

Application Data for Selection

Table 16.99: Application Data per NEMA Standards ICS-1 and ICS-2

NEMA Size	Load Voltage	Max. Hp Rating: Nonplugging and Nonjogging Duty		Max. Hp Rating: Plugging and Jogging Duty [31]		Continuous Current Rating (A) 600 V Max.	Service-Limit Current Rating (A) [32]	Tungsten and Infrared Lamp Load (A), 250 V Max. [33]	Resistance Heating Loads (KW) other than Infrared Lamp Loads [34]		KVA Rating for Switching Transformer Primaries at 50 or 60 Cycles				3 Ø Rating for Switching Capacitors [35]
		Single Phase	Poly-phase	Single Phase	Poly-phase				Single Phase	Poly-phase	Inrush Currents (Worst Case Peak)		Single Phase	Poly-phase	
											≤20 Times Peak of Continuous Current Rating	>20 to 40 Times Peak of Continuous Current Rating			
00	115	0.5	—	—	—	9	11	5	—	—	—	—	—	—	—
	200	—	1.5	—	—	9	11	5	—	—	—	—	—	—	—
	230	1	1.5	—	—	9	11	5	—	—	—	—	—	—	—
	380	—	1.5	—	—	9	11	—	—	—	—	—	—	—	—
	460	—	2	—	—	9	11	—	—	—	—	—	—	—	—
	575	—	2	—	—	9	11	—	—	—	—	—	—	—	—
0	115	1	—	0.5	—	18	21	10	—	—	0.6	—	0.3	—	—
	200	—	3	—	1.5	18	21	10	—	—	—	1.8	—	0.9	—
	230	2	3	1	1.5	18	21	10	—	—	1.2	2.1	0.6	1.0	—
	380	—	5	—	1.5	18	21	—	—	—	—	—	—	—	—
	460	—	5	—	2	18	21	—	—	—	2.4	4.2	1.2	2.1	—
	575	—	5	—	2	18	21	—	—	—	3.0	5.2	1.5	2.6	—
1	115	2	—	1	—	27	32	15	3	5	1.2	—	0.6	—	—
	200	—	7.5	—	3	27	32	15	—	9.1	—	3.6	—	1.8	—
	230	3	7.5	2	3	27	32	15	6	10	2.4	4.3	1.2	2.1	—
	380	—	10	—	5	27	32	—	—	16.5	—	—	—	—	—
	460	—	10	—	5	27	32	—	12	20	4.9	8.5	2.5	4.3	—
	575	—	10	—	5	27	32	—	15	25	6.2	11.0	3.1	5.3	—
1P	115	3	—	1.5	—	36	42	24	—	—	—	—	—	—	—
	230	5	—	3	—	36	42	24	—	—	—	—	—	—	—
2	115	3	—	2	—	45	52	30	5	8.5	2.1	—	1.0	—	—
	200	—	10	—	7.5	45	52	30	—	15.4	—	6.3	—	3.1	—
	230	7.5	15	5	10	45	52	30	10	17	4.1	7.2	2.1	3.6	8
	380	—	25	—	15	45	52	—	—	28	—	—	—	—	—
	460	—	25	—	15	45	52	—	20	34	8.3	14	4.2	7.2	16
	575	—	25	—	15	45	52	—	25	43	10.0	18	5.2	8.9	20
3	115	—	—	—	—	90	104	60	10	17	4.1	—	2.0	—	—
	200	—	25	—	15	90	104	60	—	31	—	12	—	6.1	—
	230	—	30	—	20	90	104	60	20	34	8.1	14	4.1	7.0	27
	380	—	50	—	30	90	104	—	—	56	—	—	—	—	—
	460	—	50	—	30	90	104	—	40	68	16	28	8.1	14	53
	575	—	50	—	30	90	104	—	50	86	20	35	10	18	67
4	200	—	40	—	25	135	156	120	—	45	—	20	—	10	—
	230	—	50	—	30	135	156	120	30	52	14	23	6.8	12	40
	380	—	75	—	50	135	156	—	—	86.7	—	—	—	—	—
	460	—	100	—	60	135	156	—	60	105	27	47	14	23	80
	575	—	100	—	60	135	156	—	75	130	34	59	17	29	100
	5 [36]	200	—	75	—	60	270	311	240	—	91	—	41	—	20
230		—	100	—	75	270	311	240	60	105	27	47	14	24	80
380		—	150	—	125	270	311	—	—	173	—	—	—	—	—
460		—	200	—	150	270	311	—	120	210	54	94	27	47	160
575		—	200	—	150	270	311	—	150	260	68	117	34	59	200
6 [36]		200	—	150	—	125	540	621	480	—	182	—	81	—	41
	230	—	200	—	150	540	621	480	120	210	54	94	27	47	160
	380	—	300	—	250	540	621	—	—	342	—	—	—	—	—
	460	—	400	—	300	540	621	—	240	415	108	188	54	94	320
	575	—	400	—	300	540	621	—	300	515	135	234	68	117	400
	7 [36]	230	—	300	—	—	810	932	—	180	315	—	—	—	—
460		—	600	—	—	810	932	—	360	625	—	—	—	—	480
575		—	600	—	—	810	932	—	450	775	—	—	—	—	600

Table 16.100: Maximum Allowable Motor Code Letter

Motor Hp Rating	Maximum Allowable Motor Code Letter
1.5-2	L
3-5	K
7.5 and above	H

The motor ratings in Table 16.99 are NEMA standard ratings and apply only when the code letter of the motor is the same as or occurs earlier in the alphabet than what is shown in Table 16.100. Motors with code letters occurring later in the alphabet may require a larger controller. Consult the Customer Care Center at 1-888-778-2733.

The ratings for capacitor switching in Table 16.99 assume the following maximum available fault currents (rms symmetrical amperes):

- NEMA Size 00-3: 5,000 A
- NEMA Size 4-5: 10,000 A
- NEMA Size 6: 18,000 A
- NEMA Size 7: 30,000 A

If the available fault current is greater than these values, connect sufficient impedance in series.

Refer to the instruction material for the actual tested SCCR values.

NOTE: Tables and footnotes are taken from NEMA Standards.

[31] Ratings shown are for applications requiring repeated interruptions of stalled motor current or repeated closing of high transient currents encountered in rapid motor reversal, involving more than five openings or closings per minute and more than ten in a ten-minute period, such as plug-stop, plug-reverse or jogging duty. Ratings apply to single speed and multi-speed controllers.

[32] Per NEMA Standards paragraph ICS 2-321.20, the service-limit current represents the maximum rms current, in Amperes, which the controller may be expected to carry for protracted periods in normal service. At service-limit current ratings, temperature rises may exceed those obtained by testing the controller at its continuous current rating. The ultimate trip current of over-current (overload) relays or other motor protective devices shall not exceed the service-limit current ratings of the controller.

[33] **Fluorescent Lamp Loads—300 V and Less**—The characteristics of fluorescent lamps are such that it is not necessary to derate Class 8502 contactors below their normal continuous current rating. Class 8903 contactors may also be used with fluorescent lamp loads. For controlling tungsten and infrared lamp loads, and resistance heating loads, Class 8903 AC lighting contactors are recommended. These contactors are specifically designed for such loads and are applied at their full rating as listed in the Class 8903 (lighting contactors) section.

[34] Ratings apply to contactors which are employed to switch the load at the utilization voltage of the heat producing element with a duty which requires continuous operation of not more than five openings per minute. Class 8903 Types L and S lighting contactors are rated for resistance heating loads.

[35] When discharged, a capacitor has essentially zero impedance. For repetitive switching by a contactor, sufficient impedance should be connected in series to limit inrush current to not more than 6 times the contactor rated continuous current. In many installations, the impedance of connecting conductors may be sufficient for this purpose. When switching to connect additional banks, the banks already on the line may be charged and can supply additional available short-circuit current which should be considered when selecting the impedance to limit the current.

[36] For NEMA Size 6 and 7, the operation rate is as follows: Continuous operation rate is 3 operations per minute maximum; Jogging or Plugging Duty operation rate is 15 operations per minute for a maximum of three minutes.

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