

IP Protection

Class

According to IEC 60034-5 standard, the IP protection class determines the degree to prevent water or foreign substances from reaching the motor parts that will be dangerous by passing through the body of rotary electric machines. This protection class is indicated on the labels of motors. Our standard motor protection class is IP54. Optionally, asynchronous motors are produced in IP55 and IP65 protection class.

First characteristic number : Protection against the introduction of solid foreign substances		Second characteristic number : protection against water	
0	unprotected machine	0	unprotected machine
1	protected against solid objects greater than ! 50 mm	1	protected against dripping water
2	protected against solid objects greater than 12,5 mm	2	protected against dripping water vertically up to 15°
3	protected against solid objects greater than 2,5 mm	3	water spray protection up to 60° vertically
4	protected against solid objects greater than 1 mm	4	protected against splash water
5	protected against dust	5	protection against water jet sprayed from all directions
6	dust-proof	6	protection against severe water jet sprayed from all directions
		7	protected against the effects of temporary water immersion
		8	protected from the effects of staying in the water

Isolation

Class

Our standard production motors are designed within the limits of class B temperature increase. It has F type insulation. F type insulation at 40°C ambient temperature with 10°C security rate allow a maximum temperature rise of 105°C, but for better performance and longer life the temperature rise is limited to 80°C when our motors are designed.

According to ; temperature rise (ΔT^*) and maximum temperatures at the hottest points of the coil (T_{max}), IEC 60034-1 standards temperature class

	ΔT^*	T_{max}
B class	80K	125°C
F class	105K	155°C
H class	125K	180°C

Ambient temperature	45°C	50°C	55°C	60°C
Service factor at ambient temperatures above 40° C (class B temperature rise)	95%	90%	85%	90%

Method of cooling

The code description of the cooling methods defined according to IEC 60034-6 standard and applied in our engines is as follows.

Code letters

Circuit arrangement

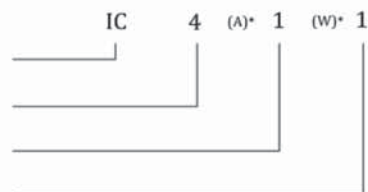
(4: Frame surface cooled)

Primary coolant

(1: Self circulation)

Secondary coolant

(1: Self circulation)



4: Cooling from body surface

1: Air circulation inside of engine

1: Propeller which mounted on spindle

Mechanical Construction

Frame

The motor frames made of aluminum are fixed to the stator by hot pressing method. This application provides rigid structure and cooling surface. (Special dimensions are also available upon customer requests.)

End-shields

End-shields are made of aluminium alloy. End-shields attach to frame , also end-shields are the parts of motor housing which support the bearings. (customized design upon customer request are available.)

Terminal Box

For 90 type and over motors, the terminal boxes are made of aluminum and for smaller motors , the terminal boxes are made of plastic material. The terminal boxes greatly increase safety by protecting the motor electrical connection against foreign substances. Single-phase motors have a permanent circuit capacitor in terminal box.

Cooling Fan

Standard Miksan Motors contain plastic fan which is connected to the motor shaft. This application ,provides cooling without being dependent on the direction of rotation of the motor. (Aluminum fan can also be manufactured upon customer request.)

Painting

All of our standard motors are painted with RAL 7016. On special request RAL 9005 paint can be used. (Please contact us for different color requests.)

Bearings

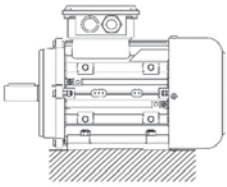
Standard design bearings have continuous lubrication.

Frame Size	Pole	Front Bearing	Rear Bearing	Dimensions
56	2 - 4	6201 - 2Z C3	6201 - 2Z C3	12x32x10
63	2 - 4	6202 - 2Z C3	6202 - 2Z C3	15x35x11
71	2 - 4 - 6	6202 - 2Z C3	6202 - 2Z C3	15x35x11
80	2 - 4 - 6 - 8	6204 - 2Z C3	6204 - 2Z C3	20x47x14
90S	2 - 4 - 6	6205 - 2Z C3	6205 - 2Z C3	25x52x15
90L	2 - 4 - 6	6205 - 2Z C3	6205 - 2Z C3	25x52x15
100	2 - 4 - 6	6206 - 2Z C3	6206 - 2Z C3	30x62x16
112	2 - 4 - 6	6206 - 2Z C3	6206 - 2Z C3	30x62x16
132S	2 - 4	6208 - 2Z C3	6208 - 2Z C3	30x62x16
132M	2 - 4	6208 - 2Z C3	6208 - 2Z C3	40x80x18

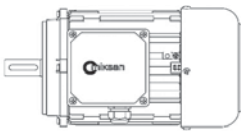
Types of mounting according to IEC 60034-7

Foot mounting

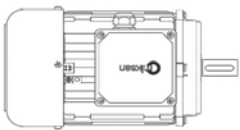
B3 - IM 1001



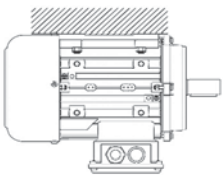
IM B6 - IM 1051



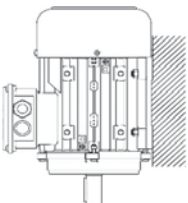
IM B7 - IM 1061



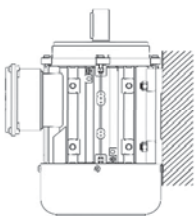
IM B8 - IM 1071



IM V5 - IM 1011

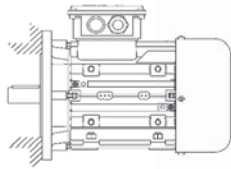


IM V6 - IM 1031

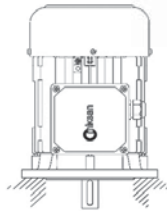


Flange mounting

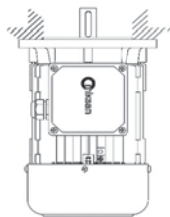
IM B5 - IM 3001



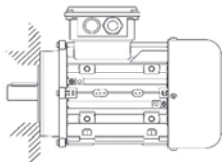
IM V1 - IM 3011



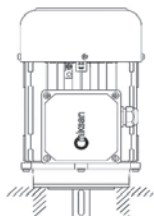
IM V3 - IM 3031



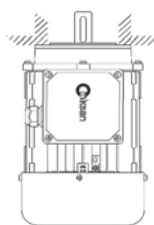
IM B14 - IM 3601



IM V18 - IM 3611

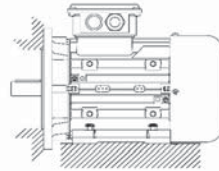


IM V19 - IM 3631

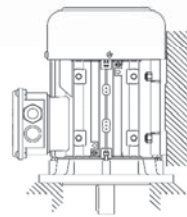


Flange and foot mounting

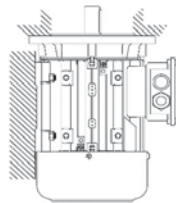
IM B35 - IM 2001



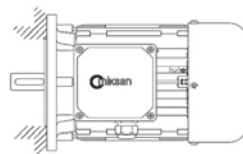
IM V15 - IM 2011



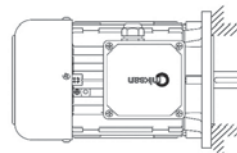
IM V35 - IM 2031



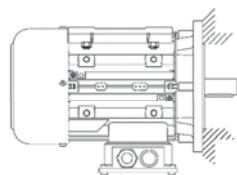
IM 2051



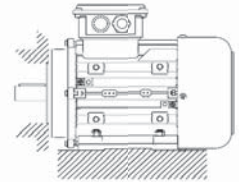
IM 2061



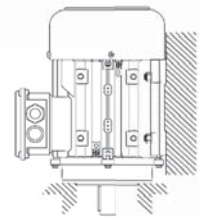
IM 2071



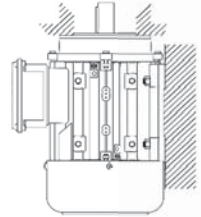
IM B34 - IM 2101



IM V17 - IM 2111



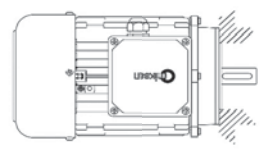
IM V37 - IM 2131



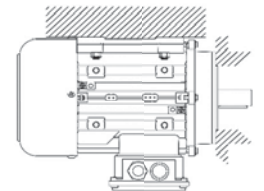
IM 2151



IM 2161



IM 2171

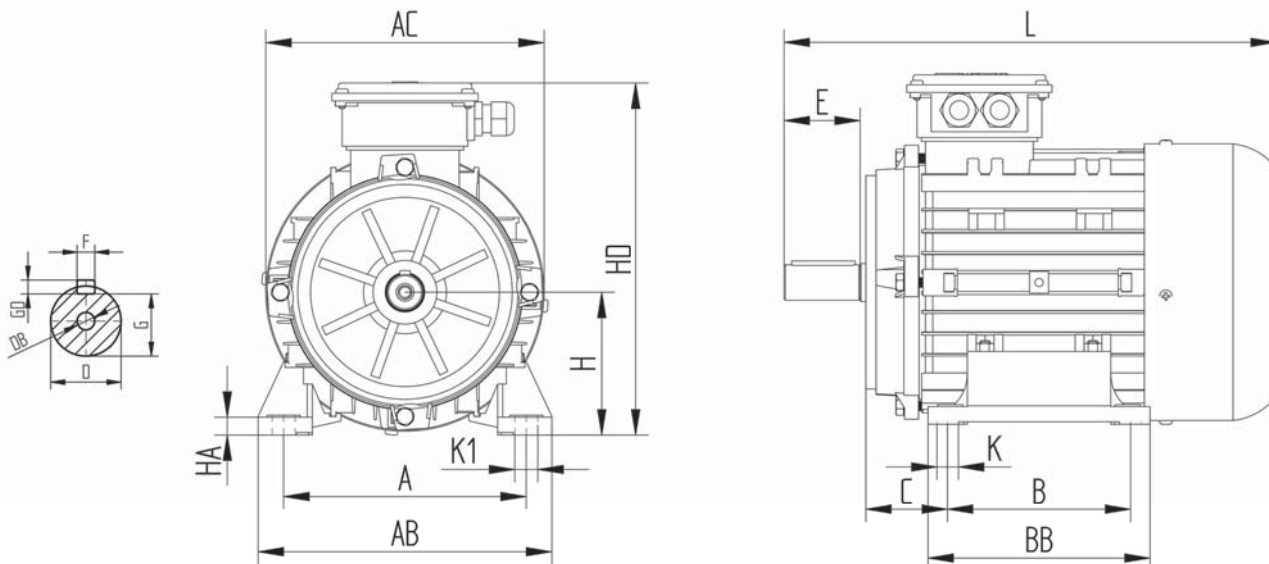


Voltage : 400V - 50 Hz
 Isolation Class : F
 Operation Type : S1
 IP : 54

IE3

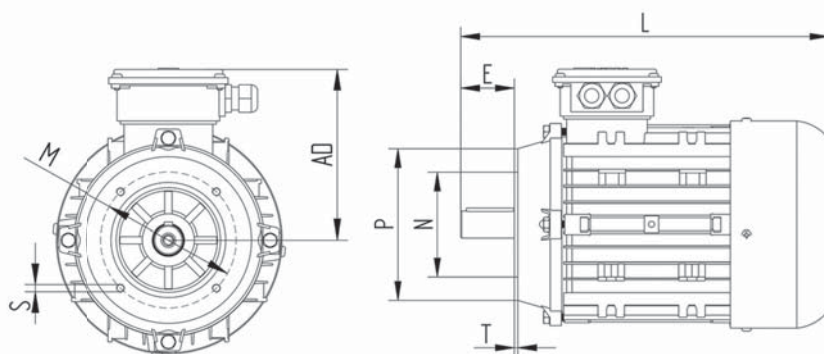
Type	P _n		T _n	IE3 η			cos φ	I _n	I _A /I _N	M _A /M _N	M _K /M _N	J	Weight	
	kW	HP		min ⁻¹	Nm	100%								75%
3000 min⁻¹														
56 2A*	0.09	0.12	2830	0.32	64.6	64.3	55.1	0.70	0.30	3.7	3.0	3.1	0.00014	2.3
56 2B*	0.12	0.16	2860	0.40	63.4	63.2	56.0	0.72	0.37	5.0	3.7	3.1	0.00015	2.8
56 2C*	0.18	0.25	2840	0.60	67.4	67.1	61.2	0.76	0.50	5.0	3.7	3.1	0.00016	3.2
63 2A*	0.18	0.25	2800	0.61	65.1	64.8	59.8	0.65	0.65	4.6	2.8	2.8	0.00014	3.4
63 2B*	0.25	0.34	2800	0.85	68.7	68.1	60.7	0.75	0.73	4.2	2.2	3.5	0.00017	3.8
63 2C*	0.37	0.50	2790	1.26	68.3	68.1	61.2	0.70	1.15	4.0	2.0	3.0	0.00018	4.5
63 2D*	0.55	0.75	2720	1.95	71.3	71.0	68.2	0.80	1.40	3.9	2.3	3.1	0.00042	5.2
71 2A*	0.37	0.50	2800	1.58	73.2	73.0	69.2	0.72	1.10	4.0	2.5	2.6	0.00033	4.9
71 2B*	0.55	0.75	2765	1.94	76.8	76.1	74.1	0.81	1.30	4.5	2.4	2.5	0.00043	6.0
71 2C IE3	0.75	1.00	2775	2.55	77.4	77.5	74.2	0.80	1.78	4.7	2.6	2.8	0.00054	7.6
80 2B IE3	0.75	1.00	2890	2.50	81.6	78.6	73.7	0.77	1.72	6.1	2.4	3.2	0.00067	8.7
80 2C IE3	1.10	1.50	2885	3.70	82.8	81.4	78.0	0.76	2.34	6.0	2.6	3.6	0.00081	9.8
90S 2B IE3	1.50	2.00	2907	4.93	84.2	83.0	79.3	0.81	3.23	6.4	3.0	3.7	0.0013	14.0
90L 2C IE3	2.20	3.00	2905	7.24	85.9	85.2	82.4	0.83	4.48	6.5	3.1	3.6	0.0015	16.5
100 2B IE3	3.00	4.00	2905	9.85	87.1	86.4	83.2	0.86	5.92	7.6	3.5	4.1	0.0030	21.8
100 2C IE3	4.00	5.50	2895	13.2	88.1	87.8	87.0	0.82	7.25	7.7	3.0	3.8	0.0046	23.4
112 2B IE3	4.00	5.50	2905	13.2	88.3	88.8	87.4	0.91	7.16	7.1	2.9	3.6	0.027	26.9
112 2C IE3	5.50	7.50	2900	18.1	91.0	89.7	88.8	0.87	9.85	7.4	2.8	3.5	0.029	31.8
132S 2B IE3	5.50	7.50	2910	18.1	91.0	89.8	89.0	0.92	9.73	7.5	2.7	3.4	0.015	41.8
132S 2C IE3	7.50	10.0	2935	24.5	90.1	90.0	89.6	0.90	13.4	7.3	2.7	3.4	0.018	47.1
132M 2C IE3	11.0	15.0	2930	35.9	91.2	91.1	90.2	0.90	19.6	7.9	2.5	3.9	0.022	57.8
1500 min⁻¹														
56 4A*	0.06	0.08	1370	0.41	57.7	57.4	51.1	0.60	0.26	3.0	2.4	2.6	0.00014	2.3
56 4B*	0.09	0.12	1385	0.62	59.8	59.2	54.4	0.62	0.39	3.1	2.8	2.3	0.00016	2.6
56 4C*	0.12	0.16	1380	0.83	59.2	58.9	54.2	0.68	0.48	3.2	2.8	2.4	0.00018	3.3
63 4A*	0.12	0.16	1400	0.82	57.4	57.0	53.4	0.63	0.60	3.0	2.0	2.0	0.00021	3.3
63 4B*	0.18	0.25	1340	1.30	54.6	54.1	50.4	0.67	0.73	2.8	2.0	2.0	0.00026	3.5
63 4C*	0.25	0.34	1340	1.80	60.8	60.4	56.5	0.66	1.00	3.0	2.0	2.0	0.00032	4.5
71 4A*	0.25	0.34	1415	1.70	57.7	57.4	53.7	0.68	0.95	3.3	2.3	2.5	0.00049	4.7
71 4B*	0.37	0.50	1410	2.50	62.8	62.5	56.9	0.68	1.25	3.5	2.4	2.3	0.00067	5.6
71 4C*	0.55	0.75	1380	3.80	73.3	69.8	64.8	0.70	1.57	3.4	2.0	2.1	0.00082	6.3
80 4C IE3	0.75	1.00	1435	5.00	82.5	81.6	80.8	0.71	1.90	5.5	2.6	2.8	0.0025	11.5
90S 4B IE3	1.10	1.50	1437	7.37	84.1	83.9	82.4	0.72	2.73	5.2	2.8	3.1	0.0028	15.4
90L 4C IE3	1.50	2.00	1430	10.1	85.3	84.4	82.8	0.72	3.48	6.4	3.6	3.8	0.0033	17.1
100 4B IE3	2.20	3.00	1440	14.6	86.7	86.2	83.6	0.76	4.85	6.9	3.0	3.6	0.0054	22.0
100 4C IE3	3.00	4.00	1440	19.9	87.7	87.0	85.2	0.78	7.00	8.0	3.9	4.0	0.0070	26.7
112 4C IE3	4.00	5.50	1450	26.4	88.6	88.7	87.8	0.81	8.27	6.8	2.4	3.0	0.025	32.2
132S 4B IE3	5.50	7.50	1460	36.0	89.6	89.5	88.5	0.85	10.6	6.9	2.6	3.3	0.025	49.9
132M 4C IE3	7.50	10.0	1470	49.0	90.4	90.1	89.6	0.80	15.4	7.5	3.1	3.5	0.033	56.2

The motors that are marked with "*" were not made efficiency determinations according to IEC 60034-2-1

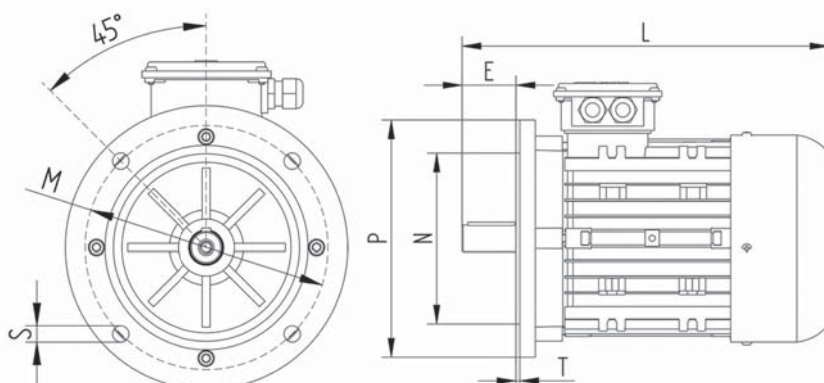


IEC	H	HD	L	AC	A	B	AB	BB	K1	K	HA	C	E	D	DB	GA	FxGD
56	56	143	182	108	90	71	110	81	7	6	6	36	20	9	-	10.0	3x3
63	63	168	210	124	100	80	120	100	10	7	7	40	23	11	-	12.5	4x4
71	71	184	243	138	112	90	135	109	12	7	8	45	30	14	M5	16.0	5x5
80	80	201	273	157	125	100	152	129	13	10	10	50	40	19	M6	21.5	6x6
90S	90	229	305	175	140	100	170	127	13	10	10	58	50	24	M8	27.0	8x8
90L	90	229	333	175	140	125	170	152	13	10	10	58	50	24	M8	27.0	8x8
100	100	251	375	194	160	140	192	165	18	12	10	63	60	28	M10	31.0	8x8
112	112	276	388	218	190	140	230	175	18	12	14	71	60	28	M10	31.0	8x8
132S	132	309	464	258	216	140	260	180	28	12	16	89	80	38	M12	41.0	10x8
132M	132	309	493	258	216	178	260	218	28	12	16	89	80	38	M12	41.0	10x8

IEC B14	P	N	M	T	S	AD
56	78	50	65	2.5	M5	87
63	90	60	75	2.5	M5	105
71	105	70	85	2.5	M6	113
80	122	80	100	3.0	M6	121
90 S/L	180	95	115	3.0	M8	139
100	160	110	130	3.5	M8	151
112	160	110	130	3.5	M8	164
132	200	130	165	3.5	M10	177



IEC B5	P	N	M	T	S	AD
56	120	80	100	3.0	7	87
63	140	95	115	3.0	10	105
71	160	110	130	4.0	10	113
80	200	130	165	3.5	12	121
90 S/L	200	130	165	3.0	12	139
100	250	180	215	4.0	15	151
112	250	180	215	4.0	15	164
132	300	230	265	4.0	15	177

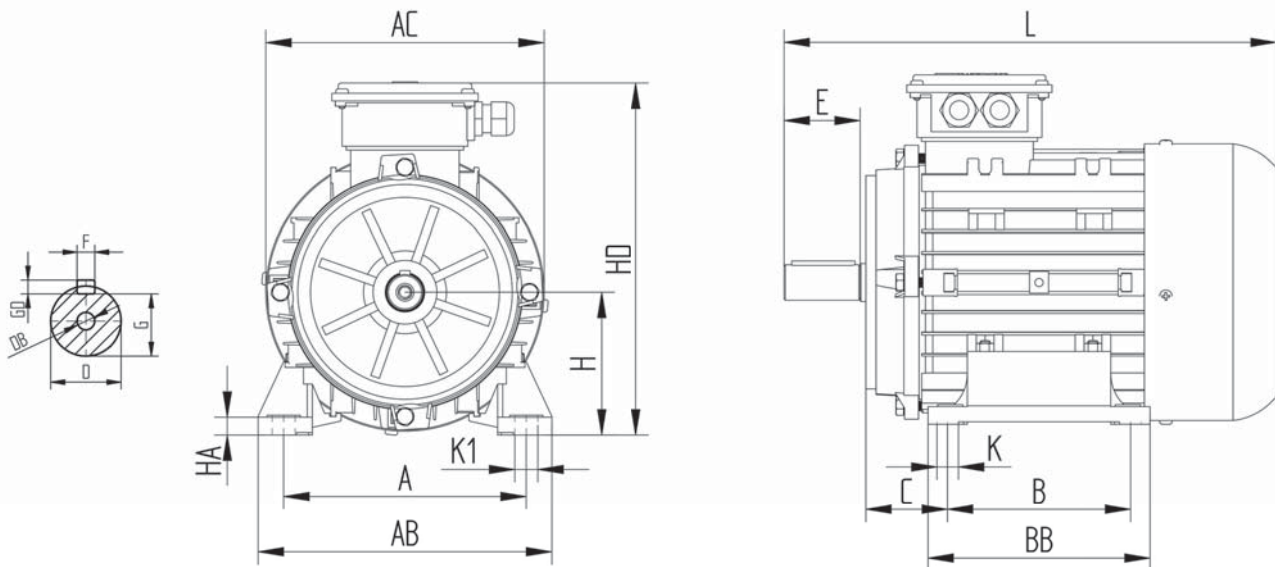


Voltage : 400V - 50 Hz
 Isolation Class : F
 Operation Type : S1
 IP : 54

IE2

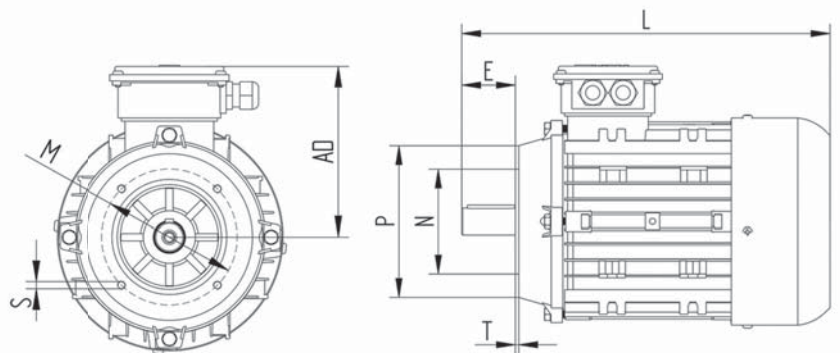
Type	P _n		T _n Nm	IE2 η			cos φ	I _n 400V	I _A /I _N	M _A /M _N	M _K /M _N	J 10 ⁻³ kgm ²	Weight kg	
	kW	HP		min ⁻¹	100%	75%								50%
3000 min⁻¹														
56 2A*	0.09	0.12	2830	0.32	64.6	64.3	55.1	0.70	0.30	3.7	3.0	3.1	0.00014	2.3
56 2B*	0.12	0.16	2860	0.40	63.4	63.2	56.0	0.72	0.37	5.0	3.7	3.1	0.00015	2.8
56 2C*	0.18	0.25	2840	0.60	67.4	67.1	61.2	0.76	0.50	5.0	3.7	3.1	0.00016	3.2
63 2A*	0.18	0.25	2800	0.61	65.1	64.8	59.8	0.65	0.65	4.6	2.8	2.8	0.00014	3.4
63 2B*	0.25	0.34	2800	0.85	68.7	68.1	60.7	0.75	0.73	4.2	2.2	3.5	0.00017	3.8
63 2C*	0.37	0.50	2790	1.26	68.3	68.1	61.2	0.70	1.15	4.0	2.0	3.0	0.00018	4.5
63 2D*	0.55	0.75	2720	1.95	71.3	71.0	68.2	0.80	1.40	3.9	2.3	3.1	0.00042	5.2
71 2A*	0.37	0.50	2800	1.58	73.2	73.0	69.2	0.72	1.10	4.0	2.5	2.6	0.00033	4.9
71 2B*	0.55	0.75	2765	1.94	76.8	76.1	74.1	0.81	1.30	4.5	2.4	2.5	0.00043	6.0
71 2C IE2	0.75	1.00	2775	2.60	77.4	77.5	74.2	0.80	1.78	4.7	2.6	2.8	0.00054	7.6
80 2A IE2	0.75	1.00	2820	2.55	77.4	77.6	74.8	0.81	1.72	4.8	3.2	3.0	0.00067	8.0
80 2B IE2	1.10	1.50	2805	3.75	79.6	80.0	78.0	0.84	2.34	5.0	2.5	3.2	0.00081	9.1
80 2C IE2	1.50	2.00	2830	5.10	81.3	81.0	79.3	0.81	3.31	6.2	2.8	3.1	0.00092	10.1
90S 2A IE2	1.50	2.00	2860	5.00	81.3	81.4	79.5	0.82	3.23	6.1	2.4	2.6	0.0013	12.0
90L 2B IE2	2.20	3.00	2865	7.35	83.2	83.0	81.7	0.81	4.48	6.6	2.7	2.9	0.0016	15.0
90L 2C IE2	3.00	4.00	2865	10.0	84.6	84.0	82.1	0.82	6.58	6.7	2.9	3.1	0.0019	17.3
100 2A IE2	3.00	4.00	2860	10.0	84.6	84.5	83.8	0.78	5.92	6.7	2.6	3.1	0.0026	18.8
100 2B IE2	4.00	5.50	2865	13.4	85.8	84.9	83.9	0.88	7.60	7.6	2.7	3.0	0.0068	22.3
112 2A IE2	4.00	5.50	2870	13.3	85.8	85.2	84.5	0.86	7.75	6.6	2.2	2.6	0.0046	26.3
112 2B IE2	5.50	7.50	2890	18.2	87.0	86.5	85.6	0.89	9.85	7.3	2.1	2.6	0.0050	27.5
132S 2A IE2	5.50	7.50	2885	18.2	87.0	87.0	86.4	0.89	9.73	8.6	2.2	2.7	0.010	41.0
132S 2B IE2	7.50	10.0	2890	24.8	88.1	88.0	87.7	0.91	13.4	8.4	2.3	2.6	0.012	44.1
132M 2C IE2	11.0	15.0	2910	36.2	89.4	89.3	88.6	0.90	19.6	7.2	2.0	2.2	0.021	57.8
1500 min⁻¹														
56 4A*	0.06	0.08	1370	0.41	57.7	57.4	51.1	0.60	0.26	3.0	2.4	2.6	0.00014	2.3
56 4B*	0.09	0.12	1385	0.62	59.8	59.2	54.4	0.62	0.39	3.1	2.8	2.3	0.00016	2.6
56 4C*	0.12	0.16	1380	0.83	59.2	58.9	54.2	0.68	0.48	3.2	2.8	2.4	0.00018	3.3
63 4A*	0.12	0.16	1400	0.82	57.4	57.0	53.4	0.63	0.60	3.0	2.0	2.0	0.00021	3.3
63 4B*	0.18	0.25	1340	1.30	54.6	54.1	50.4	0.67	0.73	2.8	2.0	2.0	0.00026	3.5
63 4C*	0.25	0.34	1340	1.80	60.8	60.4	56.5	0.66	1.00	3.0	2.0	2.0	0.00032	4.5
71 4A*	0.25	0.34	1415	1.70	57.7	57.4	53.7	0.68	0.95	3.3	2.3	2.5	0.00049	4.7
71 4B*	0.37	0.50	1410	2.50	62.8	62.5	56.9	0.68	1.25	3.5	2.4	2.3	0.00067	5.6
71 4C*	0.55	0.75	1380	3.80	73.3	69.8	64.8	0.70	1.57	3.4	2.0	2.1	0.00082	6.3
80 4B IE2	0.75	1.00	1410	5.10	79.6	79.4	77.7	0.74	1.90	4.0	2.1	2.1	0.008	9.6
90S 4A IE2	1.10	1.50	1415	7.45	81.4	81.3	80.2	0.73	2.70	5.5	2.8	3.1	0.008	12.6
90L 4B IE2	1.50	2.00	1415	10.1	82.8	82.8	81.3	0.72	3.55	6.0	2.6	3.0	0.009	15.2
100 4A IE2	2.20	3.00	1425	14.9	84.3	84.1	82.3	0.76	4.60	5.6	2.1	2.7	0.012	21.0
100 4C IE2	3.00	4.00	1415	20.3	85.5	85.5	83.8	0.76	6.90	5.4	2.0	2.5	0.016	23.7
112 4C IE2	4.00	5.50	1440	26.6	86.6	86.6	85.1	0.81	8.40	7.0	2.1	3.0	0.027	28.4
132S 4B IE2	5.50	7.50	1455	36.1	87.7	87.9	87.1	0.78	11.7	6.9	2.5	2.9	0.022	40.8
132M 4C IE2	7.50	10.0	1460	49.1	88.7	88.7	87.9	0.76	15.8	7.0	2.2	2.7	0.030	51.0

The motors that are marked with "*" were not made efficiency determinations according to IEC 60034-2-1

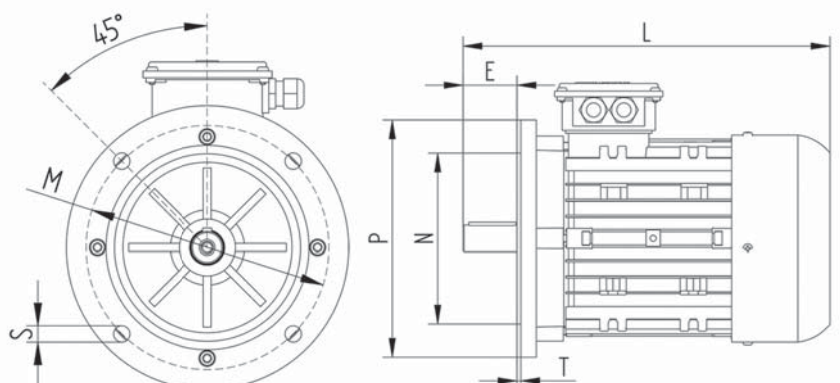


IEC	H	HD	L	AC	A	B	AB	BB	K1	K	HA	C	E	D	DB	GA	FxGD
56	56	143	182	108	90	71	110	81	7	6	6	36	20	9	-	10.0	3x3
63	63	168	210	124	100	80	120	100	10	7	7	40	23	11	-	12.5	4x4
71	71	184	243	138	112	90	135	109	12	7	8	45	30	14	M5	16.0	5x5
80	80	201	273	157	125	100	152	129	13	10	10	50	40	19	M6	21.5	6x6
90S	90	229	305	175	140	100	170	127	13	10	10	58	50	24	M8	27.0	8x8
90L	90	229	333	175	140	125	170	152	13	10	10	58	50	24	M8	27.0	8x8
100	100	251	375	194	160	140	192	165	18	12	10	63	60	28	M10	31.0	8x8
112	112	276	388	218	190	140	230	175	18	12	14	71	60	28	M10	31.0	8x8
132S	132	309	464	258	216	140	260	180	28	12	16	89	80	38	M12	41.0	10x8
132M	132	309	493	258	216	178	260	218	28	12	16	89	80	38	M12	41.0	10x8

IEC B14	P	N	M	T	S	AD
56	78	50	65	2.5	M5	87
63	90	60	75	2.5	M5	105
71	105	70	85	2.5	M6	113
80	122	80	100	3.0	M6	121
90 S/L	180	95	115	3.0	M8	139
100	160	110	130	3.5	M8	151
112	160	110	130	3.5	M8	164
132	200	130	165	3.5	M10	177



IEC B5	P	N	M	T	S	AD
56	120	80	100	3.0	7	87
63	140	95	115	3.0	10	105
71	160	110	130	4.0	10	113
80	200	130	165	3.5	12	121
90 S/L	200	130	165	3.0	12	139
100	250	180	215	4.0	15	151
112	250	180	215	4.0	15	164
132	300	230	265	4.0	15	177

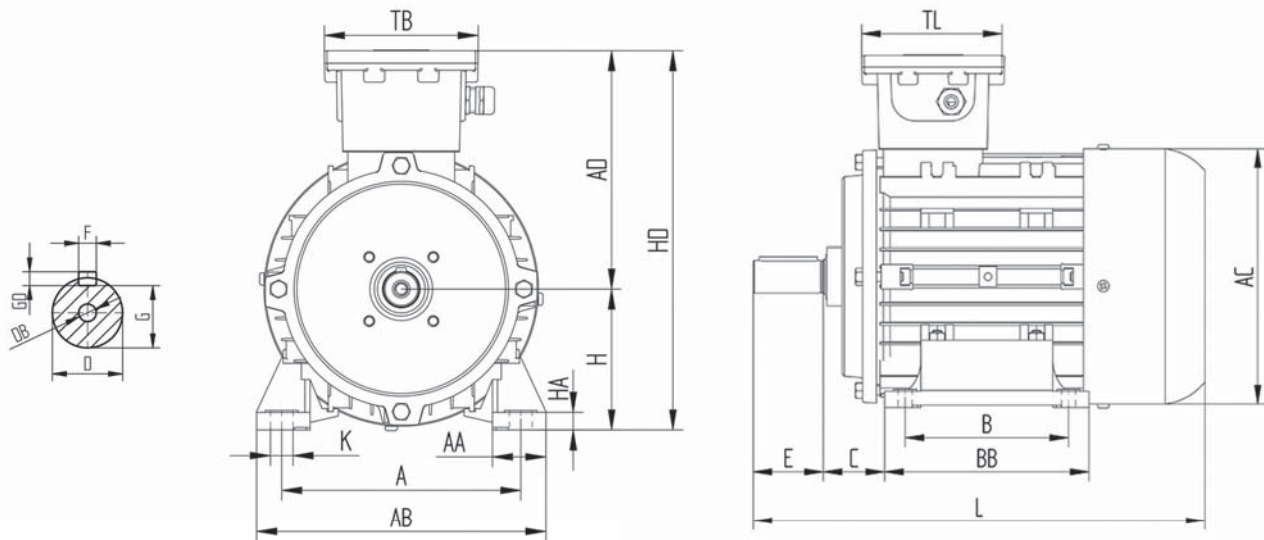


EX SERIES

II 2G Ex db IIC T4 Gb
II 2D Ex tb IIIC t120°C Db

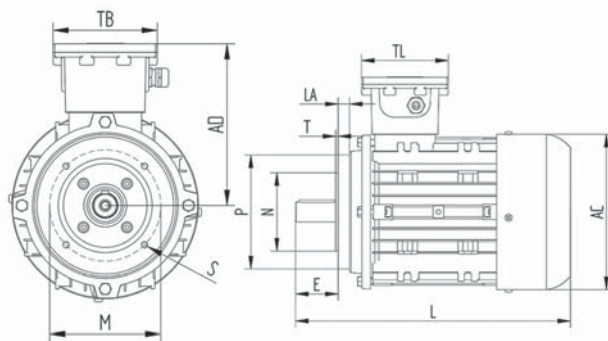
Voltage : 400V 50Hz/460V 60Hz
Isolation Class : F
Operation Type : S1
IP : 65
Certificate No : IEP 16 ATEX 0433

Type	P _{n(kw)}		HP		min ⁻¹		T _n Nm	cos φ	I _n 400V	I _A /I _N	M _A /M _N	M _K /M _N	J 10 ⁻³ kgm ²	Weight kg
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz								
3000 min⁻¹														
63 2A EX	0.18	0.22	0.25	0.30	2785	3345	0.63	0.69	0.65	4.2	2.3	2.7	0.1	4.8
63 2B EX	0.25	0.30	0.34	0.41	2755	3310	0.87	0.78	0.70	4.5	2.4	2.8	0.1	5.3
63 2C EX	0.37	0.44	0.50	0.60	2760	3315	1.30	0.70	1.20	4.3	2.3	2.6	0.2	5.7
71 2A EX	0.37	0.44	0.50	0.60	2790	3350	1.25	0.71	1.10	4.0	2.5	2.6	0.3	6.5
71 2B EX	0.55	0.66	0.74	0.98	2760	3310	1.90	0.80	1.45	4.5	2.4	2.5	0.6	7.4
80 2A EX	0.75	0.90	1.00	1.20	2800	3360	2.50	0.82	1.85	4.8	3.2	3.0	0.7	9.1
80 2B EX	1.10	1.32	1.50	1.80	2790	3350	3.80	0.83	2.60	5.0	2.5	3.2	0.8	10.2
90S 2A EX	1.50	1.80	2.00	2.40	2865	3440	5.00	0.83	3.25	6.1	2.4	2.6	1.3	13.4
90L 2B EX	2.20	2.64	3.00	3.60	2875	3450	7.30	0.81	4.75	6.6	2.7	2.9	1.6	15.3
100 2A EX	3.00	3.60	4.00	4.80	2875	3450	9.95	0.80	6.45	6.7	2.6	3.1	2.6	20.2
100 2B EX	4.00	4.80	5.50	6.60	2865	3440	13.2	0.88	7.50	7.6	2.7	3.0	6.8	23.7
112 2A EX	4.00	4.80	5.50	6.60	2895	3475	13.3	0.86	7.75	6.6	2.2	2.6	4.6	27.7
112 2B EX	5.50	6.60	7.50	9.00	2890	3470	17.8	0.90	9.80	7.3	2.1	2.3	5.0	28.9
1500 min⁻¹														
63 4A EX	0.12	0.14	0.16	0.19	1380	1660	0.85	0.60	0.65	3.1	2.2	2.6	0.2	4.7
63 4B EX	0.18	0.22	0.25	0.30	1330	1600	1.30	0.68	0.75	3.0	1.9	2.3	0.2	5.1
63 4C EX	0.25	0.30	0.34	0.41	1320	1585	1.95	0.66	1.05	2.9	2.0	2.2	0.3	5.5
71 4A EX	0.25	0.30	0.34	0.41	1420	1705	1.70	0.70	1.00	3.3	2.3	2.5	0.4	6.4
71 4B EX	0.37	0.44	0.50	0.60	1425	1710	2.50	0.62	1.35	3.5	2.4	2.3	0.5	7.2
80 4A EX	0.55	0.66	0.74	0.98	1410	1690	3.80	0.73	1.50	3.7	2.0	2.0	0.6	9.9
80 4B EX	0.75	0.90	1.00	1.20	1430	1715	5.10	0.70	2.10	4.0	2.1	2.1	0.8	10.8
90S 4A EX	1.10	1.32	1.50	1.80	1420	1705	7.40	0.73	2.80	5.5	2.8	3.1	0.8	14.1
90L 4B EX	1.50	1.80	2.00	2.40	1415	1700	10.1	0.75	3.55	6.0	2.6	3.0	0.9	16.7
100 4A EX	2.20	2.64	3.00	3.60	1430	1715	14.6	0.76	4.90	5.6	2.1	2.7	1.2	22.4
100 4C EX	3.00	3.60	4.00	4.80	1425	1710	20.2	0.70	7.70	5.4	2.0	2.5	1.6	25.1
112 4C EX	4.00	4.80	5.50	6.60	1445	1735	26.5	0.81	8.50	7.0	2.1	3.0	2.7	29.8
1000 min⁻¹														
71 6A EX	0.18	0.22	0.25	0.30	925	1110	1.90	0.70	0.65	3.1	1.8	2.0	0.6	6.4
71 6B EX	0.25	0.30	0.34	0.41	920	1105	2.60	0.71	0.90	3.1	1.9	2.1	0.9	7.3

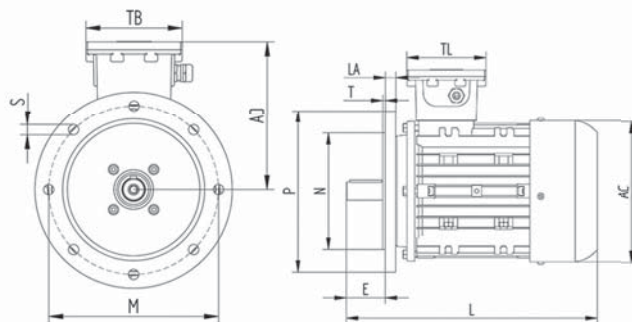


IEC	H	HD	L	AC	A	B	AB	BB	K1	K	HA	C	E	D	DB	GA	FxGD
63	63	204	210	124	100	80	120	100	10	7	7	40	23	11	M4	12.5	4x4
71	71	220	243	138	112	90	135	109	12	7	8	45	30	14	M5	16.0	5x5
80	80	236	273	157	125	100	152	129	13	10	10	50	40	19	M6	21.5	6x6
90S	90	248	308	175	140	100	170	127	13	10	10	56	50	24	M8	27.0	8x8
90L	90	248	333	175	140	125	170	152	13	10	10	56	50	24	M8	27.0	8x8
100	100	274	375	194	160	140	192	165	18	12	10	63	60	28	M10	31.0	8x8
112	112	302	387	218	190	140	230	175	18	12	14	70	60	28	M10	31.0	8x8

IEC B14	P	N	M	T	LA	S	AD	TB	TL
63	90	60	75	2.5	10.5	M5	141	121	122
71	105	70	85	2.5	12.8	M6	149	121	122
80	122	80	100	3.0	13.8	M6	156	121	122
90 S/L	180	95	115	3.0	13.8	M8	158	121	122
100	160	110	130	3.5	16.0	M8	174	121	122
112	160	110	130	3.5	16.0	M8	190	121	122



IEC B5	P	N	M	T	LA	S	AD	TB	TL
63	140	95	115	3.0	8.0	10	141	121	122
71	160	110	130	3.5	10.0	10	149	121	122
80	200	130	165	3.5	12.0	12	156	121	122
90 S/L	200	130	165	3.5	13.8	12	158	121	122
100	250	180	215	4.0	16.0	13	174	121	122
112	250	180	215	4.0	16.0	13	190	121	122



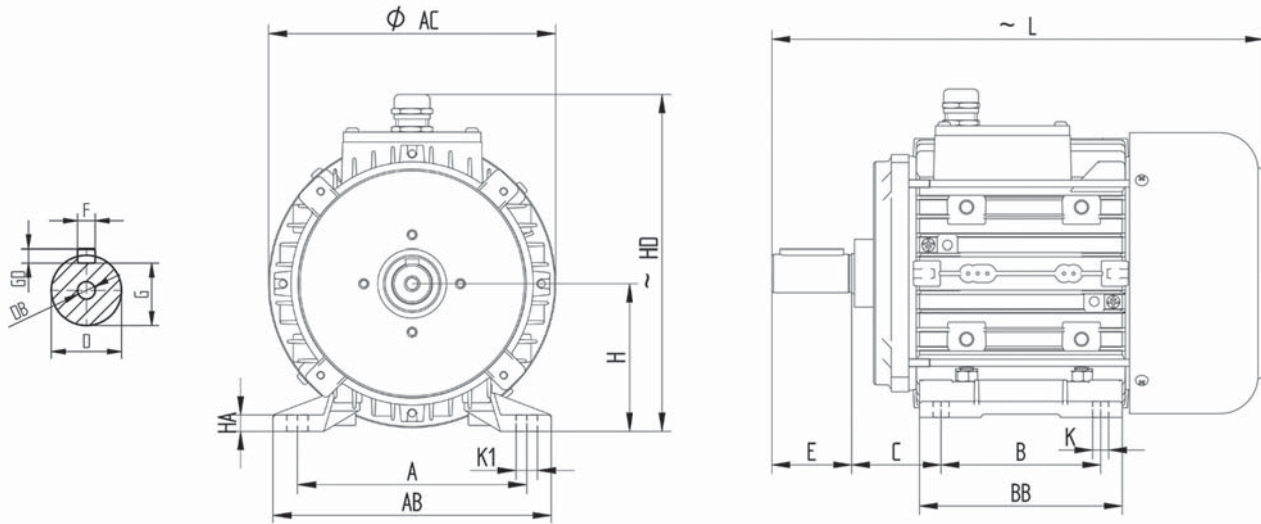
FX SERIES

II 2G EX db mb IIC T4 Gb
II 2D EX tb mb IIC t120°C Db

Voltage : 400V 50Hz/460V 60Hz
Ins. Class : F
Op. Type : S1
IP : 65
Cert. No : IEP 19 ATEX 0710

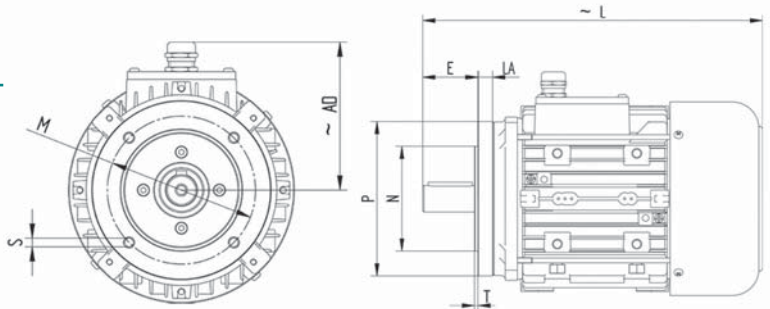
Type	P _{n(kw)}		HP		min ⁻¹		T _n Nm	cos φ	I _n 400V	I _A /I _N	M _A /M _N	M _K /M _N	J 10 ⁻³ kgm ²	Weight kg
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz								
3000 min⁻¹														
63 2A FX	0.18	0.22	0.25	0.30	2785	3345	0.63	0.69	0.65	4.2	2.3	2.7	0.1	3.7
63 2B FX	0.25	0.30	0.34	0.41	2755	3310	0.87	0.78	0.70	4.5	2.4	2.8	0.1	4.2
63 2C FX	0.37	0.44	0.50	0.60	2760	3315	1.30	0.70	1.20	4.3	2.3	2.6	0.2	4.6
71 2A FX	0.37	0.44	0.50	0.60	2790	3350	1.25	0.71	1.10	4.0	2.5	2.6	0.3	5.4
71 2B FX	0.55	0.66	0.74	0.98	2760	3310	1.90	0.80	1.45	4.5	2.4	2.5	0.6	6.3
80 2A FX	0.75	0.90	1.00	1.20	2800	3360	2.50	0.82	1.85	4.8	3.2	3.0	0.7	8.0
80 2B FX	1.10	1.32	1.50	1.80	2790	3350	3.80	0.83	2.60	5.0	2.5	3.2	0.8	9.1
90S 2A FX	1.50	1.80	2.00	2.40	2865	3440	5.00	0.83	3.25	6.1	2.4	2.6	1.3	12.3
90L 2B FX	2.20	2.64	3.00	3.60	2875	3450	7.30	0.81	4.75	6.6	2.7	2.9	1.6	14.2
100 2A FX	3.00	3.60	4.00	4.80	2875	3450	9.95	0.80	6.45	6.7	2.6	3.1	2.6	19.1
100 2B FX	4.00	4.80	5.50	6.60	2865	3440	13.2	0.88	7.50	7.6	2.7	3.0	6.8	22.6
112 2A FX	4.00	4.80	5.50	6.60	2895	3475	13.3	0.86	7.75	6.6	2.2	2.6	4.6	26.6
112 2B FX	5.50	6.60	7.50	9.00	2890	3470	17.8	0.90	9.80	7.3	2.1	2.3	5.0	27.8
1500 min⁻¹														
63 4A FX	0.12	0.14	0.16	0.19	1380	1660	0.85	0.60	0.65	3.1	2.2	2.6	0.2	3.6
63 4B FX	0.18	0.22	0.25	0.30	1330	1600	1.30	0.68	0.75	3.0	1.9	2.3	0.2	4.0
63 4C FX	0.25	0.30	0.34	0.41	1320	1585	1.95	0.66	1.05	2.9	2.0	2.2	0.3	4.4
71 4A FX	0.25	0.30	0.34	0.41	1420	1705	1.70	0.70	1.00	3.3	2.3	2.5	0.4	6.3
71 4B FX	0.37	0.44	0.50	0.60	1425	1710	2.50	0.62	1.35	3.5	2.4	2.3	0.5	6.1
80 4A FX	0.55	0.66	0.74	0.98	1410	1690	3.80	0.73	1.50	3.7	2.0	2.0	0.6	8.8
80 4B FX	0.75	0.90	1.00	1.20	1430	1715	5.10	0.70	2.10	4.0	2.1	2.1	0.8	9.7
90S 4A FX	1.10	1.32	1.50	1.80	1420	1705	7.40	0.73	2.80	5.5	2.8	3.1	0.8	13.0
90L 4B FX	1.50	1.80	2.00	2.40	1415	1700	10.1	0.75	3.55	6.0	2.6	3.0	0.9	15.6
100 4A FX	2.20	2.64	3.00	3.60	1430	1715	14.6	0.76	4.90	5.6	2.1	2.7	1.2	21.3
100 4C FX	3.00	3.60	4.00	4.80	1425	1710	20.2	0.70	7.70	5.4	2.0	2.5	1.6	24.0
112 4C FX	4.00	4.80	5.50	6.60	1445	1735	26.5	0.81	8.50	7.0	2.1	3.0	2.7	28.7
1000 min⁻¹														
71 6A FX	0.18	0.22	0.25	0.30	925	1110	1.90	0.70	0.65	3.1	1.8	2.0	0.8	5.3
71 6B FX	0.25	0.30	0.34	0.41	920	1105	2.60	0.71	0.90	3.1	1.9	2.1	1.0	6.2
80 6A FX	0.37	0.44	0.50	0.60	930	1120	3.85	0.65	1.35	3.7	1.9	2.2	1.9	7.9
80 6B FX	0.55	0.66	0.75	0.90	925	1105	5.70	0.71	1.60	3.6	1.7	2.0	2.5	9.5
90 6A FX	0.75	0.90	1.00	1.20	910	1095	7.87	0.64	2.60	3.7	1.8	1.9	3.2	11.1
90 6B FX	1.10	1.32	1.50	1.80	910	1095	11.5	0.67	3.70	3.8	1.8	1.9	4.2	14.0
100 6A FX	1.50	1.80	2.00	2.40	935	1120	15.4	0.68	4.30	4.5	2.0	2.0	9.2	19.5
112 6A FX	2.20	2.64	3.00	3.60	935	1115	22.5	0.75	5.20	4.4	2.0	2.1	9.2	25.4

FX EX-PROOF MOTOR SPECIFICATIONS

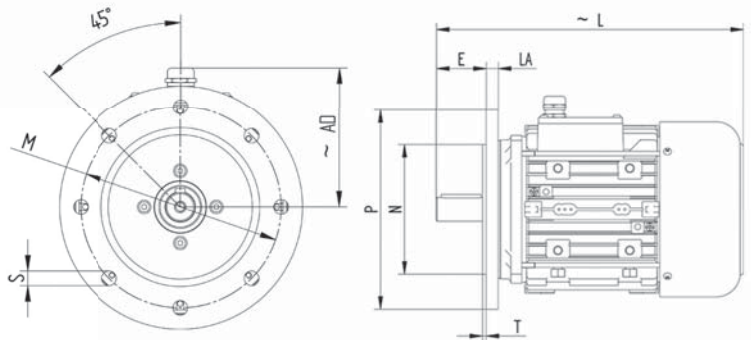


IEC	H	HD	L	AC	A	B	AB	BB	K1	K	HA	C	E	D	DB	GA	FxGD
63	63	155	211	124	100	80	120	100	10	7	7	40	23	11	M4	12.5	4x4
71	71	171	243	138	112	90	135	109	12	7	8	45	30	14	M5	16.0	5x5
80	80	188	273	157	125	100	152	129	13	10	10	50	40	19	M6	21.5	6x6
90S	90	205	308	175	140	100	170	127	13	10	10	56	50	24	M8	27.0	8x8
90L	90	205	333	175	140	125	170	152	13	10	10	56	50	24	M8	27.0	8x8
100	100	225	375	194	160	140	192	165	18	12	10	63	60	28	M10	31.0	8x8
112	112	252	387	218	190	140	230	175	18	12	14	70	60	28	M10	31.0	8x8

IEC B14	P	N	M	T	LA	S	AD
63	90	60	75	2.5	10.5	M5	92
71	105	70	85	2.5	12.8	M6	100
80	122	80	100	3.0	13.8	M6	108
90 S/L	180	95	115	3.0	13.8	M8	115
100	160	110	130	3.5	16.0	M8	125
112	160	110	130	3.5	16.0	M8	140



IEC B5	P	N	M	T	LA	S	AD
63	140	95	115	3.0	8.0	10	141
71	160	110	130	3.5	10.0	10	149
80	200	130	165	3.5	12.0	12	156
90 S/L	200	130	165	3.5	13.8	12	158
100	250	180	215	4.0	16.0	13	174
112	250	180	215	4.0	16.0	13	140

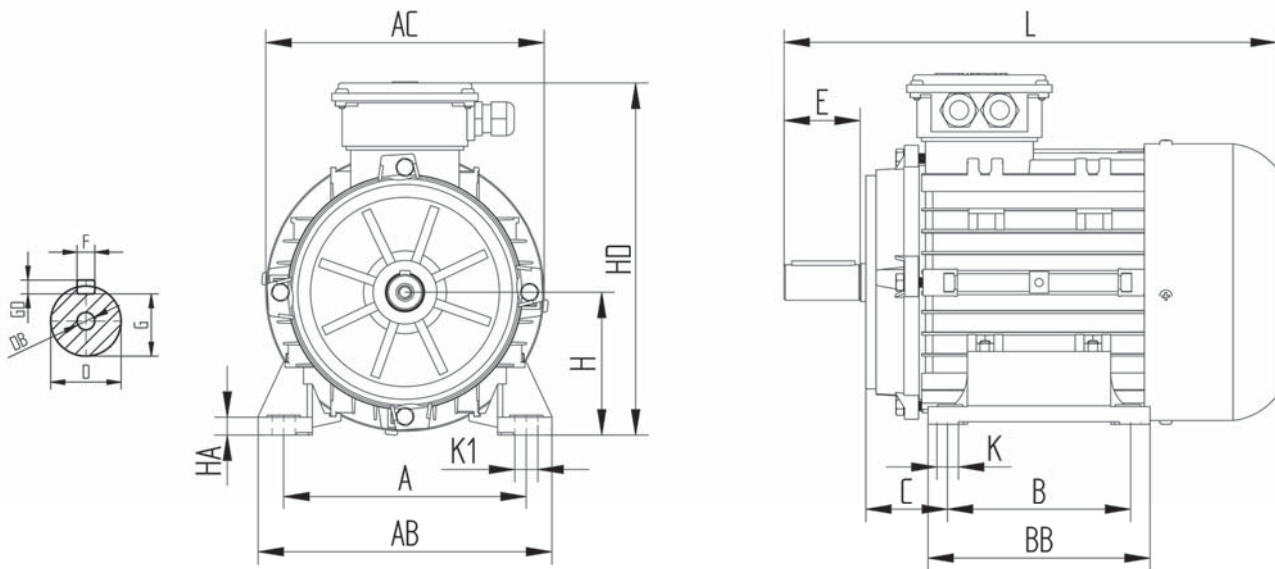


TX SERIES

II 3D Ex tc IIIC t135°C Dc

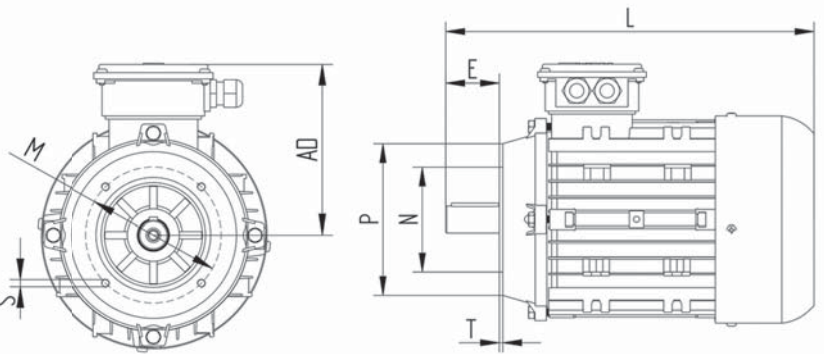
Voltage : 400V 50Hz/460V 60Hz
 Isolation Class : F
 Operation Type : S1
 IP : 65
 Certificate No : IEP 18 ATEX 0584

Type	P _{n(kw)}		HP		min ⁻¹		T _n Nm	cos φ	I _n 400V	I _A /I _N	M _A /M _N	M _K /M _N	J 10 ⁻³ kgm ²	Weight kg
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz								
3000 min⁻¹														
63 2A TX	0.18	0.22	0.25	0.30	2785	3345	0.63	0.69	0.65	4.2	2.3	2.7	0.1	3.8
63 2B TX	0.25	0.30	0.34	0.41	2755	3310	0.87	0.78	0.70	4.5	2.4	2.8	0.1	4.3
63 2C TX	0.37	0.44	0.50	0.60	2780	3335	1.27	0.69	1.10	4.4	2.2	2.6	0.2	4.5
71 2A TX	0.37	0.44	0.50	0.60	2790	3350	1.25	0.71	1.10	4.0	2.5	2.6	0.3	5.5
71 2B TX	0.55	0.66	0.74	0.98	2760	3310	1.90	0.80	1.45	4.5	2.4	2.5	0.6	6.4
71 2C TX	0.75	0.90	1.00	1.20	2750	3300	2.63	0.81	1.80	4.7	2.6	2.8	0.6	7.7
80 2A TX	0.75	0.90	1.00	1.20	2800	3360	2.50	0.82	1.85	4.8	3.2	3.0	0.7	8.1
80 2B TX	1.10	1.32	1.50	1.80	2790	3350	3.80	0.83	2.60	5.0	2.5	3.2	0.8	9.2
80 2C TX	1.50	1.80	2.00	2.40	2830	3395	5.05	0.81	3.35	6.2	2.8	3.1	1.0	10.2
90S 2A TX	1.50	1.80	2.00	2.40	2865	3440	5.00	0.83	3.25	6.1	2.4	2.6	1.3	13.4
90L 2B TX	2.20	2.64	3.00	3.60	2875	3450	7.30	0.81	4.75	6.6	2.7	2.9	1.6	15.3
90L 2C TX	3.00	3.60	4.00	4.80	2865	3440	10.2	0.82	6.60	6.7	2.9	3.1	1.9	17.5
100 2A TX	3.00	3.60	4.00	4.80	2875	3450	9.95	0.80	6.45	6.7	2.6	3.1	2.6	20.2
100 2B TX	4.00	4.80	5.50	6.60	2865	3440	13.2	0.88	7.50	7.6	2.7	3.0	6.8	23.7
112 2A TX	4.00	4.80	5.50	6.60	2895	3475	13.3	0.86	7.75	6.6	2.2	2.6	4.6	27.7
112 2B TX	5.50	6.60	7.50	9.00	2890	3470	17.8	0.90	9.80	7.3	2.1	2.3	5.0	28.9
132S 2A TX	5.50	6.60	7.50	9.00	2885	3465	18.3	0.89	10.3	8.6	2.2	2.7	10.0	41.2
132S 2B TX	7.50	9.00	10.0	12.0	2925	3510	24.5	0.90	13.5	8.4	2.3	2.6	12.0	47.1
132M 2C TX	11.0	13.2	15.0	15.0	2930	3515	35.9	0.90	19.7	7.2	2.0	2.2	21.0	58.0
1500 min⁻¹														
63 4A TX	0.12	0.14	0.16	0.19	1380	1660	0.85	0.60	0.65	3.1	2.2	2.6	0.2	4.7
63 4B TX	0.18	0.22	0.25	0.30	1330	1600	1.30	0.68	0.75	3.0	1.9	2.3	0.2	5.1
71 4A TX	0.25	0.30	0.34	0.41	1420	1705	1.70	0.70	1.00	3.3	2.3	2.5	0.4	6.4
71 4B TX	0.37	0.44	0.50	0.60	1425	1710	2.50	0.62	1.35	3.5	2.4	2.3	0.5	7.2
80 4A TX	0.55	0.66	0.74	0.98	1410	1690	3.80	0.73	1.50	3.7	2.0	2.0	0.6	9.9
80 4B TX	0.75	0.90	1.00	1.20	1430	1715	5.10	0.70	2.10	4.0	2.1	2.1	0.8	10.8
90S 4A TX	1.10	1.32	1.50	1.80	1420	1705	7.40	0.73	2.80	5.5	2.8	3.1	0.8	14.1
90L 4B TX	1.50	1.80	2.00	2.40	1415	1700	10.1	0.75	3.55	6.0	2.6	3.0	0.9	16.7
100 4A TX	2.20	2.64	3.00	3.60	1430	1715	14.6	0.76	4.90	5.6	2.1	2.7	1.2	22.4
100 4C TX	3.00	3.60	4.00	4.80	1425	1710	20.2	0.70	7.70	5.4	2.0	2.5	1.6	25.1
112 4C TX	4.00	4.80	5.50	6.60	1445	1735	26.5	0.81	8.50	7.0	2.1	3.0	2.7	29.8
132S 4A TX	5.50	6.60	7.50	9.00	1455	1745	36.4	0.78	11.7	6.9	2.5	2.9	9.0	41.0
132M 4A TX	7.50	9.00	10.0	12.0	1460	1750	49.1	0.76	15.9	7.0	2.2	2.7	12.0	51.4

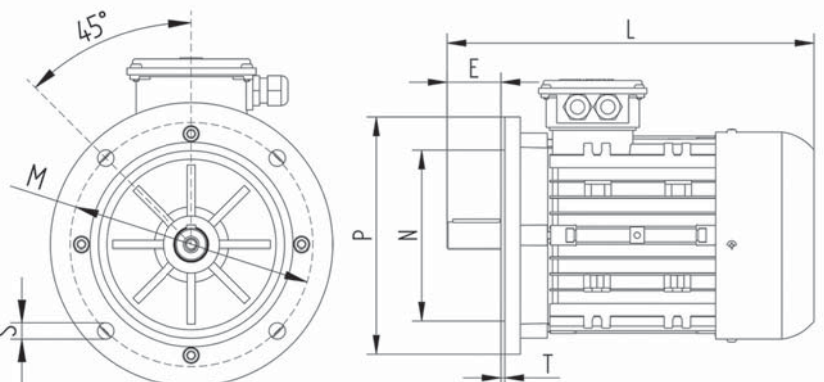


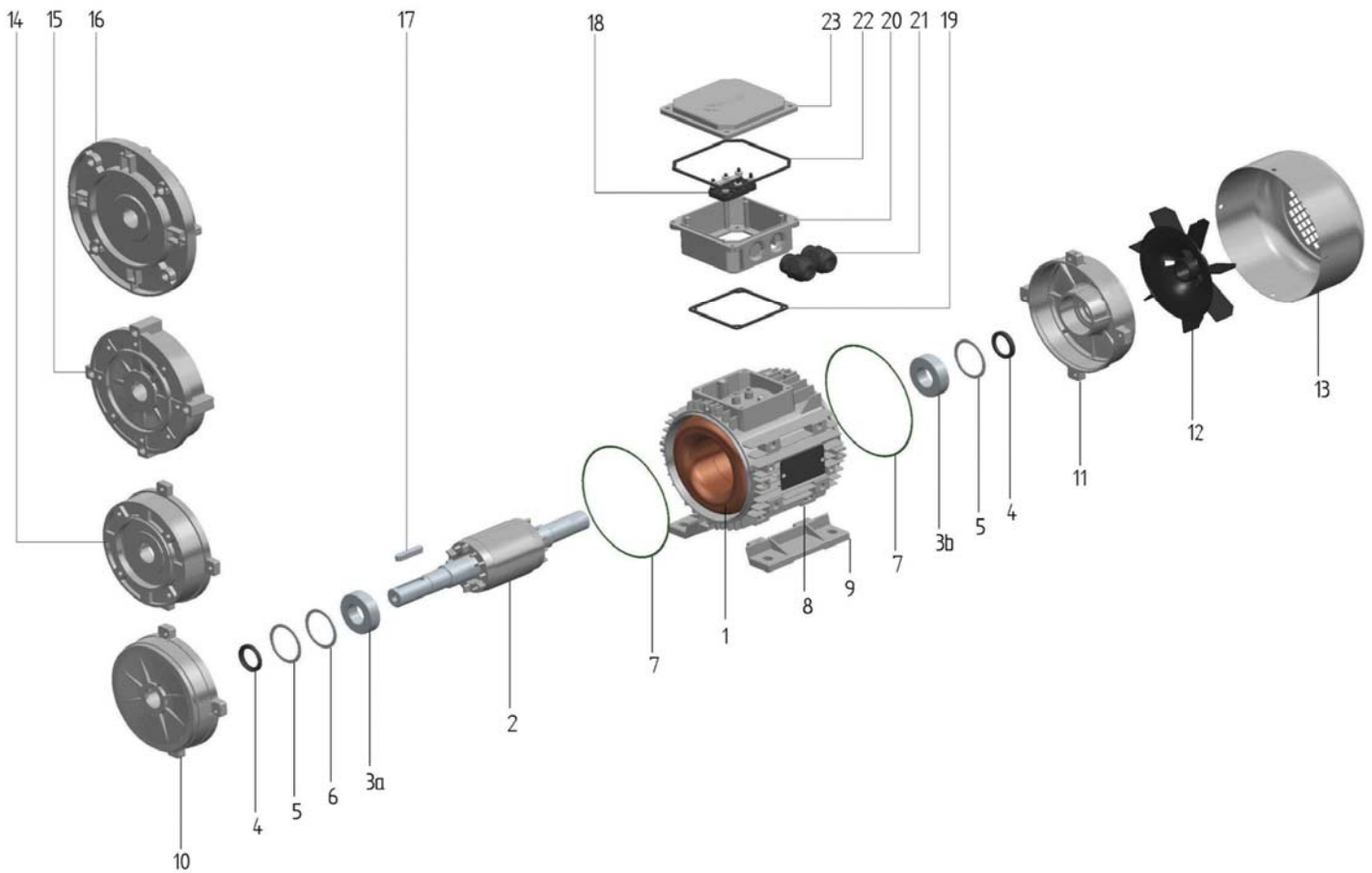
IEC	H	HD	L	AC	A	B	AB	BB	K1	K	HA	C	E	D	DB	GA	FxGD
63	63	168	210	124	100	80	120	100	10	7	7	40	23	11	M4	12.5	4x4
71	71	184	243	138	112	90	135	109	12	7	8	45	30	14	M5	16.0	5x5
80	80	201	273	157	125	100	152	129	13	10	10	50	40	19	M6	21.5	6x6
90S	90	229	305	175	140	100	170	127	13	10	10	58	50	24	M8	27.0	8x8
90L	90	229	333	175	140	125	170	152	13	10	10	58	50	24	M8	27.0	8x8
100	100	251	375	194	160	140	192	165	18	12	10	63	60	28	M10	31.0	8x8
112	112	276	388	218	190	140	230	175	18	12	14	71	60	28	M10	31.0	8x8
132S	132	328	464	258	216	140	260	180	28	12	16	89	80	38	M12	41.0	10x8
132M	132	328	493	258	216	178	260	218	28	12	16	89	80	38	M12	41.0	10x8

IEC B14	P	N	M	T	S	AD
63	90	60	75	2.5	M5	105
71	105	70	85	2.5	M6	113
80	122	80	100	3.0	M6	121
90 S/L	180	95	115	3.0	M8	139
100	160	110	130	3.5	M8	151
112	160	110	130	3.5	M8	164
132	200	130	165	3.5	M10	196



IEC B5	P	N	M	T	S	AD
63	140	95	115	3.0	10	105
71	160	110	130	4.0	10	113
80	200	130	165	3.5	12	121
90 S/L	200	130	165	3.0	12	139
100	250	180	215	4.0	15	151
112	250	180	215	4.0	15	164
132	300	230	265	4.0	15	196





- 1 Stator with Winding
- 2 Rotor
- 3a Front Bearing
- 3b Rear Bearing
- 4 V-Ring
- 5 Bearing Washer
- 6 Release Spring
- 7 Seal
- 8 Motor Frame
- 9 Foot
- 10 Front Cover
- 11 Rear Cover

- 12 Coolant Fan
- 13 Coolant Fan Cover
- 14 B14 Flange
- 15 B14 Big Flange
- 16 B5 Flange
- 17 Key
- 18 Terminal
- 19 Terminal Box Lower Gasket
- 20 Three-Phase Terminal Box (Lower)
- 21 Cable Entry
- 22 Terminal Box Upper Gasket
- 23 Three-Phase Terminal Box (Upper)