

# NEMA Full Voltage Power Devices 300-Line Starters

## Section 1

### Application Information and Technical Data

Description	Maximum Horsepower NEMA Size										
	00	0	1	2	3	4	5	6	7	8	9
<b>Normal Starting Duty HP Rating<sup>1</sup></b>											
Single Phase											
115V 60Hz	1/3	1	2	3	7 1/2	NA	NA	NA	NA	NA	NA
230V 60Hz	1	2	3	7 1/2	15	NA	NA	NA	NA	NA	NA
Three Phase											
200V 60Hz	1 1/2	3	7 1/2	10	25	40	75	150			
230V 60Hz	1 1/2	3	7 1/2	15	30	50	100	200	300	450	800
380-415V 50Hz	1 1/2	5	10	25	50	75	150	300	500	750	1350
460V 60Hz	2	5	10	25	50	100	200	400	600	900	1600
575V 60Hz	2	5	10	25	50	100	200	400	600	900	1600
<b>Plugging or Jogging HP Rating<sup>1</sup></b>											
Single Phase											
115V 60Hz	NA	1/2	1	2	5	NA	NA	NA	NA	NA	NA
230V 60Hz	NA	1	2	5	10	NA	NA	NA	NA	NA	NA
Three Phase											
200V 60Hz	NA	1 1/2	3	7 1/2	15	25	60	125	NA	NA	NA
230V 60Hz	NA	1 1/2	3	10	20	30	75	150	NA	NA	NA
380-415V 50Hz	NA	1 1/2	5	15	30	50	125	250	NA	NA	NA
460V 60Hz	NA	2	5	15	30	60	150	250	NA	NA	NA
575V 60Hz	NA	2	5	15	30	60	150	250	NA	NA	NA
<b>Continuous Current Max</b>											
Starters and Enclosed Contactors	9	18	27	45	90	135	270	540	810	1215	2250
Open Contactors	10	20	30	50	100	150	300	600	900	1350	2500
<b>Coil Burden (VA)</b>											
Inrush 2-Pole	151	151	151	528	1152	1248	2580	3360	1600	1500	2900
Holding 2-Pole	24	24	24	60	83	87	191	255	210	140	300
Inrush 3-Pole	151	151	151	528	1152	1248	2580	3360	1600	2900	3600
Holding 3-Pole	24	24	24	60	83	87	191	255	210	300	400
Inrush 4- and 5-Pole	151	151	151	576	1248	1356	3600	NA	NA	NA	NA
Holding 4- and 5-Pole	24	24	24	75	87	95	276	NA	NA	NA	NA
Control Power Transformer VA (Min)	50	50	50	100	200	250	500 <sup>2</sup>	500 <sup>2</sup>	1000 <sup>2</sup>	1500 <sup>2</sup>	1501 <sup>2</sup>
<b>Coil Operating Voltage</b>											
% Minimum Pickup	85	85	85	85	85	85	85	85	85	85	85
% Maximum Dropout	63	63	63	68	65	65	65	65	50	50	50
<b>Switching Delay 3-Pole</b>											
Pickup Typical (Milliseconds)	15-30	15-30	15-30	20-40	20-45	20-45	30-50	30-50	60-90	80-125	80-125
Dropout Typical (Milliseconds)	7-15	7-15	7-15	7-15	7-15	7-15	15-25	15-25	100-150	25-100	25-100
Mechanical Life Millions Nominal	20	20	20	10	5	5	5	1	1	1	0.5
<b>Weight (Less Carton)</b>											
Contactors (Pounds)	2 3/4	2 3/4	2 3/4	6 1/2	15	14 3/4	48	48	79	203	302
Starter (Pounds)	3 3/4	3 3/4	3 3/4	7 1/2	17 3/4	17 1/2	53	75	106	263	365
<b>Power Terminals</b>											
Wire Size Range (75 DEG AWG)	14-8	14-8	14-8	14-4	10-1/0	8-3/0	1/0-500kcmil	2 2/0-500kcmil	3 2-600kcmil	4 2-600kcmil	NA
Torque (Pounds-Inches)	20	20	20	50	150	200	300	375	500	500	NA
Max. Noise (DBA)	50	50	50	50	50	50	65	65	65	65	65

<sup>1</sup> When operation of the controller requires jogging (inching) or plug stopping or when normal operation requires continued operation in excess of 5 operations per minute or 10 operations in a 10-minute period, the plugging or jogging horsepower ratings must be followed.

<sup>2</sup> In lieu of a 500 to 1500 VA control transformer, a 50 VA unit in conjunction with a control relay can be used as follows:

- Wire control relay coil in control circuit on secondary side of control transformer.
- Wire two poles of control relay in series with contactor coil at line voltage.

### Mounting Position

Devices must be mounted to a sturdy vertical surface with the line side terminals up. No other orientations are permitted.

### Operating Temperature

Equipment is designed for ambient temperature outside of equipment enclosures to be -25° to 40°C. When contactor is energized, temperatures will be above outside ambient in equipment

enclosures. Temperature rises inside the enclosures should be limited so that internal air temperature does not exceed 65° for sizes 00 to 6 and 60°C for sizes 7 to 9. If condensing moisture is present, space heater kits should be used to prevent condensation when contactor is not energized.

Storage temperature should be -30° to 65°C. If equipment is stored over 1 week, it may be necessary to cover the equipment and provide a source of heat to prevent condensation.



# NEMA Full Voltage Power Devices 300-Line Starters

### Application Information and Technical Data

#### Short-Circuit Ratings

Fusible forms of combination magnetic starters equipped with UL labeled, nonrenewable, NEC-type fuses listed in the table below, are adequate for installation on motor branch circuits where the available short-circuit current at the incoming line terminals of the starter does not exceed the value shown.

Circuit breaker-type combination magnetic starters equipped with the circuit breakers listed in the table at right are adequate for installation on motor branch circuits where the available short-circuit current at the incoming line terminals of the starter does not exceed the value shown.

For either type, it is recognized that maintenance of some components may be required after a branch circuit fault and in some cases a device may require replacement.

#### Fusible Combination Starters

NEMA Size	Fuse Type	Maximum Symmetrical rms Amperes
0-3	H, K	5,000
4, 5	H, K	10,000
0-5	J, RK-1, RK-5	100,000
6	J, L, RK-1, RK-5	100,000

#### Circuit Breaker Combination Starters

Spectra® RMS Molded Case Circuit Breaker or Spectra® RMS Mag-Break Circuit Protector

Breaker Model	NEMA Size	Maximum Symmetrical RMS Amperes		
		240V	480V	600V
SELA	0 - 3	65,000	65,000	25,000
SFLA	4	65,000	65,000	25,000

#### Circuit Breaker Combination Starters

Breaker Type	Rating Amperes	NEMA Size	Maximum Symmetrical RMS Amperes		
			240V	480V	600V
TJJ & TJK	225-600	5	10,000	10,000	10,000
THJK	225-400	5	35,000	35,000	25,000
THJK	450-600	5	10,000	10,000	10,000
TKM, TKC	300-800	6	42,000	30,000	22,000
THKM8	300-800	6	65,000	35,000	25,000
TB6, TBC	300-800	6	65,000	65,000	42,000



# NEMA Full Voltage Power Devices 300-Line Starters

## Section 1

### Application Information and Technical Data (Continued)

#### Control Transformers—Where to Use

It is often desirable to use a control transformer in conjunction with a magnetic starter or controller to provide low voltage control.

#### Description—Factory Wired

A transformer, with sufficient capacity for the control circuit, mounted with the starter can be supplied by the factory for the majority of transformer ratings and types of enclosures.

#### Coil Suffix

(THIS TABLE IS TO BE USED FOR STARTER FORMS WITHOUT CONTROL TRANSFORMERS.)

Indicates voltage and frequency of operating coils. For use in ordering full voltage starters and contactors, Sizes 00-6, with other coil ratings than those shown in listing on pages 1-11 to 1-124.

Frequency (Hertz)	24V	115-120V <sup>5</sup>	200-208V <sup>5</sup>	230-240V <sup>5</sup>	265-277V	460-480V <sup>5</sup>	575-600V <sup>5</sup>
60	24	02	23	03	13	04	05
Frequency (Hertz)	—	110V	—	220V	380-415V	440V	550V
50	—	02	—	03	64	04	05

**Note:** The 02 coil suffix (115-120V, 60 Hz/110V, 50 Hz) supersedes the 22 coil suffix (120V, 60 Hz).

<sup>5</sup>Suffix shown for this voltage is part of Product Number in magnetic starter-contactors listings.

#### Auxiliary Contact Ratings—NEMA Size 0-9

AC Volts	Amperes		
	Continuous	Make	Break
115	10	60	6.0
230	10	30	3.0
460	10	15	1.5
575	10	12	1.2
DC Volts			
125	10	—	1.1
250	10	—	0.5

#### Contactors DC Ratings

NEMA Size	No. of Poles in Series	Continuous Current Rating	Interrupting Ratings							
			Inductive Amps @125V		Inductive Amps @250V		Noninductive Amps @125V		Noninductive Amps @250V	
			N.O.	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.	N.C.
00	1	9	2.5	2.5	0.6	0.5	5	4	1	0.8
00	2	9	7	7	1.2	1.2	25	25	5	4
00	3	9	14	14	3.5	3.5	35	35	15	15
00	4	9	25	25	7	7	50	50	50	50
0	1	18	2.8	2.5	0.7	0.5	6	4.5	1.1	0.9
0	2	18	7	7	1.5	1.2	35	25	6	4.5
0	3	18	14	14	3.5	3.5	50	35	25	25
0	4	18	25	25	7	7	90	60	60	55
1	1	27	3	2.5	0.7	0.5	6.5	4.5	1.2	0.9
1	2	27	7	7	1.5	1.2	50	25	7	4.5
1	3	27	14	14	3.5	3.5	70	35	35	25
1	4	27	25	25	7	7	120	60	70	55
2	2	45	7	7	1.5	1.2	60	45	9	7
2	3	45	14	14	3.5	3.5	120	60	40	30
2	4	45	25	25	7	7	160	80	80	60
3	2	90	7	7	2.2	1.8	600	300	300	200
3	3	90	14	14	4.5	3.5	600	300	600	300
3	4	90	25	25	9	7	600	300	600	300
4	2	135	7	7	2.2	1.8	600	300	300	200
4	3	135	14	14	4.5	3.5	600	300	600	300
4	4	135	25	25	9	7	600	300	600	300

