	820	1.83	1.74	1.68	1.77	0.74	IE2	61.7	63.4	59.8	7.9	2.7	1.5	1.7	14.5
	1TZ9001-1AD42-2_A4	0.75	0.86	100L	725	870	2.88	2.8	2.64	2.48	0.58	IE2	68.3	65.8	59.3	9.9	4.0	1.6	2.8	21
	1TZ9001-1AD52-2_A4	1.1	1.3	100L	725	870	4.2	4.0	3.9	3.8	0.58	IE2	68.3	65.4	58.9	14	4.1	1.8	2.8	25
	1TZ9001-1BD22-2_A4	1.5	1.75	112M	720	864	4.49	4.25	4.11	4.12	0.67	IE2	75.8	76.0	73.0	20	4.2	1.4	2.4	29
	1TZ9001-1CD02-2_A4	2.2	2.55	132S	725	870	6.5	6.2	6	5.8	0.65	IE2	78.8	79.3	77.2	29	4.3	1.4	2.1	41
	1TZ9001-1CD23-4_A4	3	3.45	132M	730	876	8.5	8.1	7.8	7.7	0.65	IE2	82.7	83.0	80.9	39	5.0	1.4	2.4	49
	1TZ9001-1DD23-4_A4	4	4.55	160M	730	876	10.2	9.7	9.4	9.6	0.69	IE2	86.2	86.9	86.0	52	4.3	1.8	2.0	69
	1TZ9001-1DD33-4_A4	5.5	6.3	160M	730	876	14.0	13.3	12.8	13.2	0.69	IE2	86.7	87.5	86.5	72	4.4	2.1	2.1	82
	1TZ9001-1DD43-4_A4	7.5	8.6	160L	730	876	18.2	17.3	16.7	16.7	0.72	IE2	86.9	88.2	88.1	98	4.5	1.9	2.1	94
	1TZ9501-1ED43-4_A4	11	13.2	180L	720	864	28	26	25	26	0.70	IE2	86.6	87.6	87.1	146	4.9	2.3	2.6	155
	1TZ9501-1ED63-4_A4	15	18	180L	720	864	36	34	33	34	0.73	IE2	87.9	88.9	88.2	199	4.9	2.2	2.5	190
	1TZ9501-2AD53-4_A4	15	18	200L	718	862	34	32	31	32	0.76	IE2	88.9	90.8	91.2	200	5.4	2.4	2.8	220
	1TZ9501-2AD63-4_A4	18.5	22	200L	720	864	41	39	37	39	0.78	IE2	88.6	89.9	90.1	245	5.8	2.6	3.0	250
	1TZ9501-2BD03-4_A4	18.5	22	225S	730	876	41	39	37	39	0.78	IE2	89.0	89.9	89.5	242	5.4	2.2	2.7	250
	1TZ9501-2BD23-4_A4	22	26.5	225M	730	876	46	44	42	45	0.80	IE2	90.3	91.3	91.1	288	5.5	2.3	2.7	270
	1TZ9501-2BD63-4_A4	30	36	225M	732	878	65	62	60	63	0.77	IE2	90.8	92.0	92.1	391	6.1	2.8	3.2	325
	1TZ9501-2CD23-4_A4	30	36	250M	732	878	63	59	57	61	0.80	IE2	91.3	92.2	92.0	391	5.6	2.4	2.7	370
	1TZ9501-2CD63-4_A4	37	44.5	250M	730	876	74	70	68	74	0.83	IE2	91.6	92.6	92.7	484	5.5	2.3	2.6	405
	1TZ9501-2DD03-4_A4	37	44.5	280S	736	883	79	75	72	77	0.78	IE2	91.9	92.5	92.1	480	5.4	2.3	2.4	460
	1TZ9501-2DD23-4_A4	45	54	280M	738	886	94	89	86	93	0.79	IE2	92.4	92.8	92.4	582	5.7	2.5	2.5	510
	1TZ9501-2DD63-4_A4	55	66	280M	735	882	111	105	102	109	0.81	IE2	92.9	93.4	93.0	715	5.4	2.3	2.3	550
	1TZ9501-3AD03-4_A4	55	66	315S	740	888	113	107	103	110	0.80	IE2	92.9	93.3	92.9	710	5.8	2.2	2.6	640
	1TZ9501-3AD23-4_A4	75	90	315M	738	886	151	143	138	148	0.81	IE2	93.5	94.4	94.5	970	5.8	2.2	2.6	710
	1TZ9501-3AD43-4_A4	90	108	315L	740	888	176	167	162	172	0.83	IE2	93.5	94.3	94.4	1161	5.8	2.2	2.5	860
	1TZ9501-3AD53-4_A4	110	132	315L	740	888	217	205	198	213	0.82	IE2	94.2	95.0	95.1	1420	6.4	2.4	2.8	980
	1TZ9501-3AD63-4_A4	132	158	315L	740	888	263	250	240	257	0.81	IE2	94.4	94.8	94.4	1703	7.1	2.7	3.1	1060



Aluminium motors

Choice of Aluminium / Cast iron motors available

Cast iron motors





Material	TYPE	Output	Output	Frame Size	Speed	Speed	Rated current 50Hz				Power Factor	Efficiency at 50Hz				Rated torque	Ratio			Weight
		50Hz kW	60Hz kW		50Hz rpm	60Hz rpm	380V A	400V A	415V A	460V A		Class	100% Load %	75% Load %	50% Load %		Starting current	Starting torque	B/down torque	
3000/3600rpm, 2-pole, 50/60Hz, IP55, Insulation F/B																				
	1TZ9003-0DA22-2_A4	0.75	0.86	80M	2860	3460	1.66	1.58	1.52	1.65	0.85	IE3	80.7	80.7	79.7	2.5	6.1	2.5	3.1	11
	1TZ9003-0DA32-2_A4	1.1	1.27	80M	2885	3480	2.38	2.25	2.18	2.25	0.85	IE3	82.7	82.7	81.7	3.6	7.1	3.0	3.7	12
	1TZ9003-0EA02-2_A4	1.5	1.75	90S	2920	3515	3.15	3.00	2.89	2.95	0.86	IE3	84.2	84.2	83.2	4.9	8.1	2.7	4.4	15
	1TZ9003-0EA42-2_A4	2.2	2.55	90L	2920	3515	4.43	4.20	4.05	4.20	0.88	IE3	85.9	85.9	84.9	7.2	8.2	2.7	4.4	19
	1TZ9003-1AA43-4_A4	3	3.45	100L	2920	3520	6.0	5.6	5.5	5.5	0.88	IE3	87.1	87.1	86.1	9.8	8.1	3.2	4.6	26
	1TZ9003-1BA23-4_A4	4	4.55	112M	2955	3555	7.8	7.4	7.1	7.2	0.89	IE3	88.1	88.1	87.1	13	8.0	2.9	4.4	34
	1TZ9003-1CA03-4_A4	5.5	6.3	132S	2950	3545	10.4	9.9	9.5	9.7	0.90	IE3	89.2	89.2	88.2	18	7.3	1.9	3.7	43
	1TZ9003-1CA13-4_A4	7.5	8.6	132S	2950	3550	13.8	13.1	12.6	13.0	0.92	IE3	90.1	90.1	89.1	24	8.3	2.1	4.0	57
	1TZ9003-1CA63-4_A4	11	12.6	132M	2955	3560	21	20	20	20	0.86	IE3	91.2	91.2	90.2	36	8.0	2.6	4.3	57
	1TZ9003-1CA73-4_A4	15	17.3	132M	2955	3555	29	27	26	27	0.87	IE3	91.9	91.9	90.9	48	8.4	2.2	4.8	64
	1TZ9003-1DA23-4_A4	11	12.6	160M	2955	3555	21	20	19	20	0.87	IE3	91.2	91.2	90.2	36	7.6	2.5	3.8	75
	1TZ9003-1DA33-4_A4	15	17.3	160M	2960	3560	29	27	26	27	0.87	IE3	91.9	91.9	90.9	48	8.8	2.8	4.3	84
	1TZ9003-1DA43-4_A4	18.5	21.3	160L	2955	3550	34	32	31	32	0.90	IE3	92.4	92.4	91.4	60	8.3	2.8	3.9	94
	1TZ9003-1DA63-4_A4	22	25.3	160L	2950	3550	40	38	36	38	0.91	IE3	92.7	92.7	91.2	71	8.4	3.2	3.9	105
	1TZ9503-1EA23-4_A4	22	24.5	180M	2950	3550	41	39	37	38	0.89	IE3	92.7	93.0	92.4	71	7.5	2.5	3.5	160
	1TZ9503-1EA63-4_A4	30	33.5	180L	2950	3550	56	53	51	51	0.88	IE3	93.3	93.9	93.9	97	8.6	2.6	3.9	173
	1TZ9503-2AA43-4_A4	30	33.5	200L	2955	3555	56	53	51	52	0.87	IE3	93.3	93.7	93.3	97	6.6	2.5	3.3	225
	1TZ9503-2AA53-4_A4	37	41.5	200L	2955	3555	68	65	63	63	0.88	IE3	93.7	94.1	93.8	120	6.6	2.5	3.2	250
	1TZ9503-2AA63-4_A4	45	51	200L	2950	3555	84	79	77	78	0.87	IE3	94.0	94.6	94.7	146	7.1	2.5	3.2	245
	1TZ9503-2BA23-4_A4	45	51	225M	2960	3560	82	78	75	77	0.89	IE3	94.0	94.5	94.4	145	6.9	2.4	3.3	315
	1TZ9503-2BA63-4_A4	55	62	225M	2965	3565	100	94	91	94	0.89	IE3	94.3	94.6	94.4	177	8.2	3.0	3.8	390
	1TZ9503-2CA23-4_A4	55	62	250M	2975	3575	100	95	91	92	0.89	IE3	94.3	94.5	93.9	177	6.7	2.3	3.1	385
	1TZ9503-2CA63-4_A4	75	84	250M	2970	3570	134	128	123	124	0.90	IE3	94.7	94.9	94.5	241	6.9	2.2	3.0	470
	1TZ9503-2DA03-4_A4	75	84	280S	2975	3575	135	128	124	125	0.89	IE3	94.7	94.8	94.1	241	6.8	2.4	3.0	510
	1TZ9503-2DA23-4_A4	90	101	280M	2975	3575	160	152	147	149	0.90	IE3	95.0	95.1	94.6	289	7.2	2.4	3.1	590
	1TZ9503-2DA63-4_A4	110	123	280M	2975	3575	193	183	177	179	0.91	IE3	95.2	95.4	95.1	353	7.5	2.5	3.3	670
	1TZ9503-3AA03-4_A4	110	123	315S	2982	3582	193	183	177	179	0.91	IE3	95.2	95.4	94.9	352	7.1	2.4	3.1	750
	1TZ9503-3AA23-4_A4	132	148	315M	2982	3582	231	220	212	215	0.91	IE3	95.4	95.5	95.2	423	7.2	2.5	3.1	880
	1TZ9503-3AA43-4_A4	160	180	315L	2982	3582	277	265	253	255	0.92	IE3	95.6	95.7	95.2	512	7.8	2.8	3.3	980
	1TZ9503-3AA53-4_A4	200	224	315L	2982	3582	345	330	316	320	0.92	IE3	95.8	95.9	95.5	640	7.2	2.5	3.0	1150
	1TZ5503-3AA63-4_A4	250	280	315L	2986	3586	450	430	415	415	0.88	IE3	95.8	95.7	95.0	800	9.3	3.0	4.2	1340
	1TZ5503-3AA73-4_A4	315	355	315L	2986	3586	570	550	530	530	0.87	IE3	95.8	95.6	94.8	1007	9.9	3.5	4.2	1520
	1TZ5603-3BA33-4_B4	355	400	355M	2988	3588	630	600	580	580	0.89	IE3	95.8	95.6	94.8	1135	8.9	2.6	4.0	2100
	1TZ5603-3BA43-4_B4	400	450	355L	2986	3586	690	660	630	640	0.92	IE3	95.8	95.7	95.2	1279	8.5	2.6	3.4	2240
	1TZ5603-3BA53-4_B4	500	560	355L	2988	3588	890	850	820	820	0.89	IE3	95.8	95.7	95.1	1598	8.9	3.0	3.8	2340



IE3

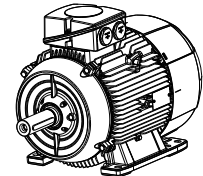
MEZ MOTORS - 4 POLE

Material	TYPE	Output	Output	Frame Size	Speed	Speed	Rated current 50/60Hz				Power Factor	Efficiency at 50Hz			Rated torque	Ratio			Weight	
		50Hz kW	60Hz kW		50Hz rpm	60Hz rpm	380V A	400V A	415V A	460V A		cosφ	Class	100% Load %		75% Load %	50% Load %	Starting current		Starting torque
1500/1800rpm, 4-pole, 50/60Hz, IP55, Insulation F/B																				
	1TZ9003-0DB22-2_A4	0.55	0.63	80M	1440	1740	1.37	1.30	1.26	1.27	0.78	IE3	78.1	78.6	75.6	3.6	5.8	2.2	3.1	11
	1TZ9003-0DB32-2_A4	0.75	0.86	80M	1455	1755	1.82	1.73	1.67	1.66	0.76	IE3	82.5	82.5	81.5	4.9	6.8	2.6	3.8	14
	1TZ9003-0EB02-2_A4	1.1	1.27	90S	1445	1740	2.52	2.40	2.31	2.35	0.79	IE3	84.1	84.1	83.1	7.3	7.2	2.7	3.7	16
	1TZ9003-0EB42-2_A4	1.5	1.75	90L	1445	1745	3.34	3.15	3.06	3.15	0.80	IE3	85.3	85.3	84.3	9.9	7.7	2.8	3.9	19
	1TZ9003-1AB42-2_A4	2.2	2.55	100L	1465	1765	4.7	4.4	4.3	4.3	0.83	IE3	86.7	86.7	85.7	14	8.4	3.2	4.4	30
	1TZ9003-1AB53-4_A4	3	3.45	100L	1460	1755	6.3	5.9	5.7	5.8	0.83	IE3	87.7	87.7	86.7	20	8.3	2.5	3.9	30
	1TZ9003-1BB23-4_A4	4	4.55	112M	1460	1760	8.4	7.9	7.7	7.7	0.82	IE3	88.6	88.6	87.6	26	7.1	2.4	3.7	34
	1TZ9003-1CB03-4_A4	5.5	6.3	132S	1475	1775	11.1	10.5	10.2	10.3	0.84	IE3	89.6	89.6	88.6	36	8.2	2.8	3.9	64
	1TZ9003-1CB23-4_A4	7.5	8.6	132M	1465	1765	15.0	14.3	13.8	13.8	0.84	IE3	90.4	90.4	89.4	49	8.2	2.6	3.7	64
	1TZ9003-1CB63-4_A4	11	12.6	132M	1470	1765	23.0	21.7	21.0	20.9	0.80	IE3	91.4	92.2	92.0	71	7.7	2.6	3.6	81
	1TZ9003-1DB23-4_A4	11	12.6	160M	1475	1770	22	21	20	20	0.84	IE3	91.4	91.4	90.4	71	7.6	2.6	3.4	83
	1TZ9003-1DB43-4_A4	15	17.3	160L	1475	1775	30	29	28	28	0.82	IE3	92.1	92.1	91.1	97	8.5	2.5	3.8	100
	1TZ9003-1DB63-4_A4	18.5	21.3	160L	1475	1775	38	36	34	35	0.81	IE3	92.6	92.9	92.3	120	7.9	2.9	3.9	110
	1TZ9503-1EB23-4_A4	18.5	21.3	180M	1470	1770	37	35	34	35	0.82	IE3	92.6	93.2	93.2	120	6.9	2.5	3.3	165
	1TZ9503-1EB43-4_A4	22	25.3	180L	1470	1770	43	41	40	41	0.83	IE3	93.0	93.7	93.7	143	6.8	2.5	3.3	170
	1TZ9503-1EB63-4_A4	30	34.5	180L	1470	1770	62	59	57	58	0.79	IE3	93.6	94.3	94.2	195	7.8	2.8	3.7	193
	1TZ9503-2AB53-4_A4	30	34.5	200L	1470	1770	58	55	53	55	0.84	IE3	93.6	94.3	94.4	195	6.9	2.6	3.1	240
	1TZ9503-2AB63-4_A4	37	42.5	200L	1475	1775	74	70	68	69	0.81	IE3	93.9	94.4	94.4	240	8.1	3.1	3.5	260
	1TZ9503-2BB03-4_A4	37	42.5	225S	1478	1778	70	66	64	66	0.86	IE3	93.9	94.5	94.4	239	6.4	2.5	2.7	285
	1TZ9503-2BB23-4_A4	45	52	225M	1478	1778	84	80	77	81	0.86	IE3	94.2	94.9	95.1	291	6.4	2.6	2.7	320
	1TZ9503-2BB63-4_A4	55	63	225M	1478	1778	103	98	94	98	0.86	IE3	94.6	95.3	95.5	355	6.3	2.8	2.7	415
	1TZ9503-2CB23-4_A4	55	63	250M	1482	1782	102	96	93	97	0.87	IE3	94.6	95.1	95.0	354	6.8	2.5	2.9	420
	1TZ9503-2CB63-4_A4	75	86	250M	1485	1785	141	134	129	132	0.85	IE3	95.0	95.2	94.8	482	7.6	3.0	3.4	490
	1TZ9503-2DB03-4_A4	75	86	280S	1485	1785	140	133	128	131	0.86	IE3	95.0	95.3	95.0	482	6.9	2.5	3.0	570
	1TZ9503-2DB23-4_A4	90	104	280M	1485	1785	165	157	151	158	0.87	IE3	95.2	95.5	95.3	579	7.2	2.6	3.0	670
	1TZ9503-2DB63-4_A4	110	127	280M	1485	1785	202	192	185	191	0.87	IE3	95.4	95.6	95.3	707	7.2	2.7	3.0	730
	1TZ9503-3AB03-4_A4	110	127	315S	1488	1788	202	191	185	191	0.87	IE3	95.4	95.8	95.5	706	6.8	2.6	2.9	760
	1TZ9503-3AB23-4_A4	132	152	315M	1490	1788	241	230	221	225	0.87	IE3	95.6	95.9	95.9	846	7.3	2.8	3.0	960
	1TZ9503-3AB43-4_A4	160	184	315L	1490	1788	292	275	267	275	0.87	IE3	95.8	96.1	96.1	1025	7.3	2.9	3.1	990
	1TZ9503-3AB53-4_A4	200	230	315L	1488	1788	360	340	330	345	0.88	IE3	96.0	96.3	96.1	1284	7.4	3.2	3.0	1190
	1TZ5503-3AB63-4_A4	250	290	315L	1490	1788	465	440	425	440	0.85	IE3	96.0	96.1	95.7	1602	7.9	2.8	3.2	1290
	1TZ5503-3AB73-4_A4	315	360	315L	1490	1790	600	570	550	560	0.83	IE3	96.0	96.0	95.6	2019	8.5	3.2	3.5	1560
	1TZ5603-3BB33-4_B4	355	410	355M	1492	1792	650	620	600	620	0.86	IE3	96.0	96.0	95.4	2272	7.9	2.9	2.8	2020
	1TZ5603-3BB43-4_B4	400	460	355L	1492	1792	750	720	690	710	0.84	IE3	96.0	96.0	95.5	2560	8.4	3.4	3.0	2110
	1TZ5603-3BB53-4_B4	500	580	355L	1491	1790	920	870	840	870	0.86	IE3	96.0	96.1	95.9	3202	8.1	3.1	3.3	2290



Material	TYPE	Output	Output	Frame Size	Speed	Speed	Rated current 50Hz				Power Factor	Efficiency at 50Hz				Rated torque	Ratio			Weight
		50Hz kW	60Hz kW		50Hz rpm	60Hz rpm	380V A	400V A	415V A	460V A		Class	100% Load %	75% Load %	50% Load %		Starting current	Starting torque	B/down torque	
1000/1200rpm, 6-pole, 50/60Hz, IP55, Insulation F/B																				
Aluminium motors	1TZ9003-0DC22-2_A4	0.37	0.43	80M	940	1128	1.14	1.08	1.04	1.32	0.66	IE3	74.8	74.3	70.5	3.8	4.2	2.3	2.7	12
	1TZ9003-0DC32-2_A4	0.55	0.63	80M	935	1122	1.62	1.53	1.48	1.85	0.67	IE3	77.2	77.2	75.5	5.6	4.5	2.5	2.8	14
	1TZ9003-0EC02-2_A4	0.75	0.86	90S	945	1145	1.98	1.88	1.81	1.79	0.73	IE3	78.9	79.4	76.9	7.6	5.3	2.3	2.7	16
	1TZ9003-0EC42-2_A4	1.1	1.27	90L	970	1175	3.08	2.95	2.82	2.55	0.67	IE3	81.0	81.0	80.0	11	5.4	2.0	3.0	19
	1TZ9003-1AC42-2_A4	1.5	1.75	100L	970	1170	3.6	3.5	3.3	3.5	0.76	IE3	82.5	82.5	81.5	15	6.9	2.1	3.6	30
	1TZ9003-1BC22-2_A4	2.2	2.55	112M	970	1170	5.0	4.7	4.5	4.8	0.80	IE3	84.3	84.3	83.3	22	6.6	1.7	2.8	29
	1TZ9003-1CC03-4_A4	3	3.45	132S	970	1170	6.8	6.5	6.3	6.1	0.78	IE3	85.6	85.6	84.6	30	6.5	1.8	3.0	43
	1TZ9003-1CC23-4_A4	4	4.55	132M	970	1170	8.9	8.4	8.1	8.1	0.79	IE3	86.8	86.8	85.8	39	6.6	1.9	3.0	52
	1TZ9003-1CC33-4_A4	5.5	6.3	132M	970	1170	12.2	11.6	11.2	11.1	0.78	IE3	88.0	88.0	87.0	54	6.6	2.0	3.1	52
	1TZ9003-1DC23-4_A4	7.5	8.6	160M	980	1180	16.8	16.0	15.4	15.9	0.80	IE3	89.1	89.9	89.3	73	4.9	1.9	2.3	93
	1TZ9003-1DC43-4_A4	11	12.6	160L	975	1175	24	23	22	23	0.80	IE3	90.3	91.1	90.7	108	5.0	1.9	2.3	115
	1TZ9503-1EC43-4_A4	15	18	180L	975	1170	31	30	29	31	0.80	IE3	91.2	91.9	91.9	147	5.9	2.3	2.8	180
	1TZ9503-1EC63-4_A4	18.5	22	180L	975	1175	40	38	36	38	0.77	IE3	91.7	92.3	92.1	181	6.9	2.6	3.3	185
	1TZ9503-2AC43-4_A4	18.5	22	200L	978	1175	39	37	36	38	0.79	IE3	91.7	92.5	92.5	181	5.6	2.5	2.6	215
	1TZ9503-2AC53-4_A4	22	26.5	200L	978	1175	46	44	42	44	0.79	IE3	92.2	93.0	92.9	215	5.6	2.5	2.6	230
	1TZ9503-2AC63-4_A4	30	36	200L	978	1175	62	59	57	61	0.79	IE3	92.9	93.6	93.7	293	6.5	2.8	2.8	264
	1TZ9503-2BC23-4_A4	30	36	225M	982	1180	59	56	54	58	0.83	IE3	92.9	93.6	93.5	292	6.6	2.6	3.0	325
	1TZ9503-2BC63-4_A4	37	44.5	225M	985	1182	74	70	67	73	0.82	IE3	93.3	93.9	93.7	359	7.6	3.0	3.3	395
	1TZ9503-2CC23-4_A4	37	44.5	250M	985	1182	71	67	65	69	0.85	IE3	93.3	94.0	94.0	359	7.0	2.7	2.9	405
	1TZ9503-2CC63-4_A4	45	54	250M	986	1185	87	83	80	86	0.84	IE3	93.7	94.3	94.4	436	7.0	2.8	2.9	480
	1TZ9503-2DC03-4_A4	45	54	280S	988	1186	86	82	79	84	0.85	IE3	93.7	94.3	94.2	435	6.8	3.0	2.8	510
	1TZ9503-2DC23-4_A4	55	66	280M	988	1186	105	99	96	104	0.85	IE3	94.1	94.6	94.4	532	7.2	3.2	3.0	560
	1TZ9503-2DC63-4_A4	75	90	280M	988	1188	145	136	133	140	0.83	IE3	94.6	95.0	94.8	725	8.1	3.7	3.2	620
	1TZ9503-3AC03-4_A4	75	90	315S	990	1190	144	136	131	142	0.84	IE3	94.6	94.9	94.4	723	7.3	2.6	3.1	750
1TZ9503-3AC23-4_A4	90	108	315M	991	1190	170	161	155	170	0.85	IE3	94.9	95.3	95.0	867	6.7	2.5	2.8	890	
1TZ9503-3AC43-4_A4	110	132	315L	991	1190	209	199	192	205	0.84	IE3	95.1	95.5	95.3	1060	7.2	2.8	3.0	990	
1TZ9503-3AC53-4_A4	132	158	315L	991	1190	251	240	229	245	0.84	IE3	95.4	95.9	95.8	1272	7.2	2.7	3.0	1110	
1TZ9503-3AC63-4_A4	160	192	315L	991	1190	306	290	280	300	0.83	IE3	95.6	95.8	95.4	1542	7.7	3.3	3.5	1160	
1TZ5503-3AC73-4_A4	200	240	315L	992	1192	385	365	355	380	0.82	IE3	95.8	95.9	95.6	1925	7.5	3.0	3.2	1410	
1TZ5503-3AC83-4_A4	250	300	315L	992	1191	490	465	450	475	0.81	IE3	95.8	95.9	95.6	2407	8.2	3.2	3.3	1700	
1TZ5603-3BC23-4_B4	315	380	335M	993	1192	610	580	560	590	0.82	IE3	95.8	95.8	95.3	3029	7.8	2.9	3.2	2040	
1TZ5603-3BC33-4_B4	355	425	355M	993	1192	680	640	620	660	0.83	IE3	95.8	95.9	95.5	3414	8.4	2.9	3.3	2250	
1TZ5603-3BC43-4_B4	400	480	355L	994	1193	760	720	690	730	0.84	IE3	95.8	96.0	95.8	3843	8.1	2.8	3.0	2240	

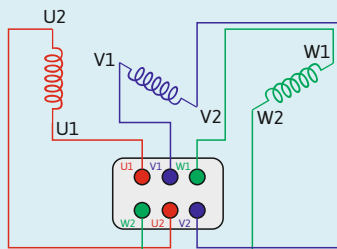
- Aluminium motors
- Choice of Aluminium / Cast iron motors available
- Cast iron motors



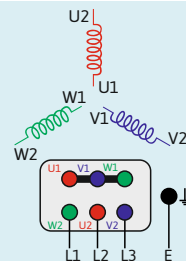


Material	TYPE	Output	Output	Frame Size	Speed	Speed	Rated current				Power Factor	Efficiency at 50Hz			Rated torque	Ratio			Weight	
		50Hz kW	60Hz kW		50Hz rpm	60Hz rpm	380V A	400V A	415V A	460V A		100% Load %	75% Load %	50% Load %		Starting current	Starting torque	B/down torque		
750/900rpm, 8-pole, 50/60Hz, IP55, Insulation F/B																				
	1TZ9003-1CD02-2_A4	2.2	2.55	132S	725	870	6.5	6.2	5.9	5.9	0.63	IE3	81.9	82.9	81.8	29	3.6	1.4	1.8	56
	1TZ9003-1CD23-4_A4	3	3.45	132M	725	870	9.0	8.5	8.2	8.0	0.61	IE3	83.5	84.2	82.7	40	3.8	1.5	2.0	65
	1TZ9003-1DD23-4_A4	4	4.55	160M	730	876	11	10	10	10	0.66	IE3	84.8	85.6	84.5	52	3.6	1.6	1.8	72
	1TZ9003-1DD33-4_A4	5.5	6.3	160M	730	876	15	14	14	14	0.66	IE3	86.2	86.9	85.7	72	3.8	1.6	1.9	86
	1TZ9003-1DD43-4_A4	7.5	8.6	160L	728	874	20	19	18	18	0.65	IE3	87.3	88.2	87.7	98	3.8	1.6	1.9	110
	1TZ9503-1ED43-4_A4	11	13.2	180L	725	870	26	24	23	25	0.74	IE3	88.6	89.7	89.6	145	5.1	2.1	2.4	190
	1TZ9503-2AD53-4_A4	15	18	200L	730	876	35	34	32	34	0.73	IE3	89.6	90.1	89.4	196	6.8	3.0	3.7	255
	1TZ9503-2BD03-4_A4	18.5	22	225S	732	878	42	40	38	40	0.75	IE3	90.1	90.6	90.0	241	5.9	2.5	3.0	270
	1TZ9503-2BD23-4_A4	22	26.5	225M	732	878	48	46	44	46	0.77	IE3	90.6	91.4	91.2	287	5.9	2.6	2.9	280
	1TZ9503-2CD23-4_A4	30	36	250M	735	882	63	60	58	61	0.79	IE3	91.3	91.8	91.5	390	6.1	2.6	3.0	370
	1TZ9503-2DD03-4_A4	37	44.5	280S	736	883	79	75	72	76	0.78	IE3	91.8	92.5	92.4	480	5.4	2.3	2.4	460
	1TZ9503-2DD23-4_A4	45	54	280M	738	886	93	88	85	90	0.80	IE3	92.2	92.8	92.6	582	5.9	2.5	2.5	550
	1TZ9503-3AD03-4_A4	55	66	315S	740	888	112	106	102	108	0.81	IE3	92.5	92.9	92.6	710	6.0	2.3	2.7	650
	1TZ9503-3AD23-4_A4	75	90	315M	738	886	151	144	139	146	0.81	IE3	93.1	93.5	93.3	970	5.9	2.3	2.7	720
	1TZ9503-3AD43-4_A4	90	108	315L	740	888	177	168	162	174	0.83	IE3	93.4	94.2	94.3	1161	5.8	2.2	2.5	860
	1TZ9503-3AD53-4_A4	110	132	315L	740	888	218	205	199	210	0.82	IE3	93.7	94.2	94.1	1419	6.7	2.7	2.9	980
	1TZ9503-3AD63-4_A4	132	158	315L	740	888	264	250	241	255	0.81	IE3	94.0	94.4	94.1	1703	7.2	2.9	3.3	1160
	1TZ5503-3AD73-4_A4	160	192	315L	741	890	325	310	300	320	0.79	IE3	94.3	94.7	94.7	2062	6.3	2.5	2.5	1420
	1TZ5503-3AD83-4_A4	200	240	315L	742	891	410	390	375	400	0.78	IE3	94.6	94.8	94.5	2574	6.7	2.7	2.9	1660
	1TZ5603-3BD13-4_B4	250	300	355M	744	893	500	475	460	490	0.80	IE3	94.6	95.0	95.0	3209	7.1	2.4	2.7	2280
	1TZ5603-3BD23-4_B4	315	380	355L	744	893	630	600	580	620	0.80	IE3	94.6	94.9	94.6	4043	7.3	2.5	3.0	2310

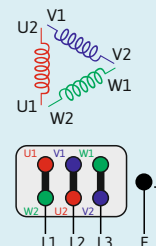
Winding configuration:



Star:



Delta:



Standard three-phase motors (IE1, IE2, IE3 & IE4) specification:

Output [kW]	0.12	0.18	0.25	0.37	0.55	0.75	1.1	1.5	2.2	3	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	200	250	315			
Voltage	230/400V 50Hz, 460V 60Hz																400/690V 50Hz, 460V 60Hz															
Conditions	Ambient Temperature -20°C to +40°C. Altitude up to 1000 metres above sea level. S1 Duty Cycle (continuous duty)																															

Variety of other voltages and ambient temperature executions available. Price on application.

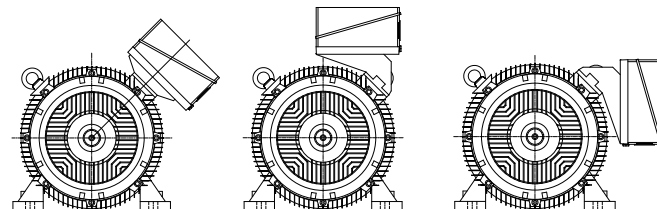
Comprehensive Short Term Duty calculator is available on our website (www.vanhoucke.co.uk). Please click on CALCULATION button.



Material	TYPE	Output	Output	Frame Size	Speed		Rated current 50Hz/60Hz				Power Factor cos φ	Efficiency at 50Hz				Rated torque Nm	Ratio			Weight kg
		50Hz kW	60Hz kW		50Hz rpm	60Hz rpm	380V A	400V A	415V A	460V A		Class	100% Load %	75% Load %	50% Load %		Starting current	Starting torque	B/down torque	
	3000/3600rpm, 2-pole, 50/60Hz, IP55, Insulation F/B																			
	1TZ9004-1AA43-4_A4	3	3.45	100L	2920	3515	5.9	5.7	5.4	5.6	0.86	IE4	89.1	89.8	89.4	9.8	9.0	4.0	4.9	27
	1TZ9004-1BA23-4_A4	4	4.55	112M	2950	3545	7.6	7.2	7.0	7.1	0.89	IE4	90.0	90.4	89.7	13	8.8	2.6	4.1	34
	1TZ9004-1CA03-4_A4	5.5	6.3	132S	2960	3560	11.0	10.4	10.1	10.2	0.84	IE4	90.9	90.9	89.8	18	8.6	2.0	4.6	44
	1TZ9004-1CA13-4_A4	7.5	8.6	132S	2955	3555	13.7	13.0	12.5	12.9	0.91	IE4	91.7	92.4	92.3	24	8.6	2.4	4.3	56
	1TZ9004-1DA23-4_A4	11	12.6	160M	2955	3555	20.1	19.1	18.4	19.0	0.90	IE4	92.6	92.8	92.0	36	8.6	2.9	4.2	84
	1TZ9004-1DA33-4_A4	15	17.3	160M	2955	3555	27.3	26.0	25.0	26.0	0.90	IE4	93.3	93.5	92.9	48	9.0	3.0	4.5	98
	1TZ9004-1DA43-4_A4	18.5	21.3	160L	2955	3555	33.3	31.5	30.4	31.5	0.91	IE4	93.7	94.1	93.8	60	8.9	3.1	4.3	112
	1TZ9504-1EA23-4_A4	22	24.5	180M	2950	3555	40	38	37	37	0.89	IE4	94.0	94.4	94.1	71	8.9	2.8	4.1	175
	1TZ9504-2AA43-4_A4	30	33.5	200L	2965	3560	59	55	54	52	0.83	IE4	94.5	94.8	94.4	97	7.9	2.8	4.0	222
	1TZ9504-2AA53-4_A4	37	41.5	200L	2960	3560	70	66	64	63	0.86	IE4	94.8	95.1	95.0	119	7.9	3.2	3.9	263
	1TZ9504-2BA23-4_A4	45	51	225M	2970	3570	85	81	78	78	0.85	IE4	95.0	95.0	94.4	145	8.8	3.1	4.1	330
	1TZ9504-2CA23-4_A4	55	62	250M	2978	3578	100	95	91	94	0.88	IE4	95.3	95.2	94.5	176	7.5	2.5	3.2	430
	1TZ9504-2DA03-4_A4	75	84	280S	2980	3580	134	127	123	123	0.89	IE4	95.6	95.6	95.0	240	8.4	3.0	3.5	610
	1TZ9504-2DA23-4_A4	90	101	280M	2982	3582	161	153	147	148	0.89	IE4	95.8	95.8	95.2	288	8.2	3.0	3.4	610
	1TZ9504-3AA03-4_A4	110	123	315S	2985	3585	194	184	177	182	0.90	IE4	96.0	96.1	95.7	352	8.7	2.5	3.4	750
	1TZ9504-3AA23-4_A4	132	148	315M	2988	3588	232	220	212	216	0.90	IE4	96.2	96.2	95.6	422	10.5	2.9	4.0	980
	1TZ9504-3AA43-4_A4	160	180	315L	2988	3588	275	261	252	258	0.92	IE4	96.3	96.3	95.8	511	10.3	3.3	3.9	1060
	1TZ9504-3AA53-4_A4	200	224	315L	2985	3585	343	326	314	318	0.92	IE4	96.5	96.6	96.3	640	9.9	3.6	3.8	1180
	1TZ5504-3AA63-4_A4	250	280	315L	2986	3586	445	425	410	415	0.88	IE4	96.5	96.4	95.7	800	9.3	3.0	4.2	1340
	1TZ5504-3AA73-4_A4	315	355	315L	2986	3586	570	540	520	530	0.87	IE4	96.5	96.3	95.5	1007	9.9	3.5	4.2	1520
	1TZ5604-3BA33-4_B4	355	400	355M	2988	3588	630	600	580	580	0.89	IE4	96.5	96.3	95.5	1135	8.9	2.6	4.0	2100
	1TZ5604-3BA43-4_B4	400	450	355L	2986	3586	680	650	630	640	0.92	IE4	96.5	96.4	95.9	1279	8.5	2.6	3.4	2240
	1TZ5604-3BA53-4_B4	500	560	355L	2988	3588	880	840	810	820	0.89	IE4	96.5	96.4	95.8	1598	8.9	3.0	3.8	2340

1TZ5 315 & 355
IE3 & IE4

Available with Terminal Box mounted diagonally or on top or on side when the adapter trunk is used.





IE4

MEZ MOTORS - 4 POLE

Material	TYPE	Output	Output	Frame Size	Speed	Speed	Rated current				Power Factor	Efficiency at 50Hz			Rated torque	Ratio			Weight	
		50Hz kW	60Hz kW		50Hz rpm	60Hz rpm	380V A	400V A	415V A	460V A		100% Load %	75% Load %	50% Load %		Starting current	Starting torque	B/down torque		
	1500/1800rpm, 4-pole, 50/60Hz, IP55, Insulation F/B																			
	1TZ9004-1AB42-2_A4	2.2	2.55	100L	1465	1765	4.7	4.5	4.3	4.4	0.8	IE4	89.5	89.6	88.3	14	8.5	3.3	4.7	30
	1TZ9004-1AB53-4_A4	3	3.45	100L	1460	1760	6.2	5.9	5.7	5.8	0.8	IE4	90.4	91.0	90.5	20	8.8	3.6	4.2	38
	1TZ9004-1BB23-4_A4	4	4.55	112M	1465	1765	8.3	7.8	7.6	7.7	0.8	IE4	91.1	91.5	91.0	26	8.3	3.0	4.3	46
	1TZ9004-1CB03-4_A4	5.5	6.3	132S	1470	1770	10.9	10.4	10.0	10.3	0.8	IE4	91.9	92.5	92.3	36	8.3	2.5	3.5	59
	1TZ9004-1CB23-4_A4	7.5	8.6	132M	1470	1770	15.2	14.4	14.0	14.2	0.81	IE4	92.6	93.1	92.7	49	7.7	2.9	4.0	62
	1TZ9004-1DB23-4_A4	11	12.6	160M	1475	1775	21.8	21.0	20.0	20.5	0.82	IE4	93.3	93.5	92.9	71	8.1	2.9	4.1	98
	1TZ9004-1DB43-4_A4	15	17.3	160L	1480	1780	30.2	29.0	27.6	28.5	0.80	IE4	93.9	94.0	93.3	97	7.8	3.4	4.3	109
	1TZ9504-1FB23-4_A4	18.5	21.3	180M	1470	1770	36.8	35.0	33.7	34.5	0.81	IE4	94.2	94.7	94.5	120	7.9	2.5	3.6	187
	1TZ9504-1FB43-4_A4	22	25.3	180L	1475	1775	44	42	40	41	0.81	IE4	94.5	95.0	94.8	142	7.7	2.8	3.8	192
	1TZ9504-2AB53-4_A4	30	34.5	200L	1475	1775	59	56	54	55	0.81	IE4	94.9	95.2	94.9	194	7.3	3.0	3.6	258
	1TZ9504-2BB03-4_A4	37	42.5	225S	1485	1782	70	67	64	66	0.84	IE4	95.2	95.5	95.2	238	8.4	3.1	3.2	345
	1TZ9504-2BB23-4_A4	45	52	225M	1485	1785	85	81	78	81	0.84	IE4	95.4	95.7	95.4	289	8.0	3.2	3.3	415
	1TZ9504-2CB23-4_A4	55	63	250M	1486	1786	102	97	93	96	0.86	IE4	95.7	95.8	95.4	353	8.2	3.0	3.3	490
	1TZ9504-2DB03-4_A4	75	86	280S	1490	1788	140	133	128	132	0.85	IE4	96.0	96.1	95.6	481	9.2	3.4	3.8	670
	1TZ9504-2DB23-4_A4	90	104	280M	1488	1788	166	157	152	158	0.86	IE4	96.1	96.4	96.2	578	8.9	2.9	3.5	730
	1TZ9504-3AB03-4_A4	110	127	315M	1491	1790	202	192	185	193	0.86	IE4	96.3	96.4	95.9	705	8.6	3.2	3.3	910
	1TZ9504-3AB23-4_A4	132	152	315M	1491	1790	239	227	219	228	0.87	IE4	96.4	96.6	96.2	845	8.7	3.5	3.3	990
	1TZ9504-3AB43-4_A4	160	184	315L	1490	1790	293	278	268	279	0.86	IE4	96.6	96.9	96.7	1025	8.8	3.2	3.4	1220
	1TZ9504-3AB53-4_A4	200	230	315L	1491	1791	366	348	335	347	0.86	IE4	96.7	96.9	96.6	1281	8.9	3.3	3.4	1300
	1TZ5504-3AB63-4_A4	250	290	315L	1490	1790	455	435	420	440	0.86	IE4	96.7	96.8	96.5	1602	7.9	2.8	3.2	1500
	1TZ5504-3AB73-4_A4	315	360	315L	1490	1790	600	570	550	560	0.83	IE4	96.7	96.7	96.3	2019	8.5	3.2	3.5	1560
	1TZ5604-3BB33-4_B4	355	410	355M	1492	1792	670	640	620	630	0.83	IE4	96.7	96.7	96.2	2272	7.9	2.8	2.8	2050
	1TZ5604-3BB43-4_B4	400	460	355L	1492	1792	770	730	700	730	0.82	IE4	96.7	96.7	96.2	2560	7.9	3.2	2.9	2080
	1TZ5604-3BB53-4_B4	500	580	355L	1491	1790	910	870	840	860	0.86	IE4	96.7	96.8	96.6	3202	8.1	3.1	3.3	2290

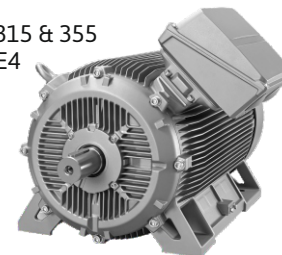


Aluminium motors

Choice of Aluminium / Cast iron motors available

Cast iron motors

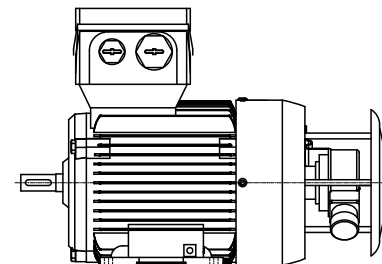
1TZ5 315 & 355
IE3 & IE4





Material	TYPE	Output	Output	Frame Size	Speed	Speed	Rated current 50Hz/60Hz				Power Factor cosφ	Efficiency at 50Hz			Rated torque Nm	Ratio			Weight kg	
		50Hz kW	60Hz kW		50Hz rpm	60Hz rpm	380V A	400V A	415V A	460V A		Class	100% Load %	75% Load %		50% Load %	Starting current	Starting torque		B/down torque
3000/3600rpm, 2-pole, 50/60Hz, IP55, Insulation F/B																				
	1T29501-0CA22-2_A4	0.37	0.43	71M	2770	3370	1.00	0.95	0.92	0.93	0.81	IE2	69.5	70.5	68.5	1.3	4.1	2.5	2.5	11.5
	1T29501-0CA32-2_A4	0.55	0.63	71M	2780	3380	1.41	1.34	1.29	1.34	0.8	IE2	74.1	75.0	73.1	1.9	4.6	2.6	2.6	13.0
	1T29501-0DA22-2_A4	0.75	0.86	80M	2805	3410	1.75	1.67	1.61	1.70	0.84	IE2	77.4	77.9	74.4	2.6	4.9	1.9	2.3	16.0
	1T29501-0DA32-2_A4	1.1	1.3	80M	2835	3430	2.53	2.41	2.32	2.30	0.83	IE2	79.6	79.6	78.6	3.7	6	2.7	3.1	18.0
	1T29501-0EA02-2_A4	1.5	1.8	90S	2885	3480	3.34	3.17	3.06	3.08	0.84	IE2	81.3	81.3	80.3	5.0	6.9	2.7	3.6	23.0
	1T29501-0EA42-2_A4	2.2	2.6	90L	2890	3485	4.73	4.50	4.33	4.36	0.85	IE2	83.2	83.2	82.2	7.3	7.1	2.5	3.7	25.5
1500/1800rpm, 4-pole, 50/60Hz, IP55, Insulation F/B																				
	1T29501-0CB22-2_A4	0.25	0.29	71M	1395	1695	0.80	0.76	0.74	0.75	0.69	IE2	68.5	68.2	63.8	1.7	3.7	2.4	2.5	12.0
	1T29501-0CB32-2_A4	0.37	0.43	71M	1380	1680	1.08	1.02	0.98	1.04	0.72	IE2	72.7	73.2	70.2	2.6	4.8	2.3	2.4	13.0
	1T29501-0DB22-2_A4	0.55	0.63	80M	1440	1735	1.45	1.38	1.33	1.30	0.74	IE2	78.1	78.6	75.6	3.6	5.3	2.2	3.1	17.0
	1T29501-0DB32-2_A4	0.75	0.86	80M	1440	1740	1.89	1.79	1.73	1.72	0.76	IE2	79.6	79.6	78.6	5.0	5.6	2.2	3.1	18.5
	1T29501-0EB02-2_A4	1.1	1.3	90S	1425	1725	2.64	2.50	2.41	2.44	0.78	IE2	81.4	81.4	80.4	7.4	6	2.3	3	23.0
	1T29501-0EB42-2_A4	1.5	1.8	90L	1435	1730	3.49	3.31	3.19	3.31	0.79	IE2	82.8	82.8	81.8	10.0	6.4	2.6	3.4	25.0
1000/1200rpm, 6-pole, 50/60Hz, IP55, Insulation F/B																				
	1T29501-0CC22-2_A4	0.18	0.21	71M	875	1075	0.71	0.68	0.65	0.72	0.68	IE2	56.6	57.0	53.5	2.0	2.5	2.2	2.3	11.5
	1T29501-0CC32-2_A4	0.25	0.29	71M	870	1070	0.88	0.84	0.81	0.87	0.7	IE2	61.6	62.7	60.0	2.7	2.6	2.3	2.3	12.5
	1T29501-0DC22-2_A4	0.37	0.43	80M	925	1125	1.14	1.09	1.05	1.04	0.69	IE2	71.4	71.5	66.5	3.9	4	2.1	2.4	16.5
	1T29501-0DC32-2_A4	0.55	0.63	80M	935	1135	1.71	1.63	1.57	1.56	0.66	IE2	74.0	74.0	70.5	5.6	4.4	2.5	2.9	18.5
	1T29501-0EC02-2_A4	0.75	0.86	90S	925	1135	2.15	2.04	1.97	1.88	0.7	IE2	75.9	76.0	73.0	7.7	4.1	2	2.5	23.0
	1T29501-0EC42-2_A4	1.1	1.3	90L	935	1135	3.06	2.91	2.80	3.04	0.7	IE2	78.1	78.5	75.0	11.0	4.4	2.2	2.6	26.5
750/900rpm, 8-pole, 50/60Hz, IP55, Insulation F/B																				
	1T29501-0CD22-2_A4	0.09	0.11	71M	630	790	0.51	0.48	0.47	0.53	0.67	IE2	40.1	40.6	35.8	1.4	1.6	1.7	1.7	11.5
	1T29501-0CD32-2_A4	0.12	0.14	71M	640	795	0.69	0.66	0.63	0.69	0.66	IE2	40.1	39.6	34.7	1.8	1.8	1.8	1.8	12.5
	1T29501-0DD22-2_A4	0.18	0.21	80M	690	840	0.99	0.94	0.91	0.97	0.6	IE2	45.9	43.6	37.8	2.5	2.2	1.7	2.1	16.5
	1T29501-0DD32-2_A4	0.25	0.29	80M	705	855	1.37	1.30	1.25	1.27	0.55	IE2	50.6	48.1	41.9	3.4	2.5	2	2.5	18.5
	1T29501-0ED02-2_A4	0.37	0.43	90S	675	830	1.41	1.34	1.29	1.33	0.71	IE2	56.1	55.6	49.6	5.2	2.6	1.4	1.7	20.0
	1T29501-0ED42-2_A4	0.55	0.63	90L	665	820	1.83	1.74	1.68	1.77	0.74	IE2	61.7	63.4	59.8	7.9	2.7	1.5	1.7	21.5

As per EU REGULATION 640/2009 from 01/01/2015 use IE2 motors with Variable Speed only.

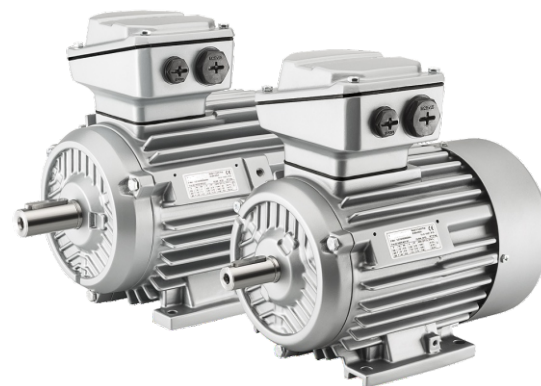




Material	TYPE	Output	Output	Frame Size	Speed	Speed	Rated current 50Hz				Power Factor	Efficiency at 50Hz			Rated torque	Ratio			Weight	
		50Hz kW	60Hz kW		50Hz rpm	60Hz rpm	380V A	400V A	415V A	460V A		100% Load %	75% Load %	50% Load %		Starting current	Starting torque	B/down torque		
3000/3600rpm, 2-pole, 50/60Hz, IP55, Insulation F/B																				
	1TZ9503-OCA22-2_A4	0.37	0.43	71M	2850	3445	1.00	0.95	0.92	0.97	0.76	IE3	73.8	73.2	69.6	1.2	5.8	3.5	3.5	13.0
	1TZ9503-OCA32-2_A4	0.55	0.63	71M	2850	3450	1.41	1.34	1.30	1.36	0.76	IE3	77.8	77.6	74.7	1.8	6.1	3.7	3.7	14.5
	1TZ9503-ODA22-2_A4	0.75	0.86	80M	2850	3450	1.64	1.56	1.51	1.63	0.86	IE3	80.7	82.0	81.5	2.5	6.2	2.6	3	18.0
	1TZ9503-ODA32-2_A4	1.1	1.3	80M	2885	3480	2.38	2.26	2.18	2.24	0.85	IE3	82.7	82.7	81.7	3.6	7.4	2.8	3.8	21.0
	1TZ9503-OEA02-2_A4	1.5	1.8	90S	2910	3510	3.15	2.99	2.89	2.96	0.86	IE3	84.2	84.5	83.5	4.9	8.1	2.7	4.2	25.5
	1TZ9503-OEA42-2_A4	2.2	2.6	90L	2910	3510	4.43	4.21	4.05	4.21	0.88	IE3	85.9	86.8	86.1	7.2	8.3	2.6	4	32.0
1500/1800rpm, 4-pole, 50/60Hz, IP55, Insulation F/B																				
	1TZ9503-OCB22-2_A4	0.25	0.29	71M	1395	1695	0.72	0.68	0.66	0.69	0.72	IE3	73.5	73.6	70.3	1.7	4.2	2.5	2.6	13.0
	1TZ9503-OCB32-2_A4	0.37	0.43	71M	1410	1710	1.04	0.99	0.95	0.99	0.7	IE3	77.3	76.9	73.6	2.5	4.8	3.1	3.1	16.0
	1TZ9503-ODB22-2_A4	0.55	0.63	80M	1440	1740	1.32	1.25	1.21	1.23	0.78	IE3	81.3	82.0	80.2	3.6	5.9	2.1	3.1	18.5
	1TZ9503-ODB32-2_A4	0.8	0.9	80M	1450	1750	1.84	1.75	1.69	1.75	0.75	IE3	82.5	82.5	81.5	4.9	7.1	2.7	3.9	22.5
	1TZ9503-OEB02-2_A4	1.1	1.3	90S	1440	1740	2.55	2.42	2.34	2.40	0.78	IE3	84.1	84.1	83.1	7.3	6.9	2.9	3.6	25.0
	1TZ9503-OEB42-2_A4	1.5	1.8	90L	1445	1740	3.34	3.18	3.06	3.18	0.8	IE3	85.3	85.9	84.9	9.9	7.2	2.6	2.7	31.0
1000/1200rpm, 6-pole, 50/60Hz, IP55, Insulation F/B																				
	1TZ9503-0CC22-2_A4	0.18	0.21	71M	885	1085	0.62	0.59	0.57	0.57	0.69	IE3	63.9	64.6	60.8	1.9	2.8	2.3	2.3	12.5
	1TZ9503-0CC32-2_A4	0.25	0.29	71M	885	1085	0.80	0.76	0.74	0.74	0.69	IE3	68.6	69.5	67.1	2.7	3.2	2.6	2.6	15.5
	1TZ9503-0DC22-2_A4	0.37	0.43	80M	940	1140	1.14	1.08	1.04	1.04	0.66	IE3	74.8	74.3	70.5	3.8	4.2	2.3	2.7	18.5
	1TZ9503-0DC32-2_A4	0.6	0.6	80M	935	1135	1.62	1.54	1.48	1.45	0.67	IE3	77.2	77.2	75.5	5.6	4.5	2.5	2.8	22.5
	1TZ9503-0EC02-2_A4	0.8	0.9	90S	945	1140	2.07	1.96	1.89	1.87	0.7	IE3	78.9	80.0	78.5	7.6	4.6	2.2	2.6	26.5
	1TZ9503-0EC42-2_A4	1.1	1.3	90L	940	1140	2.99	2.84	2.74	3.04	0.69	IE3	81.0	81.0	80.0	11.0	4.6	2.3	2.7	32.0

These motors are also available in ATEX execution

- Zone2
- Zone21
- Zone22
- Zone2+22



Three-phase in/ Three-phase out

Product Code	INVEOR M	Motor rating	Supply voltage & frequency	Line current	Output current at 400V & 8kHz	Output frequency	Overload for 60sec	Switching frequency [kHz]	Protection
		[kW]		[A]	[A]				
43300037	Size A	0.37	400-480V, 50/60Hz Voltage - 10%/+15% Frequency ±6%	-	-	0-400 Hz	150%	4, 8, 16kHz (default: 8)	IP65
43300055		0.55		1.4	1.7				
43300075		0.75		1.9	2.3				
43300110		1.1		2.6	3.1				
43300150	1.5	3.3		4.0					
43300220	2.2	4.6		5.6					
43300300	Size B	3.0		6.2	7.5				
43300400		4.0		7.9	9.5				
43300550	Size C	5.5		10.8	13.0				
43300750		7.5		14.8	17.8				
43301100	Size D	11.0	23.2	28.0					
43301500		15.0	28.2	34.0					
43301850		18.5	33.2	40.0					
43302200		22.0	39.8	48.0					
							130%		

Single-phase in/ Three-phase out

Product Code	INVEOR M	Motor rating	Supply voltage & frequency	Line current	Output current at 230V & 8kHz	Output frequency	Overload for 60sec	Switching frequency [kHz]	Protection
		[kW]		[A]	[A]				
433000371	Size A	0.37	200-230V, 50/60Hz	4.5	2.3	0-400 Hz	150%	4, 8, 16kHz (default: 8)	IP65
433000551		0.55	5.6	3.2					
433000751		0.75	6.9	3.9					
433001101		1.1	9.2	5.2					

P Code	Accessory
43300004	Cable for parameter setting from PC
43300005	Keypad MMI
43300002	Profibus, Ethercat, etc connection for INVEOR 0.37kW - 7.5 kW

Robust die-cast housing



Dimensions	A	B	C	Weight
Size A	233	153	120	3.9 kg
Size B	270	189	140	5.0 kg
Size C	307	223	181	8.7 kg
Size D	414	294	232	21.0 kg

Output frequency: 0-400Hz

Switching frequency:
4, 8, 16kHz (default 8kHz)

Ambient Temp -20°C to +50°C

EMC Compliance:
3-phase - ISO EN 61800-3, class C2
1-phase - ISO EN 61800-3, class C1

Vector controlled

DC input available

Compact aluminium housing

KOSTAL

Made in Germany

CE, UL & CSA Certified

High temperature & vibration resistant

Wall mount available

Vector control

Integrated Soft-PLC

Free PC software

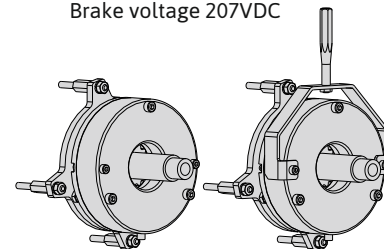




BRAKES & FORCE VENTILATION UNITS

Frame Size	Brake Type	Brake Torque Nm	Current A	Input W	Moment of Inertia kgm ²	Weight kg	Protection	Hand Release
63	Brake EBM 0.5 for 1TZ90/7AA motor	5	0.11	22	2.8x10 ⁻⁵	1.28	IP55	on request
71	Brake EBM 0.5 for 1TZ90/7AA motor	5	0.11	22	2.8x10 ⁻⁵	1.28	IP55	on request
80	Brake EBM 1 for 1TZ90 motor	10	0.15	31	8.6x10 ⁻⁵	2.35	IP55	on request
90	Brake EBM 2 for 1TZ90 motor	20	0.15	31	36.1x10 ⁻⁵	4.2	IP55	on request
100	Brake EBM 4 for 1TZ90/5 motor	40	0.24	49	81.7x10 ⁻⁵	6.7	IP55	on request
112	Brake EBM 6.3 for 1TZ90/5 motor	63	0.30	61	105x10 ⁻⁵	9.8	IP55	on request
132	Brake EBM 10 for 1TZ90/5 motor	100	0.31	63	274x10 ⁻⁵	14.3	IP55	on request
160	Brake EBM 25 for 1TZ90/5 motor	250	0.41	84	1060x10 ⁻⁵	29.5	IP55	on request

Brake voltage 207VDC



Other voltages available

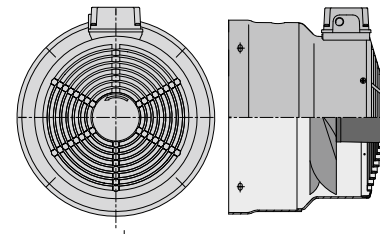
The above brakes are stock kits which can be fitted on standard Stock Motors.

Factory fitted brakes are available for all motor sizes up to 315 frame. AC brakes also available. Price on request.

All brakes come with full wave rectifier (230VAC/207VDC) as standard or with half wave rectifier (400V AC/207VDC) upon request!

Frame Size	Motor Speed	Type	CONNECTION					
			1phase (Steinmetz)		3phase (star)		3phase (delta)	
			Max Current A	Max Input W	Max Current A	Max Input W	Max Current A	Max Input W
63	2-8pole	Force Ventilation Unit FV63	0.12	32	0.07	28	0.12	28
71	2-8pole	Force Ventilation Unit FV71	0.12	33	0.06	31	0.11	31
80	2-8pole	Force Ventilation Unit FV80	0.14	37	0.06	34	0.11	34
90	2-8pole	Force Ventilation Unit FV90	0.29	65	0.22	91	0.38	91
100	2-8pole	Force Ventilation Unit FV100	0.3	75	0.22	91	0.37	91
112	2-8pole	Force Ventilation Unit FV112	0.37	94	0.2	103	0.35	103
132	2-8pole	Force Ventilation Unit FV132	0.57	149	0.33	148	0.58	148
160	2-8pole	Force Ventilation Unit FV160	0.97	253	0.56	360	0.93	360
180	2-8pole	Force Ventilation Unit FV180	0.97	253	0.56	360	0.93	360
200	2-8pole	Force Ventilation Unit FV200	0.97	253	0.56	360	0.93	360
225	2-8pole	Force Ventilation Unit FV225	n/a	n/a	0.83	505	1.95	540
250	2-8pole	Force Ventilation Unit FV250	n/a	n/a	0.83	505	1.95	540
280	2-8pole	Force Ventilation Unit FV280	n/a	n/a	0.83	505	1.95	540
315	2pole	Force Ventilation Unit FV315	n/a	n/a	0.83	505	1.95	540
315	4-8pole	Force Ventilation Unit FV315	n/a	n/a	0.83	505	1.95	540

Fan Ventilation Units have a motorised fan fitted in fan cover with a separate terminal box. The fan is designed to deliver the same (or more) cooling air that is normally delivered by the motor's own fan at the rated speed.



Single-phase connection: 230-277V 50Hz and 230-277 60Hz

Three-phase connection: 200-303V Delta/346-525V Star 50Hz and 220-332V Delta/380-575V Star 60Hz



- IP66 / IP67 Protection
- Aluminium or Stainless Steel Casing available
- Short-Circuit & Overload Protection
- High Noise Immunity
- Robust Construction

Price on application!

Both HTL and TTL encoders are available at short lead times.
From European manufactures (Baumer Hübner, IED, Leine & Linde)

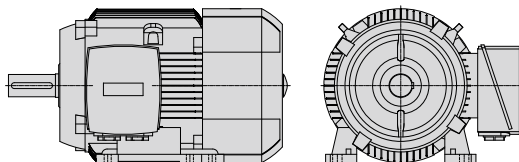
Motor Executions available upon request:

- High Temperature motors wound in **Insulation Class H**.
- Motors wound for **Non-standard Voltages**.
- Motors with **Special Paint System** or **RAL Shades**.
- **Roller Bearings** at DE for increased shaft forces.
- **Insulated Bearings** at NDE for inverter application.
- Motors for **Marine and Offshore** Environment.

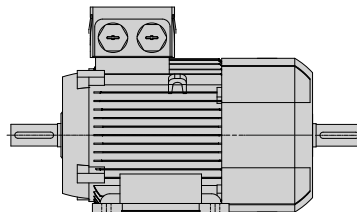


FRAME SIZE	63	71	80	90	100	112	132	160	180	200	225	250	280	315
Loose Flanges (B5, B14A, B14B)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PROTECTION														
3x PTC Thermistors (TEFC)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6x PTC Thermistors (TEFC)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
MECHANICAL FEATURES														
Extended & modified shaft at DE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DE oil seal for flanges	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Anticondensation heater 110V or 220V	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Protection IP65	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Protection IP56 non-heavy sea	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Routine test certificate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

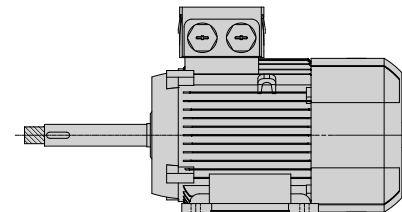
Motors with **Terminal Box on side**
With cast-on feet and with bolt-on feet.



Double Shafted motors



Special Shafted Motors





Standard (Constant Torque) Two-speed motors:

Go to: www.vanhoucke.co.uk/DataSheet & Drawings/2-speed motors

Dahlander D/Y/Y

Frame	63M	71M	71M	80M	80M	90S	90L	100L	100L	112M	132S	132M	160M	160L	180M	180L	200L	225S	225M	250M	280S	280M	315S	315M	315L	315L
4pole kW	0.15	0.21	0.3	0.48	0.7	1.1	1.5	1.9	2.5	3.7	4.7	6.5	9.3	13	15	18	26	32	38	46	63	73	85	100	120	150
2pole kW	0.2	0.28	0.43	0.6	0.85	1.4	1.9	2.4	3.1	4.4	5.9	8	11.5	16	18	21.5	31	38	45	55	75	87	100	120	140	170

Separate windings

Frame	80M	90S	90L	100L	100L	112M	132S	132M	160M	160L	180L	200L	225S	225M	250M	280S	280M	315S	315M	315L	315L
6pole kW	0.26	0.38	0.55	0.9	1.1	1.5	2	2.8	4.3	6.3	11	16	21	25	32	45	54	62	75	90	110
4pole kW	0.4	0.65	0.9	1.3	1.7	2.3	3.1	4.3	6.6	9.5	16.5	24	31	37	47	66	80	92	110	132	160

Dahlander D/Y/Y

Frame	71M	80M	90S	90L	100L	100L	112M	132S	132M	160M	160L	180L	200L	225S	225M	250M	280S	280M	315S	315M	315L	315L
8pole kW	0.09	0.18	0.35	0.5	0.55	0.9	1.1	1.6	2.2	3.5	5.6	11	17	22	25	32	38	46	56	78	92	115
4pole kW	0.18	0.37	0.5	0.7	1.1	1.5	1.9	3.2	4.4	7	11	18	27	32	37	47	56	67	82	115	135	160

Fan Duty (Quadratic Load) Two-speed motors:

Go to: www.vanhoucke.co.uk/DataSheet & Drawings/2-speed motors

Dahlander D/Y/Y

Frame	71M	80M	80M	90S	90L	100L	100L	112M	132S	132M	160M	160L	180L	200L	225S	225M	250M	280S	280M	315S	315M	315L	315L
4pole kW	0.16	0.15	0.25	0.33	0.5	0.65	0.8	1.1	1.45	2	2.9	4.3	5.8	8.4	10.5	13	15	18	22	26	32	35	45
2pole kW	0.65	0.7	0.95	1.4	2	2.4	3.1	4.4	5.9	8	11.5	16	21.5	31	38	45	55	67	80	90	110	140	170

Separate windings

Frame	80M	80M	90S	90L	100L	100L	112M	132S	132M	160M	160L	180M	180L	200L	225S	225M	250M	280S	280M	315S	315M	315L	315L
6pole kW	0.12	0.18	0.29	0.38	0.6	0.8	0.9	1.2	1.7	2.5	3.7	5.5	6.5	9.5	12	14.5	18	25	30	33	45	50	55
4pole kW	0.4	0.55	0.8	1.1	1.7	2.1	3	3.9	5.4	7.2	12	16	19	26	34	40	52	70	82	92	120	150	170

Dahlander D/Y/Y

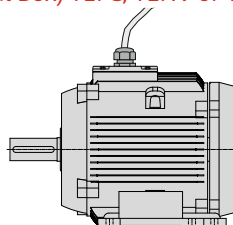
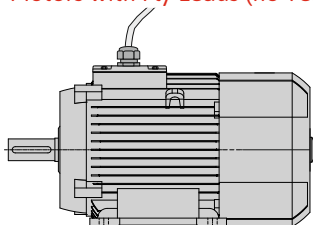
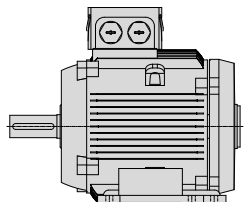
Frame	71M	80M	80M	90S	90L	100L	100L	112M	132S	132M	160M	160L	180M	180L	200L	225S	225M	250M	280S	280M	315S	315M	315L	315L
8pole kW	0.06	0.1	0.15	0.22	0.33	0.5	0.65	0.9	1.1	1.4	2.2	3.3	4.5	5	7.5	9.5	11.5	14.5	19	23	26	30	35	45
4pole kW	0.3	0.5	0.7	1	1.5	2	2.5	3.6	4.7	6.4	9.5	14	16	18.5	28	35	42	52	70	83	95	115	140	175

All two-speed motors are suitable for 400V 50Hz, IP55, Temperature class F/ Temperature rise B.

The two-speed motors are suitable for DOL connection only as standard. Motors for Star/Delta starting are available upon request at certain sizes.

TENV or TEAO Motors

Motors with Fly Leads (no Terminal Box) TEFC, TENV or TEAO



Motor Cooling Explanation:

- »TEFC - (IC411) Totally Enclosed Fan Cooled
- »TEAO- (IC418) Totally Enclosed Air Over
- »TENV- (IC410) Totally Enclosed Naturally Ventilated
- »TEFV - (IC416) Totally Enclosed Force Ventilated

SINGLE-PHASE MOTORS (Capacitor Start - Capacitor Run)



IE1

Material	TYPE	Output 50Hz kW	Frame Size	Speed 50Hz rpm	Current 230V A	Power Factor cos φ	Efficiency			Ratio			Run Capacitor μF/V	Start Capacitor μF/V	Weight kg	
							Class	at 100% Load	at 75% Load	at 50% Load	Starting current	Starting torque				B/down torque
2 pole - 3000 rpm, IP54, Insulation class F/B																
	1EMPCC 63M02K	0.18	63	2860	1.36	0.93	IE1	62.0	56.83	47.9	5.00	1.87	1.64	6/450	14/320	4.80
	1EMPCC 63M02	0.25		2840	1.65	0.97	IE1	68.0	63.85	53.6	4.70	1.79	1.62	8/450	18/320	5.20
	1EMPCC 71M02K	0.37	71	2835	2.75	0.90	IE1	65.0	58.81	47.5	4.00	1.71	1.64	16/450	35/320	5.90
	1EMPCC 71M02	0.55		2800	3.81	0.91	IE1	69.0	62.66	57.3	4.10	1.68	1.60	20/450	45/320	6.50
	1EMPCC 80M02K	0.75	80	2800	4.76	0.92	IE1	74.4	69.20	58.8	4.50	1.68	1.58	25/450	50/320	9.00
	1EMPCC 80M02	1.1		2800	6.57	0.97	IE1	75.0	70.30	60.2	4.80	1.67	1.62	40/450	70/320	9.60
	1EMPCC 90S02	1.5	90S	2805	8.99	0.94	IE1	77.2	72.25	65.5	5.00	1.96	1.60	40/450	125/320	12.60
	1EMPCC 90L02	2.2	90L	2800	12.37	0.97	IE1	79.7	76.10	66.9	5.20	1.81	1.65	80/450	180/320	17.80
	1EMPCC 100L02	3	100L	2885	16.85	0.95	IE1	81.5	77.70	67.8	6.30	1.83	1.68	80/450	140/320	21.40
4 pole - 1500 rpm, IP54, Insulation class F/B																
	1EMPCC 63M04K	0.12	63	1410	1.01	0.89	IE1	58.0	50.97	40.5	3.70	1.94	1.57	5/450	10/320	4.80
	1EMPCC 63M04	0.18		1390	1.47	0.92	IE1	58.0	50.44	40.2	3.80	1.77	1.65	10/450	12/320	5.20
	1EMPCC 71M04K	0.25	71	1400	1.72	0.97	IE1	65.2	58.40	49.8	3.80	1.60	1.55	10/450	25/320	5.90
	1EMPCC 71M04	0.37		1390	2.59	0.94	IE1	66.1	60.86	50.4	3.60	1.80	1.60	14/450	25/320	7.10
	1EMPCC 80M04K	0.55	80	1410	3.74	0.91	IE1	70.2	64.30	56.8	4.00	1.69	1.70	14/450	40/320	9.10
	1EMPCC 80M04	0.75		1390	4.81	0.94	IE1	72.1	68.46	60.1	4.20	1.89	1.64	30/450	90/320	9.90
	1EMPCC 90S04	1.1	90S	1415	6.57	0.97	IE1	75.1	71.45	62.3	4.10	1.62	1.68	35/450	80/320	12.90
	1EMPCC 90L04	1.5	90L	1405	8.71	0.97	IE1	77.2	73.20	64.0	4.30	1.82	1.72	55/450	160/320	18.40
	1EMPCC 100L04	2.2	100L	1400	12.77	0.94	IE1	79.7	75.50	66.8	5.40	2.09	1.80	65/450	180/320	22.00
	1EMPCC 100L04V	3		1405	16.6	0.96	IE1	81.5	77.40	70.1	5.10	1.70	1.60	100/450	200/320	30.00



Ambient temperature -20°C to +40°C, Altitude up to 1000m
Continuous Duty Cycle - S1

Please Note!

Single-phase motors are not direct equivalents of three-phase motors. Single-phase motors must run near the rated output point at all times. Repeated cycles of no-load runs will damage the motors' winding. Repeated cycles of start & run will damage the motors' capacitors.



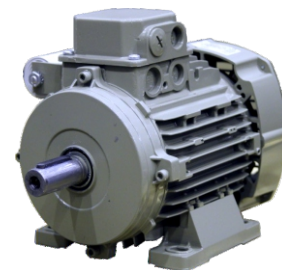
SINGLE-PHASE MOTORS (Permanent Capacitor)

IE1

Material	TYPE	Output 50Hz kW	Frame Size	Speed 50Hz rpm	Current 230V A	Power Factor cos φ	Efficiency			Ratio			Run Capacitor μF/V	Start Capacitor μF/V	Weight kg	
							Class	at 100% Load	at 75% Load	at 50% Load	Starting current	Starting torque				B/down torque
	2 pole - 3000 rpm, IP54, Insulation class F/B															
	1EMPC 63M02K	0.18	63	2860	1.36	0.93	IE1	62.0	56.83	47.9	3.70	0.50	1.64	6/450	n/a	4.60
	1EMPC 63M02	0.25		2840	1.65	0.97	IE1	68.0	63.85	53.6	4.00	0.46	1.62	10/450	n/a	5.00
	1EMPC 71M02K	0.37	71	2835	2.75	0.90	IE1	65.0	58.81	47.5	4.10	0.47	1.64	16/450	n/a	5.60
	1EMPC 71M02	0.55		2800	3.85	0.90	IE1	69.0	62.66	57.3	3.90	0.41	1.60	20/450	n/a	6.20
	1EMPC 80M02K	0.75	80	2800	4.76	0.92	IE1	74.4	69.20	58.8	4.00	0.48	1.58	25/450	n/a	8.50
	1EMPC 80M02	1.1		2800	6.57	0.97	IE1	75.0	70.30	60.2	4.00	0.50	1.62	40/450	n/a	9.10
	1EMPC 90S02	1.5	90S	2805	8.99	0.94	IE1	77.2	72.25	65.5	4.20	0.48	1.60	40/450	n/a	11.80
	1EMPC 90L02	2.2	90L	2800	12.37	0.97	IE1	79.7	76.10	66.9	4.40	0.51	1.65	80/450	n/a	16.90
	1EMPC 100L02	3	100L	2885	16.85	0.95	IE1	81.5	77.70	67.8	6.20	0.41	1.68	80/450	n/a	20.40
	4 pole - 1500 rpm, IP54, Insulation class F/B															
	1EMPC 63M04K	0.12	63	1410	1.01	0.89	IE1	58.0	50.97	40.5	2.90	0.38	1.57	5/450	n/a	4.60
	1EMPC 63M04	0.18		1390	1.5	0.90	IE1	58.0	50.44	40.2	2.70	0.54	1.65	8/450	n/a	5.00
	1EMPC 71M04K	0.25	71	1400	1.72	0.97	IE1	65.2	58.40	49.8	2.80	0.53	1.55	10/450	n/a	5.60
	1EMPC 71M04	0.37		1390	2.59	0.94	IE1	66.1	60.86	50.4	2.80	0.52	1.60	14/450	n/a	6.80
	1EMPC 80M04K	0.55	80	1410	3.74	0.91	IE1	70.2	64.30	56.8	3.70	0.38	1.70	14/450	n/a	8.60
	1EMPC 80M04	0.75		1390	4.81	0.94	IE1	72.1	68.46	60.1	3.30	0.39	1.64	20/450	n/a	9.40
	1EMPC 90S04	1.1	90S	1415	6.57	0.97	IE1	75.1	71.45	62.3	3.50	0.36	1.68	35/450	n/a	12.10
	1EMPC 90L04	1.5	90L	1405	8.71	0.97	IE1	77.2	73.20	64.0	4.10	0.34	1.72	55/450	n/a	17.50
	1EMPC 100L04	2.2	100L	1400	12.77	0.94	IE1	79.7	75.50	66.8	5.10	0.41	1.80	65/450	n/a	21.00
	1EMPC 100L04V	3		1405	16.6	0.96	IE1	81.5	77.40	70.1	5.10	0.40	1.60	100/450	n/a	29.00

Aluminium Frame

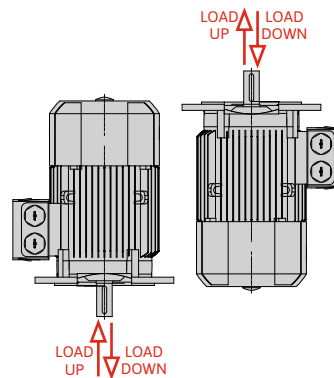
Single-phase motors are exempt from the ErP Directive and their placement on the market is not regulated by the European Union. However according to the IEC 60034-30-1 standard single -phase motors are to have the efficiency class published and the expected efficiency class is IE1 (there is a statement in the IEC 60034-30-1 standard that IE2 class would be difficult to achieve).



PERMISSIBLE SHAFT FORCES (AXIAL & RADIAL) & FEET TIGHTENING TORQUE

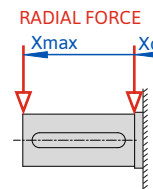
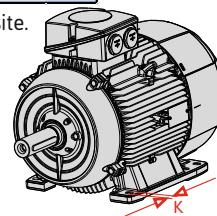
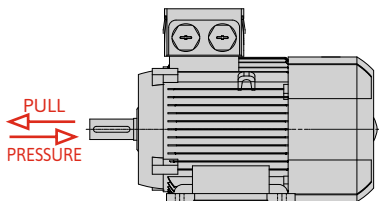


Shaft vertical - Load in [N] for standard Ball Bearings																
Frame	3000rpm				1500rpm				1000rpm				750rpm			
	Shaft down		Shaft up		Shaft down		Shaft up		Shaft down		Shaft up		Shaft down		Shaft up	
	Load		Load		Load		Load		Load		Load		Load		Load	
	down	up	down	up	down	up	down	up	down	up	down	up	down	up	down	up
80	110	425	360	160	100	540	480	165	100	650	590	165	100	760	700	165
90	110	440	360	180	100	680	580	190	100	920	820	190	100	1150	1050	190
100	140	700	550	280	130	990	820	285	130	1280	1110	285	130	1560	1390	285
112	140	710	550	300	130	1000	820	310	130	1290	1110	310	130	1570	1390	310
132	200	1200	950	470	180	1680	1200	470	180	1900	1600	470	190	2200	1900	440
160	1500	1400	950	1900	1900	1800	1300	2200	2200	2200	1600	2700	2700	2700	1950	2900
180	2490	2060	1330	3220	3160	2950	2010	4100	3740	3570	2580	4730	4090	4140	2940	5290
200	2810	3060	2000	3870	3820	4210	3010	5020	4570	5010	3760	5820	5010	5800	4200	6610
225	3100	3400	2050	4450	4100	4850	3000	5850	4650	5850	3600	6900	5500	6600	4400	7650
250	3850	4100	2250	5600	4800	5750	3200	7400	5750	6750	4200	8350	6900	7700	5300	9200
280	3180	4280	1580	5850	4770	6930	3150	8500	6230	7990	4600	9570	7370	9030	5700	10500
315	2240	4710	100	6850	3720	7580	1650	9650	4550	9100	2500	11100	5900	10150	3900	11800



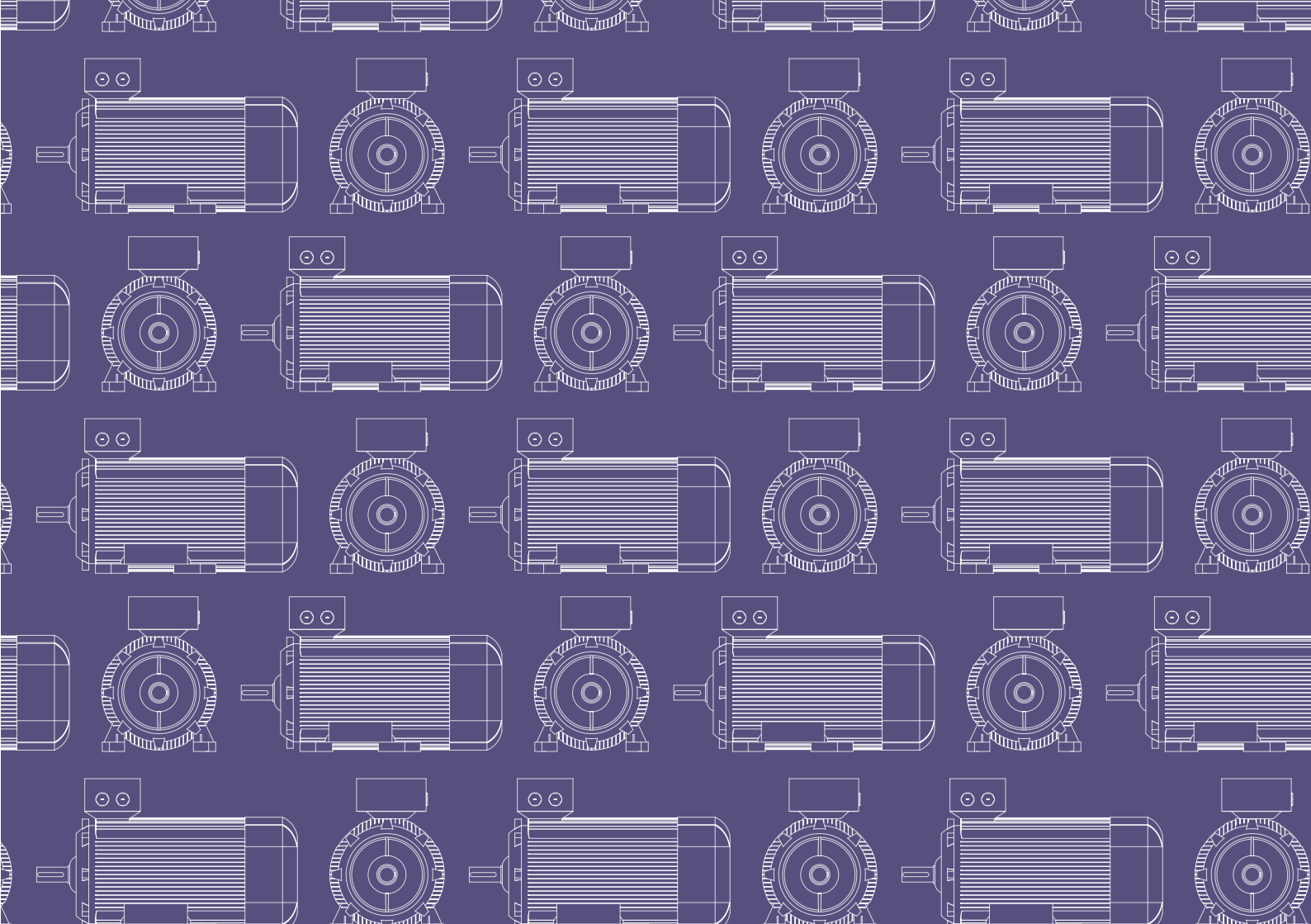
Frame Size	Poles	Radial Force [N]	
		Xo	Xmax
100	2	1585	1270
	4	1960	1575
	6	2270	1815
112	2	1545	1240
	4	1960	1555
	6	2270	1800
132	2	2285	1795
	4	2860	2250
	6	3320	2580
160	2	2800	2170
	4	3450	2750
	6	4000	3160
180	2	3250	2610
	4	4110	3270
	6	4720	3740
200	2	4320	3550
	4	5480	4500
	6	6220	5110
225	2	5000	4150
	4	6250	4900
	6	7200	5750
280	2	5300	4500
	4	6150	5100
	6	7000	5800
315S/M	2	6000	4800
	4	7600	6200
	6	8750	7350
315L	2	5200	4200
	4	8500	7000
	6	9800	8150
315S/M	2	5300	4500
	4	9150	7400
	6	10750	8750
315L	2	4900	4300
	4	8900	7700
	6	10100	9150
315L	2	5300	4500
	4	9150	7400
	6	10750	8750

The Bearing sizes can be found on DataSheets, which can be downloaded from our website.



Shaft horizontal - Load in [N] for standard Ball Bearings									
Frame	3000rpm		1500rpm		1000rpm		750rpm		Pull
	Pressure	Pull	Pressure	Pull	Pressure	Pull	Pressure	Pull	
100	1430	870	1780	1220	2090	1530	2370	1810	
112	1410	850	1790	1230	2090	1530	2370	1810	
132	2280	960	2820	1500	3250	1930	3680	2360	
160	2320	1600	2980	2260	3480	2760	4010	3290	
180	2850	1700	3630	2480	4230	3080	4230	3080	
200	3340	2530	4430	3620	5150	4340	5150	4340	
225	3800	2750	4900	3850	5700	4650	6500	5450	
250	4750	3150	6050	4450	7100	5500	8000	6400	
280	4450	2850	6600	5000	7850	6300	8800	7200	
315	4700	2600	7050	5000	8250	6200	9100	7100	

Frame Size	Hole in Foot: K [mm]	Bolt Size	Tightening Torque	
			Bolt Grade < 8.8	Bolt Grade ≥ 8.8
63	7	M6	4.5Nm	8Nm
71	7	M6	4.5Nm	8Nm
80	10	M8	10Nm	20Nm
90	10	M8	10Nm	20Nm
100	12	M10	20Nm	40Nm
112	12	M10	20Nm	40Nm
132	12	M10	20Nm	40Nm
160	14.5	M12	34Nm	70Nm
180	14.5	M12	34Nm	70Nm
200	18.5	M16	83Nm	170Nm
225	18.5	M16	83Nm	170Nm
250	24	M20	160Nm	340Nm
280	24	M20	160Nm	340Nm
315	28	M24	280Nm	600Nm



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