

BULLETIN 509 STARTER CALCULATOR

Example of Catalog Number: **509-COD** **AZE** **17** **90**

Control Voltage: 24V 50 Hz / 24V 60 Hz	Control Voltage: 110V 50 Hz / 120V 60 Hz	Control Voltage: 208V 60 Hz	Control Voltage: 220V 50 Hz / 240V 60 Hz
NEMA Size	NEMA Size	NEMA Size	NEMA Size
Modular Kit #	Modular Kit #	Modular Kit #	Modular Kit #
Components	Components	Components	Components
Contactor	Contactor	Contactor	Contactor
Eutec. OLR #	Eutec. OLR #	Eutec. OLR #	Eutec. OLR #
Coil	Coil	Coil	Coil
Control Voltage: 440V 50 Hz / 480V 60 Hz	Control Voltage: 380V 50 Hz	Control Voltage: 550V 50 Hz / 600V 60 Hz	DC Control Voltage: 24V DC
NEMA Size	NEMA Size	NEMA Size	NEMA Size
Modular Kit #	Modular Kit #	Modular Kit #	Modular Kit #
Components	Components	Components	Components
Contactor	Contactor	Contactor	Contactor
Eutec. OLR #	Eutec. OLR #	Eutec. OLR #	Eutec. OLR #
Coil	Coil	Coil	Coil

Additional Options

Solid-State Overload			
All NEMA Sizes			
NEMA Size	Mod. Kit Code	Component	
0.2-1.0 A		592-EEBC	
1-5 A		592-EECC	
3.2-16 A		592-EEDC	
5.4-27 A		592-EEEC	
9-45 A		592-EFEC	
9-45 A		592-EEFD	
18-90 A		592-EEGD	
30-150 A		592-EEHE	

Auxiliary Contact On Eutectic Relay			
All NEMA Sizes			
Cont. Type	Mod. Kit Code	Component	
1N.O.	-9	595-A02	595-A34
1N.C.	-9A	595-B02	595-B34

Surge Suppressor			
All NEMA Sizes			
Voltage	Mod. Kit Code	Component	
120V AC	-17	599-K04	
240V AC	-17	599-KA04	

Auxiliary Contact on Starter			
All NEMA Sizes			
Cont. Type	Mod. Kit Code	Component	
1N.O.	-90	595-A	
1N.C.	-91	595-B	
2N.O.	-900	595-AA	
2N.C.	-911	595-BB	
1N.O. & 1N.C.	-901	595-AB	

MOTOR DATA CALCULATOR

MOTOR	H.P.	Three phase motor data for 60 Hz, 1800 RPM standard squirrel cage motors.
200 VOLTS	509-	Full Load Current**/NEMA Size
	505-	Wire Size**/Conduit Size***
	512-	Fuse Size (Amps)****
	513-	Starter
230 VOLTS	509-	Reversing Starter
	505-	Fusable Combination Starter
	512-	Circuit Breaker Combination Starter
	513-	Full Load Current**/NEMA Size
460 VOLTS	509-	Wire Size**/Conduit Size***
	505-	Fuse Size (Amps)****
	512-	Starter
	513-	Reversing Starter
575 VOLTS	509-	Fusable Combination Starter
	505-	Circuit Breaker Combination Starter
	512-	Full Load Current**/NEMA Size
	513-	Wire Size**/Conduit Size***

NEMA STARTER SELECTOR - EUTECTIC
For Starters with Bulletin 592 Eutectic Overload Relays
Class 20 Overload Protection - ("W" Heater Elements)
Manual Reset

- INSTRUCTIONS:**
- Slide insert to select appropriate motor horsepower.
 - Read motor, wire and conduit data from window according to motor voltage.



* Full Load Currents are from Table 430-150 of the 2002 NEC Code.
** Wire sizes were selected using the 2002 NEC Code (60 °C THW wire for motor full load currents less than 100 Amps and 75 °C THW wire for full load currents of 100 Amps and above).
*** Conduit sizes were selected using the 2002 NEC Code.
**** Fuse sizes were selected using Table 430-52 of the 2002 NEC Code for Dual Element Time Delay fuses.

BULLETIN NO: NEMA SIZE 0, 1, 2

- HEATER TYPE NUMBER**
- W10
 - W11
 - W12
 - W13
 - W14
 - W15
 - W16
 - W17
 - W18
 - W19
 - W20
 - W21
 - W22
 - W23
 - W24
 - W25
 - W26
 - W27
 - W28
 - W29
 - W30
 - W31
 - W32
 - W33
 - W34
 - W35
 - W36
 - W37
 - W38
 - W39
 - W40

FULL LOAD AMPS

INSTRUCTIONS:

- Place Bulletin No. and NEMA Size in same color window.
- Read Rules
- Select Heater Element.

RULES:

Motors rated for continuous duty:
Motors with marked service factor of not less than 1.15, or motors with marked temperature rise not over 40 °C

- The Same Temperature at the Controller and the Motor** - Select the "Heater Type No." with the listed "Full Load Amps," nearest the full load value shown on the motor nameplate. This will provide integral horsepower motors with protection between 110 and 120% of the nameplate full load currents.
- Higher Temperature at the Controller than at the Motor** - If the full load current value shown on the motor nameplate is between the listed "Full Load Amps," select the "Heater Type No." with the higher value. This will provide integral horsepower motors with protection between 115 and 125% of the nameplate full load currents.

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BULLETIN NO: NEMA SIZE 0, 1, 2

- HEATER TYPE NUMBER**
- W41
 - W42
 - W43
 - W44
 - W45
 - W46
 - W47
 - W48
 - W49
 - W50
 - W51
 - W52
 - W53
 - W54
 - W55
 - W56
 - W57
 - W58
 - W59
 - W60
 - W61
 - W62
 - W63
 - W64
 - W65
 - W66
 - W67
 - W68
 - W69
 - W70

FULL LOAD AMPS

RULES Continued:

- Lower Temperature at the Controller than at the Motor** - If the full load current value shown on the motor nameplate is between the listed "Full Load Amps," select the "Heater Type No." with the lower value. This will provide integral horsepower motors with protection between 105 and 115% of the nameplate full load currents.
 - Rules 2 and 3 apply when the temperature difference does not exceed 10 °C (18 °F). Consult Local Allen-Bradley Distributor when the temperature difference is greater.
- All other motors rated for continuous duty (includes motors marked with service factor of 1.0):**
Select the "Heater Type No." one rating smaller than determined by the rules in paragraphs 1, 2 and 3. This will provide protection at current levels 10% lower than indicated above.

Motors rated for intermittent duty:
Consult local Allen-Bradley Distributor

BULLETIN NO: NEMA SIZE 3, 4

- HEATER TYPE NUMBER**
- W52
 - W53
 - W54
 - W55
 - W56
 - W57
 - W58
 - W59
 - W60
 - W61
 - W62
 - W63
 - W64
 - W65
 - W66
 - W67
 - W68
 - W69
 - W70
 - W71
 - W72
 - W73
 - W74
 - W75
 - W76
 - W77
 - W78
 - W79
 - W80
 - W81
 - W82
 - W83
 - W84

FULL LOAD AMPS



Heater Element Selector

For Starters With Bulletin 592 Eutectic Overload Relays, Class 20 Overload Protection



MOTOR DATA CALCULATOR

MOTOR	H.P.	Three phase motor data for 60 Hz, 1800 RPM standard squirrel cage motors.
200 VOLTS	509-	Full Load Current**/NEMA Size
	505-	Wire Size**/Conduit Size***
	512-	Fuse Size (Amps)****
	513-	Starter
230 VOLTS	509-	Reversing Starter
	505-	Fusable Combination Starter
	512-	Circuit Breaker Combination Starter
	513-	Solid-State Overload Relay
460 VOLTS	509-	Full Load Current**/NEMA Size
	505-	Wire Size**/Conduit Size***
	512-	Fuse Size (Amps)****
	513-	Starter
575 VOLTS	509-	Reversing Starter
	505-	Fusable Combination Starter
	512-	Circuit Breaker Combination Starter
	513-	Solid-State Overload Relay

NEMA STARTER SELECTOR - E1 PLUS (Replaces SMP-1)

For Starters with Bulletin 592 Solid State Overload Relays
Self Powered
Phase Loss Protection
Wide Adjustment Range (5-1)
Ambient Temperature Compensation
Visible Trip Indication
Selectable Trip Class (10, 15, 20 or 30)
Selectable Manual/Auto-Manual Reset

- INSTRUCTIONS:**
- Slide insert to select appropriate motor horsepower.
 - Read motor, wire and conduit data from window according to motor voltage.

* Full Load Currents are from Table 430-150 of the 2002 NEC Code.
** Wire sizes were selected using the 2002 NEC Code (60 °C THW wire for motor full load currents less than 100 Amps and 75 °C THW wire for full load currents of 100 Amps and above).
*** Conduit sizes were selected using the 2002 NEC Code.
**** Fuse sizes were selected using Table 430-52 of the 2002 NEC Code for Dual Element Time Delay fuses.



BULLETIN 500 TOP-WIRED CONTACTOR

Example of Catalog Number: **500-B0D** **940** **17** **90**

Control Voltage: 24V 50 Hz / 24V 60 Hz	Control Voltage: 110V 50 Hz / 120V 60 Hz	Control Voltage: 208V 60 Hz	Control Voltage: 220V 50 Hz / 240V 60 Hz
NEMA Size	NEMA Size	NEMA Size	NEMA Size
Modular Kit #	Modular Kit #	Modular Kit #	Modular Kit #
Components	Components	Components	Components
Contactor	Contactor	Contactor	Contactor
Top Wire Kit	Top Wire Kit	Top Wire Kit	Top Wire Kit
Terminal Shield	Terminal Shield	Terminal Shield	Terminal Shield
Coil	Coil	Coil	Coil
Control Voltage: 440V 50 Hz / 480V 60 Hz	Control Voltage: 380V 50 Hz	Control Voltage: 550V 50 Hz / 600V 60 Hz	DC Control Voltage: 24V DC
NEMA Size	NEMA Size	NEMA Size	NEMA Size
Modular Kit #	Modular Kit #	Modular Kit #	Modular Kit #
Components	Components	Components	Components
Contactor	Contactor	Contactor	Contactor
Top Wire Kit	Top Wire Kit	Top Wire Kit	Top Wire Kit
Terminal Shield	Terminal Shield	Terminal Shield	Terminal Shield
Coil	Coil	Coil	Coil

Additional Options

Power Poles			
All NEMA Sizes			
NEMA Size	Number of Poles	Mod. Kit Code	Component
Standard (3)		930	
4		940	
5		950	

Surge Suppressor			
All NEMA Sizes			
Voltage	Mod. Kit Code	Component	
120V AC	-17	599-K04	
240V AC	-17	599-KA04	

Auxiliary Contact on Starter			
All NEMA Sizes			
Cont. Type	Mod. Kit Code	Component	
1N.O.	-90	595-A	
1N.C.	-91	595-B	
2N.O.	-900	595-AA	
2N.C.	-911	595-BB	
1N.O. & 1N.C.	-901	595-AB	

BULLETIN 500F FEED-THROUGH CONTACTOR

Example of Catalog Number: **500F-B0D** **17** **90**

Control Voltage: 24V 50 Hz / 24V 60 Hz	Control Voltage: 110V 50 Hz / 120V 60 Hz	Control Voltage: 208V 60 Hz	Control Voltage: 220V 50 Hz / 240V 60 Hz
NEMA Size	NEMA Size	NEMA Size	NEMA Size
Modular Kit #	Modular Kit #	Modular Kit #	Modular Kit #
Components	Components	Components	Components
Contactor	Contactor	Contactor	Contactor
Coil	Coil	Coil	Coil
Control Voltage: 440V 50 Hz / 480V 60 Hz	Control Voltage: 380V 50 Hz	Control Voltage: 550V 50 Hz / 600V 60 Hz	DC Control Voltage: 24V DC
NEMA Size	NEMA Size	NEMA Size	NEMA Size
Modular Kit #	Modular Kit #	Modular Kit #	Modular Kit #
Components	Components	Components	Components
Contactor	Contactor	Contactor	Contactor
Coil	Coil	Coil	Coil

Additional Options

Surge Suppressor			
All NEMA Sizes			
Voltage	Mod. Kit Code	Component	
120V AC	-17	599-K04	
240V AC	-17	599-KA04	

Auxiliary Contact On Eutectic Relay			
All NEMA Sizes			
Cont. Type	Mod. Kit Code	Component	
1N.O.	-90	595-A	
1N.C.	-91	595-B	
2N.O.	-900	595-AA	
2N.C.	-911	595-BB	
1N.O. & 1N.C.	-901	595-AB	