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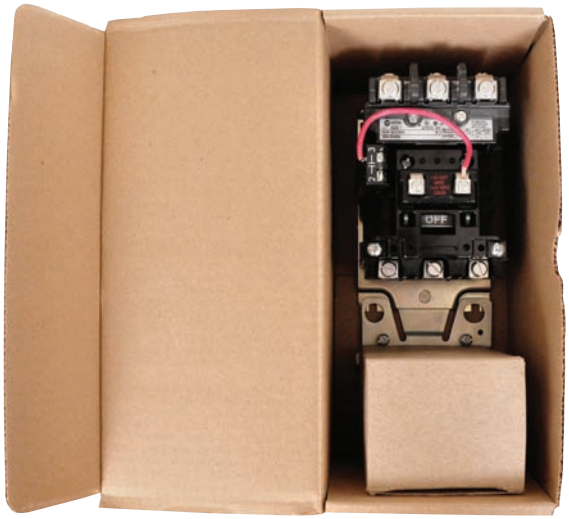
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Allen-Bradley

Bulletin 500 Line Open Type Modular Kits and Components

Selection Guide





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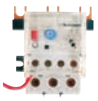
Allen-Bradley • Rockwell Software

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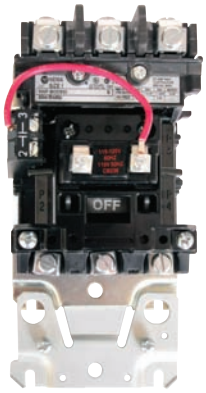
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NEMA AC Contactor and Starter Modular Kits and Components

NEMA sizes 0…4 for open-type Bulletin 500 top-wired contractors, Bulletin 500F feed-through contactors, and Bulletin 509 full-voltage starters, are provided as modular kits for faster delivery. Other sizes and enclosed-type devices are also available.

				 
Bulletin	**500**	**500F**	**509**	
Features	Top-wired contactor	Feed-through wired contactor	Non-reversing starter	
NEMA Size	0…9	0…5	0…9	
Continuous Ampere Rating [A]	9…2250	18…270	9…2250	
1-Phase 2 Power Poles	115…230V (1/3…15 Hp)	115…230V (1…15 Hp)	—	
3-Phase 3 Power Poles	200…600V (1-1/2…1600 Hp)	200…600V (3…200 Hp)	—	
3-Phase 4 Power Poles	200…600V (1-1/2…900 Hp)	—	—	
3-Phase 5 Power Poles	200…600V (3…100 Hp)	—	—	
Motor Voltage	—	—	200…575V (1.5…1600 Hp) 115…230V (1/3…15 Hp)	
Standards	• NEMA/EEMAC ICS2 (Industrial Controls and Systems) • UL 508 • CSA C22.2, No. 14 • ABS 4/5.115 • USCG 46 CFR 111.70 • IEEE 45	• NEMA/EEMAC ICS2 (Industrial Controls and Systems) • UL 508 • CSA C22.2, No. 14 • ABS 4/5.115 • USCG 46 CFR 111.70 • IEEE 45	• NEMA/EEMAC ICS 2 (Industrial Controls and Systems) • UL 508 • CSA C22.2, No. 14 • ABS 4/5.115 • USCG 46 CFR 111.70	
Certifications	• UL Listed (File No. E3125; Guide No. NLDX) • (File No. E10314; Guide No. NPKR) • CSA Certified (LR1234) • CE Marked (Per EN 60947) • American Bureau of Shipping (ABS)	• UL Listed (File No. E3125; Guide No. NLDX) • (File No. E10314; Guide No. NPKR) • CSA Certified (LR1234) • CE Marked (Per EN 60947) • American Bureau of Shipping (ABS)	• UL Listed (File No. E3125; Guide No. NLDX) • CSA Certified (File LR 1234) • CE Marked (per EN 60947-4-1) • American Bureau of Shipping (ABS) • Hazardous Location: UL Listed (File No. E10314), CSA Certified (File No. LR 11924)	
Product Selection	**Page 3**	**Page 7**	**Page 11**	

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Bulletin 500 Open Type Top-Wired Contactor

- All power connections are at the top of the contactor for wiring convenience
- Contactor can be field wired for single- or three-phase applications

NEMA sizes 0…4
- Available as components or a modular kit for faster delivery
- Product selection can be done via two options:
  – Ordering a complete kit
  – Ordering individual components
- Top-wired contactor includes a 120V AC coil, (1) N.O. auxiliary contact, top-wiring kit, and load-side terminal shield, as standard

NEMA sizes 00, 5…9
- Available as factory assembled

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Standards Compliance

NEMA/EEMAC ICS 2
UL 508
CSA C22.2 No.14
ABS 4/5.115 — American Bureau of Shipping
UCSG 46 CFR 111.70
IEEE 45
EN/IEC 60947-4-1
CE Marked

Certifications

- CSA Certified (LR1234)
- UL Listed (File No. E3125, Guide No. NLDX)

Catalog Number Explanation

For flexibility, devices may be ordered in a convenient modular kit or as individual components.

A modular kit includes:
- Base contactor
- Top-wiring kit
- Load-side terminal shield
- Selectable coil voltage
- Selectable number of poles
- Selectable options

Modular Kit Example Cat. No.

500	–	B	–	O	–	D	–	930	–	17
		a		*b*		*c*		*d*		*e*

a

NEMA Size	
Code	Description
A	0
B	1
C	2
D	3
E	4

b

NEMA Enclosure Type	
Code	Type
O	No enclosure

c

Nominal Coil Voltage		
Code	Voltage	Frequency
A	220V 240V	50 Hz 60 Hz
B	440V 480V	50 Hz 60 Hz
C	550V 600V	50 Hz 60 Hz
D	110V 120V	50 Hz 60 Hz
F	277V	60 Hz
H	200…208V	60 Hz
I	415V	50 Hz
J	24V	50/60 Hz
N	380V	50 Hz
VL	24V DC	—
VG	125…250V DC	—

d

Number of Poles	
Code	Voltage Description
930	Three Power Poles and (1) N.O. Auxiliary Contact
940	Four Power Poles and (1) N.O. Auxiliary Contact
950	Five Power Poles and (1) N.O. Auxiliary Contact

e

Options	
Code	Description
17	Surge Suppressor for 120 or 240V AC Coil
90	(1) N.O. Auxiliary Contact∗
91	(1) N.C. Auxiliary Contact∗

∗ Up to (6) combinations of auxiliary contacts can be selected. Example: Code 90011 indicates (2) N.O. and (2) N.C. contacts.

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NEMA AC Contactors

Product Selection - Modular Kit

Product Selection of NEMA sizes 0…4 by Modular Kits



Base Contactor
Includes a 120V AC coil and (1) N.O. auxiliary contactor as standard.

NEMA Size	Continuous Ampere Rating [A]	Max. Horsepower Rating Full Load Current Must Not Exceed "Continuous Ampere Rating"						600V AC Maximum • 60 Hz		
		1-Phase Motor Voltage		3-Phase Motor Voltage						
						50 Hz		3 Power Poles	4 Power Poles	5 Power Poles
		115V	230V	200V	230V	380…415V	460…575V	Cat. No.	Cat. No.	Cat. No.
00	9	1/3	1	1.5	1.5	2	2	♣	♣	—
0	18	1	2	3	3	5	5	500-AO⊗930	500-AO⊗940	500-AO⊗950
1	27	2	3	7.5	7.5	10	10	500-BO⊗930	500-BO⊗940	500-BO⊗950
2	45	3	7.5	10	15	25	25	500-CO⊗930	500-CO⊗940	500-CO⊗950
3	90	7.5	15	25	30	50	50	500-DO⊗930	500-DO⊗940	500-DO⊗950
4	135	—	—	40	50	75	100	500-EO⊗930	500-EO⊗940	500-EO⊗950
5	270	—	—	75	100	150	200	♣	♣	—
6	540	—	—	150	200	300	400	♣	—	—
7	810	—	—	—	300	600	600	♣	—	—
8	1215	—	—	—	450	900	900	♣	—	—
9	2250	—	—	—	800	1600	1600	♣	—	—

♣ See page 7 for NEMA sizes 00, 5…9.

⊗ Coil Voltage Code

The cat. no. as listed is incomplete. Select a coil voltage code from the table below to complete the cat. no. Example: **Cat. No. 500-AO⊗940** becomes **Cat. No. 500-AOD940**.

[V]	24	110	120	125	208	220	240	250	277	380	415	440	480	550	600
AC, 50 Hz	J	D	—	—	—	A	—	—	—	N	I	B	—	C	—
AC, 60 Hz	J	—	D	—	H	—	A	—	F	—	—	—	B	—	C
DC➢	VL	—	—	VG	—	—	—	VG	—	—	—	—	—	—	—

➢ DC voltage code is only available on NEMA size 0…3. When ordering a DC voltage code, add "DC" to the catalog number. Example: 500DC-BOVL930.

Note: The base contactor includes a 120V AC coil as standard. For all other voltages, a second coil will be included in the modular kit for field swap out.

Options for Modular Kit

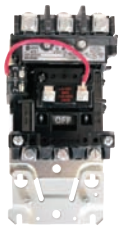
Options	
Code	Description
17	Surge Suppressor for 120 or 240V AC Coil
90	(1) N.O. Auxiliary Contact✶
91	(1) N.C. Auxiliary Contact✶

✶ Up to (6) combinations of auxiliary contacts can be selected. Example: Code 90011 indicates (2) N.O. and (2) N.C. contacts.

Example: Cat. No. 500-COD930-17-90 includes a NEMA size 2, 3-pole, contactor with a 120V AC coil, surge suppressor, and (1) N.O. auxiliary contact.

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Product Selection of NEMA sizes 0…4 by Components



Base Contactor



Coil



Auxiliary Contact Contactor



Surge Suppressor



Power Pole



Top Wire Kit



Load -Side Terminal Shield

Base Contactor		
NEMA Size	Continuous Ampere Rating [A]	Cat. No.
0	18	500F-AOD930
1	27	500F-BOD930
2	45	500F-COD930
3	90	500F-DOD930
4	135	500F-EOD930

Coils				
Description	NEMA Size			
	0…1	2	3	4
	Cat. No.	Cat. No.	Cat. No.	Cat. No.
24V 50/60 Hz	CB013	CC013	CD013	CE013
110V 50 Hz, 120V 60 Hz	CB236	CC236	CD236	CE236
208V 60 Hz	CB249	CC249	CD249	CE249
220V 50 Hz, 240V 60 Hz	CB254	CC254	CD254	CE254
277V 60 Hz	CB260	CC260	CD260	CE260
380V 50 Hz	CB354	CC354	CD354	CE354
415V 50 Hz	CB357	CC357	CD357	CE357
440V 50 Hz, 480V 60 Hz	CB273	CC273	CD273	CE273
550V 50 Hz, 600V 60 Hz	CB278	CC278	CD278	CE278
24V DC	599-B24DC	599-C24DC	599-D24DC	—
125…250V DC	599-B250DC	599-C250DC	599-D250DC	—

Note: The base contactor includes a 120V AC coil as standard. For all other voltages, select an alternate component coil for field installation.

Auxiliary Contact — Contactors		
Description	NEMA Size	Cat. No.
1 N.O.	0…5	595-A
2 N.O.	0…5	595-AA
1 N.C.	0…5	595-B
2 N.C.	0…5	595-BB
1 N.O. and N.C.	0…5	595-AB

Surge Suppressor		
Description	NEMA Size	Cat. No.
12…120V AC	0…5	599-K04
240…264V AC Varistor		599-KA04

Power Pole Adders		
Description	NEMA Size	Cat. No.
1 N.O.	0…1	599-P01A
1 N.O.	2	599-P2A
1 N.O.	3	599-P3A
1 N.O.	4	599-P4A

Top Wiring Kit	
NEMA Size	Cat. No.
0…1	599-TW01
2	599-TW2
3	599-TW3
4	599-TW4

Terminal Shield Kit	
NEMA Size	Cat. No.
0…2	599-TS02
3,4	599-TS34

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NEMA AC Contactors

Product Selection - Factory Assembled

Product Selection of NEMA sizes 00, 5…9, as Factory Assembled



NEMA Size	Continuous Ampere Rating [A]	Max. Horsepower Rating Full Load Current Must Not Exceed "Continuous Ampere Rating"						600V AC Maximum • 60 Hz		
		1-Phase Motor Voltage		3-Phase Motor Voltage				3 Power Poles	4 Power Poles	5 Power Poles
		115V	230V	200V	230V	50 Hz 380…415V	460…575V	Cat. No.	Cat. No.	Cat. No.
00	9	1/3	1	1.5	1.5	2	2	500-TOD930	—	—
0	18	1	2	3	3	5	5	♣	♣	♣
1	27	2	3	7.5	7.5	10	10	♣	♣	♣
2	45	3	7.5	10	15	25	25	♣	♣	♣
3	90	7.5	15	25	30	50	50	♣	♣	♣
4	135	—	—	40	50	75	100	♣	♣	♣
5	270	—	—	75	100	150	200	500-FOD930	500-FOD940	—
6	540	—	—	150	200	300	400	500-GOD930	—	—
7	810	—	—	—	300	600	600	500-HOD930	—	—
8	1215	—	—	—	450	900	900	500-JOD930	—	—
9	2250	—	—	—	800	1600	1600	500-KOD930	—	—

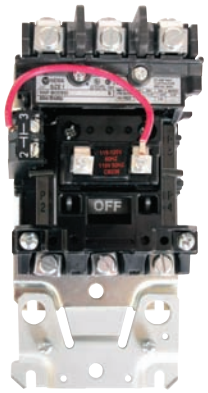
♣ See page 5 for NEMA sizes 0…4.

⊗ Coil Voltage Code

The cat. no. as listed is incomplete. Select a coil voltage code from the table below to complete the cat. no. Example: **Cat. No. 500-AO⊗940** becomes **Cat. No. 500-AOD940**.

[V]	24	110	120	125	208	220	240	250	277	380	415	440	480	550	600
AC, 50 Hz	J	D	—	—	—	A	—	—	—	N	I	B	—	C	—
AC, 60 Hz	J	—	D	—	H	—	A	—	F	—	—	—	B	—	C
DC	VL	—	—	VG	—	—	—	VG	—	—	—	—	—	—	—

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Bulletin 500F Open Type Feed-Through Contactor

- Feed-through construction
- Contactor can be field wired for single- or three-phase applications

NEMA sizes 0…4
- Available as components or a modular kit for faster delivery
- Product selection can be done via two options:
  - Ordering a complete kit
  - Ordering individual components
- Feed-through contactor includes a 120V AC coil and (1) N.O. auxiliary contact, as standard

NEMA size 5
- Available as factory assembled

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Standards Compliance

NEMA/EEMAC ICS 2
UL 508
CSA C22.2 No.14
ABS 4/5.115 — American Bureau of Shipping
UCSG 46 CFR 111.70
IEEE 45
EN/IEC 60947-4-1

Certifications

CE Marked
CSA Certified (LR1234)
UL Listed (File No. E3125, Guide No. NLDX)

Catalog Number Explanation

For flexibility, devices may be ordered in a convenient modular kit or as individual components.

A modular kit includes:
- Base contactor
- Selectable coil voltage
- Selectable options

Modular Kit Example Cat. No.

500F –	B	–	O	–	D	–	930	–	17
	a		*b*		*c*		*d*		*e*

a

NEMA Size	
Code	Description
A	0
B	1
C	2
D	3
E	4

b

NEMA Enclosure Type	
Code	Type
O	No enclosure

c

Nominal Coil Voltage		
Code	Voltage	Frequency
A	220V 240V	50 Hz 60 Hz
B	440V 480V	50 Hz 60 Hz
C	550V 600V	50 Hz 60 Hz
D	110V 120V	50 Hz 60 Hz
F	277V	60 Hz
H	200…208V	60 Hz
I	415V	50 Hz
J	24V	50/60 Hz
N	380V	50 Hz
VL	24V DC	—
VG	125…250V DC	—

d

Number of Poles	
Code	Voltage Description
930	Three Power Poles and (1) N.O. Auxiliary Contact

e

Options	
Code	Voltage Description
17	Surge Suppressor for 120 or 240V AC Coil
90	(1) N.O. Auxiliary Contact∗
91	(1) N.C. Auxiliary Contact∗

∗ Up to (6) combinations of auxiliary contacts can be selected. Example: Code 90011 indicates (2) N.O. and (2) N.C. contacts.

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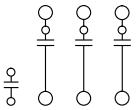
NEMA AC Feed-Through Contactors

Product Selection - Modular Kit

Product Selection of NEMA sizes 0…4 by Modular Kits



Base Contactor
Includes a 120V AC coil and (1) N.O. auxiliary contactor as standard.

NEMA Size	Continuous Ampere Rating [A]	Maximum Horsepower Rating Full Load Current Must Not Exceed "Continuous Ampere Rating"						
		1-Phase Motor Voltage		3-Phase Motor Voltage				3 Power Poles • 600V AC Maximum • 60 Hz
		115V	230V	200V	230V	50 Hz 380…415V	460…575V	Cat. No.
0	18	—	3	3	3	5	5	500F-AO⊗930
1	27	—	7.5	7.5	7.5	10	10	500F-BO⊗930
2	45	—	15	10	15	25	25	500F-CO⊗930
3	90	—	30	25	30	50	50	500F-DO⊗930
4	135	—	50	40	50	75	100	500F-EO⊗930
5	270	—	—	75	100	150	200	♣

♣ See page 11 for NEMA size 5.

⊗ Coil Voltage Code

The cat. no. as listed is incomplete. Select a coil voltage code from the table below to complete the cat. no.
Example: **Cat. No. 500F-AO⊗930** becomes **Cat. No. 500F-AOD930**. For other voltages, please consult your local Rockwell Automation sales office or Allen-Bradley distributor.

[V]	24	110	120	125	208	220	240	250	277	380	415	440	480	550	600
AC, 50 Hz	J	D	—	—	—	A	—	—	—	N	I	B	—	C	—
AC, 60 Hz	J	—	D	—	H	—	A	—	F	—	—	—	B	—	C
DC➢	VL	—	—	VG	—	—	—	VG	—	—	—	—	—	—	—

➢ DC voltage code is only available on NEMA size 0…3. When ordering a DC voltage code, add "C" to the catalog number. Example: 500FC-BOVL930.

Note: The base contactor includes a 120V AC coil as standard. For all other voltages, a second coil will be included in the modular kit for field swap out.

Options for Modular Kit

Options	
Code	Description
17	Surge Suppressor for 120 or 240V AC Coil
90	(1) N.O. Auxiliary Contact✶
91	(1) N.C. Auxiliary Contact✶

✶ Up to (6) combinations of auxiliary contacts can be selected. Example: Code 90011 indicates (2) N.O. and (2) N.C. contacts.

Example: Cat. No. 500F-COD930-17-90 includes a NEMA size 2, 3-pole, contactor with a 120V AC coil, surge suppressor, and (1) N.O. auxiliary contact.

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Product Selection of NEMA sizes 0…4 by Components



Base Contactor



Coil



Auxiliary Contact Contactor



Surge Suppressor

Base Contactor

NEMA Size	Continuous Ampere Rating [A]	Cat. No.
0	18	500F-AOD930
1	27	500F-BOD930
2	45	500F-COD930
3	90	500F-DOD930
4	135	500F-EOD930

Auxiliary Contact — Contactors

Description	NEMA Size	Cat. No.
1 N.O.	0…5	595-A
2 N.O.	0…5	595-AA
1 N.C.	0…5	595-B
2 N.C.	0…5	595-BB
1 N.O. and N.C.	0…5	595-AB

Coils

Description	NEMA Size			
	0…1	2	3	4
	Cat. No.	Cat. No.	Cat. No.	Cat. No.
24V 50/60 Hz	CB013	CC013	CD013	CE013
110V 50 Hz, 120V 60 Hz	CB236	CC236	CD236	CE236
208V 60 Hz	CB249	CC249	CD249	CE249
220V 50 Hz, 240V 60 Hz	CB254	CC254	CD254	CE254
277V 60 Hz	CB260	CC260	CD260	CE260
380V 50 Hz	CB354	CC354	CD354	CE354
415V 50 Hz	CB357	CC357	CD357	CE357
440V 50 Hz, 480V 60 Hz	CB273	CC273	CD273	CE273
550V 50 Hz, 600V 60 Hz	CB278	CC278	CD278	CE278
24V DC	599-B24DC	599-C24DC	599-D24DC	—
125…250V DC	599-B250DC	599-C250DC	599-D250DC	—

Note: The base contactor includes a 120V AC coil as standard. For all other voltages, select an alternate component coil for field installation.

Surge Suppressor

Description	NEMA Size	Cat. No.
12…120V AC	0…5	599-K04
240…264V AC Varistor		599-KA04

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Product Selection of NEMA size 5 as Factory Assembled



NEMA Size	Continuous Ampere Rating [A]	Maximum Horsepower Rating Full Load Current Must Not Exceed "Continuous Ampere Rating"						3 Power Poles • 600V AC Maximum • 60 Hz
		1-Phase Motor Voltage		3-Phase Motor Voltage				
		115V	230V	200V	230V	50 Hz 380…415V	460…575V	Cat. No.
0	18	—	3	3	3	5	5	♣
1	27	—	7.5	7.5	7.5	10	10	♣
2	45	—	15	10	15	25	25	♣
3	90	—	30	25	30	50	50	♣
4	135	—	50	40	50	75	100	♣
5	270	—	—	75	100	150	200	500F-FO⊗930

♣ See page 9 for NEMA size 0…4.

⊗ Coil Voltage Code

The cat. no. as listed is incomplete. Select a coil voltage code from the table below to complete the cat. no.
Example: **Cat. No. 500F-AO⊗930** becomes **Cat. No. 500F-AOD930**.

[V]	24	110	120	125	208	220	240	250	277	380	415	440	480	550	600
AC, 50 Hz	J	D	—	—	—	A	—	—	—	N	I	B	—	C	—
AC, 60 Hz	J	—	D	—	H	—	A	—	F	—	—	—	B	—	C
DC	VL	—	—	VG	—	—	—	VG	—	—	—	—	—	—	—

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Bulletin 509, Size 1 with Eutectic Alloy Overload Relay Open Type without Enclosure

Bulletin 509 Open Type Full Voltage Starter

- Feed-through construction
- Starter can be field wired for single- or three-phase applications

NEMA sizes 0…4
- Available as components or as a modular kit for faster delivery
- Product selection can be done via two options:
  – Ordering a complete kit
  – Ordering individual components
- Starter includes a 120V AC coil and (1) N.O. auxiliary contact, as standard

NEMA sizes 00, 5…9
- Available as factory assembled

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Approximate Dimensions 20

Standards Compliance

NEMA/EEMAC ICS 2
UL 508
CSA C22.2 No.14
ABS 4/5.115 — American Bureau of Shipping
UCSG 46 CFR 111.70
EN/IEC 60947-4-1
CE Marked

Certifications

CSA Certified (LR1234)
UL Listed (File No. E3125, Guide No. NLDX)

Catalog Number Explanation

For flexibility, devices may be ordered in a convenient modular kit or as individual components.

A modular kit includes:
- Base contactor
- Selectable coil voltage
- Selectable overload relay
- Selectable options

Modular Kit Example Cat. No.

509 – B – O – D – A2E – 17
a b c d e

a

NEMA Size	
Code	Description
A	0
B	1
C	2
D	3
E	4

b

NEMA Enclosure Type	
Code	Type
O	No enclosure

c

Nominal Coil Voltage		
Code	Voltage	Frequency
A	220V 240V	50 Hz 60 Hz
B	440V 480V	50 Hz 60 Hz
C	550V 600V	50 Hz 60 Hz
D	110V 120V	50 Hz 60 Hz
F	277V	60 Hz
H	200…208V	60 Hz
I	415V	50 Hz
J	24V	50/60 Hz
N	380V	50 Hz
VL	24V DC	—
VG	125…250V DC	—

d

Eutectic Overload Relay	
Code	Description
blank	Eutectic Alloy

E1 Plus Solid-State Overload Relay		
Code	NEMA Size	Full Load Current Adjustment Range [A]
3-Phase		
A2C	0,1	0.2…1.0
A2E	0,1	1.0…5.0
A2F	0,1	3.2…16
A2G	0,1,2	5.4…27
A2J	1,2,3	9…45
A2L	3	18…90
A2M	4	30…150
1-Phase		
S2E	0,1	1.0…5.0
S2F	0,1	3.2…16
S2G	0,1,2	5.4…27
S2J	1,2,3	9…45
S2L	3	18…90

e

Options	
Code	Description
9	(1) N.O. Auxiliary Contact for use on Eutectic Overload Relay
9A	(1) N.C. Auxiliary Contact for use on Eutectic Overload Relay
17	Surge Suppressor for 120 or 240V AC Coil
90	(1) N.O. Auxiliary Contact for use on Contactor*
91	(1) N.C. Auxiliary Contact for use on Contactor*

* Up to (6) combinations of auxiliary contacts can be selected. Example: Code 90011 indicates (2) N.O. and (2) N.C. contacts.

Heater Elements — Starters with eutectic alloy overload relays require 3 heater elements. See the Industrial Controls catalog for heater element selection tables.

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NEMA Full Voltage Starter

Product Selection - Modular Kits

Product Selection of NEMA sizes 0…4 by Modular Kits



Base Contactor
Includes a 120V AC coil and (1) N.O. auxiliary contactor as standard.

Heater Elements — Starters with eutectic alloy overload relay require 3 heater elements. See the Industrial Controls catalog for heater element selection tables.

NEMA Size	Continuous Ampere Rating [A]	Maximum Horsepower Rating Full Load Current Must Not Exceed "Continuous Ampere Rating"						3 Power Poles • 600V AC Maximum • 60 Hz
		1-Phase Motor Voltage		3-Phase Motor Voltage				
		115V	230V	200V	230V	50 Hz 380…415V	460…575V	Cat. No.
00	9	1/3	1	1.5	1.5	2	2	♣
0	18	1	2	3	3	5	5	509-AO⊗-☺
1	27	2	3	7.5	7.5	10	10	509-BO⊗-☺
2	45	3	7.5	10	15	25	25	509-CO⊗-☺
3	90	7.5	15	25	30	50	50	509-DO⊗-☺
4	135	—	—	40	50	75	100	509-EO⊗-☺
5	270	—	—	75	100	150	200	♣
6	540	—	—	150	200	300	400	♣
7	810	—	—	—	300	600	600	♣
8	1215	—	—	—	450	900	900	♣
9	2250	—	—	—	800	1600	1600	♣

♣ See page 15 for NEMA sizes 00, 5…9.

⊗ Coil Voltage Code

The cat. no. as listed is incomplete. Select a coil voltage code from the table below to complete the cat. no. Example: **Cat. No. 509-BA⊗-☺** becomes **Cat. No. 509-BAD-☺**.

[V]	24	110	120	125	208	220	240	250	277	380	415	440	480	550	600
AC, 50 Hz	J	D	—	—	—	A	—	—	—	N	I	B	—	C	—
AC, 60 Hz	J	—	D	—	H	—	A	—	F	—	—	—	B	—	C
DC	VL	—	—	VG	—	—	—	VG	—	—	—	—	—	—	—

➢ DC voltage code is only available for NEMA sizes 0…3. When ordering a DC voltage code, add "DC" to the catalog number. Example: 509DC-BOVL.

Options for Modular Kit

☺ Overload Relay Code

Use to order solid-state overload relay. Do not use when ordering eutectic alloy overload relay. The cat. no. as listed is incomplete, select an overload relay code from the table below to complete the cat. no. Example: **Cat. No. 509-BOD-☺** becomes **Cat. No. 509-BOD-A2E**.

Full Load Current Range [A]	NEMA Size (3-Phase)					NEMA Size (1-Phase)			
	0	1	2	3	4	0	1	2	3
0.2…1.0	A2C	A2C	—	—	—	—	—	—	—
1.0…5.0	A2E	A2E	—	—	—	S2E	S2E	—	—
3.2…16	A2F	A2F	—	—	—	S2F	S2F	—	—
5.4…27	A2G	A2G	A2G	—	—	S2G	S2G	S2G	—
9…45	—	A2J	A2J	A2J	—	—	S2J	S2J	S2J
18…90	—	—	—	A2L	—	—	—	—	S2L
30…150	—	—	—	—	A2M	—	—	—	—

Options	
Code	Description
9	(1) N.O. Auxiliary Contact for use on Eutectic Overload Relay
9A	(1) N.C. Auxiliary Contact for use on Eutectic Overload Relay
17	Surge Suppressor for 120 or 240V AC Coil
90	(1) N.O. Auxiliary Contact for use on Contactor*
91	(1) N.C. Auxiliary Contact for use on Contactor*

* Up to (6) combinations of auxiliary contacts can be selected. Example: Code 90011 indicates (2) N.O. and (2) N.C. contacts.

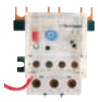
Example: Cat. No. 509-BOD-A2F-17-901 includes a NEMA size 1, 3-pole, contactor with a 120V AC coil, surge suppressor, and (2) auxiliary contacts, (1) N.O. and (1) N.C..

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Product Selection of NEMA sizes 0…4 by Components


Base Contactor


Eutectic Overload Relay


Solid-State Overload Relay


Coil


Auxiliary Contact Contactor


Surge Suppressor


Auxiliary Contact Eutectic Overload Relay

Base Contactor

NEMA Size	Continuous Ampere Rating [A]	Cat. No.
0	18	500F-AOD930
1	27	500F-BOD930
2	45	500F-COD930
3	90	500F-DOD930
4	135	500F-EOD930

Eutectic Overload Relays

NEMA Size	Cat. No.
0,1	592-EUTB
2	592-EUTC
3	592-EUTD
4	592-EUTE

Solid-State E1 Plus Overload Relays

NEMA Size	Current Range [A]	Cat. No.
3-Phase		
0,1	0.2…1.0	592-EEBC
0,1	1.0…5.0	592-EECC
0,1	3.2…16	592-EEDC
0…2	5.4…27	592-EEEC
0…2	9…45	592-EEFC
3	9…45	592-EEFD
3	18…90	592-EEGD
4	30…150	592-EEHE
1-Phase		
0,1	1.0…5.0	592S-EEPC
0,1	3.2…16	592S-EERC
0…2	5.4…27	592S-EESC
0…2	9…45	592S-EETC
3	18…90	592S-EEUD

Coils

Description	NEMA Size			
	0…1	2	3	4
	Cat. No.	Cat. No.	Cat. No.	Cat. No.
24V 50/60 Hz	CB013	CC013	CD013	CE013
110V 50 Hz, 120V 60 Hz	CB236	CC236	CD236	CE236
208V 60 Hz	CB249	CC249	CD249	CE249
220V 50 Hz, 240V 60 Hz	CB254	CC254	CD254	CE254
277V 60 Hz	CB260	CC260	CD260	CE260
380V 50 Hz	CB354	CC354	CD354	CE354
415V 50 Hz	CB357	CC357	CD357	CE357
440V 50 Hz, 480V 60 Hz	CB273	CC273	CD273	CE273
550V 50 Hz, 600V 60 Hz	CB278	CC278	CD278	CE278
24V DC	599-B24DC	599-C24DC	599-D24DC	—
125…250V DC	599-B250DC	599-C250DC	599-D250DC	—

Auxiliary Contact — Contactors

Description	NEMA Size	Cat. No.
1 N.O.	0…5	595-A
2 N.O.	0…5	595-AA
1 N.C.	0…5	595-B
2 N.C.	0…5	595-BB
1 N.O. and N.C.	0…5	595-AB

Surge Suppressor

Description	NEMA Size	Cat. No.
12…120V AC	0…5	599-K04
240…264V AC Varistor		599-KA04

Overload Accessory — Auxiliary Contact
(For eutectic alloy overload relays only∗)

Description	NEMA Size	Cat. No.
1 N.O.	0…2	595-A02
1 N.C.		595-B02
1 N.O.	3…4	595-A34‡
1 N.C.		595-B34§

∗ Auxiliary contact for solid-state overload relays is included in the product.
‡ Auxiliary contact mounted on right-hand side of overload relay provides N.O. contact function. Auxiliary contact mounted on left-hand side of overload relay provides N.C. contact function.
§ To be mounted on right-hand side of overload to provide additional AC contact function.

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NEMA Full Voltage Starter

Product Selection - Factory Assembled

Product Selection of NEMA sizes 00, 5…9 as Factory Assembled



Heater Elements — Starters with eutectic alloy overload relay require 3 heater elements. See the Industtrial Controls catalog for heater element selection tables.

NEMA Size	Continuous Ampere Rating [A]	Maximum Horsepower Rating Full Load Current Must Not Exceed "Continuous Ampere Rating"						3 Power Poles • 600V AC Maximum • 60 Hz
		1-Phase Motor Voltage		3-Phase Motor Voltage				
		115V	230V	200V	230V	50 Hz 380…415V	460…575V	Cat. No.
00	9	1/3	1	1.5	1.5	2	2	509-TO⊗-☺
0	18	1	2	3	3	5	5	♣
1	27	2	3	7.5	7.5	10	10	♣
2	45	3	7.5	10	15	25	25	♣
3	90	7.5	15	25	30	50	50	♣
4	135	—	—	40	50	75	100	♣
5	270	—	—	75	100	150	200	509-FO⊗-☺
6	540	—	—	150	200	300	400	509-GO⊗-☺
7	810	—	—	—	300	600	600	509-HO⊗-☺
8	1215	—	—	—	450	900	900	509-JO⊗-☺
9	2250	—	—	—	800	1600	1600	509-KO⊗-☺

♣ See page 13 for NEMA sizes 0…4.

⊗ Coil Voltage Code

The cat. no. as listed is incomplete. Select a coil voltage code from the table below to complete the cat. no. Example: **Cat. No. 509-FO⊗-☺** becomes **Cat. No. 509-FOD-☺**.

[V]	24	110	120	125	208	220	240	250	277	380	415	440	480	550	600
AC, 50 Hz	J	D	—	—	—	A	—	—	—	N	I	B	—	C	—
AC, 60 Hz	J	—	D	—	H	—	A	—	F	—	—	—	B	—	C
DC	VL	—	—	VG	—	—	—	VG	—	—	—	—	—	—	—

E1 Plus Solid-State Overload Relay (Selectable Class 10, 20, or 30) (Automatic/Manual Reset)

NEMA Size	Full Load Current Adjustment Range (A)	Overload Relay Code
		Class 10, 15, 20, 30
00	0.1…0.5	A2A
	0.2…1.0	A2C
	1.0…5.0	A2E
	3.2…16	A2F
5 5PW 5YD	60…300	A2N
6 6PW 6YD	120…600	A2R
7✦	256…810	A2T
8✦	384…1215	A2U
9✦	800…2250	A2V

✦ These solid-state overload relays have an interposing relay with a 120V AC coil.

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Electrical Ratings

NEMA Size	Load Voltage [V]	Continuous Current Rating [A]	Service Limit Current Rating [A]✶	Maximum Hp Rating (Non-plugging and non-jogging duty)		Maximum Hp Rating (Plugging and jogging duty)❄		Transformer Primary Switching kVa Rating (Inrush Current ≤ 20 times Continuous Current)		Transformer Primary Switching kVa Rating (Inrush Current = 20 to 40 times Continuous Current)		Capacitor Switching kVAR‡	Maximum Circuit Closing Inrush Current [A] Peak Including Offset
				1Ø	3Ø	1Ø	3Ø	1Ø	3Ø	1Ø	3Ø	3Ø	3Ø
00	115	9	11	1/3	—	1/4	—	—	—	—	—	—	87
	200			—	1-1/2	—	1	—	—	—	—	—	
	230			1	1-1/2	1/2	1	—	—	—	—	—	
	380			—	1-1/2	—	1	—	—	—	—	—	
	460			—	2	—	1-1/2	—	—	—	—	—	
	575			—	2	—	1-1/2	—	—	—	—	—	
0	115	18	21	1	—	1/2	—	0.6	—	0.3	—	—	140
	200			—	3	—	1-1/2	—	1.8	—	0.9	—	
	230			2	3	1	1-1/2	1.2	2.1	0.6	1	—	
	380			—	5	—	1-1/2	—	—	—	—	—	
	460			—	5	—	2	2.4	4.2	1.2	2.1	—	
	575			—	5	—	2	3	5.2	1.5	2.6	—	
1	115	27	32	2	—	1	—	1.2	—	0.6	—	—	288
	200			—	7-1/2	—	3	—	3.6	—	1.8	—	
	230			3	7-1/2	2	3	2.4	4.3	1.2	2.1	6	
	380			—	10	—	5	—	—	—	—	—	
	460			—	10	—	5	4.9	8.5	2.5	4.3	13.5	
	575			—	10	—	5	6.2	11	3.1	5.3	17	
1P	115	36	42	3	—	1-1/2	—	—	—	—	—	—	—
	230			5	—	3	—	—	—	—	—	—	—
2	115	45	52	3	—	2	—	2.1	—	1	—	—	483
	200			—	10	—	7-1/2	—	6.3	—	3.1	—	
	230			7-1/2	15	5	10	4.1	7.2	2.1	3.6	12	
	380			—	25	—	15	—	—	—	—	—	
	460			—	25	—	15	8.3	14	4.2	7.2	25	
	575			—	25	—	15	10	18	5.2	8.9	31	
3	115	90	104	7-1/2	—	7-1/2	—	4.1	—	2	—	—	947
	200			—	25	—	15	—	12	—	6.1	—	
	230			15	30	15	20	8.1	14	4.1	7.0	27	
	380			—	50	—	30	—	—	—	—	—	
	460			—	50	—	30	16	28	8.1	14	53	
	575			—	50	—	30	20	35	10	18	67	
4	115	135	156	—	—	—	—	6.8	—	3.4	—	—	1581
	200			—	40	—	25	—	20	—	10	—	
	230			—	50	—	30	14	23	6.8	12	40	
	380			—	75	—	50	—	—	—	—	—	
	460			—	100	—	60	27	47	14	23	80	
	575			—	100	—	60	34	59	17	29	100	
5	115	270	311	—	—	—	—	14	—	6.8	—	—	3163
	200			—	75	—	60	—	41	—	20	—	
	230			—	100	—	75	27	47	14	24	80	
	380			—	150	—	125	—	—	—	—	—	
	460			—	200	—	150	54	94	27	47	160	
	575			—	200	—	150	68	117	34	59	200	
6	115	540	621	—	—	—	—	27	—	14	—	—	6326
	200			—	150	—	125	—	81	—	41	—	
	230			—	200	—	150	54	94	27	47	160	
	380			—	300	—	250	—	—	—	—	—	
	460			—	400	—	300	108	188	54	94	320	
	575			—	400	—	300	135	234	68	117	400	
7	230	810	932	—	300	—	—	—	—	—	—	240	9470
	460			—	600	—	—	—	—	—	—	480	
	575			—	600	—	—	—	—	—	—	600	
8	230	1215	1400	—	450	—	—	—	—	—	—	360	14205
	460			—	900	—	—	—	—	—	—	720	
	575			—	900	—	—	—	—	—	—	900	
9	230	2250	2590	—	800	—	—	—	—	—	—	665	25380
	460			—	1600	—	—	—	—	—	—	1325	
	575			—	1600	—	—	—	—	—	—	1670	

✶ **Service-Limit Current Ratings —** The service-limit current ratings shown represent the maximum rms current, in amperes, which the controller shall be permitted to carry for protracted periods in normal service. At service-limit current ratings, temperature rises shall be permitted to exceed those obtained by testing the controller at its continuous current rating. The current rating of overload relays or the trip current of other motor protective devices used shall not exceed the service-limit current rating of the controller.

❄ **Plugging or Jogging Service —** The listed horsepower ratings are recommended for those applications requiring repeated interruption of stalled motor current encountered in rapid motor reversal in excess of five openings or closings per minute and shall not be more than ten in a ten minute period.

‡ If maximum available current (at capacitor terminals) is greater than 3000 A, please contact your local Rockwell Automation sales office, Allen-Bradley distributor, or NEMA ICS-2 Standard.

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Mechanical Ratings

NEMA Size	Mechanical Life (Millions of Operations)	Maximum Number of Auxiliary Contacts	Operating Time [ms]	
			Pick-up (Average)	Drop-out (Average)
0	10	8	21	16
1	10	8	22	14
2	10	8	27	13
3	5	8	37	20
4	5	8	27	20
5	5	8	25	18
6	5	4	25…79	10…22
7	—	8	88	40
8	—	8	88	45
9	—	8	118	84
00	10	5	20	16

Construction

NEMA Size	Contact Material		Type of Power Terminal	Wire Size for Power Terminals	Required Torque on Power Terminal Wire Clamps and Pressure Connectors or Lugs	Requirements for Sizing of Wire
	Power Contacts	Auxiliary Contacts				
0	Silver alloy	Silver	Saddle or wire clamps	#14…10 AWG	20 lb•in	All wire rated 167 °F (75 °C) or higher must be sized per the local Electrical Code for 167°F (75 °C) wire.
1				#14…8 AWG	20 lb•in	
2			Pressure terminals	#14…4 AWG	45 lb•in	
3				#8…1/0 AWG	150 lb•in	
4				#6…4/0 AWG	275 lb•in	
5				#4 AWG…500 MCM	375 lb•in	
6			Lugs sold separately. See [S-1362754].			
7						
8						
9			Direct bus connections only.			
00			Pressure terminals	#16…10 AWG	9 lb•in	

Environmental

NEMA Size	Operating Temperature Range	Altitude	Corrosion-Resistance	Operating Position
0	Starters with eutectic alloy Overload relay –13…+149 °F (–25…+65 °C) Starters with SMP Overload relay –13…+131 °F (–25…+55 °C) (provided condensation is prevented)	10 000 feet before derating	All metal parts are treated for corrosion-resistance	Vertical
1				
2				
3				
4				
5				
6				Horizontal
7				Vertical
8				
9				
00				Horizontal

Short Circuit Rating

Combination contactors and starters with disconnect switch: Bulletin 502, 506, 512, 522E, 522F, 522G, and 1232X

Combination Contactors and Starters with Disconnect Switch: Bulletin 502, 506, 512, 522E, 522F, 522G, and 1232X			
NEMA Size	Fuse Type	Available Short Circuit Amperes RMS Symmetrical [A]	Maximum Voltage [V]
0…3	H, K	5000	600
4…5	H, K	10 000	
0…5	J, R	100 000	
6	L	18 000	
7	L	18 000	

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AC Coil Data

NEMA Size	Operating Volt Amperes Burden [VA] 60 Hz Coils Inrush	Operating Volt Amperes Burden [VA] 60 Hz Coils Sealed	Heat Dissipation [W]	Coil Operating Limits
00	70	8	2.7	85…110%
0	192	29	5.9	
1	192	29	5.9	
2 (2…3 poles)	240	29	5.9	
2 (4…5 poles)	315	38	5.9	
3 (2…3 poles)	660	45	10	
3 (4…5 poles)	840	58	10	
4 (2…3 poles)	1225	69	14.8	
4 (4…5 poles)	1490	96	14.8	
5 (Series L)	1490	96	19.8	
6∗	4860	254	65.7	
6 (Interposing relay)	52.44	3.96	—	
7❄	Economized DC Coil		—	
7 (Interposing relay)	74.40	9.84	—	
8‡	Economized DC Coil		—	
8 (Interposing relay)	74.40	9.84	—	
9§	Economized DC Coil		—	
9 (Interposing relay)	144	19.20	—	

∗ This rating is for the size 6 contactor coil only. All starters are shipped with an interposing relay as standard.

❄ Size 7 starters are shipped with a 250 VA control circuit transformer and an interposing relay with a 120V coil. Voltage is then rectified to DC for the contactor coil.

‡ Size 8 starters are shipped with a 350 VA control circuit transformer and an interposing relay with a 120V coil. Voltage is then rectified to DC for the contactor coil.

§ Size 9 starters are shipped with a 750 VA control circuit transformer and an interposing relay with a 120V coil. Voltage is then rectified to DC for the contactor coil.

Auxiliary Contacts (NEMA A600 and P300) — Bulletin 595, 596

Maximum AC Contact Rating Per Pole						
AC Rating Designation	Maximum Voltage 60 or 50 Hz	[A] Make	[A] Break	Continuous Carrying Current [A]	[VA] Make	[VA] Break
A600	120	60	6	10	7200	720
	240	30	3	10	7200	720
	480	15	1.5	10	7200	720
	600	12	1.2	10	7200	720

Maximum DC Contact Rating Per Pole for 595, 596 Auxiliary Contacts (Maximum Continuous Carrying Current is 5 A)			
DC Rating Designation	125V DC	250V DC	600V DC
P300	0.55 A	0.55 A (Requires 2 Contacts in Series)	—
	1.1 A (Requires 2 Contacts in Series)		

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Load-Life Curves

Bulletin 500 Line contactors and starters are designed to provide superior performance in a variety of applications. These load-life curves are based on Rockwell Automation tests according to the requirements defined in IEC 947-4. Actual contact life may vary based on the application, duty cycle, and environmental conditions from that indicated by the curves.
To find the contactor's estimated electrical life, follow these guidelines:

- Choose the appropriate graph that most closely approximates the utilization category of the application.
- Locate the intersection of the life-load curve of the appropriate contactor with the application's operational current (I^e) found on the horizontal axis.
- Read the estimated contact life in millions of operations along the vertical axis.

Contact Life for Mixed Utilization Categories AC3 and AC4

In many applications, the utilization category cannot be defined as either purely AC3 or AC4. In those applications, the electrical life of the contactor can be estimated from the following equation:

$$L_{mixed} = \frac{L_{AC3}}{1 + P_{AC4}\left(\frac{L_{AC3}}{L_{AC4}} - 1\right)}$$

Where:

L_{mixed} = Approximate contact life for a mixed AC3/AC4 utilization category application

L_{AC3} = Approximate contact life in operations for AC3 utilization category (from AC3 life-load curves below)

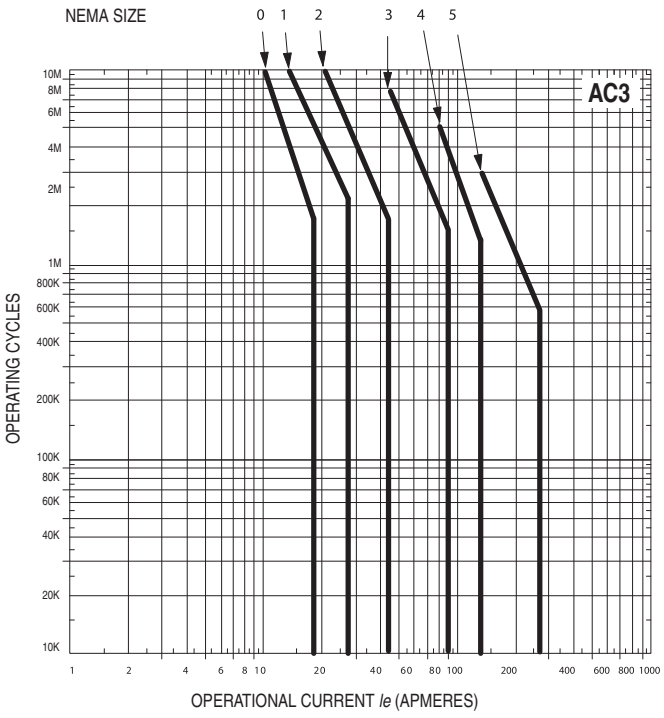
L_{AC4} = Approximate contact life in operations for AC4 utilization category (from AC4 life-load curves below)

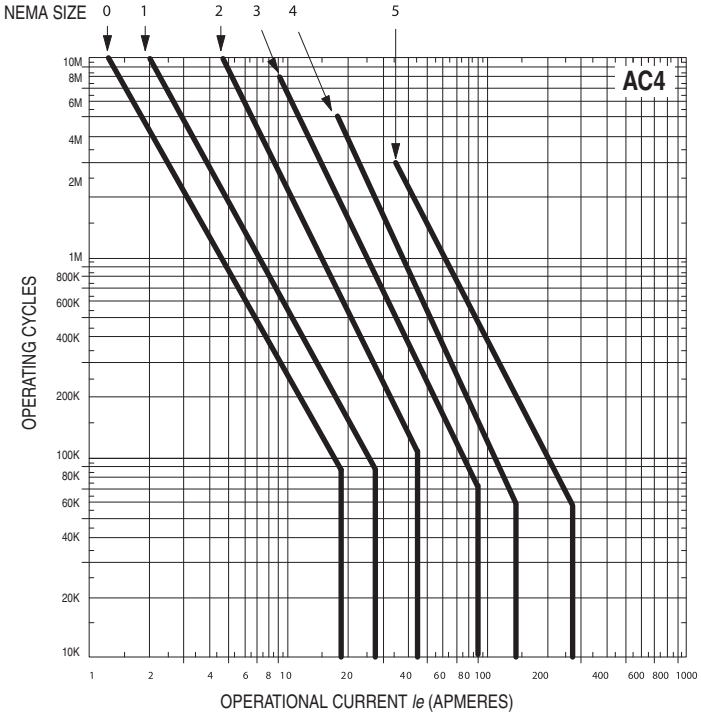
P_{AC4} = Percentage of AC4 operations

Utilization Categories

Category	Typical Duty
AC3	Starting of squirrel cage motors and switching off only after the motor is up to speed.
AC4	Starting of squirrel cage motors with inching and plugging duty.

Bulletin 500 Load/ Life Curves — AC3 and AC4





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Full Load Currents of 3-Phase, 60 Hertz AC Induction Motors

The full load currents listed below are "average values" for horsepower rated motors of several manufacturers at the more common rated voltages and speeds. These "average values", along with the similar values listed in the U. S. National Electrical Code (NEC), should be used only as a guide for selecting suitable components for the Motor Branch Circuit. The rated full load current, shown on the motor nameplate, may vary considerably from the listed value depending on the specific motor design.

ATTENTION: The motor nameplate full load current should always be used in determining the rating of the devices used for Motor Running Overcurrent Protection.

HP	RPM∗	Full Load Current [A]					
		208V	240V	480V	600V	2200V	4000V
1/4	3600	1.20	1.04	0.52	0.42	—	—
	1800	1.39	1.20	0.60	0.48	—	—
	1200	1.62	1.40	0.70	0.56	—	—
	900	—	—	—	—	—	—
1/3	3600	1.48	1.28	0.64	0.51	—	—
	1800	1.69	1.46	0.73	0.58	—	—
	1200	1.89	1.64	0.82	0.66	—	—
	900	—	—	—	—	—	—
1/2	3600	2.08	1.80	0.90	0.72	—	—
	1800	2.54	2.20	1.10	0.88	—	—
	1200	2.89	2.50	1.25	1.00	—	—
	900	—	—	—	—	—	—
3/4	3600	2.89	2.50	1.25	1.00	—	—
	1800	3.47	3.00	1.50	1.20	—	—
	1200	3.81	3.30	1.65	1.32	—	—
	900	—	—	—	—	—	—
1	3600	3.51	3.04	1.52	1.22	—	—
	1800	4.25	3.68	1.84	1.47	—	—
	1200	4.60	3.98	1.99	1.59	—	—
	900	—	—	—	—	—	—
1-1/2	3600	5.04	4.36	2.18	1.74	—	—
	1800	5.80	5.02	2.51	2.01	—	—
	1200	6.49	5.62	2.81	2.25	—	—
	900	—	—	—	—	—	—
2	3600	6.51	5.64	2.82	2.26	—	—
	1800	7.18	6.22	3.11	2.49	—	—
	1200	8.20	7.10	3.55	2.84	—	—
	900	—	—	—	—	—	—
3	3600	9.24	8.00	4.00	3.20	—	—
	1800	10.4	9.04	4.52	3.62	—	—
	1200	11.6	10.1	5.04	4.03	—	—
	900	—	—	—	—	—	—
5	3600	15.7	13.6	6.80	5.44	—	—
	1800	15.9	13.8	6.88	5.50	—	—
	1200	18.6	16.1	8.07	6.46	—	—
	900	—	—	—	—	—	—
7-1/2	3600	22.1	19.1	9.57	7.66	—	—
	1800	25.0	21.7	10.8	8.66	—	—
	1200	26.6	23.1	11.5	9.22	—	—
	900	—	—	—	—	—	—
10	3600	29.7	25.7	12.9	10.3	—	—
	1800	31.5	27.3	13.7	10.9	—	—
	1200	32.9	28.4	14.2	11.4	—	—
	900	—	—	—	—	—	—
15	3600	43.0	37.2	18.6	14.9	—	—
	1800	46.7	40.4	20.2	16.2	—	—
	1200	49.1	42.5	21.3	17.0	—	—
	900	—	—	—	—	—	—
	600	—	—	—	—	—	—
20	3600	59.2	51.3	25.6	20.5	5.2	2.9
	1800	59.6	51.6	25.8	20.6	5.3	3.0
	1200	61.7	53.4	26.7	21.4	5.4	3.1
	900	—	—	—	—	5.8	3.2
	600	—	—	—	—	6.4	3.5
25	3600	70.9	61.4	30.7	24.6	6.3	3.4
	1800	74.7	64.7	32.3	25.9	6.5	3.6
	1200	76.0	65.8	32.9	26.3	6.7	3.7
	900	—	—	—	—	6.9	3.8
	600	—	—	—	—	8.1	4.4
30	3600	85.7	74.2	37.1	29.7	—	—
	1800	88.2	76.4	38.2	30.5	7.8	4.3
	1200	91.6	79.3	39.7	31.7	8.0	4.4
	900	—	—	—	—	8.2	4.5
	600	—	—	—	—	9.3	5.0
40	3600	111	96.0	48.0	38.4	—	—
	1800	117	102	50.8	40.6	10.0	5.5
	1200	119	103	51.7	41.4	10.3	5.7
	900	—	—	—	—	10.6	5.8
	600	—	—	—	—	11.5	6.3

HP	RPM∗	Full Load Current [A]					
		208V	240V	480V	600V	2200V	4000V
50	3600	141	122	61.2	49.0	—	—
	1800	144	125	62.3	49.8	12.3	6.8
	1200	147	127	63.4	50.7	12.4	6.8
	900	—	—	—	—	13.1	7.2
	600	—	—	—	—	14.2	7.8
60	3600	165	143	71.6	57.3	—	—
	1800	172	149	74.3	59.4	14.6	8.0
	1200	173	150	74.9	59.9	14.9	8.2
	900	—	—	—	—	15.4	8.5
	600	—	—	—	—	16.7	9.2
75	3600	204	177	88.5	70.8	—	—
	1800	211	183	91.4	73.1	18.0	9.9
	1200	215	186	93.1	74.5	18.2	10.0
	900	—	—	—	—	19.0	10.5
	600	—	—	—	—	21.0	11.6
100	3600	267	231	116	92.6	—	—
	1800	276	239	119	95.5	23.6	13.0
	1200	281	243	122	97.2	24.2	13.3
	900	—	—	—	—	24.8	13.6
	600	—	—	—	—	26.4	14.5
	450	—	—	—	—	29.8	16.4
125	3600	333	288	144	115	—	—
	1800	340	294	147	118	29.2	16.1
	1200	347	300	150	120	29.9	16.4
	900	—	—	—	—	30.9	17.0
	720	—	—	—	—	31.3	17.2
	600	—	—	—	—	32.8	18.0
	450	—	—	—	—	36.0	19.8
150	3600	397	344	172	138	—	—
	1800	404	350	175	140	34.8	19.1
	1200	414	358	179	143	35.5	19.5
	900	—	—	—	—	37.0	20.4
	720	—	—	—	—	37.0	20.4
	600	—	—	—	—	38.8	21.3
	450	—	—	—	—	42.0	23.1
200	3600	524	454	227	182	—	—
	1800	531	460	230	184	46.7	25.7
	1200	538	466	233	186	47.0	25.9
	900	—	—	—	—	49.4	27.2
	720	—	—	—	—	49.0	27.0
	600	—	—	—	—	50.9	28.0
	450	—	—	—	—	53.7	29.5
250	3600	642	556	278	222	—	—
	1800	658	570	285	228	57.5	31.6
	1200	682	590	295	236	58.5	32.2
	900	—	—	—	—	61.5	33.8
	720	—	—	—	—	61.5	33.8
	600	—	—	—	—	61.0	33.6
	450	—	—	—	—	65.3	35.9
	360	—	—	—	—	70.0	38.5
300	3600	774	670	335	268	—	—
	1800	790	684	342	274	69.0	38.0
	1200	804	696	348	278	70.0	38.5
	900	—	—	—	—	73.5	40.4
	600	—	—	—	—	72.3	39.8
	450	—	—	—	—	76.0	41.8
	360	—	—	—	—	82.8	45.5
350	3600	—	748	374	299	—	—
	1800	—	762	381	305	—	—
	1200	—	774	387	310	—	—
400	3600	—	874	437	350	—	—
	1800	—	892	446	357	—	—
	1200	—	902	451	361	—	—
450	3600	—	972	486	389	—	—
	1800	—	992	496	397	—	—
	1200	—	1004	502	402	—	—
500	3600	—	1074	537	430	—	—
	1800	—	1096	548	438	—	—
	1200	—	1108	554	443	—	—

∗ Synchronous speed nameplate is usually less due to slip.

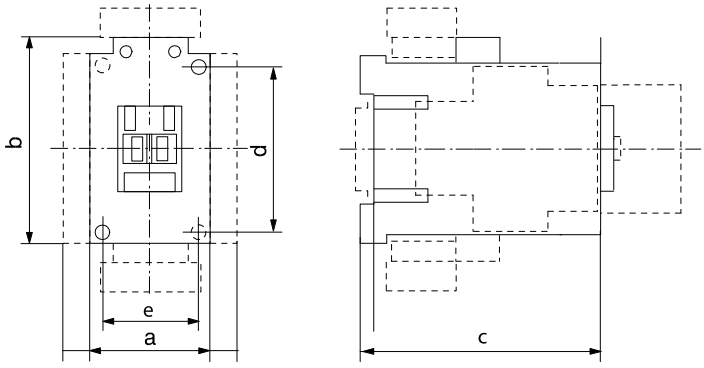
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NEMA AC Contactors and Starters

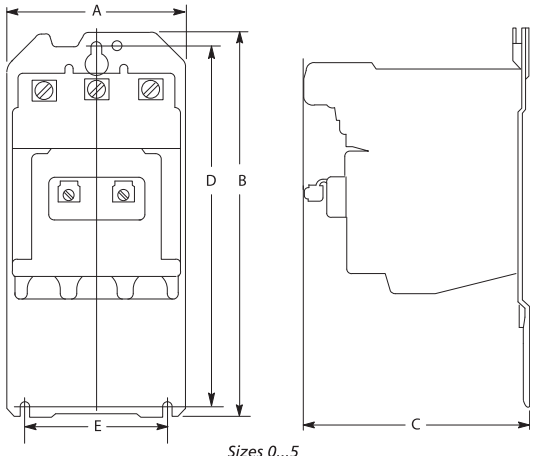
Approximate Dimensions

Approximate dimensions are shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

Open Type without Enclosure for Bulletin 500 and 500F Contactors



Sizes 00



Sizes 0...5

NEMA Size	Number of Switching Poles	Dimensions in Inches (Millimeters)					Approximate Shipping Weight in lbs (kg)
		A Width	B Height	C Depth	D	E	
0...1	2...3	3-9/16 (90.5)	7-5/8 (193)	4-15/32 (113)	7-1/16 (180)	2-3/4 (70)	3 (1.4)
	4	4-3/8 (111)					3-1/2 (1.6)
	5	4-15/16 (125)					4-3/4 (2.2)
2	2...3	3-15/16 (100)	9-25/32 (248)	4-23/32 (120)	9-1/4 (235)	3-5/32 (80)	4 (1.8)
	4	4-31/32 (126)					4-3/4 (2.2)
	5	5-1/2 (140)					6-1/4 (2.8)
3	2...3	6-1/8 (155.5)	10-3/64 (255)	6-19/32 (167.4)	8-21/32 (220)	5-33/64 (140)	14.5 (6.5)
	4	7-15/16 (201.6)					16 (7.25)
	5	8-13/16 (223.8)					18 (8)
4	2...3	7 (178)	12-11/64 (309)❄	7-13/16 (198.4)	9-27/32 (250)	6-5/16 (160)	22 (10)
	4	9-1/16 (230.2)					25.5 (11.5)
	5	10-7/16 (265.1)					28.5 (13)

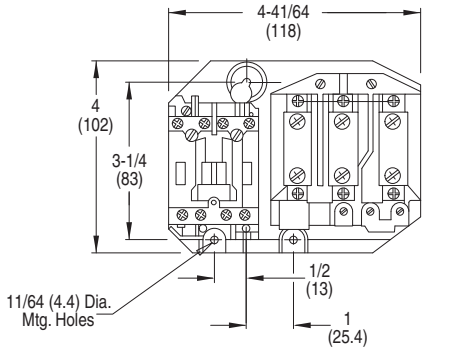
❄ For Feed-Through Wiring this dimension is 11-11/16 in. (297 mm).

Allen-Bradley

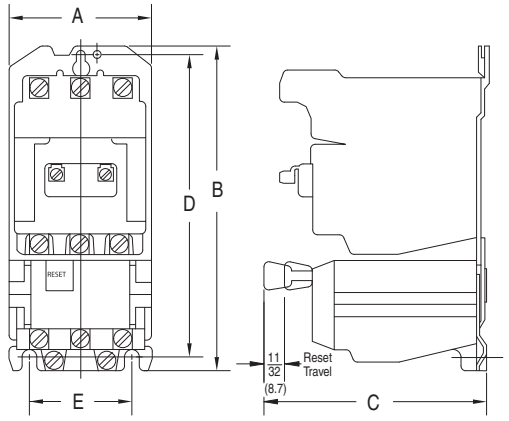
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Approximate dimensions are shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

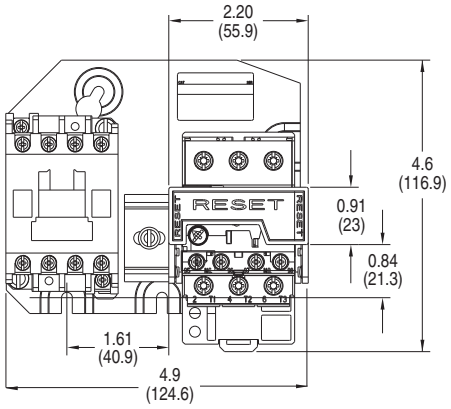
Open Type without Enclosure for Bulletin 509 Full Voltage Starters with Eutectic Alloy and Solid-State Overload Relay

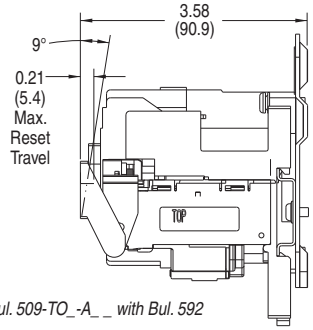


Size 00 with Eutectic Alloy Overload Relay



Size 0...9 with Eutectic Alloy





Bul. 509-TO_-A_ _ with Bul. 592

Size 00 with Solid-State Overload Relay

NEMA Size	Dimensions in Inches (Millimeters)					Approx. Shipping Weight in lbs (kg)
	A Width	B Height	C Relay Reset Depth	D	E	
00	*	*	*	*	*	0.9 (0.4)
0...1	3-9/16 (90.5)	7-5/8 (194)	4-1/2 (114)	7-3/32 (180)	2-3/4 (70)	4-1/4 (1.9)
2	3-15/16 (100)	9-5/32 (233)	4-1/2 (114)	8-21/32 (220)	3-5/32 (80)	5-3/4 (2.6)
3	6-11/64 (157)	12-29/64 (316)	6-1/16 (154)	8-21/32 (220)	5-33/64 (140)	15 (6.8)
4	7 (178)	14-21/32 (372)	7-13/16 (198)	9-27/32 (250)	6-5/16 (160)	23-1/5 (10.6)
5	7-3/8 (187)	16-7/6 (429)	8-17/32 (217)	14-32/32 (380)	6-5/16 (160)	35 (15.9)
6	13-1/4 (337)	25-3/32 (637)	11-7/16 (291)	17-23/32 (450)	11-13/16 (300)	160 (72)
7	16-1/2 (419)	30-27/32 (783)	12-9/32 (312)	18-5/16 (465)	15 (381)	247 (112)
8	21-1/2 (546)	39-1/2 (1003)	15-19/32 (396)	22-5/8 (575)	20 (508)	370 (168)
9	34 (864)	53-11/16 (1364)	28 (711)	—	—	—

* See drawing for dimensions.

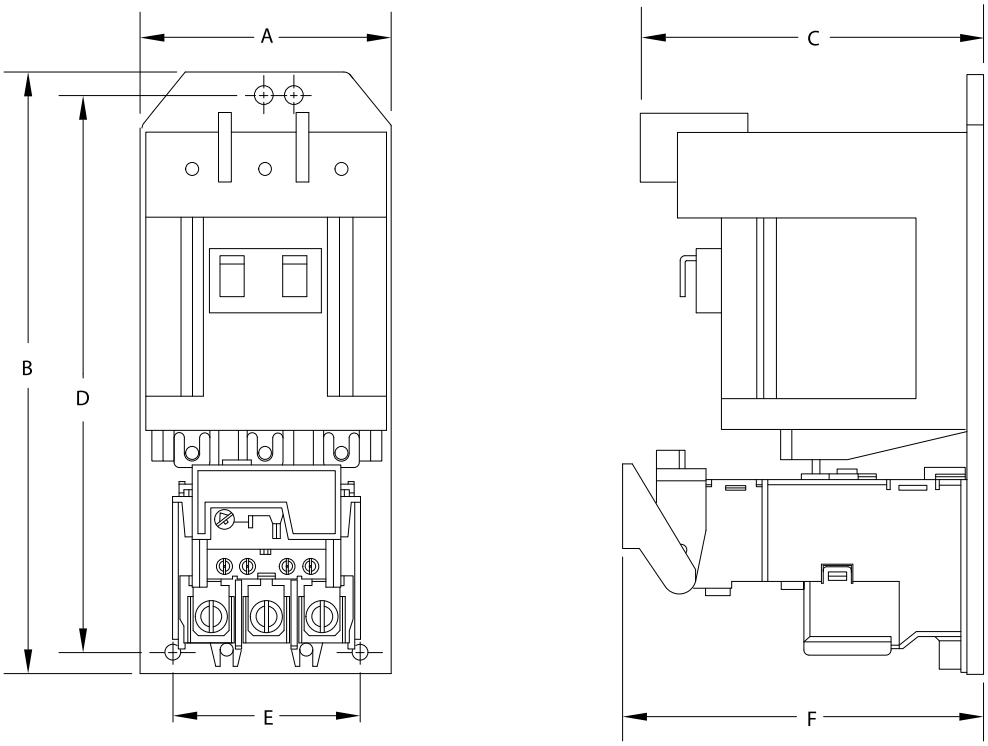
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NEMA AC Contactors and Starters

Approximate Dimensions, Continued

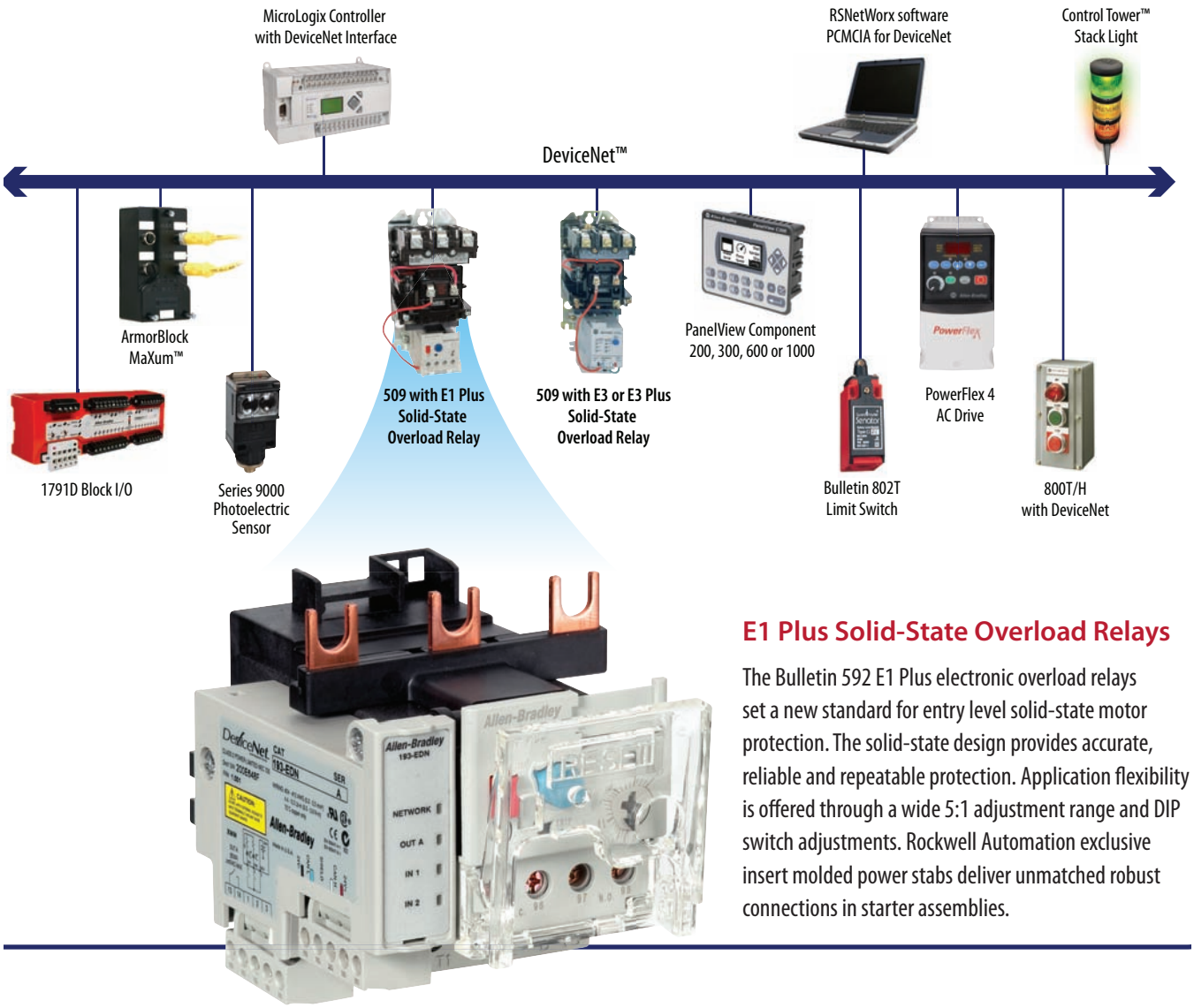
Approximate dimensions are shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

Open Type without Enclosure for Bulletin 509 Full Voltage Starters with Solid-State Overload Relay



NEMA Size	Overload Relay	Dimensions in Inches (Millimeters)						Approx. Shipping Weight in lbs (kg)
		A Width	B Height	C Depth	D	E	F Relay Reset Depth	
0…1	Solid-State E1 Plus	3-9/16 (91)	7-5/8 (193)	4-15/32 (113)	7-1/16 (180)	2-3/4 (70)	4-1/2 (114)	4.3 (1.9)
	Solid-State E3 Plus	3-9/16 (91)	9-25/32 (248)	4-15/32 (113)	9-1/4 (235)	2-3/4 (70)	4-5/8 (118)	
2	Solid-State E1 Plus	3-15/16 (100)	9-5/32 (233)	4-11/16 (119)	8-5/8 (219)	3-5/32 (80)	4-1/2 (114)	6.0 (2.7)
	Solid-State E3 Plus	3-15/16 (100)	10-25/32 (274)	4-23/32 (120)	10-1/4 (260)	3-5/32 (80)	4-5/8 (118)	
3	Solid-State E1 Plus	6-1/8 (156)	12-7/16 (316)	6-19/32 (168)	8-21/32 (220)	5-1/2 (140)	6-1/16 (154)	16.0 (7.3)
	Solid-State E3 Plus	6-1/8 (156)	14-9/16 (370)	6-19/32 (168)	8-21/32 (220)	5-1/2 (140)	5-61/64 (151)	
4	Solid-State E1 Plus	6-1/2 (165)	16-1/2 (419)	7-13/16 (198)	14-31/32 (380)	6-5/16 (160)	7-27/32 (199)	24.6 (11.2)
	Solid-State E3 Plus	6-1/2 (165)	16-1/2 (419)	7-13/16 (198)	14-31/32 (380)	6-5/16 (160)	8-29/64 (215)	

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E1 Plus Solid-State Overload Relays

The Bulletin 592 E1 Plus electronic overload relays set a new standard for entry level solid-state motor protection. The solid-state design provides accurate, reliable and repeatable protection. Application flexibility is offered through a wide 5:1 adjustment range and DIP switch adjustments. Rockwell Automation exclusive insert molded power stabs deliver unmatched robust connections in starter assemblies.

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