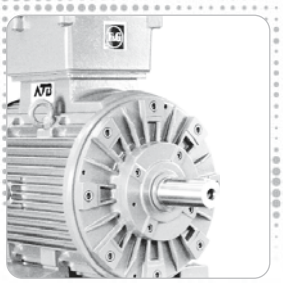
Technical Documentation

Type BBD
II 2G EEx d(e) IIB T3-T6
II 2D T80-135°C IP65(66)

Type W-UEF
II 2G EEx d(e) IIB T4



Three-Phase Explosion Proof Motors
Flameproof Enclosure

under license of F&G

ATB Technology in Motion

Specifi-
cation

Conformity certificate for the explosion protection rating "flameproof enclosure", temperature class T3…6 and dust protection through casings

There is a EU version-Type conformity certificate for the version serie BBD… according to the Directive 94/9/EG (ATEX 95). This certificate, issued up to temperature class T6, confirm that the motor is explosion protected due to its tested flameproof construction.
In addition, the following ratings, which differ from the standard versions, are certified. These figures must be stated on the motor's rating plate.

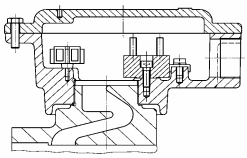
> Rated voltage up to 1100 V
standard Y 400 V, 50 Hz and Y 460 V, 60 Hz
> Voltage tolerance +/-10%
> Pole-changing motors
> Ambient temperatures from -55 °C to 60 °C
> From -55 °C to -20 °C for Ex d also without heating
> Altitude of installations above 1000 m m.s.l.
> For temperatre class T4:
Installation of TF as sole protection against inadmissible heating with operating mode S1, S2, S3, S4, S5, S6, S7, S8, S9 or S10.
The sole protection is achieved only through a combination of TF (thermistors in accordance with DIN 44081) and tripping devices with conformity mark II (G)2.
> In case of built-in TF the only means of protection possible is the power feed via frequency inverter with variable frequency for the motor speed regulation.
> Temperatures classes T5 and T6 only with TF as additional protection
> Dust explosion protection II 2D for zone 21

It is permissible to design the motors for serval variations (e. g. for the operating mode S2 and ambient temperature 60 °C).

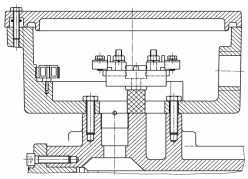
Table of conformity certificates

Height of shaft	BBD…
80	05 ATEX 1007
90	05 ATEX 1007
100	05 ATEX 1007
112	05 ATEX 1007
132	05 ATEX 1102
160	05 ATEX 1102

Terminal boxes



Frame size 80 - 112 and 160



Frame size 132

Protection type

For the gas explosion protection according to EN 50019 of the explosion protection rating "increased safety" EEx e II, as well as the protection type IP56 according to EN 60034 part 5 or according to EN 50018 explosion protection EEx d IIB.
For dust explosion protection they are implemented in the protection type IP66 according to EN 50281.

Position

The terminal boxes in the standard form are fitted to the top of the machine. On request they can also be fitted on the side. The terminal boxes can be rotated by 4 x 90 degrees to enable connection from all directions. From frame size 132 this can be achieved without rotating the connection plate.

Mains cable entry for EEx e terminal boxes

BBD	80	90	100	112	132	160
	1 x M25 x 1,5		1 x M32 x 1,5		1 x M40 x 1,5	

Mains cable entry for EEx d terminal boxes

BBD	80	90	100	112	132	160
	1 x M25 x 1,5		1 x M32 x 1,5		1 x M40 x 1,5	

Marking

II 2G EEx de IIB T4 or EEx d IIB T4

Conformity Certificates

EEx d specification	
Frame Size	Certificate Number
W-EF180	Baseefa02ATEX0023X
W-UEF200L	BAS02ATEX2111X
W-UEF225S	BAS02ATEX2111X
W-UEF225M	BAS02ATEX2114X
W-UEF250ME	BAS02ATEX2114X
W-UEF280SE	BAS02ATEX2117X
W-UEF280ME	BAS02ATEX2117X
W-UEF315SE	BAS02ATEX2120X
W-UEF315ME	BAS02ATEX2120X
W-UEF315M	BAS02ATEX2123X
W-UEF315L	BAS02ATEX2123X

EEx de specification	
Frame Size	Certificate Number
W-EF180	Baseefa02ATEX0024X
W-UEF200L	BAS02ATEX2112X
W-UEF225S	BAS02ATEX2112X
W-UEF225M	BAS02ATEX2115X
W-UEF250ME	BAS02ATEX2115X
W-UEF280SE	BAS02ATEX2118X
W-UEF280ME	BAS02ATEX2118X
W-UEF315SE	BAS02ATEX2121X
W-UEF315ME	BAS02ATEX2121X
W-UEF315M	BAS02ATEX2124X
W-UEF315L	BAS02ATEX2124X

Bearings and Bearing Classification

Frame size BBD…	Number of poles	Drive-end bearing all construction types Standard (fixed bearing)	Reinforced bearing[1)]	Non-drive-end bearing (floating bearing)
80	2, 4, 6, 8	6204 2ZR		6205 2ZR
90	2, 4, 6, 8	6205 2ZR		6205 2ZR
100	2, 4, 6, 8	6206 2ZR C3	NU 206	6206 2ZR C3
112	2, 4, 6, 8	6306 2ZR C3	NU 306	6206 2ZR C3
132	2, 4, 6, 8	6308 2ZR C3	NU 308	6308 2ZR C3
160	2, 4, 6, 8	6309 2ZR C3	NU 309	6309 2ZR C3
Type Brook Crompton				
W-EF180M/L	2,4,6,8	63102Z		63092Z
W-UEF200LN	2,4,6,8	6313		6313
W_UEF225S	2,4,6,8	6313		6313
W-UEF225M	2,4,6,8	6314		6314
W-UEF250MNE	2	6314		6314
	4,6,8	6316		6316
W-UEF280SNE	2	6314		6314
	4,6,8	6318		6318
W-UEF280MNE	2	6314		6314
	4,6,8	6318		6318
W-UEF315SNE	2	6316		6316
	4,6,8	6319		6319
W-UEF315MNE	2	6316		6316
	4,6,8	6319		6319
W-UEF315M	2	6316		6316
	4,6,8	6319		6319
W-UEF315L	2	6316		6316
	4,6,8	6319		6319

Construction Type

Note:

1) min.radial load required. See page 5.

Bearing-type codes:

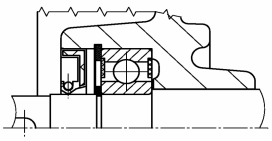
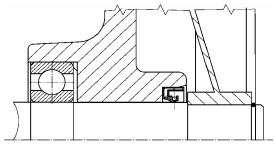
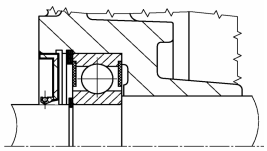
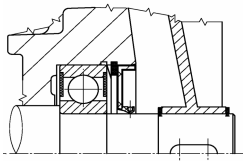
Example: 6315.2Z.WT51.C3

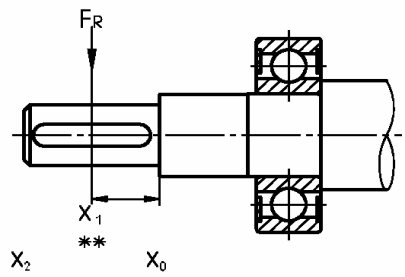
6315 = Bearing size

2Z (2ZR) = non-rubbing double seal

WT51 (L12) = Polyurea fiber grease

C3 = Bearing clearance

	Drive-end Bearing	Non-drive-end Bearing
Frame size 80 - 112		
Frame size 132 - 160		



The distance of the point of application of force F_R from the shaft collar should be not greater than the lenght of the shaft end.

F_R = max. radial load (e.g. overhung belt load + weight of belt pully) [N]

F = Belt pully [N] = (2 x K x M) / D

M = Torque [Nm] = (9550 xP) / n

P = Rated motor output [kW]

n = Rated motor speed [1/min]

D = Puley diameter [m]

K = Pre-tension factor, dependent on the belt type and approyimated as follows

K = 3 For normal flat belts without tensioning pulley

K = 2 For normal flat belts with tensioning pulley

K = 2,2 For V-belts or special-purpose flat belts

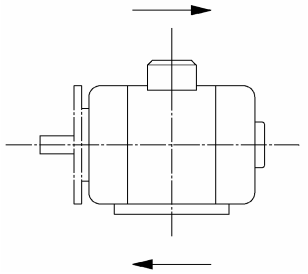
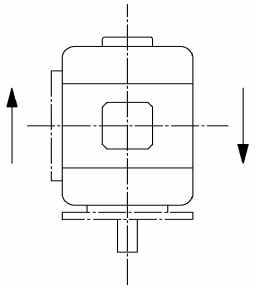
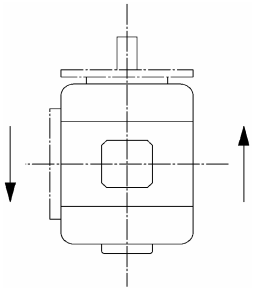
The specified values apply to operation at 50 Hz mains.

Permissible radial bearing load F_R [N] (deep grove ball bearing)

Frame size	2p	x_2	x_1	x_0
80	2	660	710	780
	4	830	900	980
	6	950	1.030	1.120
	8	1.040	1.130	1.240
90	2	710	770	850
	4	900	980	1.070
	6	1.030	1.120	1.230
	8	1.130	1.230	1.350
100	2	950	1.040	1.160
	4	1.190	1.310	1.450
	6	1.360	1.490	1.660
	8	1.500	1.650	1.830
112	2	1.430	1.560	1.710
	4	1.800	1.960	2.150
	6	2.070	2.250	2.470
	8	2.280	2.480	2.720
132	2	1.970	2.170	2.410
	4	2.470	2.710	3.020
	6	2.820	3.100	3.450
	8	3.130	3.440	3.820
160	2	2.320	2.560	2.860
	4	2.970	3.280	3.660
	6	3.480	3.840	4.290
	8	3.780	4.170	4.660

Type Brook Crompton Frame size	2p	x_2	x_1	x_0
W-EF180M	2	4.294		
	4	4.519		
	6			
	8			
W-EF180L	2			
	4	4.576		
	6	4.362		
	8	3.980		
W-UEF200LN	2	5.765		
	4	6.281		
	6	6.298		
	8	5.955		
W-UEF225S	2			
	4	5.963		
	6	5.982		
	8	5.648		
W-UEF225M	2	6.602		
	4	6.868		
	6	6.856		
	8	6.501		
W-UEF250MNE	2	6.262		
	4	8.163		
	6	8.477		
	8	8.087		
W-UEF280SNE	2	5.692		
	4	9.260		
	6	9.336		
	8	9.336		
W-UEF280MNE	2	5.824		
	4	9.136		
	6	9.698		
	8	9.216		
W-UFE315NE	2	6.804		
	4	9.443		
	6	10.042		
	8	9.630		
W-UEF315MNE	2	6.680		
	4	9.121		
	6	9.734		
	8	9.312		
W-UEF315M	2	6.885		
	4	9.482		
	6	10.066		
	8	9.640		
W-UEF315L	2	6.603		
	4	9.207		
	6	9.801		
	8	9.367		

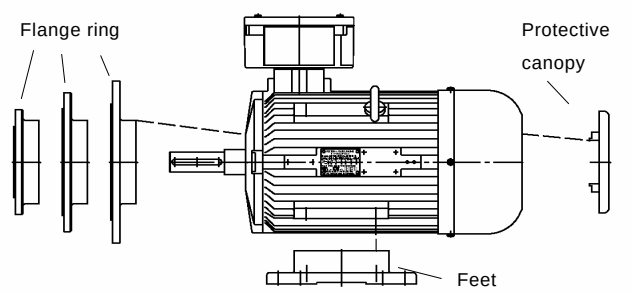
permissible axial bearing loading F_A [N]

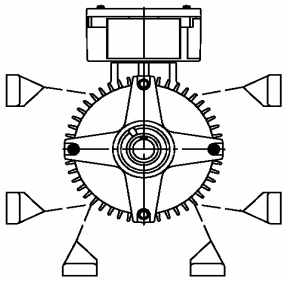
For construction types	Frame size	3000 rpm Load to ← N	3000 rpm Load to → N	1500 rpm Load to ← N	1500 rpm Load to → N	1000 rpm Load to ← N	1000 rpm Load to → N	750 rpm Load to ← N	750 rpm Load to → N
IM B3, IM B5, IM B35									
	80	500	700	700	800	800	1000	900	1100
	90	500	700	700	900	900	1100	1000	1200
	100	900	1000	1200	1300	1400	1500	1500	1700
	112	1300	1400	1700	1800	2000	2200	2300	2400
	132	1700	2100	2300	2700	2800	3200	3100	3600
	160	2100	2700	3000	3500	3600	4100	4100	4600
		↓ N	↑ N	↓ N	↑ N	↓ N	↑ N	↓ N	↑ N
Construction Type IM V1, IM V5, IM V15									
	80	400	700	600	900	800	1100	900	1200
	90	500	800	700	1000	800	1200	900	1300
	100	800	1100	1100	1400	1300	1600	1400	1800
	112	1200	1500	1600	2000	1900	2300	2200	2600
	132	1600	2300	2100	3000	2500	3500	2900	3800
	160	1800	3200	2600	4000	3400	4500	3700	5100
		↓ N	↑ N	↓ N	↑ N	↓ N	↑ N	↓ N	↑ N
IM V3, IM V6, IM V35									
	80	600	500	800	700	1000	900	1100	1000
	90	700	600	900	800	1000	1000	1100	1100
	100	900	900	1200	1300	1400	1500	1600	1700
	112	1300	1400	1700	1900	2000	2200	2300	2500
	132	2000	1900	2500	2600	2900	3100	3400	3400
	160	2300	2700	3200	3500	4000	4000	4200	4600

The Flexi Mount Motor was designed to simplify warehose stock keeping through the universial employment of one type of motor.

The illustrations show how the flanges, the feet, the lugs and the protective cowl can be replaced. Thus all possible versions according to EN 60034-7 can be achieved from a basic motor.

All these work operations are feasible without opening the flameproof chamber. No authorization from any authority is necessary for restarting operation. The conversation is reversible, so that one motor after another can be employed at different locations.





Available flanges

Frame size	FF Flange Ø in mm [1]												FT Flange Ø in mm [1]						
	100	115	130	165	215	265	300	350	400	500	600	740	65	75	85	100	115	130	165
	A Flange Ø in mm [2]												C Flange Ø in mm [2]						
	120	140	160	200	250	300	350	400	450	550	660	800	80	90	105	120	140	160	200
80			O	×	O	O	O	O	O	O	O	O	O	O	O	×	O	×	O
90		O	O	×	O	O	O	O	O	O	O	O	O	O	O	O	×	×	O
100			O	O	×	O	O	O	O	O	O	O					O	×	×
112			O	O	×	O	O	O	O	O	O	O						O	×
132					O	×	O	O	O	O	O	O						O	O
160																			

× = Standard

O = Special flange (extra cost option)

All other versions require an intermediate ring (extra cost option)

Note

1) New designaton to EN 50347

2) Old designation to DIN 42948

Operating Data

Type BBD…	Output P_2 [kW]	Rated current at 400 V I [A]	Speed n [rpm]	Efficiency η [%]	Power factor cos φ	Torque M [Nm]	Locked-rotor torque M_A / M_N	Locked-rotor current I_A / I_N	Breakdown torque M_K / M_N	Mass moment of inertia J [kgm²]	Weight m [kg]	Noise values with radial-flow fan L_P [dB(A)]	Noise values with radial-flow fan L_W [dB(A)]	Noise values with axial-flow fan Typ … A L_P [dB(A)]	Noise values with axial-flow fan Typ … A L_W [dB(A)]
80K-2	0,75	1,7	2805	73	0,87	2,55	2,7	5,3	3,4	0,0014	28	55	67		
80L-2	1,1	2,3	2820	77	0,87	3,73	2,8	5,9	3,5	0,0017	29	55	67		
$90L_1$-2	1,5	2,9	2845	80,5	0,92	5	2,4	6,3	3,2	0,0025	37	60	72		
$90L_2$-2	2,2	4,2	2845	82	0,92	7,1	2,5	6,7	3,3	0,0030	41	60	72		
100L-2	3	5,7	2860	83	0,91	10	2,7	7	3,3	0,0041	53	63	75		
112M-2	4	7,5	2895	84,5	0,91	13,2	2,7	7,1	3	0,0073	63	63	75	55	67
$132S_1$-2	5,5	10,4	2880	87	0,88	18,2	2,5	6,4	3,3	0,0089	95	63	76	55	68
$132S_2$-2	7,5	13,8	2910	88	0,89	24,6	2,7	6,8	3,5	0,0125	100	63	76	55	68
$160M_1$-2	11	20	2925	89	0,89	36	2,8	6,6	3,2	0,032	171	66	79	56	69
$160M_2$-2	15	26,5	2920	89,5	0,92	49	2,8	6,8	3,2	0,043	181	66	79	56	69
160L-2	18,5	32	2925	90,5	0,92	60	2,6	6,8	3,1	0,052	196	66	79	56	69

Type Brook Crompton															
W-EF180ML	22	38	2930	91,5	0,92	71,71	2,4	7,5	2,7	0,111	208	72			
W-UEF200LN	30	52	2935	92,9	0,89	98	2,4	7,5	2,9	0,23	340	73			
W-UEF200LN	37	64	2935	93,3	0,89	120	2,4	7,5	2,9	0,23	340	73			
W-UEF225MN	45	77	2955	93,9	0,90	145	2,3	7,8	2,8	0,47	445	75			
W-UEF250MNE	55	93	2955	94,4	0,90	178	2,3	7,8	2,8	0,56	494	75			
W-UEF280SNE	75	129	2960	95,2	0,90	242	2,2	7,8	3,0	0,8	694	77			
W-UEF280MNE	90	151	2960	95,3	0,90	290	2,2	7,8	3,0	0,9	755	77			
W-UEF315SNE	110	184	2978	95,8	0,90	353	2,2	7,8	2,9	1,4	890	78			
W-UEF315MNE	132	221	2978	95,8	0,90	423	2,2	7,8	2,9	1,7	1150	78			
W-UEF315MN	150	247	2980	96,2	0,91	481	2,0	7,8	2,75	2,4	1350	80			
W-UEF315MP	160	264	2980	96,3	0,91	513	2,0	7,8	2,75	2,6	1350	80			
W-UEF315LN	185	304	2980	96,4	0,91	593	2,0	7,8	2,75	2,8	1550	80			
W-UEF315LN	200	329	2978	96,4	0,91	641	1,85	7,2	2,5	2,8	1550	80			

40 °C ambient temperature, winding temperature rise F

Operation on the	Mains	Inverter										Inverter	
Ventilation		Self-cooling										Forced ventilation	
Torque character	-	drop by square val.		Constant		Constant		Constant		Constant		Constant	
Frequency	50 Hz	5-50 Hz		20-50 Hz		10-50 Hz		5-50 Hz		50-87 Hz[1)]		5-87 Hz[1)]	
Control range	-	1:10		1:2,5		1:5		1:10					
Speed range	-	300-3000 rpm		1200-3000 rpm		600-3000 rpm		300-3000 rpm		3000-5220 rpm		300-5220 rpm	
Output/Torque	P_2 [kW]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]
		50 Hz		50 Hz		50 Hz		50 Hz		87 Hz		50 Hz	87 Hz
80K-2	0,75	0,75	2,6	0,7	2,4	0,6	2	0,5	1,7	1,1	2	-	-
80L-2	1,1	1,1	3,7	1	3,4	0,9	3	0,75	2,5	1,6	2,9	-	-
$90L_1$-2	1,5	1,5	5	1,4	4,7	1,2	4	1	3,3	2,2	4	-	-
$90L_2$-2	2,2	2,2	7,4	2	6,7	1,7	5,7	1,4	4,7	3,3	6	-	-
100L-2	3	3	10	2,7	8,9	2,2	7,2	1,8	5,9	4,5	8,2	-	-
112M-2	4	4	13	3,7	12	3,2	11	2,5	8,2	6	11	-	-
$132S_1$-2	5,5	5,5	18	5	16	4,5	15	3,7	12	8	15	5,5	8
$132S_2$-2	7,5	7,5	25	7	23	6	20	5	16	11	20	7,5	10,5
$160M_1$-2	11	11	36	10	32	9	29	7,5	24	16	29	11	15
$160M_2$-2	15	14,5[2)]	47	13	42	12	39	10	32	21	38	14,5	20
160L-2	18,5	17,5[2)]	57	16	52	15	49	12,5	41	26	48	17,5	25

Note:

1) Higher frequencies on request

2) With inverter operation with output filter and practically sinusoidal output voltage, output as P_2

Operating Data

Type BBD…	Output P_2 [kW]	Rated current at 400 V I [A]	Speed n [rpm]	Efficiency η [%]	Power factor cos φ	Torque M [Nm]	Locked-rotor torque M_A / M_N	Locked-rotor current I_A / I_N	Break-down torque M_K / M_N	Mass moment of inertia J [kgm^2]	Weight m [kg]	Noise values with radial-flow fan L_P [dB(A)]	Noise values with radial-flow fan L_W [dB(A)]	Noise values with axial-flow fan Typ … A L_P [dB(A)]	Noise values with axial-flow fan Typ … A L_W [dB(A)]
80K-4	0,55	1,36	1410	70,5	0,83	3,73	2,4	5,3	2,6	0,0021	27	46	58		
80L-4	0,75	1,76	1410	74	0,83	5,1	2,6	5,6	2,8	0,0024	29	46	58		
90L$_1$-4	1,1	2,35	1395	76,5	0,89	7,5	2,2	5	2,5	0,0035	36	49	61		
90L$_2$-4	1,5	3,15	1405	78,5	0,88	10,2	2,5	5,5	2,8	0,0044	38	49	61		
100L$_1$-4	2,2	4,75	1435	80,5	0,83	14,5	1,9	5,7	2,6	0,0062	50	52	64		
100L$_2$-4	3	6,3	1440	82,5	0,83	19,9	2	6,2	2,8	0,0083	52	52	64		
112M-4	4	8,2	1450	84	0,84	26,3	2,1	6,8	2,9	0,0146	69	54	66		
132S-4	5,5	10,7	1440	87	0,85	36,5	2,5	6,2	2,7	0,022	100	57	70	55	68
132M-4	7,5	14,3	1440	88,2	0,86	50	2,7	6,5	2,8	0,03	110	57	70	55	68
160M-4	11	21	1460	89,5	0,85	72	2,5	6,6	2,8	0,057	176	62	75	59	72
160L-4	15	28	1455	90	0,86	98	2,8	6,5	3,1	0,079	192	62	75	59	72
Type Brook Crompton															
W-EF180LZ	22	41	1460	91,0	0,85	143,9	2,5	3,2	3,2	0,246	223	70			
W-UEF200LN	30	53	1470	93,2	0,87	195	2,3	3,2	3,2	0,40	340	65			
W-UEF225SN	37	66	1470	93,6	0,87	240	2,3	7,3	3,2	0,53	370	66			
W-UEF225MN	45	80	1475	94,2	0,86	292	2,7	7,7	3,2	0,65	445	67			
W-UEF250MNE	55	98	1475	94,6	0,86	357	2,7	7,7	3,2	0,75	494	67			
W-UEF280SNE	75	131	1475	94,9	0,87	486	2,4	7,4	2,7	1,4	694	69			
W-UEF280MNE	90	157	1475	95,2	0,87	583	2,5	7,4	2,8	1,6	755	69			
W-UEF315SNE	110	191	1480	95,6	0,87	710	2,4	7,7	2,65	3,2	890	71			
W-UEF315MNE	132	229	1482	95,8	0,87	852	2,4	7,7	2,6	3,7	1150	71			
W-UEF315MN	150	257	1485	95,9	0,88	965	2,4	7,8	2,7	4,4	1350	73			
W-UEF315MP	160	274	1487	95,9	0,88	1029	2,4	7,8	2,7	4,7	1350	73			
W-UEF315LN	185	316	1487	96,0	0,88	1190	2,4	7,8	2,7	5,5	1550	73			
W-UEF315LN	200	342	1485	96,0	0,88	1286	2,3	7,6	2,6	5,5	1550	73			

40 °C ambient temperature, winding temperature rise F

Operation on the	Mains	Inverter										Inverter	
Ventilation		Self-cooling										Forced ventilation	
Torque character	-	drop by square val.		Constant		Constant		Constant		Constant		Constant	
Frequency	50 Hz	5-50 Hz		20-50 Hz		10-50 Hz		5-50 Hz		50-87 Hz[1)]		5-87 Hz[1)]	
Control range	-	1:10		1:2,5		1:5		1:10					
Speed range	-	300-3000 rpm		1200-3000 rpm		600-3000 rpm		300-3000 rpm		3000-5220 rpm		300-5220 rpm	
Output/Torque	P_2 [kW]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]
		50 Hz		50 Hz		50 Hz		50 Hz		87 Hz		50 Hz	87 Hz
80K-4	0,55	0,55	3,8	0,52	3,5	0,45	3	0,33	2,2	0,8	2,9	-	-
80L-4	0,75	0,75	5,2	0,7	4,8	0,6	4	0,5	3,3	1,1	4	-	-
$90L_1$-4	1,1	1,1	7,5	1	6,7	0,9	6	0,75	5	1,6	5,9	-	-
$90L_2$-4	1,5	1,5	10	1,4	9,5	1,2	8	1	6,7	2,2	8	-	-
$100L_1$-4	2,2	2,2	15	2	13	1,7	11	1,4	9,3	3,3	12	-	-
$100L_2$-4	3	3	20	2,8	19	2,2	15	1,8	12	4,5	16	-	-
112M-4	4	4	27	3,6	24	3	20	2,5	16	6	22	-	-
132S-4	5,5	5,5	37	5	33	4,4	29	3,7	24	8	29	5,5	8
132M-4	7,5	7,5	50	7	46	6	39	5	33	11	40	7,5	10,5
160M-4	11	11	72	10	65	9	58	7,5	49	16	59	11	15
160L-4	15	15	98	13,5	88	12	78	10	65	21	79	15	20

Note:

1) Higher frequencies on request

Operating Data

Type BBD…	Out-put P_2 [kW]	Rated current at 400 V I [A]	Speed n [rpm]	Effi-ciency η [%]	Power factor cos φ	Torque M [Nm]	Locked-rotor torque M_A / M_N	Locked-rotor current I_A / I_N	Break-down torque M_K / M_N	Mass moment of inertia J [kgm^2]	Weight m [kg]	Noise values with radial-flow fan L_P [dB(A)]	L_W [dB(A)]
80K-6	0,37	1,12	955	70	0,68	3,7	3	5,2	3,3	0,0030	27	44	56
80L-6	0,55	1,46	915	69,5	0,78	5,7	2	4	2,2	0,0030	29	44	56
$90L_1$-6	0,75	2,05	950	74	0,71	7,5	2,5	5,5	2,9	0,0051	36	47	59
$90L_2$-6	1,1	2,7	920	73	0,80	11,4	1,8	4,2	2,1	0,0051	38	47	59
100L-6	1,5	3,7	950	77,5	0,76	15,1	1,9	5	2,5	0,012	52	50	62
112M-6	2,2	5,3	965	82	0,73	21,8	2	5,7	2,7	0,014	59	53	65
$132S_1$-6	3	6,6	965	84	0,78	29,7	2,7	6,3	3,1	0,031	100	56	69
$132M_1$-6	4	8,6	960	85	0,79	40	2,6	6	3	0,037	104	56	69
$132M_2$-6	5,5	11,4	960	86	0,81	55	2,6	6,4	3	0,043	112	56	69
160M-6	7,5	14,7	960	86,8	0,85	75	2,5	6,8	3,3	0,087	178	58	71
160L-6	11	21	965	87,5	0,86	109	2,5	6,7	3,2	0,12	198	58	71
Type Brook Crompton													
W-EF180LZ	15	30	970	87,5	0,82	147,68	2,1	6,5	3,0	0,293	223	59	
W-UEF200LN	18,5	37	975	91,0	0,80	181	2,6	6,0	2,1	0,6	340	62	
W-UEF200LN	22	43	975	91,5	0,80	215	2,6	6,0	2,1	0,6	340	62	
W-UEF225SN	30	58	980	92,7	0,80	292	2,2	6,5	2,4	1,1	370	63	
W-UEF225MN	37	70	980	93,2	0,82	361	2,2	6,5	2,4	1,3	445	63	
W-UEF250MNE	45	84	985	93,4	0,83	436	2,5	6,0	2,0	2,55	494	65	
W-UEF280SNE	55	102	985	93,8	0,83	533	2,5	6,1	2,0	2,9	694	65	
W-UEF280MNE	75	137	985	94,3	0,84	727	3,0	7,0	2,6	5	755	68	
W-UEF315MNE	90	164	985	94,5	0,84	872	3,0	7,0	2,6	6	1150	68	
W-UEF315MN	110	197	985	94,8	0,85	1066	2,8	6,7	2,0	6,1	1350	70	
W-UEF315LN	132	236	985	95,0	0,85	1280	2,8	6,7	2,0	7,3	1550	70	

40 °C ambient temperature, winding temperature rise F

Operation on the	Mains	Inverter										Inverter	
Ventilation		Self-cooling										Forced ventilation	
Torque character	-	drop by square val.		Constant		Constant		Constant		Constant		Constant	
Frequency	50 Hz	5-50 Hz		20-50 Hz		10-50 Hz		5-50 Hz		50-87 Hz[1)]		5-87 Hz[1)]	
Control range	-	1:10		1:2,5		1:5		1:10					
Speed range	-	300-3000 rpm		1200-3000 rpm		600-3000 rpm		300-3000 rpm		3000-5220 rpm		300-5220 rpm	
Output/Torque	P_2 [kW]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]
		50 Hz		50 Hz		50 Hz		50 Hz		87 Hz		50 Hz	87 Hz
80K-6	0,37	0,37	3,8	0,33	3,4	0,27	2,7	0,22	2,2	0,55	3	-	-
80L-6	0,55	0,55	5,7	0,5	5,1	0,4	4	0,33	3,3	0,8	4,4	-	-
$90L_1$-6	0,75	0,75	7,8	0,65	6,7	0,55	5,5	0,42	4,2	1,1	6	-	-
$90L_2$-6	1,1	1,1	11,4	0,9	9,2	0,8	8	0,6	6	1,6	8,8	-	-
100L-6	1,5	1,5	15	1,4	14	1,1	11	0,9	9	2,2	12	-	-
112M-6	2,2	2,2	22	2	20	1,7	17	1,3	13	3,3	18	-	-
$132S_1$-6	3	3	30	2,7	27	2,2	22	1,8	18	4,5	25	3	4,2
$132M_1$-6	4	4	40	3,5	35	3	30	2,5	25	6	33	4	5,5
$132M_2$-6	5,5	5,5	55	4,8	48	4	40	3,3	33	8	44	5,5	7,6
160M-6	7,5	7,5	74	7	69	6	59	5	49	11	60	7,5	10,5
160L-6	11	11	110	10	98	9	88	7,5	73	16	88	11	15

Note:

1) Higher frequencies on request

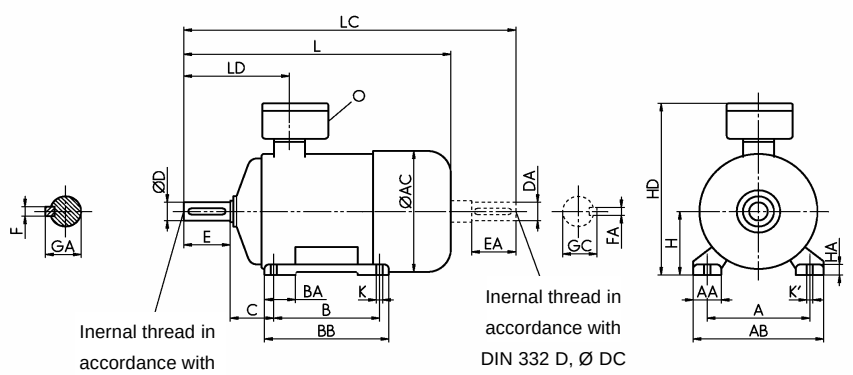
Operating Data

Type BBD…	Output P_2 [kW]	Rated current at 400 V I [A]	Speed n [rpm]	Efficiency η [%]	Power factor cos φ	Torque M [Nm]	Locked-rotor torque M_A / M_N	Locked-rotor current I_A / I_N	Breakdown torque M_K / M_N	Mass moment of inertia J [kgm^2]	Weight m [kg]	Noise values with radial-flow fan L_P [dB(A)]	L_W [dB(A)]
80K-8	0,18	0,79	710	61	0,54	2,4	2,5	3,7	3,1	0,0030	27	42	54
80L-8	0,25	0,89	695	63	0,64	3,4	1,9	3,2	2,4	0,0030	29	42	54
90L_1-8	0,37	1,4	720	69,5	0,55	4,9	2,2	4,2	2,8	0,0051	36	46	58
90L_2-8	0,55	1,72	700	70	0,66	7,5	1,6	3,4	2	0,0051	38	46	58
100L_1-8	0,75	2,05	720	74,5	0,71	9,9	2,6	5,2	2,9	0,012	50	49	61
100L_2-8	1,1	3,15	695	73	0,78	15,1	1,9	4,2	2,3	0,012	52	49	61
112M-8	1,5	3,7	720	81	0,72	19,9	2	5,3	2,5	0,017	59	52	64
132S-8	2,2	5	695	80	0,79	30	2	4,1	2,3	0,029	97	53	66
132M-8	3	6,9	705	81	0,77	41	2,4	4,6	2,7	0,036	113	53	66
160M_1-8	4	8,7	715	85	0,78	53	1,8	4,6	2,3	0,071	165	54	67
160M_2-8	5,5	12	720	86	0,77	73	2,1	5,4	2,8	0,105	178	54	67
160L-8	7,5	16,3	720	86,5	0,77	99	2,2	5,6	2,9	0,136	198	54	67
Type Brook Crompton													
W-EF180LZ	11	26,3	720	84	0,72	145,9	2	5,7	2,4	0,293	223	58	
W-UEF200LN	15	33	730	90	0,73	196	2	5,5	2,4	0,48	340	60	
W-UEF225SN	18,5	40	730	90,5	0,73	242	2	5,5	2,4	0,75	370	60	
W-UEF225MN	22	47	730	91,5	0,74	288	2	6	2,4	1,23	445	62	
W-UEF250MNE	30	64	735	92	0,74	390	1,7	6	2,4	1,47	494	62	
W-UEF280SNE	37	77	735	92,5	0,75	481	1,7	6	2,4	2,55	694	63	
W-UEF280MNE	45	93	735	93	0,75	585	1,7	6	2,4	2,9	755	63	
W-UEF315SNE	55	113	740	93,5	0,75	710	2,5	6	2	5	890	64	
W-UEF315MNE	75	151	740	94,1	0,76	968	2,5	6	2	6	1150	64	
W-UEF315MN	90	179	740	94,4	0,77	1161	2,4	6	2	6,1	1350	65	
W-UEF315LN	110	218	740	94,6	0,77	1419	2,4	6	2	7,3	1550	65	

40 °C ambient temperature, winding temperature rise F

Operation on the	Mains	Inverter										Inverter	
Ventilation		Self-cooling										Forced ventilation	
Torque character	-	drop by square val.		Constant		Constant		Constant		Constant		Constant	
Frequency	50 Hz	5-50 Hz		20-50 Hz		10-50 Hz		5-50 Hz		50-87 Hz[1)]		5-87 Hz[1)]	
Control range	-	1:10		1:2,5		1:5		1:10					
Speed range	-	300-3000 rpm		1200-3000 rpm		600-3000 rpm		300-3000 rpm		3000-5220 rpm		300-5220 rpm	
Output/Torque	P_2 [kW]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]	P_U [kW]	M_U [Nm]
		50 Hz		50 Hz		50 Hz		50 Hz		87 Hz		50 Hz	87 Hz
80K-8	0,18	0,18	2,5	0,16	2,2	0,13	1,7	0,11	1,5	0,25	1,8	-	-
80L-8	0,25	0,25	3,4	0,22	3	0,18	2,4	0,16	2,2	0,37	2,7	-	-
$90L_1$-8	0,37	0,37	5,1	0,33	4,4	0,27	3,6	0,22	3	0,55	4	-	-
$90L_2$-8	0,55	0,55	7,5	0,5	6,7	0,4	5,4	0,33	4,4	0,8	5,9	-	-
$100L_1$-8	0,75	0,75	10,2	0,65	8,7	0,55	7,4	0,42	5,6	1,1	8	-	-
$100L_1$-8	1,1	1,1	15,1	0,9	12	0,8	11	0,6	8,1	1,6	12	-	-
112M-8	1,5	1,5	20,2	1,4	19	1,1	15	0,9	12	2,2	16	-	-
132S-8	2,2	2,2	30	2	27	1,7	23	1,3	17	3,3	24	2,2	3,1
132M-8	3	3	40,5	2,7	36	2,2	29	1,8	24	4,5	33	3	4,2
$160M_1$-8	4	4	53,5	3,5	46	3	40	2,5	33	6	44	4	5,5
$160M_2$-8	5,5	5,5	73	4,8	64	4	52	3,3	44	8	59	5,5	7,6
160L-8	7,5	7,5	100	7	92	5,5	72	4,5	59	11	80	7,5	10,5

1) Higher frequencies on request



Eye bolts from frame size 90.
Dimension AC measured over screw heads.
Dimension HD applies to Ex e box.
Terminal box can be rotated 4x90°.

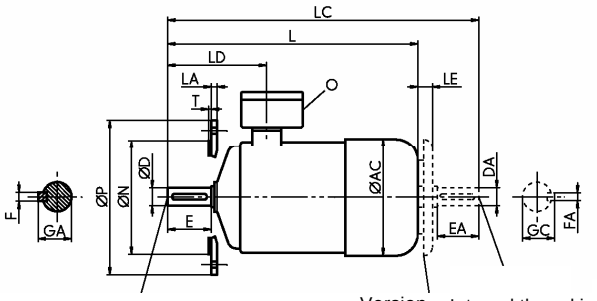
Note:
1) For version IM V5 canopy required, see dimension LE page 19.

Dimen-sions

Type BBD…	A	AA	AB	AC	B	BA	BB	C	$H_{-0,5}$	HA	HD	K	K'
80K+L	125	35	160	163	100	39	130	50	80	12	260	9,5	12
90L	140	40	180	183	125	45	155	56	90	12	275	9,5	12
100L	160	45	200	201	140	45	175	63	100	15	295	12	15
112M	190	60	235	225	140	48	175	70	112	17	317	12	15
132S	216	60	266	265	140	60	187	89	132	20	411	12	15
132M	216	60	266	265	178	60	225	89	132	20	411	12	15
160M	254	65	310	318	210	100	300	108	160	25	474	15	20
160L	254	65	310	318	254	100	300	108	160	25	474	15	20
Type Brook Crompton													
W-EF180M	279	76	356	378	241		298	121	180	19	440[2)]	15	
W-EF180L	279	76	356	378	279		337	121	180	19	440[2)]	15	
W-UEF200LN	318	63	386	410	305		355	133	200	27	636	M16[3)]	
W-UEF225SN	356	70	426	410	286		349	149	225	25	661	M16[3)]	
W-UEF225MN	356	70	426	448	311		374	149	250	25	680	M16[3)]	
W-UEF250MNE	406	79	482	448	349		419	168	250	28	706	M20[3)]	
W-UEF280SNE	457	83	540	508	368		438	190	280	35	800	M20[3)]	
W-UEF280MNE	457	83	540	508	419		487	190	280	35	800	M20[3)]	
W-UEF315NE	508	89	597	563	406		483	216	315	38	865	M24[3)]	
W-UEF315MNE	508	89	597	563	457		533	216	315	38	865	M24[3)]	
W-UEF315MN	508	89	597	640	457		533	216	315	38	960	M24[3)]	
W-UEF315LN	508	89	597	640	508		583	216	315	38	960	M24[3)]	

2) terminal box right hand side; dimension see page 18
3) K bolt size

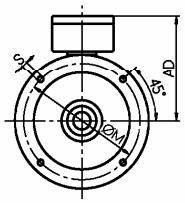
Type	L No. Poles				LC No. Poles			LD	O	Shaft ends D, DA		E, EA		GA, GC		F,FA		DB, DC
BBD…	2	4	6	8	2	4	6,8			2	4,6,8	2	4,6,8	2	4,6,8			
80K+L	336	336	336	336	410	410	410	150	2x M25x1,5	19k6		40		22		6		M6
90L	400	400	400	400	485	485	485	150	2x M25x1,5	24k6		50		27		8		M8
100L	419	419	419	419	514	514	514	181	2x M32x1,5	28k6		60		31		8		M10
112M	470	470	470	470	566	566	566	185	2x M32x1,5	28k6		60		31		8		M10
132S	529	529	529	529	645	645	645	226	2x M32x1,5	38k6		80		41		10		M12
132M	529	529	529	529	645	645	645	226	2x M32x1,5	38k6		80		41		10		M12
160M	726	694	694	694	881	849	849	313	2x M40x1,5	42k6		110		45		12		M16
160L	726	694	694	694	881	849	849	313	2x M40x1,5	42k6		110		45		12		M16
Type Brook Crompton																		
W-EF180M	672	672	672	672					1x M32	48k6		110		52		14		M16
W-EF180L	710	710	710	710					1x M32	48k6		110		52		14		M16
W-UEF200LN	810	810	810	810					1x M40 + 1x M20	55m6	55m6	110	110	59	59	16	16	M20
W-UEF225SN	843	873	873	873					1x M40 + 1x M20	-	60m6	-	140	-	64	-	18	M20
W-UEF225MN	885	915	915	915					1x M40 + 1x M20	55m6	60m6	110	140	59	64	16	18	M20
W-UEF250MNE	985	985	985	985					1x M40 + 1x M20	60m6	65m6	140	140	64	69	18	18	M20
W-UEF280SNE	1060	1060	1060	1060					1x M50 + 1x M20	65m6	75m6	140	140	69	79,5	18	20	M20
W-UEF280MNE	1070	1070	1070	1070					1x M50 + 1x M20	65m6	75m6	140	140	69	79,5	18	20	M20
W-UEF315NE	1115	1145	1145	1145					1x M50 + 1x M20	65m6	80m6	140	170	69	85	18	22	M20
W-UEF315MNE	1185	1215	1215	1215					1x M50 + 1x M20	65m6	80m6	140	170	69	85	18	22	M20
W-UEF315MN	1215	1245	1245	1245					1x M63 + 1x M20	65m6	80m6	140	170	69	85	18	22	M20
W-UEF315LN	1285	1315	1315	1315					1x M63 + 1x M20	65m6	80m6	140	170	69	85	18	22	M20



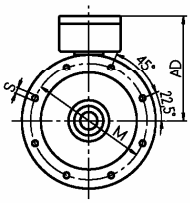
Internal thread in accordance with DIN 332 D, Ø DB

Version IM V1 only

Internal thread in accordance with DIN 332 D, Ø DC



Location of flange holes Frame size 80-160



Location of flange holes Frame size 180-315

Eye bolts from frame size 90.
Dimension AC measured over screw heads.
Dimension HD applies to Ex e box.
Terminal box can be rotated 4x90°.

Note:
1) For version IM V5 canopy required, see dimension LE page 19.

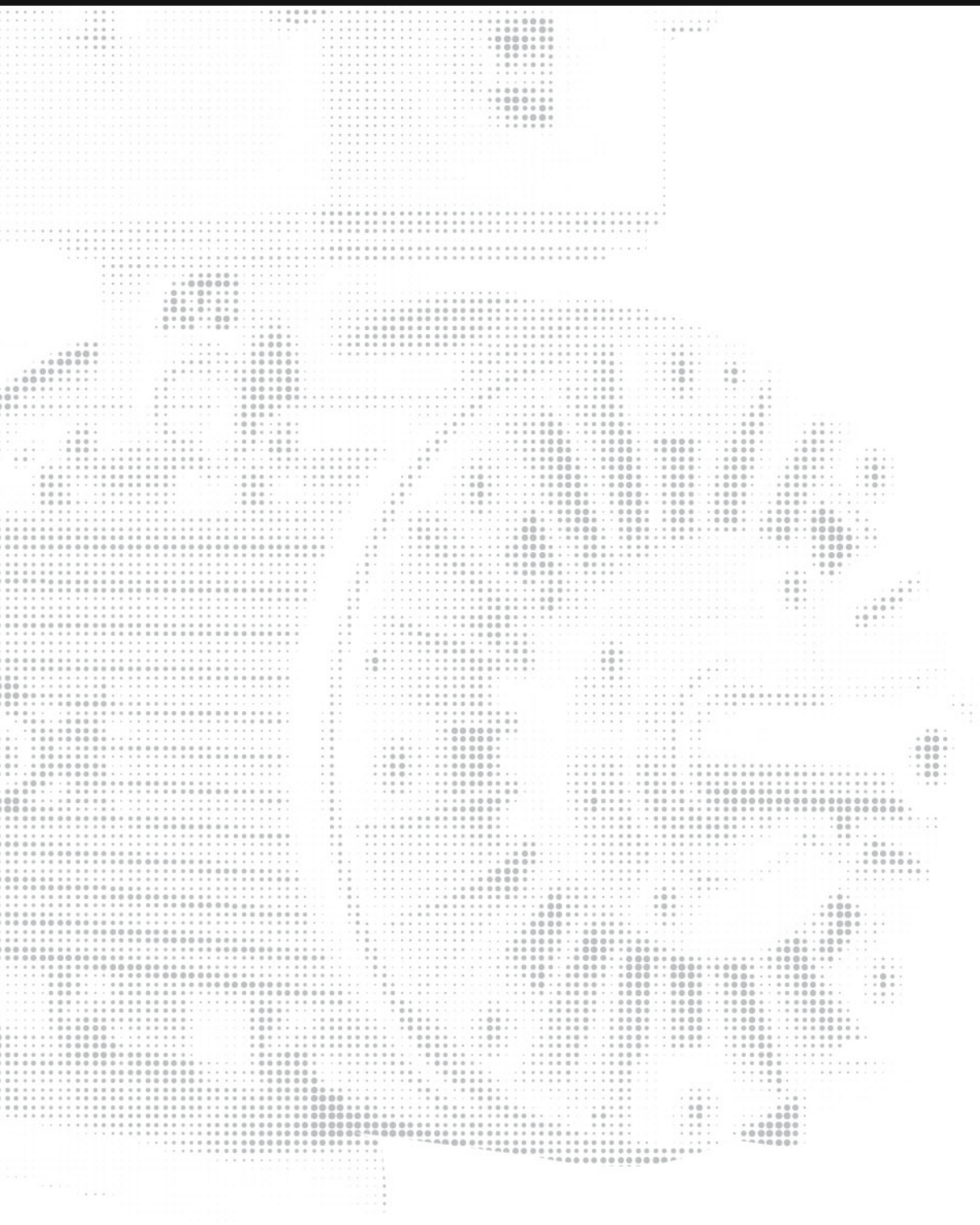
Dimensions

Type BBD…	Mounting Flange LA	M	N	P	S	T	AC	AD	L No. Poles 2	4	6	8
80K+L	12	165	130j6	200	12	3,5	163	180	336	336	336	336
90L	12	165	130j6	200	12	3,5	183	185	400	400	400	400
100L	16	215	180j6	250	14,5	4	201	195	419	419	419	419
112M	16	215	180j6	250	14,5	4	225	205	470	470	470	470
132S+M	16	265	230j6	300	14,5	4	265	279	529	529	529	529
160M+L	20	300	250j6	350	18,5	5	318	317	726	694	694	694
Type Brook Crompton												
W-EF180M	15	300	250h6	350	19	5	378	343[2)]	672	672	672	672
W-EF180L	15	300	250h6	350	19	5	378	343[2)]	710	710	710	710
W-UEF200LN	19	350	300h6	400	19	5	410	436	810	810	810	810
W-UEF225SN	19	400	350h6	450	19	5	410	436	843	873	873	873
W-UEF225MN	19	400	350h6	450	19	5	448	455	885	915	915	915
W-UEF250MNE	25	500	450h6	550	19	5	448	456	985	985	985	985
W-UEF280SNE	25	500	450h6	550	19	5	508	520	1060	1060	1060	1060
W-UEF280MNE	25	500	450h6	550	19	5	508	520	1070	1070	1070	1070
W-UEF315SNE	29	600	550h6	660	24	5	563	550	1115	1145	1145	1145
W-UEF315MNE	29	600	550h6	660	24	6	563	550	1185	1215	1215	1215
W-UEF315MN	29	600	550h6	660	24	6	640	645	1215	1245	1245	1245
W-UEF315LN	29	600	550h6	660	24	6	640	645	1285	1315	1315	1315

2) terminal box right hand side

Type	LC No. Poles				LD	LE No. Poles			O	Shaft ends D, DA		E, EA		GA, GC		F,FA		DB, DC
BBD…	2	4	6	8		2	4	6,8		2	4,6,8	2	4,6,8	2	4,6,8	2	4,6,8	
80K+L	410	410	410	410	150	25	25	25	2x M25x1,5	19k6		40		22		6		M6
90L	485	485	485	485	150	25	25	25	2x M25x1,5	24k6		50		27		8		M8
100L	514	514	514	514	181	30	30	30	2x M32x1,5	28k6		60		31		8		M10
112M	566	566	566	566	185	30	30	30	2x M32x1,5	28k6		60		31		8		M10
132S+M	645	645	645	645	226	30	30	30	2x M32x1,5	38k6		80		41		10		M12
160M+L	881	849	849	849	313	35	35	35	2x M40x1,5	42k6		110		45		12		M16

Type Brook Crompton																		
W-EF180M									1x M32	48k6		110		52		14		M16
W-EF180L									1x M32	48k6		110		52		14		M16
W-UEF200LN									1x M40 + 1x M20	55m6	55m6	110	110	59	59	16	16	M20
W-UEF225SN									1x M40 + 1x M20	-	60m6	-	140	-	64	-	18	M20
W-UEF225MN									1x M40 + 1x M20	55m6	60m6	110	140	59	64	16	18	M20
W-UEF250MNE									1x M40 + 1x M20	60m6	65m6	140	140	64	69	18	18	M20
W-UEF280SNE									1x M50 + 1x M20	65m6	75m6	140	140	69	79,5	18	20	M20
W-UEF280MNE									1x M50 + 1x M20	65m6	75m6	140	140	69	79,5	18	20	M20
W-UEF315NE									1x M50 + 1x M20	65m6	80m6	140	170	69	85	18	22	M20
W-UEF315MNE									1x M50 + 1x M20	65m6	80m6	140	170	69	85	18	22	M20
W-UEF315MN									1x M63 + 1x M20	65m6	80m6	140	170	69	85	18	22	M20
W-UEF315LN									1x M63 + 1x M20	65m6	80m6	140	170	69	85	18	22	M20



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EXMOT BBD W-UEF 1/2006-05 EN