Thermal Unit Selection Guidelines

All thermal unit specifications are based on the motor and controller being operated in an ambient temp. of 40°C (104°F) or less.

A Regular Enclosure is defined as the standard-size enclosure that is included with an "enclosed" starter. The Large Enclosure column should be used when the starter is being installed in an oversized control panel or cabinet.

1. Determine motor full load current (amperage) rating and service factor.

2. Motor and controller in same ambient temp.:

For 1.15 to 1.25 service factor motors, use 100% of motor full load current for thermal unit selection. For 1.0 service factor motors, use 90% of motor full load current for thermal unit selection.

3. Motor and controller in different ambient temp.:

If motor ambient temp. is 18°F higher than motor starter's ambient temp., derate full load current value from step 2 by an additional 10%. If motor ambient temp. is 18°F lower than motor starter's ambient temp., increase full load current value from step 2 by an additional 5%. Use the resultant full load current value for thermal unit selection.

4. Locate the proper thermal unit selection column using the thermal unit code associated with the motor starter.

5. Match motor full load amperage to the closest thermal unit code without going over.

6. Do not exceed amp rating of motor starter.

7. 1-phase starters require 1 thermal unit. 3-phase starters require 3 thermal units.

1H600

1H669

by Schneider Electric

Thermal Units for NEMA Motor Starters

- 1-phase starters require 1 thermal unit
- 3-phase starters require 3 thermal units

THERMAL UNIT CODES

1-Phase Class 8536 Regular Enclosure			1-Phase Class 8536 Large Enclosure		3-Phase Class 8536 Regular Enclosure		3-Phase Class 8536 Large Enclosure		1-Phase Class 8911 Regular Enclosure			3-Phase Class 8911 Regular Enclosure			3-Phase Class 8911 Large Enclosure			1-Phase Class 2510M Regular Enclosure			1-Phase Class 2510M Large Enclosure			3-Phase Class 2510M Regular Enclosure		3-Phase Class 2510M Large Enclosure		Mfr.	Item
A1-A3	A4	A5	B1-B3	B4	C1-C3	C4	D1-D3	D4	E1-E3	E4	E5	F1-F3	F4	F5	G1-G3	G4	G5	J2	K2	L2	J1	K1	L1	M2	N2	M1	N1	Model	No.
0.34	—	—	0.36	—	0.34	—	0.36	—	—	—	—	—	—	—	—	—	—	0.40	0.40	0.40	0.43	0.43	0.43	0.36	0.36	0.37	0.37	B0.51	1H595
0.45	—	—	0.48	—	0.44	—	0.46	—	—	—	—	—	—	—	—	—	—	0.52	0.52	0.52	0.56	0.56	0.56	0.47	0.47	0.48	0.48	B0.63	1H597
0.54	—	—	0.57	—	0.53	—	0.55	—	—	—	—	—	—	—	—	—	—	0.59	0.59	0.59	0.63	0.63	0.63	0.56	0.56	0.57	0.57	B0.71	1H598
0.61	—	—	0.64	—	0.59	—	0.61	—	—	—	—	—	—	—	—	—	—	0.66	0.66	0.66	0.71	0.71	0.71	0.63	0.63	0.64	0.64	B0.81	1H599
0.66	—	—	0.70	—	0.64	—	0.66	—	—	—	—	—	—	—	—	—	—	0.73	0.73	0.73	0.78	0.78	0.78	0.69	0.69	0.70	0.70	B0.92	1H600
0.73	—	—	0.77	—	0.72	—	0.75	—	—	—	—	—	—	—	—	—	—	0.81	0.81	0.81	0.88	0.88	0.88	0.77	0.77	0.78	0.78	B1.03	1H601
0.81	0.92	—	0.85	0.92	0.80	—	0.83	—	—	—	—	—	—	—	—	—	—	0.91	0.91	0.91	0.99	0.99	0.99	0.86	0.86	0.87	0.87	B1.16	1H602
0.94	1.07	—	0.99	1.07	0.90	—	0.93	—	0.88	1.11	—	0.95	1.02	—	0.98	1.04	—	1.02	1.02	1.02	1.15	1.15	1.15	0.96	0.96	0.98	0.98	B1.30	1H603
1.05	1.14	—	1.10	1.14	1.03	—	1.06	—	1.02	1.27	—	1.09	1.15	—	1.13	1.18	—	1.14	1.14	1.14	1.23	1.23	1.23	1.11	1.11	1.13	1.13	B1.45	1H604
1.22	1.26	—	1.28	1.26	1.14	—	1.18	—	1.19	1.36	—	1.21	1.27	—	1.26	1.33	—	1.29	1.29	1.29	1.43	1.43	1.43	1.23	1.23	1.25	1.25	B1.67	1H605
1.34	1.49	—	1.41	1.49	1.27	—	1.31	—	1.37	1.53	—	1.35	1.39	—	1.38	1.43	—	1.42	1.42	1.42	1.51	1.51	1.51	1.37	1.37	1.40	1.40	B1.88	1H606
1.51	1.73	—	1.58	1.73	1.43	—	1.47	—	1.62	1.78	—	1.56	1.61	—	1.62	1.67	—	1.64	1.64	1.64	1.75	1.75	1.75	1.55	1.55	1.58	1.58	B2.10	1H614
1.71	1.89	—	1.80	1.89	1.62	—	1.67	—	1.90	2.02	—	1.76	1.84	—	1.82	1.88	—	1.80	1.80	1.80	1.93	1.93	1.93	1.75	1.75	1.79	1.79	B2.40	1H615
1.93	2.16	—	2.03	2.16	1.77	—	1.83	—	2.12	2.20	—	1.94	2.03	—	2.04	2.09	—	2.10	2.10	2.10	2.25	2.25	2.25	1.92	1.92	1.91	1.91	B2.65	1H616
2.14	2.37	—	2.25	2.37	1.97	—	2.04	—	2.46	2.52	—	2.22	2.34	—	2.36	2.41	—	2.30	2.30	2.30	2.47	2.47	2.47	2.16	2.16	2.20	2.20	B3.00	1H620
2.40	2.66	—	2.51	2.66	2.32	—	2.38	—	2.83	2.94	—	2.57	2.69	—	2.72	2.79	—	2.61	2.61	2.61	2.81	2.81	2.81	2.50	2.50	2.55	2.55	B3.30	1H621
2.72	2.99	—	2.83	2.99	2.51	—	2.60	—	3.19	3.30	—	2.87	3.02	—	3.07	3.15	—	2.99	2.99	2.99	3.20	3.20	3.2	2.81	2.81	2.87	2.87	B3.70	1H622
3.15	3.40	—	3.29	3.40	2.99	—	3.13	—	3.61	3.70	—	3.21	3.39	—	3.44	3.54	—	3.37	3.37	3.37	3.63	3.63	3.63	3.16	3.16	3.24	3.24	B4.15	1H625
3.55	3.94	3.74	3.75	3.94	3.42	3.40	3.59	3.51	3.89	4.02	—	3.50	3.65	—	3.69	3.75	—	3.94	3.94	3.94	4.19	4.19	4.19	3.40	3.40	3.48	3.48	B4.85	1H626
4.00	4.15	4.23	4.22	4.15	3.75	3.76	3.94	3.89	4.32	4.46	4.22	3.79	4.04	3.89	4.11	4.11	4.09	4.24	4.24	4.24	4.53	4.53	4.53	3.76	3.76	3.85	3.85	B5.50	1H629
4.40	4.49	4.68	4.65	4.49	3.98	4.00	4.19	4.14	4.57	4.69	4.49	4.04	4.28	4.15	4.34	4.46	4.35	4.54	4.54	4.54	4.89	4.89	4.89	4	4.00	4.10	4.10	B6.25	1H632
4.88	5.15	5.22	5.16	5.15	4.48	4.57	4.72	4.73	5.19	5.37	5.14	4.53	4.85	4.76	4.89	5.09	5.07	5.29	5.29	5.29	5.68	5.68	5.68	4.68	4.68	4.79	4.79	B6.90	1H633
5.19	5.77	5.67	5.53	5.77	4.93	5.03	5.21	5.22	5.79	5.94	5.78	5.03	5.38	5.30	5.44	5.61	5.79	5.73	5.73	5.73	6.27	6.27	6.27	5.18	5.18	5.31	5.31	B7.70	1H635
5.73	6.61	6.13	6.09	6.61	5.21	5.32	5.51	5.53	6.16	6.34	6.23	5.36	5.71	5.70	5.80	5.99	6.27	6.35	6.35	6.35	6.85	6.85	6.85	5.51	5.51	5.65	5.65	B8.20	1H638
6.39	7.14	6.91	6.80	7.14	5.84	5.97	6.17	6.21	6.94	7.09	7.03	5.97	6.39	6.46	6.47	6.70	7.16	7.08	7.08	7.08	7.73	7.73	7.73	6.19	6.19	6.35	6.35	B9.10	1H640
7.13	7.97	7.70	7.60	7.97	6.67	6.88	7.07	7.17	7.99	8.46	8.23	6.89	7.53	7.65	7.45	8.19	8.58	7.83	7.83	7.83	8.50	8.50	8.5	7.12	7.12	7.31	7.31	B10.2	1H607
7.90	8.15	8.56	8.35	8.15	7.54	7.82	8.05	8.19	8.99	9.32	9.31	7.79	8.34	8.55	8.49	8.79	9.55	8.47	8.47	8.47	9.29	9.29	9.29	8.15	8.15	8.34	8.34	B11.5	1H608
8.55	9.32	9.39	9.04	9.32	8.14	8.47	8.69	8.90	9.98	10.2	10.1	8.53	9.14	9.36	9.29	9.66	10.2	9.83	9.83	9.83	10.4	10.4	10.4	8.60	8.60	8.84	8.84	B12.8	1H609
9.53	9.97	10.4	9.99	9.97	8.72	9.15	9.32	9.47	10.6	10.9	10.7	9.09	9.74	9.90	9.99	10.2	10.9	10.5	10.5	10.5	11.3	11.3	11.3	9.21	9.21	9.47	9.47	B14.0	1H610
10.6	10.7	11.6	11.1	10.7	9.66	10.1	10.20	10.60	11.6	12.1	11.9	9.99	10.7	10.9	10.8	11.4	11.9	11.4	11.4	11.4	12.3	12.3	12.3	10.1	10.1	10.4	10.4	B15.5	1H611
11.8	12.0	12.9	12.3	12.0	10.50	11.2	11.30	11.80	13.1	13.4	13.1	10.9	11.8	12.0	12.1	12.6	13.1	12.8	12.8	12.8	13.9	13.9	13.9	11.2	11.2	11.5	11.5	B17.5	1H612
13.2	13.9	14.6	13.7	13.9	11.30	12.0	12.10	12.70	14.2	14.2	13.9	11.7	12.2	12.8	13.1	13.5	14.0	13.9	13.9	13.9	15.0	15	15	12	12.1	12.0	12.4	B19.5	1H613
14.9	15.7	16.5	15.4	15.7	12.00	13.6	13.70	14.40	15.4	16.0	15.9	13.4	14.4	14.2	14.6	15.1	14.8	16.1	16.0	16.0	18.0	17.4	17.4	—	13.6	—	14.0	B22.0	1H617
16.6	18.4	18.5	18.0	18.4	14.10	15.2	15.20	16.10	17.6	18.1	18.0	15.4	16.4	16.0	16.4	17.2	17.0	18.0	17.6	17.6	—	19.2	19.2	—	15.3	—	15.8	B25.0	1H618
18.9	21.6	21.0	19.4	21.6	15.90	17.1	17.20	18.20	20.0	20.5	20.8	17.9	18.9	18.5	18.9	19.9	19.6	—	20.6	20.6	—	22	22.0	—	17.3	—	17.8	B28.0	1H619
21.2	24.0	23.6	21.7	24.0	17.50	19.0	18.90	20.20	22.7	23.5	23.1	20.2	21.3	21.2	20.9	22.5	22.1	—	23.1	23.1	—	24.6	24.6	—	19.1	—	19.7	B32.0	1H623
23.0	28.6	26.3	23.9	28.6	19.70	21.5	21.40	22.80	26.1	27.2	26.9	23.2	23.3	24.9	24.1	26.2	26.0	—	26.0	27.1	—	26	29.1	—	21.7	—	22.4	B36.0	1H624
25.5	30.7	29.3	26.0	30.7	21.90	24.1	23.70	25.60	29.6	30.8	31.4	25.8	27.9	28.0	27.2	29.9	29.4	—	—	29.2	—	—	31.7	—	24.2	—	25.1	B40.0	1H627
26.0	33.5	35.1	—	33.5	24.40	27.0	26.00	28.80	30.0	35.0	36.0	28.6	31.4	31.7	30.0	34.0	34.0	—	—	33.0	—	—	36.0	—	26.0	—	26.0	B45.0	1H628
—	36.0	36.1	—	36.0	26.00	28.7	—	30.60	—	37.2	38.8	29.7	32.5	34.6	—	36.2	36.4	—	—	36.0	—	—	—	—	—	—	—	B50.0	1H630
—	—	39.1	—	—	—	30.4	—	32.40	—	40.0	41.7	30.0	36.5	37.4	—	38.7	39.2	—	—	—	—	—	—	—	—	—	—	B56.0	1H631
—	—	41.5	—	—	—	32.2	—	34.60	—	—	46.3	—	40.0	40.0	—	40.0	42.4	—	—	—	—	—	—	—	—	—	—	B62.0	1H634
—	—	45.00	—	—	—	35.4	—	38.60	—	—	50.0	—	—	46.4	—	—	49.3	—	—	—	—	—	—	—	—	—	—	B70.0	1H636
—	—	—	—	—	—	38.2	—	45.00	—	—	—	—	—	50.0	—	—	50.0	—	—	—	—	—	—	—	—	—	—	B79.0	1H637
—	—	—	—	—	—	45.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	B88.0	1H639

3-Phase Class 8536 Regular Enclosure Code C5	3-Phase Class 8536 Regular Enclosure Code C6	3-Phase Class 8536 Large Enclosure Code D5	3-Phase Class 8536 Large Enclosure Code D6	Mfr. Model	Item No.
24.5 A	—	26.1	—	CC36.4	1H659
26.3 A	—	28.1	—	CC39.6	1H660
28.2 A	—	30	—	CC42.7	1H661
30 A	—	32.1	—	CC46.6	1H662
32.3 A	—	34.7	—	CC50.1	1H663
34.9 A	—	37.3	—	CC54.5	1H664
37.6 A	—	40.1	—	CC59.4	1H665
40 A	43.5 A	42.6	48.2	CC64.3	1H666
42.8 A	46.8 A	45.8	52.4	CC68.5	1H667

3-Phase Class 8536 Regular Enclosure Code C5	3-Phase Class 8536 Regular Enclosure Code C6	3-Phase Class 8536 Large Enclosure Code D5	3-Phase Class 8536 Large Enclosure Code D6	Mfr. Model	Item No.
45.3 A	50 A	48.3	56.4	CC74.6	1H668
49.1 A	54.9 A	52.6	61.2	CC81.5	1H669
53.4 A	57.5 A	56.8	66.1	CC87.7	1H670
57.4 A	61.8 A	60.9	71.4	CC94.0	1H671
61.3 A	66.2 A	65.1	77	CC103.0	1H641
63.5 A	72.4 A	67.7	79	CC112.0	1H642
66.3 A	78.1 A	70.9	84.7	CC121.0	1H643
69 A	80.7 A	73.9	91.1	CC132.0	1H644
70.9 A	86.5 A	76.5	98.1	CC143.0	1H645

3-Phase Class 8536 Regular Enclosure Code C5	3-Phase Class 8536 Regular Enclosure Code C6	3-Phase Class 8536 Large Enclosure Code D5	3-Phase Class 8536 Large Enclosure Code D6	Mfr. Model	Item No.
73.7 A	93.9 A	80.2	104	CC156.0	1H646
76.5 A	100 A	83.1	113	CC167.0	1H647
78.4 A	112 A	86	123	CC180.0	1H648
86 A	117 A	—	133	CC196.0	1H649
—	123 A	—	—	CC208.0	1H651
—	133 A	—	—	CC219.0	1H652