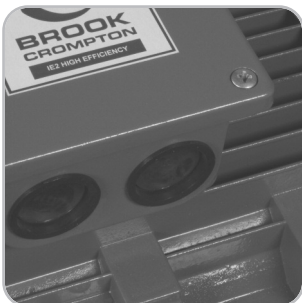
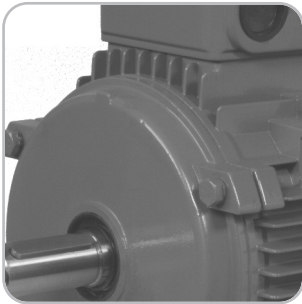


# Series 10

IE1 & IE2 Efficiency Ranges



# Introduction

2

## Specification

Specification	Standard product	Option
<b>Frame material</b>	56- 160 aluminium	-
	180 - 450 cast iron	-
<b>Enclosure</b>	IP55	IP56, IP65 - (IE2 only)
<b>Mounting option</b>	Foot (B3), Flange (B5), Face (B14)	Foot & Flange (B35), Foot & Face (B34)
<b>Terminal box position</b>	Top	-
<b>Voltage</b>	3 kW and below: 230 / 400	-
	4 kW and above: 400 / 690	-
<b>Frequency</b>	50 Hz	60 Hz (IE1 only)
<b>Cooling</b>	IC411	-
<b>Bearing location</b>	56- 160 Non drive end	-
	180 - 450 drive end - (IE2 only)*	-
	180 - 450 non drive end	-
<b>Lubrication</b>	56 - 160 double-shielded bearings	-
	180 - 450 through greasing	-
<b>Insulation</b>	class F	-
<b>Temperature rise</b>	class B	-
<b>Paint colour</b>	water blue (RAL 5021)	-
<b>Fan cover</b>	Steel	-
<b>Thermal protection - IE2</b>	80 -112 - Thermostats	-
	132 - 450 - Thermistors	-
<b>Thermal protection - IE1</b>	63 - 450 -Thermistors	-
<b>Inverter Duty (with derate)</b>	Variable Torque: 10:1	-
	Constant Torque: 2:1	-
<b>Ambient temperature</b>	-20°C to + 40°C	-

The above specification and options give a brief summary of features available for the Series 10 range. For a full listing of optional features, please contact Brook Crompton sales.  
\* Where roller bearing is fitted, bearing is located at NDE

### Brook Crompton

Brook Crompton is a leading provider of electric motors for the global industrial market.

Brook Crompton motors are used in almost every industrial activity including water treatment, building services, chemical/petrochemicals, general processing and manufacturing. They drive fans, pumps, compressors and conveyors.

Brook Crompton incorporates many well known names including Brook Motors, Crompton Parkinson, Electrodrives, Newman and Hawker Siddeley Electric Motors.

There are extensive stocks of motors, backed-up by a network of distributors, ensuring excellent local support wherever needed.

### Quality assurance

Stringent quality procedures are observed from first design to finished product in accordance with the ISO9001 documented quality systems.

All factories have been assessed to meet these requirements.

### Series 10

The Brook Crompton Series 10 range is a high quality standard range of electric motors with a specification suitable for most industrial applications.

It covers outputs from 0.06kW up to 900kW in frame sizes 56 to 450.

### Benefits include:

- Full output range to meet your requirements
- Efficiencies are within the IE1 & IE2 bands (where applicable).
- Robust construction for long life
- Mountings: foot, flange, face or combination
- Multi-mount - aluminium range
- Integrated feet cast iron 180 frame & above.
- Euro voltage: up to 3kW 230/400V; 4kW and above 400/690V
- Dual frequency (50 / 60Hz)^
- IP55
- Metal fan cover
- Metric entries
- Thermal protection fitted as standard
- Inverter duty

^ IE1 only

## Standards

Standards	
Series 10 motors are manufactured to the international standards listed below:	
Performance	IEC 60034-1
Dimensions	IEC 60072-1
Mounting	IEC 60034-7
Enclosure protection	IEC 60034-5
Vibration	IEC 60034-14 (grade A)
Noise	IEC60034-9

## Environment Enclosure

All motors have degrees of IP protection as defined in IEC EN 60034-5. The normal arrangement is IP55. See Specification (page 2) for alternatives.

## Motor cooling

Motors are cooled in accordance with IEC 60034-6. The normal arrangement is IC411 (Totally Enclosed Fan Ventilated) via a fan mounted at the non-drive end. See Specification (page 2) for alternatives.

## European directives

The following European directives apply:

## Directives

Compliance with European directives applying to AC induction motors				
Directives	Low voltage (LV)	Machinery (MD)	Electromagnetic compatibility (EMC)	Energy using products (EuP)
Reference numbers	73/23/EEC 93/68/EEC 2006/95/EC	2006/42/EC 98/79/EC 98/37/EC 93/44/EEC 89/392/EEC	89/336/EEC 92/31/EEC 93/68/EEC 2004/108/EC	92/42/EEC 96/57/EC 2000/55/EC 2005/32/EC
Motor CE marked	Yes	No	No	Yes
Standards	EN 60034	Not applicable	EN 60034-1	EN 60034-30
Documentation for customers' technical file	Declaration of conformity	Certificate of incorporation	Statement <sup>(1)</sup>	Declaration of conformity
Safety instructions with every motor	Yes	Yes	Yes	-
Comment	Relevant electrical equipment operating between 50 to 1000 volts AC	Statement <sup>(2)</sup>	Component	Minimum efficiency levels for motor outputs 0.75 - 375kW 2-6 pole

<sup>(1)</sup> Motors operating from a correctly applied, sinusoidal (AC) supply meet the requirements of the EMC directive and are within the limits specified in standard EN 60034-1

<sup>(2)</sup> When installed in accordance with our customer safety and installation and maintenance instructions, they can be put into service only when the machinery into which they are being incorporated, has been declared to be in conformity with the machinery directive in accordance with Article 4(2) and Annex IIB of that Directive (98/37/EEC)

## Minimum Energy Performance Standard

### The new standard

The EU MEPS scheme sets new **mandatory** minimum efficiency levels for most single speed 3ph induction motors up to 375kW rated up to 1000V, unlike the narrow definition of the CEMEP voluntary scheme which only covered a small number of standard motors.

The Voluntary Agreement, since 1998, of CEMEP for motor manufactures has now expired (classes EFF3 /EFF2/EFF1).

The new standard for motors is now **mandatory** regulation in Europe.

The scope of EU MEPS covers 2, 4 & 6 pole single speed 3ph induction motors from 0.75 to 375kW, rated up to 1000V based on continuous duty operation.

Aiming to reduce energy consumption throughout Europe and the rest of the world, it comes into effect in 3 stages. The effect of this is to maximise potential savings in electric motor driven systems. Base of the regulation is a new international IEC 60034-30 standard. It defines the following efficiency classes :

- IE1** - Standard Efficiency (comparable to EFF2)
- IE2** - High Efficiency (comparable to EFF1 and USA EPACT 60 Hz)
- IE3** - Premium Efficiency (comparable to USA "NEMA Premium" 60 Hz)

## New Efficiency levels in Europe (Time Line)

### Mandatory from:

**From 16 June 2011:**

Minimum efficiency requirement at IE2 for all motors covered 0.75 - 375kW

**From 1 January 2015:**

Minimum efficiency requirement at IE3 level for 7.5 - 375kW motors or IE2 level for motors equipped with an appropriate variable speed drive.

**From 1 January 2017:**

Minimum efficiency requirement at IE3 level for 0.75 - 375kW motors or IE2 level for motors equipped with an appropriate variable speed drive.

# Performance data

IE1

4 3000 min<sup>-1</sup> (2 pole)

Rated power  
Full load speed in revolutions per minute  
Frame reference and size  
Full load current at rated voltage  
Efficiency  
Power factor  
Full load torque  
Direct on line starting torque ratio  
Direct on line pull up torque  
Direct on line pull out torque  
Direct on line starting current ratio  
Rotor inertia Wk<sup>2</sup>  
Mean sound pressure level (a 1m on no load)  
Weight

P <sub>N</sub>		n min <sup>-1</sup>	Type	I <sub>N</sub>			h 1.0 P <sub>N</sub>	Cos Ø 1.0 P <sub>N</sub>	M <sub>N</sub> Nm	M <sub>A</sub> M <sub>N</sub>	M <sub>S</sub> M <sub>N</sub>	M <sub>K</sub> M <sub>N</sub>	I <sub>A</sub> I <sub>N</sub>	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)	kg
kW	hp			380 V A	400 V A	415 V A										
0.09	0.15	2750	B-DA56MA	0.32	0.30	0.29	62.0	0.70	0.31	2.1	-	2.2	5.2	0.00018	-	3.6
0.12	0.20	2750	B-DA56MB	0.38	0.36	0.32	67.0	0.72	0.41	2.1	-	2.2	5.2	0.00023	-	3.9
0.18	0.25	2720	B-DA63MA	0.53	0.50	0.48	65.0	0.80	0.61	2.2	-	2.3	5.5	0.00031	-	4.8
0.25	0.33	2720	B-DA63MB	0.69	0.66	0.63	68.0	0.81	0.96	2.2	-	2.3	5.5	0.0006	-	5.1
0.37	0.5	2740	B-DA71MA	0.99	0.94	0.91	70.0	0.81	1.26	2.2	-	2.3	6.1	0.00075	-	6.0
0.55	0.75	2740	B-DA71MB	1.4	1.33	1.28	73.0	0.82	1.88	2.2	-	2.3	6.1	0.0009	-	6.5
0.75	1.0	2840	B-DA80MA	1.9	1.8	1.74	72.1	0.83	2.52	2.3	-	2.4	6.1	0.0012	56	8.7
1.1	1.5	2840	B-DA80MB	2.65	2.51	2.42	75.0	0.84	3.7	2.4	-	2.4	6.3	0.0014	56	9.5
1.5	2.0	2840	B-DA90SA	3.51	3.33	3.21	77.2	0.84	5.0	2.3	-	2.3	6.5	0.0029	61	11.8
2.2	3.0	2840	B-DA90LA	4.93	4.68	4.51	79.7	0.85	7.4	2.4	-	2.5	6.8	0.0055	62	13.5
3.0	4.0	2860	B-DA100LA	6.41	6.09	5.87	81.5	0.87	10.0	2.4	-	2.4	6.9	0.0109	64	21.0
4.0	5.5	2880	B-DA112MA	8.29	7.88	7.59	83.1	0.88	13.3	2.3	-	2.4	7.0	0.0126	65	28.0
5.5	7.5	2900	B-DA132SA	11.2	10.6	10.3	84.7	0.88	18.1	2.2	-	2.3	7.2	0.0377	68	39.0
7.5	10	2900	B-DA132SB	15.0	14.3	13.8	86.0	0.88	24.7	2.3	-	2.4	6.9	0.0499	68	44.5
11.0	15	2930	B-DA160MA	21.4	20.3	19.6	87.6	0.89	35.9	2.2	-	2.3	6.8	0.055	73	69.5
15.0	20	2930	B-DA160MB	28.8	27.4	26.4	88.7	0.89	48.9	2.3	-	2.3	7.0	0.075	73	78.0
18.5	25	2930	B-DA160LA	34.9	33.2	32.0	89.3	0.90	60.3	2.4	-	2.5	7.0	0.124	73	88.5
22.0	30	2940	B-DF180MA	41.2	39.2	37.7	89.9	0.90	71.5	2.3	-	2.3	6.9	0.075	75	165
30.0	40	2950	B-DF200LA	55.8	53.0	51.1	90.7	0.90	97.1	2.2	-	2.3	7.1	0.124	78	218
37.0	50	2950	B-DF200LB	68.4	65.0	62.6	91.2	0.90	119.8	2.3	-	2.4	7.1	0.139	78	230
45.0	60	2960	BU-DF225M	82.7	78.5	75.7	91.7	0.90	145.2	2.3	-	2.5	6.8	0.233	78	280
55.0	75	2965	BU-DF250M	101	95.7	92.2	92.1	0.90	177.2	2.1	-	2.2	6.8	0.312	79	365
75.0	100	2970	BU-DF280S	137	130	125	92.7	0.90	241.2	2.3	-	2.3	7.1	0.579	80	495
90.0	125	2970	BU-DF280MA	161	153	147	93.0	0.91	289.4	2.2	-	2.4	7.1	0.675	80	565
110.0	150	2975	BU-DF315SA	197	187	180	93.3	0.91	353.1	2.2	-	2.3	7.1	1.18	82	890
132.0	175	2975	BU-DF315MA	235	224	216	93.5	0.91	423.7	2.3	-	2.4	6.9	1.82	82	980
160.0	215	2975	BU-DF315LA	281	267	258	93.8	0.92	513.6	2.2	-	2.3	7.0	2.08	85	1055
200.0	270	2975	BU-DF315LB	351	333	321	94.0	0.92	642	2.2	-	2.3	7.0	2.38	86	1110
250.0	335	2980	BU-DF355M	438	416	401	94.0	0.92	801.2	2.2	-	2.3	7.0	3.0	88	1900
315.0	430	2980	BU-DF355L	552	524	505	94.0	0.92	1009	2.2	-	2.3	7.0	3.5	89	2300
355.0	475	2975	BU-DF355LB	618	585	566	95.9	0.91	1281	1.23	-	2.53	5.80	12.52	-	2604
400.0	535	2975	BU-DF355LC	696	660	637	95.9	0.91	1440	1.64	-	2.03	7.11	13.26	-	3035
450.0	600	2975	BU-DF355LD	783	741	717	96.0	0.91	1681	1.47	-	2.72	6.42	14.21	-	3122
500.0	670	2982	BU-DF400LA	853	814	781	96.3	0.92	1790	1.20	-	2.90	6.14	20.07	-	3340
560.0	750	2982	BU-DF400LB	952	908	871	96.3	0.92	2016	0.98	-	2.57	5.46	20.07	-	3340
630.0	840	2892	BU-DF400LC	1072	1019	981	96.3	0.93	2270	1.38	-	3.42	7.29	27.1	-	4020
710.0	950	2988	BU-DF450LA	1195	1138	1092	96.6	0.94	2269	1.20	-	2.00	7.00	27.6	-	4200
800.0	1080	2986	BU-DF450LB	1340	1276	1227	96.7	0.94	2666	1.20	-	2.00	7.00	28.1	-	4400
900.0	1200	2985	BU-DF450LC	1507	1435	1380	96.7	0.94	2879	1.20	-	2.00	7.00	28.1	-	4650

# Performance data

IE1

5

1500 min<sup>-1</sup> (4 pole)

Rated power		Full load speed in revolutions per minute	Frame reference and size	Full load current at rated voltage			Efficiency	Power factor	Full load torque	Direct on line starting torque ratio	Direct on line pull up torque	Direct on line pull out torque	Direct on line starting current ratio	Rotor inertia Wkg	Mean sound pressure level (a 1m on no load)	Weight
P <sub>N</sub>				I <sub>N</sub>												
kW	hp	n min <sup>-1</sup>	Type	380 V A	400 V A	415 V A	$\frac{h}{1.0 P_N}$	Cos $\emptyset$ 1.0 P <sub>N</sub>	M <sub>N</sub> Nm	$\frac{M_A}{M_N}$	$\frac{M_S}{M_N}$	$\frac{M_K}{M_N}$	$\frac{I_A}{I_N}$	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)	kg
0.06	0.08	1325	B-DA56MA	0.28	0.27	0.26	56.0	0.58	0.43	2.0	-	2.1	4.0	0.0003	-	3.6
0.09	0.12	1325	B-DA56MB	0.39	0.37	0.35	58.0	0.61	0.64	2.0	-	2.1	4.0	0.0004	-	3.9
0.12	0.16	1310	B-DA63MA	0.44	0.42	0.41	57.0	0.72	0.84	2.1	-	2.2	4.4	0.0005	-	4.8
0.18	0.25	1310	B-DA63MB	0.62	0.59	0.57	60.0	0.73	1.26	2.1	-	2.2	4.4	0.0006	-	5.1
0.25	0.33	1330	B-DA71MA	0.79	0.75	0.72	65.0	0.74	1.73	2.1	-	2.2	5.2	0.0008	-	6.0
0.37	0.5	1330	B-DA71MB	1.12	1.06	1.02	67.0	0.75	2.56	2.1	-	2.2	5.2	0.0013	-	6.3
0.55	0.75	1390	B-DA80MA	1.57	1.49	1.43	71.1	0.75	3.75	2.3	-	2.3	5.2	0.0018	-	9.4
0.75	1.0	1390	B-DA80MB	2.08	1.97	1.90	72.1	0.76	5.15	2.3	-	2.3	6.1	0.0021	47	10.8
1.1	1.5	1390	B-DA90SA	2.89	2.74	2.64	75.0	0.77	7.56	2.3	-	2.4	6.3	0.0023	49	12.0
1.5	2.0	1390	B-DA90LA	3.73	3.55	3.42	77.2	0.79	10.3	2.4	-	2.4	6.1	0.0027	49	13.8
2.2	3.0	1390	B-DA100LA	5.17	4.91	4.74	79.7	0.81	15.1	2.3	-	2.4	6.5	0.0054	52	20.8
3.0	4.0	1410	B-DA100LB	6.81	6.47	6.24	81.5	0.82	20.3	2.5	-	2.5	6.5	0.0067	52	23.5
4.0	5.5	1410	B-DA112MA	8.91	8.46	8.16	83.1	0.82	27.1	2.4	-	2.4	7.0	0.0095	53	29.5
5.5	7.5	1435	B-DA132SA	11.9	11.3	10.9	84.7	0.83	36.6	2.3	-	2.4	7.0	0.0214	59	41.0
7.5	10	1440	B-DA132MA	15.7	15.0	14.4	86.0	0.84	49.7	2.3	-	2.3	7.0	0.0296	59	47.5
11.0	15	1440	B-DA160MA	22.7	21.6	20.8	87.6	0.84	72.9	2.2	-	2.3	6.5	0.0747	62	72.5
15.0	20	1460	B-DA160LA	30.2	28.7	27.8	88.7	0.85	98.1	2.2	-	2.2	7.2	0.0918	63	85.6
18.5	25	1460	B-DF180MA	36.4	34.5	33.3	89.3	0.86	121	2.2	-	2.3	7.5	0.139	64	164
22.0	30	1470	B-DF180LA	43.1	41.0	39.5	89.9	0.86	143	2.2	-	2.3	7.2	0.158	64	182
30.0	40	1470	B-DF200L	58.4	55.5	53.4	90.7	0.86	195	2.3	-	2.4	7.1	0.262	66	245
37.0	50	1470	B-DF255S	70.8	67.2	64.8	91.2	0.87	240	2.2	-	2.2	7.1	0.406	68	258
45.0	60	1475	BU-DF225M	85.7	81.4	78.5	91.7	0.87	291	2.3	-	2.3	6.9	0.469	68	290
55.0	75	1475	BU-DF250MA	104	98.9	95.3	92.1	0.87	356	2.1	-	2.2	6.8	0.66	70	388
75.0	100	1480	BU-DF280S	141	134	129	92.7	0.87	484	2.2	-	2.2	7.5	1.12	72	510
90.0	125	1480	BU-DF280MA	169	160	154	93.0	0.87	581	2.1	-	2.2	7.2	1.46	73	606
110.0	150	1480	BU-DF315S	203	193	186	93.3	0.88	710	2.2	-	2.2	6.9	3.11	80	910
132.0	175	1480	BU-DF315M	243	231	223	93.5	0.88	852	2.1	-	2.2	6.9	3.62	80	1000
160.0	215	1480	BU-DF315LA	291	276	266	93.8	0.89	1032	2.1	-	2.2	6.7	4.13	84	1055
200.0	270	1480	BU-DF315LB	363	345	332	94.0	0.89	1291	2.1	-	2.2	6.9	4.73	84	1128
250.0	335	1490	BU-DF355M	449	426	411	94.0	0.90	1602	2.2	-	2.2	6.9	6.5	88	1700
315.0	430	1490	BU-DF355L	565	537	517	94.0	0.90	2019	2.1	-	2.2	6.9	8.2	88	1900
355.0	475	1485	BU-DF355LB	636	604	582	96.4	0.88	2283	1.93	-	2.6	6.50	9.5	-	2150
400.0	535	1485	BU-DF355LC	716	680	655	96.4	0.88	2572	1.80	-	2.6	6.50	10.6	-	2300
450.0	600	1485	BU-DF355LD	797	757	729	96.4	0.89	2894	1.80	-	2.6	6.50	11.5	-	2460
500.0	670	1492	BU-DF400LA	869	831	795	96.4	0.90	3203	1.83	-	2.52	6.19	18.41	-	3132
560.0	750	1492	BU-DF400LB	971	924	889	96.4	0.90	3587	2.02	-	2.67	6.64	19.62	-	3548
630.0	840	1492	BU-DF400LC	1092	1043	1000	96.4	0.91	4035	1.75	-	2.34	5.81	21.33	-	3589
710.0	950	1492	BU-DF450LA	1222	1164	1119	96.4	0.91	4530	1.30	-	2.57	6.17	41.00	-	4055
800.0	1070	1492	BU-DF450LB	1373	1308	1257	96.6	0.93	5100	1.53	-	2.28	6.91	49.50	-	4724
900.0	1200	1492	BU-DF450LC	1571	1496	1438	96.6	0.92	5740	1.75	-	2.34	5.81	49.50	-	4732

# Performance data

IE1

6

1000 min<sup>-1</sup> (6 pole)

Rated power  
Full load speed in revolutions per minute  
Frame reference and size  
Full load current at rated voltage  
Efficiency  
Power factor  
Full load torque  
Direct on line starting torque ratio  
Direct on line pull up torque  
Direct on line pull out torque  
Direct on line starting current ratio  
Rotor inertia Wkg  
Mean sound pressure level (a 1m on no load)  
Weight

P <sub>N</sub>		n min <sup>-1</sup>	Type	I <sub>N</sub>			h 1.0 P <sub>N</sub>	Cos Ø 1.0 P <sub>N</sub>	M <sub>N</sub> Nm	M <sub>A</sub> M <sub>N</sub>	M <sub>S</sub> M <sub>N</sub>	M <sub>K</sub> M <sub>N</sub>	I <sub>A</sub> I <sub>N</sub>	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)	kg
kW	hp			380 V A	400 V A	415 V A										
0.09	0.15	840	B-DA63MA	0.52	0.49	0.47	44.0	0.60	1.02	1.8	-	1.9	3.5	0.00025	-	4.8
0.12	0.20	850	B-DA63MB	0.63	0.60	0.58	48.0	0.60	1.35	1.8	-	1.9	3.5	0.0004	-	5.1
0.18	0.25	850	B-DA71MA	0.74	0.70	0.68	56.0	0.66	2.02	1.9	-	2.0	4.0	0.0011	-	6.0
0.25	0.33	850	B-DA71MB	0.95	0.90	0.87	59.0	0.68	2.80	1.9	-	2.0	4.0	0.0014	-	6.3
0.37	0.5	885	B-DA80MA	1.30	1.23	1.19	62.0	0.70	3.99	1.9	-	2.0	4.7	0.0016	-	8.9
0.55	0.75	885	B-DA80MB	1.78	1.69	1.63	65.0	0.72	5.94	1.9	-	2.1	4.7	0.0019	-	10.4
0.75	1.0	910	B-DA90SA	2.26	2.15	2.07	70.0	0.7	7.8	2.1	-	2.1	5.5	0.0029	45	12.1
1.1	1.5	910	B-DA90LA	3.14	2.98	2.87	72.9	0.73	11.5	2.0	-	2.1	5.5	0.0035	45	13.7
1.5	2.0	920	B-DA100LA	4.04	3.83	3.70	75.2	0.75	15.6	2.0	-	2.0	6.0	0.0069	49	23.0
2.2	3.0	935	B-DA112MA	5.65	5.36	5.17	77.7	0.76	22.5	2.2	-	2.2	6.0	0.014	53	28.2
3.0	4.0	960	B-DA132SA	7.52	7.14	6.88	79.7	0.76	29.8	2.0	-	2.1	6.5	0.0286	57	40.3
4.0	5.5	960	B-DA132MA	9.80	9.31	8.97	81.4	0.76	39.8	2.0	-	2.1	6.5	0.0357	57	43.0
5.5	7.5	960	B-DA132MB	13.1	12.4	12.0	83.1	0.77	54.7	2.2	-	2.2	6.5	0.0449	57	47.2
7.5	10	970	B-DA160MA	17.4	16.6	16.0	84.7	0.77	73.8	2.0	-	2.1	6.7	0.081	61	70.6
11.0	15	970	B-DA160LA	22.2	21.1	20.3	86.4	0.78	108.3	2.2	-	2.3	6.7	0.116	61	85.0
15.0	20	970	B-DF180LA	32.0	30.4	29.3	87.7	0.81	147.7	2.1	-	2.2	6.7	0.207	61	178
18.5	25	980	B-DF200LA	39.1	37.2	35.8	88.6	0.81	180.3	2.2	-	2.2	6.7	0.315	64	200
22.0	30	980	B-DF200LB	45.1	42.8	41.3	89.2	0.83	214.4	2.1	-	2.2	6.7	0.36	64	228
30.0	40	980	BU-DF225M	60.1	57.1	55.0	90.2	0.84	292.3	2.1	-	2.1	7.0	0.547	64	265
37.0	50	980	BU-DF250M	71.9	68.3	65.8	90.8	0.86	360.6	2.1	-	2.2	7.0	0.843	66	370
45.0	60	980	BU-DF280S	86.8	82.5	79.5	91.4	0.86	438.5	2.0	-	2.1	7.0	1.39	68	490
55.0	75	980	BU-DF280MA	106	100	96.7	91.9	0.86	536	2.1	-	2.2	7.0	1.65	68	540
75.0	100	985	BU-DF315SA	143	136	131	92.6	0.86	727	2.1	-	2.2	7.0	4.11	73	900
90.0	125	985	BU-DF315MA	171	162	156	92.9	0.86	873	2.0	-	2.1	6.7	4.78	73	980
110.0	150	985	BU-DF315LA	208	197	190	93.3	0.86	1066	2.0	-	2.1	6.7	5.45	73	1045
132.0	175	985	BU-DF315LB	246	234	226	93.5	0.87	1280	2.0	-	2.1	6.7	6.12	73	1100
160.0	215	985	BU-DF355MA	295	280	270	93.8	0.88	1551	1.9	-	2.0	6.7	9.5	80	1550
200.0	270	985	BU-DF355MB	367	349	336	94.0	0.88	1939	1.9	-	2.0	6.7	10.4	80	1600
250.0	335	985	BU-DF355L	459	436	420	94.0	0.88	2424	1.9	-	2.0	6.7	12.4	80	1700
315.0	420	990	BU-DA355LA	590	557	540	95.5	0.85	3039	2.10	-	2.40	6.50	13.5	-	2310
355.0	480	990	BU-DF355LB	663	628	607	95.7	0.85	3425	2.10	-	2.40	6.50	14.3	-	2490
400.0	544	990	BU-DF400LA	730	701	668	95.9	0.86	3843	2.08	-	2.48	6.38	21.86	-	3560
450.0	612	994	BU-DF400LB	819	783	750	95.9	0.86	4323	2.07	-	2.43	6.31	22.31	-	3840
500.0	680	994	BU-DF400LC	908	871	831	96.1	0.86	4804	1.86	-	2.19	5.72	23.52	-	3870
560.0	760	994	BU-DF450MB	918	874	840	96.0	0.86	4785	1.64	-	2.32	5.99	54.10	-	4200
630.0	850	994	BU-DF450LA	1152	1097	1055	96.1	0.86	6025	1.65	-	2.30	5.99	60.60	-	4620
710.0	960	994	BU-DF450LB	1297	1235	1187	95.9	0.86	6790	1.71	-	2.33	6.13	67.90	-	5080
800.0	1080	994	BU-DF450LC	1450	1381	1327	96.5	0.87	7680	1.52	-	2.06	5.47	67.90	-	5080

# Performance data

750 min<sup>-1</sup> (8 pole)

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P <sub>N</sub>		n min <sup>-1</sup>	Type	I <sub>N</sub>			h 1.0 P <sub>N</sub>	Cos Ø 1.0 P <sub>N</sub>	M <sub>N</sub> Nm	M <sub>A</sub> M <sub>N</sub>	M <sub>S</sub> M <sub>N</sub>	M <sub>K</sub> M <sub>N</sub>	I <sub>A</sub> I <sub>N</sub>	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)	kg
kW	hp			380 V A	400 V A	415 V A										
0.09	0.15	600	B-DA71MA	0.60	0.57	0.55	40.0	0.57	1.3	1.8	-	1.9	2.8	0.0008	48	6.0
0.12	0.20	600	B-DA71MB	0.71	0.70	0.65	45.0	0.57	2.16	1.8	-	1.9	2.8	0.0010	48	6.3
0.18	0.25	645	B-DA80MA	0.88	0.84	0.80	51.0	0.61	2.5	1.8	-	1.9	3.3	0.0025	48	8.9
0.25	0.33	645	B-DA80MB	1.15	1.10	1.06	54.0	0.61	3.5	1.8	-	1.9	3.0	0.0030	48	10.4
0.37	0.5	670	B-DA90S	1.49	1.41	1.4	62.0	0.61	5.1	1.8	-	1.9	4.0	0.0051	53	12.1
0.55	0.75	670	B-DA90LA	2.17	2.07	1.99	63.0	0.61	7.6	1.8	-	2.0	4.0	0.0065	53	13.7
0.75	1.0	680	B-DA100LA	2.40	2.28	2.2	71.0	0.67	10.2	1.8	-	2.0	4.0	0.0095	56	23.0
1.1	1.5	680	B-DA100LB	3.32	3.15	3.04	73.0	0.69	15.0	1.8	-	2.0	5.0	0.0110	56	25.1
1.5	2.0	690	B-DA112MA	4.40	4.18	4.0	75.0	0.69	20.5	1.8	-	2.0	5.0	0.0245	59	28.2
2.2	3.0	705	B-DA132S	6.04	5.73	5.5	78.0	0.71	19.6	1.8	-	2.0	6.0	0.0314	61	40.3
3.0	4.0	705	B-DA132M	7.9	7.51	7.2	79.0	0.73	40.4	1.8	-	2.0	6.0	0.0395	61	45.0
4.0	5.5	720	B-DA160MA	10.3	9.76	9.4	81.0	0.73	53.1	1.9	-	2.0	6.0	0.0753	65	68.5
5.5	7.5	720	B-DA160MB	13.6	12.9	12.5	83.0	0.74	72.6	2.0	-	2.0	6.0	0.0931	65	76.0
7.5	10	720	B-DA160L	17.8	16.9	16.3	85.5	0.75	99.5	2.0	-	2.0	6.0	0.1260	65	86.2
11.0	15	730	B-DF180L	25.1	23.9	23	87.5	0.76	143.9	2.0	-	2.0	6.0	0.203	70	160
15.0	20	730	B-DF200L	34.1	32.4	31.2	88.0	0.76	196.2	2.0	-	2.0	6.6	0.399	73	228
18.5	25	730	BU-DF225S	41.1	39	37.6	90.0	0.76	242.0	1.9	-	2.0	6.6	0.491	73	242
22.0	30	730	BU-DF225M	47.4	45	43.4	90.5	0.78	287.8	1.9	-	2.0	6.6	0.547	73	265
30.0	40	735	BU-DF250M	63.4	60.2	58.1	91.0	0.79	382.5	1.9	-	2.0	6.6	0.834	75	368
37.0	50	735	BU-DF280S	77.8	73.9	71.2	91.5	0.79	484.0	1.9	-	2.0	6.6	1.93	76	472
45.0	60	735	BU-DF280M	94.1	89.4	86.1	92.0	0.79	580.7	1.8	-	2.0	6.6	3.65	76	538
55.0	75	735	BU-DF315SA	111	106	102	92.8	0.81	709.8	1.8	-	2.0	6.6	4.79	82	900
75.0	100	735	BU-DF315MA	151	144	139	93.0	0.81	967.9	1.8	-	2.0	6.6	5.58	82	1000
90.0	125	735	BU-DF315LA	178	169	163	93.8	0.82	1161.5	1.8	-	2.0	6.6	6.37	82	1055
110.0	150	735	BU-DF315LB	217	206	199	94.0	0.82	1419.6	1.8	-	2.0	6.4	7.23	82	1118
132.0	175	740	BU-DF355MA	261	248	239	93.7	0.82	1692.1	1.8	-	2.0	6.4	7.9	90	2000
160.0	215	740	BU-DF355MB	315	299	288	94.2	0.82	2051.0	1.8	-	2.0	6.4	10.3	90	2150
200.0	270	740	BU-DF355L	387	368	355	94.5	0.83	2563.4	1.8	-	2.0	6.4	12.3	90	2250
250.0	340	740	BU-DF355LB	511	485	468	95.3	0.78	3226	1.80	-	2.0	6.5	14.53	-	2460
315.0	420	740	BU-DF355LC	642	610	588	95.5	0.78	4065	1.80	-	2.0	6.5	15.39	-	2750
355.0	480	745	BU-DF400LB	667	641	610	95.6	0.85	4557	1.72	-	2.25	5.84	29.76	-	3592
400.0	540	745	BU-DF400LC	750	723	687	95.6	0.85	5128	1.96	-	2.44	6.39	31.34	-	3949
450.0	600	745	BU-DF450LB	858	817	785	95.7	0.83	5740	1.62	-	2.18	5.43	75.20	-	4660
500.0	675	745	BU-DF450LC	959	913	878	95.7	0.83	6675	1.74	-	2.23	5.65	79.30	-	4870

# Performance data

IE2

8

3000 min<sup>-1</sup> (2 pole)

Rated power  
Full load speed in revolutions per minute  
Frame reference and size  
Full load current at rated voltage  
Efficiency  
Power factor  
Full load torque  
Direct on line starting torque ratio  
Direct on line pull up torque  
Direct on line pull out torque  
Direct on line starting current ratio  
Rotor inertia W/Kg  
Mean Sound pressure level (a 1m on no load)  
Weight

P <sub>N</sub>		n min <sup>-1</sup>	Type	I <sub>N</sub>			h 1.0 P <sub>N</sub>	Cos Ø 1.0 P <sub>N</sub>	M <sub>N</sub> Nm	M <sub>A</sub> M <sub>N</sub>	M <sub>S</sub> M <sub>N</sub>	M <sub>K</sub> M <sub>N</sub>	I <sub>A</sub> I <sub>N</sub>	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)	kg
kW	hp			380 V A	400 V A	415 V A										
0.75	1.0	2875	A-DA80MA	1.77	1.68	1.62	77.4	0.83	2.49	2.5	-	3.0	5.3	0.0012	56	12.0
1.1	1.5	2875	A-DA80MB	2.50	2.37	2.29	79.6	0.84	3.65	3.2	-	3.8	7.0	0.0014	57	13.5
1.5	2.0	2890	A-DA90SA	3.32	3.16	3.04	81.3	0.84	4.96	2.7	-	3.5	7.1	0.0029	61	17.5
2.2	3.0	2890	A-DA90LA	4.72	4.48	4.32	83.2	0.85	7.27	2.4	-	3.0	6.9	0.0055	61	22.0
3.0	4.0	2890	A-DA100LA	6.17	5.86	5.65	84.6	0.87	9.91	3.2	-	4.0	8.0	0.0109	63	29.0
4.0	5.5	2900	A-DA112MA	8.04	7.64	7.36	85.8	0.88	13.1	2.5	-	3.0	7.5	0.0126	65	32.0
5.5	7.5	2930	A-DA132SA	11.2	10.6	10.2	87.0	0.86	17.9	2.7	-	3.5	7.5	0.0377	68	47.5
7.5	10	2940	A-DA132SB	14.6	13.9	13.4	88.1	0.88	24.4	2.4	-	3.3	7.5	0.0499	68	53.0
11.0	15	2930	A-DA160MA	21.0	19.9	19.2	89.4	0.89	35.9	2.2	-	2.9	7.6	0.055	72	96.0
15.0	20	2930	A-DA160MB	28.4	26.9	26.0	90.3	0.89	48.9	2.3	-	3.0	7.6	0.075	73	105
18.5	25	2940	A-DA160LA	34.7	33.0	31.8	90.9	0.89	60.2	2.3	-	3.1	7.4	0.124	73	115
22.0	30	2940	A-DF180MA	41.6	39.5	38.1	91.3	0.88	71.5	2.8	-	3.2	7.8	0.075	74	187
30.0	40	2950	A-DF200LA	56.2	53.4	51.5	92.0	0.88	97.1	2.6	-	3.0	7.8	0.124	77	241
37.0	50	2950	A-DF200LB	68.2	64.8	62.5	92.5	0.89	119.8	2.6	-	3.0	7.7	0.139	77	261
45.0	60	2960	AU-DF225M	82.5	78.4	75.6	92.9	0.89	145.2	2.4	-	2.6	7.5	0.233	77	348
55.0	75	2965	AU-DF250M	99.5	94.5	91.1	93.2	0.90	177.2	2.3	-	2.8	7.1	0.312	80	400
75.0	100	2970	AU-DF280S	135	128	123	93.8	0.90	241.2	2.5	-	2.8	7.4	0.579	80	540
90.0	125	2970	AU-DF280MA	160	152	146	94.1	0.91	289.4	2.8	-	2.8	7.6	0.675	80	588
110.0	150	2975	AU-DF315SA	194	185	178	94.3	0.91	353.1	2.4	-	2.8	6.9	1.18	81	948
132.0	175	2975	AU-DF315MA	233	221	213	94.6	0.91	423.7	2.6	-	2.9	7.1	1.82	81	1009
160.0	215	2975	AU-DF315LA	278	265	255	94.8	0.92	513.6	2.5	-	2.9	7.1	2.08	85	1111
200.0	270	2975	AU-DF315LB	348	330	318	95.0	0.92	642	2.5	-	2.8	6.9	2.38	85	1142
250.0	335	2980	AU-DF355M	434	412	398	95.0	0.92	801.2	2.5	-	2.8	7.0	3.0	88	1938
315.0	430	2980	AU-DF355L	547	520	501	95.0	0.92	1009	2.5	-	2.9	7.0	3.5	88	2346

IE2 efficiency 0.75 to 375kW



# Performance data

IE2

9

1500 min<sup>-1</sup> (4 pole)

P <sub>N</sub>		n min <sup>-1</sup>	Type	I <sub>N</sub>			h 1.0 P <sub>N</sub>	Cos φ 1.0 P <sub>N</sub>	M <sub>N</sub> Nm	M <sub>A</sub> M <sub>N</sub>	M <sub>S</sub> M <sub>N</sub>	M <sub>K</sub> M <sub>N</sub>	I <sub>A</sub> I <sub>N</sub>	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)	kg
kW	hp			380 V A	400 V A	415 V A										
0.75	1.0	1400	A-DA80MB	1.88	1.78	1.72	79.6	0.76	5.12	2.4	-	2.9	5.0	0.0021	46	14.5
1.1	1.5	1440	A-DA90SA	2.66	2.53	2.44	81.4	0.77	7.3	3.0	-	3.5	6.0	0.0023	48	18.5
1.5	2.0	1445	A-DA90LA	3.57	3.39	3.27	82.8	0.77	9.9	3.2	-	3.8	6.8	0.0027	48	21.0
2.2	3.0	1440	A-DA100LA	4.88	4.64	4.47	84.3	0.81	14.6	3.0	-	3.5	7.0	0.0054	52	31.0
3.0	4.0	1440	A-DA100LB	6.50	6.18	5.95	85.5	0.82	19.9	2.6	-	3.3	7.0	0.0067	52	37.0
4.0	5.5	1445	A-DA112MA	8.55	8.12	7.83	86.6	0.82	26.4	3.5	-	4.0	7.5	0.0095	53	42.0
5.5	7.5	1455	A-DA132SA	11.5	10.9	10.5	87.7	0.83	36.1	2.2	-	2.8	6.4	0.0214	59	52.5
7.5	10	1455	A-DA132MA	15.3	14.5	14.0	88.7	0.84	49.2	2.4	-	3.0	7.0	0.0296	59	64.0
11.0	15	1460	A-DA160MA	22.1	21.0	20.3	89.8	0.84	71.9	2.5	-	2.9	6.9	0.0747	62	99.0
15.0	20	1460	A-DA160LA	29.6	28.1	27.1	90.6	0.85	98.1	2.5	-	3.0	7.5	0.0918	62	114
18.5	25	1470	A-DF180MA	35.8	34.0	32.8	91.2	0.86	120	2.6	-	3.1	7.8	0.139	64	185
22.0	30	1470	A-DF180LA	42.3	40.2	38.8	91.6	0.86	143	2.6	-	3.1	7.5	0.158	64	200
30.0	40	1470	A-DF200L	57.3	54.4	52.5	92.3	0.86	195	2.4	-	2.9	7.1	0.262	64	270
37.0	50	1480	A-DF255S	69.7	66.2	63.8	92.7	0.87	239	2.5	-	2.7	7.5	0.406	64	310
45.0	60	1480	AU-DF225M	84.3	80.1	77.2	93.1	0.87	291	2.5	-	2.8	7.6	0.469	65	340
55.0	75	1480	AU-DF250MA	103	97.5	94.0	93.5	0.87	355	2.6	-	2.7	7.3	0.66	66	413
75.0	100	1480	AU-DF280S	139	132	127	94.0	0.87	484	2.7	-	2.7	7.6	1.12	69	530
90.0	125	1480	AU-DF280MA	167	158	153	94.2	0.87	581	2.7	-	2.7	7.5	1.46	69	630
110.0	150	1485	AU-DF315S	201	191	184	94.5	0.88	707	2.7	-	2.9	7.1	3.11	77	950
132.0	175	1485	AU-DF315M	240	228	220	94.7	0.88	849	2.7	-	2.9	7.3	3.62	77	1037
160.0	215	1485	AU-DF315LA	288	273	263	94.9	0.89	1029	3.0	-	3.0	7.4	4.13	82	1107
200.0	270	1485	AU-DF315LB	359	341	328	95.1	0.89	1286	3.0	-	3.0	7.6	4.73	82	1225
250.0	335	1490	AU-DF355M	443	421	406	95.1	0.90	1602	2.8	-	2.9	7.5	6.5	84	1734
315.0	430	1490	AU-DF355L	559	531	511	95.1	0.90	2019	2.6	-	2.8	7.4	8.2	84	1940

IE2 efficiency 0.75 to 375kW

# Performance data

IE2

10

1000 min<sup>-1</sup> (6 pole)

Rated power  
Full load speed in revolutions per minute  
Frame reference and size  
Full load current at rated voltage  
Efficiency  
Power factor  
Full load torque  
Direct on line starting torque ratio  
Direct on line pull up torque  
Direct on line pull out torque  
Direct on line starting current ratio  
Rotor inertia Wk<sup>2</sup>  
Mean Sound pressure level @ 1m on no load  
Weight

P <sub>N</sub>		n min <sup>-1</sup>	Type	I <sub>N</sub>			h 1.0 P <sub>N</sub>	Cos Ø 1.0 P <sub>N</sub>	M <sub>N</sub> Nm	M <sub>A</sub> M <sub>N</sub>	M <sub>S</sub> M <sub>N</sub>	M <sub>K</sub> M <sub>N</sub>	I <sub>A</sub> I <sub>N</sub>	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)	kg
kW	hp			380 V A	400 V A	415 V A										
0.75	1.0	935	A-DA90SA	2.08	1.98	1.90	75.9	0.72	7.67	2.2	-	2.4	4.5	0.0029	45	18.5
1.1	1.5	945	A-DA90LA	2.97	2.82	2.72	78.1	0.72	11.1	2.4	-	2.6	4.5	0.0035	45	21.0
1.5	2.0	945	A-DA100LA	3.80	3.61	3.48	79.8	0.75	15.2	1.8	-	2.2	4.2	0.0069	49	28.5
2.2	3.0	960	A-DA112MA	5.37	5.10	4.92	81.8	0.76	21.9	2.3	-	2.8	4.5	0.014	53	33.5
3.0	4.0	965	A-DA132SA	7.19	6.83	6.58	83.3	0.76	29.7	1.8	-	2.4	4.5	0.0286	53	44.0
4.0	5.5	965	A-DA132MA	9.43	8.96	8.63	84.6	0.76	39.6	2.3	-	2.7	5.0	0.0357	55	53.0
5.5	7.5	965	A-DA132MB	12.6	12.0	11.5	86.0	0.77	54.4	1.9	-	2.8	5.5	0.0449	55	63.5
7.5	10	970	A-DA160MA	16.7	15.9	15.3	87.2	0.78	73.8	2.0	-	3.0	6.5	0.081	57	100
11.0	15	970	A-DA160LA	24.1	22.9	22.1	88.7	0.78	108.3	2.4	-	3.3	7.5	0.116	57	113
15.0	20	975	A-DF180LA	31.4	29.8	28.7	89.7	0.81	147	2.0	-	2.7	6.4	0.207	58	198
18.5	25	980	A-DF200LA	38.3	36.4	35.1	90.4	0.81	180	2.3	-	3.0	7.0	0.315	58	236
22.0	30	980	A-DF200LB	44.3	42.0	40.5	90.9	0.83	214	2.3	-	2.8	7.0	0.36	61	251
30.0	40	980	AU-DF225M	59.2	56.2	54.2	91.7	0.84	292	2.2	-	2.7	6.5	0.547	62	317
37.0	50	980	AU-DF250M	70.8	67.3	64.8	92.2	0.86	361	2.5	-	2.7	6.9	0.843	62	397
45.0	60	980	AU-DF280S	85.8	81.5	78.5	92.7	0.86	439	2.2	-	2.4	7.0	1.39	63	513
55.0	75	980	AU-DF280MA	104	99.2	95.6	93.1	0.86	536	2.4	-	2.5	7.1	1.65	64	562
75.0	100	985	AU-DF315SA	141	134	129	93.7	0.86	727	2.8	-	3.0	7.3	4.11	68	933
90.0	125	985	AU-DF315MA	169	160	155	94.0	0.86	873	2.7	-	2.9	7.1	4.78	68	1013
110.0	150	985	AU-DF315LA	206	196	189	94.3	0.86	1066	2.9	-	2.9	7.4	5.45	73	1086
132.0	175	985	AU-DF315LB	243	231	223	94.6	0.87	1280	3.0	-	3.1	7.6	6.12	73	1208
160.0	215	990	AU-DF355MA	291	277	267	94.8	0.88	1543	3.1	-	3.1	7.6	9.5	78	1581
200.0	270	990	AU-DF355MB	363	345	333	95.0	0.88	1929	3.0	-	3.0	7.8	10.4	78	1632
250.0	335	990	AU-DF355L	454	432	416	95.0	0.88	2412	3.1	-	3.0	7.7	12.4	78	1734

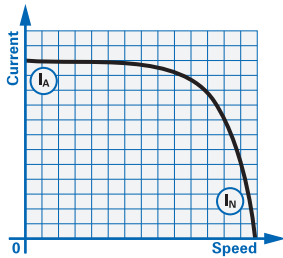
IE2 efficiency 0.75 to 375kW

# Performance data notes

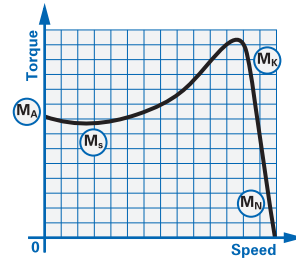
## Speed / torque & speed / current curves

DOL starting

Typical speed/current curve



Typical speed/torque curve



- (I<sub>A</sub>) Starting current
- (I<sub>N</sub>) Full load current
- (M<sub>A</sub>) Starting torque or locked rotor torque
- (M<sub>S</sub>) Pull up torque or run up torque
- (M<sub>K</sub>) Pull out torque or breakdown torque
- (M<sub>N</sub>) Full load torque

Torque/speed curves for specific motors can be supplied on request.

During the run up period in Star, there must be an adequate excess of motor torque over the load torque. The change to Delta must not occur until the motor is near the operating speed. Refer to Brook Crompton for running up against a load in excess of 70% full load during Star Delta starting.

Performance figures are subject to IEC tolerances. Performance figures are based on a 400 volt winding.

$$J \text{ (WK}^2 \text{ or WR}^2) = \frac{GD^2}{4}$$

$$J \text{ in lb ft}^2 = \frac{\text{kgm}^2}{0.042}$$

## Connection diagrams

Star Delta	Dual voltage	Thermistors - (PTC)	Thermostats - (PTO)
<p>Motors =&gt; 4kW</p>		<p>Connect to thermistor control unit.</p>	<p>Connect to overload protection circuit</p>

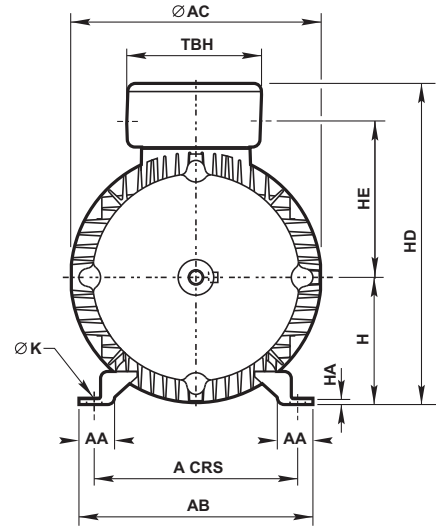
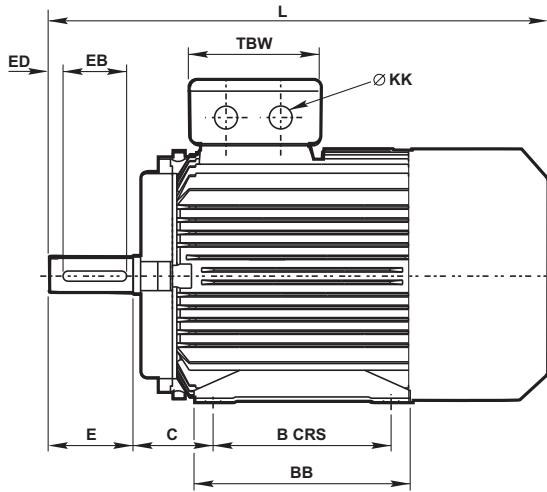
# Dimensions

IE1

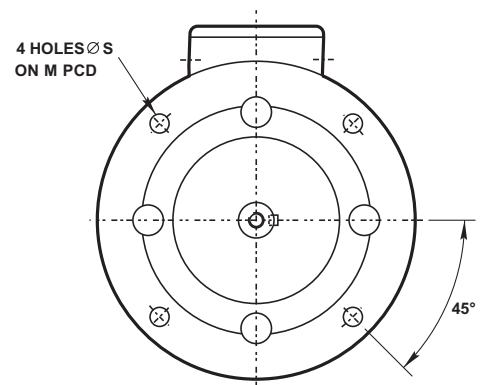
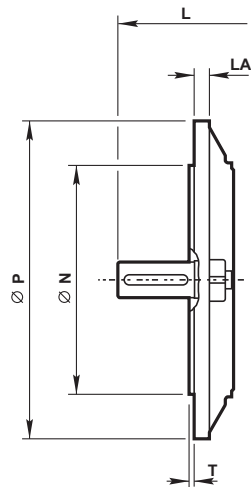
12

Foot, flange and face mounting - frame sizes 56 to 160 aluminium

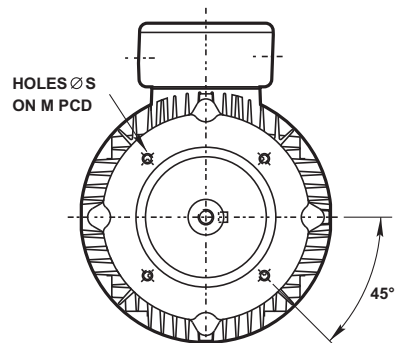
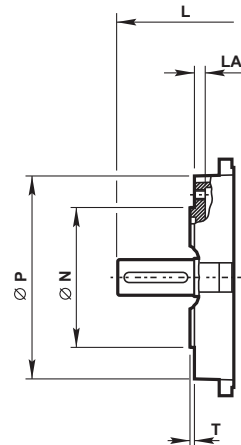
IM B3  
IM 1001  
Mounting options



IM B5/IM B35  
IM 3001/IM 2001  
Mounting options



IM B14/IM B34  
IM 3601/IM 2101  
Mounting options

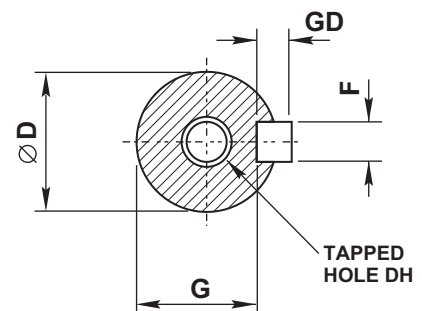


## Foot, flange and face mounting - frame sizes 56 to 160 aluminium

General																
Type	Terminal box															
Aluminium	A	B	C	H	K	L	AA	AB	AC	BB	HA	HD	HE	TBW	TBH	KK
B-DA56M	90	71	36	56	5.8 x 8.3	199	23	111	113	88	7	153	72	86	86	1 x M20
B-DA63M	100	80	40	63	7 x 9.5	217	24	123	120	100	7	166	78	101	101	1 x M20
B-DA71M	112	90	45	71	7 x 11	245	26	138	136	110	8	183	87	101	101	1 x M20
B-DA80M	125	100	50	80	10 x 14	287	35	157	155	125	9	205	102.5	101	101	1 x M25
B-DA90S	140	100	56	90	10 x 14	310	37	173	175	125	10	228	107.5	109	109	1 x M25
B-DA90L	140	125	56	90	10 x 14	335	37	173	175	150	10	228	107.5	109	109	1 x M25
B-DA100L	160	140	63	100	12 x 16	383	40	196	195	172	11	252	121.5	109	109	1 x M32
B-DA112M	190	140	70	112	12 x 16	401	41	227	219	180	12	294	147.5	119	119	2 x M32
B-DA132S	216	140	89	132	12 x 16	475	51	262	258	186	15	320	153.5	119	119	2 x M32
B-DA132M	216	178	89	132	12 x 16	513	51	262	258	224	15	320	153.5	119	119	2 x M32
B-DA160M	254	210	108	160	15 x 18	609	55	304	315	260	18	397	194.5	155	164	2 x M40
B-DA160L	254	254	108	160	15 x 18	653	55	304	315	304	18	397	194.5	155	164	2 x M40

Flange & Face														
Type	IM B5 mounting							IM B14 mounting						
	M	N	P	S	T	LA	M	N	P	S	T	LA		
B-DA56M	100	80	120	7	3	8	65	50	80	M5	2.5	-		
B-DA63M	115	95	140	10	3	10	75	60	90	M5	2.5	-		
B-DA71M	130	110	160	10	3.5	10	85	70	105	M6	2.5	-		
B-DA80M	165	130	200	12	3.5	12	100	80	120	M6	3.0	-		
B-DA90S	165	130	200	12	3.5	11	115	95	140	M8	3.0	14		
B-DA90L	165	130	200	12	3.5	11	115	95	140	M6	3.0	14		
B-DA100L	215	180	250	14.5	4.0	13	130	110	160	M8	3.5	15		
B-DA112M	215	180	250	14.5	4.0	14	130	110	160	M8	3.5	15		
B-DA132S	265	230	300	14.5	4.0	14	165	130	200	M10	3.5	17		
B-DA132M	265	230	300	14.5	4.0	14	165	130	200	M10	3.5	17		
B-DA160M	300	250	350	18.5	5.0	15	215	180	250	M12	4	-		
B-DA160L	300	250	350	18.5	5.0	15	215	180	250	M12	4	-		

Shaft								
Type	D	E	F	G	GD	EB	ED	DH
B-DA56	9	20	3	7.2	3	16	2	M4
B-DA63	11	23	4	8.5	4	16	3.5	M4
B-DA71	14	30	5	11	5	25	2.5	M5
B-DA80	19	40	6	15.5	6	30	5	M6
B-DA90	24	50	8	20	7	40	5	M8
B-DA100	28	60	8	24	7	50	5	M10
B-DA112M	28	60	8	24	7	50	5	M10
B-DA132	38	80	10	33	8	65	7.5	M12
B-DA160	42	110	12	37	8	90	10	M16



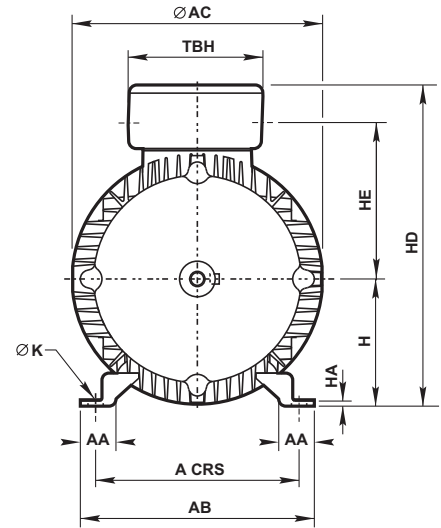
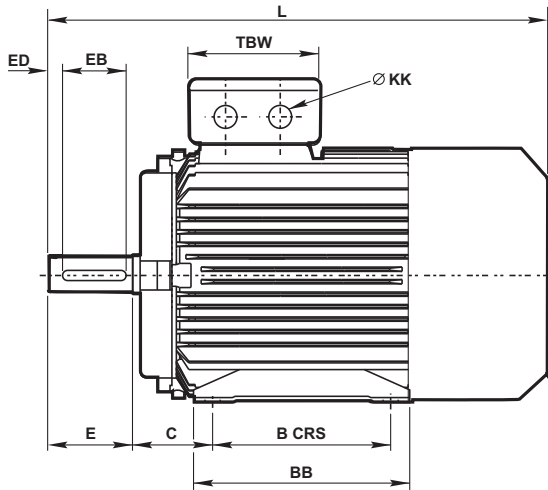
# Dimensions

IE1

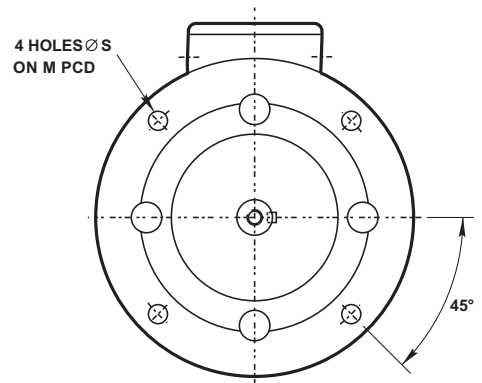
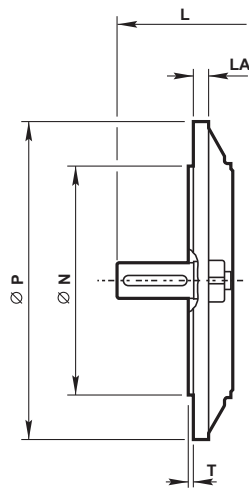
14

Foot and flange mounting - frame sizes 180 to 355 cast iron

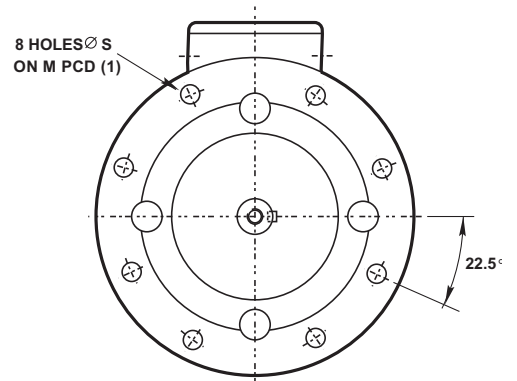
IM B3  
IM 1001  
Mounting options



IM B5/IM B35  
IM 3001/IM 2001  
Mounting options



Up to 200 frame



8 holes at 22.5° for flanges to suit 225 frames and above to European specification

# Dimensions

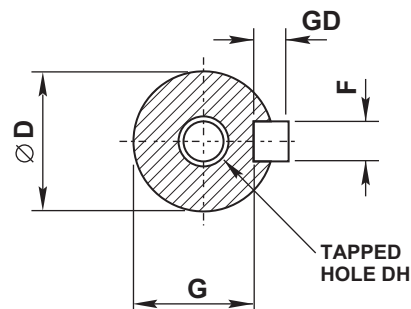
IE1

15

Foot and flange mounting - frame sizes 180 to 355 cast iron

General																			
Type																Terminal box			
Cast iron	A	B	C	H	K	4 Pole +		2 Pole		AA	AB	AC	BB	HA	HD	HE	TBW	TBH	KK
B-DF180M	279	241	121	180	14.5	688	688	70	349	355	311	22	450	229	152	162	2 x M40		
B-DF180L	279	279	121	180	14.5	726	726	70	349	355	349	22	450	229	152	162	2 x M40		
B-DF200L	318	305	133	200	16.5	771	771	70	388	397	369	25	504	249	190	210	2 x M50		
BU-DF225S	356	286	149	225	18.5	824	-	75	431	446	368	28	552	270	190	210	2 x M50		
BU-DF225M	356	311	149	225	18.5	849	819	75	431	446	393	28	552	270	190	210	2 x M50		
BU-DF250M	406	349	168	250	24	910	910	80	484	485	445	30	613	299	218	248	2 x M63		
BU-DF280S	457	368	190	280	24	982	982	85	542	547	485	35	667	333	218	248	2 x M63		
BU-DF280M	457	419	190	280	24	1033	1033	85	542	547	536	35	667	333	218	248	2 x M63		
BU-DF315S	508	406	216	315	28	1208	1178	120	628	620	570	45	842	445	280	320	2 x M63		
BU-DF315M	508	457	216	315	28	1318	1288	120	628	620	680	45	842	445	280	320	2 x M63		
BU-DF315L	508	508	216	315	28	1318	1288	120	628	620	680	45	842	445	280	320	2 x M63		
BU-DF355M	610	560	254	355	28	1556	1487	116	726	698	750	52	997	544.5	330	380	2 x M63		
BU-DF355L	610	630	254	355	28	1556	1487	116	726	698	750	52	997	544.5	330	380	2 x M63		

Flange						
Type	IM B5, IM B35 mounting					
Cast iron	M	N	P	S	T	LA
B-DF180M/L	300	250	350	18.5	5	15
B-DF200L	350	300	400	18.5	5	17
BU-DF225S/M	400	350	450	18.5	5	20
BU-DF250	500	450	550	18.5	5	22
BU-DF280	500	450	550	18.5	5	22
BU-DF315S/M/L	600	550	660	24	6	22
BU-DF355M/L	740	680	800	24	6	25



Shaft																
Type	4 pole +								2 pole							
	D	E	F	G	GD	EB	ED	DH	D	E	F	G	GD	EB	ED	DH
B-DF180M/L	48	110	14	42.5	9	90	10	M16	48	110	14	42.5	9	90	10	M16
BU-DF200L	55	110	16	49	10	100	5	M20	55	110	16	49	10	100	5	M20
BU-DF225S	60	140	18	53	11	125	7.5	M20	-	-	-	-	-	-	-	-
BU-DF225M	60	140	18	53	11	125	7.5	M20	55	110	16	49	10	100	5	M20
BU-DF250M	65	140	18	58	11	125	7.5	M20	60	140	18	53	11	125	7.5	M20
BU-DF280S/M	75	140	20	67.5	12	125	7.5	M20	65	140	18	58	11	125	7.5	M20
BU-DF315S/M/L	80	170	22	71	14	160	5	M20	65	140	18	58	11	125	7.5	M20
BU-DF355M/L	100	210	28	90	16	200	5	M24	75	140	20	67.5	12	125	7.5	M20

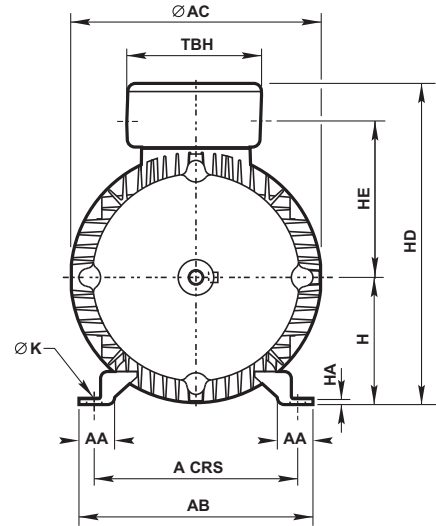
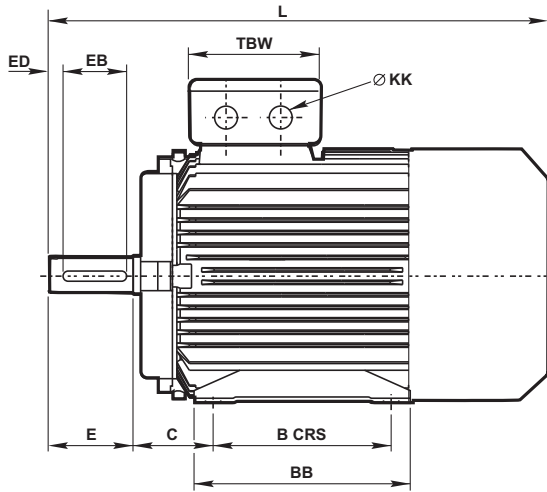
# Dimensions

IE2

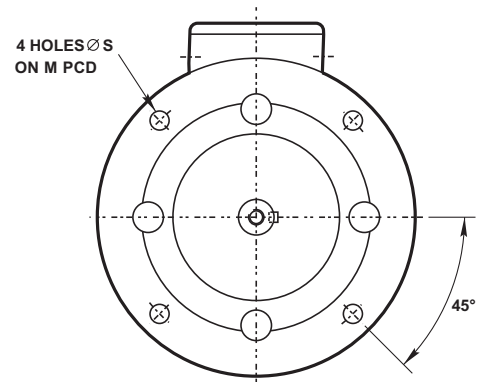
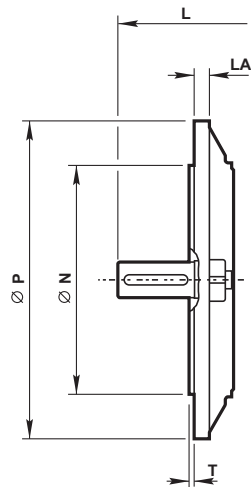
16

Foot, flange and face mounting - frame sizes 80 to 160 aluminium

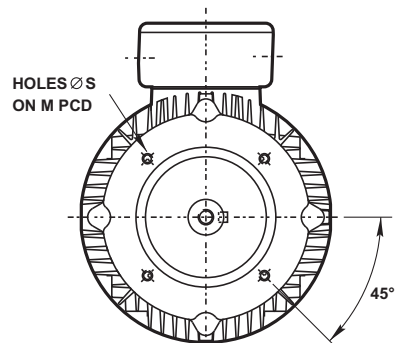
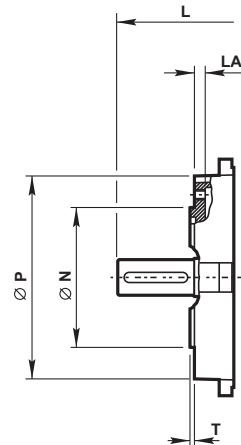
IM B3  
IM 1001  
Mounting options



IM B5/IM B35  
IM 3001/IM 2001  
Mounting options



IM B14/IM B34  
IM 3601/IM 2101  
Mounting options



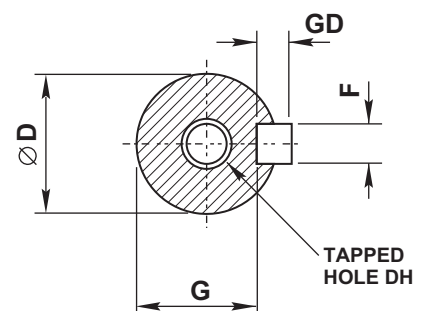


## Foot, flange and face mounting - frame sizes 80 to 160 aluminium

General															Terminal box		
Type	A	B	C	H	K	L	AA	AB	AC	BB	HA	HD	HE	TBW	TBH	KK	
A-DA80M	125	100	50	80	10 x 14	290	35	157	158	125	8	213	104	101	101	1 x M25	
A-DA90S	140	100	56	90	10 x 14	325	37	173	175	125	10	233	112	109	109	1 x M25	
A-DA90L	140	125	56	90	10 x 14	350	37	173	175	150	10	233	112	109	109	1 x M25	
A-DA100L	160	140	63	100	12 x 16	398	40	196	198	172	11	260	124	109	109	1 x M32	
A-DA112M	190	140	70	112	12 x 16	440	41	227	219	180	12	281	135	119	119	2 x M32	
A-DA132S	216	140	89	132	12 x 16	475	51	262	258	186	15	320	153.5	119	119	2 x M32	
A-DA132M	216	178	89	132	12 x 16	513	51	262	258	224	15	320	153.5	119	119	2 x M32	
A-DA160M	254	210	108	160	15 x 18	609	55	304	315	260	18	402	194.5	155	164	2 x M40	
A-DA160L	254	254	108	160	15 x 18	653	55	304	315	304	18	402	194.5	155	164	2 x M40	

Flange & Face													
Type	IM B5 mounting						IM B14 mounting						
	M	N	P	S	T	LA	M	N	P	S	T	LA	
A-DA80M	165	130	200	12	3.5	12	100	80	120	M6	3.0	-	
A-DA90S	165	130	200	12	3.5	11	115	95	140	M8	3.0	14	
A-DA90L	165	130	200	12	3.5	11	115	95	140	M6	3.0	14	
A-DA100L	215	180	250	14.5	4.0	13	130	110	160	M8	3.5	15	
A-DA112M	215	180	250	14.5	4.0	14	130	110	160	M8	3.5	15	
A-DA132S	265	230	300	14.5	4.0	14	165	130	200	M10	3.5	17	
A-DA132M	265	230	300	14.5	4.0	14	165	130	200	M10	3.5	17	
A-DA160M	300	250	350	18.5	5.0	15	215	180	250	M12	4	-	
A-DA160L	300	250	350	18.5	5.0	15	215	180	250	M12	4	-	

Shaft								
Type	D	E	F	G	GD	EB	ED	DH
A-DA80	19	40	6	15.5	6	30	5	M6
A-DA90	24	50	8	20	7	40	5	M8
A-DA100	28	60	8	24	7	50	5	M10
A-DA112M	28	60	8	24	7	50	5	M10
A-DA132	38	80	10	33	8	65	7.5	M12
A-DA160	42	110	12	37	8	90	10	M16



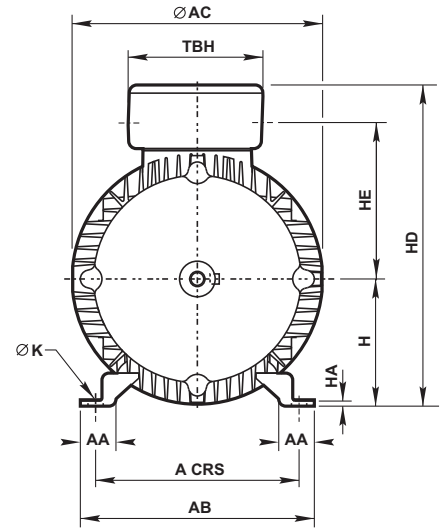
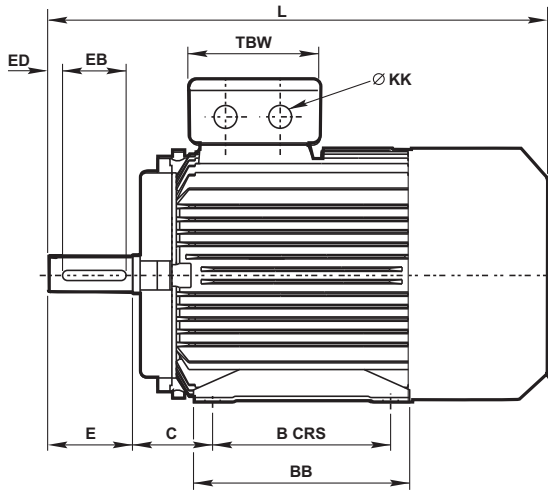
# Dimensions

IE2

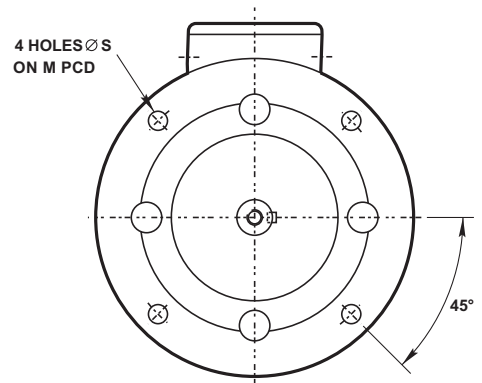
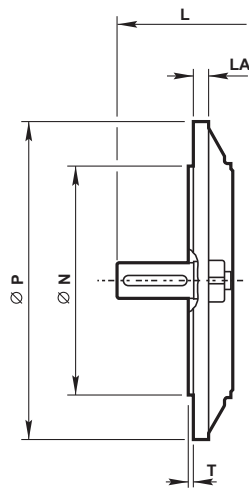
18

Foot and flange mounting - frame sizes 180 to 355 cast iron

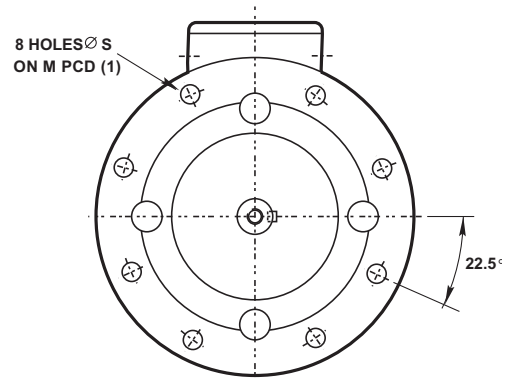
IM B3  
IM 1001  
Mounting options



IM B5/IM B35  
IM 3001/IM 2001  
Mounting options



Up to 200 frame

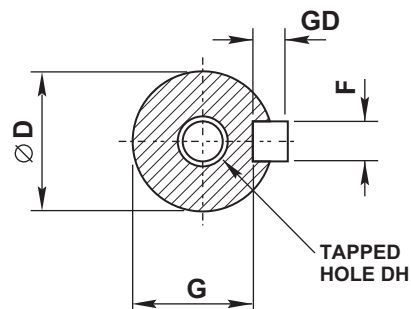


8 holes at 22.5° for flanges to suit 225 frames and above to European specification

## Foot and flange mounting - frame sizes 180 to 355 cast iron

General																			
Type															Terminal box				
Cast iron	A	B	C	H	K	4 Pole +		2 Pole		AA	AB	AC	BB	HA	HD	HE	TBW	TBH	KK
A-DF180M	279	241	121	180	14.5	688	688	70	349	355	311	22	450	226.5	152	162	2 x M40		
A-DF180L	279	279	121	180	14.5	726	726	70	349	355	349	22	450	226.5	152	162	2 x M40		
A-DF200L	318	305	133	200	16.5	779	771	70	388	397	369	25	504	249	190	210	2 x M50		
AU-DF225S	356	286	149	225	18.5	824	-	75	431	446	368	28	561	278	190	210	2 x M50		
AU-DF225M	356	311	149	225	18.5	849	819	75	431	446	393	28	561	278	190	210	2 x M50		
AU-DF250M	406	349	168	250	24	910	910	80	484	485	445	30	610	303	218	248	2 x M63		
AU-DF280S	457	368	190	280	24	982	982	85	542	547	485	35	669	333	218	248	2 x M63		
AU-DF280M	457	419	190	280	24	1033	1033	85	542	547	536	35	669	333	218	248	2 x M63		
AU-DF315S	508	406	216	315	28	1224	1194	120	628	620	570	45	842	445	280	320	2 x M63		
AU-DF315M	508	457	216	315	28	1334	1304	120	628	620	680	45	842	445	280	320	2 x M63		
AU-DF315L	508	508	216	315	28	1334	1304	120	628	620	680	45	842	445	280	320	2 x M63		
AU-DF355M	610	560	254	355	28	1556	1487	116	726	698	750	52	997	540	330	380	2 x M63		
AU-DF355L	610	630	254	355	28	1556	1487	116	726	698	750	52	997	540	330	380	2 x M63		

Flange						
Type	IM B5, IM B35 mounting					
Cast iron	M	N	P	S	T	LA
A-DF180M/L	300	250	350	18.5	5	15
A-DF200L	350	300	400	18.5	5	17
AU-DF225S/M	400	350	450	18.5	5	20
AU-DF250	500	450	550	18.5	5	22
AU-DF280	500	450	550	18.5	5	22
AU-DF315S/M/L	600	550	660	24	6	22
AU-DF355M/L	740	680	800	24	6	25



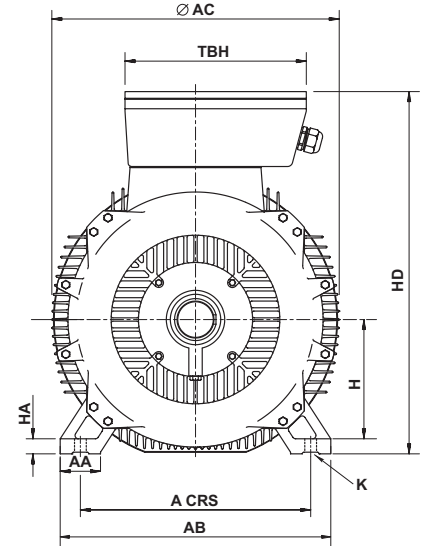
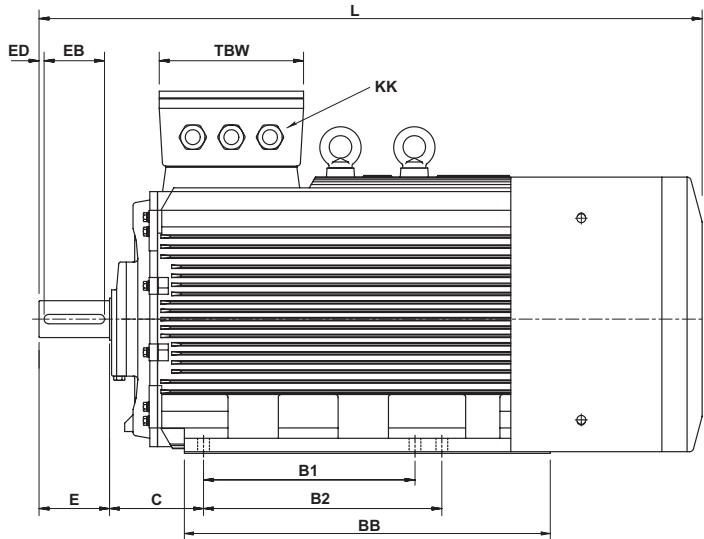
Shaft																
Type	4 pole +								2 pole							
Cast iron	D	E	F	G	GD	EB	ED	DH	D	E	F	G	GD	EB	ED	DH
A-DF180M/L	48	110	14	42.5	9	90	10	M16	48	110	14	42.5	9	90	10	M16
AU-DF200L	55	110	16	49	10	100	5	M20	55	110	16	49	10	100	5	M20
AU-DF225S	60	140	18	53	11	125	7.5	M20	-	-	-	-	-	-	-	-
AU-DF225M	60	140	18	53	11	125	7.5	M20	55	110	16	49	10	100	5	M20
AU-DF250M	65	140	18	58	11	125	7.5	M20	60	140	18	53	11	125	7.5	M20
AU-DF280S/M	75	140	20	67.5	12	125	7.5	M20	65	140	18	58	11	125	7.5	M20
AU-DF315S/M/L	80	170	22	71	14	160	5	M20	65	140	18	58	11	125	7.5	M20
AU-DF355M/L	100	210	28	90	16	200	5	M24	75	140	20	67.5	12	125	7.5	M20

# Dimensions

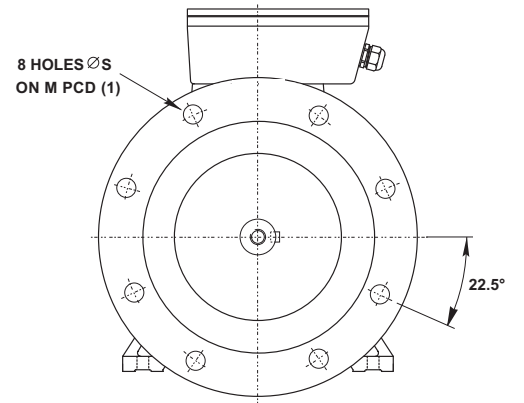
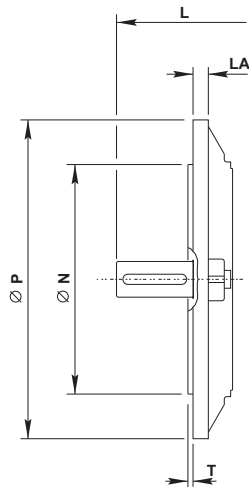
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Foot and flange mounting - frame sizes 355LB to 450 cast iron

IM B3  
IM 1001  
Mounting options



IM B35  
IM 2001  
Mounting options

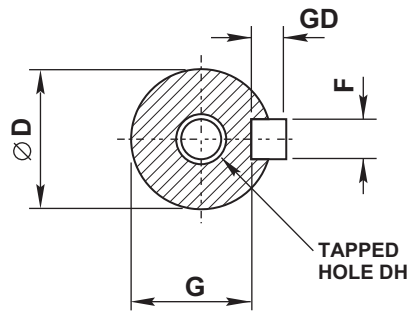


# Dimension

Foot and flange mounting - frame sizes 355LB to 450 cast iron

General																		
Type															Terminal box			
Cast iron	A	B1	B2	C	H	K	6, 8 Pole L	4 Pole L	2 Pole L	AA	AB	AC	BB	HA	HD	TBW	TBH	KK
BU-DF355B +	630	800	-	224	355	35	1918	1898	1863	116	760	745	1140	52	1120	392	572	3 x M63
BU-DF400M	686	630	710	280	400	36	1881	1881	1820	120	806	860	1090	52	1080	430	485	3 x M63
BU-DF400L	686	630	710	280	400	36	1881	1881	1820	120	806	860	1090	55	1080	430	485	3 x M63
BU-DF450M	800	900	1000	250	450	36	2200	2200	2050	150	950	950	1200	62	1400	460	530	3 x M63
BU-DF450L	800	900	1000	250	450	36	2200	2200	2050	150	950	950	1200	62	1400	460	530	3 x M63

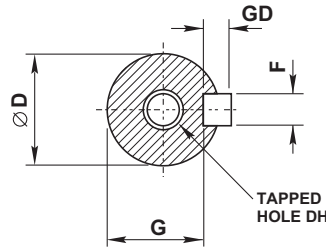
Flange						
Type	IM B5, IM B35 mounting					
Cast iron	M	N	P	S	T	LA
BU-DF355	840	780	800	24	6	-
BU-DF400	940	880	1000	28	6	-
BU-DF450	1040	980	1100	32	8	-



Shaft																	
Type	4 pole +								2 pole								
	D	E	F	G	GD	EB	ED	DH	D	E	F	G	GD	EB	ED	DH	
BU-DF355	110	210	28	86	16	160	5	M24	80	170	22	67.5	14	130	5	M20	
BU-DF400	110	210	28	100	16	180	15	M24	85	170	22	76	14	140	15	M24	
BU-DF450	130	250	32	119	16	180	15	M24	90	170	25	86	14	140	15	M24	

# Dimension pages notes & mounting codes

Shaft		
Dim D	Tol	Limits
11 to 14	j6	+0.008 -0.003
19 to 28	j6	+0.009 -0.004
38 to 48	k6	+0.018 +0.002
55 to 80	m6	+0.030 +0.011
85 to 110	m6	+0.035 +0.013



All dimensions in millimetres

Cable entry can be arranged in any one of four positions at 90° intervals

Dimensions should not be used for installation purposes unless specially endorsed

B5 mounted motors have suffix '-D' in the frame reference, eg A-DA132MA-D and B3/B5 mounted motors have suffix '-H' in the frame reference, eg A-DA132MA-H

B14 mounted motors have suffix 'C' in the frame reference, eg A-DA132MA-C and B3/B14 mounted motors have suffix '-H' in the frame reference, eg A-DA132MA-H

Note

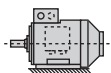
355LB frame and above, flange only available when B35 mounted (foot & flange).

Flange		
Dim N	IEC 60072	
	Tol	Limits
110	j6	+0.013 -0.009
130	j6	+0.014 -0.011
230 to 250	j6	+0.016 -0.013
300	j6	+0.016 -0.016
350	j6	+0.018 -0.018
450	j6	+0.020 -0.020
550	j6	+0.022 -0.022
680	js6	+0.025 -0.025

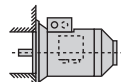
Face		
Dim N	IEC 60072	
	Tol	Limits
70 and 80	j6	+0.012 -0.007
95 and 110	j6	+0.013 -0.009
130	j6	+0.014 -0.011
230	j6	+0.016 -0.013

## Mounting codes

### Horizontal shaft:



**IM B3  
IM 1001**  
foot mounted



**IM B5  
IM 3001**  
flange at DE  
no feet



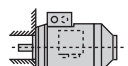
**IM B6  
IM 1051**  
foot wall mounted with  
feet on left-hand side  
when viewed from DE



**IM B7  
IM 1061**  
foot wall mounted with  
feet on right-hand side  
when viewed from DE

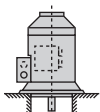


**IM B8  
IM 1071**  
ceiling mounted  
with feet  
above motor

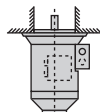


**IM B14  
IM 3601**  
face at DE  
no feet

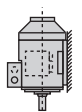
### Vertical shaft:



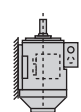
**IM V1  
IM 3011**  
flange at DE  
shaft down  
no feet



**IM V3  
IM 3031**  
flange at DE  
shaft up  
no feet



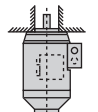
**IM V5  
IM 1011**  
vertical foot  
wall mounted  
shaft down



**IM V6  
IM 1031**  
vertical foot  
wall mounted  
shaft up



**IM V18  
IM 3611**  
face at DE  
shaft down  
no feet



**IM V19  
IM 3631**  
face at DE  
shaft up  
no feet

### Bearing arrangements

Bearing references and oilseals for horizontally mounted motors only						
Type		Poles	Bearings <sup>(1)</sup>		Oilseals <sup>(2)</sup>	
Aluminium	Cast iron		Drive end	Non-drive end	Drive end	Non-drive end
B / A-DA56	–	All	6201ZZ	6201ZZ	12 x 25 x 7	12 x 25 x 7
B / A-DA63M	–	All	6201ZZ	6201ZZ	12 x 25 x 7	12 x 25 x 7
B / A-DA71M	–	All	6202ZZ	6202ZZ	15 x 30 x 7	15 x 30 x 7
B / A-DA80M	–	All	6204ZZ	6204ZZ	20 x 35 x 7	20 x 35 x 7
B / A-DA90S/L	–	All	6205ZZ	6205ZZ	25 x 40 x 7	25 x 40 x 7
B / A-DA100L	–	All	6206ZZ	6206ZZ	30 x 47 x 7	30 x 47 x 7
B / A-DA112M	–	All	6206ZZ	6206ZZ	30 x 47 x 7	30 x 47 x 7
B / A-DA132S/M	–	All	6208ZZ	6208ZZ	40 x 62 x 7	40 x 62 x 7
B / A-DA160M/L	–	All	6309ZZ	6309ZZ	45 x 62 x 12	45 x 62 x 12
–	B / A-DF180M/L	All	6311	6311	55 x 75 x 12	55 x 75 x 12
–	B / A-DF200L	All	6312	6312	60 x 80 x 12	60 x 80 x 12
–	B / AU-DF225S/M	All	6313	6313	65 x 90 x 12	60 x 90 x 12
–	B / AU-DF250S/M	All	6314	6314	70 x 90 x 12	70 x 90 x 12
–	B / AU-DF280S/M	2	6314	6314	70 x 90 x 12	70 x 90 x 12
–	B / AU-DF280S/M	4 up	6317	6317	85 x 110 x 12	85 x 110 x 12
–	B / AU-DF315S/M/L	2	6317	6317	85 x 110 x 12	85 x 110 x 12
–	B / AU-DF315S/M/L	4 up	NU / 6319	6319	95 x 120 x 12	95 x 120 x 12
–	B / AU-DF355M/L	2	6319	6319	95 x 120 x 12	95 x 120 x 12
–	B / AU-DF355M/L	4 up	NU322	6322	110 x 140 x 14	110 x 140 x 14
–	BU-DF400	2	NU2194E & 6219	7219B	84.5 x 97 x 10	84.5 x 97 x 10
–	BU-DF400	4 up	NU326E	6326	119 x 140 x 14	119 x 140 x 14
–	BU-DF450	2	NU222E & 6222	7222B	110 x 124 x 12	110 x 124 x 12
–	BU-DF450	4 up	6328	6328	140 x 154 x 15	140 x 154 x 15

<sup>(1)</sup> Frame sizes 56-160 have sealed for life bearings with C3 clearances. Frame sizes 180-355 have bearings with C3 clearance.

<sup>(2)</sup> Sizes given are in mm and represent bore x outside diameter x width.  
The seal material used on all frame sizes and all polarity is nitrile rubber (NBR).

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