

13 Motor and brake data – 60Hz

13.1 Symbols used in motor data tables

The following table lists the symbols used in the motor tables.

BE..	Brake size used
$\cos\varphi$	Power factor
NEMA Code Letter	NEMA designation of locked rotor amps per HP
h^{-1}	Per hour
J_{Mot}	Mass moment of inertia of the motor without brake
J_{BMot}	Mass moment of inertia of the brakemotor
J_Z	Mass moment of inertia for cast iron fan (flywheel)
m_{Mot}	Mass of the motor without brake
m_{BMot}	Mass of the brakemotor
n_N	Rated speed
$\eta_{50\%}$	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_N	Rated current
I_A/I_N	Starting current ratio
P_N	Rated power
T_B	Braking torque
T_N	Rated torque of motor
T_A/T_N	Starting torque ratio
T_H/T_N	Ramp-up torque ratio
T_K/T_N	Breakdown torque ratio
Z_0 BG	Switching frequency (per hour) for operation with BG brake control
Z_0 BGE	Switching frequency (per hour) for operation with BGE brake control

13.2 3600 rpm

13.2.1 Technical data – 2 pole

Motor	P _N		T _N	n _N	I _N 230V	I _N 460V	I _N 575V	cosφ	η _{50%}	η _{75%}	η _{100%}	I _A /I _N
	kW	HP										
DR63S2	0.18	0.25	4.58	3320	0.78	0.39	0.31	0.88	-	-	-	4.6
DR63M2	0.25	0.33	6.48	3260	1.13	0.57	0.45	0.86	-	-	-	3.5
DR63L2	0.37	0.50	9.65	3250	1.60	0.8	0.64	0.87	-	-	-	3.8
DRS71S2	0.18	0.25	4.6	3300	0.96	0.48	0.38	0.90	-	-	-	3.2
DRS71M2	0.25	0.33	6.4	3300	1.32	0.66	0.53	0.90	-	-	-	3.2
DRS71L2	0.37	0.50	9.5	3300	1.9	1.15	0.76	0.89	-	-	-	3.2
DRS71M2	0.55	0.75	13.6	3420	2.2	1.33	0.88	0.83	73.5	76.3	75.5	5.8
DRN80MS2	0.75	1	18.2	3476	2.8	1.39	1.11	0.82	79.7	84.8	82.5	7.4
DRN80M2	1.1	1.5	26.5	3485	3.85	1.94	1.55	0.83	82.3	84.1	84.0	8.2
DRN90S2	1.5	2	36	3505	5.3	2.65	2.15	0.81	83.7	85.6	85.5	8.3
DRN90L2	2.2	3	53	3525	7.4	3.7	2.95	0.85	84.7	86.4	86.5	9.8
DRN100LM2	3	4	72	3517	10.2	5.1	4.05	0.83	88.0	89.1	88.5	10.2
DRN100L2	3.7	5	89	3508	11.6	5.8	4.65	0.88	88.6	89.1	88.5	11.0
DRN112M2	4	5.4	95	3552	13	6.5	5.2	0.86	87.4	88.6	88.5	10.1
DRN132S2	5.5	7.5	131	3544	16.4	8.2	6.6	0.92	89.0	89.7	89.5	11.0
DRN132S2	7.5	10	179	3545	24.5	12.2	9.7	0.85	89.6	90.4	90.2	9.3

13.2.2 Additional data – 2 pole

Motor	P _N		T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot} lb	J _{Mot} lb-ft ²	J _Z lb-ft ²	BE..	Z ₀ BG BGE h ⁻¹	T _B lb-in	m _{BMot} lb	J _{BMot} lb-ft ²
	kW	HP											
DR63S2	0.18	0.25	2.4 2.2	2.3	G	14	0.0085	-	BR03	4000 -	14	18	0.0114
DR63M2	0.25	0.33	2.2 1.9	2.0	E	14	0.0085	-	BR03	3600 -	21	18	0.0114
DR63L2	0.37	0.50	2.1 1.9	2.0	E	15	0.0104	-	BR03	3200 -	28	19	0.0133
DRS71S2	0.18	0.25	2.2 1.9	2.0	E	17	0.0122	-	BE05	2000 3300	44.5	23	0.0153
DRS71S2	0.25	0.33	2.2 1.9	2.0	F	17	0.0122	-	BE05	2000 3300	44.5	23	0.0153
DRS71S2	0.37	0.50	2.2 1.9	2.0	E	17	0.0122	-	BE05	2000 3300	44.5	23	0.0153
DRS71M2	0.55	0.75	3.1 1.9	2.5	H	20	0.0171	-	BE05	2000 3300	31	25	0.0153
DRN80MS2	0.75	1	3.2 2.9	3.4	K	25	0.044	0.090	BE05	960 2720	44.5	33	0.0476
DRN80M2	1.1	1.5	3.7 3.0	3.6	K	31	0.0573	0.090	BE1	800 2080	62	39	0.0608
DRN90S2	1.5	2	3.3 2.7	3.5	K	43	0.126	0.237	BE1	480 1040	89	50	0.13
DRN90L2	2.2	3	3.1 2.1	3.5	L	50	0.157	0.237	BE2	- 800	124	60	0.169
DRN100LM2	3	4	3.8 2.8	4.2	M	72	0.213	0.347	BE2	- 600	177	82	0.224
DRN100L2	3.7	5	4.2 3.4	4.1	M	75	0.263	0.347	BE2	- 600	177	85	0.274
DRN112M2	4	5.4	3.1 1.4	4.1	L	98	0.422	0.467	BE5	- 320	250	115	0.433
DRN132S2	5.5	7.5	3.3 2.1	4.2	L	125	0.571	0.467	BE5	- 240	355	140	0.583
DRN132S2	7.5	10	3.6 2.4	4.6	L	125	0.571	0.467	BE5	- 240	485	140	0.583

13.3 1800 rpm**13.3.1 0.25 to 125 HP Technical data – 4 pole**

Motor	P _N		T _N	n _N	TEFC Speed Range ¹⁾	I _N 230V	I _N 460V	I _N 575V	cosφ	η _{50%}	η _{75%}	η _{100%}	I _A /I _N
	kW	HP	lb-in	rpm	rpm	A	A	A		%	%	%	
DR63S4	0.12	0.16	6.04	1680	300-1800	0.68	0.34	0.27	0.69	-	-	-	3.6
DR63M4	0.18	0.25	9.38	1620	300-1800	0.96	0.48	0.39	0.78	-	-	-	3.2
DR63L4	0.25	0.33	13.2	1600	300-1800	1.19	0.60	0.48	0.81	-	-	-	3.1
DRS71S4	0.18	0.25	8.94	1710	300-1800	0.88	0.44	0.35	0.70	69.0	73.0	74.0	4.8
DRS71S4	0.25	0.33	12	1700	300-1800	1.14	0.57	0.46	0.74	69.9	74.4	75.3	4.6
DRS71S4	0.37	0.50	18.4	1700	300-1800	1.84	0.92	0.74	0.69	66.6	71.3	72.3	4.2
DRS71M4	0.55	0.75	27.5	1690	300-1800	2.5	1.25	1	0.71	73.5	76.0	75.4	4.3
DRN80M4	0.75	1	36	1751	300-1800	3.1	1.56	1.25	0.70	82.0	84.9	85.5	8.1
DRN90S4	1.1	1.5	53	1762	300-1800	4.65	2.3	1.85	0.69	83.5	86.1	86.5	8.2
DRN90L4	1.5	2	72	1767	300-1800	6	3	2.4	0.70	83.8	86.1	86.5	9.1
DRN100LM4	2.2	3	106	1762	300-1800	8.4	4.2	3.4	0.73	88.1	89.5	89.5	9.1
DRN100L4 ²⁾	2.2	3	105	1765	550-1800	8.3	4.15	3.35	0.74	87.5	89.2	89.5	9.4
DRN100L4	3	4	144	1763	550-1800	11.6	5.8	4.65	0.73	87.6	89.3	89.5	9.2
DRN100L4	3.7	5	178	1758	550-1800	14.3	7.2	5.7	0.72	87.8	89.4	89.5	9.1
DRN112M4	4	5.4	191	1769	300-1800	14.1	7.1	5.6	0.79	88.5	89.6	89.5	9.8
DRN132S4	5.5	7.5	265	1768	300-1800	18.4	9.2	7.4	0.82	90.9	91.8	91.7	9.8
DRN132M4	7.5	10	355	1774	300-1800	26.5	13.3	10.6	0.77	91.1	91.9	91.7	8.5
DRN132L4	9.2	12.3	440	1775	300-1800	33	16.5	13.2	0.76	91.0	91.9	91.7	8.4
DRN160M4	11	15	520	1776	300-1800	37	18.5	14.8	0.80	91.2	92.3	92.4	7.0
DRN160L4	15	20	710	1777	300-1800	50	25	20	0.80	92.3	93.3	93.0	9.0
DRN180M4	18.5	25	880	1781	300-1800	59	29.5	23.5	0.84	92.7	93.6	93.6	9.5
DRN180L4	22	30	1040	1781	300-1800	68	34	27.5	0.86	93.2	93.8	93.6	9.8
DRN200L4	30	40	1420	1783	300-1800	97	48.5	39	0.82	93.0	94.0	94.1	8.5
DRN225S4	37	50	1750	1785	300-1800	111	56	44.5	0.88	94.2	94.7	94.5	9.2
DRN225M4	45	60	2150	1785	300-1800	140	70	56	0.85	94.5	95.1	95.0	8.9
DRN250ME4	55	75	2600	1785	300-1800	176	88	70	0.82	94.3	95.2	95.4	8.6
DRN280S4	75	100	3550	1785	300-1800	250	125	100	0.79	94.6	95.3	95.4	9.1
DRN280M4	90	125	4250	1784	300-1800	280	141	113	0.83	94.8	95.4	95.4	8.0

1) T_N = constant, using standard fan

2) Replaced by DRN100LM4

13.3.2 0.25 to 125 HP Additional data – 4 pole

Motor	P _N		T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot} lb	J _{Mot} lb-ft ²	J _Z lb-ft ²	BE..	Z ₀ BG BGE h ⁻¹	T _B lb-in	m _{BMot} lb	J _{BMot} lb-ft ²
	kW	HP											
DR63S4	0.12	0.16	2.4 2.2	2.4	G	13	0.0085	-	BR03	8000 -	21	17	0.0114
DR63M4	0.18	0.25	1.8 1.7	1.8	E	13	0.0085	-	BR03	8000 -	28	17	0.0114
DR63L4	0.25	0.33	1.8 1.7	1.8	D	15	0.0104	-	BR03	8000 -	28	18	0.0133
DRS71S4	0.18	0.25	2.5 2.3	2.6	H	17	0.0122	-	BE05	4800 7600	40	22	0.0153
DRS71S4	0.25	0.33	1.9 1.9	2.5	H	17	0.0122	-	BE05	4800 7600	40	22	0.0153
DRS71S4	0.37	0.50	1.9 1.9	2.5	G	17	0.0122	-	BE05	4800 7600	44.5	23	0.0153
DRS71M4	0.55	0.75	2.2 2.1	2.4	G	20	0.0171	-	BE1	3300 8800	89	26	0.0202
DRN80M4	0.75	1	3.7 3.0	4.2	M	31	0.0587	0.090	BE1	2600 6600	89	39	0.0622
DRN90S4	1.1	1.5	3.3 2.3	4.0	M	43	0.128	0.237	BE2	1800 4800	124	53	0.139
DRN90L4	1.5	2	3.3 1.9	4.0	M	50	0.160	0.237	BE2	1800 4700	177	60	0.171
DRN100LM4	2.2	3	3.4 2.4	4.2	M	72	0.215	0.347	BE5	- 3700	250	85	0.229
DRN100L4	2.2	3	3.7 2.2	4.2	M	75	0.265	0.347	BE5	1400 3700	250	88	0.279
DRN100L4	3	4	3.9 2.3	4.4	M	75	0.265	0.347	BE5	- 2900	355	88	0.279
DRN100L4	3.7	5	4.1 2.0	4.4	M	75	0.265	0.347	BE5	- 2900	355	88	0.279
DRN112M4	4	5.4	2.8 1.4	4.0	M	98	0.422	0.467	BE5	- 2300	485	115	0.433
DRN132S4	5.5	7.5	3.5 2.8	4.3	L	125	0.571	0.467	BE11	- 1700	710	155	0.596
DRN132M4	7.5	10	3.7 2.6	3.7	K	160	0.904	1.115	BE11	- 900	970	200	0.956
DRN132L4	9.2	12.3	4.3 1.7	4.1	K	180	1.04	1.115	BE11	- 780	970	220	1.09
DRN160M4	11	15	2.6 2.1	3.1	H	255	1.94	-	BE20	- 720	1330	325	2.08
DRN160L4	15	20	3.4 2.1	3.8	L	290	2.47	-	BE20	- 640	1770	360	2.61
DRN180M4	18.5	25	4.1 3.4	4.0	K	345	3.88	-	BE20	- 400	1770	415	4.02
DRN180L4	22	30	4.2 2.7	3.9	K	380	4.63	-	BE30	- 380	2650	470	4.95
DRN200L4	30	40	3.5 2.5	3.3	K	620	6.32	-	BE32	- 400	3550	740	6.86
DRN225S4	37	50	3.4 2.6	3.0	K	680	10.3	-	BE32	- 180	3550	800	10.9
DRN225M4	45	60	3.6 2.2	2.7	K	680	10.3	-	BE32	- 160	4450	800	10.9
DRN250ME4	55	75	4.6 2.4	2.7	K	1120	21.2	-	BE60	- 120	5300	1300	22
DRN280S4	75	100	4.8 2.7	3.1	L	1140	21.2	-	BE62	- 120	8900	1330	22.6
DRN280M4	90	125	4.8 2.5	2.9	J	1390	28.4	-	BE62	- 63	8900	1580	29.9

13.3.3 150 to 300 HP Technical data – 4 pole

460V:

Motor	P _N		Voltage	T _N	n _N	TEFC Speed Range ¹⁾	I _N	cosφ	η _{50%}	η _{75%}	η _{100%}	I _A /I _N
	kW	HP										
DRN315S4	110	150	460V	5200	1790	350-1800	165	0.87	95.0	95.7	95.8	7.6
DRN315ME4	132	175	460V	6200	1791	350-1800	205	0.86	95.4	96.0	96.2	8.3
DRN315L4	150	200	460V	7100	1788	350-1800	225	0.87	95.5	96.1	96.2	7.8
DRN315L4	-	225	460V	7900	1788	350-1800	240	0.88	95.6	96.2	96.2	7.4
DRN315H4	185	250	460V	8800	1792	350-1800	290	0.83	94.8	95.9	96.2	8.6
DRN315H4	200	275	460V	9500	1791	350-1800	310	0.84	95.0	96.0	96.2	8.1
DRN315H4	225	300	460V	10600	1790	350-1800	345	0.85	95.4	96.1	96.2	7.3

1) T_N = constant, using standard fan

575V:

Motor	P _N		Voltage	T _N	n _N	TEFC Speed Range ¹⁾	I _N	cosφ	η _{50%}	η _{75%}	η _{100%}	I _A /I _N
	kW	HP										
DRN315L4	150	200	575V	7100	1788	350-1800	180	0.88	95.4	96.1	96.2	7.3
DRN315H4	200	275	575V	9500	1788	350-1800	240	0.87	95.9	96.3	96.2	6.7

1) T_N = constant, using standard fan

13.3.4 150 to 300 HP Additional data – 4 pole

460V:

Motor	P _N		Voltage	T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot} lb	J _{Mot} lb-ft ²	BE..	Z ₀ BGE h ⁻¹	T _B lb-in	m _{BMot} lb	J _{BMot} lb-ft ²
	kW	HP											
DRN315S4	110	150	460V	3.3 2.5	3.5	H	1910	55.6	BE122	42	10600	2210	58
DRN315ME4	132	175	460V	3.8 3.1	4.3	J	2190	67.3	BE122	33	14200	2480	69.7
DRN315L4	150	200	460V	3.4 2.7	3.8	H	2240	67.9	BE122	27	17700	2530	70.3
DRN315L4	-	225	460V	3.2 2.6	3.6	G	2240	67.9	BE122	27	17700	2530	70.3
DRN315H4	185	250	460V	4.6 3.4	4.6	J	2510	83.5	BE122	18	17700	2800	85.9
DRN315H4	200	275	460V	4.2 3.1	4.3	J	2510	83.5	BE122	18	17700	2800	85.9
DRN315H4	225	300	460V	3.7 2.8	3.8	H	2510	83.5	BE122	18	17700	2800	85.9

575V:

Motor	P _N		Voltage	T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot} lb	J _{Mot} lb-ft ²	BE..	Z ₀ BGE h ⁻¹	T _B lb-in	m _{BMot} lb	J _{BMot} lb-ft ²
	kW	HP											
DRN315L4	150	200	575V	3.1 2.5	3.5	H	2240	67.9	BE122	27	17700	2530	70.3
DRN315H4	200	275	575V	3.3 2.5	3.3	J	2510	83.5	BE122	18	17700	2800	85.9

13.4 1800 rpm – HazLoc-NA®

13.4.1 0.25 to 125 HP Technical data – 4 pole

HazLoc-NA® Motor	P _N		T _N	n _N	TEFC Speed Range ¹⁾	I _N 230V	I _N 460V	I _N 575V	cosφ	η _{50%}	η _{75%}	η _{100%}	I _A /I _N
	kW	HP	lb-in	rpm	rpm	A	A	A		%	%	%	
EDRS71S4	0.18	0.25	8.94	1710	300-1800	0.88	.44	0.35	0.70	69.0	73.0	74.0	4.8
EDRS71S4	0.25	0.33	12	1700	300-1800	1.14	0.57	0.46	0.74	69.9	74.4	75.3	4.6
EDRS71S4	0.37	0.50	18.4	1700	300-1800	1.84	0.92	0.74	0.69	66.6	71.3	72.3	4.2
EDRS71M4	0.55	0.75	27.5	1690	300-1800	2.5	1.25	1	0.71	73.5	76.0	75.4	4.3
EDRN80M4	0.75	1	36	1751	300-1800	3.1	1.56	1.25	0.70	82.0	84.9	85.5	8.1
EDRN90S4	1.1	1.5	53	1762	300-1800	4.65	2.3	1.85	0.69	83.5	86.1	86.5	8.2
EDRN90L4	1.5	2	72	1767	300-1800	6	3	2.4	0.70	83.8	86.1	86.5	9.1
EDRN100LM4	2.2	3	106	1762	300-1800	8.4	4.2	3.4	0.73	88.1	89.5	89.5	9.1
EDRN100L4 ²⁾	2.2	3	105	1765	550-1800	8.3	4.15	3.35	0.74	87.5	89.2	89.5	9.4
EDRN100L4	3	4	144	1763	550-1800	11.6	5.8	4.65	0.73	87.6	89.3	89.5	9.2
EDRN100L4	3.7	5	178	1758	550-1800	14.3	7.2	5.7	0.72	87.8	89.4	89.5	9.1
EDRN112M4	4	5.4	191	1769	300-1800	14.1	7.1	5.6	0.79	88.5	89.6	89.5	9.8
EDRN132S4	5.5	7.5	265	1768	300-1800	18.4	9.2	7.4	0.82	90.9	91.8	91.7	9.8
EDRN132M4	7.5	10	355	1774	300-1800	26.5	13.3	10.6	0.77	91.1	91.9	91.7	8.5
EDRN132L4	9.2	12.3	440	1775	300-1800	33	16.5	13.2	0.76	91.0	91.9	91.7	8.4
EDRN160M4	11	15	520	1776	300-1800	37	18.5	14.8	0.80	91.2	92.3	92.4	7.0
EDRN160L4	15	20	710	1777	300-1800	50	25	20	0.80	92.3	93.3	93.0	9.0
EDRN180M4	18.5	25	880	1781	300-1800	59	29.5	23.5	0.84	92.7	93.6	93.6	9.5
EDRN180L4	22	30	1040	1781	300-1800	68	34	27.5	0.86	93.2	93.8	93.6	9.8
EDRN200L4	30	40	1420	1783	300-1800	97	48.5	39	0.82	93.0	94.0	94.1	8.5
EDRN225S4	37	50	1750	1785	300-1800	111	56	44.5	0.88	94.2	94.7	94.5	9.2
EDRN225M4	45	60	2150	1785	300-1800	140	70	56	0.85	94.5	95.1	95.0	8.9
EDRN250ME4	55	75	2600	1785	300-1800	176	88	70	0.82	94.3	95.2	95.4	8.6
EDRN280S4	75	100	3550	1785	300-1800	250	125	100	0.79	94.6	95.3	95.4	9.1
EDRN280M4	90	125	4250	1784	300-1800	280	141	113	0.83	94.8	95.4	95.4	8.0

1) T_N = constant, using standard fan

2) Replaced by EDRN100LM4

13.4.2 0.25 to 125 HP Additional data – HazLoc-NA® 4 pole

HazLoc-NA® Motor	P _N		T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot} lb	J _{Mot} lb-ft ²	BE..	Z ₀ BGE h ⁻¹	T _B lb-in	m _{BMot} lb	J _{BMot} lb-ft ²
	kW	HP										
EDRS71S4	0.18	0.25	2.5 2.3	2.6	H	17	0.0122	BE05	1500	40	23	0.0153
EDRS71S4	0.25	0.33	1.9 1.9	2.5	H	17	0.0122	BE05	1500	40	23	0.0153
EDRS71S4	0.37	0.50	1.9 1.9	2.5	G	17	0.0122	BE05	1500	44.5	23	0.0153
EDRS71M4	0.55	0.75	2.2 2.1	2.4	G	20	0.0171	BE1	1500	89	26	0.0202
EDRN80M4	0.75	1	3.7 3.0	4.2	M	31	0.0587	BE1	1060	89	39	0.0622
EDRN90S4	1.1	1.5	3.3 2.3	4.0	M	43	0.128	BE2	770	124	53	0.139
EDRN90L4	1.5	2	3.3 1.9	4.0	M	50	0.160	BE2	750	177	60	0.171
EDRN100LM4	2.2	3	3.4 2.4	4.2	M	72	0.215	BE5	590	250	85	0.229
EDRN100L4	2.2	3	3.7 2.2	4.2	M	75	0.265	BE5	590	250	88	0.279
EDRN100L4	3	4	3.9 2.3	4.4	M	75	0.265	BE5	460	355	88	0.279
EDRN100L4	3.7	5	4.1 2.0	4.4	M	75	0.265	BE5	460	355	88	0.279
EDRN112M4	4	5.4	2.8 1.4	4.0	M	98	0.422	BE5	370	485	115	0.433
EDRN132S4	5.5	7.5	3.5 2.8	4.3	L	125	0.571	BE11	270	710	155	0.596
EDRN132M4	7.5	10	3.7 2.6	3.7	K	160	0.904	BE11	140	970	200	0.956
EDRN132L4	9.2	12.3	4.3 1.7	4.1	K	180	1.04	BE11	120	970	220	1.09
EDRN160M4	11	15	2.6 2.1	3.1	H	255	1.94	BE20	120	1330	325	2.08
EDRN160L4	15	20	3.4 2.1	3.8	L	290	2.47	BE20	100	1770	360	2.61
EDRN180M4	18.5	25	4.1 3.4	4.0	K	345	3.88	BE20	60	1770	415	4.02
EDRN180L4	22	30	4.2 2.7	3.9	K	380	4.63	BE30	60	2650	470	4.95
EDRN200L4	30	40	3.5 2.5	3.3	K	620	6.32	BE32	60	3550	740	6.86
EDRN225S4	37	50	3.4 2.6	3.0	K	680	10.3	BE32	30	3550	800	10.9
EDRN225M4	45	60	3.6 2.2	2.7	K	680	10.3	BE32	25	4450	800	10.9
EDRN250ME4	55	75	4.6 2.4	2.7	K	1120	21.2	BE60	20	5300	1300	22
EDRN280S4	75	100	4.8 2.7	3.1	L	1140	21.2	BE120	20	7100	1330	22.6
EDRN280M4	90	125	4.8 2.5	2.9	J	1390	28.4	BE120	10	8900	1580	29.9

13.4.3 150 to 275 HP Technical data – HazLoc-NA® 4 pole

460V:

HazLoc-NA® Motor	P _N		Voltage	T _N	n _N	TEFC Speed Range ¹⁾	I _N	cosφ	η _{50%}	η _{75%}	η _{100%}	I _A /I _N
	kW	HP										
EDRN315S4	110	150	460V	5200	1790	350-1800	165	0.87	95.0	95.7	95.8	7.6
EDRN315ME4	132	175	460V	6200	1791	350-1800	200	0.86	95.4	96.0	96.2	8.3
EDRN315L4	150	200	460V	7100	1788	350-1800	225	0.87	95.5	96.1	96.2	7.8
EDRN315L4	-	225	460V	7900	1788	350-1800	240	0.88	95.6	96.2	96.2	7.4
EDRN315H4	185	250	460V	8800	1792	350-1800	290	0.83	94.8	95.9	96.2	8.6
EDRN315H4	200	275	460V	9500	1791	350-1800	310	0.84	95.0	96.0	96.2	9.4

1) T_N = constant, using standard fan

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575V:

HazLoc-NA® Motor	P _N		Voltage	T _N	n _N	TEFC Speed Range ¹⁾	I _N	cosφ	η _{50%}	η _{75%}	η _{100%}	I _A /I _N
	kW	HP										
EDRN315S4	110	150	575V	5200	1788	350-1800	130	0.88	95.3	95.8	95.8	6.6
EDRN315ME4	132	175	575V	6200	1791	350-1800	159	0.86	95.1	96.0	96.2	8.3
EDRN315L4	150	200	575V	7100	1789	350-1800	179	0.87	95.4	96.1	96.2	7.9
EDRN315L4	-	225	575V	7900	1789	350-1800	189	0.87	95.6	96.2	96.2	7.5
EDRN315H4	185	250	575V	8800	1790	350-1800	220	0.87	95.7	96.2	96.2	7.3
EDRN315H4	200	275	575V	9500	1788	350-1800	240	0.87	95.9	96.3	96.2	7.5

1) T_N = constant, using standard fan

13.4.4 150 to 275 HP Additional data – HazLoc-NA® 4 pole

460V:

HazLoc-NA® Motor	P _N		Voltage	T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot} lb	J _{Mot} lb-ft ²	BE..	Z ₀ BGE h ⁻¹	T _B lb-in	m _{BMot} lb	J _{BMot} lb-ft ²
	kW	HP											
EDRN315S4	110	150	460V	3.3 2.5	3.5	H	1920	55.6	BE120	10	8900	2140	57.1
EDRN315ME4	132	175	460V	3.8 3.1	4.3	J	2190	67.3	BE120	5	8900	2420	68.7
EDRN315L4	150	200	460V	3.4 2.7	3.8	H	2250	67.9	BE120	5	8900	2470	69.3
EDRN315L4	-	225	460V	3.2 2.6	3.6	H	2250	67.9	BE120	5	8900	2470	69.3
EDRN315H4	185	250	460V	4.6 3.4	4.6	J	2510	83.5	BE120	5	8900	2730	84.9
EDRN315H4	200	275	460V	4.2 3.1	4.3	J	2510	83.5	BE120	5	8900	2730	84.9

575V:

HazLoc-NA® Motor	P _N		Voltage	T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot} lb	J _{Mot} lb-ft ²	BE..	Z ₀ BGE h ⁻¹	T _B lb-in	m _{BMot} lb	J _{BMot} lb-ft ²
	kW	HP											
EDRN315S4	110	150	575V	2.8 2.1	3.0	H	1910	55.6	BE120	10	8900	2140	57.1
EDRN315ME4	132	175	575V	3.9 2.9	4.1	J	2190	67.3	BE120	5	8900	2420	68.7
EDRN315L4	150	200	575V	3.4 2.6	3.6	H	2240	67.9	BE120	5	8900	2470	69.3
EDRN315L4	-	225	575V	3.2 2.4	3.4	H	2240	67.9	BE120	5	8900	2470	69.3
EDRN315H4	185	250	575V	3.6 2.8	3.7	J	2510	83.5	BE120	5	8900	2730	84.9
EDRN315H4	200	275	575V	3.4 2.6	3.4	H	2510	83.5	BE120	5	8900	2730	84.9

13.5 1200 rpm**13.5.1 Technical data – 6 pole**

Motor	P _N		T _N lb-in	n _N rpm	I _N 230V A	I _N 460V A	I _N 575V A	cosφ	η _{50%} %	η _{75%} %	η _{100%} %	I _A /I _N
	kW	HP										
DR63S6	0.09	0.12	6.8	1110	0.66	0.33	0.27	0.64	–	–	52.8	2.95
DR63M6	0.12	0.16	9.12	1110	0.98	0.49	0.39	0.67	–	–	50.2	2.9
DR63L6	0.18	0.25	13.8	1100	1.35	0.68	0.54	0.65	–	–	53.8	2.9
DRS71S6	0.18	0.25	13.8	1100	0.95	0.48	0.38					
DRS71S6	0.25	0.33	19.2	1100	1.3	0.65	0.52	0.71	64.2	68.2	66.0	2.9
DRS71M6	0.37	0.50	28.5	1100	1.8	0.9	0.72	0.72	67.8	71.3	70.0	3.5
DRS80S6	0.55	0.75	42.2	1120	2.65	1.32	1.06	0.71	71.0	73.9	72.0	3.9
DRN90S6	0.75	1	54	1165	3.6	1.8	1.44	0.63	79.1	82.6	82.5	5.6
DRN112M6	1.1	1.5	79	1183	5.1	2.55	2.05	0.61	84.6	86.9	87.5	7.9
DRN112M6	1.5	2	107	1181	6.7	3.35	2.7	0.63	86.1	88.2	88.5	7.7
DRN132S6	2.2	3	158	1179	9.8	4.9	3.95	0.63	87.2	89.2	89.5	6.7
DRN132S6	3	4	215	1178	13.3	6.7	5.3	0.63	87.6	89.4	89.5	6.9
DRN132M6	3.7	5	265	1182	17.7	8.8	7.1	0.59	86.8	89.0	89.5	6.7
DRN132M6	4	5.4	285	1181	18.4	9.2	7.4	0.61	87.4	89.2	89.5	6.4
DRN160M6	5.5	7.5	390	1185	21	10.4	8.3	0.72	88.4	90.4	91.0	8.6
DRN160M6	7.5	10	540	1182	28.5	14.2	11.3	0.73	89.2	90.8	91.0	8.0

13.5.2 Additional data – 6 pole

Motor	P _N		T _A /T _N T _H /T _N	T _K /T _N	NEMA Code Letter	m _{Mot} lb	J _{Mot} lb-ft ²	J _z lb-ft ²	BE..	Z ₀ BG BGE h ⁻¹	T _B lb-in	m _{BMot} lb	J _{BMot} lb-ft ²
	kW	HP											
DR63S6	0.09	0.12	2.3 2.3	2.6	E	13	0.0128	-	BR03	16000 -	22	17	0.0157
DR63M6	0.12	0.16	2.7 2.6	2.8	E	13	0.0128	-	BR03	16000 -	28	17	0.0157
DR63L6	0.18	0.25	2.5 2.5	2.6	E	15	0.0161	-	BR03	16000 -	28	18	0.0190
DRS71S6	0.18	0.25	1.7 1.7	2.0	E	17	0.0197	-	BE05	5600 12800	44.5	23	0.0228
DRS71M6	0.25	0.33	1.7 1.7	2.0	E	17	0.0197	-	BE05	5600 12800	44.5	23	0.0228
DRS71L6	0.37	0.50	1.9 1.9	2.1	F	20	0.0281	-	BE1	5280 12000	89	26	0.0312
DRS80S6	0.55	0.75	1.8 1.8	2.2	F	26.5	0.0378	0.090	BE1	5280 12000	89	35	0.0484
DRN90S6	0.75	1	2.4 2.3	3.0	J	43	0.128	0.237	BE2	1920 4000	124	53	0.139
DRN112M6	1.1	1.5	2.5 1.8	3.9	M	98	0.422	0.467	BE5	- 2080	177	115	0.433
DRN112L6	1.5	2	2.5 1.9	3.8	M	98	0.422	0.467	BE5	- 2080	250	115	0.433
DRN132S6	2.2	3	2.7 2.4	3.9	K	125	0.582	0.467	BE5	- 1840	355	140	0.593
DRN132M6	3	4	2.7 2.5	4.0	L	125	0.582	0.467	BE5	- 1840	485	140	0.593
DRN132L6	3.7	5	3.4 2.8	3.3	L	160	0.904	1.115	BE11	- 1440	710	200	0.956
DRN132M6	4	5.4	3.2 2.6	3.1	K	160	0.904	1.115	BE11	- 1440	710	200	0.956
DRN160M6	5.5	7.5	2.9 1.3	4.4	L	255	3.05	-	BE20	- 960	970	325	3.2
DRN160L6	7.5	10	2.9 1.3	4.2	L	255	3.05	-	BE20	- 960	1330	325	3.2

13.6 Brakes

13.6.1 Working and holding brake

The BE.. brakes are suitable for both line-operated motors (non-controlled applications) and inverter-operated motors (controlled applications).

Working brake:

With line-operated motors, the brake is used for stopping the motor during full load motor speed. A working brake is normally larger than a holding brake, since it requires more work to stop the motor.

Holding brake:

With inverter-operated motors, the brake is primarily used to hold the load and to prevent the motor from rotating. The motor is stopped electronically by an inverter. Thus, the brake activates when the motor speed is typically < 20 rpm. Braking at full load motor speed could take place, but only during emergency stopping. Holding brakes are normally smaller in size, since they don't require as much torque.

13.6.2 Brake sizes

Depending on the application and how the brake is being used (working or holding brake), several brake sizes are available for each motor.

The following table shows the possible combinations of motor and brake.

Brake	DRS71	DRN80	DRN90	DRN100	DRN112 DRN132S	DRN132M DRN132L	DRN160 DRN180	DRN200 DRN225	DRN250 DRN280	DRN315
BE05										
BE1										
BE2										
BE5										
BE11										
BE20										
BE30										
BE32										
BE60 ¹⁾										
BE62 ¹⁾										
BE120 ¹⁾										
BE122 ¹⁾										

1) Not available as BE.. safety brake

13.6.3 Brake torques

Depending on the application and how the brake is being used (working or holding brake), several braking torques are available for each motor.

The following table shows the available braking torques, depending on the brake size.

Braking Torque, T_B		BE05	BE1	BE2	BE5	BE11	BE20
lb-in	Nm						
16 ¹⁾	1.8 ¹⁾						
22 ¹⁾	2.5 ¹⁾						
31	3.5						
44	5						
62	7						
88	10						
124	14						
177	20						
248	28						
354	40						
487	55						
708	80						
974	110						
1326	150						
1770	200						

1) Not available for BE.. safety brakes

Braking Torque, T_B		BE30	BE32	BE60	BE62	BE120	BE122
lb-in	Nm						
664	75						
885	100						
1328	150						
1770	200						
2655	300						
3540	400						
4425	500						
5310	600						
7080 ¹⁾	800 ¹⁾						
8850 ¹⁾	1000 ¹⁾						
10620 ¹⁾	1200 ¹⁾						
14160 ¹⁾	1600 ¹⁾						
17700 ¹⁾	2000 ¹⁾						

1) Not available for BE.. safety brakes

13.6.4 Brake coil data

The following tables list the operating currents of the brakes at various voltages.

Legend

- P_B Electric power consumption in the brake coil in W.
- V_N Nominal voltage (nominal voltage range) of the brake in V (AC or DC).
- I_H Holding current of the brake current in the supply cable to the SEW brake control, in ampere r.m.s.
- I_{DC} Direct current in ampere in the brake cable with direct DC voltage supply. Or, direct current in ampere in the brake cable with DC 24 V supply via BS24, BSG, or BMV.
- I_B Acceleration current in ampere (AC or DC) when operated with SEW brake control for high-speed excitation.
- I_B/I_H Inrush current ratio ESV.
- I_B/I_{DC} Inrush current ratio ESV for DC 24 V supply with BSG or BMV.

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BE05, BE1, BE2

		BE05, BE1		BE2	
Rated brake coil power, P_B		32 W		43 W	
Inrush current ratio, ESV		4		4	
Nominal Voltage, V_N		BE05, BE1		BE2	
AC V	DC V	I_H	I_{DC}	I_H	I_{DC}
		A ac	A dc	A ac	A dc
24 (23–26)	10	2.25	2.9	2.95	3.8
60 (57-63)	24	0.9	1.17	1.18	1.53
120 (111-123)	48	0.45	0.59	0.59	0.77
184 (174-193)	80	0.29	0.37	0.38	0.49
208 (194-217)	90	0.26	0.33	0.34	0.43
230 (218-243)	96	0.23	0.3	0.3	0.39
254 (244-273)	110	0.2	0.27	0.27	0.35
290 (274-306)	125	0.18	0.24	0.24	0.31
330 (307-343)	140	0.16	0.21	0.21	0.28
360 (344-379)	160	0.14	0.19	0.19	0.25
400 (380-431)	180	0.13	0.17	0.17	0.22
460 (432-484)	200	0.11	0.15	0.15	0.19
500 (485-542)	220	0.1	0.13	0.14	0.18
575 (543-600)	250	0.09	0.12	0.12	0.16

BE5, BE11, BE20, BE30, BE60, BE62

		BE5	BE11	BE20	BE30 BE32	BE60 BE62
Rated brake coil power, P_B		49 W	77 W	100 W	120 W	195 W
Inrush current ratio, ESV		5.9	6.6	7.5	8.5	9.2
Nominal Voltage, V_N		BE5	BE11	BE20	BE30 BE32	BE60 BE62
AC V	DC V	I_H	I_H	I_H	I_H	I_H
		A ac	A ac	A ac	A ac	A ac
60 (57-63)	24	1.28	2.05	2.55	–	–
120 (111-123)	–	0.64	1.04	1.28	1.66	–
184 (174-193)	–	0.41	0.66	0.81	1.05	–
208 (194-217)	–	0.37	0.59	0.72	0.94	1.5
230 (218-243)	–	0.33	0.52	0.65	0.84	1.35
254 (244-273)	–	0.29	0.47	0.58	0.75	1.2
290 (274-306)	–	0.26	0.42	0.51	0.67	1.12
330 (307-343)	–	0.23	0.37	0.46	0.59	0.97
360 (344-379)	–	0.21	0.33	0.41	0.53	0.86
400 (380-431)	–	0.18	0.3	0.37	0.47	0.77
460 (432-484)	–	0.16	0.27	0.33	0.42	0.68
500 (485-542)	–	0.15	0.24	0.29	0.38	0.6
575 (543-600)	–	0.13	0.22	0.26	0.34	0.54

BE120, BE122

BE120, BE122	
Rated brake coil power, P_B	220 W
Inrush current ratio, ESV	6
Nominal Voltage, V_N	
AC V	I_H
	A ac
230 (218-243)	1.45
254 (244-273)	1.30
290 (274-306)	1.16
360 (344-379)	0.92
400 (380-431)	0.82
460 (432-484)	0.73
500 (485-542)	0.65
575 (543-600)	0.58

13.7 Rectifiers and brake control

13.7.1 Cabinet installation

The following tables list the technical data of brake control systems for installation in the control cabinet.

Series	Function	Voltage	Holding current I_{Hmax} [Amps]	Type
BMS..	Half-wave rectifier <u>without</u> electronic switching.	AC 230 – 575 V	1.0	BMS 1.4
		AC 150 – 500 V	1.5	BMS 1.5
		AC 42 – 150 V	3.0	BMS 3
BME..	Half-wave rectifier with electronic switching	AC 230 – 575 V	1.0	BME 1.4
		AC 150 – 500 V	1.5	BME 1.5
		AC 42 – 150 V	3.0	BME 3
BMH..	Half-wave rectifier with electronic switching and heating function	AC 230 – 575 V	1.0	BMH 1.4
		AC 150 – 500 V	1.5	BMH 1.5
		AC 42 – 150 V	3.0	BMH 3
BMP..	Half-wave rectifier with electronic switching, integrated voltage relay for cut-off in the DC circuit	AC 230 – 575 V	1.0	BMP 1.4
		AC 150 – 500 V	1.5	BMP 1.5
		AC 230 – 575 V	2.8	BMP 3.1
		AC 42 – 150 V	3.0	BMP 3
BMK..	Half-wave rectifier with electronic switching, control input (DC 24V) and cut-off in the DC circuit	AC 230 – 575 V	1.0	BMK 1.4
		AC 150 – 500 V	1.5	BMK 1.5
		AC 42 – 150 V	3.0	BMK 3
BMKB..	Half-wave rectifier with electronic switching, control input (DC 24V), rapid stop, and LED status display	AC 150 – 500 V	1.5	BMKB1.5
BMV..	Brake control unit with electronic switching, control input (DC 24V), and rapid stop	DC 24 V	5.0	BMV 5
BST..	Safe brake control with electronic switching, control input (DC 24V), and safe control input (DC 24V). Supply via inverter DC link.	AC 460 V	0.6	BST 0.6S
		AC 400 V	0.7	BST 0.7S
		AC 230 V	1.2	BST 1.2S

13.7.2 Terminal box installation

The following tables list the technical data of brake control systems for installation in the terminal box of the motor.

Series	Function	Voltage	Holding current I_{Hmax} [Amps]	Type
BG..	Half-wave rectifier <u>without</u> electronic switching	AC 230 – 575 V	1.0	BG 1.4
		AC 150 – 500 V	1.5	BG 1.5
		AC 24 – 150 V	3.0	BG 3
BGE..	Half-wave rectifier with electronic switching	AC 230 – 575 V	1.0	BGE 1.4
		AC 150 – 500 V	1.5	BGE 1.5
		AC 42 – 150 V	3.0	BGE 3
BS..	Terminal block with varistor protection circuit	DC 24 V	5.0	BS24
BSG..	Brake control unit with electronic switching and rapid stop	DC 24 V	5.0	BSG
BMP..	Half-wave rectifier with electronic switching, integrated voltage relay for cut-off in the DC circuit.	AC 230 – 575 V	2.8	BMP 3.1

13.7.3 Rectifier/brake compatibility

		BE05 BE1 BE2	BE5 BE11 BE20	BE30 BE32	BE60 BE62	BE120 BE122
Control Cabinet	BMS..		–	–	–	–
	BME..					–
	BMH..					–
	BMP..					–
	BMP 3.1	–	–	–		
	BMK..					–
	BMV..			–	–	–
	BST..				–	–
Terminal Box	BG..		–	–	–	–
	BGE..					–
	BS..		–	–	–	–
	BGS..			–	–	–
	BMP3.1	–	–	–	1)	

	Available
1)	Possible only with DRN250 – DRN280
–	Not available

As a standard, BG.. and BGE.. are supplied preconnected in the terminal box for cut-off in the AC circuit.

INFORMATION



Brake control systems for installation in the control cabinet are available with all standard motor plug connectors and cage clamp options.

Brake control systems for installation in the motor terminal box can be combined with most plug connectors and cage clamps /KCC. However, there may be space restrictions when using the /KC1 option or with customer-specific plug connectors.

There may also be restrictions in combinations with additional electrical options (such as motor protection, strip heater, built-in encoder). In some cases, a larger terminal box may be necessary.