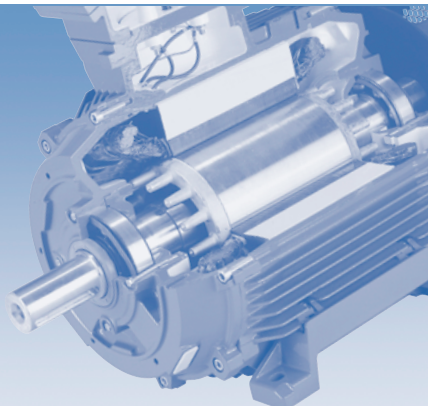
EEx d/de flameproof motors

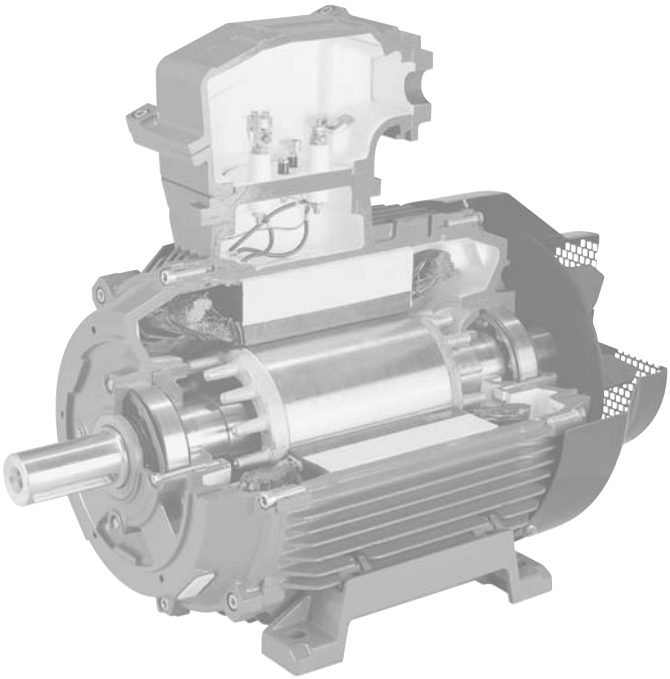


Frames 90 - 315L

2205E

BROOK CROMPTON

EEx d/de flameproof motors
90 - 315L



Brook Crompton

Brook Crompton is a leading manufacturer of electric motors for the global industrial market, with motor solutions which benefit a wide range of customers.

Our products are used in almost every industrial activity including water treatment, building services, chemical/petrochemicals, general processing and manufacturing where they drive fans, pumps, compressors and conveyors, amongst other things.

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

We have extensive stocks of motors around the world, 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.

Our factories have been assessed to meet these requirements, a further assurance that only the highest possible standards of quality are accepted.

EEx d/de flameproof motors

Brook Crompton has one of the widest available ranges of electric motors for operation in hazardous atmospheres and hostile environments.

We have over 90 years' technical and design experience in this most specialised market and are able to ensure the correct selection of motors for any application, taking into full account the two most important factors to be considered - safety and economy.

Brook Crompton's range of EEx d/de motors are designed, tested and manufactured in accordance with the latest Euronorm and relevant country standards.

Motors are manufactured in factories that are assessed by a European notified body (eg Baseefa (2001) Ltd, PTB), meeting rigorous quality controls.

Efficiency

Brook Crompton are an approved manufacturer of ac electric motors within the UK Government's Enhanced Capital Allowance scheme (ECA). A wide range of single and multi-speed motors are included on the UK Energy Technology List. Please check the ECA scheme website: www.eca.gov.uk at time of purchase for current listing.

Benefits include:

- Baseefa (2001) Ltd certified
- Full 2-year guarantee
- Stainless steel rating and certification plate
- Certification for inverter use
- Certificate of Grant of Patent on the bearing cap
- IP55 protection

ATEX

All EEx d/de motors fully comply with the requirements of the ATEX Directive (94/9/EC).

Standards and environment

Standards

Standards

EExd/de motors can be manufactured to the international standards listed below:

Region	International	UK	Europe	USA	Canada*	Australia
Standard	IEC	BS & EN	EN	NEMA	NEMA	AS, NZS & IEC
Outputs	IEC 60034-1	EN 50347 BS 5000 part 10 App A	EN 50347	MG 1 Part 10	MG 1 Part 10	AS 1359.30 IEC 60034-1
Performance	IEC 60034-1	EN 60034-1	EN 60034-1	MG 1 Part 12	MG 1 Part 12	AS 1359.101 IEC 60034-1
Dimensions	IEC 60072-1	EN 50347	EN 50347	MG 1 Part 4	MG 1 Part 4	AS 1359.10 IEC 60072-1
Mounting	IEC 60034-7	EN 60034-7	EN 60034-7	MG 1 Part 4	MG 1 Part 4	AS 1359.107 IEC 60034-7
Degrees of protection	IEC 60034-5	EN 60034-5	EN 60034-5	MG 1 1.26B	MG 1 1.26B	AS 1359.20 IEC 60034-5
EEx d	IEC 60079-0 IEC 60079-1	EN 50014 EN 50018	EN 50014 EN 50018	National Electrical Code Article 500	IEC 60079-0 IEC 60079-1	
EEx de	IEC 60079-0 IEC 60079-1 IEC 60079-7	EN 50015 EN 50018 EN 50019	EN 50015 EN 50018 EN 50019	National Electrical Code Article 500	IEC 60079-0 IEC 60079-1 IEC 60079-7	

standard motor complies

optional

Motors complying with IEC 60034-1 also comply with many of the national standards of other European countries, eg CEI 203 (Italy), NBN7 (Belgium), NEN 3173 (Netherlands), SEN 2601 01 (Sweden)

Environment

Enclosure

All motors have degrees of IP protection as defined in IEC/EN 60034-5.

Motor cooling

Motors are cooled in accordance with IEC/EN 60034-6. The normal arrangement is IC411 (Totally Enclosed Fan Ventilated) via a fan mounted at the non-drive end. Alternative methods of cooling available on request.

European directives

Four European directives apply in varying degrees to ac induction motors. Brook Crompton comply in the following manner:

Compliance with European directives applying to AC induction motors

Directives	Low voltage (LV)	Machinery (MD)	Electromagnetic compatibility (EMC)	ATEX
Reference numbers	73/23/EEC 93/68/EEC	89/392/EEC 91/368/EEC 93/44/EEC 93/68/EEC	89/336/EEC 92/31/EEC 93/68/EEC	94/9/EC
Motor CE marked	Yes	No	No	YES
Standards	EN 60034	Not applicable	EN 60034-1	EN 50014 EN 50018 EN 50019
Documentation for customers' technical file	Declaration of conformity	Certificate of incorporation	Statement[1]	Declaration of conformity
Safety instructions with every motor	Yes	Yes	Yes	Yes
Comment	Relevant electrical equipment operating between up to 1000 volts AC	Statement[2]	Component	Hazardous atmosphere equipment - mandatory

[1] 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

[2] 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)

EEx d specification

EEx d flameproof motors

Frame Sizes W-EF90 to W-EF315
Groups IIA/IIB or IIC
Suitable for use in Zone 1
Code: EEx d IIB T4 or EEx d IIC T4*

General

These motors are designated EEx d flameproof and are designed for operation in Zone 1 hazardous areas. They comply with all relevant national and international standards. There are of a rugged cast iron construction, certified to withstand an internal explosion. Outputs range from 0.37kW to 200kW with smaller or larger outputs available on request.

Temperature class

Standard motors are suitable for applications classified T4. In addition, T5 and T6 can be supplied although they may involve reduced outputs. Motors for T3 can be supplied with higher outputs.

Terminal box

Constructed of cast iron, the terminal box forms its own flameproof enclosure capable of containing an internal explosion without transmitting it to the surrounding atmosphere or to the motor.

Cable entries

IIA/IIB motors are supplied with one of the following methods of entry:

1 One threaded entry to metric, imperial, BSP, or NPT standards suitable for a certified compression gland or other certified entry device (eg to suit armoured cable), or

2 Loose leads without terminal box combined with armoured or braided or flexible conduit.

*IIC motors are supplied as option 2 only.

Earthing terminals

All motors are fitted with internal and external earthing terminals. These are provided with a washer and an anti-vibration washer.

Additional design features

NEMA dimensions
Multi-speed
Variable speed
Enclosure to: IP56, IP67 or IP68
Anti-condensation heaters
Thermostats or thermistors
EEMUA pub. no. 132-1988

Impact covers

Designed to prevent the ingress of falling foreign bodies, impact covers are fitted on motors when mounted vertically, shaft down.

Vertically mounted motors fitted with impact cover

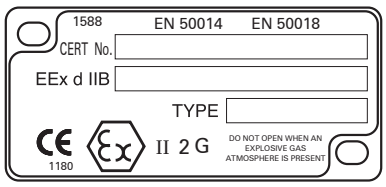
European frame	BS frame	Increase in L Dim
W-EF90-100L	W-EF90-100L	26
W-EF112M	W-EF112M	38
W-EF132S/M	W-EF132S/M	40
W-EF160-180L	W-EF160-180	40.5
W-UEF200L	W-EF200L	45
W-UEF225S	W-EF225S	45
W-UEF225M	W-EF225M	45
W-UEF250MNE	W-EF250S	45
W-UEF280SNE	W-EF250M	48
W-UEF280MNE	W-EF280S	48
W-UEF315SNE	W-EF280M	48
W-UEF315MNE	W-EF315S	48
W-UEF315M	W-EF315M	53
W-UEF315L	W-EF315L	53

Certification

The motors are certified by a European notified body who also grant the QAN (Quality Assurance Notification) for design and manufacturing facilities.

Certificate Numbers

Frame size	Certificate number IIA/IIB	IIC*
W-EF90	Baseefa02ATEX0013X	-
W-EF100	Baseefa02ATEX0015X	-
W-EF112	Baseefa02ATEX0017X	-
W-EF132	Baseefa02ATEX0019X	-
W-EF160	Baseefa02ATEX0021X	-
W-EF180	Baseefa02ATEX0023X	-
W-EF200L	BAS02ATEX2111X	BAS02ATEX2113X
W-EF225S	BAS02ATEX2111X	BAS02ATEX2113X
W-EF225M	BAS02ATEX2114X	BAS02ATEX2116X
W-EF250S	BAS02ATEX2114X	BAS02ATEX2116X
W-UEF250ME	BAS02ATEX2114X	BAS02ATEX2116X
W-EF250M	BAS02ATEX2117X	BAS02ATEX2119X
W-UEF280SE	BAS02ATEX2117X	BAS02ATEX2119X
W-EF280S	BAS02ATEX2117X	BAS02ATEX2119X
W-UEF280ME	BAS02ATEX2117X	BAS02ATEX2119X
W-EF280M	BAS02ATEX2120X	BAS02ATEX2122X
W-UEF315SE	BAS02ATEX2120X	BAS02ATEX2122X
W-EF315S	BAS02ATEX2120X	BAS02ATEX2122X
W-UEF315ME	BAS02ATEX2120X	BAS02ATEX2122X
W-EF315M	BAS02ATEX2123X	BAS02ATEX2125X
W-UEF315M	BAS02ATEX2123X	BAS02ATEX2125X
W-EF315L	BAS02ATEX2123X	BAS02ATEX2125X
W-UEF315L	BAS02ATEX2123X	BAS02ATEX2125X



Example of certification plate

EEx d Motors - maximum number of terminals, terminal pin cable capacity and terminal nut tightening torque

Frame size	Terminal box size	Max. number of mains and additional auxiliary terminals				Cable capacity (mm²)		Tightening torque (Nm)	
		3 Mains	6 Mains	9 Mains	12 Mains	Mains terminals	Auxiliary terminals	Mains terminals	Auxiliary terminals
90-112	90-112	5 Aux	2 Aux	0 Aux	N/A	6 (M5)	6 (M5)	2.2	2.2
	132-160	6 Aux	4 Aux	2 Aux	N/A	16 (M6)	6 (M5)	4.2	2.2
132-160	132-160	6 Aux	4 Aux	2 Aux	N/A	16 (M6)	6 (M5)	4.2	2.2
	180	6 Aux	6 Aux	0 Aux	N/A	25 (M8)	6 (M5)	11.3	2.2
180	180	6 Aux	6 Aux	0 Aux	N/A	25 (M8)	6 (M5)	11.3	2.2
200-250S[1]	200-250S	8 Aux	4 Aux	N/A	N/A	50 (M8)	2.5 (M4)	4	3
200-250M[2]	250M-315S	19 Aux	10 Aux	7 Aux	4 Aux	50 (M8)	2.5 (M4)	4	3
	250M-315S	14 Aux	6 Aux	N/A	N/A	70 (M10)	2.5 (M4)	6	3
250M-315S[1]	250M-315S	19 Aux	10 Aux	7 Aux	4 Aux	50 (M8)	2.5 (M4)	4	3
280S-315M[2]	250M-315S	14 Aux	6 Aux	N/A	N/A	70 (M10)	2.5 (M4)	6	3
315M/L	315M/L	N/A	N/A	N/A	13 Aux	50 (M8)	2.5 (M4)	4	3
	315M/L	N/A	19 Aux	N/A	N/A	70 (M10)	2.5 (M4)	6	3
	315M/L	25 Aux	19 Aux	6 Aux	N/A	185 (M12)	2.5 (M4)	12	3

[1] BS frame ref [2] European frame ref

EEx de specification

EEx de flameproof motors with increased safety terminals

Frame sizes W-EF90 to W-EF315
Groups IIA/IIB or IIC
IIC (W-EF200 to W-EF315)
Suitable for use in Zone 1
Code: EEx de IIB T4 or EEx de IIC T4

General

Direct entry EEx de motors are of a rugged cast iron construction.These motors differ from EEx d only in the terminal and terminal box configuration. The method of cable termination is favoured by many organisations throughout mainland Europe, and an increasing number of users in the UK, for use both on and offshore. The use of increased safety (not flameproof) terminals/cable entry has certain advantages:

- Surface corrosion in the terminal box is not a threat to safety
- Increased safety entries are easier to connect and there is no need to ensure a flameproof connection as the safety is assured by increased safety terminals and the IP55 terminal box protection
- Earthing inside the box is possible using the external armouring or braid
- A flameproof gland is not required

Terminal box

The cast iron terminal box (although similar in design) is not flameproof. Increased safety EEx e terminals are fitted and the box enclosure, which employs gaskets, has IP55 weatherproof protection.

Cable entries

For the reception of a cable entry device chosen in accordance with a recognised code of practice, which ensures the IP integrity of the terminal box.

Additional design features

NEMA dimensions
Multi-speed
Anti-condensation heaters
Thermostats or thermistors
Brake motors (II B only)
Loose leads

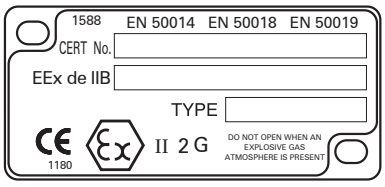
Increased safety terminals used in EEx de motors

Certification

The motors are certified by a European notified body who also grant the QAN (Quality Assurance Notification) for design and manufacturing facilities.

Certificate Numbers

Frame size	Certificate number IIA/IIB	IIC
W-EF90	Baseefa02ATEX0014X	–
W-EF100	Baseefa02ATEX0016X	–
W-EF112	Baseefa02ATEX0018X	–
W-EF132	Baseefa02ATEX0020X	–
W-EF160	Baseefa02ATEX0022X	–
W-EF180	Baseefa02ATEX0024X	–
W-EF200L	BAS02ATEX2112X	BAS02ATEX2113X
W-EF225S	BAS02ATEX2112X	BAS02ATEX2113X
W-EF225M	BAS02ATEX2115X	BAS02ATEX2116X
W-EF250S	BAS02ATEX2115X	BAS02ATEX2116X
W-UEF250ME	BAS02ATEX2115X	BAS02ATEX2116X
W-EF250M	BAS02ATEX2118X	BAS02ATEX2119X
W-UEF280SE	BAS02ATEX2118X	BAS02ATEX2119X
W-EF280S	BAS02ATEX2118X	BAS02ATEX2119X
W-UEF280ME	BAS02ATEX2118X	BAS02ATEX2119X
W-EF280M	BAS02ATEX2121X	BAS02ATEX2122X
W-UEF315SE	BAS02ATEX2121X	BAS02ATEX2122X
W-EF315S	BAS02ATEX2121X	BAS02ATEX2122X
W-UEF315ME	BAS02ATEX2121X	BAS02ATEX2122X
W-EF315M	BAS02ATEX2124X	BAS02ATEX2125X
W-UEF315M	BAS02ATEX2124X	BAS02ATEX2125X
W-EF315L	BAS02ATEX2124X	BAS02ATEX2125X
W-UEF315L	BAS02ATEX2124X	BAS02ATEX2125X



Example of certification plate

EEx de Motors - maximum number of terminals, terminal pin cable capacity and terminal nut tightening torque

Frame size	Terminal box size	Max. number of mains and auxiliary terminals: 3 Mains	6 Mains	9 Mains	12 Mains	Cable capacity (mm²): Main terminals[1]	Auxiliary terminals	Tightening torque (Nm): Main terminals	Auxiliary terminals
90-112	90-112	2 Aux	N/A	N/A	N/A	2.5	2.5	2	2
	132-160	4 Aux	2 Aux	0 Aux	N/A	6	2.5	6.5	2
132-160	132-160	4 Aux	2 Aux	0 Aux	N/A	6	2.5	6.5	2
	180	4 Aux	2 Aux	0 Aux	N/A	16	2.5	9.5	2
180	180	4 Aux	2 Aux	0 Aux	N/A	16	2.5	9.5	2
200-250S[2] 200-250M[3]	200-250S	8 Aux	4 Aux	N/A	N/A	35 (M8)	2.5 (M4)	3	3
	250M-315S	19 Aux	10 Aux	7 Aux	4 Aux	35 (M8)	2.5 (M4)	3	3
	250M-315S	14 Aux	6 Aux	N/A	N/A	120 (M10)	2.5 (M4)	5	3
250M-315S[2] ††† 280S-315M[3]	250M-315S	19 Aux	10 Aux	7 Aux	4 Aux	35 (M8)	2.5 (M4)	3	3
	250M-315S	14 Aux	6 Aux	N/A	N/A	120 (M10)	2.5 (M4)	5	3
315M/L	315M/L	N/A	N/A	N/A	13 Aux	35 (M8)	2.5 (M4)	3	3
	315M/L	N/A	19 Aux	N/A	N/A	120 (M10)	2.5 (M4)	5	3
	315M/L	25 Aux	19 Aux	6 Aux	N/A	240 (M12)	2.5 (M4)	12	3

[1] mains terminal sizes quoted are for terminal pillar not terminal head screw size [2] BS frame ref [3] European frame ref

Performance data

3000 min^{-1} (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 starting current ratio	Direct on line pull out torque ratio	Direct on line pull up torque	Star delta starting torque ratio (1)	Star delta starting current ratio	Star delta pull up torque	Rotor inertia Wk^2	Mean sound pressure level @ 1m on no load
P_N kW (hp)	n min^{-1}	Type	I_N 380V A	I_N 400V A	I_N 415V A	η 1.0 P_N 0.75 P_N 0.5 P_N	CosØ 1.0 P_N 0.75 P_N 0.5 P_N	M_N Nm	$\frac{M_A}{M_N}$	$\frac{I_A}{I_N}$	$\frac{M_K}{M_N}$	$\frac{M_S}{M_N}$	$\frac{M_A}{M_N}$ Y	$\frac{I_A}{I_N}$ Y	$\frac{M_S}{M_N}$ Y	J kgm^2	L_{PA} dB(A)
1.1 (1.5)	2850	**W-EF90SG**(1)	2.5	2.38	2.38	**79.3** *79.5* *77.3*	**0.84** *0.78* *0.64*	3.7	2.1	6.0	2.7	1.9	-	-	-	0.0012	68
1.5 (2.0)	2850	**W-EF90SG**(1)	3.4	3.2	3.2	**79.4** *80.4* *78.6*	**0.85** *0.80* *0.70*	5	2.2	6.1	2.8	2.0	-	-	-	0.0012	68
2.2 (3.0)	2860	**W-EF90LM**(1)	4.7	4.5	4.5	**81.8** *82.6* *80.2*	**0.87** *0.83* *0.74*	7.3	2.5	6.3	3.0	2.2	-	-	-	0.0015	68
3 (4.0)	2890	**W-EF100LR**(1)	6.0	5.7	5.7	**85.5** *85.5* *83.0*	**0.89** *0.85* *0.77*	9.9	3.1	8.5	3.5	2.8	-	-	-	0.0060	71
4 (5.5)	2900	**W-EF112MG**(1)	8.2	7.8	7.8	**84.2** *84.4* *81.4*	**0.88** *0.86* *0.75*	13.2	2.4	7.5	3.0	2.1	0.72	2.4	0.60	0.0065	69
5.5 (7.5)	2910	**W-EF132SF**(1)	10.6	10.1	10.1	**87.0** *87.0* *85.0*	**0.90** *0.87* *0.80*	18	2.5	8.0	2.8	2.2	0.75	2.4	0.70	0.0136	71
7.5 (10)	2895	**W-EF132SJ**(1)	14.2	13.5	13.5	**88.0** *88.0* *87.0*	**0.91** *0.89* *0.82*	24.7	2.5	8.2	3.0	2.3	0.75	2.5	0.70	0.0156	71
11 (15)	2935	**W-EF160MF**(1)	20.7	19.7	19.7	**90.5** *90.8* *89.7*	**0.89** *0.86* *0.79*	35.8	2.2	8.5	3.0	1.8	0.65	2.5	0.60	0.044	73
15 (20)	2935	**W-EF160MJ**(1)	27.7	26.3	26.3	**91.3** *91.5* *91.2*	**0.90** *0.88* *0.80*	48.8	2.2	8.0	3.1	1.9	0.65	2.6	0.60	0.045	73
18.5 (25)	2940	**W-EF160LR**(1)	34	32	32	**91.8** *92.1* *91.3*	**0.91** *0.89* *0.81*	60.1	2.4	8.7	3.2	1.9	0.78	2.7	0.65	0.056	73
22 (30)	2945	**W-EF180ML**(1)	39	37	37	**92.2** *92.2* *91.5*	**0.92** *0.91* *0.86*	71.3	2.1	8.4	2.9	1.8	0.60	2.5	0.55	0.104	72
30 (40)	2935	**W-UEF200LN**(2) **W-EF200LN**(3)	55	52	50	**92.9** *93.0* *92.0*	**0.89** *0.86* *0.80*	98	2.4	7.5	2.9	2.1	0.75	2.4	0.60	0.23	73
37 (50)	2935	**W-UEF200LN**(2) **W-EF200LN**(3)	68	64	62	**93.3** *93.3* *92.0*	**0.89** *0.86* *0.80*	120	2.4	7.5	2.9	2.1	0.75	2.4	0.60	0.23	73

(1) European and BS frame references
(2) European frame reference
(3) BS frame reference

For performance curves and notes - see page 26

Performance data

3000 min^{-1} (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 starting current ratio	Direct on line pull out torque ratio	Direct on line pull up torque	Star delta starting torque ratio[1]	Star delta starting current ratio	Star delta pull up torque	Rotor inertia WK^2	Mean sound pressure level @ 1m on no load
P_N kW (hp)	n min^{-1}	Type		I_N 380V A	I_N 400V A	I_N 415V A	η 1.0 P_N 0.75 P_N 0.5 P_N	CosØ 1.0 P_N 0.75 P_N 0.5 P_N	M_N Nm	$\frac{M_A}{M_N}$	$\frac{I_A}{I_N}$	$\frac{M_K}{M_N}$	$\frac{M_S}{M_N}$	$\frac{M_A}{M_N}$ Y	$\frac{I_A}{I_N}$ Y	$\frac{M_S}{M_N}$ Y	J kgm^2	L_{PA} dB(A)
45 (60)	2955	**W-UEF225MN**[2] **W-EF225MN**[3]		81	77	74	**93.9** *93.7* *92.5*	**0.90** *0.88* *0.83*	145	2.3	7.8	2.8	1.9	0.65	2.5	0.5	0.47	75
55 (75)	2955	**W-UEF250MNE**[2] **W-EF250SN**[3]		98	93	90	**94.4** *94.2* *93.0*	**0.90** *0.88* *0.83*	178	2.3	7.8	2.8	1.9	0.65	2.5	0.5	0.56	75
75 (100)	2960	**W-UEF280SNE**[2] **W-EF250MN**[3]		133	129	122	**95.2** *94.9* *93.4*	**0.90** *0.88* *0.83*	242	2.2	7.8	3.0	2.0	0.65	2.5	0.5	0.8	77
90 (125)	2960	**W-UEF280MNE**[2] **W-EF280SN**[3]		159	151	146	**95.3** *95.0* *93.5*	**0.90** *0.88* *0.83*	290	2.2	7.8	3.0	2.0	0.65	2.5	0.5	0.9	77
110 (150)	2978	**W-UEF315SNE**[2] **W-EF280MN**[3]		194	184	177	**95.8** *95.4* *94.0*	**0.90** *0.88* *0.83*	353	2.2	7.8	2.9	1.8	0.65	2.5	0.45	1.4	78
132 (175)	2978	**W-UEF315MNE**[2] **W-EF315SN**[3]		233	221	213	**95.8** *95.4* *94.0*	**0.90** *0.88* *0.83*	423	2.2	7.8	2.9	1.8	0.65	2.5	0.45	1.7	78
150 (200)	2980	**W-UEF315MN**[2] **W-EF315MN**[3]		260	247	238	**96.2** *95.8* *94.3*	**0.91** *0.89* *0.85*	481	2.0	7.8	2.75	1.7	0.60	2.5	0.45	2.4	80
160 (215)	2980	**W-UEF315MP**[2] **W-EF315MP**[3]		277	264	254	**96.3** *95.9* *94.4*	**0.91** *0.89* *0.85*	513	2.0	7.8	2.75	1.7	0.60	2.5	0.45	2.6	80
185 (250)	2980	**W-UEF315LN**[2] **W-EF315LN**[3]		320	304	294	**96.4** *96.2* *94.8*	**0.91** *0.89* *0.85*	593	2.0	7.8	2.75	1.7	0.60	2.5	0.45	2.8	80
200 (270)	2978	**W-UEF315LN**[2] **W-EF315LN**[3]		346	329	317	**96.4** *96.2* *94.8*	**0.91** *0.89* *0.85*	641	1.85	7.2	2.5	1.6	0.55	2.3	0.42	2.8	80

(1) European and BS frame references
(2) European frame reference
(3) BS frame reference

For performance curves and notes - see page 26

Performance data

1500 min^{-1} (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 starting current ratio	Direct on line pull out torque ratio	Direct on line pull up torque	Star delta starting torque ratio (1)	Star delta starting current ratio	Star delta pull up torque	Rotor inertia WK^2	Mean sound pressure level @ 1m on no load
P_N kW (hp)	n min^{-1}	Type	I_N 380V A	I_N 400V A	I_N 415V A	η 1.0 P_N *0.75 P_N* *0.5 P_N*	CosØ 1.0 P_N *0.75 P_N* *0.5 P_N*	M_N Nm	$\frac{M_A}{M_N}$	$\frac{I_A}{I_N}$	$\frac{M_K}{M_N}$	$\frac{M_S}{M_N}$	$\frac{M_A}{M_N}$ Y	$\frac{I_A}{I_N}$ Y	$\frac{M_S}{M_N}$ Y	J kgm^2	L_{PA} dB(A)
0.75 (1.0)	1420	**W-EF90SG**(1)	1.94	1.85	1.85	**77.1** *77.4* *75.4*	**0.76** *0.66* *0.55*	5	2.2	6.1	2.5	2.0	-	-	-	0.0025	52
1.1 (1.5)	1420	**W-EF90SG**(1)	2.78	2.65	2.65	**78.9** *79.4* *78.0*	**0.76** *0.66* *0.55*	7.4	2.2	6.0	2.5	2.0	-	-	-	0.0025	52
1.5 (2.0)	1420	**W-EF90LK**(1)	3.7	3.6	3.6	**79.0** *79.4* *77.0*	**0.77** *0.69* *0.55*	10.1	2.3	6.5	2.8	2.0	-	-	-	0.0029	52
2.2 (3.0)	1420	**W-EF100LJ**(1)	5.2	4.9	4.9	**81.5** *82.0* *82.0*	**0.79** *0.72* *0.60*	14.8	2.0	5.7	2.1	1.8	-	-	-	0.0048	53
3 (4.0)	1425	**W-EF100LS**(1)	7.0	6.6	6.6	**83.5** *84.5* *84.0*	**0.78** *0.71* *0.58*	20.1	2.1	6.3	2.3	2.0	-	-	-	0.0063	53
4 (5.5)	1430	**W-EF112MK**(1)	8.9	8.5	8.5	**84.2** *84.5* *82.3*	**0.81** *0.74* *0.60*	26.7	2.0	6.5	2.5	1.7	0.62	1.9	0.49	0.012	60
5.5 (7.5)	1450	**W-EF132SJ**(1)	11.7	11.1	11.1	**87.0** *87.5* *86.0*	**0.82** *0.76* *0.64*	36.2	2.4	7.5	2.9	2.1	0.70	2.1	0.60	0.023	67
7.5 (10)	1445	**W-EF132MS**(1)	15.5	14.8	14.8	**88.2** *88.5* *88.0*	**0.83** *0.79* *0.68*	49.6	2.6	7.7	3.1	2.3	0.75	2.3	0.65	0.029	67
11 (15)	1470	**W-EF160MJ**(1)	22.1	21	21	**91.0** *91.2* *90.5*	**0.83** *0.79* *0.67*	71.5	2.2	7.6	2.6	2.0	0.60	2.3	0.45	0.068	67
15 (20)	1465	**W-EF160LR**(1)	29.6	28.2	28.2	**91.3** *91.6* *91.0*	**0.84** *0.79* *0.68*	97.8	2.2	7.5	2.6	2.0	0.60	2.2	0.45	0.084	67
18.5 (25)	1465	**W-EF180MJ**(1)	35	34	34	**92.0** *92.3* *91.5*	**0.86** *0.84* *0.78*	121	2.4	7.3	2.8	2.0	0.73	2.3	0.65	0.153	70
22 (30)	1465	**W-EF180LM**(1)	42	40	40	**92.3** *92.9* *92.5*	**0.86** *0.84* *0.78*	143	2.5	7.6	2.9	2.1	0.75	2.3	0.62	0.175	70
30 (40)	1470	**W-UEF200LN**(2) **W-EF200LN**(3)	56	53	51	**93.2** *93.2* *92.3*	**0.87** *0.85* *0.77*	195	2.3	7.3	3.2	1.9	0.70	2.3	0.55	0.40	65

(1) European and BS frame references
(2) European frame reference
(3) BS frame reference

For performance curves and notes - see page 26

Performance data

1500 min^{-1} (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 starting current ratio	Direct on line pull out torque ratio	Direct on line pull up torque	Star delta starting torque ratio (1)	Star delta starting current ratio	Star delta pull up torque	Rotor inertia WK^2	Mean sound pressure level @ 1m on no load
P_N kW (hp)	n min^{-1}	Type	I_N 380V A	I_N 400V A	I_N 415V A	η **1.0 P_N** *0.75 P_N* *0.5 P_N*	Cosϕ **1.0 P_N** *0.75 P_N* *0.5 P_N*	M_N Nm	$\frac{M_A}{M_N}$	$\frac{I_A}{I_N}$	$\frac{M_K}{M_N}$	$\frac{M_S}{M_N}$	$\frac{M_A}{M_N}$ Y	$\frac{I_A}{I_N}$ Y	$\frac{M_S}{M_N}$ Y	J kgm^2	L_{PA} dB(A)
37 (50)	1470	**W-UEF225SN**(2) **W-EF225SN**(3)	70	66	64	**93.6** *93.6* *92.5*	**0.87** *0.85* *0.77*	240	2.3	7.3	3.2	1.9	0.7	2.3	0.55	0.53	66
45 (60)	1475	**W-UEF225MN**(2) **W-EF225MN**(3)	84	80	77	**94.2** *94.2* *93.0*	**0.86** *0.84* *0.75*	292	2.7	7.7	3.2	1.9	0.75	2.5	0.55	0.65	67
55 (75)	1475	**W-UEF250MNE**(2) **W-EF250SN**(3)	103	98	94	**94.6** *94.6* *93.5*	**0.86** *0.84* *0.75*	357	2.7	7.7	3.2	1.9	0.75	2.5	0.55	0.75	67
75 (100)	1475	**W-UEF280SNE**(2) **W-EF250MN**(3)	138	131	126	**94.9** *94.8* *93.5*	**0.87** *0.85* *0.75*	486	2.4	7.4	2.7	1.9	0.72	2.3	0.54	1.4	69
90 (125)	1475	**W-UEF280MNE**(2) **W-EF280SN**(3)	165	157	151	**95.2** *95.1* *93.8*	**0.87** *0.85* *0.75*	583	2.5	7.4	2.8	2.0	0.75	2.4	0.55	1.6	69
110 (150)	1480	**W-UEF315SNE**(2) **W-EF280MN**(3)	201	191	184	**95.6** *95.5* *94.0*	**0.87** *0.85* *0.77*	710	2.4	7.7	2.6	2.0	0.7	2.5	0.5	3.2	71
132 (175)	1482	**W-UEF315MNE**(2) **W-EF315SN**(3)	241	229	220	**95.8** *95.6* *94.2*	**0.87** *0.85* *0.77*	852	2.4	7.7	2.6	2.0	0.7	2.5	0.5	3.7	71
150 (200)	1485	**W-UEF315MN**(2) **W-EF315MN**(3)	270	257	247	**95.9** *95.7* *94.7*	**0.88** *0.86* *0.78*	965	2.4	7.8	2.7	2.0	0.7	2.5	0.5	4.4	73
160 (215)	1487	**W-UEF315MP**(2) **W-EF315MP**(3)	288	274	264	**95.9** *95.7* *94.7*	**0.88** *0.86* *0.78*	1029	2.4	7.8	2.7	2.0	0.7	2.5	0.5	4.7	73
185 (250)	1487	**W-UEF315LN**(2) **W-EF315LN**(3)	333	316	305	**96.0** *95.8* *95.0*	**0.88** *0.86* *0.78*	1190	2.4	7.8	2.7	2.0	0.7	2.5	0.5	5.5	73
200 (270)	1485	**W-UEF315LN**(2) **W-EF315LN**(3)	360	342	329	**96.0** *95.8* *95.0*	**0.88** *0.86* *0.78*	1286	2.3	7.6	2.6	1.9	0.65	2.4	0.45	5.5	73

(1) European and BS frame references
(2) European frame reference
(3) BS frame reference

For performance curves and notes - see page 26

Performance data

1000 min^{-1} (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 starting current ratio	Direct on line pull out torque ratio	Direct on line pull up torque	Star delta starting torque ratio (1)	Star delta starting current ratio	Star delta pull up torque	Rotor inertia WK^2	Mean sound pressure level @ 1m on no load
P_N kW (hp)	n min^{-1}	Type	I_N 380V A	I_N 400V A	I_N 415V A	η **1.0 P_N** *0.75 P_N* *0.5 P_N*	Cosϕ **1.0 P_N** *0.75 P_N* *0.5 P_N*	M_N Nm	$\frac{M_A}{M_N}$	$\frac{I_A}{I_N}$	$\frac{M_K}{M_N}$	$\frac{M_S}{M_N}$	$\frac{M_A}{M_N}$ Y	$\frac{I_A}{I_N}$ Y	$\frac{M_S}{M_N}$ Y	J kgm^2	L_{PA} dB(A)
0.37 (0.5)	925	**W-EF90SG(1)**	1.14	1.09	1.09	**71.0** *72.1* *69.2*	**0.69** *0.60* *0.48*	3.8	1.9	4.5	2.7	1.9	-	-	-	0.0025	65
0.55 (0.75)	925	**W-EF90SG(1)**	1.66	1.58	1.58	**72.9** *78.8* *72.1*	**0.69** *0.62* *0.47*	5.7	2.3	4.5	2.5	2.0	-	-	-	0.0025	65
0.75 (1.0)	920	**W-EF90SG(1)**	2.23	2.12	2.12	**74.0** *75.1* *72.5*	**0.69** *0.59* *0.45*	7.8	2.0	4.1	2.4	2.0	-	-	-	0.0025	65
1.1 (1.5)	920	**W-EF90LS(1)**	3.5	3.3	3.3	**74.8** *74.5* *71.5*	**0.64** *0.54* *0.41*	11.4	2.4	5.0	2.8	2.0	-	-	-	0.0036	65
1.5 (2.0)	930	**W-EF100LR(1)**	4.5	4.3	4.3	**78.5** *79.0* *78.5*	**0.64** *0.54* *0.42*	15.4	2.0	4.2	2.3	2.0	-	-	-	0.0061	59
2.2 (3.0)	945	**W-EF112MK(1)**	6.1	5.8	5.8	**78.0** *78.3* *76.5*	**0.70** *0.62* *0.50*	22.2	1.8	4.9	2.3	1.7	-	-	-	0.0119	59
3 (4.0)	965	**W-EF132SG(1)**	7.4	7.1	7.1	**86.0** *86.0* *84.0*	**0.71** *0.64* *0.52*	29.7	2.2	6.5	2.7	1.7	-	-	-	0.0249	58
4 (5.5)	960	**W-EF132ML(1)**	9.5	9	9	**86.5** *86.5* *86.0*	**0.74** *0.67* *0.55*	39.8	2.1	6.2	2.6	1.6	0.65	2.0	0.55	0.0288	58
5.5 (7.5)	960	**W-EF132MR(1)**	13.4	12.7	12.7	**86.5** *86.5* *85.5*	**0.72** *0.67* *0.55*	54.7	2.1	6.2	2.6	1.6	0.65	2.0	0.55	0.0326	58
7.5 (10)	975	**W-EF160MM(1)**	16.8	16	16	**90.0** *90.5* *89.0*	**0.75** *0.70* *0.59*	73.5	2.1	7.0	2.8	2.0	0.55	2.1	0.50	0.105	58
11 (15)	975	**W-EF160LV(1)**	24.2	23.3	23.3	**91.0** *91.0* *89.5*	**0.75** *0.70* *0.58*	108	2.0	7.5	2.8	1.9	0.60	2.5	0.50	0.137	58
15 (20)	975	**W-EF180LM(1)**	32	31	31	**91.0** *91.0* *89.5*	**0.78** *0.73* *0.60*	147	2.4	6.5	2.8	2.2	0.65	2.2	0.60	0.239	59
18.5 (25)	975	**W-UEF200LN(2)** **W-EF200LN(3)**	39	37	35	**91.0** *91.0* *90.0*	**0.80** *0.76* *0.67*	181	2.6	6	2.1	2.0	0.77	1.8	0.45	0.60	62

(1) European and BS frame references
(2) European frame reference
(3) BS frame reference

For performance curves and notes - see page 26

Performance data

1000 min^{-1} (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 starting current ratio	Direct on line pull out torque ratio	Direct on line pull up torque	Star delta starting torque ratio [1]	Star delta starting current ratio	Star delta pull up torque	Rotor inertia WK^2	Mean sound pressure level @ 1m on no load
P_N kW (hp)	n min^{-1}	Type	I_N 380V A	I_N 400V A	I_N 415V A	η **1.0 P_N** *0.75 P_N* *0.5 P_N*	CosØ **1.0 P_N** *0.75 P_N* *0.5 P_N*	M_N Nm	$\frac{M_A}{M_N}$	$\frac{I_A}{I_N}$	$\frac{M_K}{M_N}$	$\frac{M_S}{M_N}$	$\frac{M_A}{M_N}$ Y	$\frac{I_A}{I_N}$ Y	$\frac{M_S}{M_N}$ Y	J kgm^2	L_{PA} dB(A)
22 (30)	975	**W-UEF200LN**[2] **W-EF200LN**[3]	46	43	42	**91.5** *91.5* *90.5*	**0.80** *0.76* *0.67*	215	2.6	6.0	2.1	2.0	0.77	1.8	0.45	0.6	62
30 (40)	980	**W-UEF225MN**[2] **W-EF225MN**[3]	61	58	56	**92.7** *92.7* *91.7*	**0.80** *0.76* *0.67*	292	2.2	6.5	2.4	2.0	0.65	2.0	0.55	1.1	63
37 (50)	980	**W-UEF250MNE**[2] **W-EF250SN**[3]	74	70	67	**93.2** *93.2* *92.0*	**0.82** *0.78* *0.69*	361	2.2	6.5	2.4	2.0	0.65	2.0	0.55	1.3	63
45 (60)	985	**W-UEF280SNE**[2] **W-EF250MN**[3]	88	84	81	**93.4** *93.3* *92.3*	**0.83** *0.79* *0.71*	436	2.5	6.0	2.0	1.8	0.75	1.9	0.40	2.55	65
55 (75)	985	**W-UEF280MNE**[2] **W-EF280SN**[3]	107	102	98	**93.8** *93.6* *92.6*	**0.83** *0.79* *0.71*	533	2.5	6.1	2.0	1.9	0.75	1.85	0.40	2.9	65
75 (100)	985	**W-UEF315SNE**[2] **W-EF280MN**[3]	144	137	132	**94.3** *94.1* *93.0*	**0.84** *0.80* *0.72*	727	3.0	7.0	2.6	2.1	0.90	2.1	0.60	5.0	68
90 (125)	985	**W-UEF315MNE**[2] **W-EF315SN**[3]	172	164	158	**94.5** *94.3* *93.4*	**0.84** *0.80* *0.72*	872	3.0	7.0	2.6	2.1	0.90	2.1	0.60	6.0	68
110 (150)	985	**W-UEF315MN**[2] **W-EF315MN**[3]	207	197	190	**94.8** *94.7* *93.8*	**0.85** *0.81* *0.73*	1066	2.8	6.7	2.0	1.9	0.80	2.1	0.55	6.1	70
132 (175)	985	**W-UEF315LN**[2] **W-EF315LN**[3]	248	236	227	**95.0** *94.9* *94.1*	**0.85** *0.81* *0.73*	1280	2.8	6.7	2.0	1.9	0.80	2.1	0.55	7.3	70

[1] European and BS frame references
[2] European frame reference
[3] BS frame reference

For performance curves and notes - see page 26

Performance data

750 min^{-1} (8 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 starting current ratio	Direct on line pull out torque ratio	Direct on line pull up torque	Star delta starting torque ratio (1)	Star delta starting current ratio	Star delta pull up torque	Rotor inertia WK^2	Mean sound pressure level @ 1m on no load
P_N kW (hp)	n min^{-1}	Type	I_N 380V A	I_N 400V A	I_N 415V A	η 1.0 P_N 0.75 P_N 0.5 P_N	CosØ 1.0 P_N 0.75 P_N 0.5 P_N	M_N Nm	$\frac{M_A}{M_N}$	$\frac{I_A}{I_N}$	$\frac{M_K}{M_N}$	$\frac{M_S}{M_N}$	$\frac{M_A}{M_N}$ Y	$\frac{I_A}{I_N}$ Y	$\frac{M_S}{M_N}$ Y	J kgm^2	L_{PA} dB(A)
0.37 (0.5)	690	**W-EF90SG**(1)	1.73	1.65	1.65	**59.0** / *55.4* / *46.9*	**0.55** / *0.45* / *0.36*	5.1	1.9	3.0	2.5	2.1	-	-	-	0.0025	50
0.55 (0.75)	690	**W-EF90LM**(1)	2.42	2.31	2.31	**62.5** / *60.7* / *55.2*	**0.55** / *0.47* / *0.36*	7.6	1.8	3.2	2.1	1.7	-	-	-	0.0032	50
0.75 (1.0)	690	**W-EF100LR**(1)	2.77	2.64	2.64	**69.5** / *68.0* / *61.0*	**0.59** / *0.49* / *0.40*	10.4	1.8	3.2	2.1	1.7	-	-	-	0.0061	48
1.1 (1.5)	690	**W-EF100LS**(1)	3.9	3.7	3.7	**71.5** / *70.5* / *68.0*	**0.60** / *0.51* / *0.39*	15.2	1.8	3.2	2.1	1.7	-	-	-	0.0063	48
1.5 (2.0)	710	**W-EF112MK**(1)	5.6	5.3	5.3	**70.0** / *67.0* / *62.0*	**0.58** / *0.48* / *0.38*	20.2	1.9	3.5	2.1	1.7	-	-	-	0.0119	53
2.2 (3.0)	720	**W-EF132SM**(1)	6.2	5.9	5.8	**82.5** / *83.0* / *80.0*	**0.65** / *0.57* / *0.45*	29.2	1.6	5.0	2.4	1.5	-	-	-	0.0306	61
3 (4.0)	720	**W-EF132MR**(1)	8.2	7.8	7.5	**84.0** / *84.0* / *82.0*	**0.66** / *0.58* / *0.45*	39.8	1.6	5.0	2.4	1.4	-	-	-	0.0326	61
4 (5.5)	725	**W-EF160ME**(1)	10.4	9.9	9.9	**86.0** / *86.0* / *84.0*	**0.68** / *0.64* / *0.51*	52.7	1.6	5.5	2.5	1.4	0.50	1.7	0.45	0.0837	53
5.5 (7.5)	725	**W-EF160MM**(1)	13.9	13.2	13.2	**87.0** / *87.0* / *85.5*	**0.69** / *0.65* / *0.52*	72.4	1.6	5.7	2.2	1.5	0.50	1.7	0.45	0.105	53
7.5 (10)	725	**W-EF160LV**(1)	18.2	17.3	17.3	**88.0** / *88.0* / *86.0*	**0.71** / *0.65* / *0.52*	98.8	1.6	6.0	2.5	1.4	0.50	1.8	0.45	0.137	53
11 (15)	730	**W-EF180LM**(1)	26.7	25.4	25.4	**88.0** / *88.0* / *86.0*	**0.71** / *0.65* / *0.52*	144	2.0	5.4	2.5	1.7	0.63	1.4	0.55	0.239	58
15 (20)	730	**W-UEF200LN**(2) **W-EF200LN** (3)	35	33	32	**90.0** / *90.0* / *88.5*	**0.73** / *0.66* / *0.54*	196	2.0	5.5	2.4	1.6	0.45	1.6	0.35	0.48	60
18.5 (25)	730	**W-UEF225SN**(2) **W-EF225SN**(3)	43	40	39	**90.5** / *90.5* / *89.5*	**0.73** / *0.66* / *0.54*	242	2.0	5.5	2.4	1.6	0.50	1.6	0.35	0.75	60

(1) European and BS frame references
(2) European frame reference
(3) BS frame reference

For performance curves and notes - see page 26

Performance data

750 min^{-1} (8 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 starting current ratio	Direct on line pull out torque ratio	Direct on line pull up torque	Star delta starting torque ratio [1]	Star delta starting current ratio	Star delta pull up torque	Rotor inertia WK^2	Mean sound pressure level @ 1m on no load
P_N kW (hp)	n min^{-1}	Type		I_N 380V A	I_N 400V A	I_N 415V A	η **1.0 P_N** *0.75 P_N* *0.5 P_N*	CosØ **1.0 P_N** *0.75 P_N* *0.5 P_N*	M_N Nm	$\frac{M_A}{M_N}$	$\frac{I_A}{I_N}$	$\frac{M_K}{M_N}$	$\frac{M_S}{M_N}$	$\frac{M_A}{M_N}$ Y	$\frac{I_A}{I_N}$ Y	$\frac{M_S}{M_N}$ Y	J kgm^2	L_{PA} dB(A)
22 (30)	730	**W-UEF225MN**[2] **W-EF225MN**[3]		50	47	45	**91.5** *91.5* *89.0*	**0.74** *0.66* *0.54*	288	2.0	6.0	2.4	1.6	0.45	1.7	0.35	1.23	62
30 (40)	735	**W-UEF250MNE**[2] **W-EF250SN**[3]		67	64	61	**92.0** *92.0* *90.0*	**0.74** *0.67* *0.55*	390	1.7	6.0	2.4	1.6	0.4	1.7	0.35	1.47	62
37 (50)	735	**W-UEF280SNE**[2] **W-EF250MN**[3]		81	77	74	**92.5** *92.5* *91.5*	**0.75** *0.68* *0.56*	481	1.7	6.0	2.4	1.6	0.4	1.7	0.35	2.55	63
45 (60)	735	**W-UEF280MNE**[2] **W-EF280SN**[3]		98	93	90	**93.0** *92.8* *91.6*	**0.75** *0.69* *0.57*	585	1.7	6.0	2.4	1.4	0.4	1.7	0.3	2.9	63
55 (75)	740	**W-UEF315SNE**[2] **W-EF280MN**[3]		119	113	109	**93.5** *93.3* *92.0*	**0.75** *0.70* *0.58*	710	2.5	6.0	2.0	1.5	0.6	1.7	0.35	5.0	64
75 (100)	740	**W-UEF315MNE**[2] **W-EF315SN**[3]		159	151	146	**94.1** *93.9* *92.2*	**0.76** *0.72* *0.60*	968	2.5	6.0	2.0	1.5	0.6	1.7	0.35	6.0	64
90 (125)	740	**W-UEF315MN**[2] **W-EF315MN**[3]		188	179	172	**94.4** *94.2* *93.4*	**0.77** *0.73* *0.64*	1161	2.4	6.0	2.0	1.8	0.65	1.7	0.45	6.1	65
110 (150)	740	**W-UEF315LN**[2] **W-EF315LN**[3]		227	218	210	**94.6** *94.4* *93.6*	**0.77** *0.73* *0.64*	1419	2.4	6.0	2.0	1.8	0.65	1.7	0.45	7.3	65

[1] European and BS frame references
[2] European frame reference
[3] BS frame reference

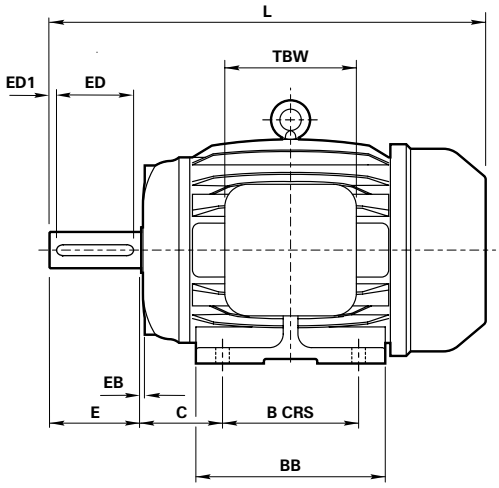
For performance curves and notes - see page 26

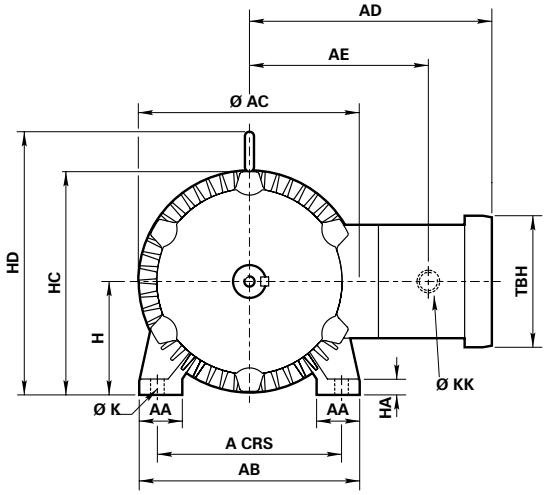
Dimensions- European and BS specification

Foot, flange and face mounting - frames 90 - 180L

IM B3
IM 1001

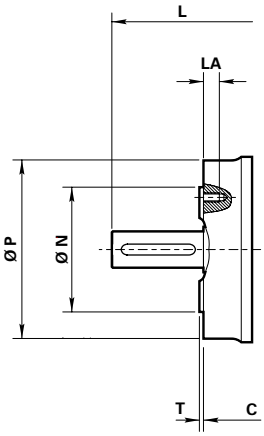
Mounting options

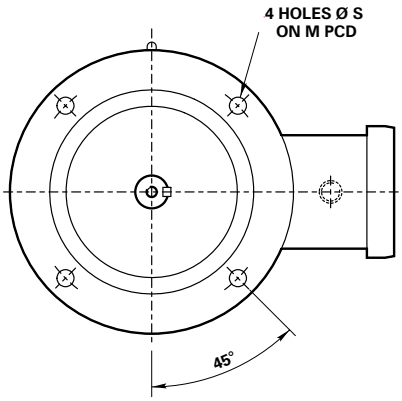




IM B5/IM B35
IM 3001/IM 2001

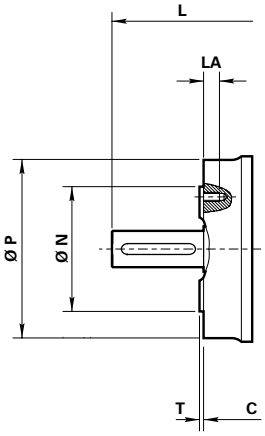
Mounting options

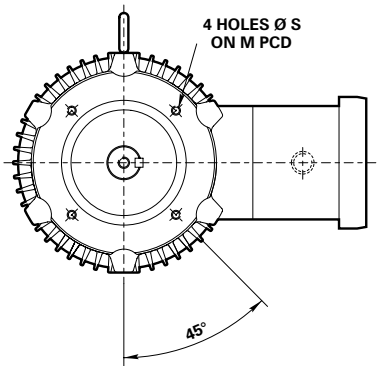




IM B14/IM B34
IM 3601/IM 2101

Mounting options



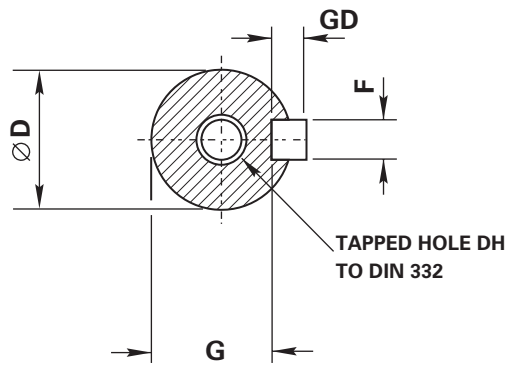


Foot, flange and face mounting - frames 90 - 180L

Type	General															Terminal box		
	A	B	C	H	K	L[1]	AA	AB	AC	AD	AE	BB	HA	HC	HD	TBW	TBH	KK
W-EF90S	140	100	56	90	10	309	38	175	188	230	169	127	12	188	236	140	140	1 x M20
W-EF90L	140	125	56	90	10	334	38	175	188	230	169	152	12	188	236	140	140	1 x M20
W-EF100L[2]	160	140	63	100	12	394	38	194	196	241	179	187	14	205	252	140	140	1 x M20
W-EF112M	190	140	70	112	12	391	38	229	240	260	198	179	16	239	282	140	140	1 x M25
W-EF132S	216	140	89	132	12	467	52	260	258	289	221	178	19	272	318	171.5	171.5	1 x M25
W-EF132M	216	178	89	132	12	505	52	260	258	289	221	216	19	272	318	171.5	171.5	1 x M25
W-EF160M	254	210	108	160	15	605	64	318	318	316	248	267	19	328	375	171.5	171.5	1 x M32
W-EF160L	254	254	108	160	15	650	64	318	318	316	248	311	19	328	375	171.5	171.5	1 x M32
W-EF180M	279	241	121	180	15	664	76	356	365	343	275	298	19	380	440	197	197	1 x M32
W-EF180L	279	279	121	180	15	702	76	356	365	343	275	337	19	380	440	197	197	1 x M32

Type	IM B5 mounting						IM B14 mounting					
	M	N	P	S	T	LA	M	N	P	S	T	LA
W-EF90S	165	130	200	12	3.5	12	115	95	140	M8	3	10
W-EF90L	165	130	200	12	3.5	12	115	95	140	M8	3	10
W-EF100L	215	180	250	15	4	11	130	110	160	M8	3.5	19
W-EF112M	215	180	250	15	4	11	130	110	160	M8	3.5	19
W-EF132S	265	230	300	15	4	12	165	130	200	M10	3.5	19
W-EF132M	265	230	300	15	4	12	165	130	200	M10	3.5	19
W-EF160M	300	250	350	19	5	13	215	180	250	M12	4	19
W-EF160L	300	250	350	19	5	13	215	180	250	M12	4	19
W-EF180M	300	250	350	19	5	15	–	–	–	–	–	–
W-EF180L	300	250	350	19	5	15	–	–	–	–	–	–

Type	Shaft								
	D	E	F	G	GD	ED	ED1	EB	DH
W-EF90S	24	50	8	20	7	40	5	2	M8 x 19
W-EF90L	24	50	8	20	7	40	5	2	M8 x 19
W-EF100L	28	60	8	24	7	50	5	2	M10 x 22
W-EF112M	28	60	8	24	7	50	5	1.6	M10 x 22
W-EF132S	38	80	10	33	8	70	5	2	M12 x 28
W-EF132M	38	80	10	33	8	70	5	2	M12 x 28
W-EF160M	42	110	12	37	8	100	5	4.8	M16 x 36
W-EF160L	42	110	12	37	8	100	5	4.8	M16 x 36
W-EF180M	48	110	14	42.5	9	100	5	4.8	M16 x 36
W-EF180L	48	110	14	42.5	9	100	5	4.8	M16 x 36



[1] For vertically mounted, shaft down motors see table on page 4 for increase in overall length due to the fitting of an impact cover.
[2] On frame W-EF100L, the foot hole centres 'B' are not central within the feet 'BB', but are offset 11mm towards the drive end.

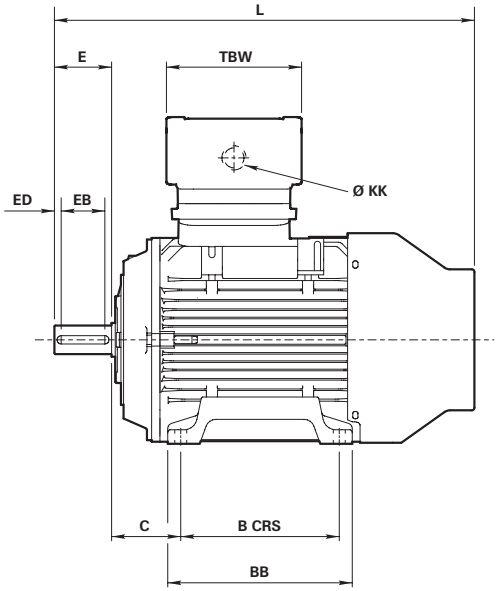
For tolerance details and notes - see page 27

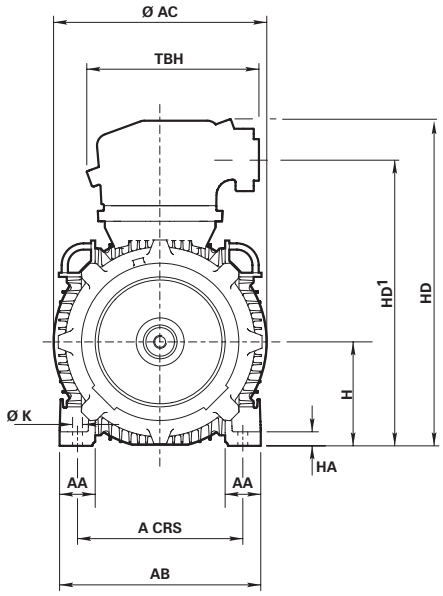
Dimensions - European specification

Foot and flange mounting - frames 200 - 315L

IM B3
IM 1001

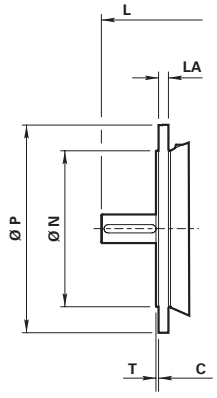
Mounting options

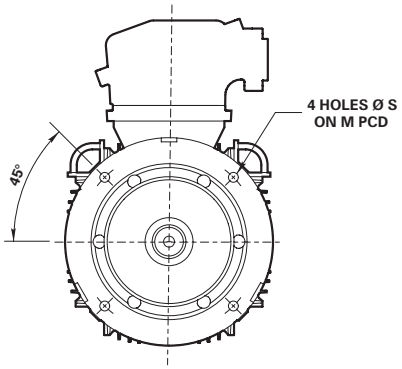




IM B5/IM B35
IM 3001/IM 2001

Mounting options



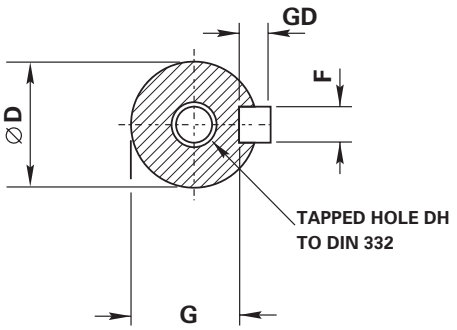


(1) 4 holes at 22.5° for flanges to suit 200 frame
8 holes at 22.5° for flanges to suit 225 frames and above

Foot and flange mounting - frames 200 - 315L

Type	General A	B	C	H	K	4 pole × 2 pole L[1]	L[1]	AA	AB	AC	BB	HA	HD	HD[1]	Terminal box TBH	TBW	KK
W-UEF200LN	318	305	133	200	M16	*810*	*810*	63	386	410	355	27	636	548	332	260	1 x M40 1 x M20
W-UEF225SN	356	286	149	225	M16	*873*	*843*	70	426	410	349	25	661	573	332	260	1 x M40 1 x M20
W-UEF225MN	356	311	149	225	M16	*915*	*885*	70	426	448	374	25	680	598	332	260	1 x M40 1 x M20
W-UEF250MNE	406	349	168	250	M20	*985*	*985*	79	482	448	419	28	706	623	332	260	1 x M40 1 x M20
W-UEF280SNE	457	368	190	280	M20	*1060*	*1060*	83	540	508	438	35	800	721	392	335	1 x M50 1 x M20
W-UEF280MNE	457	419	190	280	M20	*1070*	*1070*	83	540	508	487	35	800	721	392	335	1 x M50 1 x M20
W-UEF315SNE	508	406	216	315	M24	*1145*	*1115*	89	597	563	483	38	865	756	392	335	1 x M50 1 x M20
W-UEF315MNE	508	457	216	315	M24	*1215*	*1185*	89	597	563	533	38	865	756	392	335	1 x M50 1 x M20
W-UEF315MN	508	457	216	315	M24	*1245*	*1215*	89	597	640	533	38	960	821	459	384	1 x M63 1 x M20
W-UEF315LN	508	508	216	315	M24	*1315*	*1285*	89	597	640	583	38	960	821	495	384	1 x M63 1 x M20

Type	IM B5, IM B35 Flange M	N	P	S	T	LA
W-UEF200LN	350	300	400	4 x 19	5	19
W-UEF225SN	400	350	450	8 x 19	5	19
W-UEF225MN	400	350	450	8 x 19	5	19
W-UEF250MNE	500	450	550	8 x 19	5	25
W-UEF280SNE	500	450	550	8 x 19	5	25
W-UEF280MNE	500	450	550	8 x 19	5	25
W-UEF315SNE	600	550	660	8 x 24	5	29
W-UEF315MNE	600	550	660	8 x 24	6	29
W-UEF315MN	600	550	660	8 x 24	6	29
W-UEF315LN	600	550	660	8 x 24	6	29



Type	Shaft 4 pole D	E	F	G	GD	EB	ED	2 pole D	E	F	G	GD	EB	ED	DH
W-UEF200LN	55	110	16	49	10	100	5	55	110	16	49	10	100	5	M20 x 42
W-UEF225SN	60	140	18	53	11	125	5	-	-	-	-	-	-	-	M20 x 42
W-UEF225MN	60	140	18	53	11	125	5	55	110	16	49	10	100	5	M20 x 42
W-UEF250MNE	65	140	18	58	11	125	5	60	140	18	53	11	125	5	M20 x 42
W-UEF280SNE	75	140	20	67.5	12	125	5	65	140	18	58	11	125	5	M20 x 42
W-UEF280MNE	75	140	20	67.5	12	125	5	65	140	18	58	11	125	5	M20 x 42
W-UEF315SNE	80	170	22	71	14	160	5	65	140	18	58	11	125	5	M20 x 42
W-UEF315MNE	80	170	22	71	14	160	5	65	140	18	58	11	125	5	M20 x 42
W-UEF315MN	80	170	22	71	14	160	5	65	140	18	58	11	125	5	M20 x 42
W-UEF315LN	80	170	22	71	14	160	5	65	140	18	58	11	125	5	M20 x 42

[1] For vertically mounted, shaft down motors see table on page 4 for increase in overall length due to the fitting of an impact cover.

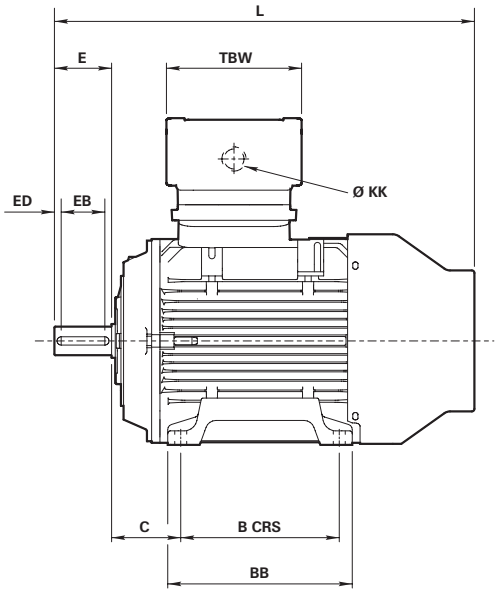
For tolerance details and notes - see page 27

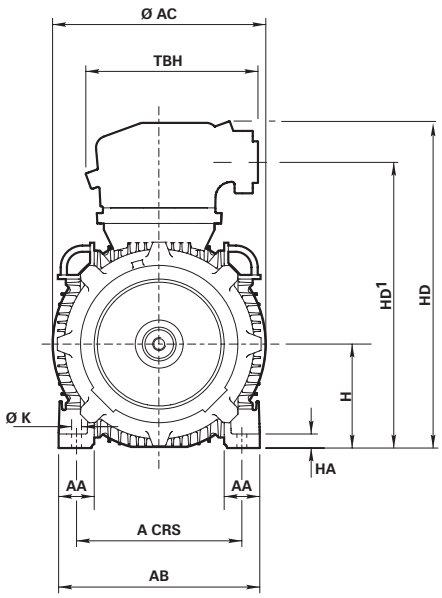
Dimensions - BS specification

Foot and flange mounting - frames 200 - 315L

IM B3
IM 1001

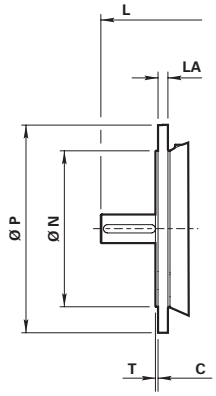
Mounting options

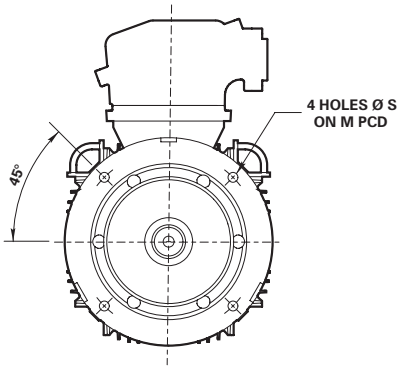




IM B5/IM B35
IM 3001/IM 2001

Mounting options



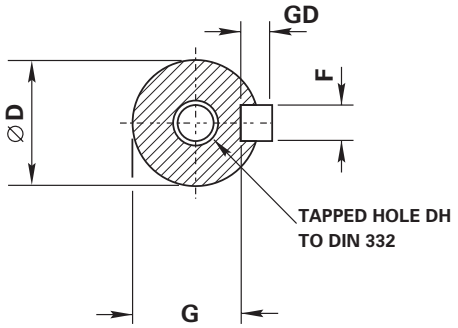


(1) 4 holes at 0° for flanges to suit 200 frame
8 holes at 0° for flanges to suit 225 frames and above

Foot and flange mounting - frames 200 - 315L

	General					4 pole × 2 pole									Terminal box		
Type	A	B	C	H	K	L[1]	L[1]	AA	AB	AC	BB	HA	HD	HD[1]	TBH	TBW	KK
W-EF200LN	318	305	133	200	M16	*810*	*810*	63	386	410	355	27	636	548	332	260	1 x M40 1 x M20
W-EF225SN	356	286	149	225	M16	*873*	*843*	70	426	410	349	25	661	573	332	260	1 x M40 1 x M20
W-EF225MN	356	311	149	225	M16	*915*	*885*	70	426	448	374	25	680	598	332	260	1 x M40 1 x M20
W-EF250SN	406	311	168	250	M20	*985*	*985*	79	482	448	381	28	705	623	332	260	1 x M40 1 x M20
W-EF250MN	406	349	168	250	M20	*1030*	*1030*	79	482	508	419	28	770	661	392	335	1 x M50 1 x M20
W-EF280SN	457	368	190	280	M20	*1100*	*1070*	83	540	508	438	35	800	721	392	335	1 x M50 1 x M20
W-EF280MN	457	419	190	280	M20	*1145*	*1115*	83	540	563	487	35	830	721	392	335	1 x M50 1 x M20
W-EF315SN	508	406	216	315	M24	*1215*	*1185*	89	597	563	483	38	865	756	392	335	1 x M63 1 x M20
W-EF315MN	508	457	216	315	M24	*1245*	*1215*	89	597	640	533	38	960	821	459	384	1 x M63 1 x M20
W-EF315LN	508	508	216	315	M24	*1315*	*1285*	89	597	640	583	38	960	821	459	384	1 x M63 1 x M20

	IM B5, IM B35 Flange					
Type	M	N	P	S	T	LA
W-EF200LN	350	300	400	4 x 19	5	19
W-EF225SN	400	350	450	8 x 19	5	19
W-EF225MN	400	350	450	8 x 19	5	19
W-EF250SN	500	450	550	8 x 19	5	25
W-EF250MN	500	450	550	8 x 19	5	25
W-EF280SN	500	450	550	8 x 19	5	25
W-EF280MNE	500	550	550	8 x 19	5	25
W-EF280MN	500	450	550	8 x 19	5	25
W-EF315SN	600	550	660	8 x 24	6	29
W-EF315MN	600	550	660	8 x 24	6	29
W-EF315LN	600	550	660	8 x 24	6	29



	Shaft													
	4 pole							2 pole							
Type	D	E	F	G	GD	EB	ED	D	E	F	G	GD	EB	ED	DH
W-EF200LN	55	110	16	49	10	100	5	55	110	16	49	10	100	5	M20 x 42
W-EF225SN	60	140	18	53	11	125	5	-	-	-	-	-	-	-	M20 x 42
W-EF225MN	60	140	18	53	11	125	5	55	110	16	49	10	100	5	M20 x 42
W-EF250SN	70	140	20	62.5	12	125	5	60	140	18	53	11	125	5	M20 x 42
W-EF250MN	70	140	20	62.5	12	125	5	65	140	18	53	11	125	5	M20 x 42
W-EF280SN	80	170	22	71	14	160	5	65	140	18	58	11	125	5	M20 x 42
W-EF280MN	80	170	22	71	14	160	5	65	140	18	58	11	125	5	M20 x 42
W-EF315SN	85	170	22	76	14	160	5	65	140	18	58	11	125	5	M20 x 42
W-EF315MNE	85	170	22	76	14	160	5	65	140	18	58	11	125	5	M20 x 42
W-EF315MN	85	170	22	76	14	160	5	65	140	18	58	11	125	5	M20 x 42
W-EF315LN	85	170	22	76	14	160	5	65	140	18	58	11	125	5	M20 x 42

[1] For vertically mounted, shaft down motors see table on page 4 for increase in overall length due to the fitting of an impact cover.

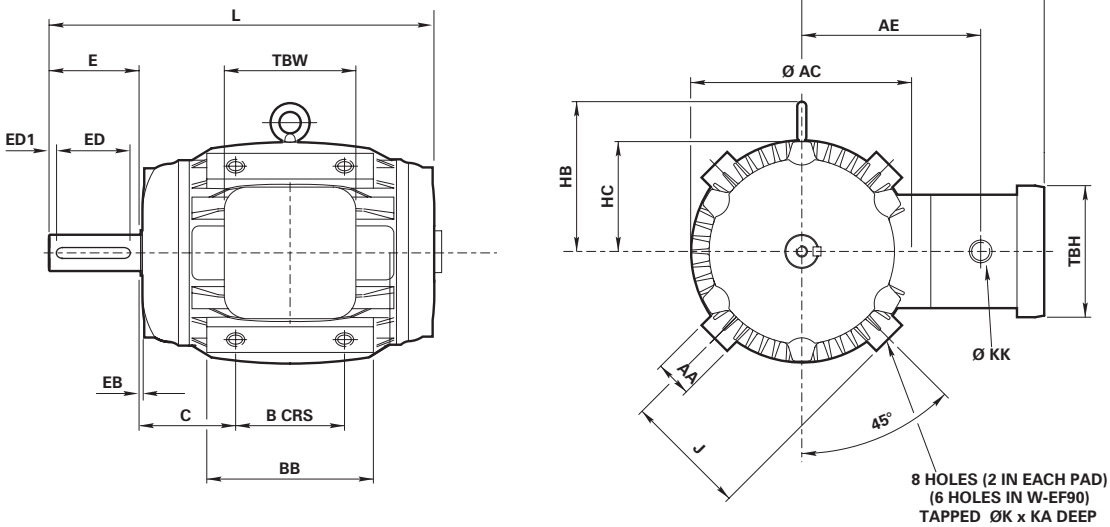
For tolerance details and notes - see page 27

Dimensions

Pad/rod mounting - frames 90 - 280M

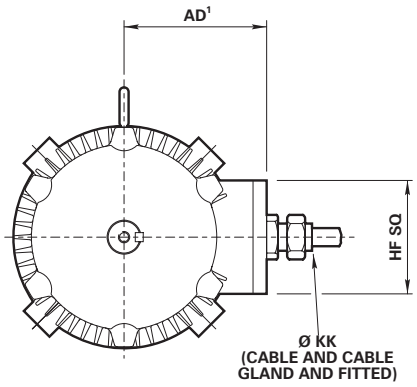
IM B30, IM V30, IM V31
IM9201, IM9211,
IM9231

with terminal box



IM B30, IM V30, IM V31
IM9201, IM9211,
IM9231

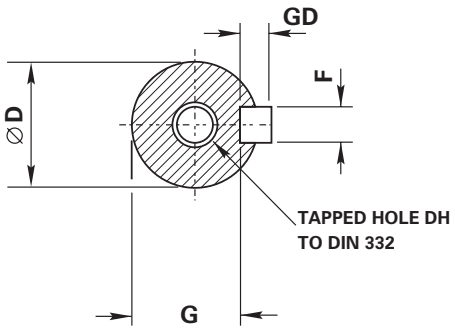
without terminal box



Pad/rod mounting - frames 90 - 280M

Type	General														Terminal box arrangement			
	B	C	J	K	L	AA	AC	AD	AD[1]	AE	BB	HB	HC	KA	TBH	TBW	HF SQ	KK
W-EF90L-P	90	73.5	94	M12	277	19	188	230	135	169	139	146	98	12	140	140	115	1 x M20
W-EF100L-P	100	83	103	M12	359	29	196	241	145	179	153	152	105	12	140	140	115	1 x M20
W-EF112M-P	100	90	125	M12	344	34	240	260	164	198	140	170	127	12	140	140	115	1 x M25
W-EF132M-P	140	108	141	M16	444	45	258	289	181	221	197	186	140	19	171.5	171.5	143	1 x M25
W-EF160L-P	200	135	174	M20	582	45	318	316	208	248	261	215	168	21	171.5	171.5	143	1 x M32
W-EF180L-P	200	160.5	195	M20	632	45	365	343	239	275	273	260	200	21	197	197	175	1 x M32
W-EF200LF-P	224	173.5	229	M24	745	70	392	436	270	338	269	-	195	30	332[3]	260	216	1 x M40
W-EF225M-P[1]	224	192.5	255	M24	810	70	442	460	295	375	280	-	220	40	332[3]	260	216	1 x M40
W-EF225M-P[2]	224	192.5	255	M24	780	70	442	460	295	375	280	-	220	40	332[3]	260	216	1 X M40
W-EF250M-P	224	230.5	285	M24	900	80	506	510	338	413	304	-	245	40	392[3]	335	270	1 x M50
W-EF280M-P[1]	419	190	330	M30	1010	80	550	541	369	444	499	-	275	50	392[3]	335	270	1 x M50
W-EF280M-P[2]	419	190	330	M30	980	80	550	541	369	444	499	-	275	50	392[3]	335	270	1 X M50

Type	Shaft								
	D	E	F	G	GD	ED	ED1	EB	DH
W-EF90L-P	24	50	8	20	7	40	5	2	M8 x 19
W-EF100L-P	28	60	8	24	7	50	5	2	M10 x 22
W-EF112M-P	28	60	8	24	7	50	5	1.6	M10 x 22
W-EF132M-P	38	80	10	33	8	70	5	2	M12 x 28
W-EF160L-P	42	110	12	37	8	100	5	4.8	M16 x 36
W-EF180L-P	48	110	14	42.5	9	100	5	4.8	M16 x 36
W-EF200LF-P	55	110	16	49	10	100	5	5	M20 x 42
W-EF225M-P[1]	60	140	18	53	11	125	5	5	M20 x 42
W-EF225M-P[2]	55	110	16	49	10	125	5	5	M20 X 42
W-EF250M-P[1]	70	140	20	62.5	12	125	5	5	M20 x 42
W-EF250M-P[2]	60	140	18	53	11	125	5	5	M20 X 42
W-EF280M-P[1]	80	170	22	71	14	160	5	5	M20 x 42
W-EF280M-P[2]	65	140	18	58	11	125	5	5	M20 X 42



[1] 4 pole and above

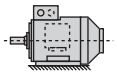
[2] 2 pole

[3] Overall length of terminal box across gland plate

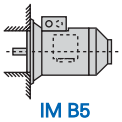
For tolerance details and notes - see page 27

Mounting options

Horizontal shaft:



IM B3
IM 1001
foot mounted

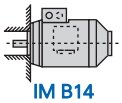


IM B5
IM 3001
flange at DE
no feet

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

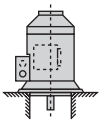
IM B7
IM 1061
foot wall mounted with
feet on right-hand side
when viewed from DE

IM B8
IM 1071
ceiling mounted
with feet
above motor

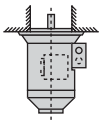


IM B14
IM 3601
face at DE
no feet

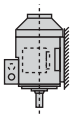
Vertical shaft:



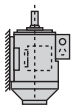
IM V1
IM 3011
flange at DE
shaft down
no feet



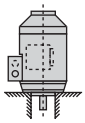
IM V3
IM 3031
flange at DE
shaft up
no feet



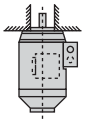
IM V5
IM 1011
vertical foot
wall mounted
shaft down



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

Approximate shipping specifications/ heater ratings

Type		Net weight	Gross weight	Cubage
European	BS	kg	kg	m^3
W-EF90S	**W-EF90S**	30	32	0.050
W-EF90L	**W-EF90L**	35	36	0.050
W-EF100L	**W-EF100L**	48	48	0.065
W-EF112M	**W-EF112M**	54	64	0.119
W-EF132S	**W-EF132S**	87	86	0.119
W-EF132M	**W-EF132M**	99	102	0.119
W-EF160M	**W-EF160M**	140	156	0.161
W-EF160L	**W-EF160L**	161	174	0.161
W-EF180M	**W-EF180M**	216	224	0.324
W-EF180L	**W-EF180L**	222	248	0.324
W-UEF200L	**W-EF200L**	340	370	0.324
W-UEF225S	**W-EF225S**	370	407	0.433
W-UEF225M	**W-EF225M**	445	482	0.433
W-UEF250MNE	**W-EF250S**	494	550	0.801
W-UEF280SNE	**W-EF250M**	694	750	0.831
W-UEF280MNE	**W-EF280S**	755	821	1.3
W-UEF315SNE	**W-EF280M**	890	950	1.3
W-UEF315MNE	**W-EF315S**	1150	1240	1.9
W-UEF315M	**W-EF315M**	1350	1445	1.9
W-UEF315L	**W-EF315L**	1550	1645	2.0

Heater ratings		
Frame size	Heater rating (W)	
	240V	110V
90	12	12
100	12	12
112	14	14
132	24	24
160	40	40
180	40	40
200	29	29
225	48	42
250	48	42
280	96	84
315	96	84

Technical information: Mechanical

Bearing references and oil seals for horizontally-mounted motors only

Type			Bearings		Oil seals	
European	BS	Polarity	Drive end	Non-drive end	Drive end	Non-drive end
W-EF90S/L	W-EF90S/L	All	62052Z	62052Z	25 x 35 x 7	25 x 35 x 7
W-EF100L	W-EF100L	All	62062Z	62052Z	30 x 42 x 7	20 x 30 x 7
W-EF112M	W-EF112M	All	63062Z	63052Z	30 x 42 x 7	20 x 30 x 7
W-EF132S/M	W-EF132S/M	All	63082Z	63052Z	40 x 52 x 7	20 x 30 x 7
W-EF160M/L	W-EF160M/L	All	63092Z	63082Z	45 x 60 x 8	35 x 47 x 7
W-EF180M/L	W-EF180M/L	All	63102Z	63092Z	50 x 65 x 8	42 x 56 x 7
W-UEF200LN	W-EF200LN	All	6313	6313	65 x 90 x 10	65 x 90 x 10
W-UEF225S	W-EF225S	All	6313	6313	65 x 90 x 10	65 x 90 x 10
W-UEF225M	W-EF225M	All	6314	6314	70 x 90 x 10	70 x 90 x 10
W-UEF250MNE	W-EF250S	2	6314	6314	70 x 90 x 10	70 x 90 x 10
		4 up	6316	6316	80 x 110 x 10	80 x 110 x 10
W-UEF280SNE	W-EF250M	2	6314	6314	70 x 90 x 10	70 x 90 x 10
		4 up	6318	6318	90 x 120 x 12	90 x 120 x 12
W-UEF280MNE	W-EF280S	2	6314	6314	70 x 90 x 10	70 x 90 x 10
		4 up	6318	6318	90 x 120 x 12	90 x 120 x 12
W-UEF315SNE	W-EF280M	2	6316	6316	70 x 90 x 10	70 x 90 x 10
		4 up	6319	6319	90 x 120 x 12	90 x 120 x 12
W-UEF315MNE	W-EF315S	2	6316	6316	70 x 90 x 10	70 x 90 x 10
		4 up	6319	6319	90 x 120 x 12	90 x 120 x 12
W-UEF315M	W-EF315M	2	6316	6316	70 x 90 x 10	70 x 90 x 10
		4 up	6319	6319	90 x 120 x 10	90 x 120 x 12
W-UEF315L	W-EF315L	2	6316	6316	70 x 90 x 10	70 x 90 x 10
		4 up	6319	6319	90 x 120 x 12	90 x 120 x 12

Grease life expected at 80°C bearing temperature x 10^3 hours

Type		3000 min^{-1}		1500 min^{-1}		1000 min^{-1}		750 min^{-1}	
European	BS	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
W-EF90S/L	W-EF90S/L	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
W-EF100L	W-EF100L	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
W-EF112M	W-EF112M	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
W-EF132S/M	W-EF132S/M	30.0	23.0	30.0	30.0	30.0	30.0	30.0	30.0
W-EF160M/L	W-EF160M/L	29.0	19.0	30.0	30.0	30.0	30.0	30.0	30.0
W-EF180M/L	W-EF180M/L	24.0	16.0	30.0	30.0	30.0	30.0	30.0	30.0
W-UEF200L	W-EF200L	12.6	8.2	30.0	20.3	30.0	27.8	30.0	30.0
W-UEF225S	W-EF225S	12.6	8.2	30.0	20.3	30.0	27.8	30.0	30.0
W-UEF225M	W-EF225M	11.3	7.4	29.5	19.2	30.0	26.0	30.0	30.0
W-UEF250MNE	W-EF250S	11.3	7.4	26.3	17.1	30.0	23.6	30.0	29.3
W-UEF280SNE	W-EF250M	11.3	7.4	23.4	15.2	30.0	21.3	30.0	27.8
W-UEF280MNE	W-EF280S	11.3	7.4	23.4	15.2	30.0	21.3	30.0	27.8
W-UEF315SNE	W-EF280M	9.4	6.1	21.3	13.8	30.0	20.2	30.0	26.0
W-UEF315MNE	W-EF315S	9.4	6.1	21.3	13.8	30.0	20.3	30.0	26.0
W-UEF315M	W-EF315M	9.4	6.1	21.3	13.8	30.0	20.3	30.0	26.0
W-UEF315L	W-EF315L	9.4	6.1	21.3	13.8	30.0	20.3	30.0	26.0

(1) DE = Drive End
(2) NDE = Non-Drive End

Technical information: Mechanical

Axial and radial loads

Maximum permissible external axial thrust and radial loads in Newtons (N)

Type	Poles	Horizontal shaft		Vertical shaft				Maximum permissible radial load at end of shaft (standard mounting)
				Shaft up		Shaft down		
		Load towards motor	Load away from motor	Load towards motor	Load away from motor	Load towards motor	Load away from motor	
W-EF90S	2	840	1064	819	1096	872	1043	850
	4	775	999	747	1042	818	971	797
	6	627	851	599	894	670	823	685
	8	649	873	621	916	692	845	702
W-EF90L	2	837	1061	812	1100	876	1036	881
	4	771	995	738	1046	822	962	824
	6	619	843	579	903	679	803	700
	8	643	867	608	922	698	832	722
W-EF100L	2	777	1087	733	1156	846	1043	1325
	4	709	1019	653	1106	796	963	1249
	6	563	873	508	956	646	818	1181
	8	584	894	527	980	670	837	1053
W-EF112M	2	1315	1583	1257	1675	1407	1525	1788
	4	1193	1461	1084	1631	1363	1352	1659
	6	1130	1398	1046	1529	1261	1314	1610
	8	980	1248	895	1379	1111	1163	1389
W-EF132S	2	1216	1629	1124	1772	1359	1537	2729
	4	1123	1536	1015	1704	1291	1428	2759
	6	1045	1458	935	1629	1216	1348	2657
	8	867	1280	736	1480	1067	1149	2392
W-EF132M	4	1101	1514	967	1722	1309	1380	2838
	6	1029	1442	902	1638	1225	1315	2742
	6*	1019	1432	879	1648	1235	1292	2725
	8	860	1273	718	1487	1074	1131	2479
W-EF160M	2	2482	3277	2612	3543	3048	3107	3549
	4	2837	3332	2641	3641	3146	3136	3669
	6	2651	3146	2404	3533	3038	2899	3472
	8	2338	2833	2085	3225	2730	2580	3170
W-EF160L	2	2753	3248	2551	3566	3071	3046	2633
	4	2803	3298	2566	3669	3174	3061	3748
	6	2663	3158	2409	3553	3058	2904	3607
	8	2285	2780	1965	3273	2778	2460	3196
W-EF180M	2	3666	4229	3376	4683	4120	3939	4294
	4	3847	4410	3518	4928	4365	4080	4519
W-EF180L	4	3815	4377	3447	4955	4393	4009	4576
	6	3613	4176	3192	4835	4273	3755	4362
	8	3203	3766	2779	4422	3860	3342	3980

All figures are based on L10aah life of 20,000 hours
* 5.5kW

Technical information: Mechanical

Maximum permissible external axial thrust and radial loads in Newtons (N)

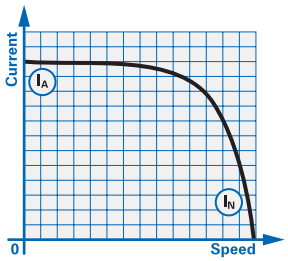
Type		Poles	Horizontal shaft		Vertical shaft				Maximum permissible radial load at end of shaft	
					Shaft up		Shaft down		Standard ball bearing	
European frame	BS frame		Load towards motor	Load away from motor	Load towards motor	Load away from motor	Load towards motor	Load away from motor	European frame	BS frame
W-UEF200LN	W-EF200LN	2	6039	5469	5538	6170	6740	4968	5765	5765
		4	6756	6186	6121	7081	7651	5551	6281	6281
		6	6833	6263	6115	7275	7845	5545	6298	6298
		8	6505	5935	5787	6947	7517	5217	5955	5955
W-UEF225S	W-EF225S	4	6692	6122	5941	7177	7747	5371	5963	5963
		6	6770	6200	5935	7371	7941	5365	5982	5982
		8	6441	5871	5606	7042	7612	5036	5648	5648
W-UEF225M	W-EF225M	2	6729	6197	6084	7082	7614	6213	6602	6602
		4	7530	6998	6745	8099	8631	6213	6868	6876
		6	7640	7108	6673	8463	8995	6141	6856	6856
		8	7293	6761	6326	8116	8648	5794	6501	6501
W-UEF250MNE	W-EF250S	2	6640	6108	5837	7209	7741	5305	6262	6262
		4	9012	8418	8030	9794	10388	7436	8163	8163
		6	9391	8797	8311	10311	10905	7717	8477	8477
		8	9007	8413	7927	9927	10521	7333	8087	8087
W-UEF280SNE	W-EF250M	2	6505	5911	5472	7352	7946	4878	5692	5897
		4	10241	9579	8943	11377	12039	8281	9260	9627
		6	10846	10184	9423	12157	12819	8761	9336	10182
		8	10400	9738	8977	11711	12373	8315	9336	9706
W-UEF280MNE	W-EF280S	2	6268	5736	5101	7355	7887	4569	5824	5795
		4	9774	9112	8014	11534	12196	7352	9136	8842
		6	10582	9920	8704	12524	13186	8042	9698	9386
		8	10136	9474	8257	12077	12739	7595	9216	8919
W-UEF315SNE	W-EF280M	2	7443	6849	5921	8957	9551	5327	6804	6804
		4	10305	9965	8299	12719	13059	7959	9443	9443
		6	11190	10850	9050	13810	14150	8710	10042	10042
		8	10797	10457	8657	13417	13757	8317	9630	9630
W-UEF315MNE	W-EF315S	2	7337	6743	5654	9082	9676	5060	6680	6680
		4	10077	9737	7672	13044	13384	7332	9121	9121
		6	10958	10618	8419	14131	14471	8079	9734	9734
		8	10347	10007	7798	13510	13850	7458	9312	9312
W-UEF315M	W-EF315M	2	7398	6804	5664	9154	9748	5070	6885	6885
		4	10192	9852	8006	12862	13202	7666	9482	9482
		6	11060	10720	8715	13971	14311	8375	10066	10066
		8	10667	10327	8322	13578	13918	7982	9640	9640
W-UEF315L	W-EF315L	2	7055	6461	5050	9164	9758	4456	6603	6606
		4	10008	9668	7501	13123	13463	7161	9207	9207
		6	10872	10532	8207	14229	14569	7867	9801	9801
		8	10263	9923	7587	13609	13949	7247	9367	9367

All figures are based on L10aah life of 20,000 hours

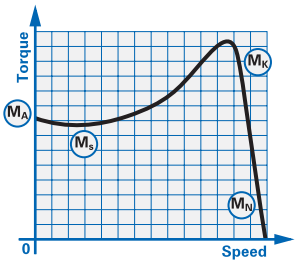
Performance data - page notes

DOL starting
(BS EN 60034-12 Design N)

Typical speed/current curve



Typical speed/torque curve

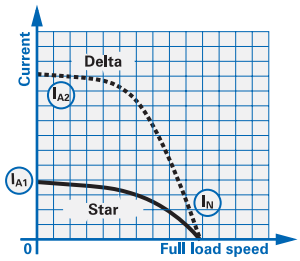


(I_A) Starting current
(I_N) Full load current
(M_A) Starting torque or locked rotor torque
(M_S) Pull up torque or run up torque
(M_K) Pull out torque or breakdown torque
(M_N) Full load torque

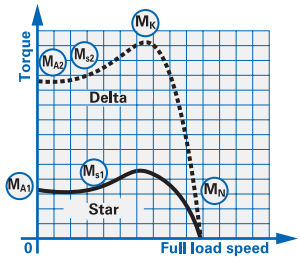
Torque/speed curves for specific motors can be supplied on request

Star delta starting
(BS EN 60034-12 Design NY)

Typical speed/current curve



Typical speed/torque curve



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.

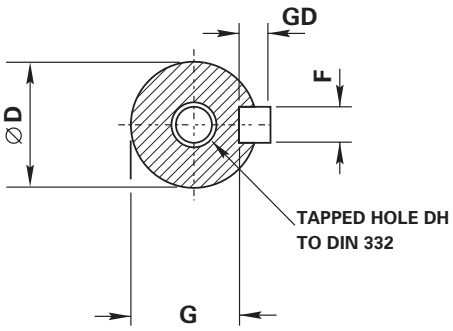
Performance figures are subject to IEC tolerances. Performance figures are based on a 400 volt winding.

To calculate I_N on special voltages, multiply the I_N at 400 volts by the following factors:

Voltage	220	346	365	420	440	500	550
Factor	1.82	1.16	1.1	0.95	0.91	0.80	0.73

Dimensions - page notes

Shaft		
	British and European	
Dim D	Tol	Limits
11 to 18	j6	+0.008 –0.003
19 to 28	j6	+0.009 –0.004
32 to 48	k6	+0.018 +0.002
55 to 80	m6	+0.030 +0.011
82 to 120	m6	+0.035 +0.013



Flange		
	EN 50347/IEC 72-1 Annex C.I.7 Option 1	
Dim N	Tol	Limits
95 and 110	j6	+0.013 –0.009
130 to 180	j6	+0.014 –0.011
230 to 250	h6	+0.000 –0.029
300	h6	+0.000 -0.032
350	h6	+0.000 -0.036
450	h6	+0.000 -0.040
550	h6	+0.000 -0.044

Face		
	EN 50347/IEC 72-1 Annex C.I.7 Option 1	
Dim N	Tol	Limits
60 and 80	j6	+0.012 –0.007
95 and 110	j6	+0.013 –0.009
130 and 180	j6	+0.014 –0.011

All dimensions in millimetres

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

No eyebolts on 90 frame

Dimensions should not be used for installation purposes unless specially endorsed

B5 mounted motors have suffix '-D' in the frame reference, eg W-EF132MS-D and B3/B5 mounted motors have suffix '-H' in the frame reference, eg W-EF132MS-H

B14 mounted motors have suffix 'C' in the frame reference, eg W-EF132MS-C and B3/B14 mounted motors have suffix '-H' in the frame reference, eg W-EF132MS-H

Pad mounted motors have suffix '-P' in the frame reference, eg W-EF132MS-P and rod mounted motors have suffix '-R' in the frame reference, eg W-EF132MS-R

Worldwide sales and service network

Every care has been taken to ensure the accuracy of the information contained in this publication, but, due to a policy of continuous development and improvement the right is reserved to supply products which may differ slightly from those illustrated and described in this publication

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Printed in England
nt139/07/04 2205E issue 2e