

# Keeping Industry Turning

## W Ex nA Zone 2

Non-sparking motors  
ATEX & IECEX



# Specification and Introduction

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## Ex nA Cast Iron Specification

Specification		
	Standard product	Option
<b>Frame sizes</b>	80 - 355 cast iron	71-180 aluminium
<b>Enclosure</b>	IP55	IP56, IP65, IP66
<b>Mounting option</b>	Foot (B3), Flange (B5), Face (B14) or Pad (B30)	Foot & Flange (B35), Foot & Face (B34) Vertical options (V1), (V18), (V3) etc
<b>Terminal box position</b>	Top, (80 & 90 frame right hand side)	Right hand side, left hand side
<b>Voltage</b>	3 kW and below: 220-240/380-415 4 kW and above: 380-415	-
<b>Frequency</b>	50 Hz	60 Hz
<b>Cooling</b>	IC411	IC410, IC416 & IC418
<b>Bearing location</b>	80- 180 non drive end 200- 355 drive end	Drive end Non drive end
<b>Lubrication</b>	80 - 180 double-shielded bearings 200 - 355 regreasing facility	Regreasing facility -
<b>Insulation</b>	class F	class H
<b>Temperature rise</b>	class B	class F
<b>Paint colour</b>	water blue (RAL 5021)	on request
<b>Fan cover</b>	Steel	-
<b>Thermal protection</b>	200 - 355 (by thermistors)	80 - 180
<b>Anti condensation heaters</b>	-	110-115V or 220-240V
<b>Ambient temperature</b>	-20°C to + 40°C	-55°C to +60°C

The above specification and options give a brief summary of features available for the W Ex nA cast iron range. For a full listing of optional features, please contact Brook Crompton sales.

## Brook Crompton

Brook Crompton, the original innovator in electric motor development, is a leading provider of energy efficient electric motors. With over 110 years' technical & design expertise, UK-based Brook Crompton delivers consistently reliable electric motors to a global market.

Trusted to power limitless industrial activities across diverse market sectors, the robust design of Brook Crompton's electric motors drives fans, pumps, compressors, conveyors and more, every second, of every day, of every year.

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

Renowned for their adaptability, Brook Crompton's extensive motor stock can be modified to suit the needs of different market sectors, with technical support from the company's knowledgeable team readily available to ensure the correct selection of motors for any application. For bespoke situations and complete flexibility, Brook Crompton will design and manufacture to meet individual customer specifications.

Brook Crompton has a long-standing reputation for efficient customer service, supporting customers

worldwide through its global network. Specialist Brook Crompton Motor Centres operate alongside approved product distributors throughout the UK, mainland Europe, Middle East, Canada, USA, and Asia Pacific.

Shaping the future of electric motors, Brook Crompton is focused on the development of new products that improve energy efficiency, offer lower cost of ownership throughout the motor lifetime and reduce environmental impact.

**Brook Crompton, the original innovator in electric motors.**

## Quality assurance

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

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

## W Ex nA cast iron range

The Brook Crompton W Ex nA motor range covers products with outputs from as little as 0.18kW to 400kW in frame sizes 80 to 355L.

Motors are manufactured in our factory that is licenced by a European notified body (EECS / SGS Baseefa, PTB) which meet rigorous quality controls.

## Benefits include:

- high efficiency for low running costs
- high reliability for long life
- low noise levels
- cool running for long insulation life
- high torque with smooth acceleration and low current
- ease of maintenance
- IP55 protection
- 4-position cable entry
- multi-mount for adaptability
- also available as Ex tc - Zone 22
- IE3 efficiency also available see catalogue 20161E

## ATEX

Brook Crompton's range of Ex nA motors are fully compliant with the requirements of the ATEX directive 2014/34/EU (previously 94/9/EC).

# Standards and environment

## Standards

Standards			
Motors of cast iron construction can be manufactured to the international standards listed below:			
Range	International	UK	Europe
Standard	IEC	BS, EN & IEC	EN & IEC
Outputs	IEC 60034-1	BS EN 50347:2001	EN 50347
Performance	IEC 60034-1	BS EN 50347:2001 BS EN 60034-30	EN 60034-1
Dimensions	IEC 60072-1	BS EN 50347 BS 4999 part 141	EN 50347
Mounting	IEC 60034-7	BS EN 60034-7	EN 60034-7
Degrees of protection	IEC 60034-5	BS EN 60034-5	EN 60034-5
Ex nA - Zone 2	IEC 60079-0 IEC 60079-15	BS EN 60079-0 BS EN 60079-15	EN 60079-0 EN 60079-15

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. 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)	ATEX
<b>Reference numbers</b>	2014/35/EU (previously 73/23/EEC, 93/68/EEC & 2006/95/EC)	2006/42/EEC (previously 89/392/EEC & 98/37/EEC)	2014/30/EU (previously 2004/108/EC, 89/336/EEC, 92/31/EEC & 93/68/EEC)	2014/34/EU (previously 94/9/EC)
<b>Motor CE marked</b>	Yes	No	No	Yes
<b>Standards</b>	EN 60034	Not applicable	EN 60034-1	EN 60079-0 & EN 60079-15
<b>Documentation for customers' technical file</b>	Declaration of conformity	Declaration of incorporation	Statement <sup>(1)</sup>	Declaration of conformity
<b>Safety instructions with every motor</b>	Yes	Yes	Yes	Yes
<b>Comment</b>	Relevant electrical equipment operating between 50 to 1000 volts AC	Statement <sup>(2)</sup>	Component	Hazardous atmosphere equipment - mandatory after July 2003

<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]

# Ex nA specification

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## ATEX & IECEx

### Ex nA Zone 2 non sparking motors

Frame sizes W-DF80 to W-DF355 - ATEX  
Frame sizes W-DF80 to W-DF355 - IECEx  
Suitable for use in Group II Zone 2 locations.

### General

The construction of Ex nA motors is similar to standard TEFV motors, but with special attention to eliminate production of arcs, sparks or dangerous surface temperatures. Air gap concentricity is rigidly inspected throughout manufacture, and the structure of the motor is impact-tested. All motors comply with the requirements of the ATEX Directive (2014/34/EU).

### Temperature class

An important feature of the motor design is the limitation imposed on the external or internal surface temperature that can be attained under all conditions except starting. This range of motors is suitable for use in gases with auto ignition temperature not lower than T3, ie 200°C. For temperature classes T4, T5 and T6 - please consult Brook Crompton.

Ex nA - ATEX Certificate Numbers	
Frame size	Certificate No
W-DF80 to W-DF180	BAS00ATEX3119X
W-DF200 to W-DF355L	BAS00ATEX3133X

Ex nA - IECEx Certificate Numbers	
Frame size	Certificate No
W-DF80 to W-DF180	IECEx BAS 15.0113X
W-DF200 to W-DF355L	IECEx BAS 15.0114X

### Terminal box

Standard and alternative terminal box positions are available as detailed in the table below (positions detailed are looking on drive end of motor).

Terminal box positions available			
Frame size	Top	LHS	RHS
W-DF80-90	-	Alternative	Standard
W-DF100-180	Standard	Alternative	Alternative
W-DF200-355	Standard	Alternative	Alternative

Terminal pin cable capacity and terminal nut tightening torque					
Frame size	T box size	Cable capacity (mm <sup>2</sup> )		Tightening torque (Nm)	
		Mains terminals	Aux terminals	Mains terminals	Aux terminals
80-100	80-100	4 (M4)	4	1.5	0.5-0.8
	112-132	10 (M5)	4	3	0.5-0.8
112-132	112-132	10 (M5)	4	3	0.5-0.8
	160-180	16 (M6)	4	5	0.5-0.8
160-180	160-180	16 (M6)	4	5	0.5-0.8
200L-280S	200-280S	95 (M10)	2.5	26	1
280M-355L	280M-355L	300 (M10)	2.5	26	1

### Dual zones

Some installations may be subjected to more than one type of hazard. The presence of gases and vapours etc may occur with combustible dusts. Under these circumstances, it is possible to supply motors with certification for both hazards. Further details are available from Brook Crompton.

### Impact cover / drip proof canopy

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

**This is a mandatory requirement.**

Add the following to the overall length of the motor (L) when fitted with an impact / drip proof canopy	
Frame size	extra length in mm
80	29
90	29
100	30
112	30
132	40
160	40
180	40
200LX	40
200	45
225	45
250	45
280	45
315	45
355	60

### Suitability for frequency converter drive

Inverter operation of explosion protected three phase motors is only permissible if the motors are manufactured, tested, certified and specifically marked for this type of operation.

For operation with an inverter, motors are equipped with PTC thermistors. To ensure compliance with the limits of the temperature class, the data from the thermistor must be analysed by suitable equipment.

Inverter motors will be fitted with an extra plate .

Before starting the motor, check the ratings of this extra plate (kW, Hz, torque) indicated.

The user must contact the manufacturer if this information is not provided.

The maximum voltage peak must not exceed 1400V.

### Ex nA EEMUA (non-sparking) motors

Frame sizes W-DF80 to W-DF355  
Suitable for use in Group II Zone 2 locations.

### General

The Brook Crompton Ex nA EEMUA motor range covers products from 0.18kW to 280kW.

### Standards

All motors comply with the requirements of EEMUA (The Engineering Equipment & Materials Users Association) Pub no 132-1988 and with leading petro-chemical industry specifications. They are manufactured in accordance with EN 50021 and are certified for use in Zone 2, hazardous areas.

### Performance

In accordance with BS 5000 Part 99 & IEC60034-1. Motors up to and including 40kW rated output have a starting characteristic in accordance with BS 4999 Part 112, design N. Motors above 40kW rated output have a characteristic in accordance with design D. Full performance data is available on request.

### Temperature class

Maximum surface temperatures are limited to T3.

### Mechanical features

Ferrous cooling fans  
Sheet steel fan covers  
Collar type eyebolts  
Cast iron stator frames and endshields  
Reduced balance  
IP55 enclosure  
Specially stamped nameplate  
Through greasing frames 160 and above

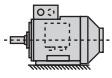
Phase barriers, for use with either shell clamps or uninsulated cable lugs, are standard on motors to EEMUA. By fitting a larger terminal box, solid aluminium cables can be catered for.

Ex nA heater ratings		
Frame size	Heater rating	
	240V	110V
80	12	12
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
355	192	169

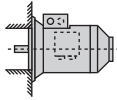
# Mounting options

## Mounting & Motor weights

### Horizontal shaft:



**IM B3  
IM 1001**  
foot mounted



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



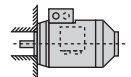
**IM B6  
IM 1051**  
foot wall mounted with  
feet on left-hand side  
when viewed from DE



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

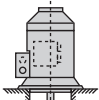


**IM B8  
IM 1071**  
ceiling mounted  
with feet  
above motor

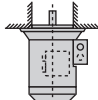


**IM B14  
IM 3601**  
face at DE  
no feet

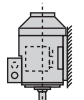
### Vertical shaft:



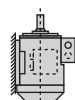
**IM V1  
IM 3011**  
flange at DE  
shaft down  
no feet



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



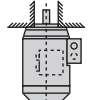
**IM V5  
IM 1011**  
vertical foot  
wall mounted  
shaft down



**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

Type		Net weight (kg)	Gross weight (kg)	Cubage (m <sup>3</sup> )
European	BS			
W-DF80M	W-DF80M	15	16.5	0.02
W-DF90S	W-DF90S	19	20.5	0.03
W-DF90L	W-DF90L	30.5	31.5	0.03
W-DF100L	W-DF100L	35.5	38.0	0.04
W-DF112M	W-DF112M	45.0	48.0	0.05
W-DF132S	W-DF132S	78.1	81.1	0.08
W-DF132M	W-DF132M	82.6	88.6	0.08
W-DF160M	W-DF160M	121	133	0.15
W-DF160L	W-DF160L	133	145	0.15
W-DF180M	W-DF180M	162	178	0.21
W-DF180L	W-DF180L	177.5	193.5	0.21
W-UDF200LX	W-DF200LX	255	270	0.30
W-UDF225S	W-DF225S	320	335	0.37
W-UDF225M	W-DF225M	375	390	0.37
W-UDF250ME	W-DF250S	420	460	0.63
W-UDF280SE	W-DF250M	570	610	0.70
W-UDF280ME	W-DF280S	660	721	1.2
W-UDF315SE	W-DF280M	800	871	1.2
W-UDF315ME	W-DF315S	1000	1095	1.8
W-UDF315M	W-DF315M	1100	1195	1.8
W-UDF315L	W-DF315L	1300	1395	1.8
W-UDF355S	W-DF355S	2000	2120	2.3
W-UDF355M	W-DF355M	2300	2420	2.3
W-UDF355L	W-DF355L	2500	2620	2.3

Weights listed above are approximate and based on foot mounted [B3] standard design.

# Performance data



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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 starting current ratio      Direct on line pull up torque ratio      Direct on line pull up torque      Star/delta starting torque ratio (I)      Star/delta starting current ratio      Star/delta pull up torque      Rotor inertia Wkg      Mean sound pressure level @ 1m on no load

P <sub>N</sub> kW (hp)	n min <sup>-1</sup>	Type	I <sub>N</sub>			η		Cos φ		M <sub>N</sub> Nm	M <sub>A</sub> M <sub>N</sub>	I <sub>A</sub> I <sub>N</sub>	M <sub>K</sub> M <sub>N</sub>	M <sub>S</sub> M <sub>N</sub>	M <sub>A</sub> M <sub>N</sub> Y	I <sub>A</sub> I <sub>N</sub> Y	M <sub>S</sub> M <sub>N</sub> Y	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)
			380 V A	400 V A	415 A	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>												
0.75 (1.0)	2850	W-DF80ME <sup>(1)</sup>	1.77	1.69	1.69	{ 77.0 77.0 73.0 }	{ 0.83 0.77 0.65 }		2.5	2.2	5.5	2.5	2.0	-	-	-	0.0014	64	
1.1 (1.5)	2875	W-DF80MJ <sup>(1)</sup>	2.51	2.39	2.39	{ 81.0 81.0 78.0 }	{ 0.82 0.75 0.63 }		3.7	2.7	6.7	2.7	2.4	-	-	-	0.0019	64	
1.5 (2.0)	2850	W-DF90SF <sup>(1)</sup>	3.4	3.2	3.2	{ 82.0 83.0 81.0 }	{ 0.82 0.75 0.63 }		5.0	2.5	6.0	3.0	2.2	-	-	-	0.0023	64	
2.2 (3.0)	2860	W-DF90LM <sup>(1)</sup>	4.6	4.4	4.4	{ 84.0 85.0 83.0 }	{ 0.86 0.81 0.71 }		7.4	2.5	6.3	3.0	2.2	-	-	-	0.0028	64	
3.0 (4.0)	2880	W-DF100LJ <sup>(1)</sup>	5.9	5.7	5.7	{ 86.5 87.0 86.5 }	{ 0.88 0.83 0.75 }		10.0	3.0	7.8	3.1	2.6	-	-	-	0.006	60	
4.0 (5.5)	2870	W-DF112MM <sup>(1)</sup>	7.6	7.2	7.2	{ 88.0 89.0 89.0 }	{ 0.91 0.89 0.85 }		13.3	3.0	7.8	3.1	2.8	0.85	2.8	0.80	0.008	60	
5.5 (7.5)	2910	W-DF132SE <sup>(1)</sup>	10.5	10.0	10.0	{ 89.5 89.5 88.0 }	{ 0.89 0.85 0.73 }		18.1	2.7	8.2	3.1	2.4	0.80	2.4	0.75	0.017	66	
7.5 (10)	2900	W-DF132SJ <sup>(1)</sup>	14.0	13.3	13.3	{ 89.5 90.0 89.0 }	{ 0.91 0.89 0.82 }		24.7	2.5	8.2	3.0	2.3	0.75	2.5	0.70	0.02	66	
11 (15)	2935	W-DF160MB <sup>(1)</sup>	20.7	19.7	19.7	{ 90.5 90.8 89.7 }	{ 0.89 0.86 0.79 }		35.8	2.2	7.8	3.0	1.8	0.65	2.5	0.60	0.039	68	
15 (20)	2935	W-DF160MJ <sup>(1)</sup>	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	68	
18.5 (25)	2940	W-DF160LR <sup>(1)</sup>	34	32	32	{ 91.8 92.1 91.3 }	{ 0.91 0.89 0.81 }		60.2	2.4	8.7	3.2	1.9	0.78	2.7	0.65	0.056	68	
22 (30)	2950	W-DF180ME <sup>(1)</sup>	39	37	37	{ 92.2 92.2 91.0 }	{ 0.92 0.90 0.84 }		71.4	2.2	9.0	3.1	1.9	0.65	2.8	0.60	0.094	68	
30 (40)	2950	W-UDF200LGX <sup>(2)</sup> W-DF200LGX <sup>(3)</sup>	55	52	52	{ 92.9 93.0 92.0 }	{ 0.89 0.86 0.80 }		97	2.7	7.8	2.9	2.3	0.75	2.5	0.60	0.15	73	
37 (50)	2945	W-UDF200LNX <sup>(2)</sup> W-DF200LNX <sup>(3)</sup>	67	64	64	{ 93.3 93.4 92.5 }	{ 0.89 0.86 0.80 }		120	2.7	7.8	2.9	2.3	0.75	2.5	0.60	0.18	73	
45 (60)	2960	W-UDF225MN <sup>(2)</sup> W-DF225MN <sup>(3)</sup>	87	77	77	{ 93.7 93.7 92.5 }	{ 0.90 0.88 0.83 }		145	2.3	7.8	2.8	1.9	0.65	2.5	0.50	0.47	75	
55 (75)	2955	W-UDF250MNE <sup>(2)</sup> W-DF250SN <sup>(3)</sup>	99	94	94	{ 94.6 94.6 94.5 }	{ 0.90 0.88 0.83 }		178	2.3	7.8	2.8	1.9	0.65	2.5	0.50	0.56	75	

<sup>(1)</sup> European and BS frame reference  
<sup>(2)</sup> European frame reference  
<sup>(3)</sup> BS frame reference

# Performance data



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

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P <sub>N</sub> kW (hp)	n min <sup>-1</sup>	Type	I <sub>N</sub>			η		Cos φ		M <sub>N</sub> Nm	M <sub>A</sub> M <sub>N</sub>	I <sub>A</sub> I <sub>N</sub>	M <sub>K</sub> M <sub>N</sub>	M <sub>S</sub> M <sub>N</sub>	M <sub>A</sub> M <sub>N</sub> Y	I <sub>A</sub> I <sub>N</sub> Y	M <sub>S</sub> M <sub>N</sub> Y	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)
			380 V A	400 V A	415 V A	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>											
75 (100)	2960	W-UDF280SNE <sup>(2)</sup> W-DF250MN <sup>(3)</sup>	134	127	123	{ 94.6 94.9 93.4 }	{ 0.90 0.88 0.83 }		242	2.2	7.8	3.0	2.0	0.65	2.5	0.50	0.7	77	
90 (125)	2960	W-UDF280MNE <sup>(2)</sup> W-DF280SN <sup>(3)</sup>	160	152	146	{ 95.0 95.0 93.5 }	{ 0.90 0.88 0.83 }		290	2.2	7.8	3.0	2.0	0.65	2.5	0.50	0.8	77	
110 (150)	2978	W-UDF315SNE <sup>(2)</sup> W-DF280MN <sup>(3)</sup>	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-UDF315MNE <sup>(2)</sup> W-DF315SN <sup>(3)</sup>	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-UDF315MN <sup>(2)</sup> W-DF315MN <sup>(3)</sup>	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-UDF315MP <sup>(2)</sup> W-DF315MP <sup>(3)</sup>	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-UDF315LN <sup>(2)</sup> W-DF315LN <sup>(3)</sup>	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-UDF315LP <sup>(2)</sup> W-DF315LP <sup>(3)</sup>	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	
225 (300)	2982	W-UDF355SG <sup>(2)</sup> W-DF355SG <sup>(3)</sup>	398	379	364	{ 96.4 95.9 94.6 }	{ 0.89 0.87 0.85 }		721	2.0	7.5	2.7	1.6	0.65	2.3	0.45	5.0	80	
250 (335)	2982	W-UDF355SJ <sup>(2)</sup> W-DF355SJ <sup>(3)</sup>	445	421	405	{ 96.4 96.0 94.8 }	{ 0.89 0.87 0.85 }		801	2.0	7.5	2.7	1.6	0.65	2.3	0.45	5.3	80	
280 (375)	2982	W-UDF355SN <sup>(1)</sup> W-DF355SN <sup>(3)</sup>	496	471	454	{ 96.4 96.1 94.9 }	{ 0.89 0.87 0.85 }		897	2.0	7.5	2.7	1.6	0.65	2.3	0.45	5.9	80	
315 (420)	2982	W-UDF355MJ <sup>(2)</sup> W-DF355MJ <sup>(3)</sup>	551	524	505	{ 96.5 96.2 95.2 }	{ 0.90 0.89 0.86 }		1009	2.0	7.5	2.7	1.6	0.65	2.3	0.45	6.3	80	
355 (475)	2982	W-UDF355MN <sup>(2)</sup> W-DF355MN <sup>(3)</sup>	621	590	569	{ 96.5 96.3 95.4 }	{ 0.90 0.89 0.86 }		1137	2.0	7.5	2.7	1.6	0.65	2.3	0.45	7.0	80	
400 (535)	2985	W-UDF355LN <sup>(2)</sup> W-DF355LN <sup>(3)</sup>	691	657	633	{ 96.6 96.4 95.6 }	{ 0.91 0.90 0.87 }		1280	2.0	7.5	2.7	1.6	0.65	2.3	0.45	8.0	80	

<sup>(1)</sup> European and BS frame reference  
<sup>(2)</sup> European frame reference  
<sup>(3)</sup> BS frame reference

# Performance data



8

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

P <sub>N</sub> kW (hp)	n min <sup>-1</sup>	Type	I <sub>N</sub>			η		Cos φ		M <sub>N</sub> Nm	M <sub>A</sub> M <sub>N</sub>	I <sub>A</sub> I <sub>N</sub>	M <sub>K</sub> M <sub>N</sub>	M <sub>S</sub> M <sub>N</sub>	M <sub>A</sub> M <sub>N</sub> Y	I <sub>A</sub> I <sub>N</sub> Y	M <sub>S</sub> M <sub>N</sub> Y	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)
			380 V A	400 V A	415V A	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>	0.75 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>	0.75 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>										
0.55 (0.75)	1410	W-DF80ME <sup>(1)</sup>	1.66	1.58	1.58	{ 75.0 75.0 70.0 }	{ 0.67 0.57 0.45 }		3.7	2.0	4.2	2.4	1.8	-	-	-	0.0015	47	
0.75 (1)	1410	W-DF80MG <sup>(1)</sup>	1.97	1.88	1.88	{ 78.0 79.0 77.0 }	{ 0.74 0.65 0.50 }		5.1	1.8	4.4	2.2	1.6	-	-	-	0.0019	47	
1.1 (1.5)	1435	W-DF90SE <sup>(1)</sup>	2.76	2.63	2.63	{ 79.5 80.0 78.0 }	{ 0.76 0.66 0.52 }		7.5	2.2	5.1	2.5	2.0	-	-	-	0.0028	48	
1.5 (2)	1435	W-DF90LK <sup>(1)</sup>	3.7	3.5	3.5	{ 81.0 82.0 80.0 }	{ 0.77 0.68 0.55 }		10.1	2.5	5.6	2.8	2.2	-	-	-	0.0035	48	
2.2 (3)	1440	W-DF100LJ <sup>(1)</sup>	5.0	4.8	4.8	{ 83.5 83.5 83.0 }	{ 0.80 0.74 0.61 }		14.8	2.2	5.5	2.5	1.9	-	-	-	0.008	54	
3 (4)	1445	W-DF100LR <sup>(1)</sup>	6.7	6.4	6.4	{ 84.5 85.5 85.0 }	{ 0.80 0.74 0.61 }		20.2	2.3	5.8	2.5	2.1	-	-	-	0.09	54	
4 (5.5)	1445	W-DF112MS <sup>(1)</sup>	8.7	8.3	8.3	{ 86.5 87.0 86.0 }	{ 0.80 0.74 0.60 }		26.5	2.5	7.0	2.9	2.1	0.75	2.2	0.65	0.015	56	
5.5 (7.5)	1450	W-DF132SJ <sup>(1)</sup>	11.6	11.0	11.0	{ 88.0 88.5 88.0 }	{ 0.82 0.76 0.64 }		36.2	2.4	7.5	2.9	2.1	0.70	2.2	0.60	0.027	59	
7.5 (10)	1460	W-DF132MR <sup>(1)</sup>	15.4	14.7	14.7	{ 89.0 89.5 89.0 }	{ 0.83 0.77 0.65 }		49.4	2.5	7.5	2.9	2.1	0.70	2.2	0.60	0.029	59	
11 (15)	1470	W-DF160MJ <sup>(1)</sup>	22	21	21	{ 91.0 91.2 90.5 }	{ 0.83 0.79 0.67 }		71.5	2.5	7.7	2.9	2.0	0.65	2.3	0.50	0.068	63	
15 (20)	1470	W-DF160LR <sup>(1)</sup>	29.5	28.1	28.1	{ 91.8 92.3 91.7 }	{ 0.84 0.79 0.68 }		97.5	2.5	7.7	2.9	2.0	0.65	2.3	0.50	0.084	63	
18.5 (25)	1470	W-DF180ME <sup>(1)</sup>	36	34	34	{ 92.2 92.3 91.3 }	{ 0.84 0.79 0.64 }		120	2.8	8.4	3.2	2.2	0.80	2.6	0.65	0.16	62	
22 (30)	1470	W-DF180LJ <sup>(1)</sup>	43	41	41	{ 92.6 92.9 92.5 }	{ 0.84 0.80 0.69 }		143	2.5	7.5	2.9	2.0	0.75	2.2	0.60	0.19	62	
30 (40)	1470	W-UDF200LN <sup>(2)</sup> W-DF200LN <sup>(3)</sup>	57	54	52	{ 93.2 93.2 92.3 }	{ 0.86 0.84 0.75 }		195	2.3	7.5	3.2	1.9	0.7	2.4	0.55	0.31	65	
37 (50)	1470	W-UDF225SN <sup>(2)</sup> W-DF225SN <sup>(3)</sup>	70	66	64	{ 93.6 93.6 92.5 }	{ 0.86 0.84 0.75 }		240	2.3	7.3	3.2	1.9	0.7	2.3	0.55	0.45	66	
45 (60)	1475	W-UDF225MN <sup>(2)</sup> W-DF225MN <sup>(3)</sup>	84	80	77	{ 93.9 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-UDF250MNE <sup>(2)</sup> W-DF250SN <sup>(3)</sup>	103	98	94	{ 94.2 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	

<sup>(1)</sup> European and BS frame reference

<sup>(2)</sup> European frame reference

<sup>(3)</sup> BS frame reference

# Performance data



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 starting current ratio      Direct on line pull up torque ratio      Direct on line pull up torque      Star delta starting torque ratio<sup>(1)</sup>      Star delta starting current ratio      Rotor inertia Wkg      Mean sound pressure level @ 1m on no load

P <sub>N</sub> kW (hp)	n min <sup>-1</sup>	Type	I <sub>N</sub>			η		Cos φ		M <sub>N</sub> Nm	M <sub>A</sub> M <sub>N</sub>	I <sub>A</sub> I <sub>N</sub>	M <sub>K</sub> M <sub>N</sub>	M <sub>S</sub> M <sub>N</sub>	M <sub>A</sub> M <sub>N</sub> Y	I <sub>A</sub> I <sub>N</sub> Y	M <sub>S</sub> M <sub>N</sub> Y	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)
			380 V A	400 V A	415 V A	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>												
75 (100)	1475	W-UDF280SNE <sup>(2)</sup> W-DF250MN <sup>(3)</sup>	138	131	126	{ 94.7 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-UDF280MNE <sup>(2)</sup> W-DF280SN <sup>(3)</sup>	165	157	151	{ 95.0 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-UDF315SNE <sup>(2)</sup> W-DF280MN <sup>(3)</sup>	201	191	184	{ 95.6 95.5 94.0 }	{ 0.87 0.85 0.77 }		710	2.4	7.7	2.6	2.0	0.70	2.5	0.5	3.2	71	
132 (175)	1482	W-UDF315MNE <sup>(2)</sup> W-DF315SN <sup>(3)</sup>	241	229	220	{ 95.8 95.6 94.2 }	{ 0.87 0.85 0.77 }		852	2.4	7.7	2.6	2.0	0.70	2.5	0.5	3.7	71	
150 (200)	1485	W-UDF315MN <sup>(2)</sup> W-DF315MN <sup>(3)</sup>	270	257	247	{ 95.9 95.7 94.7 }	{ 0.88 0.86 0.78 }		965	2.4	7.8	2.7	2.0	0.70	2.5	0.5	4.4	73	
160 (215)	1487	W-UDF315MP <sup>(2)</sup> W-DF315MP <sup>(3)</sup>	288	274	264	{ 95.9 95.7 94.7 }	{ 0.88 0.86 0.78 }		1029	2.4	7.8	2.7	2.0	0.70	2.5	0.5	4.7	73	
185 (250)	1487	W-UDF315LN <sup>(2)</sup> W-DF315LN <sup>(3)</sup>	333	316	305	{ 96.0 95.8 95.0 }	{ 0.88 0.86 0.78 }		1190	2.4	7.8	2.7	2.0	0.70	2.5	0.5	5.5	73	
200 (270)	1485	W-UDF315LN <sup>(2)</sup> W-DF315LN <sup>(3)</sup>	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	
225 (300)	1487	W-UDF355SG <sup>(2)</sup> W-DF355SG <sup>(3)</sup>	398	379	365	{ 96.4 96.2 95.4 }	{ 0.89 0.86 0.80 }		1445	2.1	7.2	2.5	1.7	0.65	2.2	0.5	8.2	76	
250 (335)	1487	W-UDF355SJ <sup>(2)</sup> W-DF355SJ <sup>(3)</sup>	442	420	405	{ 96.6 96.4 95.6 }	{ 0.89 0.86 0.80 }		1605	2.1	7.2	2.5	1.7	0.65	2.2	0.5	9.5	76	
280 (375)	1487	W-UDF355SN <sup>(2)</sup> W-DF355SN <sup>(3)</sup>	494	470	453	{ 96.7 96.5 95.8 }	{ 0.89 0.87 0.81 }		1798	2.1	7.2	2.5	1.7	0.65	2.2	0.5	10.6	76	
315 (420)	1487	W-UDF355MJ <sup>(2)</sup> W-DF355MJ <sup>(3)</sup>	556	528	509	{ 96.8 96.7 96.0 }	{ 0.89 0.88 0.83 }		2023	2.1	7.2	2.5	1.7	0.65	2.2	0.5	11.9	79	
355 (475)	1487	W-UDF355MN <sup>(2)</sup> W-DF355MN <sup>(3)</sup>	619	588	567	{ 96.8 96.7 96.3 }	{ 0.90 0.89 0.84 }		2280	2.1	7.2	2.5	1.7	0.65	2.2	0.5	13.2	79	
400 (535)	1487	W-UDF355LN <sup>(2)</sup> W-DF355LN <sup>(3)</sup>	697	662	638	{ 96.9 96.8 96.5 }	{ 0.90 0.89 0.84 }		2569	2.1	7.2	2.5	1.7	0.65	2.2	0.5	14.6	79	

<sup>(1)</sup> European and BS frame reference  
<sup>(2)</sup> European frame reference  
<sup>(3)</sup> BS frame reference

# Performance data



10

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

P <sub>N</sub> kW (hp)	n min <sup>-1</sup>	Type	I <sub>N</sub>			η		Cos φ		M <sub>N</sub> Nm	M <sub>A</sub> M <sub>N</sub>	I <sub>A</sub> I <sub>N</sub>	M <sub>K</sub> M <sub>N</sub>	M <sub>S</sub> M <sub>N</sub>	M <sub>A</sub> M <sub>N</sub> Y	I <sub>A</sub> I <sub>N</sub> Y	M <sub>S</sub> M <sub>N</sub> Y	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)
			380 V A	400 V A	415 V A	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>	0.75 P <sub>N</sub> 0.5 P <sub>N</sub>	0.75 P <sub>N</sub> 0.5 P <sub>N</sub>										
0.37 (0.5)	920	W-DF80MG <sup>(1)</sup>	1.33	1.27	1.27	{ 69.0 68.0 64.0 }	{ 0.61 0.51 0.40 }		3.8	2.0	3.7	2.2	1.8	-	-	-	0.0015	49	
0.55 (0.75)	920	W-DF80MM <sup>(1)</sup>	1.86	1.77	1.77	{ 71.0 71.0 68.0 }	{ 0.63 0.54 0.41 }		5.7	2.0	3.7	2.3	1.8	-	-	-	0.0021	49	
0.75 (1)	920	W-DF90SG <sup>(1)</sup>	2.23	2.12	2.12	{ 74.0 74.0 72.0 }	{ 0.69 0.59 0.45 }		7.8	2.2	4.1	2.4	2.0	-	-	-	0.0028	65	
1.1 (1.5)	940	W-DF90LT <sup>(1)</sup>	3.4	3.2	3.2	{ 78.0 77.0 75.0 }	{ 0.63 0.52 0.41 }		11.2	2.8	4.5	3.0	2.5	-	-	-	0.0039	65	
1.5 (2)	930	W-DF100LR <sup>(1)</sup>	4.5	4.3	4.3	{ 79.0 79.0 77.0 }	{ 0.64 0.54 0.42 }		15.4	2.0	4.2	2.3	2.0	-	-	-	0.009	58	
2.2 (3)	950	W-DF112MS <sup>(1)</sup>	5.8	5.5	5.5	{ 82.5 82.5 80.5 }	{ 0.70 0.60 0.47 }		22.1	2.8	5.8	2.8	2.3	-	-	-	0.014	54	
3 (4)	965	W-DF132SG <sup>(1)</sup>	7.5	7.1	7.1	{ 86.0 86.0 84.0 }	{ 0.71 0.64 0.52 }		29.8	2.2	6.5	2.7	1.7	0.65	2.1	0.55	0.023	58	
4 (5.5)	960	W-DF132ML <sup>(1)</sup>	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	0.60	2.0	0.50	0.027	58	
5.5 (7.5)	960	W-DF132MM <sup>(1)</sup>	12.9	12.3	12.3	{ 87.0 87.0 86.5 }	{ 0.74 0.67 0.54 }		54.7	2.0	5.5	2.5	1.6	0.60	2.0	0.50	0.029	58	
7.5 (10)	975	W-DF160MM <sup>(1)</sup>	16.8	16	16	{ 90.0 90.5 89.0 }	{ 0.75 0.70 0.60 }		73.4	1.8	6.5	2.8	1.7	0.55	2.1	0.5	0.10	59	
11 (15)	975	W-DF160LV <sup>(1)</sup>	23.8	22.7	22.7	{ 91.0 91.0 89.5 }	{ 0.77 0.72 0.60 }		108	2.0	7.5	2.8	1.9	0.60	2.5	0.50	0.12	59	
15 (20)	975	W-DF180LM <sup>(1)</sup>	33	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	0.23	59	
18.5 (25)	975	W-UDF200LGX <sup>(2)</sup> W-DF200LGX <sup>(3)</sup>	39	37	35	{ 91.2 91.2 90.0 }	{ 0.80 0.76 0.67 }		181	2.3	7.0	2.0	2.8	0.65	2.3	0.50	0.42	62	
22 (30)	975	W-UDF200LN <sup>(2)</sup> W-DF200LN <sup>(3)</sup>	46	43	42	{ 91.7 91.7 90.5 }	{ 0.80 0.76 0.67 }		215	2.3	7.0	2.0	2.8	0.65	2.3	0.50	0.48	62	
30 (40)	980	W-UDF225MN <sup>(2)</sup> W-DF225MN <sup>(3)</sup>	61	58	56	{ 92.7 92.7 91.7 }	{ 0.80 0.76 0.67 }		292	2.7	6.0	2.1	1.8	0.80	2.0	0.45	1.23	63	
37 (50)	980	W-UDF250MNE <sup>(2)</sup> W-DF250SN <sup>(3)</sup>	74	70	67	{ 93.2 93.2 92.0 }	{ 0.82 0.78 0.69 }		361	2.7	6.0	2.1	1.8	0.80	2.0	0.45	1.47	63	
45 (60)	985	W-UDF280SNE <sup>(2)</sup> W-DF250MN <sup>(3)</sup>	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	

<sup>(1)</sup> European and BS frame reference

<sup>(2)</sup> European frame reference

<sup>(3)</sup> BS frame reference

# Performance data



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

P <sub>N</sub> kW (hp)	n min <sup>-1</sup>	Type	I <sub>N</sub>			η		Cos φ		M <sub>N</sub> Nm	M <sub>A</sub> M <sub>N</sub>	I <sub>A</sub> I <sub>N</sub>	M <sub>K</sub> M <sub>N</sub>	M <sub>S</sub> M <sub>N</sub>	M <sub>A</sub> M <sub>N</sub> Y	I <sub>A</sub> I <sub>N</sub> Y	M <sub>S</sub> M <sub>N</sub> Y	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)
			380 V A	400 V A	415 V A	1.0 P <sub>N</sub> 0.75 P <sub>N</sub>	0.75 P <sub>N</sub> 0.5 P <sub>N</sub>	1.0 P <sub>N</sub> 0.75 P <sub>N</sub>	0.75 P <sub>N</sub> 0.5 P <sub>N</sub>										
55 (75)	985	W-UDF280MNE <sup>(2)</sup> W-DF280SN <sup>(3)</sup>	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-UDF315SNE <sup>(2)</sup> W-DF280MN <sup>(3)</sup>	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-UDF315MNE <sup>(2)</sup> W-DF315SN <sup>(3)</sup>	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-UDF315MN <sup>(2)</sup> W-DF315MN <sup>(3)</sup>	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-UDF315LN <sup>(2)</sup> W-DF315LN <sup>(3)</sup>	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	
150 (200)	985	W-UDF355SG <sup>(2)</sup> W-DF355SG <sup>(3)</sup>	281	267	257	95.5 95.4 94.5	0.85 0.83 0.76		1454	1.7	6.7	2.1	1.4	0.50	2.2	0.35	10	74	
160 (215)	985	W-UDF355SG <sup>(2)</sup> W-DF355SG <sup>(3)</sup>	298	283	273	95.9 95.7 94.9	0.85 0.83 0.76		1551	1.7	6.7	2.1	1.4	0.50	2.2	0.35	10	74	
185 (250)	985	W-UDF355SJ <sup>(2)</sup> W-DF355SJ <sup>(3)</sup>	345	328	316	95.9 95.8 95.1	0.85 0.83 0.76		1793	1.7	6.7	2.1	1.4	0.45	2.1	0.35	11.1	74	
200 (270)	985	W-UDF355SN <sup>(2)</sup> W-DF355SN <sup>(3)</sup>	372	354	341	96.0 95.9 95.2	0.85 0.83 0.76		1939	1.7	6.7	2.1	1.4	0.45	2.1	0.35	12.2	74	
225 (300)	985	W-UDF355MJ <sup>(2)</sup> W-DF355MJ <sup>(3)</sup>	419	398	384	96.0 96.0 95.4	0.85 0.83 0.76		2181	1.7	6.7	2.1	1.4	0.45	2.1	0.35	13.6	77	
250 (335)	985	W-UDF355MN <sup>(2)</sup> W-DF355MN <sup>(3)</sup>	465	442	426	96.1 96.1 95.6	0.85 0.83 0.76		2424	1.8	7.0	2.2	1.5	0.48	2.2	0.40	15.2	77	
280 (375)	990	W-UDF355LJ <sup>(2)</sup> W-DF355LJ <sup>(3)</sup>	520	494	476	96.2 96.2 95.7	0.85 0.83 0.76		2701	1.8	7.0	2.2	1.5	0.48	2.2	0.40	16.9	77	
315 (420)	990	W-UDF355LN <sup>(2)</sup> W-DF355LN <sup>(3)</sup>	585	555	535	96.3 96.3 95.9	0.85 0.83 0.76		3038	1.8	7.0	2.1	1.5	0.48	2.1	0.40	18.6	77	

<sup>(1)</sup> European and BS frame reference

<sup>(2)</sup> European frame reference

<sup>(3)</sup> BS frame reference

# Performance data



12

750 min<sup>-1</sup> (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 up torque ratio      Direct on line pull up torque      Star delta starting torque ratio<sup>(1)</sup>      Star delta starting current ratio      Star delta pull up torque      Rotor inertia Wkg      Mean sound pressure level @ 1m on no load

P <sub>N</sub> kW (hp)	n min <sup>-1</sup>	Type	I <sub>N</sub>			η		Cos φ		M <sub>N</sub> Nm	M <sub>A</sub> M <sub>N</sub>	I <sub>A</sub> I <sub>N</sub>	M <sub>K</sub> M <sub>N</sub>	M <sub>S</sub> M <sub>N</sub>	M <sub>A</sub> M <sub>N</sub> Y	I <sub>A</sub> I <sub>N</sub> Y	M <sub>S</sub> M <sub>N</sub> Y	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)
			380 V A	400 V A	415 V A	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>												
0.18 (0.25)	695	W-DF80MG <sup>(1)</sup>	1.01	0.96	0.96	{ 55.0 52.0 44.0 }	{ 0.49 0.42 0.34 }		2.5	2.2	2.7	2.5	2.0	-	-	-	0.0017	46	
0.25 (0.33)	695	W-DF80MM <sup>(1)</sup>	1.26	1.2	1.2	{ 59.0 56.5 49.0 }	{ 0.51 0.43 0.34 }		3.5	2.2	2.9	2.5	2.0	-	-	-	0.0021	46	
0.37 (0.5)	700	W-DF90SG <sup>(1)</sup>	1.71	1.63	1.63	{ 62.0 59.0 51.0 }	{ 0.53 0.44 0.34 }		5.1	2.3	3.0	2.5	2.1	-	-	-	0.0028	50	
0.55 (0.75)	680	W-DF90LM <sup>(1)</sup>	2.4	2.3	2.3	{ 64.0 62.0 55.0 }	{ 0.54 0.44 0.33 }		7.6	2.3	3.3	2.7	2.1	-	-	-	0.0035	50	
0.75 (1)	690	W-DF100LR <sup>(1)</sup>	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	-	-	-	0.009	53	
1.1 (1.5)	690	W-DF100LS <sup>(1)</sup>	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	-	-	-	0.0095	53	
1.5 (2)	705	W-DF112MT <sup>(1)</sup>	5.6	5.3	5.3	{ 71.9 66.6 60.4 }	{ 0.57 0.44 0.34 }		20.3	1.8	3.7	2.3	1.6	-	-	-	0.016	57	
2.2 (3)	720	W-DF132SM <sup>(1)</sup>	6.2	5.9	5.9	{ 82.5 83.0 80.0 }	{ 0.65 0.57 0.45 }		29.2	1.6	5.0	2.4	1.5	-	-	-	0.029	57	
3 (4)	720	W-DF132MR <sup>(1)</sup>	8.2	7.8	7.8	{ 84.0 84.0 82.0 }	{ 0.66 0.58 0.45 }		39.8	1.6	5.0	2.4	1.4	-	-	-	0.031	57	
4 (5.5)	725	W-DF160ME <sup>(1)</sup>	10.4	9.9	9.9	{ 86.0 86.0 84.0 }	{ 0.64 0.64 0.51 }		52.7	1.6	5.5	2.5	1.4	0.5	1.7	0.45	0.09	53	
5.5 (7.5)	725	W-DF160MM <sup>(1)</sup>	13.9	13.2	13.2	{ 87.0 87.0 85.5 }	{ 0.69 0.65 0.52 }		72.4	1.6	5.7	2.5	1.4	0.5	1.7	0.45	0.11	53	
7.5 (10)	725	W-DF160LV <sup>(1)</sup>	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	0.5	1.8	0.45	0.14	53	
11 (15)	730	W-DF180LM <sup>(1)</sup>	27.6	26.3	26.3	{ 90.0 90.0 88.0 }	{ 0.67 0.59 0.48 }		143.9	2.0	4.5	2.5	1.7	0.63	1.4	0.55	0.24	58	
15 (20)	730	W-UDF200LN <sup>(2)</sup> W-DF200LN <sup>(3)</sup>	35	33	32	{ 90.0 90.0 88.5 }	{ 0.73 0.66 0.54 }		196	1.8	5.8	2.6	1.6	0.45	1.7	0.35	0.48	60	
18.5 (25)	730	W-UDF225SN <sup>(2)</sup> W-DF225SN <sup>(3)</sup>	43	40	39	{ 90.5 90.5 89.5 }	{ 0.73 0.66 0.54 }		242	2.0	5.5	2.25	1.6	0.5	1.6	0.35	0.75	60	
22 (30)	730	W-UDF225MN <sup>(2)</sup> W-DF225MN <sup>(3)</sup>	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-UDF250MNE <sup>(2)</sup> W-DF250SN <sup>(3)</sup>	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	

<sup>(1)</sup> European and BS frame reference

<sup>(2)</sup> European frame reference

<sup>(3)</sup> BS frame reference

# Performance data



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

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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 up torque ratio  
Direct on line pull up torque  
Star delta starting torque ratio (I)  
Star delta starting current ratio  
Star delta pull up torque  
Rotor inertia Wk<sup>2</sup>  
Mean sound pressure level @ 1m on no load

P <sub>N</sub> kW (hp)	n min <sup>-1</sup>	Type	I <sub>N</sub>			η		Cos φ		M <sub>N</sub> Nm	M <sub>A</sub> M <sub>N</sub>	I <sub>A</sub> I <sub>N</sub>	M <sub>K</sub> M <sub>N</sub>	M <sub>S</sub> M <sub>N</sub>	M <sub>A</sub> M <sub>N</sub> Y	I <sub>A</sub> I <sub>N</sub> Y	M <sub>S</sub> M <sub>N</sub> Y	J kgm <sup>2</sup>	L <sub>PA</sub> dB(A)
			380 V A	400 V A	415 V A	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>	1.0 P <sub>N</sub> 0.75 P <sub>N</sub> 0.5 P <sub>N</sub>											
37 (50)	735	W-UDF280SNE <sup>(2)</sup> W-DF250MN <sup>(3)</sup>	81	77	74	92.5 92.5 91.5	0.75 0.68 0.56		481	1.7	6.0	2.4	1.6	0.40	1.7	0.35	2.55	63	
45 (60)	735	W-UDF280MNE <sup>(2)</sup> W-DF280SN <sup>(3)</sup>	98	93	90	93.0 92.8 91.6	0.75 0.69 0.57		585	1.7	6.0	2.4	1.4	0.40	1.7	0.3	2.9	63	
55 (75)	740	W-UDF315SNE <sup>(2)</sup> W-DF280MN <sup>(3)</sup>	119	113	109	93.5 93.3 92.0	0.75 0.70 0.58		710	2.5	6.0	2.0	1.5	0.60	1.7	0.35	5.0	64	
75 (100)	740	W-UDF315MNE <sup>(2)</sup> W-DF315SN <sup>(3)</sup>	159	151	146	94.1 93.9 92.2	0.76 0.72 0.60		968	2.5	6.0	2.0	1.5	0.60	1.7	0.35	6.0	64	
90 (125)	740	W-UDF315MN <sup>(2)</sup> W-DF315MN <sup>(3)</sup>	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-UDF315LN <sup>(2)</sup> W-DF315LN <sup>(3)</sup>	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	
132 (175)	740	W-UDF355SJ <sup>(2)</sup> W-DF355SJ <sup>(3)</sup>	274	260	251	95.1 94.8 93.6	0.77 0.73 0.64		1703	1.6	6.1	2.0	1.3	0.40	1.8	0.3	12.2	72	
150 (200)	740	W-UDF355SN <sup>(2)</sup> W-DF355SN <sup>(3)</sup>	310	294	284	95.5 95.3 94.0	0.77 0.73 0.64		1936	1.6	6.1	2.0	1.3	0.40	1.8	0.3	13.6	72	
160 (215)	740	W-UDF355SN <sup>(2)</sup> W-DF355SN <sup>(3)</sup>	331	315	303	95.5 95.3 94.0	0.77 0.73 0.64		2065	1.6	6.1	2.0	1.3	0.40	1.8	0.3	13.6	72	
185 (250)	740	W-UDF355MJ <sup>(2)</sup> W-DF355MJ <sup>(3)</sup>	383	364	350	95.6 95.4 94.1	0.77 0.73 0.64		2387	1.6	6.1	2.0	1.3	0.40	1.8	0.3	15.2	74	
200 (270)	740	W-UDF355MN <sup>(2)</sup> W-DF355MN <sup>(3)</sup>	413	393	378	95.6 95.4 94.3	0.77 0.73 0.64		2581	1.6	6.1	2.0	1.3	0.40	1.8	0.3	16.9	74	
225 (300)	740	W-UDF355LN <sup>(2)</sup> W-DF355LN <sup>(3)</sup>	464	441	425	95.6 95.4 94.7	0.77 0.73 0.64		2903	1.6	6.1	2.0	1.3	0.40	1.8	0.3	18.6	74	

<sup>(1)</sup> European and BS frame reference

<sup>(2)</sup> European frame reference

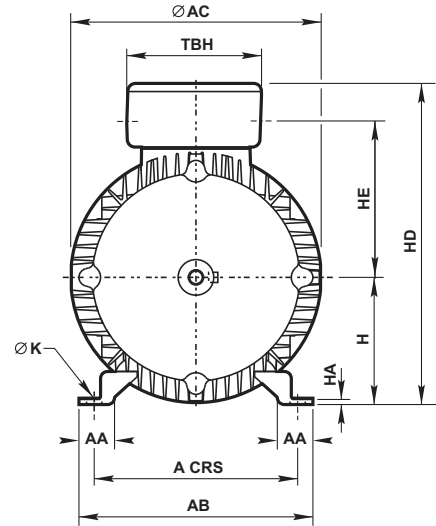
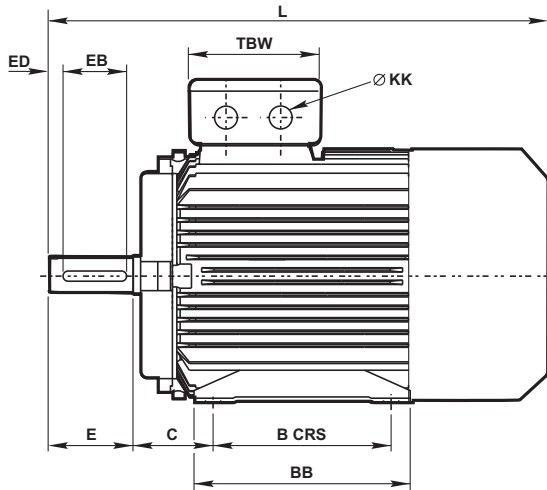
<sup>(3)</sup> BS frame reference

# Dimensions - European & BS specifications

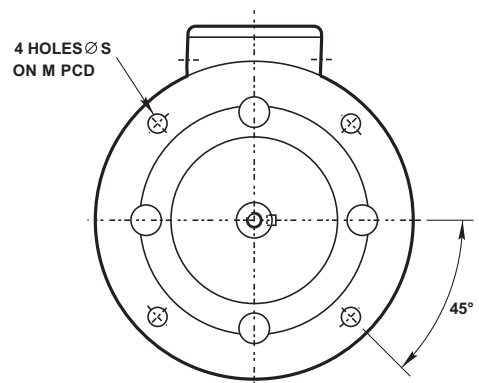
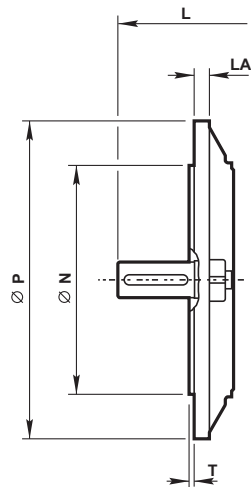
14

Foot, flange and face mounting - frame sizes 80 to 180

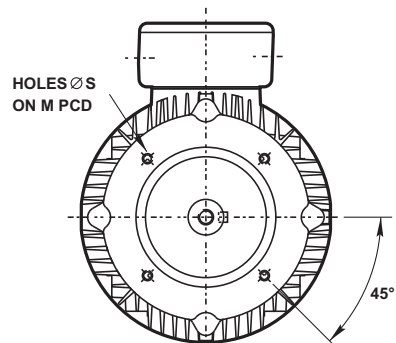
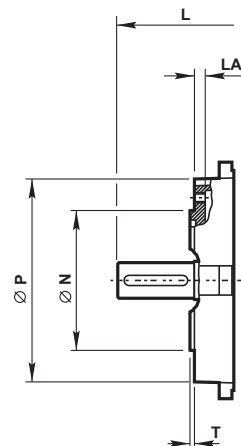
IM B3  
IM 1001  
Mounting options



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



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



# Dimensions- European & BS specifications

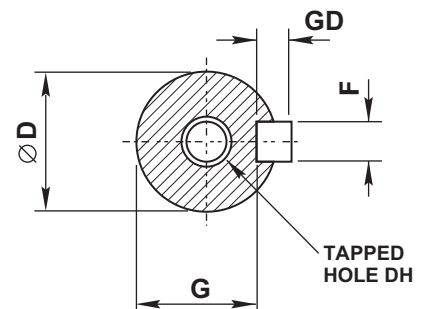
## Foot, flange and face mounting - frame sizes 80 to 180

General Type	A	B	C	H	K	L	AA	AB	AC	BB	HA	HD	HE	Terminal box		
														TBW	TBH	KK
W-DF80M	125	100	50	80	10	278	35	157	158	127	10	159*	118*	120	120	1 X 20
W-DF90S	140	100	56	90	10	322	38	175	175	155	12	179*	123*	120	120	1 X 20
W-DF90L	140	125	56	90	10	322	38	175	174	195	12	254	123	120	120	1 X 20
W-DF100L	160	140	63	100	12	368	34	195	197	206	14	274	133	120	120	2 X 20
W-DF112M	190	140	70	112	12	382	40	230	220	182	16	305	145	135	135	2 X 25
W-DF132S	216	140	89	132	12	447	47	255	256	220	16	348	168	135	135	2 X 25
W-DF132M	216	178	89	132	12	447	47	255	256	220	16	348	168	135	135	2 X 25
W-DF160M	254	210	108	160	15	604	55	300	315	300	22	428	208	174	174	2 X 32
W-DF160L	254	254	108	160	15	604	55	300	315	300	22	428	208	174	174	2 X 32
W-DF180M	279	241	121	180	15	663	64	344	355	326	22	469	230	174	174	2 X 32
W-DF180L	279	279	121	180	15	663	64	344	355	326	22	469	230	174	174	2 X 32

\* All 80 frame motors and the 90 frame 8 pole motor have the terminal box mounted on the right hand side when viewed on DE. Dimension 'HD' is the top of the motor when terminal box R.H.S and dimension 'HE' is the centre line of the motor to the centre line of the cable entry position.

Flange & Face Type	IM B5 mounting						IM B14 mounting					
	M	N	P	S	T	LA	M	N	P	S	T	LA
	W-DF80M	165	130	200	12	3.5	12	100	80	120	M6	3
W-DF90S/L	165	130	200	12	3.5	12	115	95	140	M8	3	9
W-DF100L	215	180	250	15	4	12	130	110	160	M8	3.5	12.5
W-DF112M	215	180	250	15	4	12	130	110	164	M8	3.5	13
W-DF132S	265	230	300	15	4	12	165	130	200	M10	3.5	14
W-DF132M	265	230	300	15	4	12	165	130	200	M10	3.5	14
W-DF160M	300	250	350	19	5	13	215	180	250	M12	4	13
W-DF160L	300	250	350	19	5	13	215	180	250	M12	4	13
W-DF180M	300	250	350	19	5	15	-	-	-	-	-	-
W-DF180L	300	250	350	19	5	15	-	-	-	-	-	-

Shaft Type	D	E	F	G	GD	EB	ED	DH
W-DF90S/L	24	50	8	20	7	40	5	M8 x 19
W-DF100L	28	60	8	24	7	50	5	M10 x 22
W-DF112M	28	60	8	24	7	50	5	M10 x 22
W-DF132S	38	80	10	33	8	70	5	M12 x 28
W-DF132M	38	80	10	33	8	70	5	M12 x 28
W-DF160M	42	110	12	37	8	100	5	M16 x 36
W-DF160L	42	110	12	37	8	100	5	M16 x 36
W-DF180M	48	110	14	42.5	9	100	5	M16 x 36
W-DF180L	48	110	14	42.5	9	100	5	M16 x 36

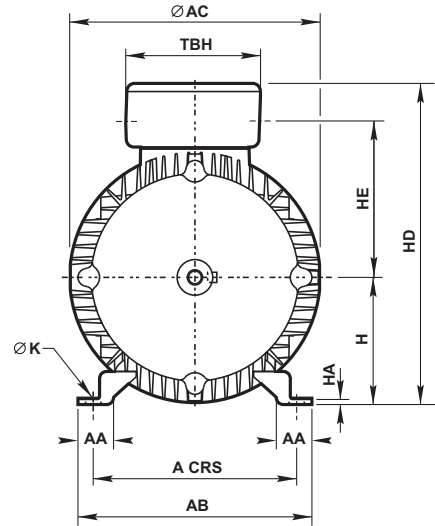
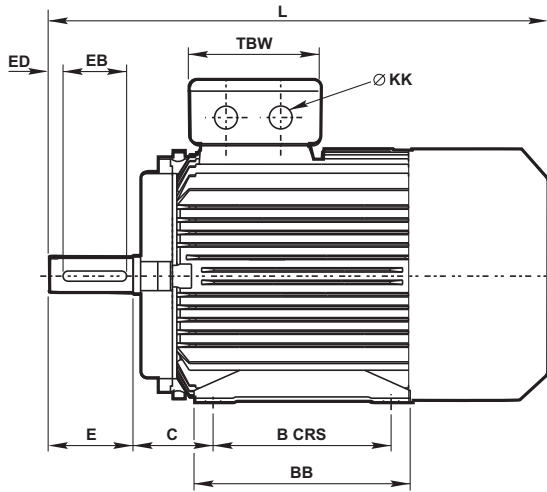


# Dimensions - European specification

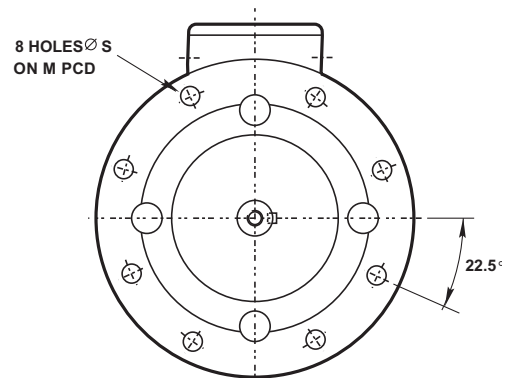
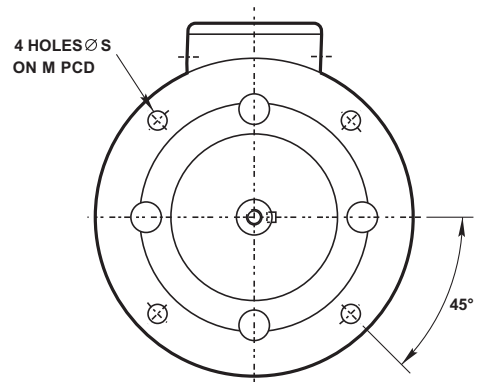
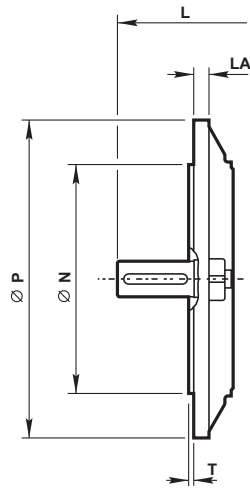
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Foot and flange mounting - frame sizes 200 to 355L

IM B3  
IM 1001  
Mounting options



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



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

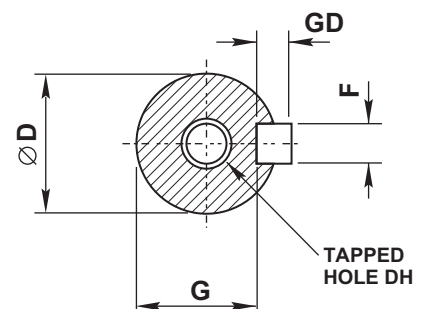
# Dimensions - European specification

## Foot and flange mounting - frame sizes 200 to 355L

General																			
Type	A	B	C	H	K	4 pole +		2 pole		AA	AB	AC	BB	HA	HD	HD'	Terminal box		KK
						L	L	TBW	TBH										
W-UDF200LX	318	305	133	200	M16	787	787	74	382	381	359	30	501	444	176	220	2 x M32 + 1 x M20		
W-UDF225S	356	286	149	225	M16	875	845	70	426	410	349	25	550 <sup>(1)</sup>	488	220	288	2 x M40 + 1 x M20		
W-UDF225M	356	311	149	225	M16	915	885	70	426	448	374	25	570	510	220	288	2 x M40 + 1 x M20		
W-UDF250ME	406	349	168	250	M20	985	985	79	482	448	419	28	595 <sup>(2)</sup>	535	220	288	2 x M50 + 1 x M20		
W-UDF280SE	457	368	190	280	M20	1065	1065	83	540	508	438	35	655 <sup>(1)</sup>	595	220	288	2 x M50 + 1 x M20		
W-UDF280ME	457	419	190	280	M20	1070	1070	83	540	508	489	35	655 <sup>(1)</sup>	595	220	288	2 x M50 + 1 x M20		
W-UDF315SE	508	406	216	315	M24	1145	1115	89	597	563	482	38	845	744	330	526	2 x M63 + 1 x M20		
W-UDF315ME	508	457	216	315	M24	1215	1185	89	597	563	533	38	845	744	330	526	2 x M63 + 1 x M20		
W-UDF315M	508	457	216	315	M24	1245	1215	89	597	640	533	38	875	776	330	526	2 x M63 + 1 x M20		
W-UDF315L	508	508	216	315	M24	1315	1285	89	597	640	583	38	875	776	330	526	2 x M63 + 1 x M20		
W-UDF355S	610	500	254	355	M24	1485	1415	100	710	732	626	27	975	874	330	526	2 x M63 + 1 x M20		
W-UDF355M	610	560	254	355	M24	1605	1535	100	710	732	686	27	975	874	330	526	2 x M63 + 1 x M20		
W-UDF355L	610	630	254	355	M24	1655	1585	100	710	732	756	27	975	874	330	526	2 x M63 + 1 x M20		

Shaft																	
Type	4 pole +								2 pole								
	D	E	F	G	GD	EB	ED	DH	D	E	F	G	GD	EB	ED	DH	
W-UDF200LX	55	110	16	49	10	100	5	M20 x 42	55	110	16	49	10	100	5	M20 x 42	
W-UDF225S	60	140	18	53	11	125	10	M20 x 42	55	110	16	49	10	100	5	M20 x 42	
W-UDF225M	60	140	18	53	11	125	10	M20 x 42	55	110	16	49	10	100	5	M20 x 42	
W-UDF250ME	65	140	18	58	11	125	10	M20 x 42	60	140	18	53	11	125	10	M20 x 42	
W-UDF280SE	75	140	20	67.5	12	125	10	M20 x 42	65	140	18	53	11	125	10	M20 x 42	
W-UDF280ME	75	140	20	67.5	12	125	10	M20 x 42	65	140	18	58	11	125	10	M20 x 42	
W-UDF315SE	80	170	22	71	14	160	5	M20 x 42	65	140	18	58	11	125	10	M20 x 42	
W-UDF315ME	80	170	22	71	14	160	5	M20 x 42	65	140	18	58	11	125	10	M20 x 42	
W-UDF315M	80	170	22	71	14	160	5	M20 x 42	65	140	18	58	11	125	10	M20 x 42	
W-UDF315L	80	170	22	71	14	160	5	M20 x 42	65	140	18	58	11	125	10	M20 x 42	
W-UDF355S	100	210	28	90	16	200	5	M24 x 50	75	140	20	67.5	12	125	10	M24 x 50	
W-UDF355M	100	210	28	90	16	200	5	M24 x 50	75	140	20	67.5	12	125	10	M24 x 50	
W-UDF355L	100	210	28	90	16	200	5	M24 x 50	75	140	20	67.5	12	125	10	M24 x 50	

Flange						
IM B5, IM B35 mounting						
Type	M	N	P	S	T	LA
W-UDF200LX	350	300	400	19	5	19
W-UDF225S	400	350	450	19	5	19
W-UDF225M	400	350	450	19	5	19
W-UDF250ME	500	450	550	19	5	25
W-UDF280SE	500	450	550	19	5	25
W-UDF280ME	500	450	550	19	5	25
W-UDF315SE	600	550	660	24	6	29
W-UDF315ME	600	550	660	24	6	29
W-UDF315M	600	550	660	24	6	29
W-UDF315L	600	550	660	24	6	29
W-UDF355S	740	680	800	24	6	28
W-UDF355M	740	680	800	24	6	28
W-UDF355L	740	680	800	24	6	28



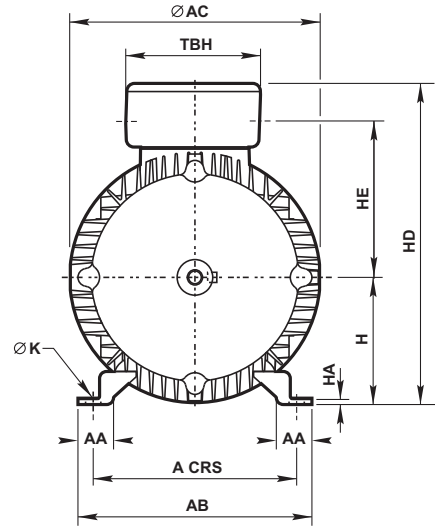
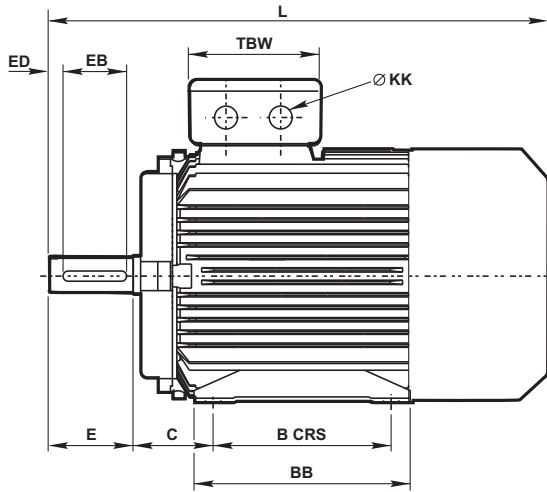
<sup>(1)</sup> add 25mm when cable entry is facing drive end  
<sup>(2)</sup> add 50mm when cable entry is facing drive end

# Dimensions - BS specification

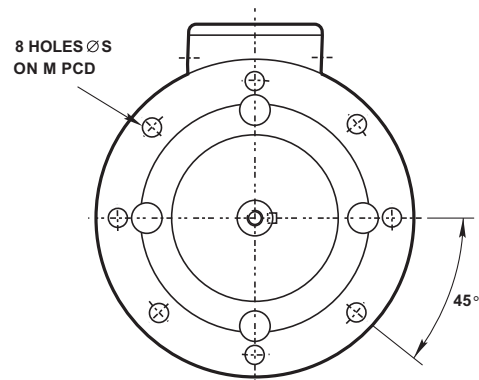
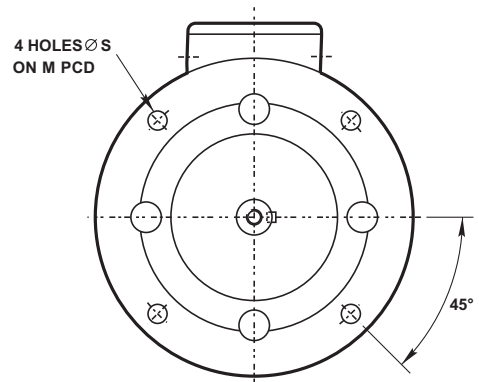
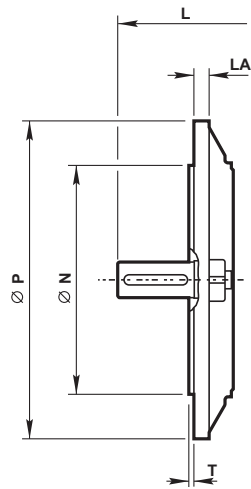
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Foot and flange mounting - frame sizes 200 to 355L

IM B3  
IM 1001  
Mounting options



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



8 holes at 0° for flanges to suit 225 frames and above to British specification

# Dimensions - BS specification

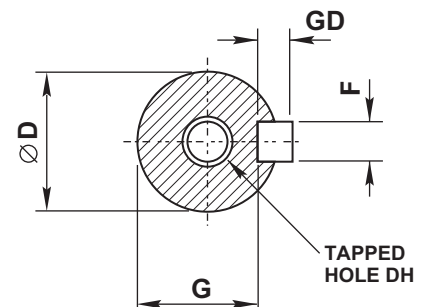
## Foot and flange mounting - frame sizes 200 to 355L

General																	
Type	A	B	C	H	K	4 pole +		2 pole		AA	AB	AC	BB	HA	HD	Terminal box	
						L	L	TBW	TBH								
W-DF200LX	318	305	133	200	M16	787	787	74	382	381	359	30	501	176	220		
W-DF225S	356	286	149	225	M16	875	845	70	426	410	349	25	550 <sup>(1)</sup>	220	288		
W-DF225M	356	311	149	225	M16	915	885	70	426	448	374	25	570	220	288		
W-DF250S	406	311	168	250	M20	985	985	79	482	448	381	28	595 <sup>(2)</sup>	220	288		
W-DF250M	406	349	168	250	M20	1030	1030	79	482	508	419	28	625 <sup>(1)</sup>	220	288		
W-DF280S	457	368	190	280	M20	1100	1070	83	540	508	438	35	655 <sup>(1)</sup>	220	288		
W-DF280M	457	419	190	280	M20	1145	1115	83	540	563	487	35	810	330	526		
W-DF315S	508	406	216	315	M24	1215	1185	89	597	563	483	38	845	330	526		
W-DF315M	508	457	216	315	M24	1245	1215	89	597	640	533	38	875	330	526		
W-DF315L	508	508	216	315	M24	1315	1285	89	597	640	583	38	875	330	526		
W-DF355S	610	500	254	355	M24	1485	1415	100	710	732	626	27	970	330	526		
W-DF355M	610	560	254	355	M24	1605	1535	100	710	732	686	27	970	330	526		
W-DF355L	610	630	254	355	M24	1655	1585	100	710	732	756	27	970	330	526		

Shaft																
Type	4 pole +								2 pole							
	D	E	F	G	GD	EB	ED	DH	D	E	F	G	GD	EB	ED	DH
W-DF200LX	55	110	16	49	10	100	5	M20 x 42	55	110	16	49	10	100	5	M20 x 42
W-DF225S	60	140	18	53	11	125	10	M20 x 42	55	110	16	49	10	100	5	M20 x 42
W-DF225M	60	140	18	53	11	125	10	M20 x 42	55	110	16	49	10	100	5	M20 x 42
W-DF250S	70	140	20	62.5	12	125	10	M20 x 42	60	140	18	53	11	125	10	M20 x 42
W-DF250M	70	140	20	62.5	12	125	10	M20 x 42	60	140	18	53	11	125	10	M20 x 42
W-DF280S	80	170	22	71	14	160	5	M20 x 42	65	140	18	58	11	125	10	M20 x 42
W-DF280M	80	170	22	71	14	160	5	M20 x 42	65	140	18	58	11	125	10	M20 x 42
W-DF315S	85	170	22	76	14	160	5	M20 x 42	65	140	18	58	11	125	10	M20 x 42
W-DF315M	85	170	22	76	14	160	5	M20 x 42	65	140	18	58	11	125	10	M20 x 42
W-DF315L	85	170	22	76	14	160	5	M20 x 42	65	140	18	58	11	125	10	M20 x 42
W-DF355S	100	210	28	90	16	200	5	M24 x 50	75	140	20	67.5	12	125	10	M24 x 50
W-DF355M	100	210	28	90	16	200	5	M24 x 50	75	140	20	67.5	12	125	10	M24 x 50
W-DF355L	100	210	28	90	16	200	5	M24 x 50	75	140	20	67.5	12	125	10	M24 x 50

Flange						
IM B5, IM B35 mounting						
Type	M	N	P	S	T	LA
W-DF200LX	350	300	400	19	5	19
W-DF225S	400	350	450	19	5	19
W-DF225M	400	350	450	19	5	19
W-DF250S	500	450	550	19	5	25
W-DF250M	500	450	550	19	5	25
W-DF280S	500	450	550	19	5	25
W-DF280M	500	450	550	19	5	25
W-DF315S	600	550	660	24	6	29
W-DF315M	600	550	660	24	6	29
W-DF315L	600	550	660	24	6	29
W-DF355S	740	680	800	24	6	28
W-DF355M	740	680	800	24	6	28
W-DF355L	740	680	800	24	6	28

<sup>(1)</sup> add 25mm when cable entry is facing drive end  
<sup>(2)</sup> add 50mm when cable entry is facing drive end



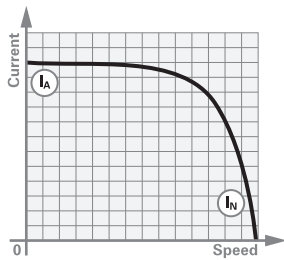
# Performance data / Dimensions notes

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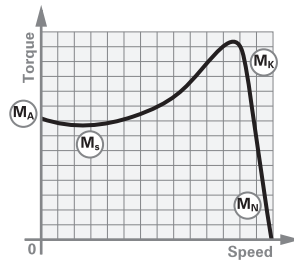
## Speed / torque, speed / current curves

### DOL starting

Typical speed/current curve



Typical speed/torque curve



### Notes

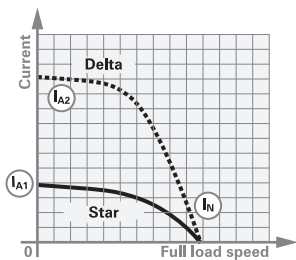
During the run up period in Star, there must be an adequate excess of motor torque over the load torque. The change to Delta must not occur until the motor is near the operating speed.

Refer to Brook Crompton for running up against a load in excess of 70% full load during Star Delta starting.

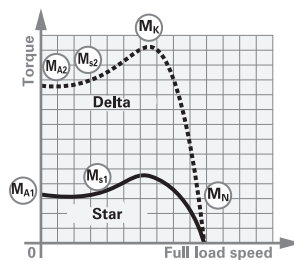
Performance figures are subject to IEC tolerances. Performance figures are based on a 400 volt winding.

### Star delta starting

Typical speed/current curve



Typical speed/torque curve



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

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

- (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

## Shaft & Flange tolerances

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

Face			
Dim N	Tol	IEC 60072	
		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	

Flange			
Dim N	Tol	IEC 60072	
		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	

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 W-DF112MM-D and B3/B14 mounted motors have suffix '-H' in the frame reference, eg W-DF112MM-H

B14 mounted motors have suffix 'C' in the frame reference, eg W-DF112MM-C and B3/B14 mounted motors have suffix '-H' in the frame reference, eg W-DF112MM-H

Dimensions should not be used for installation purposes, unless specially endorsed.

# Technical information

## Mechanical: grease, bearings & oilseals

### Bearings and greasing arrangements

Bearings are pre-packed with a grease type dependant on frame size and re-greasing facility as detailed in table opposite:

Standard and re-greasing facilities		
Type	Standard grease	Re-greasing facility
80 - 180	EA6 Polyurea	Available
200 - 355	Esso Unirex N3	Standard

Bearing references and oil seals for horizontally-mounted motors only						
Type		Bearings <sup>(1)</sup>			Oil seals <sup>(2)</sup>	
European	BS	Polarity	Drive end	Non-drive end	Drive end	Non-drive end
W-DF80M	W-DF80M	All	62042Z	60032Z	20 x 30 x 7 <sup>(3)</sup>	15 x 24 x 5 <sup>(3)</sup>
W-DF90S/L	W-DF90S/L	All	62052Z	62032Z	25 x 35 x 7 <sup>(3)</sup>	17 x 28 x 6 <sup>(3)</sup>
W-DF100L	W-DF100L	All	62062Z	62052Z	30 x 42 x 7 <sup>(3)</sup>	25 x 37 x 7 <sup>(3)</sup>
W-DF112M	W-DF112M	All	62062Z	62052Z	30 x 42 x 7 <sup>(3)</sup>	25 x 37 x 7 <sup>(3)</sup>
W-DF132S/M	W-DF132S/M	All	62082Z	63052Z	40 x 52 x 7 <sup>(3)</sup>	25 x 37 x 7 <sup>(3)</sup>
W-DF160M/L	W-DF160M/L	All	63092Z	63072Z	45 x 60 x 8 <sup>(3)</sup>	35 x 47 x 7 <sup>(3)</sup>
W-DF180M/L	W-DF180M/L	All	63102Z	63082Z	50 x 65 x 8 <sup>(3)</sup>	40 x 52 x 7 <sup>(3)</sup>
W-UDF200LX	W-DF200LX	All	6312	6312	60 x 80 x 8 <sup>(3)</sup>	60 x 80 x 8 <sup>(3)</sup>
W-UDF225S	W-DF225S	All	6313	6313	65 x 90 x 10 <sup>(4)</sup>	65 x 90 x 10 <sup>(4)</sup>
W-UDF225M	W-DF225M	All	6314	6314	70 x 90 x 10 <sup>(4)</sup>	70 x 90 x 10 <sup>(4)</sup>
W-UDF250ME	W-DF250S	2	6314	6314	70 x 90 x 10 <sup>(4)</sup>	70 x 90 x 10 <sup>(4)</sup>
		4 up	6316	6316	80 x 110 x 10 <sup>(3)</sup>	80 x 110 x 10 <sup>(3)</sup>
W-UDF280SE	W-DF250M	2	6314	6314	70 x 90 x 10 <sup>(4)</sup>	70 x 90 x 10 <sup>(4)</sup>
		4 up	6318	6318	90 x 120 x 12 <sup>(3)</sup>	90 x 120 x 12 <sup>(3)</sup>
W-UDF280ME	W-DF280S	2	6314	6314	70 x 90 x 10 <sup>(4)</sup>	70 x 90 x 10 <sup>(4)</sup>
		4 up	6318	6318	90 x 120 x 12 <sup>(3)</sup>	90 x 120 x 12 <sup>(3)</sup>
W-UDF315SE	W-DF280M	2	6316	6316	70 x 90 x 10 <sup>(4)</sup>	70 x 90 x 10 <sup>(4)</sup>
		4 up	6319	6319	90 x 120 x 12 <sup>(3)</sup>	90 x 120 x 12 <sup>(3)</sup>
W-UDF315ME	W-DF315S	2	6316	6316	70 x 90 x 10 <sup>(4)</sup>	70 x 90 x 10 <sup>(4)</sup>
		4 up	6319	6319	90 x 120 x 12 <sup>(3)</sup>	90 x 120 x 12 <sup>(3)</sup>
W-UDF315M	W-DF315M	2	6316	6316	70 x 90 x 10 <sup>(4)</sup>	70 x 90 x 10 <sup>(4)</sup>
		4 up	6319	6319	90 x 120 x 12 <sup>(3)</sup>	90 x 120 x 12 <sup>(3)</sup>
W-UDF315L	W-DF315L	2	6316	6316	70 x 90 x 10 <sup>(4)</sup>	70 x 90 x 10 <sup>(4)</sup>
		4 up	6319	6319	90 x 120 x 12 <sup>(3)</sup>	90 x 120 x 12 <sup>(3)</sup>
W-UDF355S/M/L	W-DF355S/M/L	2	N316	6316	75 x 100 x 10 <sup>(4)</sup>	75 x 100 x 10 <sup>(4)</sup>
		4 up	N324	6324	115 x 145 x 14 <sup>(3)</sup>	115 x 145 x 14 <sup>(3)</sup>

<sup>(1)</sup> Frame sizes 80 and 90 have bearings with CN clearances, frame sizes 100 to 355 have bearings with C3 clearance 'medium' series

<sup>(2)</sup> Sizes given are in mm, and represent bore x outside diameter x width  
Material: <sup>(3)</sup> Nitrile rubber <sup>(4)</sup> Silicon rubber

Grease life expected at 80°C bearing temperature x 10 <sup>3</sup> hours									
Type		3000 min <sup>-1</sup>		1500 min <sup>-1</sup>		1000 min <sup>-1</sup>		750 min <sup>-1</sup>	
European	BS	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical	Horizontal	Vertical
W-DF80-112	W-DF80-112	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
W-DF132	W-DF132	30.0	25.0	30.0	30.0	30.0	30.0	30.0	30.0
W-DF160	W-DF160	29.0	19.0	30.0	30.0	30.0	30.0	30.0	30.0
W-DF180	W-DF180	24.0	16.0	30.0	30.0	30.0	30.0	30.0	30.0
W-UDF200LX	W-DF200LX	12.6	8.2	30.0	20.3	30.0	27.8	30.0	30.0
W-UDF225S	W-DF225S	12.6	8.2	30.0	20.3	30.0	27.8	30.0	30.0
W-UDF225M	W-DF225M	11.3	7.4	29.5	19.2	30.0	26.0	30.0	30.0
W-UDF250ME	W-DF250S	11.3	7.4	26.3	17.1	30.0	23.6	30.0	29.3
W-UDF280SE	W-DF250M	11.3	7.4	23.4	15.2	30.0	21.3	30.0	27.8
W-UDF280ME	W-DF280S	11.3	7.4	23.4	15.2	30.0	21.3	30.0	27.8
W-UDF315SE	W-DF280M	9.4	6.1	21.3	13.8	30.0	20.3	30.0	26.0
W-UDF315ME	W-DF315S	9.4	6.1	21.3	13.8	30.0	20.3	30.0	26.0
W-UDF315M	W-DF315M	9.4	6.1	21.3	13.8	30.0	20.3	30.0	26.0
W-UDF315L	W-DF315L	9.4	6.1	21.3	13.8	30.0	20.3	30.0	26.0
W-UDF355S/M/L <sup>(1)</sup>	W-DF355S/M/L <sup>(1)</sup>	5.0	3.3	8.2	5.3	16.2	10.5	24.5	15.9
W-UDF355S/M/L <sup>(2)</sup>	W-DF355S/M/L <sup>(2)</sup>	9.4	6.1	13.5	8.8	22.5	14.6	30.0	19.5

<sup>(1)</sup> DE = Drive End

<sup>(2)</sup> NDE = Non-Drive End

# Technical information

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## 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)
		Load towards motor	Load away from motor	Shaft up		Shaft down		
				Load towards motor	Load away from motor	Load towards motor	Load away from motor	
W-DF80M	2	912	712	746	897	946	697	775
	4	868	668	701	852	901	652	742
	6	754	554	594	734	794	534	648
	8	773	573	613	753	813	553	664
W-DF90S	6	854	614	660	828	900	588	741
	8	874	634	680	848	920	608	757
W-DF90L	2	1070	830	870	1041	1110	801	957
	4	1005	765	832	957	1072	717	893
	6	843	603	667	807	907	567	722
	8	870	630	686	839	926	599	749
W-DF100L	2	1563	1243	1311	1522	1631	1202	1290
	4	1466	1146	1273	1387	1593	1067	1248
	6	1412	1092	1176	1359	1496	1039	1171
	8	1225	905	994	1167	1314	847	1022
W-DF112M	2	1551	1231	1320	1497	1640	1177	1370
	4	1452	1132	1286	1356	1606	1036	1259
	6	1403	1083	1203	1327	1523	1007	1236
	8	1210	890	1009	1133	1329	813	1072
W-DF132S	2	2481	2129	2283	2386	2635	2034	2184
	4	2459	2107	2330	2321	2682	1969	2133
	6	2393	2041	2217	2284	2569	1932	2032
	8	1878	1526	1728	1745	2080	1393	1614
W-DF132M	4	2449	2097	2339	2301	2691	1949	2117
	6	2372	2020	2227	2244	2579	1892	2002
	8	1874	1522	1733	1734	2085	1382	1605
	2	2168	2663	2932	2002	2437	2202	3650
W-DF160M	4	2153	2648	2959	1960	2464	2160	3785
	6	2022	2517	2905	1777	2410	1977	3626
	8	1509	2004	2389	1250	1894	1450	3316
	2	2144	2639	2950	1951	2455	2151	3613
W-DF160L	4	2123	2618	2982	1895	2487	2095	3738
	6	1973	2468	2946	1669	2451	1869	3544
	8	1464	1959	2435	1144	1940	1344	3233
	2	2711	3274	3667	2465	3104	2665	4374
W-DF180M	4	2749	3312	3830	2426	3267	2626	4556
	6	2575	3138	3785	2166	3222	2366	4334
W-DF180L	8	2266	2829	3469	1850	2906	2050	3979

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

# 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				
			Load towards motor	Load away from motor	Shaft up		Shaft down		Standard ball bearing		Roller bearing		
European frame	BS frame					Load towards motor	Load away from motor	Load towards motor	Load away from motor	European frame	BS frame	European frame	BS frame
W-UDF200LX	W-DF200LX	2	5435	4775	5005	5361	6021	4345	5125	5125	7541	7541	7541
		4	6058	5398	5531	6121	6781	4871	5588	5588	7541	7541	7541
		6	6055	5395	5457	6215	6875	4797	5536	5536	7541	7541	7541
		8	5781	5121	5183	5941	6601	4523	5252	5252	7541	7541	7541
W-UDF225S	W-DF225S	4	6692	6122	5941	7177	7747	5371	5963	5963	8202	8202	8202
		6	6770	6200	5935	7371	7941	5365	5982	5982	8202	8202	8202
W-UDF225M	W-DF225M	8	6441	5871	5606	7042	7612	5036	5648	5648	8202	8202	8202
		2	6729	6197	6084	7082	7614	6213	6602	6602	8745	8745	8745
		4	7530	6998	6745	8099	8631	6213	6868	6876	8921	8921	8921
		6	7640	7108	6673	8463	8995	6141	6856	6856	8921	8921	8921
W-UDF250ME	W-DF250S	8	7293	6761	6326	8116	8648	5794	6501	6501	8921	8921	8921
		2	6640	6108	5837	7209	7741	5305	6262	6262	8921	8921	8921
		4	9012	8418	8030	9794	10388	7436	8163	8163	11342	14166	14166
		6	9391	8797	8311	10311	10905	7717	8477	8477	11342	14166	14166
W-UDF280SE	W-DF250M	8	9007	8413	7927	9927	10521	7333	8087	8087	11342	14166	14166
		2	6505	5911	5472	7352	7946	4878	5692	5897	8242	8921	8921
		4	10241	9579	8943	11377	12039	8281	9260	9627	17105	14166	14166
		6	10846	10184	9423	12157	12819	8761	9336	10182	17105	14166	14166
W-UDF280ME	W-DF280S	8	10400	9738	8977	11711	12373	8315	9336	9706	17105	14166	14166
		2	6268	5736	5101	7355	7887	4569	5824	5795	9825	9503	9503
		4	9774	9112	8014	11534	12196	7352	9136	8842	17423	17348	17348
		6	10582	9920	8704	12524	13186	8042	9698	9386	17423	17348	17348
W-UDF315SE	W-DF280M	8	10136	9474	8257	12077	12739	7595	9216	8919	17423	17348	17348
		2	7443	6849	5921	8957	9551	5327	6804	6804	11342	11342	11342
		4	10305	9965	8299	12719	13059	7959	9443	9443	17414	17414	17414
		6	11190	10850	9050	13810	14150	8710	10042	10042	17414	17414	17414
W-UDF315ME	W-DF315S	8	10797	10457	8657	13417	13757	8317	9630	9630	17414	17414	17414
		2	7337	6743	5654	9082	9676	5060	6680	6680	11342	11342	11342
		4	10077	9737	7672	13044	13384	7332	9121	9121	17414	20887	20887
		6	10958	10618	8419	14131	14471	8079	9734	9734	17414	20887	20887
W-UDF315M	W-DF315M	8	10347	10007	7798	13510	13850	7458	9312	9312	17414	20887	20887
		2	7398	6804	5664	9154	9748	5070	6885	6885	11342	11342	11342
		4	10192	9852	8006	12862	13202	7666	9482	9482	17414	20748	20748
		6	11060	10720	8715	13971	14311	8375	10066	10066	17414	20748	20748
W-UDF315L	W-DF315L	8	10667	10327	8322	13578	13918	7982	9640	9640	17414	20748	20748
		2	7055	6461	5050	9164	9758	4456	6603	6606	11342	11342	11342
		4	10008	9668	7501	13123	13463	7161	9207	9207	17414	20748	20748
		6	10872	10532	8207	14229	14569	7867	9801	9801	17414	20748	20748
W-UDF355S	W-DF355S	8	10263	9923	7587	13609	13949	7247	9367	9367	17414	20748	20748
		2	6118	5524	3136	9692	10286	2542	-	-	12627	12627	12627
		4	12994	11454	8799	17389	18929	7259	-	-	27533	27533	27533
		6	14038	12498	9387	19143	20683	7847	-	-	27533	27533	27533
W-UDF355M	W-DF355M	8	14106	12566	9455	19211	20751	7915	-	-	27533	27533	27533
		2	5779	5185	2326	10050	10644	1732	-	-	12627	12627	12627
		4	12528	10988	7511	18055	19595	5971	-	-	27533	27533	27533
		6	13148	11608	7523	19533	21073	5983	-	-	27533	27533	27533
W-UDF355L	W-DF355L	8	13214	11674	7589	19599	21139	6049	-	-	27533	27533	27533
		2	5595	5001	1734	10396	10990	1140	-	-	12627	12627	12627
		4	12343	10803	7038	18282	19822	5498	-	-	27533	27533	27533
		6	12936	11396	6980	19794	21334	5440	-	-	27533	27533	27533
		8	13002	11462	7046	19860	21400	5506	-	-	27533	27533	27533

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

# **BROOK CROMPTON**

Keeping Industry Turning

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