

13 Technical data of the motors



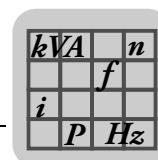
INFORMATION

You find more information in the "AC Motors" catalog.

13.1 Key to the data of energy-efficient motors

The following table lists the short symbols used in the "Technical data" tables.

P_N	Rated power
M_N	Rated torque
n_N	Rated speed
I_N	Rated current
$\cos\varphi$	Power factor
$\eta_{50\%}$	Efficiency at 50% of the rated power
$\eta_{75\%}$	Efficiency at 75% of the rated power
$\eta_{100\%}$	Efficiency at 100% of the rated power
I_A/I_N	Starting current ratio
M_A/M_N	Starting torque ratio
M_H/M_N	Ramp-up torque ratio
M_U/M_N	Ratio of the switching torque from high to low speed
m	Mass of the motor
J_{Mot}	Mass moment of inertia of the motor
BE..	Brake used
Z_0 BG	Switching frequency for operation with BG brake control
Z_0 BGE	Switching frequency for operation with BGE brake controller
M_B	Braking torque
m_B	Mass of the brakemotor
J_{MOT_BE}	Mass moment of inertia of the brakemotor



13.2 DR, DRS, DRE motors, 50 Hz, 2-pole, S1

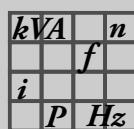
2-pole DR, DRS motors for 50 Hz, IE1

Motor type	P_N	M_N	n_N	I_N	I_N	$\cos\phi$	IE class	$\eta_{50\%}$	$\eta_{75\%}$	$\eta_{100\%}$	I_A/I_N	M_A/M_N
	kW	Nm	1/min	400 V A	380-420 V A							%
DR63S	0.18	0.63	2720	0.45	0.46	0.88	-	-	-	-	4.2	2.4 2.2
DR63M2	0.25	0.9	2660	0.65	0.66	0.86	-	-	-	-	3.5	2.2 1.9
DR63L2	0.37	1.3	2650	0.92	1.0	0.87	-	-	-	-	3.5	2.1 1.9
DRS71S2	0.37	1.31	2700	1.01	1.06	0.89	-	-	-	-	3.2	2.2 1.9
DRS71M2	0.55	1.87	2810	1.37	1.42	0.79	IE1 ¹⁾	70.7	73.5	72.9	4.9	2.9 2.1

1) IE marking on customer request

2-pole DR, DRS motors for 50 Hz, IE1

Motor type	P_N	M_N	n_N	m	J_{Mot}	Brake	Z_0	M_B	m_B	J_{Mot_BE}
	kW	Nm	1/min	kg	10^{-4} kgm^2		BG BGE 1/h			
DR63S2	0.18	0.63	2720	6.2	3.6	BR03	5000 -	1.6	8.0	4.8
DR63M2	0.25	0.9	2660	6.2	3.6	BR03	4500 -	2.4	8.0	4.8
DR63L2	0.37	1.3	2650	6.7	4.4	BR03	4000 -	3.2	8.5	5.6
DRS71S2	0.37	1.31	2700	7.8	4.9	BE05	2450 4150	2.5	10.2	6.2
DRS71M2	0.55	1.87	2810	9.1	7.1	BE05	2000 4500	3.5	11.5	8.4



Technical data of the motors

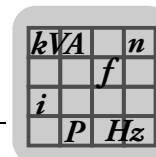
DR, DRS, DRE motors, 50 Hz, 2-pole, S1

2-pole DRE motors for 50 Hz, IE2

Motor type	P _N	M _N	n _N	I _N 400 V	I _N 380-420 V	cosφ	IE class	η _{50%}	η _{75%}	η _{100%}	I _A /I _N	M _A /M _N M _H /M _N
	kW	Nm	1/min	A	A			%	%	%		
DRE 80M 2	0.75	2.5	2890	1.54	1.6	0.89	IE2	81.1	79.2	79.2	7.9	3.4 3.0
DRE 90M 2	1.1	3.65	2870	2.2	2.3	0.89	IE2	83.5	82.2	81.2	7.2	3.2 3.0
DRE 90M 2	1.5	5.1	2830	2.95	3.05	0.89	IE2	83.3	83.5	81.8	5.9	2.7 2.6
DRE 100M 2	2.2	7.3	2880	4.15	4.3	0.91	IE2	87.4	85.6	84.5	8.2	3.8 3.3
DRE 100L 2	3	10.1	2850	5.5	5.7	0.93	IE2	88.0	87.4	85.6	7.2	3.5 3.1
DRE 112M 2	4	13.2	2900	7.5	7.8	0.89	IE2	87.7	87.6	86.5	6.3	2.3 2.1
DRE 132S 2	5.5	18.2	2890	10	10.5	0.91	IE2	89.2	88.9	87.4	6.5	2.3 2.1
DRE 132M 2	7.5	24.5	2910	13.5	14.3	0.91	IE2	90.0	89.8	88.5	7.3	2.5 2.3
DRE 132MC 2	9.2	30	2935	17.2	17.9	0.87	IE2	89.7	89.7	88.8	7.2	2.2 1.9

2-pole DRE motors for 50 Hz, IE2

Motor type	P _N	M _N	n _N	m	J _{Mot}	Brake	Z ₀ BG BGE	M _B	m _B	J _{Mot_BE}
	kW	Nm	1/min	kg	10 ⁻⁴ kgm ²		1/h	Nm	kg	10 ⁻⁴ kgm ²
DRE 80M 2	0.75	2.5	2890	14.3	21.4	BE05	1300 3200	5	17.1	22.9
DRE 90M 2	1.1	3.65	2870	18.4	35.4	BE1	1100 2700	7	21.3	37
DRE 90M 2	1.5	5.1	2830	18.4	35.4	BE1	1100 2700	10	21.3	37
DRE 100M 2	2.2	7.3	2880	26	56	BE2	700 1800	14	30.6	60.7
DRE 100L 2	3	10.1	2850	29	68.3	BE2	450 1000	20	33.6	73
DRE 112M 2	4	13.2	2900	41.3	113	BE5	- 600	28	48.5	117.8
DRE 132S 2	5.5	18.2	2890	46.3	146	BE5	- 500	40	53.5	150.8
DRE 132M 2	7.5	24.5	2910	60	193	BE5	- 500	55	67.2	197.8
DRE 132MC 2	9.2	30	2935	63	239	BE11	- 380	80	77.5	249.5



13.3 DT, DR, DRS, DRE motors, 50 Hz, 4-pole, S1

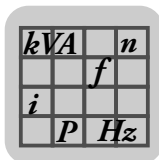
4-pole DT, DR, DRS motors for 50 Hz, IE1

Motor type	P _N kW	M _N Nm	n _N 1/min	I _N 400 V A	I _N 380-420 V A	cosφ	IE	η _{50%} %	η _{75%} %	η _{100%} %	I _A /I _N	M _A /M _N M _H /M _N
DT56M4	0.09	0.66	1300	0.29	0.31	0.68	-	-	-	-	2.6	2.1 1.8
DT56L4	0.12	0.88	1300	0.42	0.46	0.68	-	-	-	-	2.6	2.2 1.9
DR63S4	0.12	0.83	1380	0.39	0.39	0.69	-	-	-	-	3.3	2.4 2.2
DR63M4	0.18	1.3	1320	0.55	0.55	0.78	-	-	-	-	2.9	1.8 1.7
DR63L4	0.25	1.8	1300	0.68	0.73	0.81	-	-	-	-	2.8	1.8 1.7
DRS71S4	0.18	1.25	1380	0.64	0.66	0.70	-	-	-	-	3.5	1.8 1.8
DRS71S4	0.25	1.72	1390	0.67	0.69	0.75	IE1 ¹⁾	68.6	72.6	72.6	4.1	1.9 1.9
DRS71S4	0.37	2.55	1380	1.14	1.24	0.70	IE1 ¹⁾	59.1	65.3	66.6	3.5	1.8 1.8
DRS71M4	0.55	3.8	1380	1.55	1.62	0.72	IE1 ¹⁾	69.1	71.9	70.6	3.6	2.1 2.1

1) IE marking on customer request

4-pole DT, DR, DRS motors for 50 Hz, IE1

Motor type	P _N kW	M _N Nm	n _N 1/min	m kg	J _{Mot} 10 ⁻⁴ kgm ²	Brake	Z ₀ BG BGE 1/h	M _B Nm	m _B kg	J _{Mot_BE} 10 ⁻⁴ kgm ²
DT56M4	0.09	0.66	1300	-	1.1	BMG02	10000 -	0.8	-	1.2
DT56L4	0.12	0.88	1300	-	1.1	BMG02	10000 -	1.2	-	1.2
DR63S4	0.12	0.83	1380	6.1	3.6	BR03	10000 -	2.4	7.6	4.8
DR63M4	0.18	1.3	1320	6.1	3.6	BR03	10000 -	3.2	7.6	4.8
DR63L4	0.25	1.8	1300	6.7	4.4	BR03	10000 -	3.2	8.2	5.6
DRS71S4	0.18	1.25	1380	7.8	4.9	BE05	6000 9500	2.5	10.2	6.2
DRS71S4	0.25	1.72	1390	7.8	4.9	BE05	6000 9500	3.5	10.2	6.2
DRS71S4	0.37	2.55	1380	7.8	4.9	BE05	6000 9500	5	10.2	6.2
DRS71M4	0.55	3.8	1380	9.1	7.1	BE1	4100 11000	10	11.7	8.4



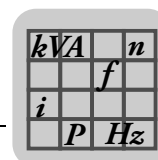
Technical data of the motors

DT, DR, DRS, DRE motors, 50 Hz, 4-pole, S1

4-pole DRE motors for 50 Hz, IE2

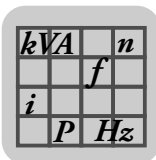
Motor type	P_N	M_N	n_N	I_N	I_N	$\cos\varphi$	IE	$\eta_{50\%}$	$\eta_{75\%}$	$\eta_{100\%}$	I_A/I_N	M_A/M_N
	kW	Nm	1/min	400 V A	380-420 V A							M_H/M_N
DRE 80S 4	0.37	2.45	1435	0.87	-	0.77	IE2 ¹⁾	76.5	78.5	78.8	4.9	2.6 2.1
DRE 80M 4	0.55	3.65	1445	1.27	-	0.76	IE2 ¹⁾	-	82.0	82.3	6.7	3.1 2.2
DRE 80M 4	0.75	5	1435	1.68	1.75	0.79	IE2	79.2	81.3	81.0	6.2	2.9 2.1
DRE 90M 4	1.1	7.4	1420	2.45	2.55	0.79	IE2	82.5	83.5	82.4	5.9	2.9 2.3
DRE 90L 4	1.5	10	1430	3.35	3.45	0.77	IE2	83.5	84.7	84.0	6.6	3.2 2.8
DRE 100M 4	2.2	14.7	1425	4.6	4.7	0.80	IE2	86.3	86.7	85.4	6.4	3.3 2.7
DRE 100LC 4	3	19.7	1455	6.2	6.3	0.81	IE2	86.3	87.1	86.3	7.5	2.7 2.4
DRE 112M 4	3	19.7	1455	6	6.2	0.83	IE2	87.7	87.4	86.5	7.3	2.4 2.0
DRE 132S 4	4	26	1460	8	8.2	0.82	IE2	87.6	88.2	87.4	8.0	2.7 2.4
DRE 132M 4	5.5	36	1455	10.5	11	0.85	IE2	89.8	89.6	88.5	7.7	2.6 1.9
DRE 132MC 4	7.5	48.5	1470	14.8	15.2	0.82	IE2	88.9	89.5	89.0	8.2	2.2 1.8
DRE 160S 4	7.5	49	1465	14.7	15.3	0.82	IE2	90.3	90.3	89.3	6.5	2.4 1.8
DRE 160M 4	9.2	60	1470	18.3	18.7	0.80	IE2	90.4	90.7	90.0	7.7	2.9 2.2
DRE 160MC 4	11	71	1475	21.5	22	0.81	IE2	90.3	90.6	90.2	7.7	2.6 1.9
DRE 180S 4	11	71	1470	21	21.5	0.83	IE2	89.5	90.4	90.2	7.2	2.6 2.2
DRE 180M 4	15	97	1470	28	29	0.85	IE2	90.9	91.5	91.0	7.1	2.4 2.0
DRE 180L 4	18.5	120	1470	34	35.5	0.85	IE2	91.4	92.0	91.7	7.1	2.5 2.1
DRE 180LC 4	22	142	1480	42	43	0.82	IE2	91.7	92.2	91.8	7.1	2.3 1.9
DRE 200L 4	30	194	1475	57	59	0.82	IE2	92.6	92.9	92.4	6.3	2.1 1.9
DRE 225S 4	37	240	1477	70	72	0.82	IE2	93.0	93.4	93.0	7.0	2.5 2.0
DRE 225M 4	45	290	1478	84	86	0.83	IE2	93.5	93.7	93.3	7.3	2.5 2.1
DRE 250M 4	55	355	1479	104	107	0.82	IE2	93.0	93.8	93.6	6.9	3.0 2.1
DRE 280S 4	75	485	1480	138	143	0.83	IE2	93.3	94.1	94.4	7.8	3.0 2.1
DRE 280M 4	90	580	1478	170	172	0.82	IE2	93.7	94.5	94.4	7.0	3.4 2.3
DRE 315K 4	110	710	1483	196	205	0.85	IE2	94.4	94.9	94.7	6.0	2.3 1.8
DRE 315S 4	132	850	1483	230	235	0.87	IE2	94.3	95.0	95.0	6.6	2.4 2.0
DRE 315M 4	160	1030	1484	275	285	0.88	IE2	95.3	95.5	95.3	6.8	2.2 1.8
DRE 315L 4	200	1290	1482	345	360	0.89	IE2	95.4	95.7	95.3	6.3	2.2 1.8

1) IE marking on customer request



4-pole DRE motors for 50 Hz, IE2

Motor type	P _N kW	M _N Nm	n _N 1/min	m kg	J _{Mot} 10 ⁻⁴ kgm ²	Brake	Z ₀ BG BGE 1/h	M _B Nm	m _B kg	J _{Mot_BE} 10 ⁻⁴ kgm ²
DRE 80S 4	0.37	2.45	1435	11.5	14.9	BE05	3500 9000	5	14.3	16.4
DRE 80M 4	0.55	3.65	1445	14.3	21.4	BE1	3500 9000	7	17.3	22.9
DRE 80M 4	0.75	5	1435	14.3	21.4	BE1	3500 9000	10	17.3	22.9
DRE 90M 4	1.1	7.4	1420	18.4	35.4	BE2	3000 8000	14	23	40.1
DRE 90L 4	1.5	10	1430	21.4	43.7	BE2	3000 8000	20	26	48.4
DRE 100M 4	2.2	14.7	1425	26	56	BE5	- 8000	28	31.9	62
DRE 100LC 4	3	19.7	1455	31.2	89.8	BE5	- 3800	40	37.1	95.8
DRE 112M 4	3	19.7	1455	41.3	146	BE5	- 3100	40	48.5	150.8
DRE 132S 4	4	26	1460	46.3	190	BE5	- 2800	55	53.5	194.8
DRE 132M 4	5.5	36	1455	60	253	BE11	- 2000	80	74.5	263.5
DRE 132MC 4	7.5	48.5	1470	63	342	BE11	- 1500	110	77.5	352.5
DRE 160S 4	7.5	49	1465	79.5	370	BE11	- 1100	110	98.2	391.9
DRE 160M 4	9.2	60	1470	88.5	448	BE20	- 1000	150	115.2	499.1
DRE 160MC 4	11	71	1475	93.5	593	BE20	- 900	150	120.2	644.1
DRE 180S 4	11	71	1470	121.9	895	BE20	- 900	150	153.9	955
DRE 180M 4	15	97	1470	138.3	1110	BE20	- 800	200	170.3	1170
DRE 180L 4	18.5	120	1470	152.1	1300	BE30	- 590	300	192.1	1435
DRE 180LC 4	22	142	1480	161.1	1680	BE30	- 520	300	201.1	1815
DRE 200L 4	30	194	1475	258	2360	BE32	- 550	400	313	2590
DRE 225S 4	37	240	1477	294.5	2930	BE32	- 320	500	349.5	3160
DRE 225M 4	45	290	1478	315.5	3430	BE32	- 270	600	370.5	3660
DRE 250M 4	55	355	1479	442	6200	BE62	- 200	800	530.6	6795
DRE 280S 4	75	485	1480	528	8870	BE62	- 150	1000	616.6	9465
DRE 280M 4	90	580	1478	528	8870	BE122	- 100	1200	661.4	9890
DRE 315K 4	110	710	1483	850	18400	BE122	- 65	1600	975	19495
DRE 315S 4	132	850	1483	930	22500	BE122	- 50	2000	1055	23595
DRE 315M 4	160	1030	1484	1085	27900	BE122	- 35	2000	1210	28995
DRE 315L 4	200	1290	1482	1165	31900	BE122	- 25	2000	1290	32995



Technical data of the motors

DR, DRS, DRE motors, 50 Hz, 6-pole, S1

13.4 DR, DRS, DRE motors, 50 Hz, 6-pole, S1

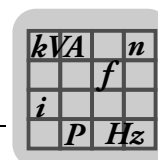
6-pole DR, DRS motors for 50 Hz, IE1

Motor type	P _N kW	M _N Nm	n _N 1/min	I _N 400 V A	I _N 380-420 V A	cosφ	IE class	η _{50%} %	η _{75%} %	η _{100%} %	I _A /I _N	M _A /M _N M _H /M _N
DR63S6	0.09	0.95	900	0.38	0.42	0.64	-	-	-	-	2.2	1.8 1.6
DR63M6	0.12	1.2	900	0.58	0.62	0.65	-	-	-	-	2.1	1.8 1.7
DR63L6	0.18	2	870	0.78	0.81	0.70	-	-	-	-	2.2	1.6 1.5
DRS71S6	0.25	2.65	895	0.83	0.86	0.70	IE1 ¹⁾	55.3	61.4	62.2	2.7	1.7 1.7
DRS71M6	0.37	3.9	905	1.13	1.16	0.71	IE1 ¹⁾	61.9	66.4	66.5	3.1	1.9 1.9

1) IE marking on customer request

6-pole DR, DRS motors for 50 Hz, IE1

Motor type	P _N kW	M _N Nm	n _N 1/min	m kg	J _{Mot} 10 ⁻⁴ kgm ²	Brake	Z ₀ BG BGE 1/h	M _B Nm	m _B kg	J _{Mot_BE} 10 ⁻⁴ kgm ²
DR63S6	0.09	0.95	900	6.0	5.4	BR03	20000 -	2.5	7.5	6.6
DR63M6	0.12	1.2	900	6.0	5.4	BR03	20000 -	3.2	7.5	6.6
DR63L6	0.18	2	870	6.6	6.8	BR03	20000 -	3.2	8.1	8.0
DRS71S6	0.25	2.65	895	7.8	8.1	BE05	7000 16000	5	10.2	9.4
DRS71M6	0.37	3.9	905	9.1	11.7	BE1	6600 15000	10	11.7	13



6-pole DRE motors for 50 Hz, IE2

Motor type	P _N kW	M _N Nm	n _N 1/min	I _N 400 V A	I _N 380-420 V A	cosφ	IE class	η _{50%} %	η _{75%} %	η _{100%} %	I _A /I _N	M _A /M _N M _H /M _N
DRE 71M 6	0.25	2.6	910	0.73	-	0.73	IE2 ¹⁾	64.8	70.0	68.8	3.4	2.0 2.0
DRE 80S 6	0.37	3.8	935	1.19	1.24	0.69	IE2 ¹⁾	67.2	71.2	71.5	3.7	2.0 2.0
DRE 80M 6	0.55	5.6	935	1.58	-	0.69	IE2 ¹⁾	70.5	74.0	74.0	4.4	2.2 2.2
DRE 90L 6	0.75	7.6	940	2.05	2.1	0.65	IE2	78.7	80.5	80.0	4.6	2.4 2.4
DRE 100M 6	1.1	11.2	940	3.1	3.15	0.64	IE2	77.2	79.4	78.7	4.7	3.0 2.9
DRE 100L 6	1.5	15.2	940	4	4.05	0.66	IE2	79.7	81.5	80.9	5.0	3.3 3.1
DRE 112M 6	2.2	22	955	5.2	5.3	0.74	IE2	83.5	84.2	83.0	5.5	2.1 1.8
DRE 132S 6	3	30	955	6.8	7	0.74	IE2	85.4	85.8	84.4	5.5	2.3 2.1
DRE 132M 6	4	40	960	9.5	9.6	0.71	IE2	85.3	86.2	85.4	6.1	2.8 2.6
DRE 132MC 6	5.5	54	970	12.1	12.3	0.76	IE2	87.5	88.0	86.9	5.8	1.9 1.7
DRE 160M 6	5.5	54	965	12.6	12.8	0.72	IE2	86.4	87.4	86.8	5.8	2.3 2.0

1) IE marking on customer request

6-pole DRE motors for 50 Hz, IE2

Motor type	P _N kW	M _N Nm	n _N 1/min	m kg	J _{Mot} 10 ⁻⁴ kgm ²	Brake	Z ₀ BG BGE 1/h	M _B Nm	m _B kg	J _{Mot_BE} 10 ⁻⁴ kgm ²
DRE 71M 6	0.25	2.6	910	9.1	11.7	BE05	6600 15000	5	11.5	13
DRE 80S 6	0.37	3.8	935	11.5	14.9	BE1	6000 14000	10	14.5	16.4
DRE 80M 6	0.55	5.6	935	14.3	21.4	BE2	4300 10000	14	18	25.9
DRE 90L 6	0.75	7.6	940	21.4	43.4	BE2	3500 8000	20	26	48.1
DRE 100M 6	1.1	11.2	940	26	55.6	BE5	- 7000	28	31.9	61.6
DRE 100L 6	1.5	15.2	940	29	67.8	BE5	- 6000	40	34.9	73.8
DRE 112M 6	2.2	22	955	41.3	145	BE5	- 4000	55	48.5	149.8
DRE 132S 6	3	30	955	46.3	188	BE11	- 3500	80	60.8	198.5
DRE 132M 6	4	40	960	60	250	BE11	- 3300	80	74.5	260.5
DRE 132MC 6	5.5	54	970	63	337	BE11	- 2900	110	77.5	347.5
DRE 160M 6	5.5	54	965	88.5	633	BE11	- 2700	110	107.2	654.9