



NEMA Open Type Contactors and Starters

Bulletin Numbers 500, 500F, 505, 509, 520



Allen-Bradley

by ROCKWELL AUTOMATION

Selection Guide

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Ordering Options

Depending on the type of open style contactor or starter that choose, you can decide which ordering method suits your needs best.

- Individual Components: You select individual catalog numbers of each component and accessory, to build up a contactor or starter.
- Modular Kits: You select one catalog number. This catalog number will include your selected accessories which are all shipped together (unassembled), along with the base contactor or starter. This method saves lead time.
- Factory Assembled: You select one catalog string and the factory assembles your selected options and accessories to the contactor or starter, before it gets shipped.

Individual Component

- Multiple Catalog Numbers
- Multiple Components
- Standard Lead Time



Modular Kit

- One Catalog Number
- Pre-packaged Kit of Multiple Components
- Shorter Lead Time



Factory Assembled

- One Catalog Number
- Fully Assembled Device
- Standard Lead Time



Product Comparison

					
Bulletin	500	500F	509	505	520
Description	Top-wired contactor	Feed-through wired contactor	Reversing starter	Non-reversing starter	Multi-speed starter
NEMA Sizes	00...5	0...5	00...5	00...5	0...5
Continuous Ampere Rating [A]	9...2250	18...270	9...270	9...270	18...270
Availability	NEMA sizes 0...4: modular kits and individual components NEMA sizes 00 and 5: factory assembled	NEMA sizes 0...4: modular kits and individual components NEMA size 5: factory assembled	NEMA sizes 0...4: modular kits and individual components NEMA sizes 00 and 5: factory assembled	NEMA size 00...5: factory assembled	NEMA size 0...5: factory assembled
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 ICS 2 (Industrial Controls and Systems) • UL 508 • CSA C22.2, No. 14 • ABS 4/5.115 • USCG 46 CFR 111.70		• NEMA/EEMAC ICS (Industrial Controls and Systems) • UL 508 • CSA C22.2, No. 14 • ABS 4/5.115
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		• 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)		• UL Listed (File No. E3125; Guide No. NLDX) • CSA Certified (File LR 1234) • Hazardous Location: UL Listed (File No. E10314), CSA Certified (File No. LR 11924)
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Catalog Number Explanation

Examples that are given in this section are not intended to be used for product selection. Not all combinations produce a valid catalog number. For accurate catalog number configuration, use the ProposalWorks™ application which is available from rok.auto/systemtools.

Bulletin 500 top-wired contactors can be ordered as modular kits or individual components, as follows:

- Modular kit (sizes 0...4) (single catalog number, pre-stocked modular components shipped in one carton to reduce lead time)
- User assembled (sizes 0...4) (list of kitted components)
- Factory assembled (sizes 00 and 5) (single catalog number)

$\frac{500}{a} - \frac{B}{b} \frac{0}{c} \frac{D}{d} \frac{930}{e} - \frac{17}{f}$

a	
Bulletin Number	
Code	Description
500	Top-wired contactor
500DC	Top-wired contactor with DC coil voltage selected

c	
Enclosure Type	
Code	Description
0	No enclosure

e	
Number of Poles	
Code	Description
930	Three power poles and one N.O. auxiliary contact
940	Four power poles and one N.O. auxiliary contact
950	Five power poles and one N.O. auxiliary contact

b	
NEMA Size	
Code	Description
T	00
A	0
B	1
C	2
D	3
E	4
F	5

d		
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	208V	60 Hz
I	415V	50 Hz
J	24V	50/60 Hz
N	380V	50 Hz
VG ⁽¹⁾	125...250V DC	—
VL ⁽¹⁾	24V DC	—

f	
Options	
Code	Description
17	Surge suppressor for 120 or 240V AC coil
90 ⁽²⁾	One N.O. auxiliary contact
91 ⁽²⁾	One N.C. auxiliary contact

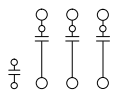
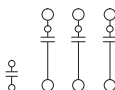
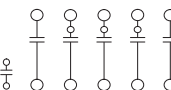
(1) DC coil voltages are only available for NEMA sizes 0...3. When ordering a DC coil voltage, add "DC" to the catalog number.
Example: 500DC-B0VL-930.

(2) Up to six combinations of auxiliary contacts can be selected. For example, Code **90011** indicates two N.O. contacts and two N.C. contacts.

Modular Kit Product Selection



Base Contactor — NEMA Sizes 0...4⁽¹⁾

NEMA Size	Continuous Ampere Rating [A]	Maximum Horsepower Rating (Full Load Current Must Not Exceed Continuous Ampere Rating)								
		1-Phase Motor Voltage ⁽²⁾		3-Phase Motor Voltage				600V AC Maximum, 60 Hz		
		115V	230V	200V	230V	50 Hz	460...575V	3 Power Poles	4 Power Poles	5 Power Poles
						380...415V		Cat. No. ⁽³⁾	Cat. No. ⁽³⁾	Cat. No. ⁽³⁾
00	9	0.33	1	1.5	1.5	2	2	(4)	(4)	—
0	18	1	2	3	3	5	5	500-A0⊗930	500-A0⊗940	500-A0⊗950
1	27	2	3	7.5	7.5	10	10	500-B0⊗930	500-B0⊗940	500-B0⊗950
2	45	3	7.5	10	15	25	25	500-C0⊗930	500-C0⊗940	500-C0⊗950
3	90	7.5	15	25	30	50	50	500-D0⊗930	500-D0⊗940	500-D0⊗950
4	135	—	—	40	50	75	100	500-E0⊗930	500-E0⊗940	500-E0⊗950
5	270	—	—	75	100	150	200	(4)	(4)	—

(1) Includes a 120V AC coil and one N.O. auxiliary contact, as standard.

(2) NEMA sizes 0...3 can be wired for 3-phase or 1-phase applications, but 1-phase coil codes are no longer valid.

(3) The cat. nos. as listed are incomplete. Select a value from the [Voltage Code](#) table to complete each cat. no.

Example: To select a 120V AC coil voltage, Cat. No. 500-A0⊗940 becomes Cat. No. 500-A0D940.

(4) See [NEMA Sizes 00 and 5 on page 8](#).

⊗ Voltage Code

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

[V]	24	110	120	125	208	220	240	250	277	380	415	440	480	550	600
AC, 50 Hz	J	D	—	—	—	—	—	—	—	—	—	—	—	—	—
AC, 60 Hz	J	—	D	—	H	—	A	—	F	—	—	—	B	—	C
DC ⁽¹⁾	VL	—	—	VG	—	—	—	VG	—	—	—	—	—	—	—

(1) DC coil voltages are only available for NEMA sizes 0...3. When ordering a DC coil voltage, add "DC" to the catalog number.

Example: 500DC-B0VL-930.

Modular Kit Options

Options	
Code	Description
17	Surge suppressor for 120 or 240V AC coil
g0 ⁽¹⁾	One N.O. auxiliary contact
g1 ⁽¹⁾	One N.C. auxiliary contact

(1) Up to six combinations of auxiliary contacts can be selected. For example, Code **90011** indicates two N.O. contacts and two N.C. contacts.

Example: **Catalog Number 500-C0D930-17-90** includes a NEMA size 2, 3-pole contactor with a 120V AC coil, a surge suppressor, and one N.O. auxiliary contact.

Components Product Selection

NEMA Sizes 0...4

						
Base Contactor	Coil	Auxiliary Contact – Contactors	Surge Suppressor	Power Pole	Top Wire Kit	Load-side Terminal Shield

Base Contactor

NEMA Size	Continuous Ampere Rating [A]	Cat. No.
0	18	500F-A0D930
1	27	500F-B0D930
2	45	500F-C0D930
3	90	500F-D0D930
4	135	500F-E0D930

Coils

Voltage	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, an alternate coil will be included in the modular kit for field installation.

Auxiliary Contact – Contactors

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

Surge Suppressor

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

Power Pole Adders

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

Top Wiring Kit

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

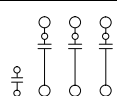
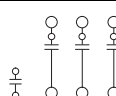
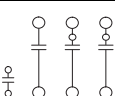
Terminal Shield Kit

NEMA Size	Cat. No.
0...2	599-TS02
3, 4	599-TS34

Factory Assembled Product Selection



NEMA Sizes 00 and 5⁽¹⁾

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				600V AC Maximum, 60 Hz		
		115V	230V	200V	230V	50 Hz	460...575V	3 Power Poles	4 Power Poles	5 Power Poles
						380...415V		Cat. No. ⁽²⁾	Cat. No. ⁽²⁾	Cat. No. ⁽²⁾
00	9	0.33	1	1.5	1.5	2	2	500-T0⊗930	—	—
0	18	1	2	3	3	5	5	(3)	(3)	(3)
1	27	2	3	7.5	7.5	10	10	(3)	(3)	(3)
2	45	3	7.5	10	15	25	25	(3)	(3)	(3)
3	90	7.5	15	25	30	50	50	(3)	(3)	(3)
4	135	—	—	40	50	75	100	(3)	(3)	(3)
5	270	—	—	75	100	150	200	500-F0⊗930	500-F0⊗940	—

(1) Includes a 120V AC coil and one N.O. auxiliary contact, as standard.

(2) The cat. nos. as listed are incomplete. Select a value from the [Voltage Code](#) table to complete each cat. no.
Example: To select a 120V AC coil voltage, Cat. No. 500-F0⊗930 becomes Cat. No. 500-F0D930.

(3) See [Base Contactor — NEMA Sizes 0...4 on page 6](#).

⊗ Voltage Code

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

[V]	24	110	120	125	208	220	240	250	277	380	415	440	480	550	600
AC, 50 Hz	J	D	—	—	—	—	—	—	—	—	—	—	—	—	—
AC, 60 Hz	J	—	D	—	H	—	A	—	F	—	—	—	B	—	C
DC ⁽¹⁾	VL	—	—	VG	—	—	—	VG	—	—	—	—	—	—	—

(1) DC coil voltages are only available for NEMA sizes 0...3. When ordering a DC coil voltage, add "DC" to the catalog number.
Example: 500DC-F0VL-930.

Catalog Number Explanation

Examples that are given in this section are not intended to be used for product selection. Not all combinations produce a valid catalog number. For accurate catalog number configuration, use the ProposalWorks™ application which is available from rok.auto/systemtools.

Bulletin 500F feed-through contactors can be ordered as modular kits or individual components, as follows:

- Modular kit (sizes 0...4) (single catalog number, pre-stocked modular components shipped in one carton to reduce lead time)
- User assembled (sizes 0...4) (list of kitted components)
- Factory assembled (size 5) (single catalog number)

$$\frac{500F}{a} - \frac{B}{b} \frac{0}{c} \frac{D}{d} \frac{930}{e} - \frac{17}{f}$$

a	
Bulletin Number	
Code	Description
500F	Feed-through contactor
500FC	Feed-through contactor with DC voltage coil

c	
Enclosure Type	
Code	Description
0	No enclosure

e	
Number of Poles	
Code	Description
930	Three power poles and one N.O. auxiliary contact

b	
NEMA Size	
Code	Description
A	0
B	1
C	2
D	3
E	4
F	5

d		
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	208V	60 Hz
I	415V	50 Hz
J	24V	50/60 Hz
N	380V	50 Hz
VL ⁽¹⁾	24V DC	—
VG ⁽¹⁾	125...250V DC	—

f	
Options	
Code	Description
17	Surge suppressor for 120 or 240V AC coil
90 ⁽²⁾	One N.O. auxiliary contact
91 ⁽²⁾	One N.C. auxiliary contact

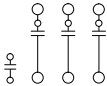
(1) DC coil voltages are only available for NEMA sizes 0...3. When ordering a DC coil voltage, add "C" to the catalog number.
Example: 500FC-B0VL-930.

(2) Up to six combinations of auxiliary contacts can be selected. For example, Code **90011** indicates two N.O. contacts and two N.C. contacts.

Product Selection – Modular Kits



Base Contactor – NEMA Sizes 0...4⁽¹⁾

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				600V AC Maximum, 60 Hz
		115V	230V	200V	230V	50 Hz	460...575V	3 Power Poles
						380...415V		Cat. No. ⁽²⁾
0	18	1	2	3	3	5	5	500F-A0⊗930
1	27	2	3	7.5	7.5	10	10	500F-B0⊗930
2	45	3	7.5	10	15	25	25	500F-C0⊗930
3	90	7.5	15	25	30	50	50	500F-D0⊗930
4	135	—	—	40	50	75	100	500F-E0⊗930
5	270	—	—	75	100	150	200	(3)

(1) Includes a 120V AC coil and one N.O. auxiliary contact, as standard.

(2) The cat. nos. as listed are incomplete. Select a value from the [Voltage Code](#) table to complete each cat. no.
Example: To select a 120V AC coil voltage, Cat. No. 500F-A0⊗930 becomes Cat. No. 500F-A0D930.

(3) See [NEMA Size 5 on page 12](#) for NEMA size 5 contactors.

⊗ Voltage Code

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

[V]	24	110	120	125	208	220	240	250	277	380	415	440	480	550	600
AC, 50 Hz	J	D	—	—	—	—	—	—	—	—	—	—	—	—	—
AC, 60 Hz	J	—	D	—	H	—	A	—	F	—	—	—	B	—	C
DC ⁽¹⁾	VL	—	—	VG	—	—	—	VG	—	—	—	—	—	—	—

(1) DC coil voltages are only available for NEMA sizes 0...3. When ordering a DC coil voltage, add "C" to the catalog number.
Example: 500FC-B0VL-930.

Modular Kit Options

Options	
Code	Description
17	Surge suppressor for 120 or 240V AC coil
90 ⁽¹⁾	One N.O. auxiliary contact
91 ⁽¹⁾	One N.C. auxiliary contact

(1) Up to six combinations of auxiliary contacts can be selected. For example, Code **90011** indicates two N.O. contacts and two N.C. contacts.

Example: **Catalog Number 500F-C0D930-17-90** includes a NEMA size 2, 3-pole contactor with a 120V AC coil, a surge suppressor, and one N.O. auxiliary contact.

Product Selection – Components

NEMA Sizes 0...4

			
Base Contactor	Coil	Auxiliary Contact – Contactor	Surge Suppressor

Base Contactor

NEMA Size	Continuous Ampere Rating [A]	Cat. No.
0	18	500F-A0D930
1	27	500F-B0D930
2	45	500F-C0D930
3	90	500F-D0D930
4	135	500F-E0D930

Coils

Voltage	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	CB236	CC236	CD236	CE236
120V, 60 Hz				
208V, 60 Hz	CB249	CC249	CD249	CE249
220V, 50 Hz	CB254	CC254	CD254	CE254
240V, 60 Hz				
277V 60 Hz	CB260	CC260	CD260	CE260
380V, 50 Hz	CB354	CC354	CD354	CE354
415V, 50 Hz	CB357	CC357	CD357	CE357
440V, 50 Hz	CB273	CC273	CD273	CE273
480V, 60 Hz				
550V, 50 Hz	CB278	CC278	CD278	CE278
600V, 60 Hz				
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, an alternate coil will be included in the modular kit for field installation.

Auxiliary Contact – Contactors

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

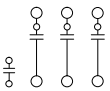
Surge Suppressor

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

Product Selection – Factory Assembled



NEMA Size 5⁽¹⁾

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				600V AC Maximum, 60 Hz
		115V	230V	200V	230V	50 Hz	460...575V	3 Power Poles
						380...415V		Cat. No. ⁽²⁾
0	18	1	2	3	3	5	5	(3)
1	27	2	3	7.5	7.5	10	10	(3)
2	45	3	7.5	10	15	25	25	(3)
3	90	7.5	15	25	30	50	50	(3)
4	135	—	—	40	50	75	100	(3)
5	270	—	—	75	100	150	200	500F-F0⊗930

(1) Includes a 120V AC coil and one N.O. auxiliary contact, as standard.
(2) The cat. no. as listed is incomplete. Select a value from the [Voltage Code](#) table to complete the cat. no.
Example: To select a 120V AC coil voltage, Cat. No. 500F-F0⊗930 becomes Cat. No. 500F-F0D930.
(3) See [Base Contactor – NEMA Sizes 0...4 on page 10](#) for NEMA size 0...4 contactors.

⊗ Voltage Code

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

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

Catalog Number Explanation

Examples that are given in this section are not intended to be used for product selection. Not all combinations produce a valid catalog number. For accurate catalog number configuration, use the ProposalWorks™ application which is available from rok.auto/systemtools.

Bulletin 509 non-reversing starters can be ordered as modular kits or individual components, as follows:

- Modular kit (sizes 0...4) (single catalog number, pre-stocked modular components shipped in one carton to reduce lead time)
- Factory assembled (sizes 00 and 5) (single catalog number)

$$\frac{509}{a} - \frac{B}{b} - \frac{0}{c} - \frac{D}{d} - \frac{A2E}{e} - \frac{17}{f}$$

a	
Bulletin Number	
Code	Description
509	Non-reversing starter
509DC	Non-reversing starter with DC coil voltage selected

b	
NEMA Size	
Code	Description
T	00
A	0
B	1
C	2
D	3
E	4
F	5

c	
Enclosure Type	
Code	Description
0	No enclosure

d		
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	208V	60 Hz
I	415V	50 Hz
J	24V	50/60 Hz
N	380V	50 Hz
VG ⁽¹⁾	125...250V DC	—
VL ⁽¹⁾	24V DC	—

e		
Eutectic Overload Relay		
Code	Description	
blank	Eutectic alloy ⁽³⁾	
E100 Solid-state Overload Relay		
Code	NEMA Size	Full Load Current Adjustment Range [A]
3-Phase		
A2A	00	0.1...0.5
A2C	00, 0, 1	0.2...1.0
A2E	00, 0, 1	1.0...5.0
A2F	00, 0, 1	3.2...16
A2G	0, 1, 2	5.4...27
A2J	1, 2	11...55
A2L	3	20...100
A2M	4	30...150
A2N	5	60...300

f	
Options	
Code	Description
9	One N.O. auxiliary contact for use on Eutectic overload relay
9A	One N.C. auxiliary contact for use on Eutectic overload relay
17	Surge suppressor for 120 or 240V AC coil
g0 ⁽²⁾	One N.O. auxiliary contact for use on starter
g1 ⁽²⁾	One N.C. auxiliary contact for use on starter

(1) DC coil voltages are only available for NEMA sizes 0...3. When ordering a DC coil voltage, add "DC" to the catalog number.
Example: 509DC-B0VL-A2E.

(2) Up to six combinations of auxiliary contacts can be selected. For example, Code **90011** indicates two N.O. contacts and two N.C. contacts.

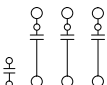
(3) Starters with eutectic alloy overload relays require three heater elements. See Heater Elements Specifications Technical Data, publication [592-TD010](#), for heater element selection.

Product Selection – Modular Kits



Base Starter – NEMA Sizes 0...4⁽¹⁾

Heater Elements – Starters with eutectic alloy overload relay require three heater elements. See Heater Elements Specifications Technical Data, publication [592-TD010](#), for heater element selection.

NEMA Size	Continuous Ampere Rating [A]	Maximum Horsepower Rating (Full Load Current Must Not Exceed Continuous Ampere Rating)						
		1-Phase Motor Voltage ⁽²⁾		3-Phase Motor Voltage				600V AC Maximum, 60 Hz
		115V	230V	200V	230V	50 Hz	460...575V	3 Power Poles
						380...415V		Cat. No. ⁽³⁾
00	9	0.33	1	1.5	1.5	2	2	(4)
0	18	1	2	3	3	5	5	509-A0⊗-⊕
1	27	2	3	7.5	7.5	10	10	509-B0⊗-⊕
2	45	3	7.5	10	15	25	25	509-C0⊗-⊕
3	90	7.5	15	25	30	50	50	509-D0⊗-⊕
4	135	—	—	40	50	75	100	509-E0⊗-⊕
5	270	—	—	75	100	150	200	(4)

(1) The starters include a 120V AC coil and one N.O. auxiliary contact, as standard.

(2) NEMA sizes 0...3 can be wired for 3-phase or 1-phase applications, but 1-phase coil codes are no longer valid.

(3) The cat. nos. as listed are incomplete. Select a value from the [Voltage Code](#) table and a value from the [Overload Relay Code](#) table, to complete each cat. no.

Example: To select a 240V AC coil voltage with a E100 overload relay (1...5 A), Cat. No. 509-A0⊗-⊕ becomes Cat. No. 509-A0A-A2E.

(4) See [NEMA Size 00 and 5](#) for NEMA size 00 and 5 starter product selection.

⊗ Voltage Code

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

[V]	24	110	120	125	208	220	240	250	277	380	415	440	480	550	600
AC, 50 Hz	J	D	—	—	—	—	—	—	—	—	—	—	—	—	—
AC, 60 Hz	J	—	D	—	H	—	A	—	F	—	—	—	B	—	C
DC ⁽¹⁾	VL	—	—	VG	—	—	—	VG	—	—	—	—	—	—	—

(1) DC coil voltages are only available for NEMA sizes 0...3. When ordering a DC coil voltage, add "DC" to the catalog number. Example: 509DC-B0VL.

⊕ Overload Relay Code

Code	Description
blank	Eutectic alloy

E100 Solid-state Overload Relay (3-phase)		
Code	NEMA Size	Full Load Current Adjustment Range [A]
A2C	00, 0, 1	0.2...1.0
A2E	00, 0, 1	1.0...5.0
A2F	00, 0, 1	3.2...16
A2G	0, 1, 2	5.4...27
A2J	1, 2	11...55
A2L	3	20...100
A2M	4	30...150
A2N	5	60...300

Modular Kit Options

Code	Description
9	One N.O. auxiliary contact for use on Eutectic overload relay
9A	One N.C. auxiliary contact for use on Eutectic overload relay
17	Surge suppressor for 120 or 240V AC coil

Code	Description
90 ⁽¹⁾	One N.O. auxiliary contact
91 ⁽¹⁾	One N.C. auxiliary contact

(1) Up to six combinations of auxiliary contacts can be selected. For example, Code **90011** indicates two N.O. contacts and two N.C. contacts.

Example: **Catalog Number 509-C0D-A2E-17-90** includes a NEMA size 2 starter with a 120V AC coil, E100 overload relay, a surge suppressor, and one N.O. auxiliary contact.

Components Product Selection

NEMA Sizes 0...4

						
Base Contactor	Eutectic Overload Relay	E100 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-A0D930
1	27	500F-B0D930
2	45	500F-C0D930
3	90	500F-D0D930
4	135	500F-E0D930

Eutectic Overload Relay

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

E100 Solid-state Overload Relay

NEMA Size	Current Range [A]	Cat. No.
00, 0, 1	0.2...1.0	592-1EFBC
00, 0, 1	1.0...5.0	592-1EFCC
00, 0, 1	3.2...16	592-1EFDC
0, 1, 2	5.4...27	592-1EFEC
1, 2, 3	11...55	592-1EFFC
3	20...100	592-1EFGD
4	30...150	592-1EFHE
5	60...300	592-1EFKF

Coils

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

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

Auxiliary Contact – Contactors

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

Surge Suppressor

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

Eutectic Alloy Overload Relay Accessory – Auxiliary Contact⁽¹⁾

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

(1) Auxiliary contact for solid-state overload relays is included with the product.

(2) Auxiliary contact mounted on right-hand side of the overload relay provides N.O. contact function. Auxiliary contact mounted on left-hand side of the overload relay provides N.C. contact function.

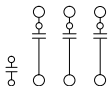
(3) To be mounted on the right-hand side of the overload, to provide additional AC contact function.

Product Selection – Factory Assembled



NEMA Size 00 and 5⁽¹⁾

Heater Elements – Starters with eutectic alloy overload relay require three heater elements. See Heater Elements Specifications Technical Data, publication [592-TD010](#), for heater element selection.

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				600V AC Maximum, 60 Hz
		115V	230V	200V	230V	50 Hz	460...575V	3 Power Poles
						380...415V		Cat. No. ⁽²⁾
00	9	0.33	1	1.5	1.5	2	2	509-T0⊗-⊕
0	18	1	2	3	3	5	5	(3)
1	27	2	3	7.5	7.5	10	10	(3)
2	45	3	7.5	10	15	25	25	(3)
3	90	7.5	15	25	30	50	50	(3)
4	135	—	—	40	50	75	100	(3)
5	270	—	—	75	100	150	200	509-F0⊗-⊕

(1) Includes a 120V AC coil and one N.O. auxiliary contact, as standard.

(2) The cat. nos. as listed are incomplete. Select a value from the [Voltage Code](#) table and a value from the [Voltage Code](#) table, to complete each cat. no.

Example: To select a 240V AC coil voltage with a E100 overload relay (60...300 A), Cat. No. 509-F0⊗-⊕ becomes Cat. No. 509-FOA-A2N.

(3) See [Base Starter – NEMA Sizes 0...4 on page 14](#) for NEMA size 0...4 starters.

⊗ Voltage Code

Note: The base starter includes a 120V AC coil as standard. For all other voltages, an alternate coil will be included in the modular kit for field installation.

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

⊕ Overload Relay Code

Code	Description
blank	Eutectic alloy

E100 Solid-state Overload Relay (3-phase)		
Code	NEMA Size	Full Load Current Adjustment Range [A]
A2C	00, 0, 1	0.2...1.0
A2E	00, 0, 1	1.0...5.0
A2F	00, 0, 1	3.2...16
A2N	5	60...300

Options

Code	Description
9	One N.O. auxiliary contact for use on Eutectic overload relay
9A	One N.C. auxiliary contact for use on Eutectic overload relay
17	Surge suppressor for 120 or 240V AC coil
90 ⁽¹⁾	One N.O. auxiliary contact
91 ⁽¹⁾	One N.C. auxiliary contact

(1) Up to six combinations of auxiliary contacts can be selected. For example, Code **90011** indicates two N.O. contacts and two N.C. contacts.

Example: **Catalog Number 509-F0D-A2N-17-90** includes a NEMA size 5 starter with a 120V AC coil, E100 overload relay, a surge suppressor, and one N.O. auxiliary contact.

Catalog Number Explanation

Examples that are given in this section are not intended to be used for product selection. Not all combinations produce a valid catalog number. For accurate catalog number configuration, use the ProposalWorks™ application which is available from rok.auto/systemtools.

505 - **B** **0** **D** - **A2E** - **17**
a **b** **c** **d** **e** **f**

a	
Bulletin Number	
Code	Description
505	Reversing starter
505V	Vertically-arranged reversing starter ⁽¹⁾

b	
NEMA Size	
Code	Description
T	00
A	0
B	1
C	2
D	3
E	4
F	5

c	
Enclosure Type	
Code	Description
0	No enclosure

d		
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	208V	60 Hz
I	415V	50 Hz
J	24V	50/60 Hz
N	380V	50 Hz

e		
Overload Relay		
Code	Description	
blank	Eutectic alloy	
23	no overload relay	
E100 Plus Solid-state Overload Relay (3-phase)		
Code	NEMA Size	Full Load Current Adjustment Range [A]
A2A	00	0.1...0.5
A2C	00, 0, 1	0.2...1.0
A2E	00, 0, 1	1.0...50
A2F	00, 0, 1	3.2...16
A2G	0, 1, 2	5.4...27
A2J	1, 2	11...55
A2L	3	20...100
A2M	4	30...150
A2N	5	60...300

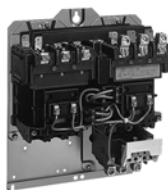
f	
Options	
Code	Description
17	Surge suppressor for 120 or 240V AC coil
87A	On-delay timer
87B	Off-delay timer
g0 ⁽²⁾	One N.O. auxiliary contact for use on contactor
g1 ⁽²⁾	One N.C. auxiliary contact for use on contactor
g7 ⁽³⁾	One N.C.L.B. auxiliary contact for use on contactor

(1) Only available for NEMA sizes 0...5.

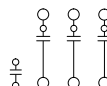
(2) Up to six combinations of auxiliary contacts can be selected. For example, Code **90011** indicates two N.O. contacts and two N.C. contacts.

(3) Up to three combinations of auxiliary contacts can be selected. For example, Code **977** indicates two N.C.L.B. contacts.

Factory Assembled Product Selection



NEMA Sizes 00...5

NEMA Size	Continuous Ampere Rating [A]	Maximum Horsepower Rating (Full Load Current Must Not Exceed Continuous Ampere Rating)				
		3-Phase Motor Voltage				600V AC Maximum, 60 Hz
		200V	230V	50 Hz	460...575V	3 Power Poles
				380...415V		Cat. No. ⁽¹⁾
00	9	1.5	1.5	2	2	505-T0⊗-⊗
0	18	3	3	5	5	505-A0⊗-⊗
1	27	7.5	7.5	10	10	505-B0⊗-⊗
2	45	10	15	25	25	505-C0⊗-⊗
3	90	25	30	50	50	505-D0⊗-⊗
4	135	40	50	75	100	505-E0⊗-⊗
5	270	75	100	150	200	505-F0⊗-⊗

(1) The cat. nos. as listed are incomplete. Select a value from the [Voltage Code](#) table and a value from the [Overload Relay Code](#) table, to complete each cat. no.

Example: To select a 120V AC coil voltage with a 3-phase, E1 Plus overload relay, Cat. No. 505-F0⊗-⊗ becomes Cat. No. 505-F0D-A2L.

⊗ Voltage Code

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

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

⊗ Overload Relay Code

Code	Description
blank	Eutectic alloy
23	no overload relay

E100 Plus Solid-state Overload Relay (3-phase)		
Code	NEMA Size	Full Load Current Adjustment Range [A]
A2A	00	0.1...0.5
A2C	00, 0, 1	0.2...1.0
A2E	00, 0, 1	1.0...50
A2F	00, 0, 1	3.2...16
A2G	0, 1, 2	5.4...27
A2J	1, 2	11...55
A2L	3	20...100
A2M	4	30...150
A2N	5	60...300

Catalog Number Explanation

Examples that are given in this section are not intended to be used for product selection. Not all combinations produce a valid catalog number. For accurate catalog number configuration, use the ProposalWorks™ application which is available from rok.auto/systemtools.

$\frac{520G}{a} - \frac{A}{b} - \frac{0}{c} - \frac{D}{d} - \frac{A2C}{e} - \frac{A2C}{e} - \frac{17}{f}$

a	
Bulletin Number	
Code	Description
520G	2-speed constant horsepower starter
520F	2-speed constant/variable torque starter
520E	2-speed separate winding starter
520V ⁽¹⁾	Vertically-arranged starter ⁽²⁾

b	
NEMA Size	
Code	Description
A	0
B	1
C	2
D	3
E	4
F	5

c	
Enclosure Type	
Code	Description
0	No enclosure

d		
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	208V	60 Hz
I	415V	50 Hz
J	24V	50/60 Hz
N	380V	50 Hz

e		
Overload Relay		
Code	Description	
blank	Eutectic alloy	
23	no overload relay	
E100 Solid-state Overload Relay		
Code	NEMA Size	Full Load Current Adjustment Range [A]
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	11...55
A2L	3	20...100
A2M	4	30...150
A2N	5	60...300

f	
Options	
Code	Description
17	Surge suppressor for 120 or 240V AC coil
90 ⁽³⁾	One N.O. auxiliary contact for use on contactor
91 ⁽³⁾	One N.C. auxiliary contact for use on contactor
97 ⁽⁴⁾	One N.C.L.B. auxiliary contact for use on contactor

(1) Add code G, F, or E after 520V, to order your desired vertically-arranged starter.

(2) Only available for NEMA sizes 0...5.

(3) Up to six combinations of auxiliary contacts can be selected. For example, Code **90011** indicates two N.O. contacts and two N.C. contacts.

(4) Up to three combinations of auxiliary contacts can be selected. For example, Code **977** indicates two N.C.L.B. contacts.

Factory Assembled Product Selection



Constant or Variable Torque — NEMA Sizes 0...5

Heater Elements — Starters with eutectic alloy overload relay require three heater elements. See Heater Elements Specifications Technical Data, publication [592-TD010](#), for heater element selection.

NEMA Size	Continuous Ampere Rating [A]	Maximum Horsepower Rating (Full Load Current Must Not Exceed Continuous Ampere Rating)				600V AC Maximum, 60 Hz, with 3-phase Overload Protection	
		3-Phase Motor Voltage				2-speed Separate Winding (3-pole)	2-speed Consequent Pole (5-pole)
		200V	230V	50 Hz	460...575V		
				380...415V		Cat. No. ⁽¹⁾⁽²⁾	Cat. No. ⁽¹⁾
0	18	3	3	5	5	520E-A0⊗-☼-☼	520F-A0⊗-☼-☼
1	27	7.5	7.5	10	10	520E-B0⊗-☼-☼	520F-B0⊗-☼-☼
2	45	10	15	25	25	520E-C0⊗-☼-☼	520F-C0⊗-☼-☼
3	90	25	30	50	50	520E-D0⊗-☼-☼	520F-D0⊗-☼-☼
4	135	40	50	75	100	520E-E0⊗-☼-☼	520F-E0⊗-☼-☼
5	270	75	100	150	200	520E-F0⊗-☼-☼	520F-F0⊗-☼-☼ ⁽³⁾

(1) The cat. nos. as listed are incomplete. Select a value from the [Voltage Code](#) table and a two values from the [Overload Relay Code](#) table, to complete each cat. no.

Example: To select a 240V AC coil voltage with a E1 Plus overload relay, Cat. No. 520E-F0⊗-⊕-⊕ becomes Cat. No. 520E-FOA-A2N-A2N.

(2) These starters are for wye-connected motor windings, not for open delta-connected motor windings. Use Consequent Pole starters for open delta-connected motor windings.

(3) For proper overload relay selection when low speed full load currents are less than 77 A, contact your local Rockwell Automation sales office or Allen-Bradley distributor.

⊗ Voltage Code

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

[V]	24 ⁽¹⁾	110	120	125	208	220	240	250	277	380	415	440	480	550	600
AC, 50 Hz	J	D	—	—	—	—	—	—	—	—	—	—	—	—	—
AC, 60 Hz	J	—	D	—	H	—	A	—	F	—	—	—	B	—	C

(1) When using 24V coils on sizes 4 or 5, an interposing relay may be required. For coil VA values, see [AC Operating Coils on page 26](#).

⊕ Overload Relay Code

Select two overload relay codes to complete the cat. no. The first code is for the high-speed overload relay and the second code is for the low-speed overload relay. You cannot choose a solid-state overload relay for the low-speed overload relay. It can only be eutectic or no overload relay.

Code	Description
blank	Eutectic alloy
23	no overload relay

E100 Solid-state Overload Relay (3-phase) ⁽¹⁾		
Code	NEMA Size	Full Load Current Adjustment Range [A]
A2C	00, 0, 1	0.2...1.0
A2E	00, 0, 1	1.0...50
A2F	00, 0, 1	3.2...16
A2G	0, 1, 2	5.4...27
A2J	1, 2	11...55
A2L	3	20...100
A2M	4	30...150
A2N	5	60...300

(1) Only available for high-speed overload relay.

Constant Horsepower — NEMA Sizes 0...5

Heater Elements — Starters with eutectic alloy overload relay require three heater elements. See Heater Elements Specifications Technical Data, publication [592-TD010](#), for heater element selection.

NEMA Size	Continuous Ampere Rating [A]	Maximum Horsepower Rating (Full Load Current Must Not Exceed Continuous Ampere Rating)				600V AC Maximum, 60 Hz, with 3-phase Overload Protection	
		3-Phase Motor Voltage				2-speed Separate Winding (3-pole)	2-speed Consequent Pole (5-pole)
		200V	230V	50 Hz	460...575V		
				380...415V		Cat. No. ⁽¹⁾⁽²⁾	Cat. No. ⁽¹⁾
0	18	2	2	3	3	520E-A0⊗-⊗-⊗	520G-A0⊗-⊗-⊗
1	27	5	5	7.5	7.5	520E-B0⊗-⊗-⊗	520G-B0⊗-⊗-⊗
2	45	7.5	10	20	20	520E-C0⊗-⊗-⊗	520G-C0⊗-⊗-⊗
3	90	20	25	40	40	520E-D0⊗-⊗-⊗	520G-D0⊗-⊗-⊗
4	135	30	40	60	75	520E-E0⊗-⊗-⊗	520G-E0⊗-⊗-⊗
5	270	60	75	100	150	520E-F0⊗-⊗-⊗	520G-F0⊗-⊗-⊗

(1) The cat. nos. as listed are incomplete. Select a value from the [Voltage Code](#) table and a two values from the [Overload Relay Code](#) table, to complete each cat. no.

Example: To select a 240V AC coil voltage with a E1 Plus overload relay, Cat. No. 520E-F0⊗-⊗-⊗ becomes Cat. No. 520E-FOA-A2N-A2N.

(2) These starters are for wye-connected motor windings, not for open delta-connected motor windings. Use Consequent Pole starters for open delta-connected motor windings.

⊗ Voltage Code

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

[V]	24 ⁽¹⁾	110	120	125	208	220	240	250	277	380	415	440	480	550	600
AC, 50 Hz	J	D	—	—	—	—	—	—	—	—	—	—	—	—	—
AC, 60 Hz	J	—	D	—	H	—	A	—	F	—	—	—	B	—	C

(1) When using 24V coils on sizes 4 or 5, an interposing relay may be required. For coil VA values, see [AC Operating Coils on page 26](#).

⊗ Overload Relay Code

Select two overload relay codes to complete the cat. no. The first code is for the high-speed overload relay and the second code is for the low-speed overload relay.

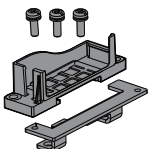
Code	Description
blank	Eutectic alloy
23	no overload relay

E100 Solid-state Overload Relay (3-phase)		
Code	NEMA Size	Full Load Current Adjustment Range [A]
A2C	00, 0, 1	0.2...1.0
A2E	00, 0, 1	1.0...50
A2F	00, 0, 1	3.2...16
A2G	0, 1, 2	5.4...27
A2J	1, 2	11...55
A2L	3	20...100
A2M	4	30...150
A2N	5	60...300

Notes:

Contactor Accessories

E100 Solid-State Overload Relay Mounting Bracket

	Description	Cat. No.
	E100 overload relay mounting bracket kit	592-1EIKIT1

Coils⁽¹⁾

	Voltage (60 Hz)	NEMA Size					
		0...1	2	3	4	5 (Ser. L)	5
		Cat. No.					
	115...120V	CB-236	CC-236	CD-236	CE-236	AF-236	—
	200...208V	CB-249	CC-249	CD-249	CE-249	AF-249	—
	230...240V	CB-254	CC-254	CD-254	CE-254	AF-254	—
	460...480V	CB-273	CC-273	CD-273	CE-273	AF-273	—
	575...600V	CB-278	CC-278	CD-278	CE-278	—	AF-278

(1) For a full list of available coils, see [AC Operating Coils on page 26](#).

Surge Suppressor

Surge suppressors are made to be mounted directly across the coil terminals of contactors and starters with 120V or 240V AC coils. The purpose of the suppressor is to limit voltage transients for applications requiring interface with solid-state components. One suppressor is required per coil.

	Type	Voltage Range	NEMA Size	Cat. No.
	RC module ⁽¹⁾	24...48V AC, 50/60 Hz	00	100-FSC48
		110...280V AC, 50/60 Hz		100-FSC280
		380...480V AC, 50/60 Hz		100-FSC480
	Varistor module	12...55V AC/ 12...77V DC	00	100-FSV55
		56...136V AC/ 78...180V DC		100-FSV136
		137...277V AC/ 181...350V DC		100-FSV277
		278...575V AC		100-FSV575
	Surge suppressor	12...120V AC	0...5	599-K04
	Varistor	240...264V AC		599-KA04

(1) For starters only.

Terminal and Lug Covers

	Type	NEMA Size	Cat. No.
	Line-side terminal covers	0...1	599-TC01N
		2	599-TC2N
		3	599-TC3N
		4	599-TC4N
		5	599-TC5N
	Line-side terminal covers (reversing)	0...1	599-TC01R
		0...2	599-TP02
		3...5	599-TP34

Protective Covers

	For Use With Bulletin	NEMA Size	Cat. No.
	500, 500F, 505	0...1	599-PC01
	505, 509, 520E (2)		599-PS01 ⁽¹⁾
	520F, 520G		599-PC01-5 ⁽¹⁾
	500, 500F, 505	2	599-PC2
	505, 509, 520E (2)		599-PS2 ⁽¹⁾
	520F, 520G		599-PC2-5 ⁽¹⁾
	500, 500F, 505	3	599-PC3
	505, 509, 520E (2)		599-PS3 ⁽¹⁾
	520F, 520G		599-PC3-5 ⁽¹⁾
	500, 500F, 505	4	599-PC4
	505, 509, 520E (2)		599-PS4 ⁽¹⁾
	520F, 520G		599-PC4-5 ⁽¹⁾
	500, 500F	5	599-PC5
	509		599-PS5 ⁽¹⁾

(1) Eutectic alloy or solid-state overload relay.

Timer Attachments

A pneumatic timer attachment may be field installed in the space of two adjacent auxiliary contact blocks. Timing units are available for either ON-Delay or OFF-Delay operation with a timed set of one N.O. and one N.C. snap-action contacts that are electrically isolated.

Repetitive accuracy within the timer range is approximately $\pm 10\%$ provided a minimum reset time of 75 ms is allowed.

Notes:

- Size 00: Timers can be mounted to the front of the contactor.
- Sizes 0...5: Timers can be added to the left- or right-hand side of the contactor body.
- Size 0, 1 and 2: Timers cannot be used on the same side as power pole adders.
- Size 2: The operating coil must be changed. See [AC Operating Coils on page 26](#) and refer to the size 2 operating coil listing. Order the coil listed for a 4-...5-pole device. (Coils can also be factory installed.)

Contact Ratings:
NEMA A600 (10A, 600V AC, max.), NEMA P300 (5A, 300V DC, max.)

	Type	Description	NEMA Size	Cat. No.
	Timing module	On-delay 0.3...30 s	00	100-FPTA30
		On-delay 1.8...180 s		100-FPTA180
		Off-delay 0.3...30 s		100-FPTB30
		Off-delay 1.8...180 s		100-FPTB180
	Timing kit	On-delay, left hand	0...5	596-TL32
		On-delay, right hand		596-TR32
		Off-delay, left hand		596-TL33
		Off-delay, right hand		596-TR33

Auxiliary Contact – Contactors

	Description	NEMA Size	Cat. No.
	One N.O.	0...5	595-A
	Two N.O.		595-AA
	One N.C.		595-B
	Two N.C.		595-BB
	One N.O. and one N.C.		595-AB
	One N.C.L.B.		595-BL

Lug Connectors (3 per package)

	Description	NEMA Size	Cat. No.
	#14...8 AWG wire	0...1	(1)
	#14...4 AWG wire	2	1494R-N1
	#8...1/0 AWG wire	3	1494R-N2
	#6...4/0 AWG wire	4	1494R-N3
	Two #1/0...350 MCM wire	5	42450-804-01

(1) All terminals of the 30 A switches are furnished with self-lifting pressure plate connectors, as standard.

Power Pole Adders

The one N.O. and one N.C. power poles may be field added to all size 0...4 Bulletin 500 line contactors and starters. 2- and 3-pole contactors will accept a maximum of two adder poles and 4-pole devices will accept one adder pole. Each adder pole kit includes a mechanical load balancer to be used when only one power pole is added.

When power poles are added to Size 2, 3, or 4 (2- or 3-pole devices) the operating coil must be changed. Refer to the listing for the size of your contactor or starter. Order the operating coil listed for a 4-...5-pole device. (Coils can also be factory installed.)

	Description	NEMA Size	Cat. No.
	One N.O.	0...1	599-P01A
	One N.O.	2	599-P2A
	One N.O.	3	599-P3A
	One N.O.	4	599-P4A
	One N.C.		599-P4B

Contactor Kick-off Springs

For horizontal mounting of 2- or 3-pole Bulletin 500 contactors and starters.

When kick-off springs are added to Size 2, 3, or 4, the operating coil must be changed. Refer to the listing for the size of your contactor or starter. Order the operating coil listed for a 4-...5-pole device. (Coils can also be factory installed.)

	NEMA Size	Cat. No.
	0...1	599-N11
	2	599-N12
	3	599-N13
	4	599-N14

Top Wiring Kit

Consists of three power lugs for the purpose of making extra connections to the load side of the contactor. A second set of overload relays can be wired to these lugs if two motors are being controlled by a single contactor.

	NEMA Size	Cat. No.
	0...1	599-TW01
	2	599-TW2
	3	599-TW3
	4	599-TW4
	5	599-TW5P

Overload Accessories

Auxiliary Contact

For eutectic alloy overload relays only⁽¹⁾

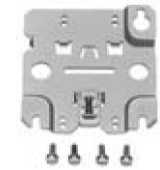
	Contacts	NEMA Size	Cat. No.
	One N.O.	00	595-A00
	One N.C.	00	595-B00
	One N.O.	0...2, 5...9	595-A02
	One N.C.		595-B02
	One N.O.	3...4	595-A34 ⁽²⁾
	One N.C.		595-B34 ⁽³⁾

(1) The auxiliary contact for solid-state relays is included in the product.

(2) 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.

(3) To be mounted on right-hand side of overload to provide additional AC contact function.

DIN Rail Mounting Adapter

	Description	Max. Continuous Current Rating [A]	Cat. No.
	For Bulletin 592 compact type, 3-pole overload relays	40	599-MP1
	For Bulletin 592 compact type, 1-pole overload relays	62	599-MP2

Renewal Parts

AC Operating Coils



For use on size 00 (Series B)



For use on size 00 (Series D)



For use on sizes 0...5

Voltage [V]	Frequency [Hz]	Size 00		Sizes 0...1		Size 2		Size 3		Size 4		Size 5
		Series B	Series D	2-...3-Pole	4-...5-Pole	2-...3-Pole	4-...5-Pole	2-...3-Pole	4-...5-Pole	2-...3-Pole	4-...5-Pole	Series L
		Part No.										
24	50	GA407	TA407	—	—	—	—	—	—	—	—	—
	60	—	TA013	CB013		CC013	CC013C	CD013	CD013C	—	—	—
110 120	50 60	GA473	TA473	CB236		CC236	CC236C	CD236	CD236C	CE236	CE236C	AF236
200...208		—	TA049	CB249		CC249	CC249C	CD249	CD249C	CE249	CE249C	AF249
220 240	50 60	GA474	TA474	CB254		CC254	CC254C	CD254	CD254C	CE254	CE254C	AF254
277	60	GA060	TA480	CB260		CC260	CC260C	CD260	CD260C	CE260	—	AF260
380	50	—	—	CB354	CB354C	CC354	CC354C	CD354	CD354C	CE354	CE354C	AF354
415	50	—	TA457	CB357	CB357C	CC357	CC357C	CD357	CD357C	CE357	CE357C	AF357
440	50	GA475	TA475	CB273		CC273	CC273C	CD273	CD273C	CE273	CE273C	AF273
480	60	—	—									
550	50	—	TA476	CB278		CC278	—	CD278	CD278C	CE278	—	AF278
600	60	GA476										

Manual Reset (Eutectic Alloy) Overload Relay

	3-phase or 1-phase (3 elements)	
	Size	Cat. No.
	00 (Series B and D)	592-JOV16
	0, 1	592-EUTB
	2	592-EUTC
	3 ⁽¹⁾	592-EUTD
	4 ⁽¹⁾	592-EUTE
	5	592-BOV16
	1-phase (1 element)	
	Size	Cat. No.
	00 (Series B and D)	592-BOV4
	Size	Part No.
	0, 1 ⁽²⁾	42185-804-01
	1P ⁽²⁾	40185-803-01
	2 ⁽²⁾	40185-804-01

- (1) Auxiliary contacts on sizes 3 and 4 are replaceable. Order Cat. No. 595-A34. For details, see [Auxiliary Contact on page 25](#).
 (2) Mounting plate is not included.

Single Pole Contact Kit – Sizes 00...5

Includes front and rear stationary contact, movable contact, and contact spring.

	Size	Part No.
	0 ⁽¹⁾	40410-331-51
	1 ⁽¹⁾	40410-331-52
	1P ⁽¹⁾	40410-331-55
	2 ⁽¹⁾	40420-322-51
	3	40430-300-51
	4	40440-300-51
	5 (Series L)	42450-805-01

- (1) Not for use on power pole adders.

Power Pole Adder Kit

Used only for 4- and 5-pole devices.

	3-phase or 1-phase (3 elements)	
	Size	Cat. No.
	0, 1	599-P01A
	2	599-P2A
	3	599-P3A
	4	599-P4A

Electrical Ratings

NEMA Size	Load Voltage	Continuous Current Rating	Service Limit Current Rating ⁽¹⁾	Maximum Hp Rating (Non-plugging and non-jogging duty)		Maximum Hp Rating (Plugging and jogging duty) ⁽²⁾		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 ⁽³⁾	Maximum Circuit Closing Inrush Current [A] Peak Including Offset
	[V]	[A]	[A]	1Æ	3Æ	1Æ	3Æ	1Æ	3Æ	1Æ	3Æ	3Æ	3Æ
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	

- (1) **Service-Limit Current Ratings** — The service-limit current ratings that are 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 that are used shall not exceed the service-limit current rating of the controller.
- (2) **Plugging or Jogging Service** — The listed horsepower ratings are recommended for those applications requiring repeated interruption of stalled motor current that is 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.
- (3) If maximum available current (at capacitor terminals) is greater than 3000 A, contact your local Rockwell Automation sales office, Allen-Bradley distributor, or NEMA ICS-2 Standard.

Mechanical Ratings

NEMA Size	Mechanical Life (Millions of Operations)	Maximum Number of Auxiliary Contacts	Operating Time [ms]	
			Pick-up (Average)	Drop-out (Average)
00	10	5	20	16
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

Construction

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

Environmental

NEMA Size	Operating Position	Operating Temperature Range	Altitude	Corrosion-Resistance
00	Horizontal	Starters with eutectic alloy Overload relay -13...+149 °F (-25...+65 °C) Starters with E100 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
0	Vertical			
1				
2				
3				
4				
5				

AC Coil Data

NEMA Size	Operating Volt Amperes Burden [VA]		Heat Dissipation [W]	Coil Operating Limits
	60 Hz Coils			
	Inrush	Sealed		
00	70	8	2.7	85...110%
0	192	29	5.9	
1 & 1P	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	

Short Circuit Rating

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

Combination Contactors and Starters with Disconnect Switch: Bulletin 502, 506, 512, 522E, 522F, and 522G			
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	
Combination Lighting Contactors with Disconnect Switch: Bulletin 502L			
Lighting Contactor Rating [A]	Fuse Type	Available Short Circuit Amperes RMS Symmetrical [A]	Maximum Voltage [V]
20...100	H, K	5000	600
200...300	H, K	10,000	
20...300	J, R	100,000	
Combination Contactors and Starters with Circuit Breaker: Bulletin 503, 507, 513, 523E, 523F, and 523G			
Enclosure Type	NEMA Size	Available Short Circuit Amperes RMS Symmetrical [A]	Maximum Voltage [V]
1, 3R, 3R/4/12, 4/4X (stainless)	0...5	65,000	480
Unilock 3R, 7, & 9			
Bolted 3R, 7, & 9			
3R, 3R/4/12, 4/4X (stainless)			
1, 3R, 3R/4/12, 4/4X (stainless)	0...5	25,000	600
Unilock 3R, 7, & 9	0...5	10,000	
Bolted 3R, 7, & 9			
Combination Lighting Contactors with Circuit Breaker: Bulletin 503L			
Enclosure Type	Lighting Contactor Rating [A]	Available Short Circuit Amperes RMS Symmetrical [A]	Maximum Voltage [V]
1, 3R, 3R/4/12, 4/4X (stainless)	20...300	65,000	480
Unilock 3R, 7, & 9	20...300	65,000	
Bolted 3R, 7, & 9	20...300	65,000	
1, 3R, 3R/4/12, 4/4X (stainless)	20...300	25,000	600
Unilock 3R, 7, & 9	20...100	10,000	
Unilock 3R, 7, & 9	20...300		
Bolted 3R, 7, & 9	20...300		

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

Maximum AC Contact Rating Per Pole						
AC Rating Designation	Maximum Voltage 60 Hz or 50 Hz	[A]		Continuous Carrying Current [A]	[VA]	
		Make	Break		Make	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 (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)					

Load-life Curves

Bulletin 500 Line contactors and starters are designed to provide high performance in various 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

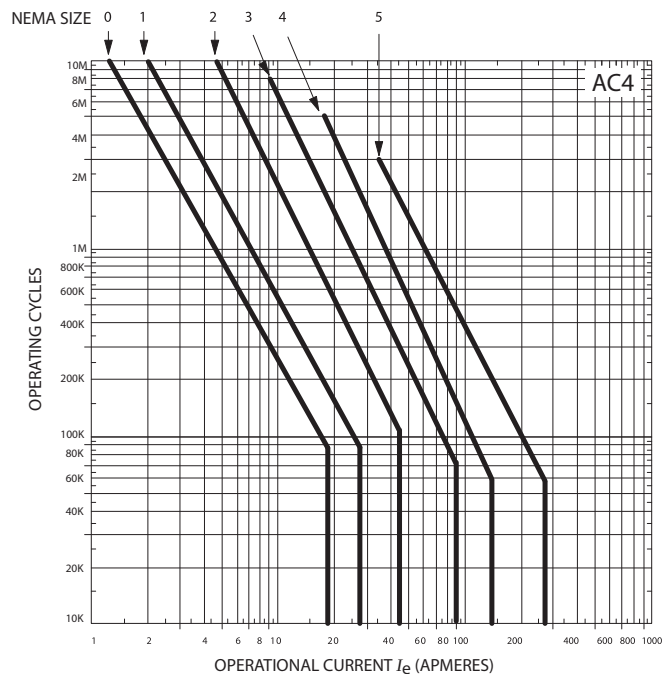
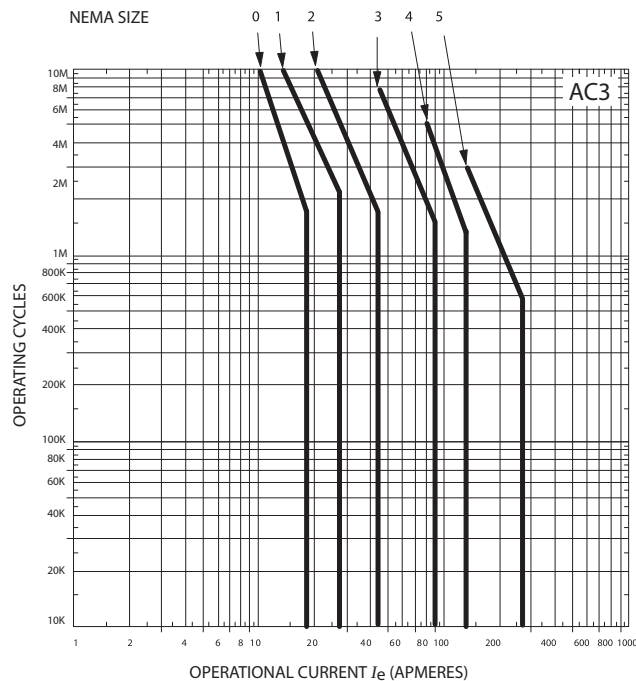
Utilization Categories

Category Typical Duty:

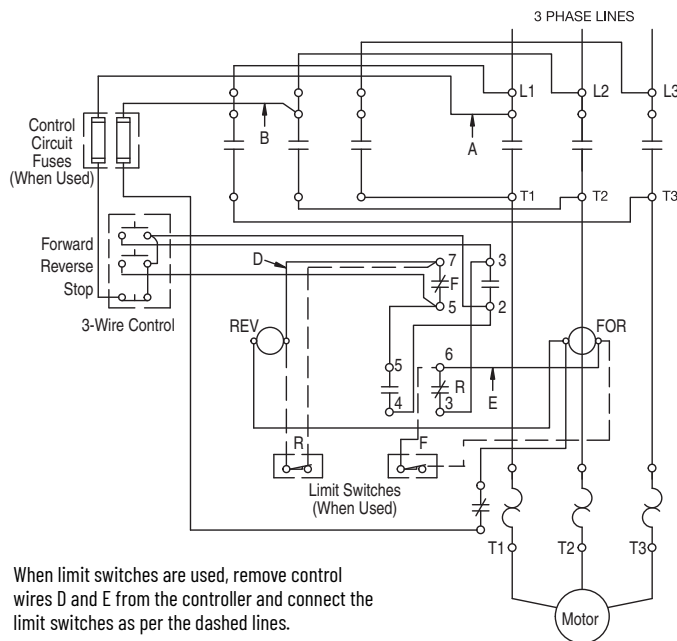
AC3 Starting of squirrel cage motors and switching off only after the motor is up to speed.

AC4 Starting of squirrel cage motors with inching and plugging duty.

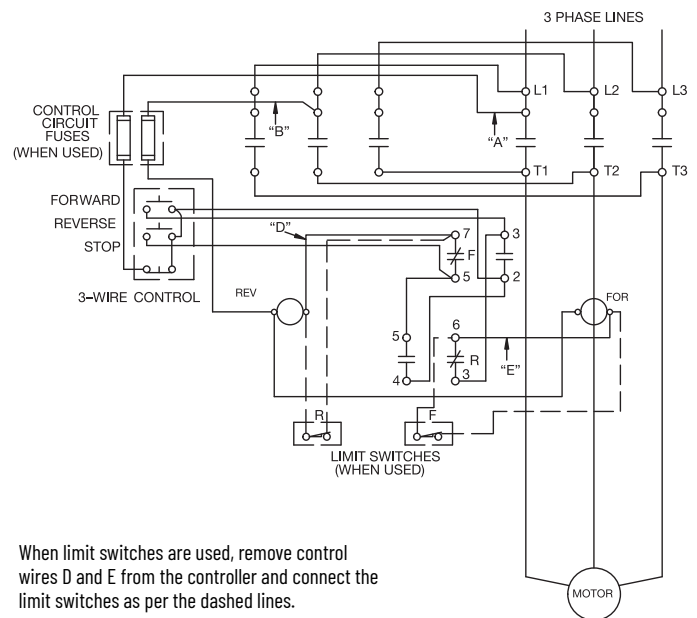
Bulletin 500 Load / Life Curves – AC3 and AC4



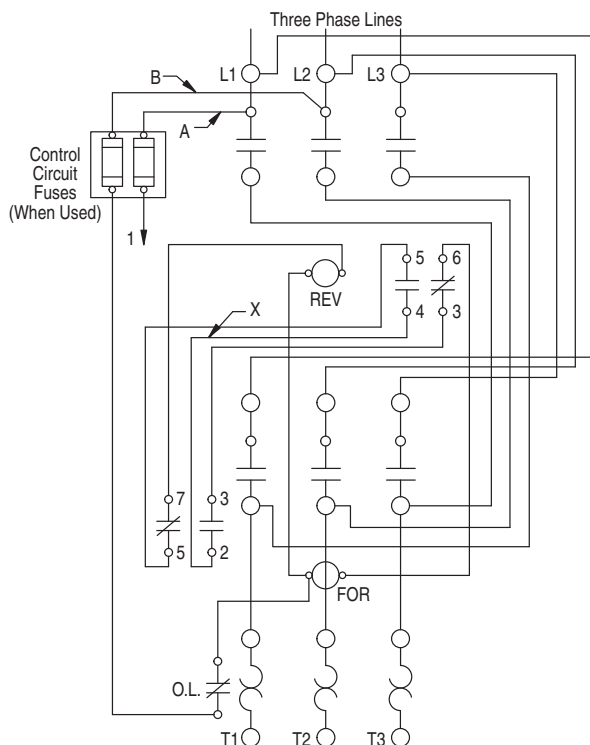
Bulletin 505 Reversing Starter with Eutectic Alloy or Solid-state Overload Relay



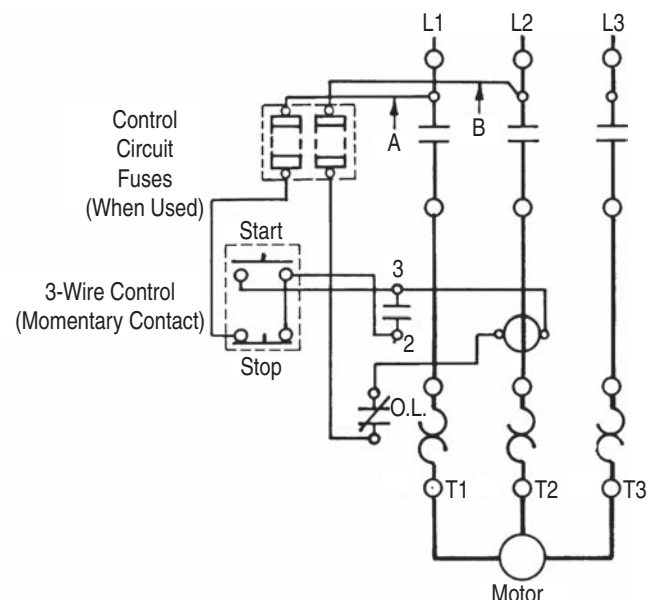
Bulletin 505 Reversing Starter without Overload Relay



Bulletin 505 Vertically-arranged Reversing Starter with Eutectic Alloy or Solid-state Overload Relay



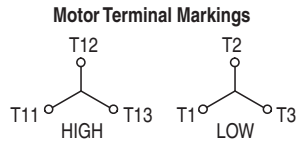
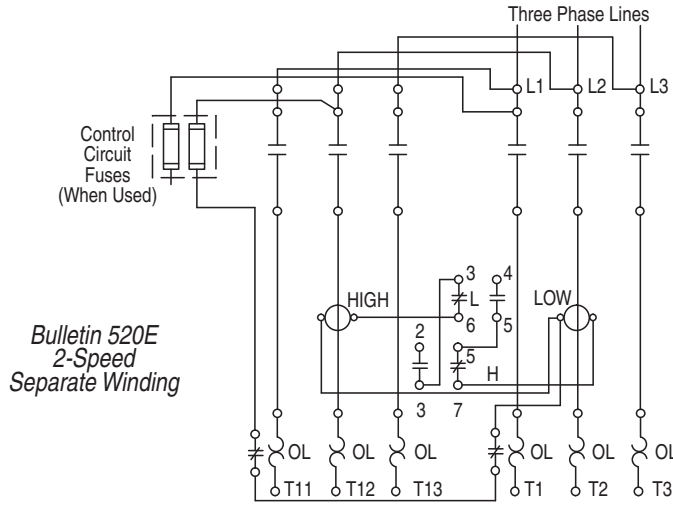
Bulletin 509 Non-Reversing Starter with Eutectic Alloy or Solid-state Overload Relay



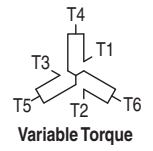
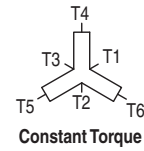
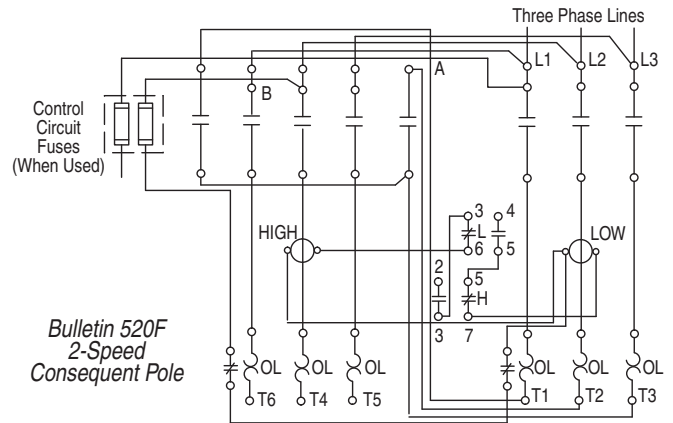
Separate Control Circuit — When the controller coils are to operate on a voltage other than line voltage, check coil rating for compatibility and change coils if necessary. Disconnect wires A and B from lines L1 and L2. Connect wires A and B to the separate control source. Refer to local Electrical Code for control circuit disconnection requirements

Bulletin 520 Multi-speed Starters

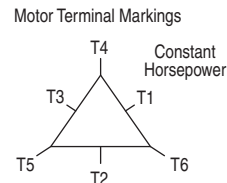
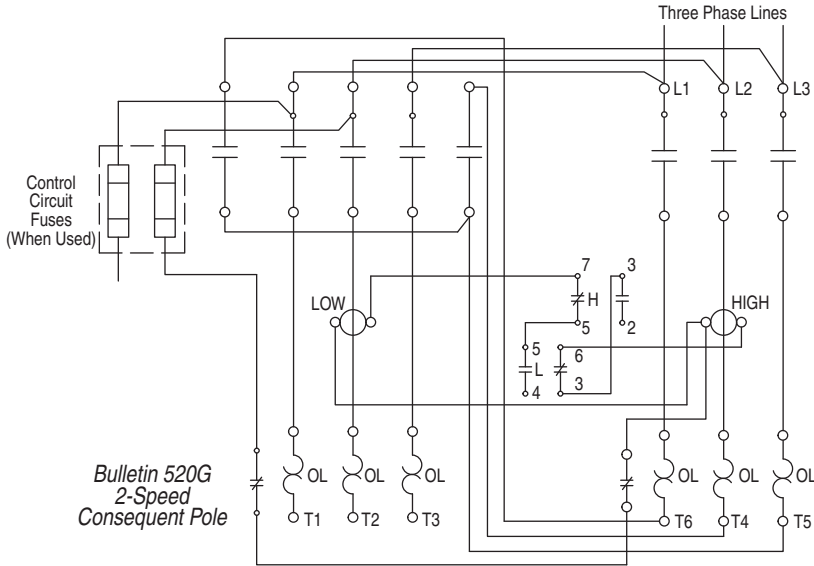
Bulletin 520E 2-Speed, Separate Winding, Constant or Variable Torque or Constant Horsepower Starter



Bulletin 520F 2-Speed, Consequent Pole, Constant or Variable Torque Starter

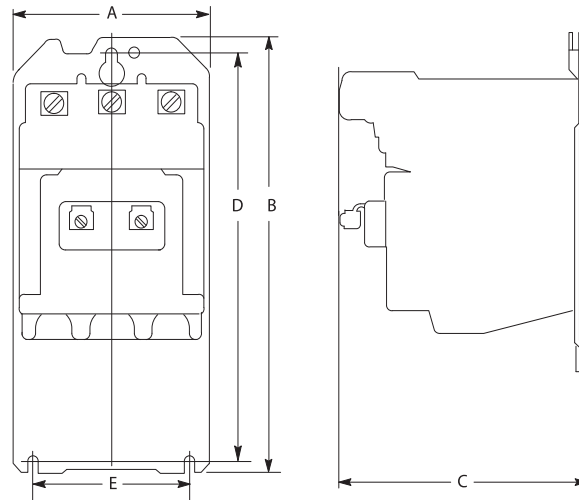


Bulletin 520G 2-Speed, Consequent Pole, Constant Horsepower Starter



Bulletins 500 and 500F Contactors – NEMA Sizes 0...4

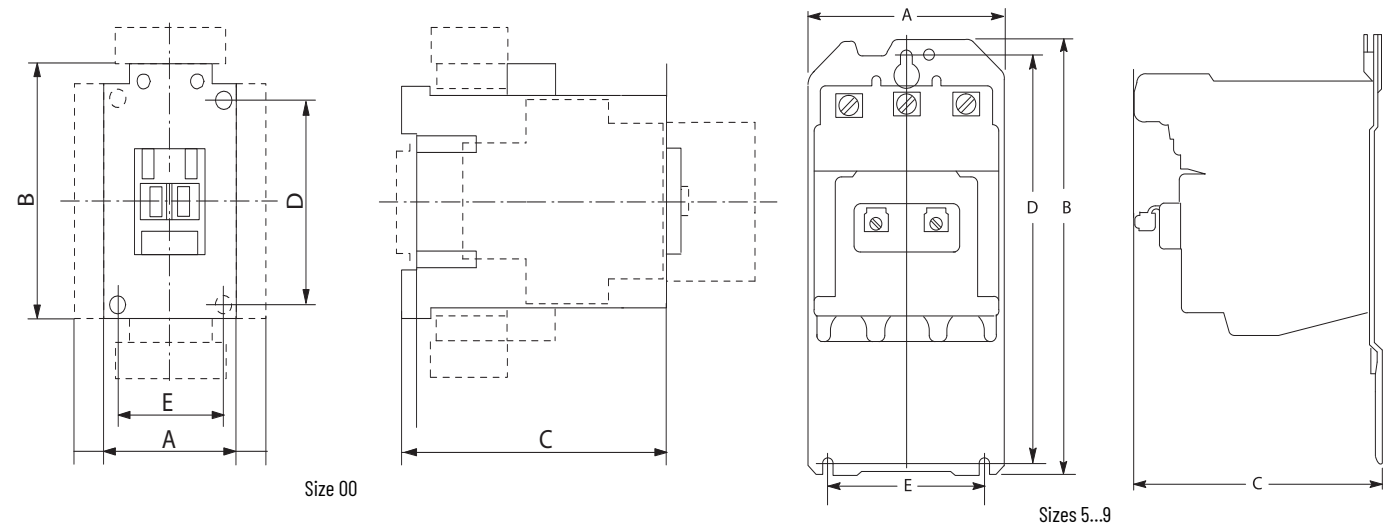
Approximate dimensions are shown in inches (millimeters). Dimensions are not intended for manufacturing purposes.



NEMA Size	Number of Switching Poles	Dimensions [in (mm)]					Approximate Shipping Weight [lb (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)	14-1/2 (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)					25-1/2 (11.5)
	5	10-7/16 (265.1)					28-1/2 (13)

Bulletins 500 Contactors – NEMA Sizes 00 and 5...9
Bulletin 500F – NEMA Size 5

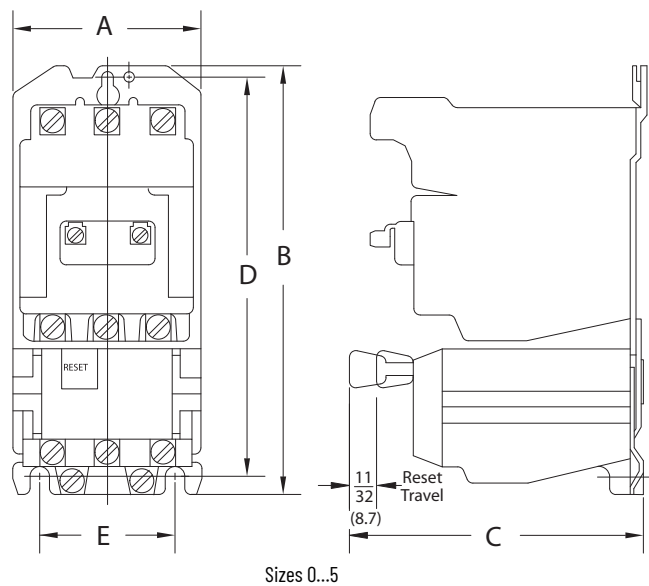
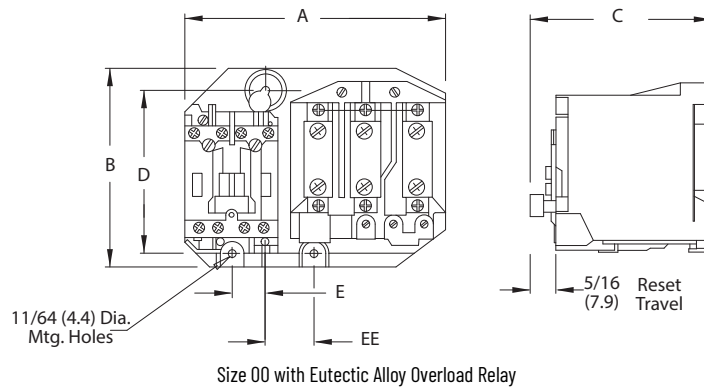
Approximate dimensions are shown in inches (millimeters). Dimensions are not intended for manufacturing purposes.



NEMA Size	Number of Switching Poles	Dimensions [in (mm)]					Approximate Shipping Weight [lb (kg)]
		A Width	B Height	C Depth	D	E	
00	1-2-3	1-25/32 (45)	3-3/16 (81)	3-11/64 (80.5)	2-23/64 (60)	1-25/64 (35)	1 (0.45)
5	2...3	7 (178)	13-25/64 (340)	8-17/32 (217)	9-27/32 (250)	6-5/16 (160)	24 (10.9)
6	Contact your local Rockwell Automation sales office or Allen-Bradley distributor.						
7							
8							
9							

Bulletin 509 Non-reversing Starters with Eutectic Alloy Overload Relay

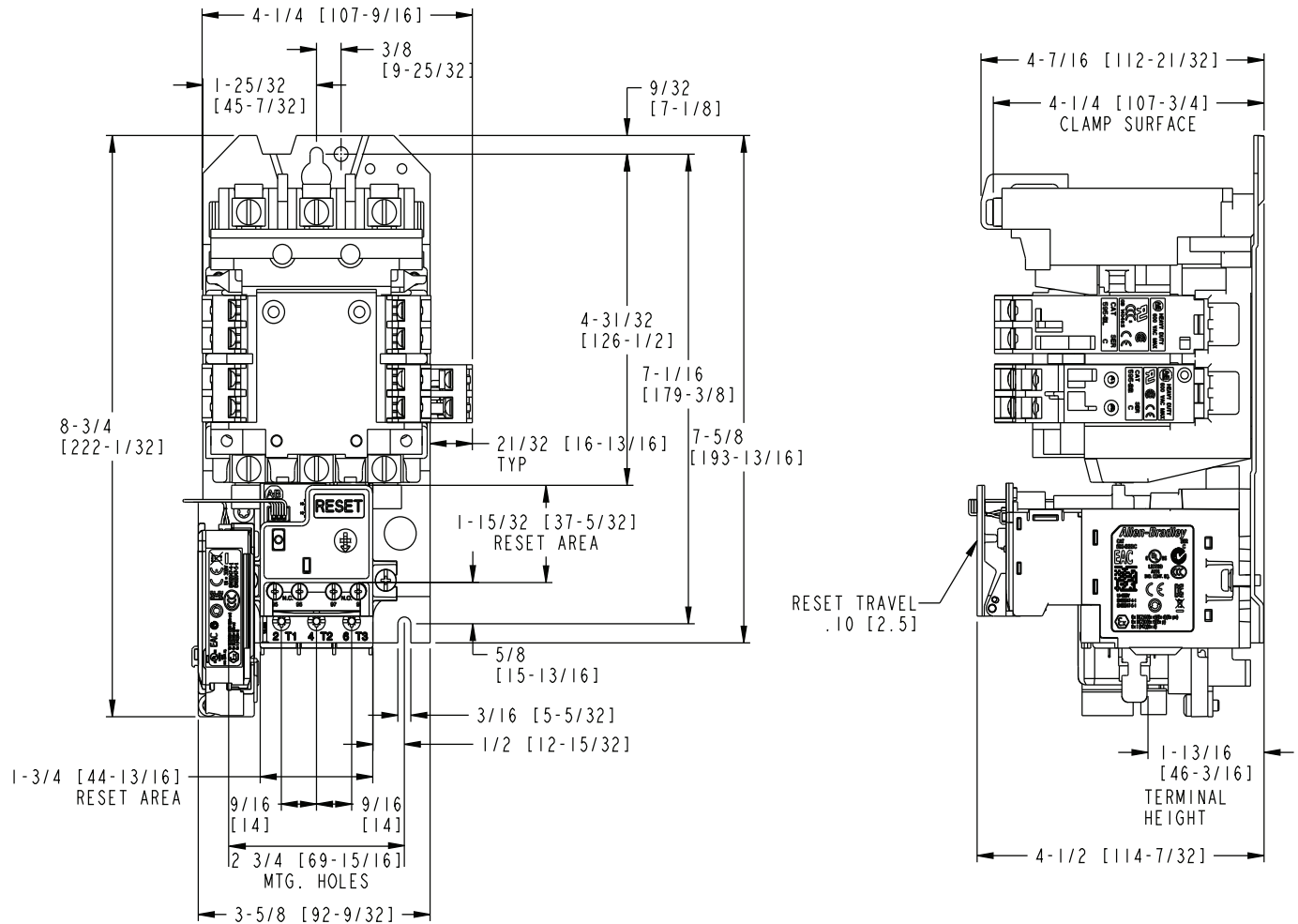
Approximate dimensions are shown in inches (millimeters). Dimensions are not intended for manufacturing purposes.



NEMA Size	Dimensions [in (mm)]						Approximate Shipping Weight [lb (kg)]
	A Width	B Height	C Relay Reset Depth	D	E	EE	
00	4-41/64 (118)	4 (102)	3-27/32 (98)	3-1/4 (83)	1/2 (13)	1 (25.4)	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)

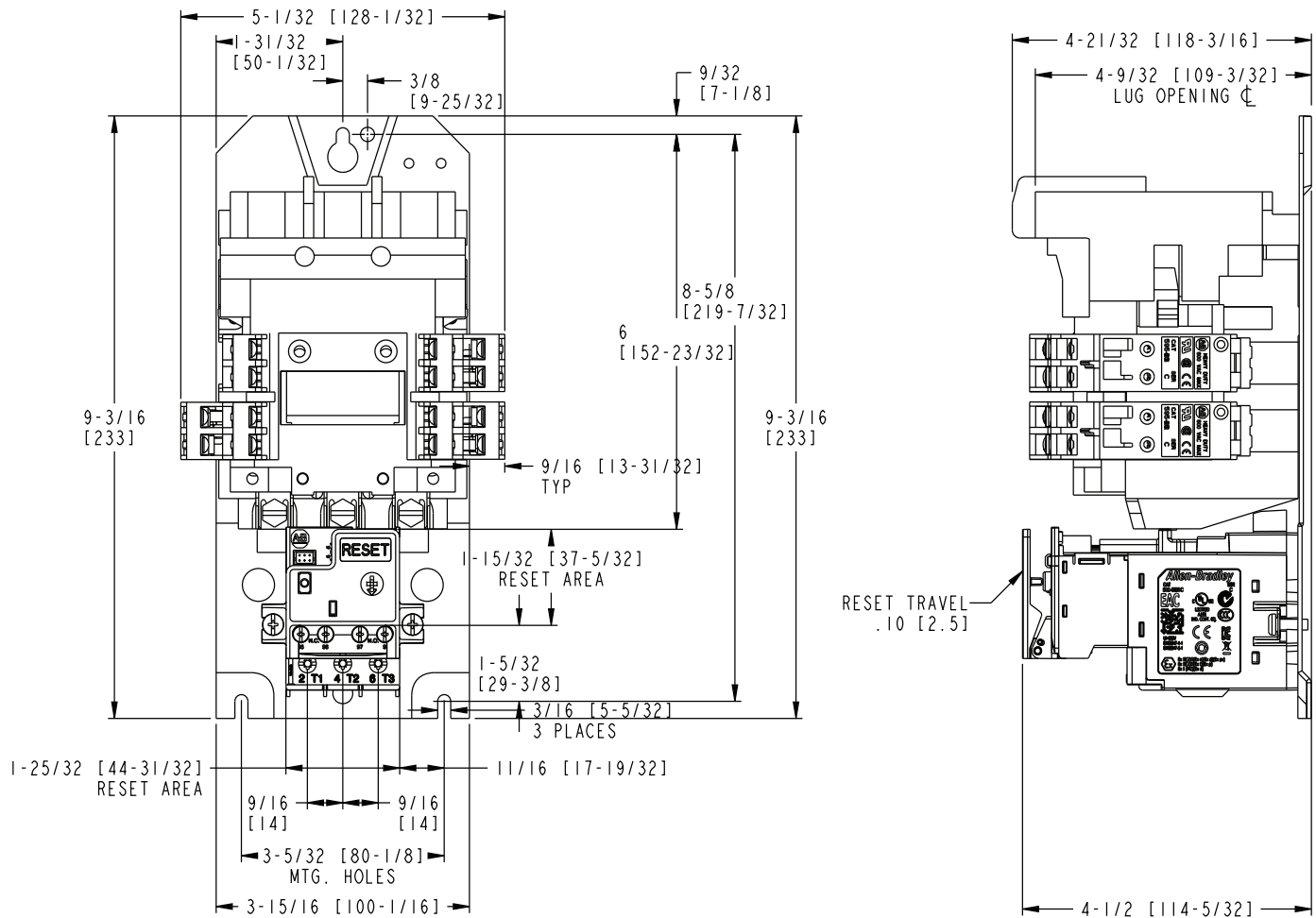
Bulletin 509 Non-reversing Starters with E100 Solid-state Overload Relay – NEMA Sizes 0...1

Approximate dimensions are shown in inches [millimeters]. Dimensions are not intended for manufacturing purposes.



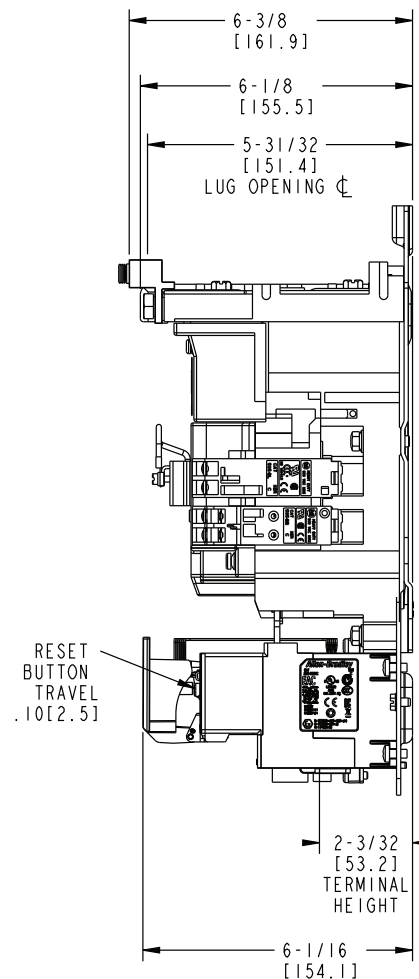
Bulletin 509 Non-reversing Starters with E100 Solid-state Overload Relay – NEMA Size 2

Approximate dimensions are shown in inches [millimeters]. Dimensions are not intended for manufacturing purposes.



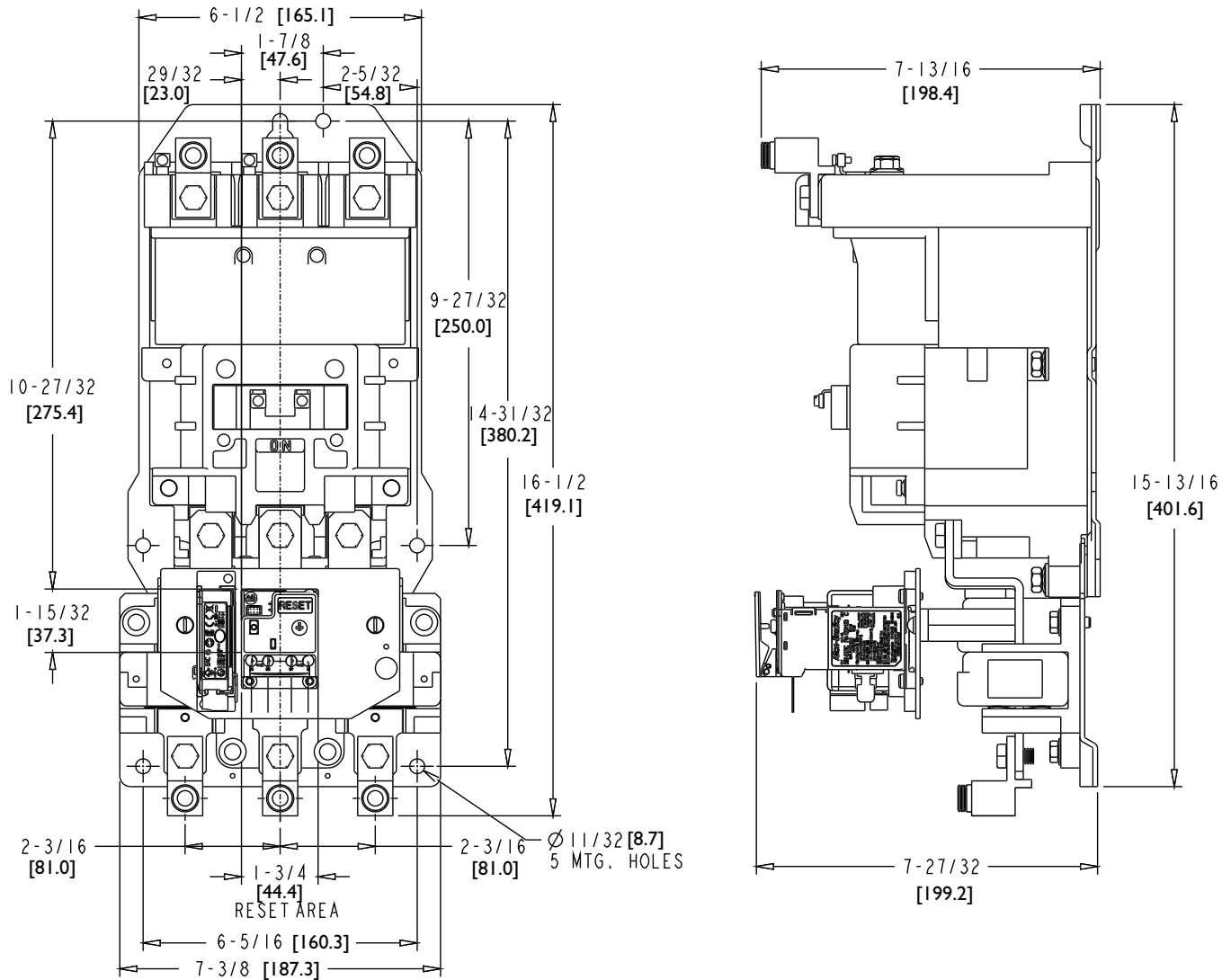
Technical drawing of the Allen-Bradley 1756-BA1000 base unit, showing dimensions in inches and millimeters. The drawing includes the following dimensions:

- Overall width: 6-1/8 [155.5]
- Top rail width: 3-1/16 [77.7]
- Terminal block width: 2-3/4 [69.9]
- Terminal block offset: 25/32 [19.9]
- Top rail offset: 5/16 [7.9]
- Terminal block offset: 8-21/32 [219.9]
- Terminal block offset: 13-1/4 [336.7]
- Terminal block offset: 9-13/32 [238.6]
- Terminal block offset: 3/16 [4.5]
- Terminal block offset: 1-23/32 [43.4]
- Terminal block offset: 1-3/16 [30.5]
- Terminal block offset: 4-3/4 [121.0]
- Terminal block offset: 5-1/2 [139.9]
- Terminal block offset: 6-15/32 [164.3]
- Terminal block offset: 2-11/32 [59.9]
- Terminal block offset: 3X Ø 9/32 [7.1]
- Terminal block offset: 1-23/32 [43.4] (RESET AREA)
- Terminal block offset: 2-11/32 [59.9] (RESET AREA)



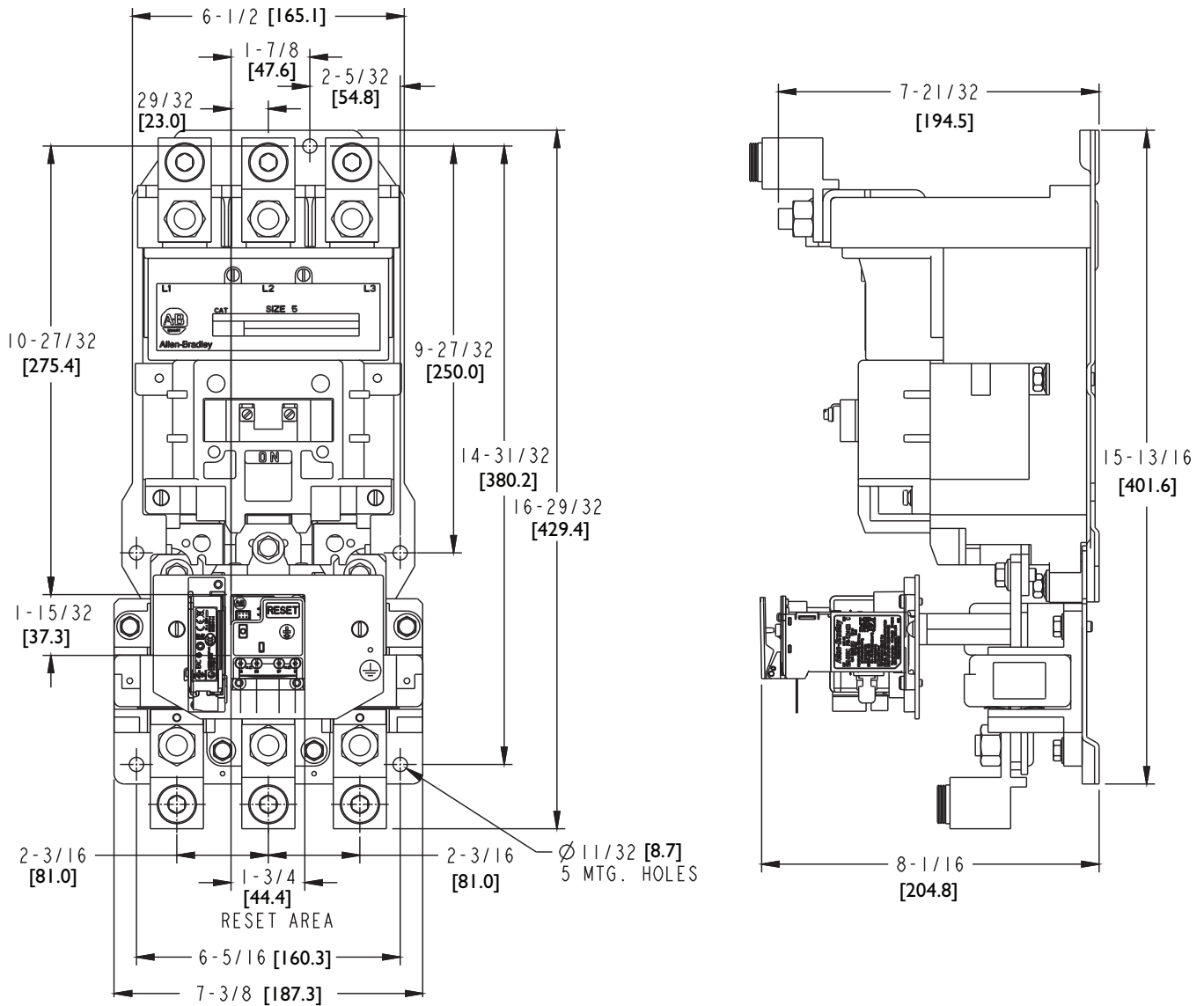
Bulletin 509 Non-reversing Starters with E100 Solid-state Overload Relay – NEMA Size 4

Approximate dimensions are shown in inches [millimeters]. Dimensions are not intended for manufacturing purposes.



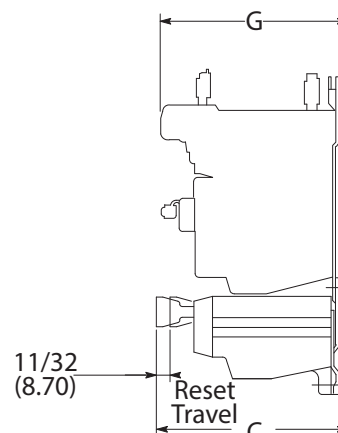
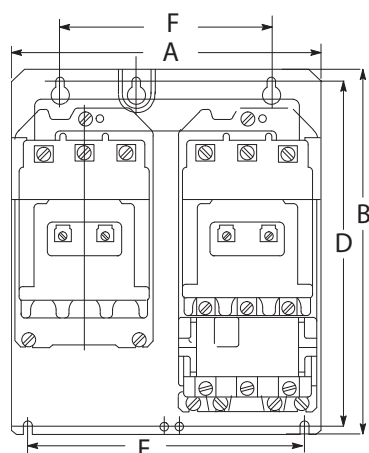
Bulletin 509 Non-reversing Starters with E100 Solid-state Overload Relay – NEMA Size 5

Approximate dimensions are shown in inches [millimeters]. Dimensions are not intended for manufacturing purposes.



Bulletin 505 Reversing Starters with and without Eutectic Overload Relay

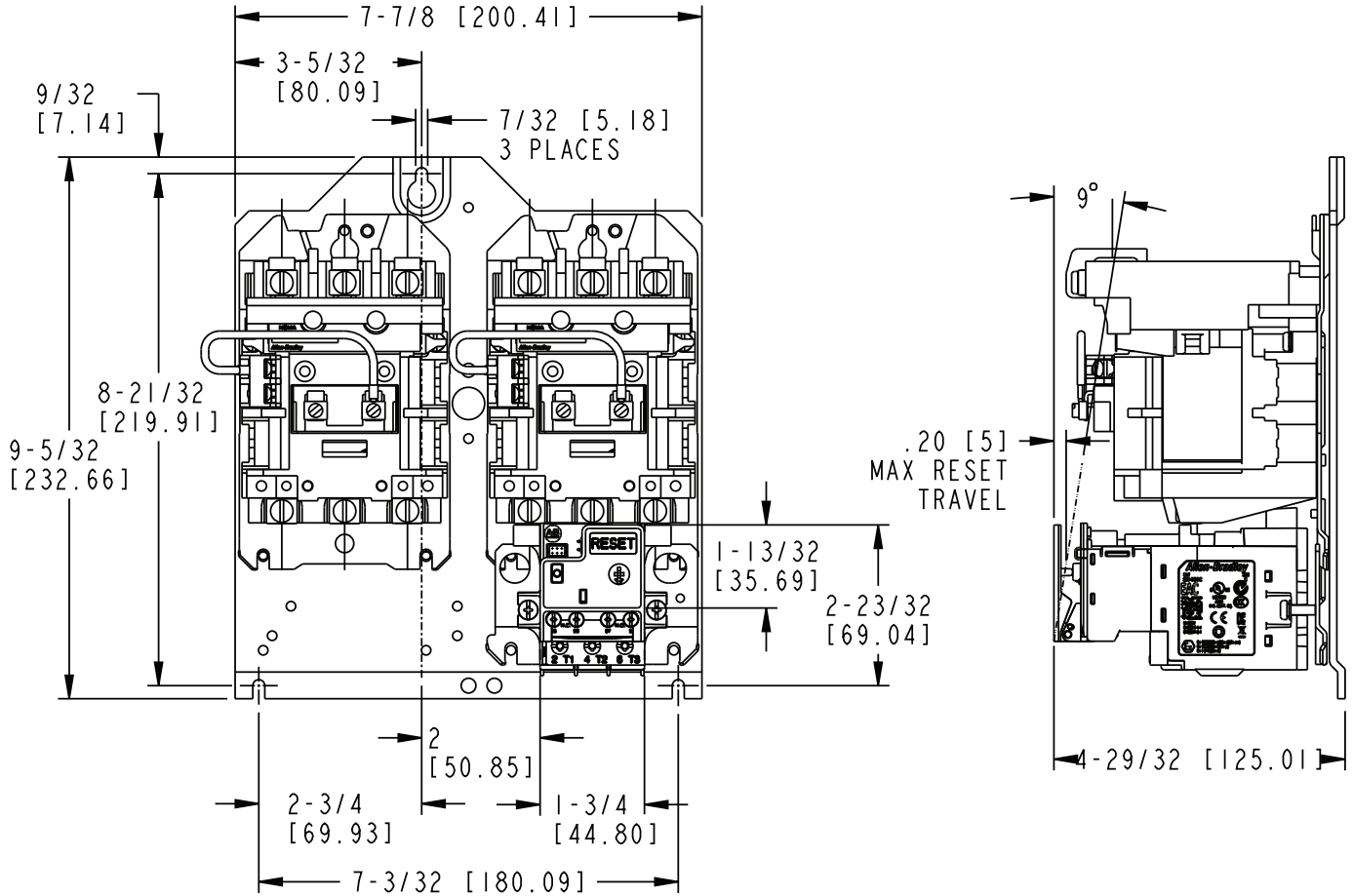
Approximate dimensions are shown in inches (millimeters). Dimensions are not intended for manufacturing purposes.



NEMA Size	Overload Relay	Dimensions [in (mm)]							Approximate Shipping Weight [lb (kg)]
		A Width	B Height	C Relay Reset Depth	D	E	F	G Depth	
00	With eutectic alloy overload relay	4-7/8 (124)	6-9/16 (167)	3-27/32 (98)	6-1/64 (153)	4-3/8 (111)	—	—	4 (1.8)
0...1		8 (203)	9-5/32 (233)	4-11/16 (119)	8-21/32 (220)	7-3/32 (180)	—	4-5/8 (117)	10 (4.5)
2		9-1/16 (230)	10-11/32 (263)	4-11/16 (119)	9-27/32 (250)	7-7/8 (200)	—	4-29/32 (125)	12-3/4 (5.8)
3		12-7/8 (327)	12-29/64 (316)	6-21/64 (161)	9-27/32 (250)	11-13/16 (300)	11-13/16 (300)	6-55/64 (174)	34 (15.5)
4		14-27/32 (377)	14-5/8 (371)	6-23/32 (171)	11-13/16 (300)	13-25/32 (350)	13-25/32 (350)	8-5/64 (205)	52 (24)
5		14-27/32 (377)	17-55/64 (453)	8-35/64 (217)	16-15/16 (430)	13-25/32 (350)	13-25/32 (350)	8-13/16 (224)	65 (29.5)
00	Without overload protection	4-7/8 (124)	4-5/16 (110)	2-3/16 (55.6)	3-3/4 (95.3)	4-3/8 (111)	—	—	2-3/4 (1.2)
0...1		8 (203)	7-19/32 (193)	—	7-3/32 (180)	7-3/32 (180)	—	4-5/8 (117)	8-3/4 (4)
2		9-1/16 (230)	8-3/8 (213)	—	7-7/8 (200)	7-7/8 (200)	—	4-29/32 (125)	11 (5)
3		12-7/8 (327)	10-21/32 (271)	—	9-27/32 (250)	11-13/16 (300)	11-13/16 (300)	6-55/64 (174)	30 (13.5)
4		14-27/32 (377)	12-23/32 (323)	—	11-13/16 (300)	13-25/32 (350)	13-25/32 (350)	8-5/64 (205)	47 (21.3)
5		14-27/32 (377)	12-23/32 (323)	—	11-13/16 (300)	13-25/32 (350)	13-25/32 (350)	8-13/16 (224)	47 (21.3)

Bulletin 505 Reversing Starters with E100 Solid-state Overload Relay – NEMA Sizes 0...1

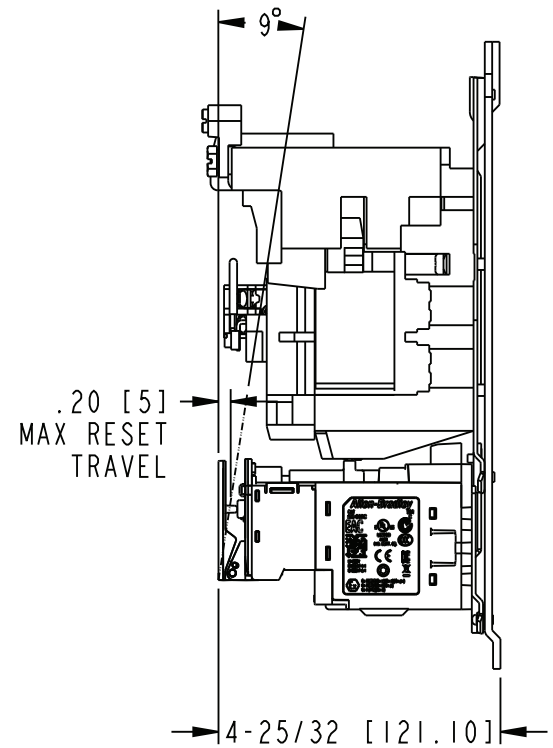
Approximate dimensions are shown in inches [millimeters]. Dimensions are not intended for manufacturing purposes.



Technical drawing of a two-channel relay assembly, showing dimensions in inches and millimeters. The drawing includes the following dimensions:

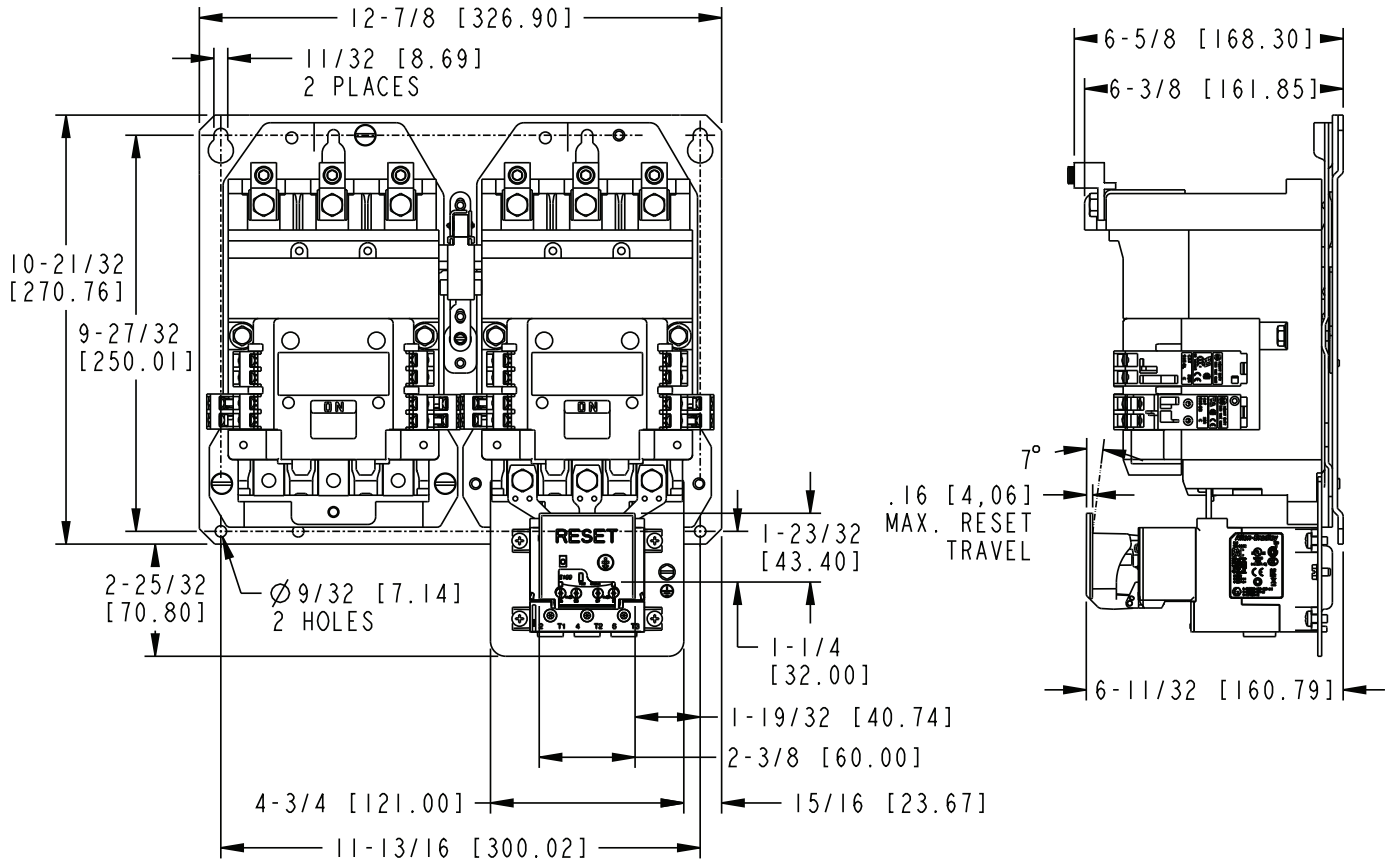
- Top horizontal dimension: 8-21/32 [219.71]
- Top horizontal dimension (left): 4-5/16 [109.86]
- Top horizontal dimension (right): 3/16 [5.16] 3 PLACES
- Left vertical dimension: 9/32 [7.14]
- Left vertical dimension: 10-11/32 [262.64]
- Left vertical dimension: 9-27/32 [250.04]
- Bottom horizontal dimension (left): 1-7/16 [36.27]
- Bottom horizontal dimension (right): 1-3/4 [44.80]
- Bottom horizontal dimension (left): 3-15/16 [100.00]
- Bottom horizontal dimension (right): 7-7/8 [200.00]

The drawing shows a symmetrical two-channel relay assembly with various components labeled, including "RESET" and "SET" buttons, and a "3 PLACES" label indicating a specific feature.



Bulletin 505 Reversing Starters with E100 Solid-state Overload Relay – NEMA Size 3

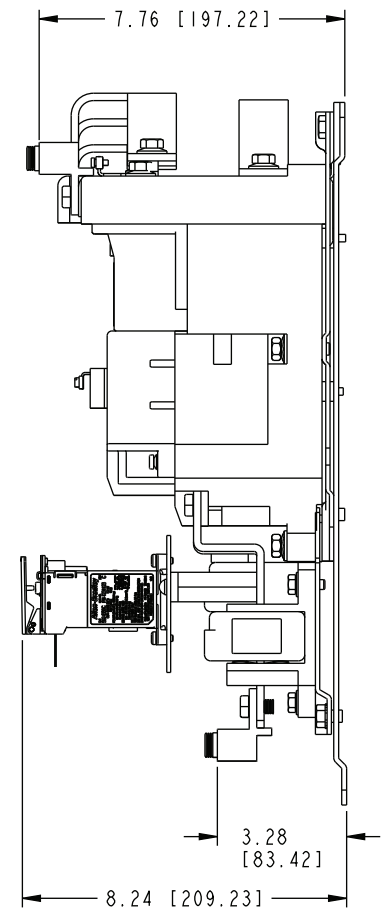
Approximate dimensions are shown in inches [millimeters]. Dimensions are not intended for manufacturing purposes.



Top view of the Allen-Bradley 1405X-1000 terminal block. The drawing shows the internal wiring terminals and the external mounting holes. Dimensions are provided in inches and millimeters.

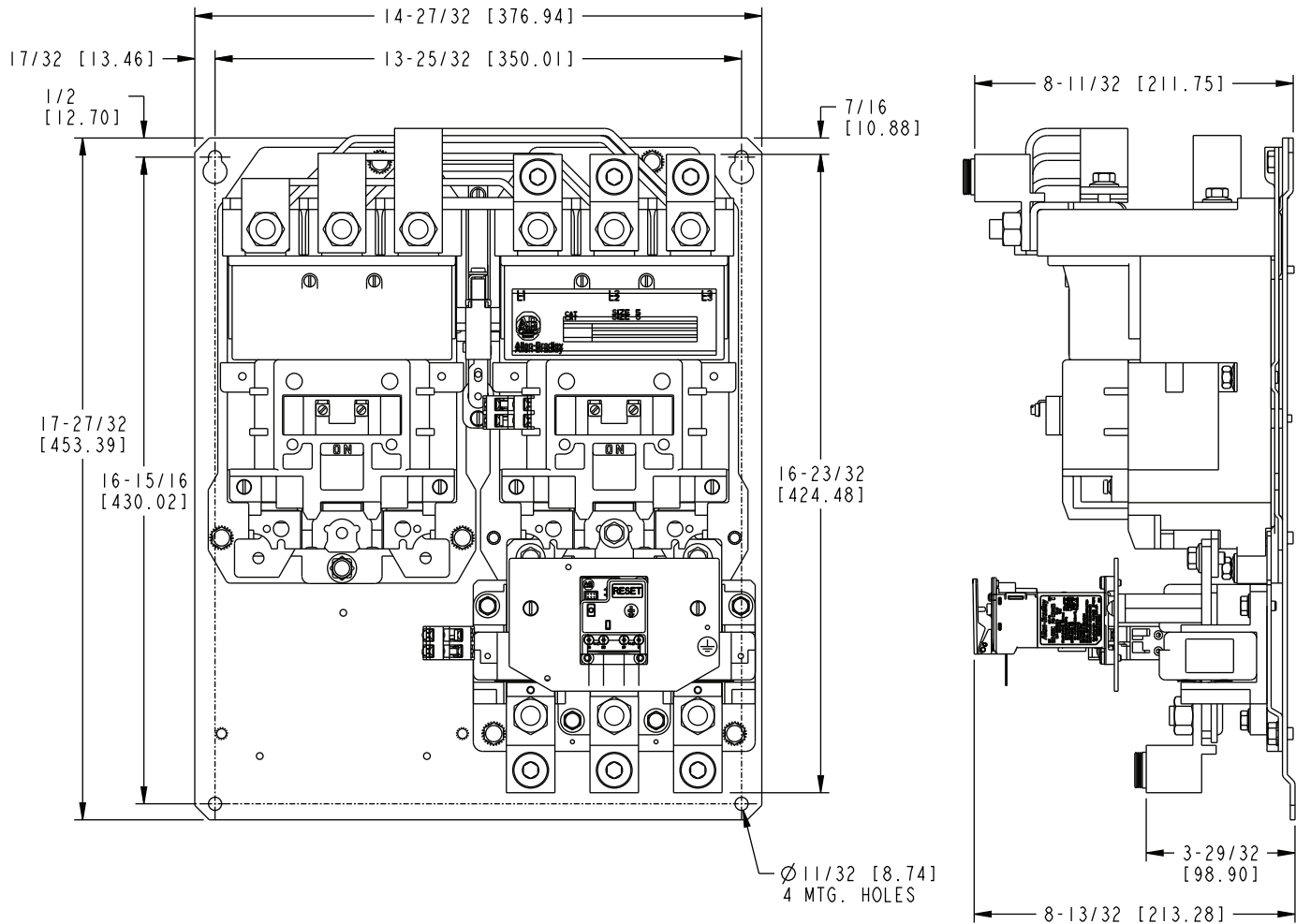
Dimensions:

- Overall width: 14.84 [376.94]
- Overall height: 17.85 [453.39]
- Mounting hole diameter: $\varnothing .34$ [8.74] 4 MTG. HOLES
- Mounting hole pitch: 1.02 [25.83]
- Terminal block width: 13.78 [350.01]
- Terminal block height: 15.72 [399.19]
- Terminal block pitch: 16.93 [430.02]
- Terminal block offset: .53 [13.46]
- Terminal block offset: .50 [12.70]



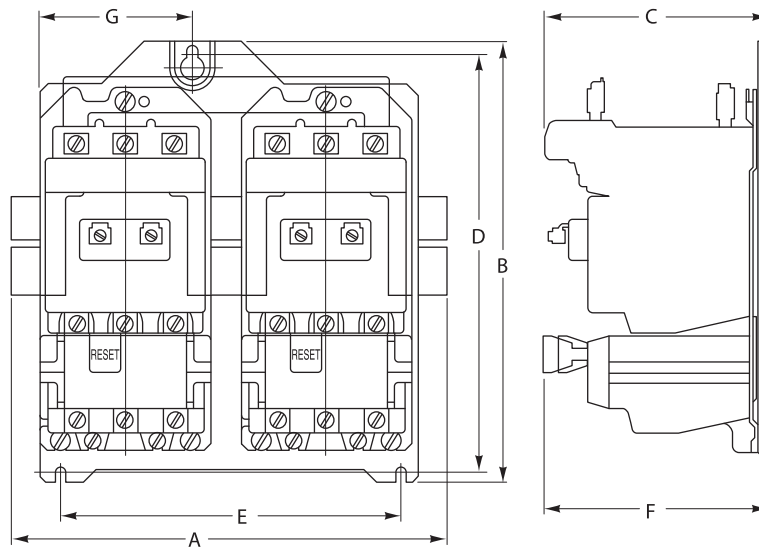
Bulletin 505 Reversing Starters with E100 Solid-state Overload Relay – NEMA Size 5

Approximate dimensions are shown in inches [millimeters]. Dimensions are not intended for manufacturing purposes.



Bulletin 520 Multi-speed Starters with Eutectic Overload Relay

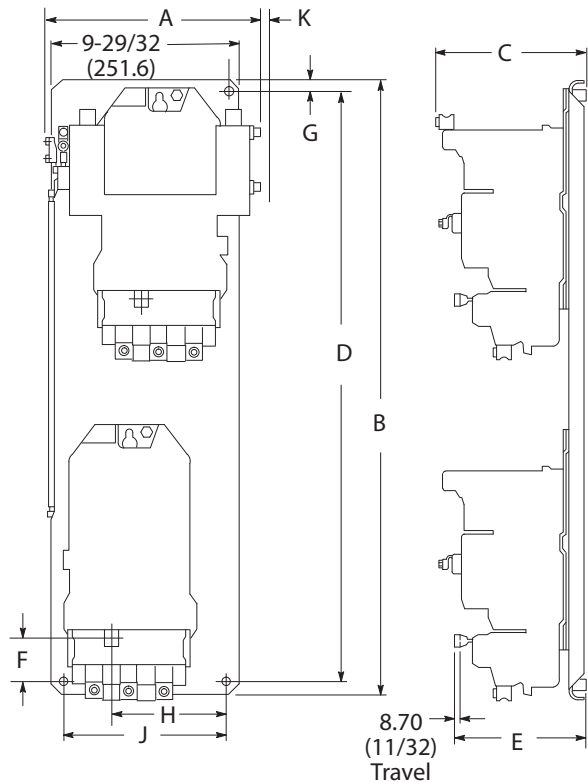
Approximate dimensions are shown in inches (millimeters). Dimensions are not intended for manufacturing purposes.



NEMA Size	Dimensions [in (mm)]							Approximate Shipping Weight [lb (kg)]
	A Width	B Height	C Depth	D	E	F Relay Reset Depth	G	
Bulletin 520E – 2-speed Separate Winding								
0...1	8 (203)	9-5/32 (233)	4-11/16 (119)	8-21/32 (220)	7-3/32 (180)	—	4-5/8 (117)	11-1/4 (5.1)
2	9-1/16 (230)	10-11/32 (263)	4-11/16 (119)	9-27/32 (250)	7-7/8 (200)	—	4-29/32 (125)	13-3/4 (6.2)
3	12-7/8 (327)	12-29/64 (316)	6-21/64 (161)	9-27/32 (250)	11-13/16 (300)	6-1/16 (154)	6-55/64 (174)	34 (15.3)
4	14-27/32 (377)	15-1/64 (381)	6-23/32 (171)	11-13/16 (300)	13-25/32 (350)	7-13/16 (198)	8-5/64 (205)	54 (24.3)
5	16-13/16 (427)	17-55/64 (453)	8-35/64 (217)	16-15/16 (430)	15-3/4 (400)	8-17/32 (217)	8-13/16 (224)	82 (36.9)
Bulletins 520F and 520G – 2-speed Consequent Pole								
0...1	9-5/16 (236.5)	9-5/32 (233)	4-11/16 (119)	8-21/32 (220)	7-3/32 (180)	—	4-5/8 (117)	12 (5.4)
2	10-1/4 (260.4)	10-11/32 (263)	4-11/16 (119)	9-27/32 (250)	7-7/8 (200)	—	4-29/32 (125)	15-1/4 (7)
3	16-1/4 (413)	12-29/64 (316.3)	6-21/64 (161)	9-27/32 (250)	13-25/32 (350)	6-1/16 (154)	6-55/64 (174)	44 (19.8)
4	18-7/32 (463)	14-39/64 (371)	6-23/32 (171)	11-13/16 (300)	15-3/4 (400)	7-13/16 (198)	8-5/64 (205)	63 (28.4)
5	18-11/32 (466)	17-55/64 (453)	8-35/64 (217)	16-15/16 (430)	15-3/4 (400)	8-17/32 (217)	8-13/16 (224)	85 (38.6)

Bulletin 520V Vertically-arranged Multi-speed Starters with Eutectic Overload Relay

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

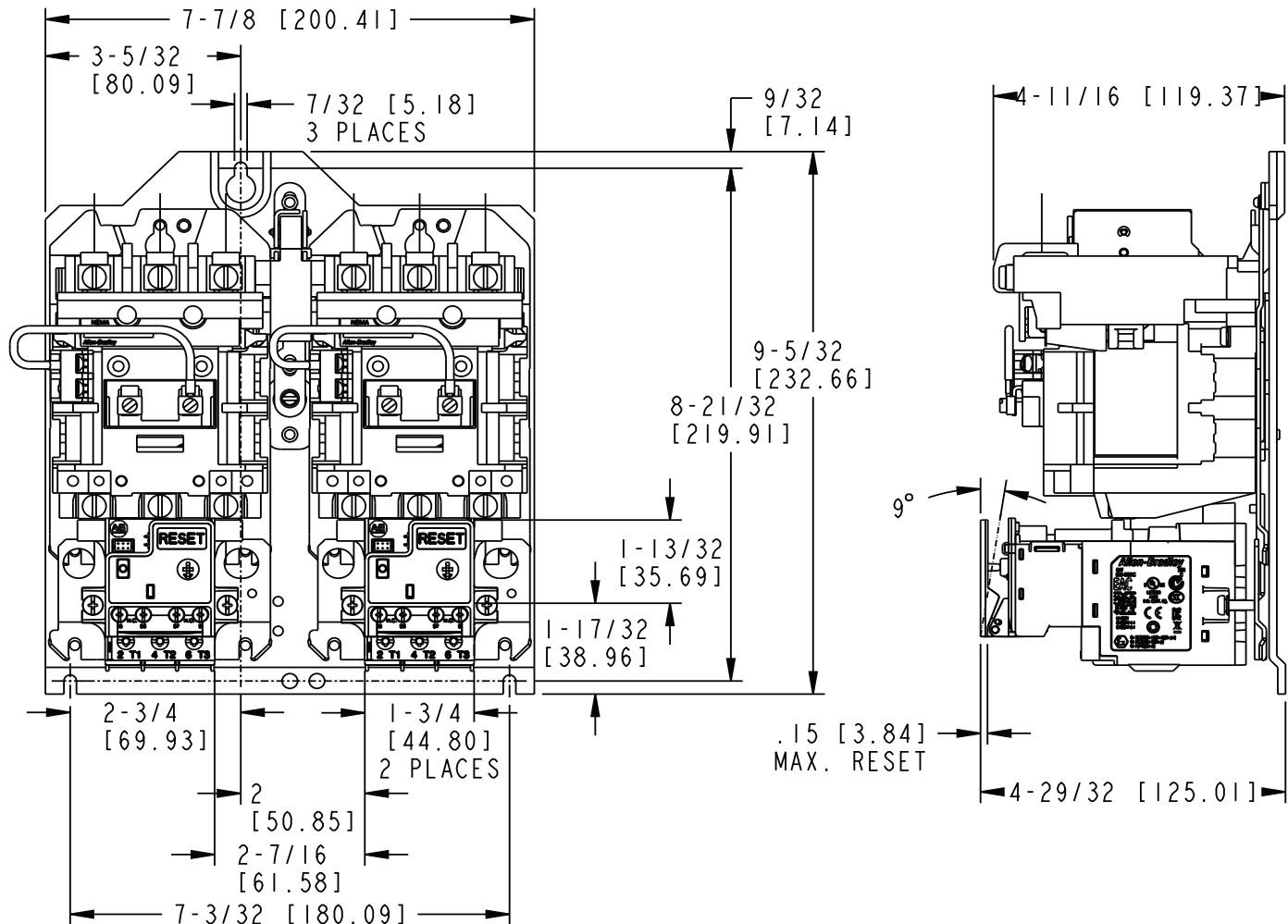


NEMA Size	Dimensions [in (mm)]										Approximate Shipping Weight [lb (kg)]
	A Width	B Height	C Depth	D	E Relay Reset Depth	F	G	H	J	K ⁽¹⁾	
Bulletin 520VE 2-speed Separate Winding											
0...1	5-11/16 (144.5)	17-9/64 (435.4)	4-15/16 (125.4)	15-3/4 (400)	5 (127)	1-11/32 (34.1)	29/64 (11.5)	1-13/16 (46)	4-21/64 (109.9)	1/16 (1.6)	5-2/5 (12)
2	6-1/8 (155.6)	20-37/64 (522.7)	4-5/8 (117.5)	19-11/16 (500)	4-5/16 (109.5)	1-21/32 (42.1)	29/64 (11.5)	2-27/32 (72.2)	4-23/32 (119.8)	1/4 (6.4)	6-4/5 (15)
3	7-17/32 (191.3)	30-5/16 (769.9)	7-1/4 (184.1)	27-9/16 (700.1)	6-45/64 (170.3)	2-55/64 (72.6)	5/8 (15.9)	3-41/64 (92.5)	5-29/32 (150)	1-3/32 (27.8)	18-1/10 (40)
4	8-5/16 (211.2)	35-1/4 (895.4)	8-23/64 (212.3)	31-1/2 (800.1)	7 (177.8)	2-63/64 (75.8)	5/8 (15.9)	3-63/64 (101.2)	6-11/16 (169.9)	1-1/2 (38.1)	60-1/2 (27.4)
5	8-7/16 (214.4)	42-11/64 (1071.1)	9-17/32 (242.1)	41-17/64 (1048.1)	9-17/64 (235.4)	5-45/64 (144.8)	29/64 (11.5)	3-23/32 (94.4)	6-11/16 (170)	3 (76.2)	—
Bulletins 520VF and 520VG 2-speed Consequent Pole											
0...1	6-3/64 (164.7)	17-1/2 (444.5)	4-15/16 (125.4)	15-3/4 (400)	5 (127)	1-11/32 (34.1)	29/64 (11.5)	2-63/64 (75.8)	5-1/8 (130.2)	33/64 (13.1)	13 (5.9)
2	6-29/32 (175.4)	20-37/64 (522.7)	4-5/8 (117.5)	19-11/16 (500)	4-5/16 (109.5)	1-21/32 (42.1)	29/64 (11.5)	31-19/64 (83.7)	5-33/64 (140.1)	23/32 (18.1)	16 (7.3)
3	9-1/8 (231.8)	30-5/16 (777.9)	7-1/4 (184.1)	27-9/16 (700.1)	6-45/64 (170.3)	2-55/64 (72.6)	5/8 (15.9)	5-23/64 (136.2)	7-31/64 (190.1)	2-1/8 (54)	45-1/2 (20.7)
4	10-9/32 (261.1)	35-1/4 (895.4)	8-23/64 (212.3)	31-1/2 (800.1)	7 (177.8)	2-63/64 (75.8)	5/8 (15.9)	5-61/64 (151.2)	8-21/32 (219.9)	3-7/32 (81.8)	72-1/2 (32.9)
5	11-29/32 (302.4)	42-11/64 (1071.1)	9-17/32 (242.1)	41-17/64 (1048.1)	9-17/64 (235.4)	5-45/64 (144.8)	13/32 (10.3)	5-11/16 (144.4)	8-21/32 (220)	4 (101.6)	—

(1) Allow additional space for internal wiring.

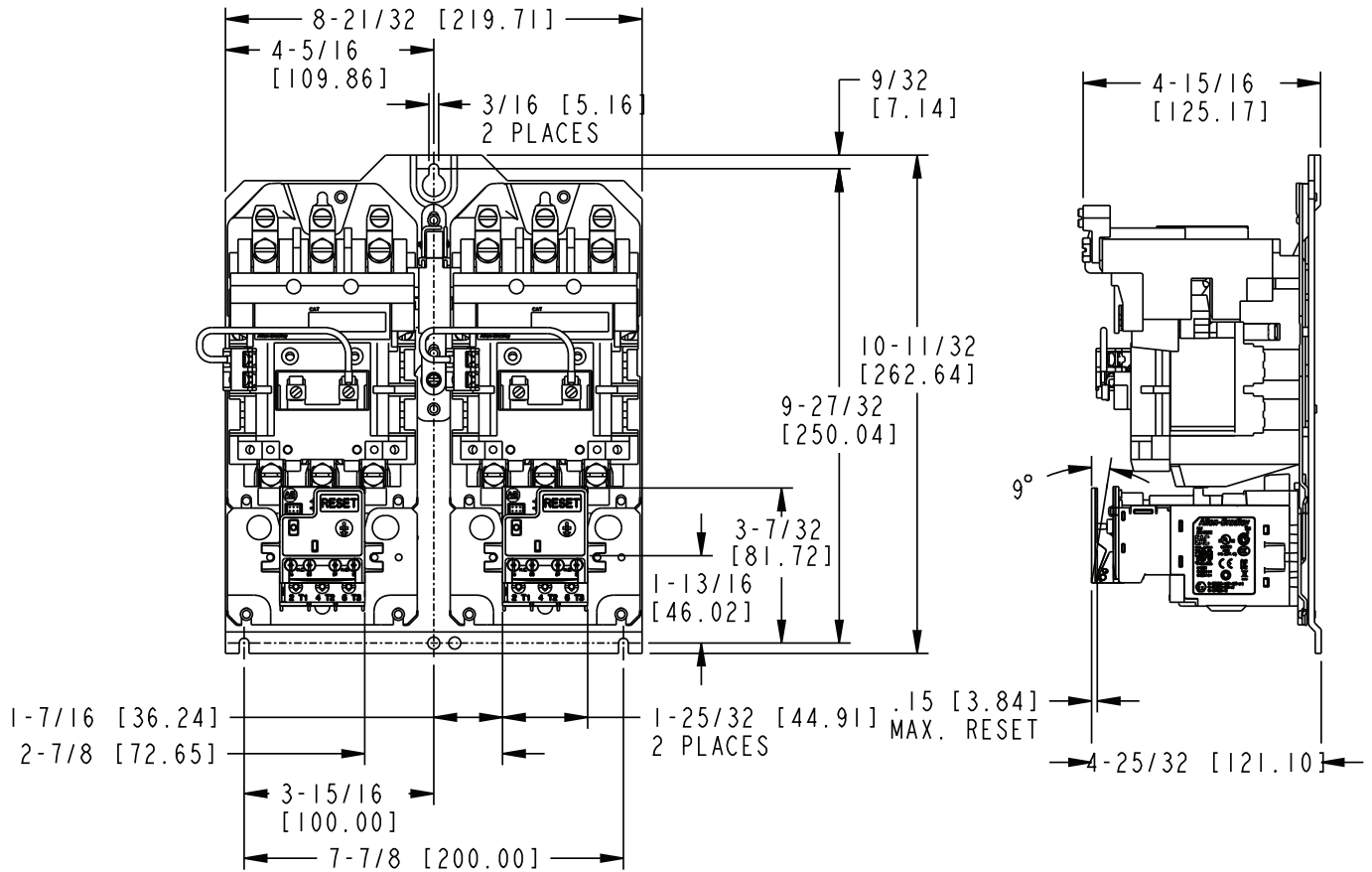
Bulletin 520E Multi-speed Starters with E100 Solid-state Overload Relay – NEMA Size 1

Approximate dimensions are shown in inches [millimeters]. Dimensions are not intended for manufacturing purposes.



Bulletin 520E Multi-speed Starters with E100 Solid-state Overload Relay – NEMA Size 2

Approximate dimensions are shown in inches [millimeters]. Dimensions are not intended for manufacturing purposes.



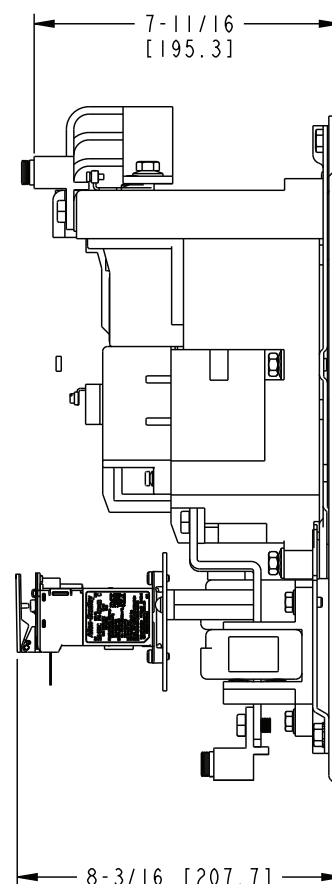
Technical drawing of the 240VAC 20A 2P+N+PE circuit breaker, showing front and side views with dimensions in inches and millimeters.

Front View Dimensions:

- Overall width: 12-7/8 [326.90]
- Distance from left edge to center of first pole: 11-13/16 [300.02]
- Distance between centers of poles: 3-7/8 [98.75]
- Distance from center of pole to right edge: 3-31/32 [100.74]
- Distance from left edge to center of reset button: 11-1/32 [8.69] (2 PLACES)
- Distance from center of pole to center of reset button: 10-21/32 [270.76]
- Distance from center of pole to center of terminal block: 9-27/32 [250.01]
- Distance from center of pole to center of terminal block (alternative): 13-1/4 [336.79]
- Distance from center of pole to center of terminal block (alternative): 2-29/32 [74.08]
- Distance from center of pole to center of terminal block (alternative): 5/8 [16.17]
- Distance from center of pole to center of terminal block (alternative): 2-3/8 [60.00] (2 PLACES)
- Distance from center of pole to center of terminal block (alternative): 5/32 [3.84] MAX RESET
- Distance from center of pole to center of terminal block (alternative): 6-13/32 [162.37]
- Distance from center of pole to center of terminal block (alternative): 6-5/8 [168.30]
- Distance from center of pole to center of terminal block (alternative): 9°
- Distance from center of pole to center of terminal block (alternative): Ø 9/32 [7.14] (2 HOLES)

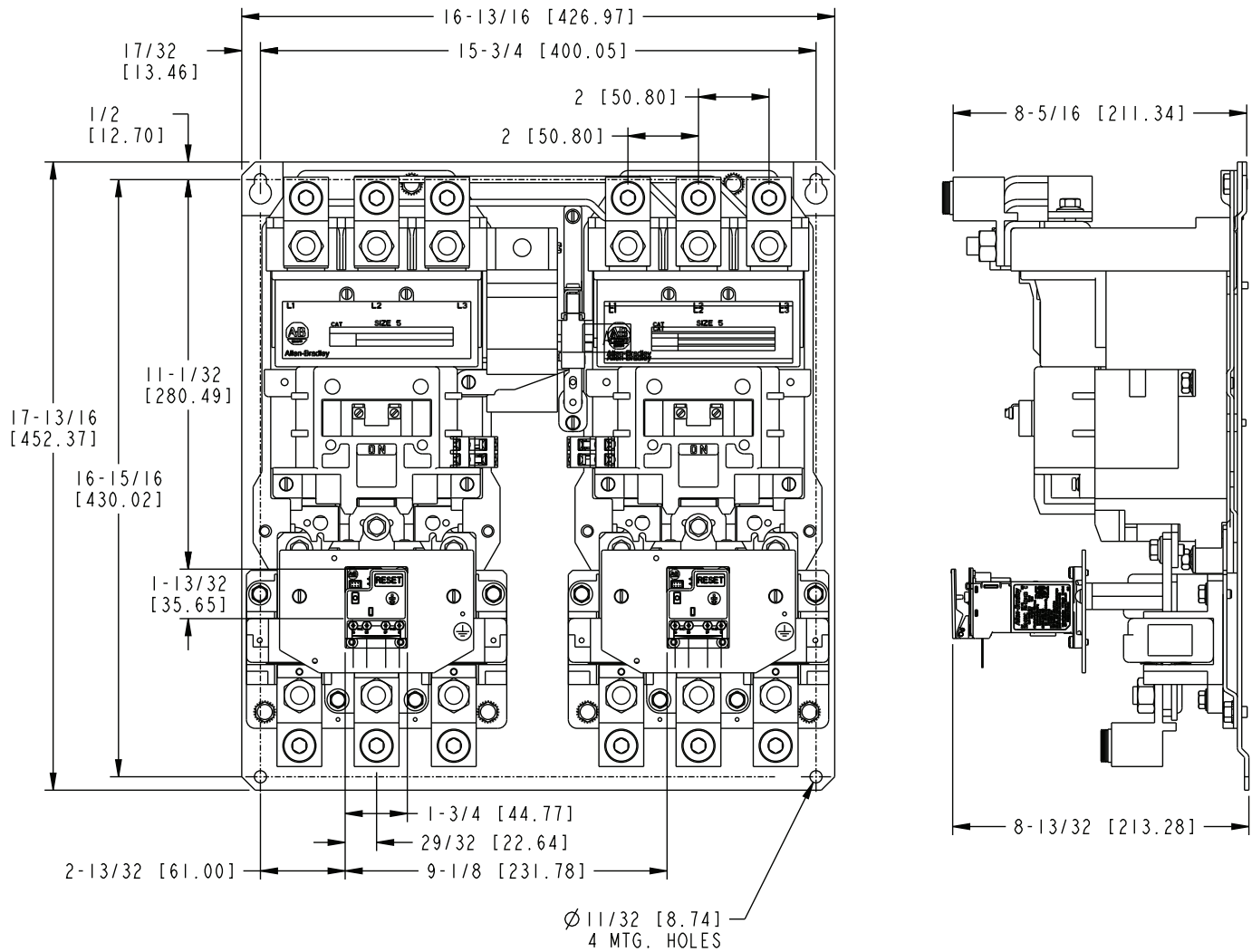
Side View Dimensions:

- Overall height: 12-7/8 [326.90]
- Distance from top edge to center of pole: 11-13/16 [300.02]
- Distance between centers of poles: 3-7/8 [98.75]
- Distance from center of pole to right edge: 3-31/32 [100.74]
- Distance from top edge to center of reset button: 11-1/32 [8.69] (2 PLACES)
- Distance from center of pole to center of reset button: 10-21/32 [270.76]
- Distance from center of pole to center of terminal block: 9-27/32 [250.01]
- Distance from center of pole to center of terminal block (alternative): 13-1/4 [336.79]
- Distance from center of pole to center of terminal block (alternative): 2-29/32 [74.08]
- Distance from center of pole to center of terminal block (alternative): 5/8 [16.17]
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- Distance from center of pole to center of terminal block (alternative): 5/32 [3.84] MAX RESET
- Distance from center of pole to center of terminal block (alternative): 6-13/32 [162.37]
- Distance from center of pole to center of terminal block (alternative): 6-5/8 [168.30]
- Distance from center of pole to center of terminal block (alternative): 9°
- Distance from center of pole to center of terminal block (alternative): Ø 9/32 [7.14] (2 HOLES)

[illegible]

Bulletin 520E Multi-speed Starters with E100 Solid-state Overload Relay – NEMA Size 5

Approximate dimensions are shown in inches [millimeters]. Dimensions are not intended for manufacturing purposes.



Notes:

Additional Resources

These documents contain additional information concerning related products from Rockwell Automation. You can view or download publications at rok.auto/literature.

Resource	Description
Pump Panel Specifications, publication 1232-TD001	Provides specifications for Bulletin 1232 and 1233 pump panels.
EtherNet/IP Network Devices User Manual, ENET-UM006	Describes how to configure and use EtherNet/IP™ devices to communicate on the EtherNet/IP network.
Ethernet Reference Manual, ENET-RM002	Describes basic Ethernet concepts, infrastructure components, and infrastructure features.
System Security Design Guidelines Reference Manual, SECURE-RM001	Provides guidance on how to conduct security assessments, implement Rockwell Automation products in a secure system, harden the control system, manage user access, and dispose of equipment.
UL Standards Listing for Industrial Control Products, publication CMPNTS-SR002	Assists original equipment manufacturers (OEMs) with construction of panels, to help ensure that they conform to the requirements of Underwriters Laboratories.
American Standards, Configurations, and Ratings: Introduction to Motor Circuit Design, publication IC-AT001	Provides an overview of American motor circuit design based on methods that are outlined in the NEC.
Industrial Components Preventive Maintenance, Enclosures, and Contact Ratings Specifications, publication IC-TD002	Provides a quick reference tool for Allen-Bradley industrial automation controls and assemblies.
Safety Guidelines for the Application, Installation, and Maintenance of Solid-state Control, publication SGI-1.1	Designed to harmonize with NEMA Standards Publication No. ICS 1.1-1987 and provides general guidelines for the application, installation, and maintenance of solid-state control in the form of individual devices or packaged assemblies incorporating solid-state components.
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, rok.auto/certifications	Provides declarations of conformity, certificates, and other certification details.

Rockwell Automation Support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, Knowledgebase, and product notification updates.	rok.auto/support
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Technical Documentation Center	Quickly access and download technical specifications, installation instructions, and user manuals.	rok.auto/techdocs
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Download firmware, associated files (such as AOP, EDS, and DTM), and access product release notes.	rok.auto/pcdc

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