



# Keeping Industry Turning

W low voltage, high output

# Specification, standards & introduction

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## Specification W low voltage, high output

Specification		
	Standard product	Option
Frame material	315 to 710 cast iron	-
Enclosure	IP55	IP56, IP65
Mounting option	Foot (B3), Foot & Flange (B35),	-
	Flange, shaft down (V1)	-
Terminal box position	Right	Left
Voltage	400 / 690	-
Frequency	50 Hz / 60Hz	-
Cooling	IC411	IC416
Insulation	class F	H
Temperature rise	class B	F (for inverter drive motor)
Paint colour	water blue (RAL 5021)	-
Ambient	-20°C to 40°C	-
Altitude	up to 1000m above sea level	-
Inverter Duty (with derate)	Constant torque 2:1, 5:1 or 10:1	Variable torque

The above specification and options give a brief summary of features available for the W low voltage, high output range. For a full listing of optional features, please contact Brook Crompton sales.

## Standards

The W low voltage, high output motors are manufactured to international standards listed below:

Standards	
W LV/HO motors are manufactured to the international standards listed below:	
Performance	IEC 60034-1
Mounting	IEC 60034-7
Enclosure protection	IEC 60034-5
Vibration	IEC 60034-14
Efficiency	IEC 60034-2
Cooling	IEC 60034-6

## Brook Crompton Keeping Industry Turning

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 documented quality systems.

All factories have been assessed to meet these requirements.

## W low voltage, high output

The Brook Crompton W low voltage, high output range covers outputs from 200kW up to 3000kW in frame sizes 315 to 710 available in 2 pole, 4 pole, 6 pole or 8 pole speeds.

IE3 efficiency for frame sizes up to and including 375kW as set out in EN60034-30.

This range is available with ingress protection to IP55, IP56 or IP65.

### Benefits include:

- Increased power to weight ratio
- Optimised design to maximize performance
- Improved IC411 cooling system
- Reduced noise level
- Low bearing temps & ease of maintenance
- Multi-position terminal box
- Easy customisation with add-on accessories
- Suitable for use with inverter drives

For information on the Brook Crompton **W High Voltage, High Output** range of motors available from 160kW to 400kW, please see catalogue reference **20154E**.

# kW and frame options, inverter derate chart

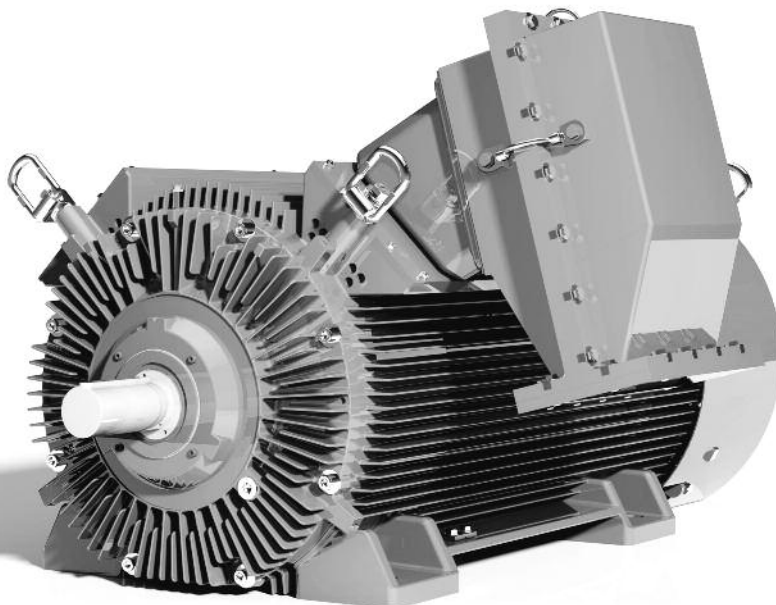
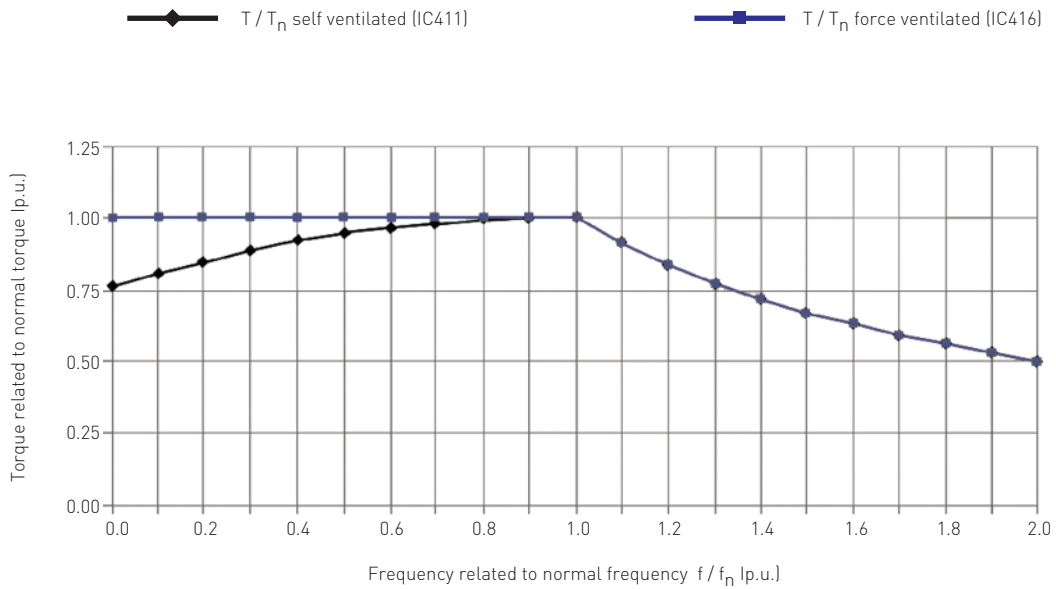
## Output and frame designation

The table below shows the possible outputs in kW available within a given frame size.

W Low voltage, high output range								
Frame size (mm)	315	355	400	450	500	560	630	710
Power range (kW)	2000 to 500	450 to 650	400 to 800	650 to 1150	900 to 1500	1250 to 2000	1900 to 2140	3000

## Inverter derate chart

The chart below shows the torque reduction for inverter operation as a function of cooling system and rotational speed.



# Performance data

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3000 min<sup>-1</sup> (2 pole) - low voltage 400 / 690V 50Hz

Rated power		Full load speed in revolutions per minute and size	Frame reference	Full load current at rated voltage		Efficiency			Power factor			Full load torque	Maximum torque ratio	Rotor inertia Wk <sup>2</sup>	Weight
P <sub>N</sub>	kW			I <sub>N</sub>	400 V A	690 V A	h	h	h	Cos Ø	Cos Ø				
n	Type	400 V A	690 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>	M <sub>N</sub> Nm	M <sub>K</sub> / M <sub>N</sub>	J kgm <sup>2</sup>	kg		
400	2976	WU-DF315LAX	632	365	96.1	96.1	96.1	0.95	0.95	0.95	1284	2.9	2.64	2150	
450	2981	WU-DF315LBX	717	414	96.4	96.4	96.4	0.94	0.94	0.94	1442	3.4	2.9	2280	
500	2980	WU-DF315LCX	787	454	96.5	96.5	96.5	0.95	0.95	0.95	1602	3.0	3.27	2400	
500	2978	WU-DF355LAX	780	450	96.4	96.4	96.4	0.96	0.96	0.96	1603	2.5	5.51	3000	
560	2982	WU-DF355LBX	882	509	96.5	96.5	96.5	0.95	0.95	0.95	1793	3.3	6.3	3170	
650	2980	WU-DF355LCX	1003	579	96.6	96.6	96.6	0.96	0.96	0.96	2083	2.9	7.2	3370	
560	2982	WU-DF400LAX	516	298	96.4	96.4	96.4	0.94	0.94	0.94	1793	2.9	9.1	3230	
630	2985	WU-DF400LBX	581	335	96.4	96.4	96.4	0.94	0.94	0.94	2016	2.8	10.2	3380	
710	2986	WU-DF400LCX	657	379	96.5	96.5	96.5	0.94	0.94	0.94	2270	2.8	11.5	3550	
800	2987	WU-DF400LDX	728	420	96.6	96.6	96.6	0.94	0.94	0.94	2558	3.0	13.0	3790	

# Performance data

1500 min<sup>-1</sup> (4 pole) - low voltage 400 / 690V 50Hz

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1500 min <sup>-1</sup> (4 pole)														
$P_N$		Type	$I_N$		Efficiency			Power factor			$M_N$ Nm	$\frac{M_K}{M_N}$	J kgm <sup>2</sup>	kg
kW	n min <sup>-1</sup>		400 V A	690 V A	$h$ 1.0 $P_N$	$h$ 0.75 $P_N$	$h$ 0.5 $P_N$	$\cos \emptyset$ 1.0 $P_N$	$\cos \emptyset$ 0.75 $P_N$	$\cos \emptyset$ 0.5 $P_N$				
400	1486	WU-DF 315LAX	682	394	96.2	96.2	95.8	0.90	0.88	0.82	2571	2.7	4.34	1960
450	1487	WU-DF 315LBX	757	437	96.4	96.3	95.8	0.89	0.87	0.80	2890	2.7	4.78	2060
500	1488	WU-DF 315LCX	849	490	96.6	96.5	96.0	0.89	0.87	0.79	3207	3.0	5.25	2170
500	1492	WU-DF355LAX	857	495	96.8	96.8	96.5	0.92	0.90	0.86	3200	2.7	8.77	2930
560	1491	WU-DF355LBX	907	524	96.9	96.8	96.4	0.92	0.90	0.84	3587	3.6	9.76	3090
650	1492	WU-DF355LCX	1075	621	97.0	96.8	96.3	0.90	0.87	0.79	4161	3.9	10.87	3280
560	1491	WU-DF400LAX	920	531	96.9	96.8	96.2	0.93	0.92	0.88	3586	3.0	14.9	3520
630	1491	WU-DF400LBX	1027	593	97.0	96.8	96.2	0.92	0.91	0.86	4035	2.9	16.8	3830
710	1491	WU-DF400LCX	1152	665	97.1	97.0	96.5	0.93	0.92	0.89	4548	2.9	18.9	3950
800	1491	WU-DF400LDX	1294	747	97.1	97.0	96.5	0.93	0.91	0.87	5124	2.9	21.3	4200
1150	1492	WU-DF450LAX	-	1115	97.1	97.0	96.4	0.89	0.87	0.82	7361	2.4	32.6	5600
1100	1492	WU-DF500LAX	-	1078	97.0	96.9	96.2	0.90	0.88	0.82	7041	2.8	39.5	6300
1300	1493	WU-DF500LBX	-	1266	97.1	96.9	96.2	0.90	0.88	0.82	8315	2.5	44.0	6600
1500	1493	WU-DF500LCX	-	1460	97.2	96.9	96.3	0.89	0.86	0.80	9595	2.8	49.0	7400
1750	1493	WU-DF560LAX	-	1666	97.1	96.7	95.8	0.91	0.89	0.83	11194	3.0	98.0	8400
2000	1494	WU-DF560LBX	-	1861	97.2	96.9	96.1	0.93	0.92	0.88	12784	3.0	115.0	8600

# Performance data

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1000 min<sup>-1</sup> (6 pole) - low voltage 400 / 690V 50Hz

Rated power  
Full load speed in revolutions per minute and size  
Frame reference  
Full load current at rated voltage  
Efficiency  
Power factor  
Full load torque  
Maximum torque ratio  
Rotor inertia  $W_{k2}$   
Weight

1000 min <sup>-1</sup> (6 pole)														
$P_N$		Type	$I_N$		Efficiency			Power factor			$M_N$ Nm	$\frac{M_K}{M_N}$	J kgm <sup>2</sup>	kg
kW	n min <sup>-1</sup>		400 V A	690 V A	$h$ 1.0 $P_N$	$h$ 0.75 $P_N$	$h$ 0.5 $P_N$	$\cos \emptyset$ 1.0 $P_N$	$\cos \emptyset$ 0.75 $P_N$	$\cos \emptyset$ 0.5 $P_N$				
315	985	WU-DF315LAX	596	344	95.3	95.2	94.6	0.80	0.75	0.64	3054	2.4	5.46	1870
355	985	WU-DF315LBX	663	383	95.4	95.4	94.9	0.81	0.78	0.68	3442	2.3	6.05	1970
400	984	WU-DF315LCX	720	416	95.5	95.6	95.2	0.84	0.80	0.72	3882	2.1	6.38	2070
450	987	WU-DF355LAX	787	454	96.0	96.0	95.5	0.88	0.85	0.77	4354	2.7	9.53	2840
500	987	WU-DF355LBX	874	505	96.0	96.0	95.5	0.88	0.85	0.77	4838	2.7	10.79	2990
560	988	WU-DF355LCX	990	572	96.1	96.1	96.6	0.87	0.84	0.75	5413	2.8	12.2	3170
500	992	WU-DF400LAX	885	511	96.7	96.6	96.2	0.88	0.86	0.79	4813	2.5	20.1	3480
560	992	WU-DF400LBX	970	560	96.7	96.6	96.1	0.87	0.84	0.76	5391	2.7	22.6	3670
630	992	WU-DF400LCX	1067	616	96.8	96.7	96.3	0.88	0.86	0.79	6065	2.5	25.4	3880
710	992	WU-DF400LDX	1197	691	96.9	96.8	96.3	0.88	0.86	0.79	6835	2.6	28.6	4130
880	993	WU-DF450LAX	-	885	96.7	96.5	95.8	0.86	0.82	0.73	8463	2.7	52.6	5700
1250	995	WU-DF500LAX	-	1248	96.9	96.7	95.8	0.87	0.84	0.76	11997	2.4	89.0	6600
1350	995	WU-DF500LBX	-	1380	96.9	96.6	95.7	0.85	0.81	0.71	12957	2.9	97.5	6900
1500	995	WU-DF500LCX	-	1505	97.0	96.7	95.9	0.86	0.82	0.74	14397	2.5	106.0	7200
1750	995	WU-DF560LAX	-	1712	97.2	97.0	96.4	0.88	0.85	0.79	16796	2.6	141.0	8900
1950	996	WU-DF560LBX	-	1928	97.3	97.0	96.3	0.87	0.84	0.75	18697	2.8	161.3	9500
2150	996	WU-DF560LCX	-	2101	97.3	97.1	96.4	0.88	0.85	0.78	20615	2.8	180.0	10000
2300	996	WU-DF630LAX	-	2222	97.3	97.1	96.4	0.89	0.86	0.79	22053	2.9	287.1	11700
2450	996	WU-DF630LBX	-	2381	97.3	97.1	96.4	0.89	0.86	0.80	23491	2.9	306.5	12000

# Performance data

750 min<sup>-1</sup> & (8 pole) - low voltage 400 / 690V 50Hz

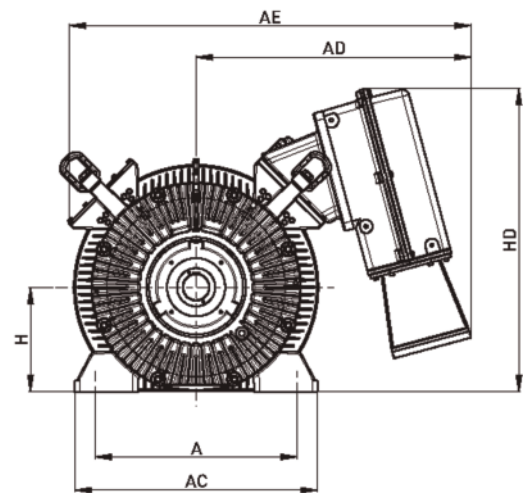
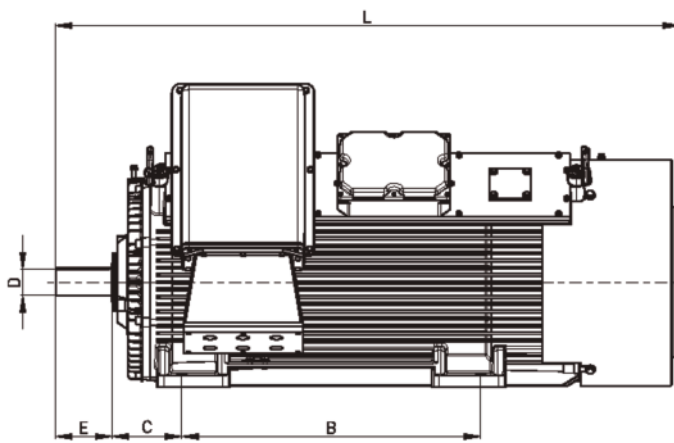
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750 min <sup>-1</sup> (8 pole)															
P <sub>N</sub>		Type	I <sub>N</sub>		Efficiency			Power factor			M <sub>N</sub> Nm	M <sub>K</sub> M <sub>N</sub>	J kgm <sup>2</sup>	kg	
kW	n min <sup>-1</sup>		400 V A	690 V A	h 1.0 P <sub>N</sub>	h 0.75 P <sub>N</sub>	h 0.5 P <sub>N</sub>	Cos Ø 1.0 P <sub>N</sub>	Cos Ø 0.75 P <sub>N</sub>	Cos Ø 0.5 P <sub>N</sub>					
200	737	WU-DF315LAX	367	212	94.7	94.8	94.2	0.83	0.80	0.71	2592	2.0	6.8	2000	
250	737	WU-DF315LBX	495	286	95.0	95.0	94.6	0.82	0.79	0.70	3239	2.0	7.6	2120	
315	739	WU-DF315LCX	621	359	95.1	95.1	94.3	0.78	0.72	0.61	4071	2.1	8.2	2320	
355	740	WU-DF355LAX	646	373	95.5	95.4	94.9	0.83	0.78	0.68	4581	2.4	11.82	2880	
400	741	WU-DF355LBX	746	431	95.6	95.5	94.8	0.81	0.76	0.65	5155	2.5	13.38	3040	
450	740	WU-DF355LCX	818	472	95.7	95.7	95.2	0.83	0.78	0.68	5807	2.5	15.17	3220	
400	743	WU-DF400LAX	771	445	96.0	95.8	94.9	0.79	0.73	0.62	5141	2.5	25.3	3430	
450	743	WU-DF400LBX	842	486	96.1	95.9	95.2	0.81	0.76	0.66	5784	2.4	29.1	3620	
500	743	WU-DF400LCX	928	536	96.2	96.0	95.3	0.82	0.77	0.67	6427	2.4	36.2	3800	
560	743	WU-DF400LDX	1044	603	96.3	96.2	95.5	0.83	0.79	0.69	7198	2.4	42.4	4050	
650	745	WU-DF450LAX	-	697	96.3	96.0	95.2	0.81	0.77	0.66	8332	2.5	52.0	5600	
900	745	WU-DF500LAX	-	976	96.4	96.1	95.3	0.80	0.75	0.64	11537	2.4	81.7	6300	
1000	745	WU-DF500LBX	-	1084	96.4	96.1	95.1	0.80	0.75	0.64	12819	2.3	90.6	6700	
1100	745	WU-DF500LCX	-	1179	96.5	96.2	95.4	0.81	0.76	0.66	14101	2.3	100.0	7000	
1250	747	WU-DF560LAX	-	1344	96.7	96.3	95.3	0.81	0.75	0.64	15981	2.9	155.0	8700	
1400	747	WU-DF560LBX	-	1486	96.7	96.4	95.5	0.82	0.77	0.66	17898	2.9	168.5	9000	
1630	747	WU-DF560LCX	-	1730	96.8	96.5	95.5	0.81	0.76	0.64	20839	2.8	189.2	9600	
1900	746	WU-DF630LAX	-	1919	96.9	96.6	95.7	0.86	0.82	0.73	24323	2.7	300.5	11200	
2140	746	WU-DF630LBX	-	2134	97.0	96.8	96.0	0.87	0.84	0.76	27395	2.5	315.5	11400	

# Dimensions

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Foot mounted (B3) / anti-friction bearings



Anti-friction bearings												
Type	poles	A	AC	AD	AE	B	C	shaft		H	HD	L
								Ø D	E			
WU-DF315X	2	610	730	830	1210	900	200	80	170	315	915	1900
WU-DF315X	4+	610	730	830	1210	900	200	100	210	315	915	1940
WU-DF355X	2	686	810	855	1275	1000	224	80	170	355	1025	1995
WU-DF355X	4+	686	810	855	1275	1000	224	100	210	355	1025	2035
WU-DF400X	2	750	940	870	1320	1120	254	80	170	400	1090	2105
WU-DF400X	4+	750	940	870	1320	1120	254	110	210	400	1090	2145
WU-DF450X	4+	850	1050	920	1425	1250	280	120	210	450	1195	2550
WU-DF500X	4+	950	1160	960	1505	1320	315	140	250	500	1275	2825
WU-DF560X	4+	1060	1270	990	1585	1400	335	160	240	560	1375	tba
WU-DF630X	4+	1120	1370	1025	1675	1600	335	180	240	630	1475	tba
WU-DF710X	4+	tba	tba	tba	tba	tba	tba	190	350	710	tba	tba

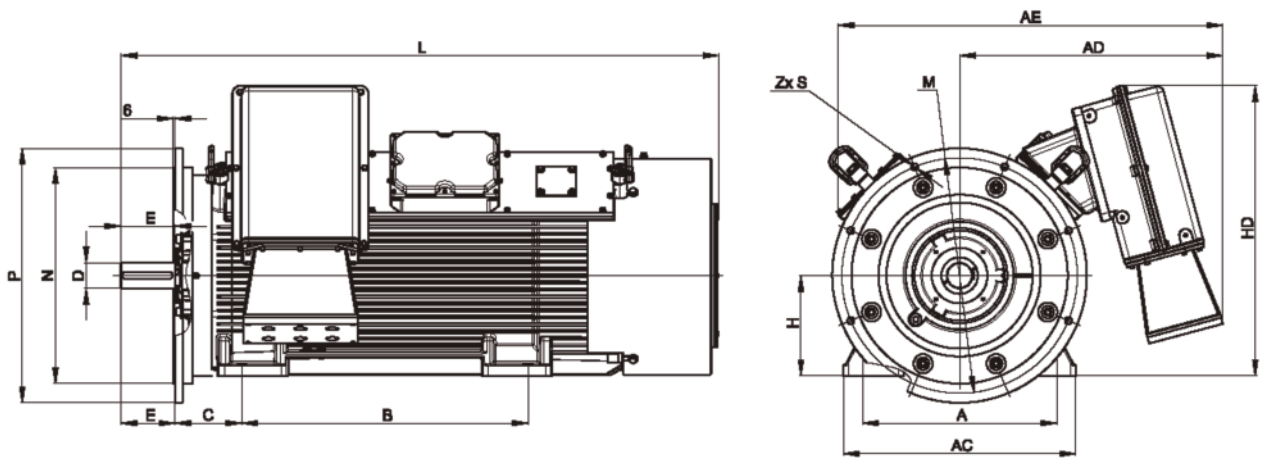
all dimensions in millimetres

Foot mounted (B3) are available with sleeve bearings.  
For more information please contact Brook Crompton.



# Dimensions

Foot & D flange mounted (B35) / anti-friction bearings



Anti-friction bearings

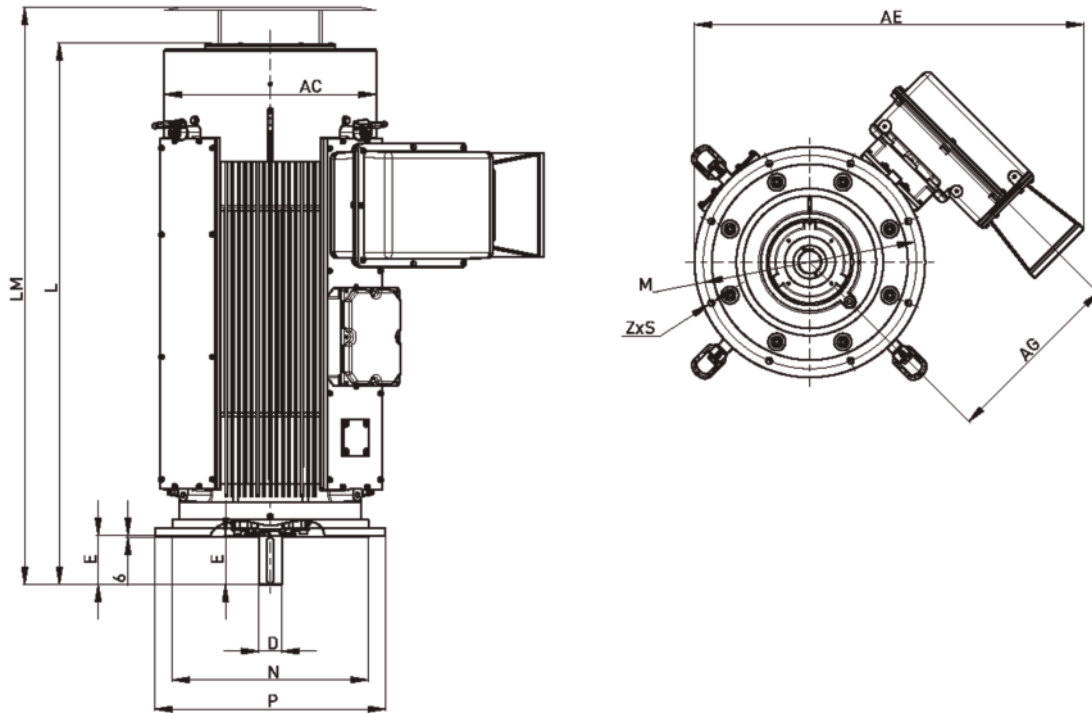
Type	poles	A	AC	AD	AE	B	C	shaft		H	HD	L	P	N	M	Z	Ø S	
								Ø D	E									
WU-DF315X	2	610	730	830	1210	900	200	80	170	315	915	1900	800	680	740	8	x	22
WU-DF315X	4+	610	730	830	1210	900	200	100	210	315	915	1940	800	680	740	8	x	22
WU-DF355X	2	686	810	855	1275	1000	224	80	170	355	1025	1995	900	780	840	8	x	22
WU-DF355X	4+	686	810	855	1275	1000	224	100	210	355	1025	2035	900	780	840	8	x	22
WU-DF400X	2	750	940	870	1320	1120	254	80	170	400	1090	2105	1000	880	940	8	x	22
WU-DF400X	4+	750	940	870	1320	1120	254	110	210	400	1090	2145	1000	880	940	8	x	22
WU-DF450X	4+	850	1050	920	1425	1250	280	120	210	450	1195	2550	1150	1000	1080	8	x	22
WU-DF500X	4+	950	1160	960	1505	1320	315	140	250	500	1275	2825	1270	1120	1200	8	x	35
WU-DF560X	4+	1060	1270	990	1585	1400	335	160	240	560	1375	tba	tba	tba	tba	tba	x	tba
WU-DF630X	4+	1120	1370	1025	1675	1600	335	180	240	630	1475	tba	tba	tba	tba	tba	x	tba
WU-DF710X	4+	tba	tba	tba	tba	tba	tba	190	350	710	tba	tba	tba	tba	tba	tba	x	tba

all dimensions in millimetres

# Dimensions

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Flange mounted (V1) / anti-friction bearings



Anti-friction bearings (V1)

Type	poles	AC	AE	AG	shaft		L	LM	P	N	M	Z	Ø S
					Ø D	E							
WU-DF315X	2	740	1350	650	80	170	1900	2030	800	680	740	8	x 22
WU-DF315X	4+	740	1350	650	100	210	1940	2070	800	680	740	8	x 22
WU-DF355X	2	820	1425	700	80	170	1995	2125	900	780	840	8	x 22
WU-DF355X	4+	820	1425	700	100	210	2035	2165	900	780	840	8	x 22
WU-DF400X	2	885	1450	735	80	170	2105	2235	1000	880	940	8	x 22
WU-DF400X	4+	885	1450	735	110	210	2145	2275	1000	880	940	8	x 22
WU-DF450X	4+	1000	1575	795	120	210	2550	2680	1150	1000	1080	8	x 22
WU-DF500X	4+	1100	1655	850	140	250	2825	2955	1270	1120	1200	8	x 35
WU-DF560X	4+	tba	tba	tba	160	240	tba	tba	tba	tba	tba	tba	x tba
WU-DF630X	4+	tba	tba	tba	180	240	tba	tba	tba	tba	tba	tba	x tba
WU-DF710X	4+	tba	tba	tba	190	350	tba	tba	tba	tba	tba	tba	x tba

all dimensions in millimetres

# Technical information

## Mechanical

### Bearing types and relubrication

Bearing references and grease relubrication intervals										
Type	Mounting	Poles	Bearings		Grease quantity (gms)		Relubrication interval (hrs)			
			Drive end	Non-drive end	Drive end	Non-drive end	2P	4P	6P	8P
WU-DF315X	B3	2	6317 C3	6317 C3	46	46	1400	-	-	-
		4+	6322 C3	6322 C3	75	75	-	3000	4900	6300
	V1	2	6317 C3	6317 C3 / C4	46	46	1400	-	-	-
		4+	6322 C3	6322 C3 / C4	75	75	-	3000	4900	6300
WU-DF355X	B3	2	6317 C3	6317 C3	46	46	1400	-	-	-
		4+	6322 C3	6322 C3	75	75	-	3000	4900	6300
	V1	2	6317 C3	6317 C3 / C4	46	46	1400	-	-	-
		4+	6322 C3	6322 C3 / C4	75	75	-	3000	4900	6300
WU-DF400X	B3	2	6317 C3	6317 C3	46	46	1400	-	-	-
		4+	6324 C3	6324 C3	90	90	-	2700	4500	5900
	V1	2	6317 C3	6317 C3	46	46	1400	-	-	-
		4+	6324 C3	6324 C3	90	90	-	2700	4500	5900
WU-DF450X	B3	4+	6326 M C3	6326 M C3	105	105	-	2500	4200	5500
	V1	4+	6326 M C3	7326B & 6326 C3	105	105 & 105	-	2000	3500	4500
WU-DF500X	B3	4+	6326 M C3	6330 M C3	105	105	-	2500	4200	5500
	V1	4+	6326 M C3	7330 B M & 6330 M C3	105	105 & 105	-	2000	3500	4500
WU-DF560X	B3	4+	6330 C3	6334 C3	120	120	-	2000	3500	4500
	V1	4+	6330 C3	7334 B M & 6334 C3	120	120 & 120	-	1700	3000	3800

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 WU-DF315LAX-D & B3/B5 mounted motors have suffix '-H' in the frame reference, eg WU-DF315LAX-H

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