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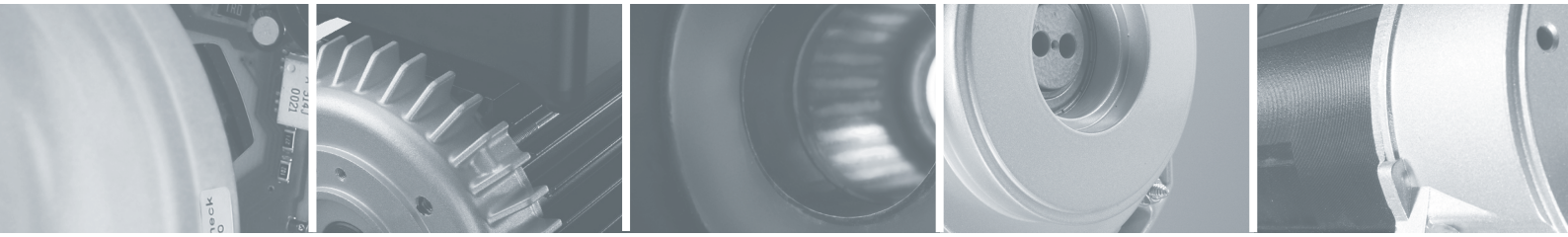
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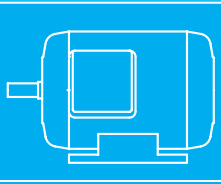
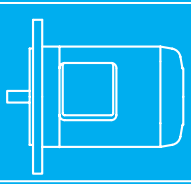
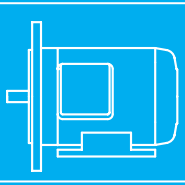
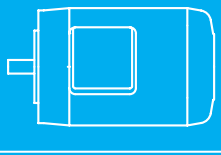
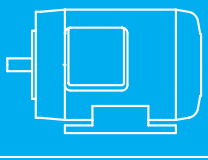
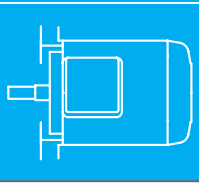
hamotic pro data sheet



Mechanical design

Type of protection

All motors are delivered in IP54. They can also be made available with a higher protection.

Designs according to DIN EN 50347		
Design	Picture	Explanation
With feet		2 end shields, housing with feet, free shaft end, installation on base
With FF flange		2 end shields, housing without feet, free shaft end, FF flange near bearing on drive end, flange connection
With feet and FF flange		2 end shields, housing with feet, free shaft end, FF mounting flange near bearing on drive end, installation on base for flange connection
With FT flange		2 end shields, housing without feet, free shaft end, FT mounting flange near bearing on drive end, flange connection
With feet and FT flange		2 end shields, housing with feet, free shaft end, FT mounting flange near bearing on drive end, installation on base for flange connection
		1 end shield, housing without feet, free shaft end, without end shield (also without rolling contact bearing) on drive end, installation on drive end front plate

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Mechanical design

Fits

The shaft ends and the diameters of the centering shoulder listed in the table below comply with the following fits. Bores in couplings and pulleys must have at least one fit according to ISO-H7.

Fits	
Size	ISO fits according to DIN 7160, DIN 7161, DIN EN 50347
D up to 28 mm Ø	j 6*
D between 30 and 48 mm Ø	k 6
N up to 230 mm Ø	j 6

* According to DIN 748 k 6 (old version)

Tolerances

The following tolerances apply to the sizes A, B, M and H indicated in the table.
Keyways and keys (F and GA) correspond to DIN 6885.

Tolerances		
Size	Dimensions	Tolerance
A and B	≤ 250 mm	± 0.75 mm
M	≤ 200 mm 200 mm - 500 mm	± 0.25 mm ± 0.5 mm
H	≤ 250 mm	- 0.5 mm

Shaft ends

Center holes 60° according to DIN 332 part 2.

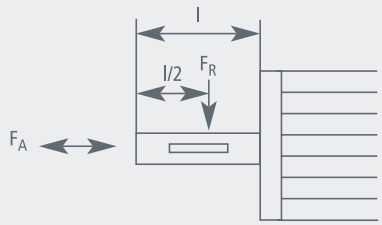
Shaft ends	
Shaft diameter (mm)	**Thread (mm)**
≤ 16	M 5
≤ 21	M 6
≤ 24	M 8
≤ 30	M 10
≤ 38	M 12

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Maximum axial load

If the maximum radial load F_R is applied, an axial load of $F_A = 0.3 \times F_R$ is permissible.

Maximum axial load



Permissible radial load

Frame size	Type	Number of poles	Permissible radial load	Distance l/2
			F_r [N]	[mm]
56	5z2 5y4	2 4	260 320	10 10
63	6KB2 6A4	2 4	380 480	11.5 11.5
71	7D2 7KC4	2 4	380 480	15 15
80	8G2 8F4	2 4	620 780	20 20
90	9LI2 9LH4	2 4	660 850	25 25
100 RL	10RLK2 10RLK4	2 4	890 1140	30 30
112	11MN2S 11ML4	2 4	950 1140	30 30
132	– 13MN4	2 4	1420 1760	40 40

Balancing

The rotors are dynamically balanced with half key at the shaft end. The standard motor design complies with the vibration severity grade N to ISO 2373. Optionally HANNING industrial motors are also available in vibration severity grade R.

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Technical data

Three-phase industrial motors

Three-phase AC motors at 400 V, 50 Hz															
Rated power	Frame size	Type	Weight	Rated speed	Rated currend	cosφ	Efficiency η load			Effici-ency class	Rated torque	Rel. starting torque	Rel. stalling torque	Rel. starting current	Moment of inertia
[kW]			[kg]	[1/min]	[A]		100%	75%	50%	IE	[Nm]	M_A/M_N	M_K/M_N	I_A/I_N	J[kgm²]
3000 rpm in no-load operation															
0.09	56	5y2	3.4	2750	0	0.82	56.1	55.5	48.7	–	0.3	2.3	–	3.1	0.00013
0.12	56	5z2	3.6	2750	0.4	0.77	58.0	53.8	44.9	–	0.4	2.8	2.9	4.0	0.00019
0.18	63/63K*	6A2/6KA2	4.2/4.0	2860	0.6	0.77	65.7	62.4	54.0	–	0.6	2.7	3.2	4.1	0.00035
0.25	63/63K*	6B2/6KB2	4.2/4.0	2840	0.9	0.77	68.2	65.5	55.0	–	0.8	2.8	2.6	4.0	0.00035
0.37	71F**	7KC2	6.2	2840	1	0.84	71.0	69.2	63.3	–	1.2	2.9	3.0	5.7	0.00040
0.55	71	7D2	6.5	2840	1.5	0.82	74.1	73.3	68.7	–	1.9	2.7	2.7	5.1	0.00050
0.75	80	8F2S4	9.2	2835	1.7	0.82	81.0	81.7	80.2	2	2.5	3.4	3.3	6.3	0.00060
1.1	80	8G2S2	9.6	2820	2.4	0.83	81.1	82.4	81.3	2	3.7	3.4	3.4	6.0	0.00079
1.5	90S	9SH2S2	14	2840	3.2	0.83	81.9	83.5	82.0	2	5.0	2.0	3.0	6.4	0.00157
2.2	90L	9LI2S2	17.2	2890	4.7	0.80	85.8	85.5	83.2	2	7.3	3.2	3.5	7.5	0.00217
3	100RL	10RLKS2	20.1	2890	6.2	0.81	86.6	86.4	84.2	2	9.9	3.3	3.8	8.2	0.00291
4	112M	11ML2S2	31	2935	7.9	0.84	86.9	85.6	82.1	2	13.0	2.9	4.0	9.5	0.00765
5.5	112[1)]	11MM2S	31.8	2890	12.2	0.83	86.0	86.3	83.6	1***	18.2	2.4	3.0	7.7	0.00765
7.5	112[1)]	11MN2S	40.8	2880	15.5	0.88	87.3	87.7	84.2	1***	24.9	2.1	2.6	6.6	0.01072
1500 rpm in no-load operation															
0.06	56	5v4	3.4	1300	0.3	0.66	44.0	39.8	31.5	–	0.4	2.5	–	2.2	0.00019
0.09	56	5y4	3.6	1360	0.5	0.6	53.2	51.5	38.4	–	0.6	2.7	2.4	2.4	0.00019
0.12	63/63K*	6z4/6Kz4	4.5/4.3	1380	0.5	0.65	54.3	52.0	39.9	–	0.8	2.7	2.6	2.9	0.00035
0.18	63	6A4	5	1380	0.8	0.61	56.5	54.7	41.8	–	1.3	3.2	3.0	3.5	0.00049
0.25	71K**	7B4/7KB4	5.8	1400	0.8	0.7	64.8	62.1	55.9	–	1.7	2.7	2.5	3.9	0.00074
0.37	71	7C4/7KC4	6.4	1390	1.2	0.7	72.0	69.5	64.2	–	2.5	3.2	3.0	3.9	0.00092
0.55	80	8D4	7.3	1400	1.6	0.72	73.1	71.2	64.3	–	3.8	2.5	2.7	4.3	0.00110
0.75	80	8F4S2	10.5	1410	2	0.68	79.6	79.5	76.3	2	5.1	3.2	3.4	5.3	0.00175
1.1	90	9SG4S2	14.2	1432	2.7	0.74	82.6	82.4	78.1	2	7.3	2.9	3.3	6.2	0.00320
1.5	90L	9LH4S2	17.8	1433	3.6	0.75	83.5	83.9	81.3	2	10.0	3.3	3.6	6.5	0.0044
2.2	100RL	10RLI4S2	23.9	1440	5.2	0.73	84.4	83.3	82.6	2	14.6	2.9	3.3	7.1	0.0060
3	100RL	10RLK4	23.9	1400	7.3	0.81	83.0	84.3	80.6	1***	20.5	3.1	3.2	6.2	0.0060
4	112M	11ML4	34.5	1430	8.5	0.85	86.4	86.9	83.5	1***	26.7	2.7	3.2	7.4	0.01905
5.5	132S	13SM4	52	1460	11.5	0.83	86.7	85.7	82.5	1***	36.0	3.0	3.5	8.8	0.04060
7.5	132M	13MN4	63	1450	15.3	0.84	87.0	87.5	84.2	1***	49.4	2.7	3.4	7.7	0.05413
1000 rpm in no-load operation															
0.12	71K**	7Kz6	5.0	900	0.5	0.70	52.1	47.3	38.4	_	1.3	2.0	2.1	2.5	0.00055
0.18	71K**	7KA6	6.2	870	0.8	0.71	63.9	60.1	52.8	–	1.9	2.2	2.4	3.1	0.00074
0.25	71	7B6	6.4	920	1.0	0.63	66.3	65.9	59.0	–	2.6	2.2	2.5	3.2	0.00092
0.37	80	8C6	9.3	900	1.4	0.67	66.2	64.3	57.9	–	4.0	2.0	2.2	3.1	0.00110
0.55	80	8D6	10.2	900	1.9	0.68	65.9	67.8	61.9	–	5.9	2.3	2.4	3.2	0.00147
0.75	90S	9SF6	14.0	930	2.5	0.71	69.1	66.1	58.5	1***	7.7	2.3	2.7	4.7	0.00468
1.1	90L	9LG6	17.0	915	3.2	0.79	72.3	71.8	67.2	1***	11.5	2.1	2.6	4.9	0.00623
1.5	100RL	10RLH6	21.6	920	4.1	0.77	76.1	74.4	70.4	1***	15.6	2.5	2.5	4.5	0.00810
2.2	112M	11MI6	36.0	950	5.2	0.78	79.6	77.2	71.6	1***	22.2	2.4	3.1	6.0	0.01904
3	132S	13SK6	41.0	930	7.5	0.78	80.2	78.1	73.4	1***	31.0	2.2	2.6	4.7	0.02975
4	132M	13ML6	53.0	955	9.3	0.81	80.8	78.7	74.0	1***	40.0	1.8	2.6	5.6	0.04060
5.5	132M	13MM6	65.0	955	13.5	0.74	85.0	84.4	81.3	1***	55.0	2.2	2.4	6.2	0.05413

1) Frame size not according to IEC standard

* Frame size 63 K = mounting dimensions as frame size 63, total length shorter (K) with flange motors only

** Frame size 71 K = mounting dimensions as frame size 71, total length shorter (K)

*** only available as variant for specific operation according to EuP 640-2009

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Three-phase industrial motors, pole changing

Three-phase AC motors at 400 V, 50 Hz								
Rated power	Frame size	Type	Weight	Rated speed	Rated current	Rel. starting torque	Rel. starting current	Moment of intertia
[kW]			[kg]	[1/min]	[A]	M_A/M_N	I_A/I_N	J [kgm²]
1000/1500 rpm in no-load operation, two separate windings								
0.12/0.18	71K**	7Kz6–4	6.50	945/1430	0.6/0.7	2.0/2.0	2.8/3.1	0.00079
0.20/0.30	71	7A6–4	7.80	930/1430	1.0/1.3	2.3/2.6	2.2/4.2	0.00129
0.30/0.45	80	8B6–4	9.50	935/1445	1.2/1.6	2.2/1.8	3.0/3.4	0.00175
0.40/0.60	90S	9SC6–4	13.20	965/1440	2.0/2.5	2.2/1.3	3.3/3.5	0.00470
0.60/0.90	90L	9LD6–4	17.00	945/1430	1.9/2.2	2.1/1.6	3.9/4.3	0.00399
1.10/1.60	100L	10RLG6–4	21.50	930/1425	3.3/3.8	2.0/1.8	3.3/4.3	0.00599
1.50/2.20	112M	11MH6–4	35.00	970/1460	4.6/5.9	2.5/2.0	4.8/3.8	0.02823
1.80/2.50	112M	11MI6–4	36.00	950/1440	5.8/7.2	2.2/2.1	5.0/5.7	0.02823
2.20/3.30	132S	13SI6–4	51.00	980/1475	6.2/8.8	1.5/1.8	4.0/7.5	0.04060
3.00/4.50	132M	13MK6–4	62.00	975/1470	7.4/9.7	2.5/2.2	6.1/8.2	0.05413
1500/1300 rpm in no-load operation, Dahlander circuit								
0.18/0.25	71K**	7KA42	6.20	1415/2830	0.8/1.1	3.1/2.7	4.1/4.8	0.00092
0.25/0.37	71	7B42	7.00	1420/2785	1.0/1.4	3.4/3.1	4.0/4.3	0.00110
0.37/0.55	80	8C42	8.40	1410/2800	1.2/1.8	2.9/2.8	4.4/4.2	0.00129
0.55/0.75	80	8D42	8.40	1360/2830	1.7/1.9	2.4/2.5	3.8/5.2	0.00175
0.90/1.10	90S	9SF42	13.00	1400/2800	2.2/2.4	1.9/2.2	4.5/5.4	0.00260
1.20/1.50	90L	9LG42	16.50	1430/2860	2.9/3.5	2.6/2.7	5.6/5.2	0.00399
1.80/2.20	100L	10RLHI42	21.00	1440/2910	5.3/6.8	2.4/2.9	5.3/5.2	0.00599
2.601/3.00	112M	11MI42	35.00	1450/2920	5.9/6.9	2.4/3.1	6.0/7.8	0.01905
3.30/4.00	112M	11MK42	35.00	1460/2840	7.2/10.0	2.6/2.9	5.5/8.0	0.02381
4.00/5.50	132S	13SL42	52.00	1450/2890	8.5/11.6	2.5/2.3	7.6/8.1	0.04060
6.00/7.50	132M	13MM42	62.00	1455/2910	12.2/15.1	2.2/2.5	8.1/9.3	0.05413
750/1500 rpm in no-load operation, Dahlander circuit								
0.15/0.25	71	7zA84	7.80	695/1410	1.0/0.7	2.3/2.0	2.2/3.9	0.00129
0.25/0.37	80	8B84	9.40	665/1390	1.2/1.0	1.5/1.6	2.3/3.8	0.00175
0.37/0.55	90S	9SC84	13.20	715/1435	1.7/1.4	2.0/1.8	3.5/5.7	0.00468
0.60/1.10	90L	9LD84	16.60	710/1400	2.3/2.4	2.1/1.6	3.6/4.7	0.00623
0.75/1.10	100R	10RLF84	21.00	700/1400	2.5/2.4	1.6/1.6	3.3/4.7	0.00623
1.10/1.50	112M	11MG84	30.00	705/1430	3.7/3.3	1.7/1.9	3.9/5.6	0.02150
1.50/2.20	112M	11MH84	35.00	715/1430	4.3/4.9	1.3/1.6	3.5/4.5	0.02733
2.20/3.00	132S	13SI84	55.00	730/1470	6.6/6.5	1.4/1.8	4.8/4.6	0.03950
3.00/4.00	132M	13MK84	67.00	720/1430	9.4/8.2	1.9/2.7	4.8/8.7	0.07750

** Frame size 71 K = mounting dimensions as frame size 71, total length shorter (K)

Different number of pole pairs on request

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Technical data

Single-phase industrial motors

AC motors with running capacitors at 230 V, 50 Hz										
Rated power	Frame size	Type	Weight	Rated speed	Rated current	Starting current	Rel. starting torque	Rated torque	Running capacitor	Moment of inertia
[kW]			[kg]	[1/min]	[A]	[A]	M_A / M_N	[Nm]	[µF]	J [kgm²]
3000 rpm in no-load operation										
0.06	56	E5v2B	3.6	2700	0.8	2.0	1.0	0.2	4	0.00019
0.09	56	E5y2B	3.8	2730	1.0	2.4	1.1	0.3	5	0.00019
0.12	63/63K*	E6z2B/E6Kz2B	4.1/3.9	2790	1.3	3.3	0.7	0.4	4	0.000245
0.18	63/63K*	E6A2B/E6KA2B	4.3/4.1	2760	1.7	4.6	0.9	0.7	8	0.000350
0.25	63	E6B2B	4.5	2770	2.0	6.0	0.7	0.9	8	0.000490
0.37	71K**	E7KC2B	7.0	2850	3.4	14.1	0.5	1.2	12	0.000496
0.55	71	E7D2B	8.0	2810	4.2	13.5	0.5	1.9	16	0.000595
0.75	80	E8F2B	10.0	2870	5.1	22.4	0.3	2.5	16	0.000794
1.10	80	E8G2B2	11.0	2730	7.3	27.0	0.5	3.9	30	0.000992
1.50	90L	E9LH2B	19.0	2850	9.8	44.0	0.3	5.0	40	0.001389
1500 rpm in no-load operation										
0.06	56	E5v4B	3.8	1380	0.9	1.6	1.0	0.4	5	0.000157
0.09	63/63K*	E6y4B/E6Ky4B	4.0	1380	1.0	2.2	0.6	0.6	6	0.000350
0.12	63	E6z4B	4.1	1410	1.2	3.4	0.8	0.8	6	0.000490
0.18	71K**	E7KA4B	5.5	1370	1.8	4.6	0.8	1.2	8	0.000735
0.25	71K**	E7KB4B	5.7	1400	1.9	5.8	0.6	1.7	12	0.000919
0.37	71	E7C4B1	6.0	1400	3.0	9.0	0.7	2.5	16	0.001103
0.55	80	E8D4B	8.5	1360	4.6	15.2	0.5	3.8	16	0.001746
0.75	90S	E9SF4B	12.4	1360	6.2	17.0	0.6	5.1	30	0.002996
1.10	90L	E9LG4B	18.0	1370	7.0	25.0	0.6	7.7	40	0.003995

* Frame size 63 K = mounting dimensions as frame size 63, total length shorter (K) with flange motors
** Frame size 71 K = mounting dimensions as frame size 71, total length shorter (K)

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AC motors with starting, running capacitors, DriveSAS electronic centrifugal switch at 230 V, 50 Hz											
Rated power	Frame size	Type	Weight	Rated speed	Rated current	Starting current	Rel. starting torque	Rel. torque	Running capacitor	Starting capacitor	Moment of inertia
[kW]			[kg]	[1/min]	[A]	[A]	M_A / M_N	[Nm]	[µF]	[µF]	J [kgm²]
3000 U/min in no-load operation											
0.37	71K**	E7KC2AB	8.0	2850	3.0	12.8	1.5	1.2	16	16	0.000496
0.55	71	E7D2AB	9.0	2810	3.9	13.5	1.7	1.9	12	40	0.000595
0.75	80	E8F2AB	11.0	2870	5.1	23.0	1.4	2.5	16	40	0.000794
1.1	80	E8G2AB6	12.0	2840	7.0	32.8	1.7	3.7	30	100	0.000942
1.5	90S	E9SH2AB	15.0	2870	10.0	44.4	1.7	5.0	40	100	0.00182
1500 U/min in no-load operation											
0.18	71K**	E7KA4AB	6.5	1370	1.8	4.0	1.5	1.3	6	16	0.000735
0.25	71K**	E7KB4AB	6.7	1400	1.9	7.0	1.8	1.7	10	20	0.000919
0.37	71	E7C4AB1	7.0	1370	3.0	10.8	2.1	2.6	12	30	0.001103
0.55	80	E8D4AB	9.5	1360	4.6	13.4	1.9	3.9	16	30	0.001746
0.75	80	E8F4AB	12.0	1370	5.5	18.0	1.6	5.2	20	40	0.001746
1.1	90S	E9SG4AB1	14.0	1430	6.5	27.8	2.1	7.3	40	100	0.00300
1.5	90L	E9LH4AB	19.0	1415	10.8	36.0	1.4	10.1	40	80	0.00400

* Frame size 63 K = mounting dimensions as frame size 63, total length shorter (K) with flange motors
** Frame size 71 K = mounting dimensions as frame size 71, total length shorter (K)

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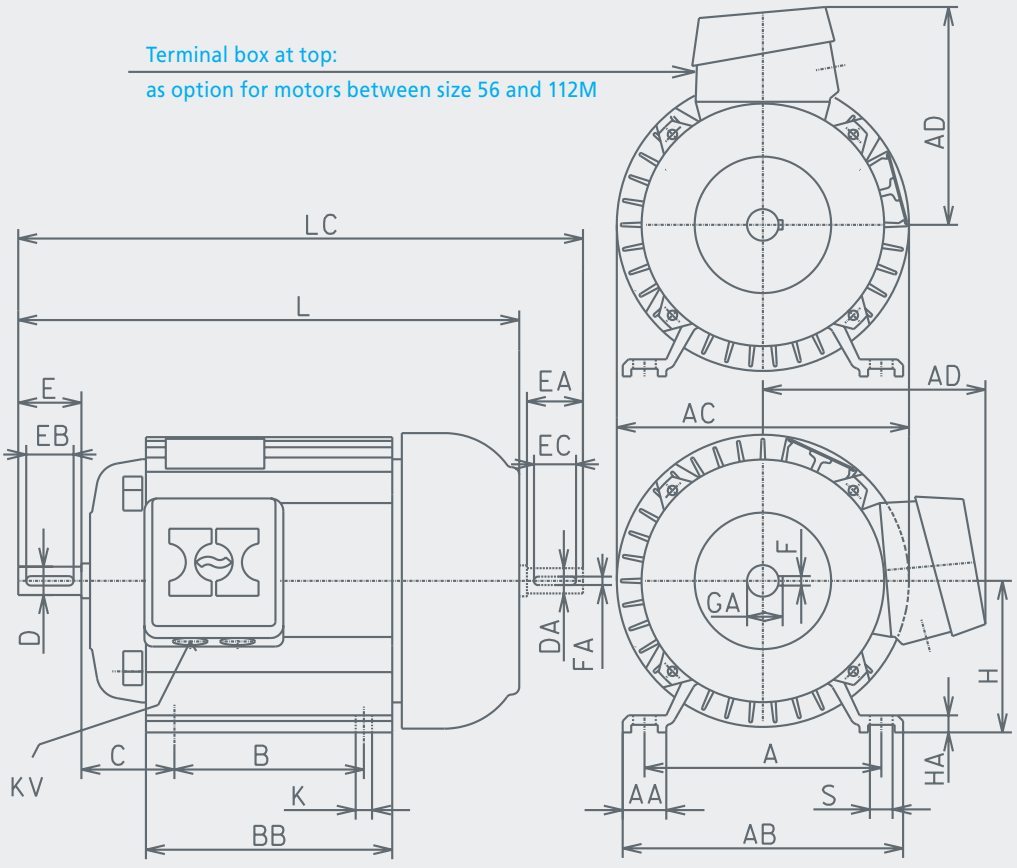
Dimension sheets

Designs

Dimensions for foot design																			
Size	H	L	LC	AD*	AC	A	B	C	K	S	AA	AB	HA	BB	D/DA	E/EA	EB/EC	GA	F/FA	KV
56M	56	195.5	219	90	107	90	71	36	6.1/(M5)	9	16	106	6	110.0	9	20	14	10.2	3	M16 x 1.5
63S	63	188.5	217	103	123	100	80	25	7/(M6)	9	25	125	8	95.0	11	23	15	12.5	4	
63M	63	222.5	251	103	123	100	80	40	7/(M6)	9	25	125	8	129.0	11	23	15	12.5		
71S	71	209.0	242	128(111)	141	112	60	45	7/(M6)	9	18	130	8	88.0	14	30	20	16	5	M20 x 1.5
71M	71	239.0	272	128(111)	141	112	90	45	7/(M6)	9	18	130	8	118.0	14	30	20	16	5	
80M	80	272.0	306	128(111)	156	125	100	50	10/(M8)	12	23	148	9	130.0	19/14	40/30	30/20	21.5	6	
90S	90	301.5	354	141(126)	178	140	100	56	10/(M8)	12	24	164	10	127.0	24/19	50/40	40/30	27	8	
90L	90	326.5	379	141(126)	178	140	125	56	10/(M8)	12	24	164	10	152.0	24/19	50/40	40/30	27	8	
100RL	100	375.0	430	159(143)	194	160	140	63	12/(M10)	15	27	187	12	190.0	28/24	60/50	45/40	31	8	
100L	100	371.0	435	154	198	160	140	63	12/(M10)	15	35	195	13	184.0	28	60	45	31	8	
112M	112	393.5	458	167	222	190	140	70	12/(M10)	15	35	225	14	177.5	28	60	45	31	8	
132S	132	458.0	542	196	262	216	140	89	12/(M10)	15	35	251	14	213.5	38	80	63	41	10	M25 x 1.5
132M	132	496.0	580	196	262	216	178	89	12/(M10)	15	35	251	14	251.5	38	80	63	41	10	

* Dimensions for metal terminal box
( ) Dimensions for insulated terminal box

Foot design



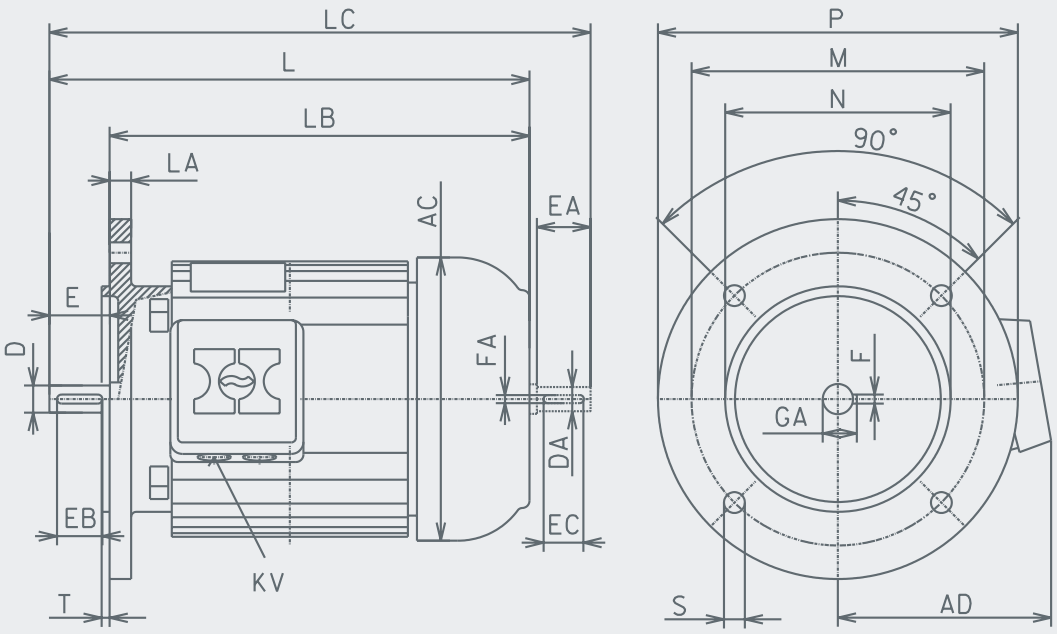
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Designs

Dimensions for FF flange design																	
Size	Flange	M	N	P	T	S	LA	L	LB	LC	AC	AD*	D/DA	E/EA	EB/EC	GA	F/FA	KV
63S	FF115	115	95	140	3.0	9	9	210.5	187.5	239	123	103	11	23	15	12.5	4	M16 x 1.5
	FF130	130	110	160	3.5	9	9	210.5	187.5	239	123	103	11	23	15	12.5	4	
63M	FF115	115	95	140	3.0	9	9	244.5	221.5	273	123	103	11	23	15	12.5	4	
	FF130	130	110	160	3.5	9	9	244.5	221.5	273	123	103	11	23	15	12.5	4	
71S	FF130	130	110	160	3.5	9	9	224.0	194.0	257	141	128(111)	14	30	20	16	5	M20 x 1.5
	FF165	165	130	200	3.5	11	10	213.0	183.0	246	141	128(111)	14	30	20	16	5	
71M	FF130	130	110	160	3.5	9	9	254.0	224.0	287	141	128(111)	14	30	20	16	5	
	FF165	165	130	200	3.5	11	10	243.0	213.0	276	141	128(111)	14	30	20	16	5	
80M	FF130	130	110	160	3.5	9	9	283.0	243.0	317	156	128(111)	19/14	40/30	30/20	21.5	6/5	
	FF165	165	130	200	3.5	11	10	272.0	232.0	306	156	128(111)	19/14	40/30	30/20	21.5	6/5	
90S	FF165	165	130	200	3.5	11	10	315.0	265.0	368	178	141(126)	24/19	50/40	40/30	27	8/6	
90L	FF165	165	130	200	3.5	11	10	340.0	290.0	393	178	141(126)	24/19	50/40	40/30	27	8/6	
The dimensions of 9LI2 and 9LH4 are the same as for size 90S																		
100RL	FF215	215	180	250	4.0	13	11	375.0	315.0	430	194	159(143)	28/24	60/50	45/40	31	8	
10RLK2 and 10RLI4 in short design =								345.0	275.0	400								
100L	FF215	215	180	250	4.0	13	11	371.0	311.0	435	198	154	28	60	45	31	8	
112M	FF215	215	180	250	4.0	13	11	393.0	333.0	458	222	167	28	60	45	31	8	
	FF265	265	230	300	3.5	13	12	393.0	333.0	458	222	167	28	60	45	31	8	
132S	FF215	215	180	250	4.0	13	11	479.0	399.0	563	262	196	38	80	63	41	10	M25 x 1.5
	FF265	265	230	300	3.5	13	12	458.0	378.0	542	262	196	38	80	63	41	10	
132M	FF215	215	180	250	4.0	13	11	517.0	437.0	601	262	196	38	80	63	41	10	
	FF265	265	230	300	3.5	13	12	496.0	416.0	580	262	196	38	80	63	41	10	

* Dimensions for metal terminal box
( ) Dimensions for insulated terminal box

FF flange design



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Dimension sheets

Designs

Dimensions for FT flange design																	
Size	Flange	M	N	P	T	S	LA	L	LB	LC	AC	AD*	D/DA	E/EA	EB/EC	GA	F/FA	KV
56M	FT65	65	50	80	2.5	M5	7	195.5	175.5	219	107	90	9	20	14	10.2	3	
	FT85	85	70	105	2.5	M6	8	195.5	175.5	219	123	90	9	20	14	10.2	3	
63S	FT75	75	60	90	2.5	M5	8	188.5	165.5	217	123	103	11	23	15	12.5	4	
	FT85	85	70	105	2.5	M6	8	188.5	165.5	217	123	103	11	23	15	12.5	4	M16
	FT100	100	80	120	3.0	M6	9	210.5	187.5	239	123	103	11	23	15	12.5	4	x 1.5
63M	FT75	75	60	90	2.5	M5	8	222.5	199.5	251	123	103	11	23	15	12.5	4	
	FT85	85	70	105	2.5	M6	8	222.5	199.5	251	123	103	11	23	15	12.5	4	
	FT100	100	80	120	3.0	M6	9	244.5	221.5	273	123	103	11	23	15	12.5	4	
71S	FT75	75	60	90	2.5	M5	8	209.0	179	242	141	128(111)	14	30	20	16	5	
	FT85	85	70	105	2.5	M6	8	209.0	179	242	141	128(111)	14	30	20	16	5	
	FT100	100	80	120	3.0	M6	9	209.0	179	242	141	128(111)	14	30	20	16	5	
	FT115	115	95	140	3.0	M8	10	213.0	183.0	246	141	128(111)	14	30	20	16	5	
	FT130	130	110	160	3.5	M8	12	213.0	183.0	246	141	128(111)	14	30	20	16	5	
71M	FT75	75	60	90	2.5	M5	8	239.0	209.0	272	141	128(111)	14	30	20	16	5	
	FT85	85	70	105	2.5	M6	8	239.0	209.0	272	141	128(111)	14	30	20	16	5	
	FT100	100	80	120	3.0	M6	9	239.0	209.0	272	141	128(111)	14	30	20	16	5	
	FT115	115	95	140	3.0	M8	10	243.0	213.0	276	141	128(111)	14	30	20	16	5	
	FT130	130	110	160	3.5	M8	12	243.0	213.0	276	141	128(111)	14	30	20	16	5	
80M	FT85	85	70	105	2.5	M6	8	272.0	232.0	306	156	128(111)	19/14	40/30	30/20	21.5	6/5	
	FT100	100	80	120	3.0	M6	9	272.0	232.0	306	156	128(111)	19/14	40/30	30/20	21.5	6/5	
	FT115	115	95	140	3.0	M8	10	272.0	232.0	306	156	128(111)	19/14	40/30	30/20	21.5	6/5	
	FT130	130	110	160	3.5	M8	12	272.0	232.0	306	156	128(111)	19/14	40/30	30/20	21.5	6/5	
90S	FT85	85	70	105	2.5	M6	8	301.5	251.5	354	178	141(126)	24/19	50/40	40/30	27	8/6	
	FT100	100	80	120	3.0	M6	9	301.5	251.5	354	178	141(126)	24/19	50/40	40/30	27	8/6	M20
	FT115	115	95	140	3.0	M8	10	301.5	251.5	354	178	141(126)	24/19	50/40	40/30	27	8/6	x 1.5
	FT130	130	110	160	3.5	M8	12	301.5	251.5	354	178	141(126)	24/19	50/40	40/30	27	8/6	
90L	FT85	85	70	105	2.5	M6	8	326.5	276.5	379	178	141(126)	24/19	50/40	40/30	27	8/6	
	FT100	100	80	120	3.0	M6	9	326.5	276.5	379	178	141(126)	24/19	50/40	40/30	27	8/6	
	FT115	115	95	140	3.0	M8	10	326.5	276.5	379	178	141(126)	24/19	50/40	40/30	27	8/6	
	FT130	130	110	160	3.5	M8	12	326.5	276.5	379	178	141(126)	24/19	50/40	40/30	27	8/6	
The dimensions of 9LI2 and 9LH4 are the same as for size 90S																		
100RL	FT115	115	95	140	3.0	M8	10	375.0	315.0	430	194	159(143)	28/24	60/50	45/40	31	8	
	FT130	130	110	160	3.5	M8	12	375.0	315.0	430	194	159(143)	28/24	60/50	45/40	31	8	
10RLK2 and 10RLI4 in short design=								345.0	285.0	400								
100L	FT130	130	110	160	3.5	M8	12	371.0	311.0	435	198	154	28	60	45	31	8	
112M	FT115	115	95	140	3.0	M8	10	393.5	333.5	458	222	167	28	60	45	31	8	
	FT130	130	110	160	3.5	M8	12	393.5	333.5	458	222	167	28	60	45	31	8	

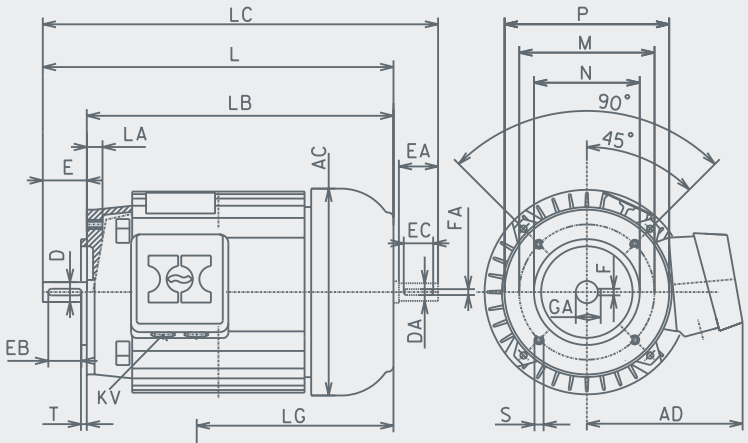
* Dimensions for metal terminal box
( ) Dimensions for insulated terminal box

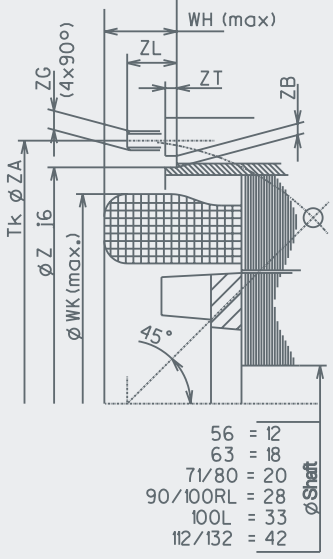
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Designs

Dimensions for FT flange design									
Size	Z	ZB	ZT	ZA	ZG	ZL	WK	WH	LG
56M	83	2.8	2.5	96	M5	11.5	74	8	156.5
63S	98	2.8	2.5	109	M5	15	86	5	147.5
63M	98	2.8	2.5	109	M5	16	86	5	181.5
71S	124	3	3	135	M5	14	110	22	145
71M	124	3	3	135	M5	13	110	22	175
80M	124	3	3	135	M5	14	110	22	194
90S	150	3.5	3	164	M5	19.5	138	25	206
90L	150	3.5	3	164	M5	16.5	138	25	231
The dimensions of 9LI2 and 9LH4 are the same as for size 90S									
100RL	150	3.5	3	164	M6	16	138	28	274
10RLK2 and 10RLI4 in short design =									244
100L	172	4	3	182	M6	17.5	156	24	267
112M	195	4.5	3.75	210	M6	17.5	180	33	278.5
132S	236	5	3.75	251	M6	17	220	33	343
132M	236	5	3.75	251	M6	21	220	33	381

FT flange design



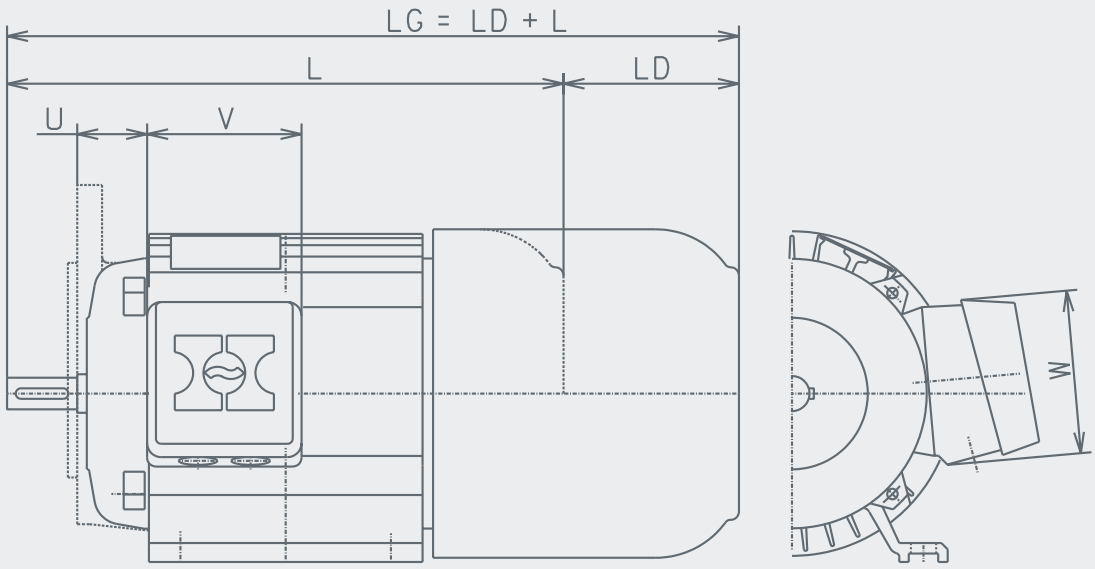


without end shield and shaft
(for customized connections)

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Options at a glance

External fan – Technical data				
Size			Terminal box	
	LD	V	W	U
56	16	76	78	21.5
63	25	76	78	21.5
71	85	90	93	29
80	98	90	93	33
90	108	90	93	39.5
100RL	108	90	93	33
100L	108	88	91	40
112M	108	88	91	51
132	108	118	125	48



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Spring-loaded brake

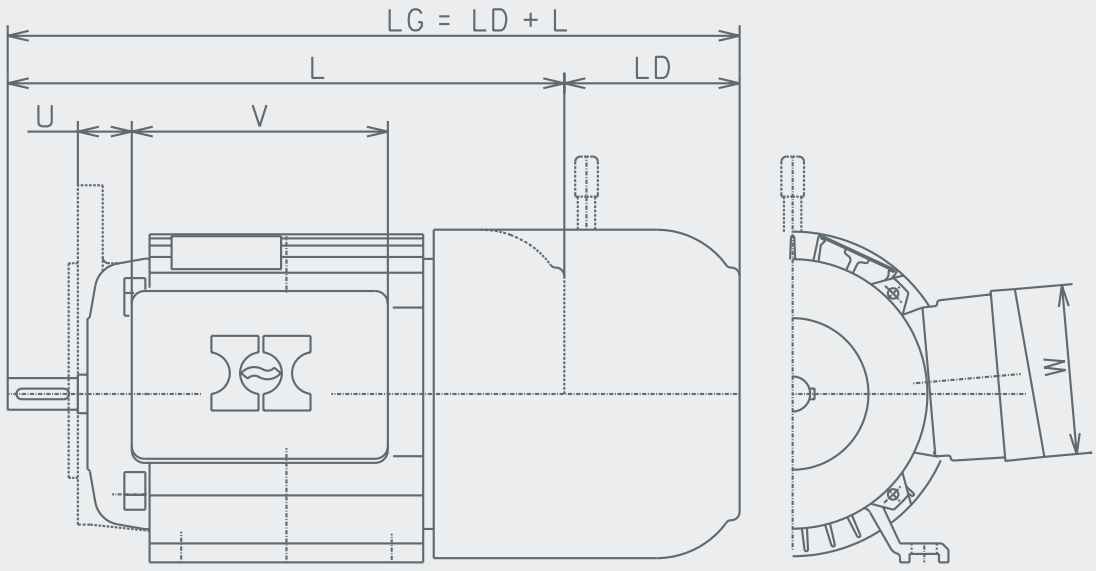
The optional dual-surface spring-loaded brake is a fail-safe brake, i.e. the braking torque is built up when the brake is de-energized. A special friction surface treatment ensures that the rated torque is reached even after only a few braking operations. Therefore the brakes are frictionally engaged and are suitable for dry running. Low-wear and asbestos-free frictions linings are standard features and ensure a long service life.

The brake is electromagnetically released with DC voltage. It meets insulation class F and is suitable for 100% duty cycle (continuous operation). The brake coil can either be connected directly to a DC voltage or via a rectifier to the motor terminal box. A manual release can be retrofitted in all brakes.

Brake – Technical data

Size	Brake motor		Terminal box		
	Torque Nm	LD	V	W	U
56	–	–	–	–	–
63	4*/8	46	129	82	18.5
71	4*/8	60	144	96	21
80	4/8*/16	71	144	96	25
90	8/16*/32	73	144	96	31.5
100RL 100L	16/32*/60 16/32*/60	80 80	144 144	96 96	25 31
112M	16/32*/60/80	85	144	96	42
132	60*/80	85	118	125	48

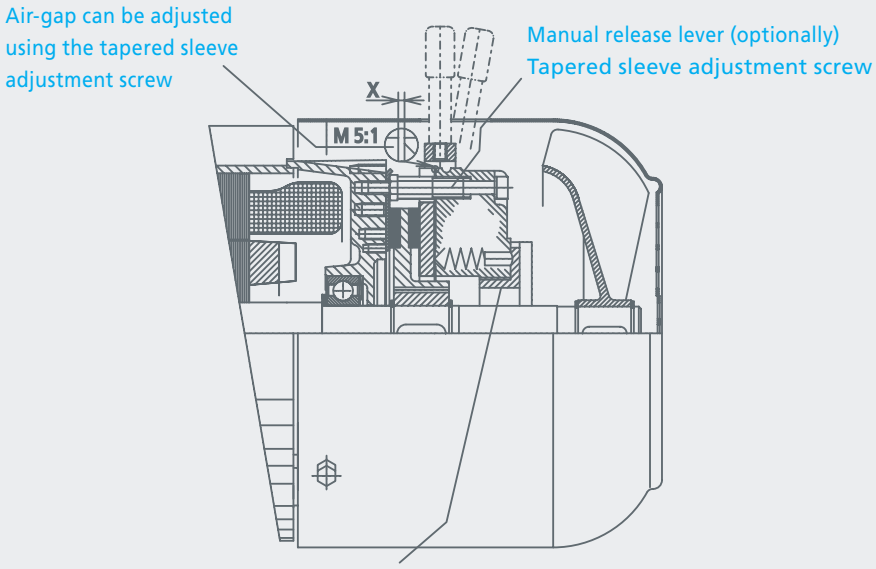
* standard torque

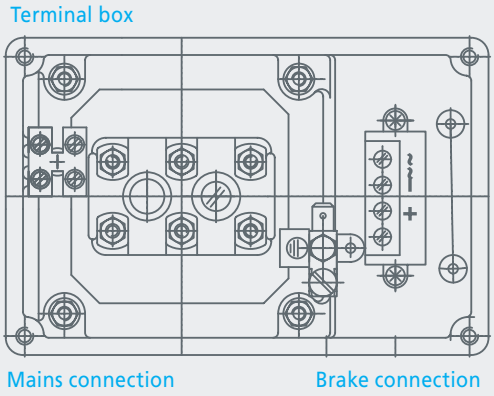


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Options at a glance

Spring-loaded brake with manual release





Nm[1]	Nm[2]	X[3]	X[4]
4	0.1	0.2	0.5
8	0.36	0.2	0.5
16	0.6	0.2	0.5
32	1.2	0.3	0.7
60	1.5	0.3	0.8
80	2.1	0.3	1.0

[1] Rated torque
[2] Reduction/grid
[3] Rated air gap
[4] Max. air gap

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Standards and regulations

IEC/CEI	EN/HD	DIN/VDE	Contents
IEC 60027-4	–	DIN 1304-7	Letter symbols to be used for electrical machines
IEC 60034-1	EN 60034-1	DIN EN 60034-1 / VDE 0530-1	Rotating electrical machines: Rating and performance
IEC 60034-2	EN 60034-2	DIN EN 60034-2 / VDE 0530-2	Methods for determining losses and efficiency of rotating electrical machinery
IEC 60034-5	EN 60034-5	DIN EN 60034-5 / VDE 0530-5	Degrees of protection by the integral design of rotating electrical machines (IP code)
IEC 60034-6	EN 60034-6	DIN EN 60034-6 / VDE 0530-6	Methods of cooling (IP code)
IEC 60034-7	EN 60034-7	DIN EN 60034-7 / VDE 0530-7	Classification of types of construction, mounting arrangements and terminal box position (IM code)
IEC 60034-8	EN 60034-8	DIN EN 60034-8 / VDE 0530-8	Terminal markings and direction of rotation
IEC 60034-9	EN 60034-9	DIN EN 60034-9 / VDE 0530-9	Noise limits
IEC 60034-11	–	–	Integrated thermal protection
IEC 60034-12	EN 60034-12	DIN EN 60034-12 / VDE 0530-12	Starting performance of single-speed three-phase cage induction motors except for pole changing motors
IEC 60034-14	EN 60034-14	DIN EN 60034-14 / VDE 0530-14	Mechanical vibration of certain machines with shaft heights 56 mm and higher
IEC 60034-30	EN 60034-30	DIN EN 60034-30 / VDE 0530-30	Efficiency classification of three-phase AC motors with squirrel cage, except pole-changing motors (IE code)
IEC 60038	HD 472 S1	DIN IEC 60038 / VDE 0175	IEC standard voltages
IEC 60072	EN 50347	DIN EN 50347	General purpose three-phase induction motors having standard dimensions and outputs – Frame numbers 56 to 315 and flange numbers 65 to 740
IEC 60072	–	DIN EN 50347	Tolerances of shaft extension run-out and of mounting flanges for rotating electrical machinery
–	–	DIN EN 50347	Mounting flanges for electrical machines
IEC 60085*	HD 566	DIN IEC 60085 / VDE 0301-1	Thermal evaluation and classification of electrical insulation
IEC 60445	EN 60445	DIN EN 60445 / VDE 0197	Identification of equipment terminals and of terminations of certain designated conductors

* IEC 15E / 205 / CD:2002

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Notes

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