

Technical Note

Power Factor and Efficiencies – DR/DT/DV Motors

DR Motors

2-Pole

Motor Frame	HP	1/4 Load		1/2 Load		3/4 Load		Full Load		1 1/4 Load	
		P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.
DRS71M2	.75	.46	62.5	.65	73.5	.76	76.3	.83	75.5	.86	74.1
DRE80M2	1	.64	70.4	.82	80.2	.89	81	.92	80	.94	82.8
DRE90M2	1.5	.62	80.8	.8	83.9	.87	83.8	.91	82.5	.93	84.2
DRE90L2	2	.73	80.6	.86	86.3	.91	86.1	.93	84	.94	83.8
DRE100M2	3	.71	77.4	.86	84.7	.91	86.8	.93	85.5	.94	85
DRE100L2	4	.71	84.5	.87	88.8	.92	88.8	.94	87.5	.94	85.9
DRE112M2	5	.61	80.3	.79	87	.86	88.6	.88	88.5	.9	87.7
DRE112M2	5.4	.63	81.5	.81	87.5	.87	88.2	.9	87.5	.91	87.2
DRE132M2	7.5	.67	83.7	.83	89	.89	89.2	.91	88.5	.92	88.7
DRE132MC2	10	.62	84.6	.8	89.5	.86	90.3	.89	89.5	.9	88.9
DRP80M2	1	.64	70.4	.82	80.2	.89	83	.92	82.5	.94	82.8
DRP90M2	1.5	.62	80.8	.8	83.9	.87	85.3	.91	84	.93	84.2
DRP100M2	2	.76	78.2	.87	86.4	.91	87.6	.93	86.5	.94	84.3
DRP100M2	3	.71	77.4	.86	84.7	.91	87.7	.93	86.5	.94	85
DRP112M2	4	.62	78.9	.8	86.4	.87	88.3	.89	88.5	.91	88
DRP132S2	5	.66	80.4	.83	87.6	.89	89	.91	88.5	.92	88.2
DRP132M2	7.5	.67	83.7	.83	89	.89	89.9	.91	89.5	.92	88.7

Technical Note

4-Pole

Motor Frame	HP	1/4 Load		1/2 Load		3/4 Load		Full Load		1 1/4 Load	
		P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.
DRS71S4	.5	.31	52.7	.46	66.6	.59	71.3	.69	72	.76	71
DRS71M4	.75	.33	62.8	.51	73.5	.63	76	.71	74	.77	72.8
DRE80M4	1	.37	71.4	.57	80.8	.7	83.3	.78	82.5	.83	82.6
DRE90M4	1.5	.33	70.9	.51	80.9	.64	83.7	.73	84	.78	83.8
DRE90L4	2	.36	77.7	.57	85.2	.69	86.5	.77	85.5	.82	85.5
DRE100L4	3	.39	82.3	.6	87.9	.72	88.8	.79	87.5	.83	87
DRE100LC4	5	.45	83	.67	87.9	.78	88.4	.83	87.5	.86	85.8
DRE112M4	5	.5	85	.71	89.4	.8	89.6	.84	87.5	.85	87.2
DRE132S4	5.4	.45	81.8	.65	88.2	.76	88.5	.81	88.5	.84	89.4
DRE132M4	7.5	.54	87.2	.74	90.7	.82	90.6	.85	89.5	.86	88
DRE132MC4	10	.51	86.1	.72	90.3	.81	90.7	.85	89.5	.87	88.8
DRE160M4	12.5	.49	87.4	.69	91.2	.78	91.6	.82	91	.84	90.1
DRE160MC4	15	.47	87.7	.68	91.7	.78	92.2	.82	91.7	.84	91
DRE180M4	20	.54	86.8	.74	91.5	.82	92.4	.86	91.7	.87	91.7
DRE180L4	25	.5	87.1	.7	91.8	.8	92.9	.84	93	.86	92.7
DRE180LC4	30	.5	87.7	.71	92.3	.8	93.2	.84	93	.86	92.5
DRE200L4	40	.49	88.6	.7	92.6	.79	93.3	.82	93	.84	92.6
DRE225S4	50	.53	89.5	.73	93.1	.81	93.6	.84	93	.85	92.7
DRE225M4	60	.54	91.1	.75	93.9	.82	94.2	.85	93.6	.86	93.1
DRP90M4	1	.36	75.1	.56	83.4	.68	85.5	.76	85.5	.8	84.9
DRP90L4	1.5	.38	77.6	.57	84.9	.69	86.6	.77	86.5	.81	85.6
DRP90L4	2	.36	77.7	.57	85.2	.69	86.7	.77	86.5	.82	85.5
DRP112M4	3	.46	83	.67	88.7	.77	89.6	.82	89.5	.85	88.7
DRP132S4	5	.49	85.1	.7	89.9	.79	90.5	.83	90.2	.85	88.9
DRP160S4	7.5	.45	86.1	.66	90.9	.76	91.8	.81	91.7	.84	91
DRP160S4	10	.46	87.2	.67	91.3	.77	91.9	.82	91.7	.84	90.5
DRP160M4	12.5	.46	87.7	.68	91.7	.77	92.3	.82	91.7	.84	91.1
DRP160MC4	15	.44	88.4	.66	92.2	.76	92.7	.81	92.4	.84	91.6
DRP180M4	20	.53	88.1	.74	92.3	.82	93.1	.86	93	.88	92.5
DRP180L4	25	.5	88.2	.71	93	.81	93.7	.85	93.6	.87	93.1
DRP180LC4	30	.54	89.8	.74	93.3	.83	93.9	.86	93.6	.87	93.1
DRP225S4	40	.51	89.6	.72	93.5	.8	94.4	.84	94.1	.86	94.1
DRP225M4	50	.5	90.1	.7	93.8	.8	94.6	.84	94.5	.86	94.2

Technical Note

6-Pole

Motor Frame	HP	1/4 Load		1/2 Load		3/4 Load		Full Load		1 1/4 Load	
		P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.
DRS71S6	.33	.31	49.7	.47	64.2	.61	68.2	.71	66	.78	64.1
DRS71M6	.5	.33	54.7	.49	67.8	.63	71.3	.72	70	.79	67.7
DRS80S6	.75	.32	59.1	.49	71	.62	73.9	.71	72	.77	70.4
DRE90L6	1	.27	71.3	.43	80.3	.56	82.5	.64	81.5	.7	81.1
DRE100LC6	1.5	.27	73.5	.43	82.7	.55	85.4	.64	85.5	.7	85.9
DRE112M6	1.5	.3	74.8	.47	83.9	.6	85.6	.67	86.5	.73	87.3
DRE112M6	2	.32	78	.52	85.4	.64	87.1	.7	86.5	.76	86.7
DRE132M6	3	.29	78.8	.47	86.2	.6	88	.69	87.5	.73	87.6
DRE132M6	4	.32	81	.51	87.3	.64	88.5	.71	87.5	.76	87.3
DRE132M6	5	.31	81.4	.5	87.5	.63	88.6	.71	87.5	.76	87.1
DRE160M6	7.5	.32	82.7	.52	88.6	.65	89.8	.72	89.5	.77	88.6
DRP100M6	1	.25	69.6	.4	79.5	.52	82.2	.61	82.5	.67	81.7
DRP112M6	1.5	.3	74.8	.47	83.9	.6	86.6	.67	87.5	.73	87.3
DRP132M6	2	.28	80.2	.46	87.4	.59	88.9	.67	89.5	.73	89.1
DRP132MC6	3	.31	80.9	.5	87.8	.63	89.7	.7	89.5	.75	89.7
DRP132MC6	5	.32	82.8	.52	88.8	.65	90.1	.72	89.5	.77	89.5
DRP160M6	5	.28	79.4	.46	87.1	.59	89.3	.68	89.5	.73	89.7

Technical Note

DT/DV Motors

2-Pole

Motor Frame	HP	1/4 Load		1/2 Load		3/4 Load		Full Load		1 1/4 Load	
		P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.
DT71K2	.33	.52	0.28	0.67	0.41	0.78	0.46	0.85	0.44	—	—
DT71C2	0.5	.65	0.52	0.82	0.65	0.89	0.67	0.91	0.65	0.91	0.6
DT71D2	0.75	.50	0.44	0.7	0.59	0.82	0.62	0.89	0.6	0.85	0.48
DT80K2	1.0	.47	0.47	0.67	0.61	0.79	0.65	0.86	0.64	0.91	0.6
DT80N2	1.5	.41	0.56	0.61	0.68	0.77	0.7	0.84	0.69	0.9	0.63
DT90S2	2.0	.52	0.57	0.7	0.68	0.83	0.7	0.88	0.68	0.92	0.63
DT90L2	3.0	0.5	0.62	0.68	0.72	0.81	0.74	0.88	0.74	0.91	0.71
DT100L2	5.0	0.68	0.68	0.85	0.76	0.91	0.78	0.94	0.77	0.95	0.74
DT/DV112M2	5.4	0.40	0.53	0.59	0.69	0.72	0.73	0.80	0.74	0.84	0.74
DT/DV132S2	7.5	0.44	0.63	0.62	0.75	0.74	0.79	0.83	0.80	0.88	0.80

4-Pole

Motor Frame	HP	1/4 Load		1/2 Load		3/4 Load		Full Load		1 1/4 Load	
		P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.
DT71K4	0.25	0.33	37	0.46	53	0.58	60	0.67	62.5	0.75	62.5
DT71C4	0.33	0.34	54	0.45	65	0.57	70	0.66	71.5	0.73	71.5
DT71D4	0.5	0.30	47.5	0.48	63	0.60	68	0.71	68.5	0.78	67
DT80K4	0.75	0.29	0.58	0.45	69	0.58	73.5	0.67	74	0.74	72
DT80N4	1	0.29	63	0.45	72.3	0.59	75	0.69	75.3	0.75	73.7
DT90S4	1.5	0.32	55.5	0.47	71.5	0.59	75.5	0.69	77.5	0.76	77.5
DT90L4	2	0.39	64	0.57	75.8	0.69	80	0.76	80.8	0.81	80
DT100LS4	3	0.42	68	0.62	79.2	0.74	81.8	0.80	81.5	0.84	80
DT100LS4	5	0.47	79	0.66	81.8	0.78	82.5	0.84	81	0.87	78
DV112M4	5.4	0.47	81.5	0.68	85.6	0.78	86.7	0.82	85.9	0.85	84.6
DV132S4	7.5	0.58	81	0.74	88.5	0.82	88.5	0.85	86.5	0.87	84.5
DV132M4	10	0.46	86.9	0.66	88.3	0.75	88.3	0.78	87.4	0.80	85.80
DV132ML4	12.5	0.46	88.5	0.66	89.5	0.75	89.2	0.80	88.4	0.81	86.7
DV160M4	15	0.49	87.8	0.67	89.0	0.75	88.8	0.79	88.0	0.81	86.6
DV160L4	20	0.48	88.8	0.68	90.1	0.76	90.3	0.79	89.9	0.80	88.9
DV180M4	25	0.57	88.5	0.73	89.8	0.80	89.6	0.82	88.8	0.82	87.3
DV180L4	30	0.54	88.6	0.72	89.8	0.78	89.6	0.81	88.8	0.81	87.5
DV200L4	40	0.73	90.7	0.85	91.5	0.88	91.2	0.89	90.4	0.88	88.9
DV225S4	50	0.74	91.5	0.87	92.0	0.89	91.5	0.89	90.4	0.87	89.1
DV225M4	60	0.69	92.2	0.84	92.6	0.87	92.3	0.88	91.5	0.88	90.2

Technical Note

6-Pole

Motor Frame	HP	1/4 Load		1/2 Load		3/4 Load		Full Load		1 1/4 Load	
		P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.
DT71D6	0.33	0.42	0.28	0.56	0.44	0.7	0.51	0.8	0.52	0.85	0.48
DT80K6	0.5	0.38	0.4	0.55	0.54	0.67	0.57	0.77	0.54	—	—
DT80N6	0.75	0.36	0.46	0.52	0.6	0.62	0.64	0.77	0.62	—	—
DT90S6	1	0.25	61.1	0.38	64.8	0.48	69.3	0.58	71.8	0.65	71.8
DT90L6	1.5	0.27	6.3	0.41	71.3	0.53	74.3	0.62	75.3	0.69	74.4
DT100L6	2	0.31	71.3	0.48	77	0.60	78.8	0.68	78.7	0.73	77
DV112M6	3	0.32	74.0	0.51	79.8	0.63	82.0	0.71	82.7	0.76	81.9
DV132S6	4	0.37	78.5	0.57	83.5	0.70	85	0.77	85	0.80	83.5
DV132M6	5	0.29	78.6	.49	82.6	.63	81.0	.70	84.2	.75	83.8
DV160M6	10	0.29	83.2	0.54	85.9	0.67	86.4	0.75	86.1	0.79	84.9

8-Pole

Motor Frame	HP	1/4 Load		1/2 Load		3/4 Load		Full Load		1 1/4 Load	
		P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.
DT71D8	0.2	0.43	0.23	0.53	0.35	0.62	0.41	0.72	0.43		
DT80N8	0.33	0.3	0.3	0.38	0.43	0.47	0.51	0.55	0.54	0.62	0.55
DT90S8	0.5	0.31	0.3	0.42	0.46	0.54	0.54	0.62	0.56	0.7	0.55
DT90L8	0.75	0.3	0.32	0.41	0.48	0.52	0.54	0.6	0.57	0.69	0.55
DT100LS8	1	0.28	0.37	0.38	0.53	0.51	0.6	0.59	0.61	0.66	0.6
DT100L8	1.5	0.3	0.5	0.41	0.6	0.54	0.65	0.6	0.64	0.68	0.62
DV112M8	2	0.28	0.54	0.43	0.69	0.55	0.73	0.64	0.73	0.7	0.72
DV132S8	3	0.28	0.59	0.44	0.72	0.56	0.74	0.64	0.72	0.68	0.68

Technical Note

4/2 Pole

Motor Frame	HP	1/4 Load		1/2 Load		3/4 Load		Full Load		1 1/4 Load	
		P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.	P.F.	Eff.
DT71K4/2	0.2	0.49	0.16	0.57	0.31	0.66	0.39	0.76	0.43	—	—
	0.27	0.53	0.25	0.66	0.39	0.78	0.45	0.85	0.47	—	—
DT71C4/2	0.27	0.42	0.29	0.55	0.44	0.65	0.51	0.74	0.55	0.81	0.55
	0.38	0.59	0.41	0.75	0.55	0.86	0.61	0.9	0.62	0.93	0.6
DT71D4/2	0.34	0.4	0.26	0.51	0.42	0.62	0.51	0.71	0.55	0.79	0.55
	0.5	0.52	0.41	0.7	0.55	0.82	0.6	0.88	0.61	0.9	0.56
DT80K4/2	0.55	0.38	0.38	0.52	0.52	0.65	0.58	0.75	0.62	0.77	0.61
	0.85	0.60	0.56	0.77	0.66	0.89	0.68	0.93	0.65	0.96	0.57
DT80N4/2	0.75	0.34	0.37	0.48	0.54	0.60	0.60	0.71	0.62	0.79	0.61
	1.2	0.52	0.57	0.74	0.69	0.86	0.7	0.91	0.68	0.93	0.61
DT90S4/2	1.2	0.38	0.53	0.58	0.68	0.71	0.71	0.76	0.72	0.87	0.69
	1.7	0.57	0.51	0.78	0.65	0.88	0.66	0.85	0.64	0.95	0.54
DT90L4/2	1.5	0.3	0.55	0.47	0.69	0.61	0.74	0.75	0.75	0.77	0.74
	2.5	0.60	0.50	0.82	0.68	0.91	0.69	0.9	0.68	0.97	0.62
DT100LS4/2	2	0.35	0.55	0.56	0.69	0.68	0.73	0.77	0.75	0.83	0.75
	3	0.54	0.55	0.74	0.68	0.84	0.73	0.79	0.73	0.93	0.73
DT100L4/2	3.4	0.38	0.65	0.58	0.76	0.73	0.79	0.82	0.79	0.87	0.76
	4	0.48	0.68	0.68	0.77	0.80	0.80	0.88	0.8	0.90	0.79
DV112M4/2	4.5	0.44	0.73	0.62	0.80	0.76	0.82	0.85	0.80	0.86	0.80
	5	0.38	0.54	0.47	0.68	0.70	0.72	0.80	0.72	0.88	0.74
DV132S4/2	6	0.50	0.79	0.72	0.84	0.81	0.84	0.85	0.83	0.88	0.80
	7.5	0.47	0.69	0.67	0.78	0.78	0.80	0.85	0.80	0.88	0.78

8/4 Pole

DT71D8/4	0.14	0.44	0.17	0.54	0.3	0.62	0.37	0.7	0.39	0.78	0.37
	0.24	0.49	0.28	0.62	0.43	0.73	0.5	0.85	0.54	0.89	0.54
DT80K8/4	0.22	0.4	0.27	0.5	0.39	0.59	0.44	0.68	0.45	—	—
	0.4	0.45	0.34	0.61	0.5	0.74	0.57	0.83	0.58	0.89	0.55
DT80N8/4	0.3	0.36	0.23	0.46	0.39	0.57	0.46	0.66	0.48	0.75	0.43
	0.5	0.43	0.35	0.59	0.52	0.72	0.56	0.83	0.61	0.87	0.6
DT90S8/4	0.4	0.27	0.1	0.37	0.25	0.46	0.38	0.56	0.43	0.52	0.42
	0.8	0.51	0.52	0.58	0.56	0.69	0.63	0.83	0.65	0.82	0.64
DT90L8/4	0.6	0.3	0.3	0.38	0.44	0.46	0.52	0.56	0.57	0.63	0.58
	1.2	0.42	0.58	0.61	0.69	0.73	0.73	0.84	0.74	0.88	0.72
DT100LS8/4	0.9	0.27	0.37	0.39	0.52	0.5	0.58	0.6	0.6	0.67	0.58
	1.8	0.48	0.63	0.68	0.73	0.79	0.75	0.85	0.73	0.88	0.69
DT100L8/4	1.2	0.29	0.36	0.41	0.52	0.51	0.58	0.60	0.61	0.67	0.6
	2.4	0.48	0.69	0.7	0.76	0.81	0.77	0.88	0.75	0.91	0.71
DV112M8/4	1.6	0.28	0.48	0.42	0.69	0.53	0.69	0.60	0.7	0.67	0.68
	3.0	0.52	0.65	0.68	0.75	0.80	0.77	0.88	0.77	0.89	0.76
DV132S8/4	2.4	0.28	0.57	0.43	0.75	0.55	0.73	0.62	0.73	0.68	0.69
	4.5	0.52	0.75	0.72	0.81	0.83	0.82	0.88	0.81	0.89	0.78