Premium efficiency motors designed to match the pump load

Grundfos MG IE3-rated 0.25-22 kW 3-Phase motors provide low energy consumption, emissions and operating costs

be
think
innovate

GRUNDFOS

THE MG MOTOR RANGE

TAILORED PRECISELY TO YOUR APPLICATION

Grundfos is one of the world's leading manufacturers of pumps and pumping equipment. Therefore, high quality electrical motors are a natural priority for us. For decades, we have been manufacturing our own motors that match the very high standard of our pumps for applications in building services, industry and water utility.

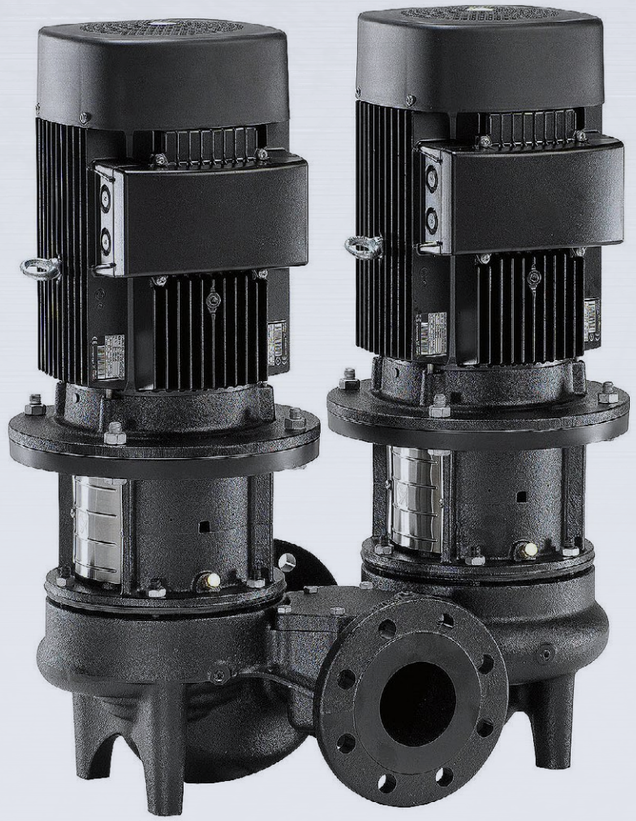
Grundfos MG motors distinguish themselves from standard motors in the market in several ways:

- Optimal lifetime – motor designed to fit pump load
- Wide voltage ranges for both 50 Hz and 60 Hz
- Low noise levels
- Meet or exceed global standards for efficiency (MEPS)
- A range of customised options available on request
- Global availability through Grundfos companies

UNIQUELY ROBUST AND RELIABLE OPERATION

Solid design and a range of construction features contribute to provide trouble-free operation and increase the operating lifetime of the motor.

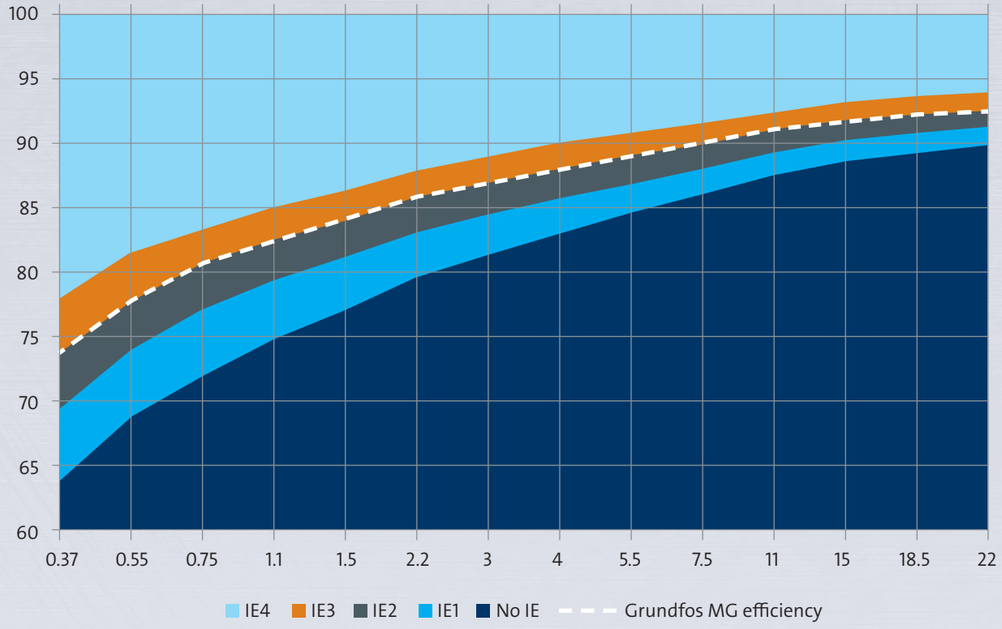
- High-quality bearings from world's leading manufacturers
- Oversized bearings compared to standard motors
- Inverter-ready as standard (Frame Size 71/80 as an exemption – on request)
- 'Cold motors' – class F insulation system with class B temperature rises
- 60 °C ambient temperature allowed as standard
- Built-in PTC sensor as standard from 3 kW and above
- Drain holes closed on delivery as standard
- Relubrication system as standard from Frame Size 160 and upwards
- Bearing temperature surveillance available on request in both drive and non-drive end bearings for 11 kW and above
- FPV solution available with a second PTC (a warning PTC) from 7.5 kW 2-pole and 5.5 kW 4-pole and above



MEET OR EXCEED GLOBAL STANDARDS FOR EFFICIENCY

Minimum Energy Performance Standards (MEPS) for electric motors are becoming increasingly strict worldwide, and the global standard generally adhered to today is IE3. Pumps with IE3-rated electric motors use less energy, resulting in lower emissions and operating costs. Our MG motors fulfil all required MEPS, wherever they are applied.

2-POLE, 50 HZ EFFICIENCY CURVES FOR GRUNDFOS MOTORS



If you require even higher efficiencies than IE3, Grundfos can also offer the IE5-rated permanent magnet MGE motor up to 11 kW with built-in variable frequency drive.

MOTORS DESIGNED TO MATCH THE PUMP

Motors manufactured by Grundfos are designed especially for use with Grundfos pumps, and within each motor type we offer a number of different variants.

WIDE VOLTAGE RANGE

The wide voltage range means our motors can be used in many countries around the world. It also makes the motors very robust against over and under voltage as well as voltage unbalance, because the IEC standards requirement for voltage tolerances are fulfilled on the border of the voltages and not just on one nominal voltage.

VOLTAGE RANGE

Frequency	Voltage
50	220-240Δ/380-415Y
60	220-255Δ/380-440Y[1]
	220-277Δ/380-480Y[2]
50	380-415Δ
60	380-440Δ[1]
	380-480Δ[2]

[1] MG 71/80
[2] MG 90-180

GLOBAL APPROVALS AND STANDARDS

The technical data for the motors covers both 50 and 60 Hz versions. Unlike most other motor brands, the Grundfos Standard motors offer the same power output in 50 and 60 Hz versions.

The Grundfos motors are designed, manufactured and tested according to the internationally recognised standards for electrical motors: IEC60034 and IEC60072-1/EN50347

Standard configuration of Grundfos motors mountings
- V18/B14, V1/B5, B3, B34 and B35. IP55 with drain plugs closed

All Global Energy approvals available – also combined
- Canada
- USA
- Brazil
- Mexico
- Peru
- EU
- Japan
- South Korea
- Singapore
- Taiwan
- Australia
- New Zealand
- China
- Eurasian Customs Union/Russia
- Colombia
- India
- Vietnam

Safety approvals available
- cURus, CCC etc.

Certificates available
- Vibration, performance and efficiency levels

STANDARD BEARINGS AVAILABLE WORLDWIDE

The Grundfos MG motors are fitted with locked bearings at the drive end, either a deep-groove ball bearing or an angular-contact bearing depending on the motor use. On standard models, a wave spring washer at the non-drive end holds the motor bearings in place. Grundfos uses only high-quality bearings from the world's leading manufacturers:

- SKF AB (Sweden)
- NSK Corporation (Japan)
- FAG Schaeffler Technologies AG & Co. KG (Germany)
- INA Schaeffler Technologies AG & Co. KG (Germany)

These manufacturers all comply with international standards, and the bearings are customised to Grundfos requirements, with supreme corrosion resistance and high-temperature grease to deal with tough environmental conditions. The re-greasing gives extended lifetime of the bearings without need forreplacement and applies to motors from 11 kW (FS160 and above). The use of standard bearings makes replacement easy all over the world as well as ensuring that you get optimal lifetime and access to spare bearings.

BEARING SIZE OVERVIEW

Frame size	2-pole	4-pole	Bearing sizes		
	Power	Power	Drive end	Drive end - CR	Non-drive end
71	0.37	0.25	6204.2Z.C3	6204.2Z.C3	6201.2Z.C3
	0.55	0.37			
80	0.75	0.55		6204.2Z.C3 / 6304.2Z.C3	
	1.1	-			
90	1.5	0.75	6305.2Z.C4	6305.2Z.C3	6205.2Z.C3
	2.2	1.1			
	-	1.5			
100	3	2.2	6306.2Z.C3	6306.2Z.C3	6205.2Z.C3
	-	3			
112	4	4	6306.2Z.C3	7306BE.2CS	6206.2Z.C3
132	5.5	5.5	6308.2Z.C3	7308BE.2CS	6206.2Z.C3
	7.5	7.5			
160	11	11	6309.C4	7309BE	6309.C4
	15	15			
	18.5	-			
180	22	-	6310.C4	7310BE	6310.C4

LESS NOISE FROM HIGH EFFICIENCY MOTORS

In electrical motors, the cooling fan is normally the main source of noise. With IE3-rated motors, less cooling air is needed to maintain the motor temperature, because of the higher efficiency. This allows for a smaller cooling fan, which reduces the noise level.

Sound pressure levels
Grundfos complies with the following rules relating to sound pressure:

- Sound power according to EN ISO 3743-2
- Sound power converted to a mean sound pressure (1 m from the test object, EN ISO 11203, method Q2)
- Tolerance on 3 dB[A] according to EN ISO 4871 (not added in the table values)

SOUND PRESSURE OVERVIEW

Sound pressure MG model H				
Motors	Power kW	Type designation	50 Hz Sound pressure level dB(A)	60 Hz Sound pressure level dB(A)
2-pole	0.37	MG71A2-C3	51.0	53.5
	0.55	MG71B2-C3	49.0	55.0
	0.75	MG80A2-H3	48.8	53.7
	1.10	MG80C2-H3	48.6	53.5
	1.50	MG90SD2-H3	54.2	58.6
	2.20	MG90LE2-H3	55.5	59.8
	3.00	MG100LC2-H3	55.3	59.8
	4.00	MG112MC2-H3	58.7	63.6
	5.50	MG132SC2-H3	58.8	63.6
	7.50	MG132SB2-H3	60.3	65.1
	11.0	MG160MB2-H3	60.5	65.1
	15.0	MG160MD2-H3	60.6	65.2
	18.5	MG160LB2-H3	60.7	65.3
	22.0	MG180MB2-H3	64.4	69.1
4-pole	0.25	MG71A4-C1	39.5	39.5
	0.37	MG71B4-C1	37.5	41.0
	0.55	MG80A4-C1	43.5	44.5
	0.75	MG90SC4-H3	43.6	46.6
	1.10	MG90SB4-H3	43.6	46.6
	1.50	MG90LC4-H3	43.2	48.6
	2.20	MG100LB4-H3	42.2	44.3
	3.00	MG100LC4-H3	50.2	50.2
	4.00	MG112MC4-H3	47.4	48.4
	5.50	MG132SB4-H3	49.8	54.5
	7.50	MG132MB4-H3	50.5	56.2
	11.0	MG160MA4-H3	53.0	58.0
	15.0	MG160LB4-H3	53.5	58.0

MG STANDARD MOTORS

50 HZ, 380-415 V - 60 HZ, 400-480 V

Short type designation	Data for 2-pole. 400 V. 50 Hz													
	IE efficiency class marking	Shaft power P_2	Full load current I_N	Power factor Cos ϕ at % load			Efficiency η at % load [1]			Speed n	Torque at 400 V M_N	LRC I_s/I_N	LRT M_s/M_N	BT M_{BT}/M_N
		[kW]	[A]	50 %	75 %	100 %	50 %	75 %	100 %	[min⁻¹]	[Nm]	[%]	[%]	[%]
MG71A2-C3	IE3	0.37	1.00	0.51	0.64	0.74	73.2	77.6	78.5	2870	1.26	510	330	370
MG71B2-C3	IE3	0.55	1.45	0.49	0.63	0.74	76.6	79.8	80.0	2840	1.86	500	360	390
MG80A2-C3	IE3	0.75	1.90	0.52	0.66	0.75	81.7	82.7	80.7	2860	2.50	600	360	410
MG80C2-C3	IE3	1.10	2.50	0.58	0.72	0.79	85.4	84.6	82.7	2860	3.64	480	330	380
MG90SD2-H3	IE3	1.50	3.30	0.57	0.70	0.81	84.3	85.5	84.2	2900	5.00	750	330	400
MG90LE2-H3	IE3	2.20	4.60	0.60	0.73	0.83	86.6	87.6	85.9	2900	7.25	830	330	440
MG100LC2-H3	IE3	3.00	6.30	0.63	0.76	0.84	87.7	88.0	87.1	2910	9.90	890	360	440
MG112MC2-H3	IE3	4.00	7.90	0.77	0.85	0.87	85.2	88.6	88.1	2930	13.0	1100	430	520
MG132SC2-H3	IE3	5.50	11.0	0.68	0.80	0.84	89.6	90.0	89.2	2930	17.8	1500	420	510
MG132SB2-H3	IE3	7.50	14.2	0.70	0.79	0.85	90.8	90.8	90.1	2920	24.6	850	240	310
MG160MB2-H3	IE3	11.0	20.2	0.72	0.81	0.86	91.3	91.8	91.2	2940	36.0	730	260	320
MG160MD2-H3	IE3	15.0	26.9	0.76	0.85	0.88	92.4	92.4	91.9	2940	49.0	730	260	310
MG160LB2-H3	IE3	18.5	33.4	0.74	0.83	0.87	93.2	93.2	92.4	2950	60.0	920	230	400
MG180MB2-H3	IE3	22.0	39.5	0.80	0.86	0.90	94.4	93.7	92.7	2950	71.2	830	280	320
	Data for 2-pole. 440 V. 60 Hz													
MG71A2-C3	IE4	0.37	0.85	0.55	0.67	0.76	75.0	79.0	80.0	3470	1.04	650	350	400
MG71B2-C3	IE4	0.55	1.20	0.53	0.67	0.76	79.5	83.0	83.0	3460	1.54	600	390	430
MG80A2-C3	IE4	0.75	1.60	0.56	0.70	0.77	84.5	84.4	82.5	3470	2.10	740	380	440
MG80C2-C3	IE3	1.10	2.30	0.61	0.73	0.80	86.4	86.0	82.5	3470	3.05	500	310	380
MG90SD2-H3	IE3	1.50	3.00	0.61	0.73	0.80	85.4	86.9	85.5	3510	4.10	820	320	450
MG90LE2-H3	IE3	2.20	4.15	0.63	0.75	0.84	87.8	89.0	86.5	3510	6.00	850	360	470
MG100LC2-H3	IE3	3.00	5.70	0.66	0.78	0.87	88.9	88.0	87.5	3510	8.16	1000	380	470
MG112MC2-H3	IE3	4.00	7.20	0.74	0.83	0.86	86.9	88.5	88.5	3530	10.8	1280	450	570
MG132SC2-H3	IE3	5.50	9.80	0.70	0.81	0.84	89.9	90.3	89.5	3530	15.0	1300	450	560
MG132SB2-H3	IE3	7.50	12.9	0.72	0.81	0.85	91.4	90.9	90.2	3510	20.6	900	270	320
MG160MB2-H3	IE3	11.0	18.6	0.72	0.82	0.85	91.2	91.4	91.0	3540	30.0	770	300	330
MG160MD2-H3	IE3	15.0	24.6	0.77	0.85	0.88	92.1	92.3	91.0	3540	40.5	770	280	310
MG160LB2-H3	IE3	18.5	30.6	0.75	0.83	0.86	92.4	93.1	91.7	3540	50.0	930	210	410
MG180MB2-H3	IE3	22.0	35.5	0.84	0.89	0.91	94.4	93.5	91.7	3540	59.5	880	290	330

MG STANDARD MOTORS

50 HZ, 380-415 V - 60 HZ, 400-480 V

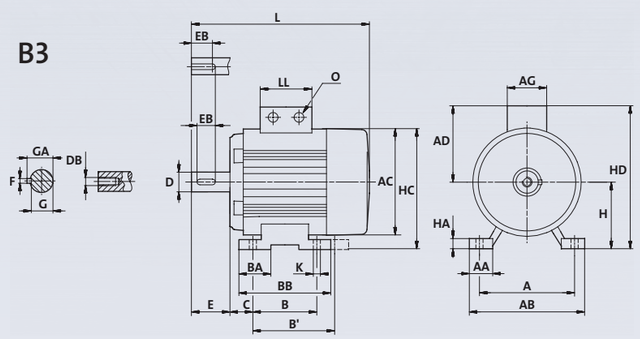
Short type designation	Data for 4-pole, 400 V, 50 Hz													
	IE efficiency class marking	Shaft power P_2	Full load current I_N	Power factor Cos ϕ at % load			Efficiency η at % load [1]			Speed n	Torque at 400 V M_N	LRC I_s/I_N	LRT M_s/M_N	BT M_{BT}/M_N
		[kW]	[A]	50 %	75 %	100 %	50 %	75 %	100 %	[min⁻¹]	[Nm]	[%]	[%]	[%]
MG71A4-C1	IE2	0.25	0.85	0.41	0.52	0.69	58.3	66.0	69.0	1410	1.70	420	190	260
MG71B4-C1	IE2	0.37	1.10	0.42	0.55	0.71	61.9	68.8	71.0	1410	2.10	440	190	250
MG80A4-C1	IE2	0.55	1.50	0.50	0.64	0.74	75.7	78.2	77.0	1400	3.75	450	220	260
MG90SC4-H3	IE3	0.75	1.90	0.52	0.66	0.73	81.4	83.1	82.5	1450	4.97	690	250	320
MG90SB4-H3	IE3	1.10	2.80	0.45	0.59	0.67	82.9	84.6	84.1	1460	7.17	870	300	400
MG90LC4-H3	IE3	1.50	3.60	0.49	0.62	0.71	84.2	85.8	85.3	1460	9.90	760	280	340
MG100LB4-H3	IE3	2.20	4.90	0.57	0.70	0.76	87.6	87.7	86.7	1450	14.5	630	280	330
MG100LC4-H3	IE3	3.00	6.30	0.55	0.66	0.79	84.5	86.0	87.7	1450	19.8	740	230	310
MG112MC4-H3	IE3	4.00	9.30	0.48	0.63	0.71	88.3	88.9	88.6	1460	26.0	840	320	390
MG132SB4-H3	IE3	5.50	11.0	0.67	0.78	0.83	90.4	90.3	89.6	1460	36.4	760	260	320
MG132MB4-H3	IE3	7.50	14.5	0.69	0.80	0.84	92.4	91.6	90.4	1460	49.5	740	260	320
MG160MA4-H3	IE3	11.0	20.7	0.66	0.77	0.83	91.6	92.1	91.4	1470	71.5	770	200	340
MG160LB4-H3	IE3	15.0	28.4	0.67	0.78	0.84	92.1	92.3	92.1	1470	98.0	820	230	340
	Data for 4-pole, 440 V, 60 Hz													
MG71A4-C1	IE2	0.25	0.70	0.41	0.53	0.69	65.6	71.7	72.0	1720	1.42	470	220	280
MG71B4-C1	IE2	0.37	1.00	0.45	0.58	0.72	67.5	72.4	74.0	1720	2.10	470	220	280
MG80A4-C1	IE2	0.55	1.40	0.51	0.65	0.75	79.1	81.0	80.0	1710	3.10	470	230	260
MG90SC4-H3	IE3	0.75	1.75	0.52	0.65	0.72	82.9	84.1	85.5	1750	4.12	690	270	360
MG90SB4-H3	IE2	1.10	2.60	0.46	0.59	0.66	85.2	86.4	84.0	1760	5.96	830	340	430
MG90LC4-H3	IE3	1.50	3.30	0.51	0.62	0.70	86.0	86.8	86.5	1760	8.25	820	330	400
MG100LB4-H3	IE2	2.20	4.45	0.59	0.70	0.76	88.5	88.3	87.5	1750	11.9	690	310	340
MG100LC4-H3	IE3	3.00	5.75	0.62	0.73	0.78	89.7	89.4	89.5	1750	16.6	780	230	330
MG112MC4-H3	IE3	4.00	8.40	0.51	0.64	0.70	90.9	90.6	89.5	1760	21.6	850	400	340
MG132SB4-H3	IE2	5.50	10.0	0.69	0.78	0.83	91.2	90.9	89.5	1760	30.5	780	300	350
MG132MB4-H3	IE3	7.50	13.4	0.70	0.80	0.83	92.7	92.1	91.7	1760	40.7	770	260	340
MG160MA4-H3	IE2	11.0	19.0	0.68	0.78	0.85	91.3	91.2	91.0	1770	59.5	840	230	360
MG160LB4-H3	IE2	15.0	26.1	0.69	0.78	0.84	91.4	91.2	91.0	1770	81.5	850	240	360

DIMENSIONS

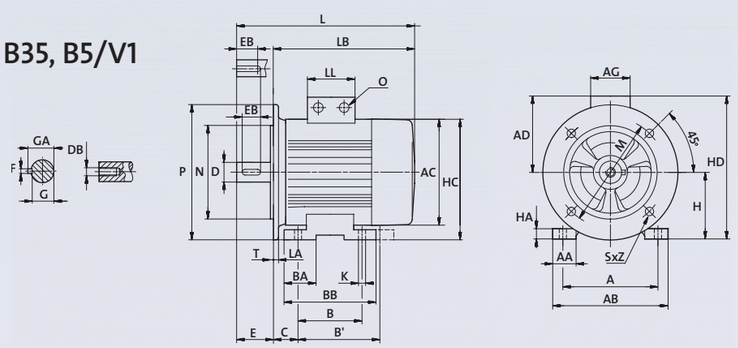
Frame size	Pole	p2 [kW]	Short type designation	Weight [kg] B5/V1 version	Stator housing						Shaft end							Feet												Flange B35. B5/V1						Flange B34. B14/V18						Cable entry
					AC	AD	AG	L	LB	LL	D	DB	E	EB	F	G	GA	A	AA	AB	B	B'	BA	BB	C	H	HA	HC	HD	K	LA	M[3]	N	P	SxZ	T	LA	M	N	P	SxZ	T	O
MG 71	2	0.37	MG71A2-C3	6.5	141	109	82	221	191	82	14 (j6)	M5	30	22	5	11.0	16.0	112	27	139	90	-	20	110	45	71	3	142	180	7 (M6)	10	130	110	160	D10 x 4 (M8)	3.5	12[1]	85	70	105	M6 x 4	2.5	2 x M20 x 1.5
		0.55	MG71B2-C3	7.5																																					
	4	0.25	MG71A4-C1	6.8																																					
		0.37	MG71B4-C1	7																																					
MG 80	2	0.75	MG80A2-C3	9.5	141	109	82	271	231	82	19 (j6)	M6	40	32	6	15.5	21.5	125	37	159	100	-	25	125	50	80	3	151	189	10 (M8)	10	165	130	200	D12 x 4 (M10)	3.5	12[1]	100	80	120	M6 x 4	3.0	2 x M20 x 1.5
		1.1	MG80C2-C3	11.5				291	251																																
	4	0.55	MG80A4-C1	8.9				16.8	231																																
MG 90	2	1.5	MG90SD2-H3	16.8	178	110	162	331	281	103	24(j6)	M8	50	40	8	20.0	27.0	140	-	178	100	125	-	155	56	90	3	179	200	10 (M8)	18	165	130	200	D12 x 4 (M10)	3.5	13[1]	115	95	135	M8 x 4	3.0	4 x M20[2]
		2.2	MG90LE2-H3	20.6				371	321	103	24 (j6)	M8	50	40	8	20.0	27.0	140	-	178	100	125	-	150	56	90	3	179	200	10 (M8)	18	165	130	200	D12 x 4 (M10)	3.5	13[1]	115	95	135	M8 x 4	3.0	4 x M20[2]
	4	0.75	MG90SC4-H3	18				321	281	103	19 (j6)	M6	40	32	6	15.5	21.5	140	-	178	100	125	-	155	56	80	3	179	200	10 (M8)	18	165	130	200	D12 x 4 (M10)	3.5	13[1]	100	80	115	M6X4	3.0	4 x M20[2]
		1.1	MG90SB4-H3	20.8				371	321	103	24 (j6)	M8	50	40	8	20.0	27.0	140	-	178	100	125	-	150	56	90	3	179	200	10 (M8)	18	165	130	200	D12 x 4 (M10)	3.5	13[1]	115	95	135	M8 x 4	3.0	4 x M20[2]
		1.5	MG90LC4-H3	23.3	178	110	162	331	281	103	24 (j6)	M8	50	40	8	20.0	27.0	140	-	178	100	125	-	155	56	90	3	179	200	10(M10)	18	165	130	200	D12 x 4 (M10)	3.5	13[1]	115	95	135	M8 x 4	3.0	4 x M20[2]
MG 100	2	3.00	MG100LC2-H3	26	198	120	162	395	335	103	28 (j6)	M10	60	50	8	24.0	31.0	160	-	199	140	-	-	170	63	100	3	199	220	12 (M10)	10	215	180	250	D15 x 4 (M12)	4.0	14[1]	130	110	160	M8 x 4	3.5	4 x M20[2]
	4	2.2	MG100LB4-H3	28.6																																					
		3.00	MG100LC4-H3	32.4																																					
MG 112	2	4.00	MG112MC2-H3	37.8	220	134	202	432	372	103	28(j6)	M10	60	50	8	24.0	31.0	190	-	228	140	-	-	172	70	112	4	222	246	12 (M10)	10	215	180	250	D15 x 4 (M12)	4.0	14[1]	130	110	160	M8 x 4	3.5	4 x M25[2]
	4	4.00	MG112MC4-H3	44.9																																					
MG 132	2	5.5	MG132SC2-H3	42.7	220	134	202	471	391	103	38 (k6)	M12	80	70	10	33.0	41.0	216	-	255	140	-	-	172	89	132	5	242	266	12 (M10)	12	265	230	300	D15 x 4 (M12)	4.0	28[1]	165	130	200	M10 x 4	3.5	4 x M25[2]
		7.5	MG132SB2-H3	52.5	260	159	203	459	379	135	38 (k6)	M12	80	70	10	33.0	41.0	216	42	244	140	-	-	164	89	132	6	262	257	12 (M10)	12	265	230	300	D15 x 4 (M12)	4.0	43[1]	165	130	200	M10 x 4	3.5	4 x M25[2]
	4	5.5	MG132SB4-H3	56.5																																					
		7.5	MG132MB4-H3	72.8	260	159	203	509	429	135	38 (k6)	M12	80	70	10	33.0	41.0	216	42	244	140	178	-	202	89	132	6	262	257	12 (M10)	12	265	230	300	D15 x 4 (M12)	4.0	-	-	-	-	-	-	4 x M25[2]
MG 160	2	11.00	MG160MB2-H3	88	318	204	243	592	482	213	42 (k6)	M16	110	82	12	37.0	45.0	254	49	287	210	-	-	239	108	160	8	317	320	15 (M12)	12	300	250	350	D19 x 4 (M16)	5.0	-	-	-	-	-	-	-	
		15.00	MG160MD2-H3	100																																					
		18.5	MG160LB2-H3	113	318	204	243	636	526	213	42 (k6)	M16	110	82	12	37.0	45.0	254	49	287	254	-	-	283	108	160	8	317	320	15 (M12)	12	300	250	350	D19 x 4 (M16)	5.0	-	-	-	-	-	-	4 x M40/2 x M20[2]
	4	11.00	MG160MA4-H3	109	318	204	243	636	526	213	42 (k6)	M16	110	82	12	37.0	45.0	254	49	287	254	-	-	283	108	160	8	317	320	15 (M12)	12	300	250	350	D19 x 4 (M16)	5.0	-	-	-	-	-	-	
		15.00	MG160LB4-H3	131	318	204	243	662	552	213	42 (k6)	M16	110	82	12	37.0	45.0	254	49	287	254	-	-	313	108	160	8	317	320	15 (M12)	12	300	250	350	D19 x 4 (M16)	5.0	-	-	-	-	-	-	
MG 180	2	22.00	MG180MB2-H3	128	318	204	243	662	552	213	48 (K6)	M16	110	100	14	43.0	51.5	279	61	312	241	279	-	308	121	180	8	337	340	15 (M12)	12	300	250	350	D19 x 4 (M16)	5.0	-	-	-	-	-	-	4 x M40/2 x M20[2]

[1] When fitting a component on the motor flange, check that the through-going screws do not penetrate deeper into the flange than the dimension LA. If the screws are too long, they can be screwed into the stator windings.
[2] Knockouts
[3] M measurement for a B5 flange is "FF"
M measurement for a B14 is "FT"

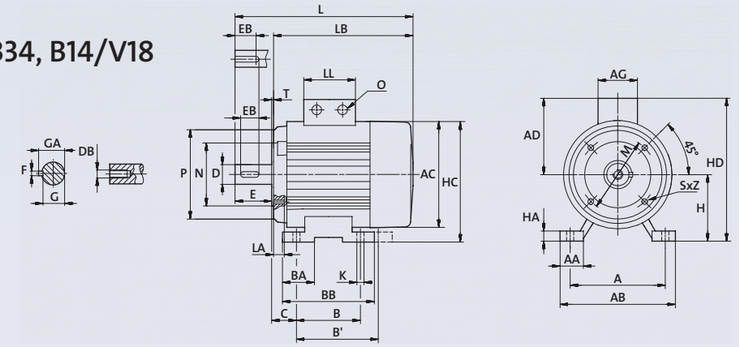
B3



B35, B5/V1



B34, B14/V18



About Grundfos

Grundfos is a global leader in advanced pump solutions and a trendsetter in water technology. Founded in 1945, Grundfos has an annual production of 16 million pump units for a wide range of application areas. Grundfos has been manufacturing high-quality electrical motors for more than 30 years, and we know how to match electric motors precisely to the required pump application.

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