

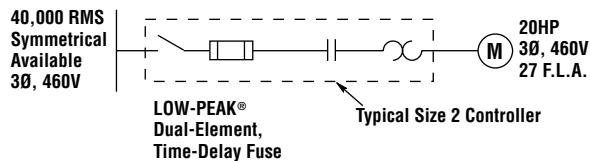
# Type 2 "No Damage" Motor Starter Protection

## Component Protection — Low Voltage Motor Controllers

### Motor Controller Protection

The diagram below shows a Size 2, combination motor controller supplying a 460 volt, 3Ø, 20HP motor. The short-circuit withstand of this and other motor controllers are established so that they may be properly protected from short-circuit damage.

### Short-Circuit Protection of Motor Controller



There are several independent organizations engaged in regular testing of motor controllers under short-circuit conditions. One of these, Underwriter's Laboratories, tests controllers rated one horsepower or less and 300V or less with 1000 amperes short-circuit current available to the controller test circuit. Controllers rated 50HP or less are tested with 5000 amperes available and controllers rated above 50HP to 200HP are tested with 10,000 amperes available. See the table below for these values.\*

Motor Controller HP Rating	Test Short-Circuit Current Available*
1HP or less and 300V or less	1,000A
50HP or less	5,000A
Greater than 50HP to 200HP	10,000A
201HP to 400HP	18,000A
401HP to 600HP	30,000A
601HP to 900HP	42,000A
901HP to 1600HP	85,000A

\* From Industrial Control Equipment, UL 508.

It should be noted that these are basic short-circuit requirements. Higher, combination ratings are attainable if tested to an applicable standard. However, damage is usually allowed.

430.52 of the National Electrical Code® allows dual-element, time-delay fuses and other overcurrent protective devices to be sized for branch circuit protection (short-circuit protection only). Controller manufacturers often affix labels to the inside of the motor starter cover which recommend the maximum size fuse for each overload relay size.

A paragraph in NEC® 430.52 states:

Where maximum branch circuit short-circuit and ground fault protective device ratings are shown in the manufacturer's overload relay table for use with a motor controller or are otherwise marked on the equipment, they shall not be exceeded even if higher values are allowed as shown above.\*\*

\*\* "Above" refers to other portions of 430-52 not shown here.

This paragraph means that the branch circuit overcurrent protection for overload relays in motor controllers must be no greater than the maximum size as shown in the manufacturer's overload relay table. These maximum branch circuit sizes must be observed even though other portions of 430.52 allow larger sizing of branch circuit overcurrent protection.

The reason for this maximum overcurrent device size is to provide short-circuit protection for the overload relays and motor controller.

### Type 1 vs. Type 2 Protection

UL has developed a short-circuit test procedure designed to verify that motor controllers will not be a safety hazard and will not cause a fire.

Compliance to the standard allows deformation of the enclosure, but the door must not be blown open and it must be possible

# Component Protection — Low Voltage Motor Controllers

to open the door after the test. In the standard short-circuit tests, the contacts must not disintegrate, but welding of the contacts is considered acceptable. Tests allow the overload relay to be damaged with burnout of the current element completely acceptable.

For short-circuit ratings in excess of the standard levels listed in UL 508, the damage allowed is even more severe. Welding or complete disintegration of contacts is acceptable and complete burnout of the overload relay is allowed. Therefore, a user cannot be certain that the motor starter will not be damaged just because it has been UL Listed for use with a specific branch circuit protective device. UL tests are for safety, with the doors closed but do allow a significant amount of damage as long as it is contained within the enclosure.

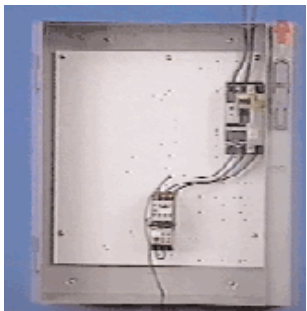


Photo 1 **Before Test:** MCP as motor branch circuit protection for 10HP, IEC Starter with 22,000 amps available at 480V.



Photo 2: Same as Photo 1, but during the test with MCP as the motor branch circuit protection. The heater elements vaporized and the contacts were severely welded. Extensive starter repair or total starter replacement would be required. This level of damage is permissible by UL508 or UL508E/IEC60947-4-1 Type 1 protection.

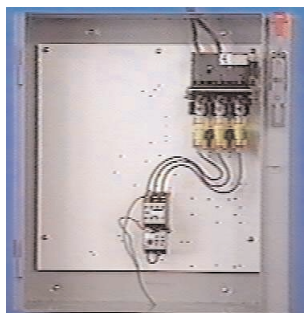


Photo 3 During Test: same test circuit and same type starter during short-circuit interruption. The difference is current-limiting fuses provide the motor branch circuit protection. This illustrates the level of protection required by UL 508E and IEC 60947-4-1 for Type 2 “no damage” protection. The heaters and overload relays maintained calibration, which is extremely important to retain circuit overload protection. This starter could be put back into service without any repair.

In order to properly select a branch circuit protective device that not only provides motor branch circuit protection, but also protects the circuit components from damage, the designer must look beyond mere safety standards. Coordination (protection) of the branch circuit protective device and the motor starter is necessary to insure that there will be no damage or danger to either the starter or the surrounding equipment. There is an “Outline of Investigation”, (UL508E) and an IEC (International Electrotechnical Commission) Standard IEC Publication 60947, “Low Voltage Switchgear and Control, Part 4-1: Contactors and Motor Starters”, that offer guidance in evaluating the level of damage likely to occur during a short-circuit with various branch circuit protective devices. These standards address the coordination (protection) between the branch circuit protective device and the motor starter. They provide a method to measure the performance of these devices should a short-circuit occur. They define two levels of protection (coordination) for the motor starter:

**Type 1.** Considerable damage to the contactor and overload relay is acceptable. Replacement of components or a completely new starter may be needed. There must be no discharge of parts beyond the enclosure.

**Type 2.** No damage is allowed to either the contactor or overload relay. Light contact welding is allowed, but must be easily separable.

Where Type 2 protection is desired, the controller manufacturer must verify that Type 2 protection can be achieved by using a specified protective device. U.S. manufacturers have both their NEMA and IEC motor controllers verified to meet the Type 2 requirements outlined in UL508E and IEC 60947-4. As of this writing only current-limiting devices have been able to provide the current-limitation necessary to provide verified Type 2 protection. In many cases, Class J, Class RK1, or Class CC fuses are required, because Class RK5 fuses and circuit breakers aren't fast enough under short-circuit conditions to provide Type 2 protection.

## Tables: Type 2 Motor Starter / Bussmann® Fuses

On the following pages are motor starters of several manufacturers that have been verified by testing for Type 2 protection using the fuses denoted. These are maximum fuse sizes; for specific applications, it may be desirable to size closer. In some cases, the fuse type/ampere rating shown is greater than that permitted for branch circuit protection for a single motor per 430.52 (footnoted); however, the size may be applicable for group motor protection applications. In a few cases, the fuse type/ampere rating may be too small for typical motor starting applications (footnoted). It is recommended to use these fuse types/ampere ratings in conjunction with the fuse type/sizing philosophy (backup motor overload, optimal or maximum branch circuit protection - see Motor Protection Table explanation in Motor Circuit Protection Section of this book.) This data was obtained from the manufacturers or their web sites.

### The following pages have Fuse/Starter (IEC & NEMA) Type 2 “no damage” Tables for:

General Electric	128 to 132
Rockwell Automation/Allen-Bradley	133 to 134
Square D Co.	135 to 136
Siemens	137 to 138
Cutler-Hammer	139 to 141

## Bussmann®/General Electric Co.

### IEC

#### 200 Volt, Three-Phase Motors

HP(FLC)	CONTACTOR	OLR	MAX. FUSE
			LPJ_SP CLASS J
.5(2.5)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1J	4
.5(2.5)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1K	8†
.75(3.7)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1K	8
1(4.8)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1L	10
1.5(6.9)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1M	12
2(7.8)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1N	20†
3(11.0)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1P	20
5(17.5)	CL02, CL03, CL04, CL25, CL45	RT*1S	35
5(17.5)	CL06, CL07, CL08, CL09, CL10	RT*2B	35
5(17.5)	CL03, CL04, CL45	RT*1T	45†
7.5(25.3)	CL04, CL05	RT*1U	45
7.5(25.3)	CL06, CL07, CL08, CL09, CL10	RT*2D	60†
7.5(25.3)	CL04, CL45	RT*1V	60†
10(32.2)	CL45	RT*1W	70
10(32.2)	CL06, CL07, CL08, CL09, CL10	RT*2E	70
15(48.3)	CL07, CL08, CL09, CL10	RT*2G	100
20(62.1)	CL08, CL09, CL10	RT*2H	125
20(62.1)	CK08, CK09, CK95	RT*3B	125
25(78.2)	CK08, CK09	RT*3C	150

\* Replace \* with \*A\* or \*M\*

† Sized larger than code max for single motor.

#### 230 Volt, Three-Phase Motors

HP(FLC)	CONTACTOR	OLR	MAX. FUSE
			LPJ_SP CLASS J
.5(2.2)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1J	4
.75(3.2)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1K	8†
1(4.2)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1L	10
1.5(6.0)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1L	10
2(6.8)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1M	12
3(9.6)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1N	20
5(15.2)	CL02, CL03, CL04, CL25, CL45	RT*1S	35†
5(15.2)	CL06, CL07, CL08, CL09, CL10	RT*2B	35†
7.5(22.0)	CL03, CL04, CL45	RT*1T	45
7.5(22.0)	CL06, CL07, CL08, CL09, CL10	RT*2C	45
7.5(22.0)	CL03, CL04, CL45	RT*1U	45
10(28.0)	CL04	RT*1V	60
10(28.0)	CL45	RT*1V	60
10(28.0)	CL06, CL07, CL08, CL09, CL10	RT*2D	60
15(42.0)	CL06, CL07, CL08, CL09, CL10	RT*2F	90
20(54.0)	CL07, CL08, CL09, CL10	RT*2G	100
20(54.0)	CL07, CL08, CL09, CL10	RT*2H	125†
25(68.0)	CK08, CK09, CK95	RT*3B	125
25(68.0)	CL08, CL09, CL10	RT*2J	125
30(80.0)	CK08, CK09, CK95	RT*3B	125
25(68.0)	CK08, CK09	RT*3C	150

# MOTOR CONTROLLER AND FUSE SELECTION TABLE FOR TYPE 2 PROTECTION (UL & CSA VERIFIED)



Busmann®/General  
Electric Co.

## IEC

### 460 Volt, Three-Phase Motors

HP(FLC)	CONTACTOR	OLR	MAX. FUSE
			LPJ_SP CLASS J
.5(1.1)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1F	1.5*
.5(1.1)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1G	2
.75(1.6)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1H	4†
1(2.1)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1J	4
1.5(3.0)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1K	8†
2(3.4)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1K	8†
3(4.8)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1L	10
5(7.6)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1N	20†
7.5(11.0)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1P	20
10(14.0)	CL02, CL03, CL04, CL25, CL45	RT*1R	25
10(14.0)	CL06, CL07, CL08, CL09, CL10	RT*2A	30
15(21.0)	CL03, CL04, CL45	RT*1T	45
15(21.0)	CL06, CL07, CL08, CL09, CL10	RT*2C	45
20(27.0)	CL04, CL45	RT*1V	60
20(27.0)	CL06, CL07, CL08, CL09, CL10	RT*2D	60
25(34.0)	CL45	RT*1W	70
25(34.0)	CL06, CL07, CL08, CL09, CL10	RT*2E	70
30(40.0)	CL06, CL07, CL08, CL09, CL10	RT*2E	70
30(40.0)	CL06, CL07, CL08, CL09, CL10	RT*2F	90
40(52.0)	CL07, CL08, CL09, CL10	RT*2G	100
50(65.0)	CL08, CL09, CL10	RT*2H	125
50(65.0)	CL08, CL09, CL10	RT*3B	125
50(65.0)	CL08, CL09, CL10	RT*2J	125
60(77.0)	CL09, CL10	RT*3B	125
60(77.0)	CL09, CL10	RT*2K	150

\* Replace \* with "A" or "M"

• May be too small to allow some motors to start.

† Sized larger than code max for single motor.

### 575 Volt, Three-Phase Motors

HP(FLC)	CONTACTOR	OLR	MAX. FUSE
			LPJ_SP CLASS J
.5(0.9)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1F	1.5
.75(1.3)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1G	2
.75(1.3)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1H	4†
1(1.7)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1H	4†
1.5(2.4)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1J	4
2(2.7)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1J	4
2(2.7)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1K	8†
3(3.9)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1K	8
5(6.1)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1L	10
5(6.1)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1M	12
7.5(9.0)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1N	20
10(11.0)	CL00, CL01, CL02, CL03, CL04, CL25, CL45	RT*1P	20
15(17.0)	CL02, CL03, CL04, CL25, CL45	RT*1S	35
15(17.0)	CL06, CL07, CL08, CL09, CL10	RT*2B	35
20(22.0)	CL03, CL04, CL45	RT*1T	45
20(22.0)	CL06, CL07, CL08, CL09, CL10	RT*2C	45
20(22.0)	CL03, CL04, CL45	RT*1U	45
25(27.0)	CL04, CL45	RT*1V	60
25(27.0)	CL06, CL07, CL08, CL09, CL10	RT*2D	60
30(32.0)	CL04, CL45	RT*1V	60
30(32.0)	CL06, CL07, CL08, CL09, CL10	RT*2D	60
30(32.0)	CL45	RT*1W	70
30(32.0)	CL06, CL07, CL08, CL09, CL10	RT*2E	70
40(41.0)	CL06, CL07, CL08, CL09, CL10	RT*2E	70
40(41.0)	CL06, CL07, CL08, CL09, CL10	RT*2F	90
50(52.0)	CL07, CL08, CL09, CL10	RT*2G	100
60(62.0)	CL07, CL08, CL09, CL10	RT*2H	125
60(62.0)	CK08, CK09, CK95	RT*3B	125
75(77.0)	CK08, CK09, CK95	RT*3B	125
75(77.0)	CK08, CK09	RT*3C	150

# MOTOR CONTROLLER AND FUSE SELECTION TABLE FOR TYPE 2 PROTECTION (UL & CSA VERIFIED)

## Bussmann®/General Electric Co.

### NEMA

#### 200 Volt, Three-Phase Motors

HP(FLC)	OLR	MAX. Fuse
		LPJ_SP Class J
.5(2.5)	CR324CXE	6
.5(2.5)	CR123C326A	6
.75(3.7)	CR123C356A	8
.75(3.7)	CR324CXF	10
1(4.8)	CR324CXF	10
1(4.8)	CR123C526A	10
1.5(6.9)	CR324CXG	15
1.5(6.9)	CR123C778A	15
1.5(6.9)	CR123C695A	15
2(7.8)	CR324CXG	17.5
2(7.8)	CR123C867A	17.5
3(11.0)	CR324CXG	20
3(11.0)	CR123C125B	20
5(17.5)	CR234CXH	35
5(17.5)	CR234FXK	35
5(17.5)	CR123C180B	35
5(17.5)	CR123C198B	35
5(17.5)	CR123F233B	35

#### 230 Volt, Three-Phase Motors

HP(FLC)	OLR	MAX. Fuse
		LPJ_SP Class J
.5(2.2)	CR123C268A	5
.5(2.2)	CR324CXE	6
.75(3.2)	CR324CXF	7
.75(3.2)	CR123C356A	7
1(4.2)	CR324CXF	10
1(4.2)	CR123C466A	10
1.5(6.0)	CR324CXF	15
1.5(6.0)	CR123C695A	15
2(6.8)	CR324CXG	15
2(6.8)	CR324DXG	15
2(6.8)	CR123C778A	15
3(9.6)	CR324CXG	20
3(9.6)	CR324DXG	20
3(9.6)	CR123C104B	20
5(15.2)	CR234CXH	30
5(15.2)	CR234DXH	30
5(15.2)	CR123C163B	30
7.5(22.0)	CR324DXH	45
7.5(22.0)	CR324FXK	45
7.5(22.0)	CR123C228B	45
7.5(22.0)	CR123C250B	45
7.5(22.0)	CR123C270B	45

#### 460 Volt, Three-Phase Motors

HP(FLC)	OLR	MAX. Fuse
		LPJ_SP Class J
.5(1.1)	CR123C131A	2.5
.5(1.1)	CR324CXD	3
.75(1.6)	CR324CXD	3.5
.75(1.6)	CR123C196A	3.5
1(2.1)	CR123C268A	5
1(2.1)	CR324CXE	6
1.5(3.0)	CR324CXE	6
1.5(3.0)	CR123C356A	6
2(3.4)	CR324CXF	7
2(3.4)	CR123C379A	7
3(4.8)	CR324CXF	10
3(4.8)	CR123C526A	10
5(7.6)	CR324CXG	15
5(7.6)	CR324DXG	15
5(7.6)	CR123C867A	15
7.5(11.0)	CR324CXG	20
7.5(11.0)	CR324DXG	20
7.5(11.0)	CR123C125B	20
10(14.0)	CR234CXH	30
10(14.0)	CR234DXH	30
10(14.0)	CR123C163B	30
15(21.0)	CR324CXH	45
15(21.0)	CR324DXH	45
15(21.0)	CR324FXK	45
15(21.0)	CR123C228B	45
15(21.0)	CR123F243B	45

#### 575 Volt, Three-Phase Motors

HP(FLC)	OLR	MAX. Fuse
		LPJ_SP Class J
.5(0.9)	CR123C109A	2
.5(0.9)	CR324CXD	3
.75(1.3)	CR324CXD	3
.75(1.3)	CR123C163A	3
1(1.7)	CR324CXD	3.5
1(1.7)	CR123C196A	3.5
1(1.7)	CR324CXE	3.5
1.5(2.4)	CR324CXE	6
1.5(2.4)	CR123C301A	6
2(2.7)	CR324CXE	6
2(2.7)	CR123C326A	6
3(3.9)	CR324CXF	10
3(3.9)	CR123C419A	10
5(6.1)	CR324CXF	15
5(6.1)	CR123C695A	15
7.5(9.0)	CR324CXG	20
7.5(9.0)	CR324DXG	20
7.5(9.0)	CR123C104B	20
7.5(9.0)	CR123C955A	20
10(11.0)	CR123C125B	20
10(11.0)	CR324CXG	20
10(11.0)	CR324DXG	20
15(17.0)	CR234DXH	35
15(17.0)	CR234FXK	35
15(17.0)	CR123C180B	35
20(22.0)	CR324DXH	45
20(22.0)	CR324FXK	45
20(22.0)	CR123C228B	45
20(22.0)	CR123C250B	45
20(22.0)	CR123C270B	45

# MOTOR CONTROLLER AND FUSE SELECTION TABLE FOR TYPE 2 PROTECTION (UL & CSA VERIFIED)



## Bussmann®/General Electric Co.

### NEMA

#### 200 Volt, Three-Phase Motors

HP(FLC)	OLR	MAX. Fuse	
		LPJ_SP Class J	KRP-C_SP Class L
7.5 (25.3)	CR324DXH	50	
7.5 (25.3)	CR324FXK	50	
7.5 (25.3)	CR123C273B	50	
7.5 (25.3)	CR123C303B	50	
7.5 (25.3)	CR123F300B	50	
10 (32.2)	CR324DXJ	70	
10 (32.2)	CR324FXK	70	
10 (32.2)	CR123C330B	70	
10 (32.2)	CR123F395B	70	
15 (48.3)	CR324DXJ	100	
15 (48.3)	CR324FXL	100	
15 (48.3)	CR123F614B	100	
20 (62.1)	CR324FXL	125	
20 (62.1)	CR123F772B	125	
25 (78.2)	CR234FXM	175	
25 (78.2)	CR324GXP	175	
25 (78.2)	CR123F104C	175	
30 (92.0)	CR234FXM	200	
30 (92.0)	CR324GXP	200	
30 (92.0)	CR123F118C	200	
40 (120.0)	CR234FXM	250	
40 (120.0)	CR324GXP	250	
40 (120.0)	CR123F161C	250	
50(150.0)	CR324GXQ	300	
50(150.0)	CR324HXS	300	
60(177.0)	CR324GXQ	350	
60(177.0)	CR324HXS	350	
75(221.0)	CR324GXQ	450	
75(221.0)	CR324HXS	450	
100(285.0)	CR324HXT	600	
125(359.0)	CR324HXT		1000
150(414.0)	CR324HXT		1000

#### 230 Volt, Three-Phase Motors

HP(FLC)	OLR	MAX. Fuse	
		LPJ_SP Class J	KRP-C_SP Class L
10(28.0)	CR324DXJ	60	
10(28.0)	CR324FXK	60	
10(28.0)	CR123C303B	60	
10(28.0)	CR123F327B	60	
15(42.0)	CR324DXJ	90	
15(42.0)	CR324FXL	90	
15(42.0)	CR123F567B	90	
15(42.0)	CR123F487B	90	
15(42.0)	CR123F440B	90	
20(54.0)	CR324FXL	110	
20(54.0)	CR123F719B	110	
25(68.2)	CR324FXL	150	
25(68.2)	CR324FXM	150	
25(68.2)	CR324GXP	150	
25(68.2)	CR123F848B	150	
25(68.2)	CR123F914B	150	
30(80.0)	CR234FXM	175	
30(80.0)	CR324GXP	175	
30(80.0)	CR123F104C	175	
40(104.0)	CR234FXM	225	
40(104.0)	CR324GXP	225	
40(104.0)	CR123F133C	225	
50(130.0)	CR234FXM	250	
50(130.0)	CR324GXP	250	
50(130.0)	CR123F161C	250	
60(145.0)	CR324GXQ	300	
60(145.0)	CR324HXS	300	
75(192.0)	CR324GXQ	400	
75(192.0)	CR324HXS	400	
100(248.0)	CR324GXQ	500	
100(248.0)	CR324HXS	500	
125(312.0)	CR324HXT		900
150(360.0)	CR324HXT		1000
200(480.0)	CR324HXT		1000

# MOTOR CONTROLLER AND FUSE SELECTION TABLE FOR TYPE 2 PROTECTION (UL & CSA VERIFIED)

## Bussmann®/General Electric Co.

### NEMA

#### 460 Volt, Three-Phase Motors

HP(FLC)	OLR	MAX. Fuse	
		LPJ_SP Class J	KRP-C_SP Class L
20(27.0)	CR324DXH	60	
20(27.0)	CR324DXJ	60	
20(27.0)	CR324FXK	60	
20(27.0)	CR123C303B	60	
20(27.0)	CR123F327B	60	
20(27.0)	CR123C330B	60	
25(34.0)	CR324DXJ	70	
25(34.0)	CR324FXK	70	
25(34.0)	CR123C366B	70	
25(34.0)	CR123F430B	70	
30(40.0)	CR324DXJ	90	
30(40.0)	CR324FXL	90	
30(40.0)	CR123C400B	90	
30(40.0)	CR123F487B (SIZE 3)	90	
30(40.0)	CR123F487B (SIZE 4)	90	
40(52.0)	CR324FXL	110	
40(52.0)	CR123F658B (SIZE 3)	110	
40(52.0)	CR123F658B (SIZE 4)	110	
50(65.0)	CR324FXL	125	
50(65.0)	CR123F772B	125	
50(65.0)	CR324FXM	125	
50(65.0)	CR324GXP	125	
50(65.0)	CR123F848B	125	
60(77.0)	CR324FXM	150	
60(77.0)	CR324GXP	150	
60(77.0)	R123F104C (SIZE 3)	150	
60(77.0)	R123F104C (SIZE 4)	150	
75(96.0)	CR234FXM	200	
75(96.0)	CR324GXP	200	
75(96.0)	CR123F118C	200	
100(124.0)	CR234FXM	250	
100(124.0)	CR324GXP	250	
100(124.0)	CR123F161C	250	
125(156.0)	CR324GXQ	350	
125(156.0)	CR324HXS	350	
150(180.0)	CR324GXQ	400	
150(180.0)	CR324HXS	400	
200(240.0)	CR324GXQ	500	
200(240.0)	CR324HXS	500	
250(302.0)	CR324HXT		900
300(361.0)	CR324HXT		1000
350(414.0)	CR324HXT		1000
400(477.0)	CR324HXT		1000
450(515.0)	CR324HXT		1000

#### 575 Volt, Three-Phase Motors

HP(FLC)	OLR	MAX. Fuse	
		LPJ_SP Class J	KRP-C_SP Class L
25(27.0)	CR324DXH	60	
25(27.0)	CR324DXJ	60	
25(27.0)	CR324FXK	60	
25(27.0)	CR123C303B	60	
25(27.0)	CR123F327B	60	
25(27.0)	CR123C330B	60	
30(32.0)	CR324DXJ	70	
30(32.0)	CR324FXK	70	
30(32.0)	CR123C330B	70	
30(32.0)	CR123F395B	70	
40(41.0)	CR324DXJ	90	
40(41.0)	CR324FXL	90	
40(41.0)	CR123C400B	90	
40(41.0)	CR123F567B	90	
40(41.0)	CR123F487B	90	
50(52.0)	CR324FXL	110	
50(52.0)	CR123F658B (SIZE 3)	110	
50(52.0)	CR123F658B (SIZE 4)	110	
60(62.0)	CR324FXL	125	
60(62.0)	CR123F772B	125	
75(77.0)	CR324FXM	150	
75(77.0)	CR324GXP	150	
75(77.0)	R123F104C (SIZE 3)	150	
75(77.0)	R123F104C (SIZE 4)	150	
100(99.0)	CR234FXM	200	
100(99.0)	CR324GXP	200	
100(99.0)	CR123F118C	200	
125(125.0)	CR234FXM	250	
125(125.0)	CR324GXP	250	
125(125.0)	CR123F161C	250	
150(144.0)	CR324GXQ	300	
150(144.0)	CR324HXS	300	
200(192.0)	CR324GXQ	400	
200(192.0)	CR324HXS	400	
250(242.0)	CR324GXQ	500	
250(242.0)	CR324HXS	500	
300(289.0)	CR324HXT		800
350(336.0)	CR324HXT		1000
400(382.0)	CR324HXT		1000
450(412.0)	CR324HXT		1000
500(472.0)	CR324HXT		1000

# MOTOR CONTROLLER AND FUSE SELECTION TABLE FOR TYPE 2 PROTECTION (UL & CSA VERIFIED)



## Bussmann®/Rockwell Automation, Allen-Bradley

### IEC

#### 200 Volt, Three-Phase Motors

HP(FLC)	Contactor Basic Cat. No. (a)	Overload Relay Basic Cat. No. (b)	Max. Fuse Rating	
			LPJ SP Class J	LP-CC Class CC
0.5(2.5)	100-C09	193-E**EB	6	6
0.75(3.7)	100-C09	193-E**EB	10	10
1(4.8)	100-C09	193-E**FB	15†	15
1.5(6.9)	100-C09	193-E**FB	15	15
2(7.8)	100-C09	193-E**FB	15	15•
3(11)	100-C12	193-E**FB	20	20•
5(17.5)	100-C23	193-E**GB	30	30•
7.5(25.3)	100-C30	193-E**HC	40	
10(32.2)	100-C37	193-E**HC	50	
15(48.3)	100-C60	193-E**KE	80	
20(62.1)	100-C72	193-E**KE	100	
25(78.2)	100-C85	193-E**KE	100•	

#### 230 Volt, Three-Phase Motors

HP(FLC)	Contactor Basic Cat. No. (a)	Overload Relay Basic Cat. No. (b)	Max. Fuse Rating	
			LPJ SP Class J	LP-CC Class CC
0.5(2.2)	100-C09	193-E**DB	6	6
0.75(3.2)	100-C09	193-E**EB	10†	10
1(4.2)	100-C09	193-E**FB	15†	15
1.5(6)	100-C09	193-E**FB	15	15
2(6.8)	100-C09	193-E**FB	15	15
3(9.6)	100-C12	193-E**FB	20	20
5(15.2)	100-C16	193-E**GB	20•	20•
7.5(22)	100-C23	193-E**GB	30•	30•
10(28)	100-C30	193-E**HC	40•	
15(42)	100-C43	193-E**JD	50•	
20(54)	100-C60	193-E**KE	80•	
25(68)	100-C72	193-E**KE	100	
30(80)	100-C85	193-E**KE	100•	

#### 460 Volt, Three-Phase Motors

HP(FLC)	Contactor Basic Cat. No. (a)	Overload Relay Basic Cat. No. (b)	Max. Fuse Rating	
			LPJ SP Class J	LP-CC Class CC
0.5(1.1)	100-C09	193-E**DB	3	3
0.75(1.6)	100-C09	193-E**DB	6†	6
1(2.1)	100-C09	193-E**DB	6	6
1.5(3)	100-C09	193-E**EB	10†	10
2(3.4)	100-C09	193-E**EB	10†	10
3(4.8)	100-C09	193-E**FB	15†	15
5(7.6)	100-C09	193-E**FB	15	15•
7.5(11)	100-C12	193-E**FB	20	20•
10(14)	100-C16	193-E**GB	20•	20•
15(21)	100-C23	193-E**GB	30•	30•
20(27)	100-C30	193-E**HC	40	
25(34)	100-C37	193-E**HC	50	
30(40)	100-C43	193-E**JD	50•	
40(52)	100-C60	193-E**KE	80	
50(65)	100-C72	193-E**KE	100	
60(77)	100-C85	193-E**KE	100•	

#### 575 Volt, Three-Phase Motors

HP(FLC)	Contactor Basic Cat. No. (a)	Overload Relay Basic Cat. No. (b)	Max. Fuse Rating	
			LPJ SP Class J	LP-CC Class CC
0.5(0.9)	100-C09	193-E**DB	3	3
0.75(1.3)	100-C09	193-E**DB	3	3
1(1.7)	100-C09	193-E**DB	6†	6
1.5(2.4)	100-C09	193-E**DB	6	6
2(2.7)	100-C09	193-E**EB	10†	10
3(3.9)	100-C09	193-E**FB	10	10
5(6.1)	100-C09	193-E**FB	15	15
5(7.6)	100-C09	193-E**FB	15	15•
7.5(9)	100-C09	193-E**FB	15	15•
10(11)	100-C12	193-E**FB	20	20•
15(17)	100-C23	193-E**GB	30	30•
20(22)	100-C30	193-E**HC	40	
25(27)	100-C37	193-E**HC	50	
30(32)	100-C37	193-E**HC	50	
40(41)	100-C60	193-E**KE	80	
50(52)	100-C72	193-E**KE	100	
60(62)	100-C85	193-E**KE	100	

(a) Catalog number is not complete, add coil voltage code and auxiliary contact description.

(b) Catalog number is not complete, replace \*\* with trip class and reset mode.

• May be too small to allow some motors to start.

† Sized larger than code max for single motor.



# MOTOR CONTROLLER AND FUSE SELECTION TABLE FOR TYPE 2 PROTECTION (UL & CSA VERIFIED)

Bussmann®/Rockwell  
Automation, Allen-Bradley

**NEMA**

**200 Volt, Three-Phase Motors**

HP(FLC)	STARTER <sup>(1)</sup>		HEATER ELEMENT	MAXIMUM
	SIZE	CAT. #		LPN-RK_SP/LPJ_SP CLASS RK1/J
1.5(6.9)	0	509-A	W48	15
2(7.8)	0	509-A	W50	15
3(11.0)	0	509-A	W53	20
5(17.5)	1	509-B	W59	30
7.5(25.3)	2	509-C	W63	50
10(32.2)	3	509-D	W65	60
15(48.3)	3	509-D	W68	100
20(62.1)	3	509-D	W71	100
25(78.2)	3	509-D	W75	150
30(92.0)	4	509-E	W77	175
40(120.0)	4	509-E	W81	200
50(150.0)	5	509-F	W37	200♦
60(177.1)	5	509-F	W39	250♦
75(221.0)	5	509-F	W41	350

**230 Volt, Three-Phase Motors**

HP(FLC)	STARTER <sup>(1)</sup>		HEATER ELEMENT	MAXIMUM
	SIZE	CAT. #		LPN-RK_SP/LPJ_SP CLASS RK1/J
2(6.8)	0	509-A	W48	15
3(9.6)	0	509-A	W52	20
5(15.2)	1	509-B	W57	30
7.5(22.0)	2	509-C	W61	45
10(28.0)	3	509-C	W64	60
15(42.0)	3	509-D	W66	90
20(54.0)	3	509-D	W69	100
25(68.2)	3	509-D	W73	100♦
30(80.0)	3	509-D	W75	150
40(104.0)	4	509-E	W79	175
50(130.0)	4	509-E	W83	200
60(154.0)	5	509-F	W37	200♦
75(192.0)	5	509-F	W40	300
100(248.0)	5	509-F	W43	400

**460 Volt, Three-Phase Motors**

HP(FLC)	STARTER <sup>(1)</sup>		HEATER ELEMENT	MAXIMUM
	SIZE	CAT. #		LPS-RK_SP/LPJ_SP CLASS RK1/J
5(7.6)	0	509-A	W49	15
7.5(11.0)	1	509-B	W53	20
10(14.0)	1	509-B	W56	30
15(21.0)	2	509-C	W61	45
20(27.0)	2	509-C	W63	60
25(34.0)	3	509-D	W66	60
30(40.0)	3	509-D	W66	90
40(52.0)	3	509-D	W69	100
50(65.0)	3	509-D	W72	100
60(77.0)	4	509-E	W74	125
75(96.0)	4	509-E	W77	175
100(124.0)	4	509-E	W82	200
125(156.0)	5	509-F	W37	200♦
150(180.0)	5	509-F	W39	250♦
200(240.0)	5	509-F	W42	400

**575 Volt, Three-Phase Motors**

HP(FLC)	STARTER <sup>(1)</sup>		HEATER ELEMENT	MAXIMUM
	SIZE	CAT. #		LPS-RK_SP/LPJ_SP CLASS RK1/J
5(6.1)	0	509-A	W47	12
7.5(9.0)	1	509-B	W51	20
10(11.0)	1	509-B	W53	20
15(17.0)	2	509-C	W58	35
25(27.0)	2	509-C	W63	60
30(32.0)	3	509-D	W64	70
40(41.0)	3	509-D	W66	90
50(52.0)	3	509-D	W69	100
60(62.0)	4	509-E	W71	100
75(77.0)	4	509-E	W74	125
100(99.0)	4	509-E	W78	175
125(125.0)	5	509-F	W35	200
150(144.0)	5	509-F	W36	200♦
200(192.0)	5	509-F	W40	300

(1) Catalog number is not complete. Refer to Bulletin 509 Section of A-B Industrial Control Catalog to specify complete catalog starter number.

♦ May be too small to allow some motors to start.

# MOTOR CONTROLLER AND FUSE SELECTION TABLE FOR TYPE 2 PROTECTION (UL & CSA VERIFIED)



## Busmann®/Square D Co. IEC

### 200 Volt, Three Phase Motors

HP(FLC)	CONTACTOR	OLR	MAXIMUM FUSE		
			LPJ_SP CLASS J	LPN-RK_SP CLASS RK1	KRP-C_SP CLASS L
.5(2.5)	LC1D09	LR2D 1307	4		
.75(3.7)	LC1D09	LR2D 1308	6		
1(4.8)	LC1D09	LR2D 1310	10		
1.5(6.9)	LC1D09	LR2D 1312	15		
2(7.8)	LC1D09	LR2D 1312	15		
2(7.8)	LC1D09	LR2D 1314	15		
3(11.0)	LC1D012	LR2D 1316	20		
5(17.5)	LC1D018	LR2D 1321	25*		
5(17.5)	LC1D025	LR2D 1322	35		
7.5(25.3)	LC1D032	LR2D 2353	40		
10(32.2)	LC1D040	LR2D 3355	60		
15(48.3)	LC1D050	LR2D 3357	70*		
15(48.3)	LC1D050	LR2D 3359	80		
15(48.3)	LC1D065	LR2D 3359	100		
20(62.1)	LC1D050	LR2D 3359	80*		
20(62.1)	LC1D065	LR2D 3359	100		
30(92.0)	LC1F115	LR2F 5367	200	200	
40(120.0)	LC1F150	LR2F 5569	250	250	
50(150.0)	LC1F185	LR2F 5569	300	250	
50(150.0)	LC1F185	LR2F 5571	300	300	
60(177.0)	LC1F265	LR2F 6573		350	
60(177.0)	LC1F265	LR2F 5571	350	350	
75(221.0)	LC1F400	LR2F 6575		450	
100(285.0)	LC1F400	LR2F 6575	500	500	
100(285.0)	LC1F400	LR2F 6577	600		601
125(359.0)	LC1F500	LR2F 6577	600		800

### 460 Volt, Three Phase Motors

HP(FLC)	CONTACTOR	OLR	MAXIMUM FUSE		
			LPJ_SP CLASS J	LPS-RK_SP CLASS RK1	KRP-C_SP CLASS L
.5(1.1)	LC1D09	LR2D 1306	3		
.75(1.6)	LC1D09	LR2D 1306	3		
1(2.1)	LC1D09	LR2D 1307	4		
1.5(3.0)	LC1D09	LR2D 1308	6		
2(3.4)	LC1D09	LR2D 1308	6		
3(4.8)	LC1D09	LR2D 1310	10		
5(7.6)	LC1D09	LR2D 1312	15		
5(7.6)	LC1D09	LR2D 1314	15		
7.5(11.0)	LC1D012	LR2D 1316	20		
10(14.0)	LC1D018	LR2D 1321	25		
15(21.0)	LC1D032	LR2D 1322	35		
20(27.0)	LC1D032	LR2D 2353	40		
25(34.0)	LC1D040	LR2D 3355	60		
30(40.0)	LC1D040	LR2D 3355	60		
30(40.0)	LC1D050	LR2D 3357	70		
40(52.0)	LC1D050	LR2D 3359	80		
40(52.0)	LC1D065	LR2D 3359	100		
50(65.0)	LC1D050	LR2D 3359	80*		
50(65.0)	LC1D065	LR2D 3359	100		
75(96.0)	LC1F115	LR2F 5367	200	200	
100(124.0)	LC1F150	LR2F 5569	250	250	
125(156.0)	LC1F185	LR2F 5569	300	250	
125(156.0)	LC1F185	LR2F 5571	350	350	
150(180.0)	LC1F265	LR2F 6571	400	350	
150(180.0)	LC1F265	LR2F 6573	400	400	
200(240.0)	LC1F400	LR2F 6573	450	500	
200(240.0)	LC1F400	LR2F 6575	500	500	
250(302.0)	LC1F400	LR2F 6575	500	500	
250(302.0)	LC1F400	LR2F 6577	600		650
300(361.0)	LC1F500	LR2F 6577	600		800
350(414.0)	LC1F500	LR2F 7579			800
400(477.0)	LC1F500	LR2F 7579			1000
500(590.0)	LC1F630	LR2F 7581			1350
600(720.0)	LC1F630	LR2F 8583			1600

\* May be too small to allow some motors to start.

### 230 Volt, Three Phase Motors

HP(FLC)	CONTACTOR	OLR	MAXIMUM FUSE		
			LPJ_SP CLASS J	LPN-RK_SP CLASS RK1	KRP-C_SP CLASS L
.5(2.2)	LC1D09	LR2D 1307	4		
.75(3.2)	LC1D09	LR2D 1308	6		
1(4.2)	LC1D09	LR2D 1310	10		
1.5(6.0)	LC1D09	LR2D 1310	10		
1.5(6.0)	LC1D09	LR2D 1312	15		
2(6.8)	LC1D09	LR2D 1312	15		
3(9.6)	LC1D09	LR2D 1314	15		
3(9.6)	LC1D012	LR2D 1316	20		
5(15.2)	LC1D018	LR2D 1321	25		
7.5(22.0)	LC1D032	LR2D 1322	35		
10(28.0)	LC1D032	LR2D 2353	40*		
15(42.0)	LC1D050	LR2D 3357	70		
20(54.0)	LC1D050	LR2D 3359	80*		
20(54.0)	LC1D065	LR2D 3359	100		
40(104.0)	LC1F115	LR2F 5367	225	200	
40(104.0)	LC1F115	LR2F 5369	225	225	
50(130.0)	LC1F150	LR2F 5569	250	250	
60(154.0)	LC1F185	LR2F 5569	300	250	
60(154.0)	LC1F185	LR2F 5571	300	300	
75(192.0)	LC1F265	LR2F 6571	400	350	
75(192.0)	LC1F265	LR2F 6573	400	400	
100(248.0)	LC1F400	LR2F 6575	500	500	
125(312.0)	LC1F400	LR2F 6575	500	500	
125(312.0)	LC1F400	LR2F 6577	600		700
150(360.0)	LC1F500	LR2F 6577	600		800
200(480.0)	LC1F500	LR2F 7579			1000
250(600.0)	LC1F630	LR2F 7581			1350
300(720.0)	LC1F630	LR2F 8583			1600

### 575 Volt, Three Phase Motors

HP(FLC)	CONTACTOR	OLR	MAXIMUM FUSE		
			LPJ_SP CLASS J	LPS-RK_SP CLASS RK1	KRP-C_SP CLASS L
.75(1.3)	LC1D09	LR2D 1306	3		
1(1.7)	LC1D09	LR2D 1306	3		
1.5(2.4)	LC1D09	LR2D 1307	4		
2(2.7)	LC1D09	LR2D 1308	6		
3(3.9)	LC1D09	LR2D 1308	6		
5(6.1)	LC1D09	LR2D 1312	10		
7.5(9.0)	LC1D012	LR2D 1314	15		
7.5(9.0)	LC1D018	LR2D 1316	20		
10(11.0)	LC1D018	LR2D 1316	20		
15(17.0)	LC1D025	LR2D 1321	25		
15(17.0)	LC1D032	LR2D 1322	35		
20(22.0)	LC1D032	LR2D 1322	35		
30(32.0)	LC1D040	LR2D 3355	45*		
40(41.0)	LC1D050	LR2D 3357	70		
50(52.0)	LC1D065	LR2D 3359	80		
50(52.0)	LC1D080	LR2D 3359	90		
60(62.0)	LC1D065	LR2D 3359	80*		
60(62.0)	LC1D080	LR2D 3359	90*		
75(77.0)	LC1F115	LR2D 3363	150	125	
100(99.0)	LC1F115	LR2F 5367	200	200	
125(125.0)	LC1F150	LR2F 5569	250	250	
150(144.0)	LC1F185	LR2F 5569	300	250	
150(144.0)	LC1F185	LR2F 5571	300	300	
200(192.0)	LC1F265	LR2F 5571	400	350	
200(192.0)	LC1F265	LR2F 6573	400	400	
250(242.0)	LC1F400	LR2F 6575	500	500	
300(289.0)	LC1F400	LR2F 6575	500	500	
300(289.0)	LC1F400	LR2F 6577	600		601
350(336.0)	LC1F500	LR2F 6577	600		700
400(382.0)	LC1F500	LR2F 6577	600		800
500(472.0)	LC1F500	LR2F 7579			1000
600(576.0)	LC1F630	LR2F 7581			1200
800(770.0)	LC1F630	LR2F 8583			1600

# MOTOR CONTROLLER AND FUSE SELECTION TABLE FOR TYPE 2 PROTECTION (UL & CSA VERIFIED)

## Bussmann®/Square D Co.

### NEMA

#### 200 Volt, Three-Phase Motors

HP(FLC)	STARTER SIZE	CATALOG #	HEATER	MAXIMUM FUSE	
				LPN-RK_SP CLASS RK1	LPJ_SP CLASS J
1.5(6.9)	0	SB02V02S	B11.5*	12	15
2(7.8)	0	SB02V02S	B12.8	15	15
3(11.0)	0	SB02V02S	B19.5	17.5	20
5(17.5)	1	SC03V02S	B32	25	30
7.5(25.3)	1	SC03V02S	B50	40	45
10(32.2)	2	SD01V02S	B62	50	60
15(48.3)	3	SE01V02S	CC81.5	70	80
20(62.1)	3	SE01V02S	CC112	100	100
25(78.2)	3	SE01V02S	CC180	125	125
30(92.0)	4	SF01V02S	CC156	150	150
40(120.0)	4	SF01V02S	CC208	175	200
50(150.0)	5	SG01V02S**	B3.70	225	250
60(177.0)	5	SG01V02S**	B4.15	300	300
75(221.0)	5	SG01V02S**	B5.50	350	400

#### 230 Volt, Three Phase Motors

HP(FLC)	STARTER SIZE	CATALOG #	HEATER	MAXIMUM FUSE	
				LPN-RK_SP CLASS RK1	LPJ_SP CLASS J
1.5(6.0)	0	SB02V02S	B10.2	10	12
2(6.8)	0	SB02V02S	B11.5*	12	15
3(9.6)	0	SB02V02S	B15.5	17.5	17.5
5(15.2)	1	SC03V02S	B28.0	25	30
7.5(22.0)	1	SC03V02S	B45	35	50 <sup>†</sup>
10(28.0)	2	SD01V02S	B50	45	50
15(42.0)	3	SE01V02S	CC68.5	70	70
20(54.0)	3	SE01V02S	CC94.0	80	90
25(68.0)	3	SE01V02S	CC132	110	125
30(80.0)	3	SE01V02S	CC196	125	150
40(104.0)	4	SF01V02S	CC180	175	175
50(130.0)	5	SG01V02S**	B3.30	200	200
60(154.0)	5	SG01V02S**	B3.70	225	250
75(192.0)	5	SG01V02S**	B4.15	300	300
100(248.0)	5	SG01V02S**	B6.25	400	400

#### 460 Volt, Three Phase Motors

HP(FLC)	STARTER SIZE	CATALOG #	HEATER	MAXIMUM FUSE	
				LPS-RK_SP CLASS RK1	LPJ_SP CLASS J
3(4.8)	0	SB02V02S	B7.70*	8	9
5(7.6)	0	SB02V02S	B12.8	15	15
7.5(11.0)	1	SC03V02S	B19.5	17.5	20
10(14.0)	1	SC03V02S	B25	20	25
15(21.0)	2	SD01V02S	B36	30	35
20(27.0)	2	SD01V02S	B45	40	45
25(34.0)	2	SD01V02S	B70	50	60
30(40.0)	3	SE01V02S	CC64.3	60	70
40(52.0)	3	SE01V02S	CC87.7	80	90
50(65.0)	3	SE01V02S	CC121	100	110
60(77.0)	4	SF01V02S	CC121	125	125
75(96.0)	4	SF01V02S	CC167	150	175
100(124.0)	5	SG01V02S**	B3.00	200	200
125(156.0)	5	SG01V02S**	B3.70	225	250
150(180.0)	5	SG01V02S**	B4.15	300	300
200(240.0)	5	SG01V02S**	B6.25	400	400

#### 575 Volt, Three Phase Motors

HP(FLC)	STARTER SIZE	CATALOG #	HEATER	MAXIMUM FUSE	
				LPS-RK_SP CLASS RK1	LPJ_SP CLASS J
3(3.9)	0	SB02V02S	B6.25	6	8
5(6.1)	0	SB02V02S	B10.2	10	12
7.5(9.0)	1	SC03V02S	B15.5	15	17.5
10(11.0)	1	SC03V02S	B19.5	17.5	20
15(17.0)	2	SD01V02S	B28.0	25	30
20(22.0)	2	SD01V02S	B40	35	40
25(27.0)	2	SD01V02S	B45	40	45
30(32.0)	3	SE01V02S	CC50.1	50	50
40(41.0)	3	SE01V02S	CC68.5	60	70
50(52.0)	3	SE01V02S	CC87.7	80	90
60(62.0)	4	SF01V02S	CC103	100	100
75(77.0)	4	SF01V02S	CC121	125	125
100(99.0)	4	SF01V02S	CC167	150	175
125(125.0)	5	SG01V02S**	B3.00	200	200
150(144.0)	5	SG01V02S**	B3.70	225	250
200(192.0)	5	SG01V02S**	B4.15	300	300

\* These overloads were not tested. Maximum fuse sizes are for the lower value of overload which was tested.

\*\* Y500

<sup>†</sup> Sized larger than code max for single motor.

# MOTOR CONTROLLER AND FUSE SELECTION TABLE FOR TYPE 2 PROTECTION (UL & CSA VERIFIED)



## Busmann®/Siemens

### IEC

#### 200 Volt, Three-Phase Motors

HP(FLC)	STARTER	OLR	MAXIMUM FUSE		
			LPN-RK_SP CLASS RK1	LPJ_SP CLASS J	LP-CC CLASS CC
.5(2.5)	3TF30/40	3UA5000-1D	6	6	6
.75(3.7)	3TF30/40	3UA5000-1E	6	6	6*
1(4.8)	3TF30/40	3UA5000-1F	8	8	10
1(4.8)	3TF30/40	3UA5000-1G	10	10	10
1.5(6.9)	3TF30/40	3UA5000-1H	15	15	20
2(7.8)	3TF30/40	3UA5000-1J	15	15	20
3(11.0)	3TF31/41	3UA5000-1K	20	20	30
3(11.0)	3TF31/41	3UA5000-2S	25†	25†	30
5(17.5)	3TF32/42	3UA5200-2B	30	30	30*
7.5(25.3)	3TF34/44	3UA5500-2D	50	50	
10(32.2)	3TF46	3UA5800-2E	60	60	
15(48.3)	3TF46	3UA5800-2T	90	90	
20(62.1)	3TF47	3UA5800-2V	125	125	
25(78.2)	3TF48	3UA5800-8W	175	175	
30(92.0)	3TF50	3UA6000-2X	200	200	
40(120.0)	3TF50	3UA6000-3J	250	250	
50(150.0)	31T52	3UA6200-3L	300	300	
75(221.0)	3TF54	3UA6600-3C	400	400	
75(221.0)	3TF54	3UA6600-3D	450	450	
100(285.2)	3TF56	3UA6600-3D	500	500	
125(359.0)	3TF56	3UA6600-3E	500	500*	

#### 230 Volt, Three-Phase Motors

HP(FLC)	STARTER	OLR	MAXIMUM FUSE		
			LPN-RK_SP CLASS RK1	LPJ_SP CLASS J	LP-CC CLASS CC
.5(2.2)	3TF30/40	3UA5000-1C	2.8	3*	3*
.75(3.2)	3TF30/40	3UA5000-1E	6	6	6*
1(4.2)	3TF30/40	3UA5000-1F	8	8	10
1.5(6.0)	3TF30/40	3UA5000-1G	10	10	10*
2(6.8)	3TF30/40	3UA5000-1H	15	15	20
3(9.6)	3TF30/40	3UA5000-1J	15	15	20
3(9.6)	3TF31/41	3UA5000-1J	15	15	20
5(15.2)	3TF32/42	3UA5200-2A	25	25	30
7.5(22.0)	3TF33/43	3UA5200-2C	40	40	30*
10(28.0)	3TF34/44	3UA5500-2D	50	50	
15(42.0)	3TF46	3UA5800-2F	70	70	
20(54.0)	3TF46	3UA5800-2T	90	90	
25(68.0)	3TF47	3UA5800-2V	125	125	
30(80.0)	3TF48	3UA5800-8W	175	175	
40(104.0)	3TF50	3UA6000-2X	200	200	
50(130.0)	3TF50	3UA6000-3J	250	250	
60(154.0)	31T52	3UA6200-3L	300	300	
75(192.0)	3TF54	3UA6600-3C	400	400	
100(248.0)	3TF54	3UA6600-3D	450	450	
125(312.0)	3TF56	3UA6600-3D	500	500	
150(360.0)	3TF56	3UA6600-3E	500	500*	

#### 460 Volt, Three-Phase Motors

HP(FLC)	STARTER	OLR	MAXIMUM FUSE		
			LPS-RK_SP CLASS RK1	LPJ_SP CLASS J	LP-CC CLASS CC
.5(1.1)	3TF30/40	3UA5000-1A	1.6	2	2.25
.75(1.6)	3TF30/40	3UA5000-1A	1.6*	2*	2.25*
1(2.1)	3TF30/40	3UA5000-1C	2.8	3*	3*
1.5(3.0)	3TF30/40	3UA5000-1D	6	6	6
2(3.4)	3TF30/40	3UA5000-1E	6	6	6*
3(4.8)	3TF30/40	3UA5000-1F	8	8	10
3(4.8)	3TF30/40	3UA5000-1G	10	10	10
5(7.6)	3TF30/40	3UA5000-1H	15	15	20
5(7.6)	3TF30/40	3UA5000-1J	15	15	20
7.5(11.0)	3TF31/41	3UA5000-1K	20	20	30
7.5(11.0)	3TF31/41	3UA5000-2S	25†	25†	30
10(14.0)	3TF32/42	3UA5200-2A	25	25	30
15(21.0)	3TF33/43	3UA5200-2C	40	40	30*
20(27.0)	3TF34/44	3UA5500-2D	50	50	
25(34.0)	3TF46	3UA5800-2E	60	60	
30(40.0)	3TF46	3UA5800-2F	70	70	
40(52.0)	3TF46	3UA5800-2T	90	90	
50(65.0)	3TF47	3UA5800-2V	125	125	
60(77.0)	3TF48	3UA5800-8W	175†	175†	
75(96.0)	3TF50	3UA6000-2X	200	200	
100(124.0)	3TF50	3UA6000-3J	250	250	
125(156.0)	31T52	3UA6200-3L	300	300	
150(180.0)	3TF54	3UA6600-3B	300	300	
200(240.0)	3TF54	3UA6600-3C	400	400	
250(302.0)	3TF56	3UA6600-3D	500	500	
300(361.0)	3TF56	3UA6600-3E	500	500*	

\* May be too small to allow some motors to start.

† Sized larger than code max for single motor.

## Bussmann®/Siemens

### NEMA

#### 200 Volt, Three-Phase Motors

HP(FLC)	STARTER	OLR	MAXIMUM FUSE		
			LPN-RK_SP CLASS RK1	LPJ_SP CLASS J	LP-CC CLASS CC
.5(2.5)	SXLA	3UA5000-1D	6	6	6
.75(3.7)	SXLA	3UA5000-1E	6	6	6*
1(4.8)	SXLA	3UA5000-1F	8	8	10
1.5(6.9)	SXLA	3UA5000-1H	15	15	20
2(7.8)	SXLB	3UA5400-1J	15	15	20
3(11.0)	SXLB	3UA5400-1K	20	20	30
5(17.5)	SXLC	3UA5400-2B	30	30	30*
7.5(25.3)	SXLC	3UA5400-2D	50	50	
10(32.2)	SXLD	3UA5800-2E	60	60	
15(48.3)	SXLE	3UA5800-2T	90	90	
20(62.1)	SXLE	3UA5800-2V	125	125	
25(78.2)	SXLE	3UA5800-8W	175	175	
30(92.0)	SXLF	3UA6200-2X	200	200	
40(120.0)	SXLF	3UA6200-3J	250	250	
50(150.0)	SXLG	3UA6600-3B	300	300	
60(177.0)	SXLG	3UA6600-3C	400†	400†	
75(221.0)	SXLG	3UA6600-3D	500†	450	

#### 230 Volt, Three-Phase Motors

HP(FLC)	STARTER	OLR	MAXIMUM FUSE		
			LPN-RK_SP CLASS RK1	LPJ_SP CLASS J	LP-CC CLASS CC
.5(2.2)	SXLA	3UA5000-1C	2.8	3*	3*
.75(3.2)	SXLA	3UA5000-1E	6	6	6*
1(4.2)	SXLA	3UA5000-1F	8	8	10
1.5(6.0)	SXLA	3UA5000-1G	10	10	10*
2(6.8)	SXLB	3UA5400-1H	15	15	20
3(9.6)	SXLB	3UA5400-1K	20	20	30
5(15.2)	SXLC	3UA5400-2B	30	30	30
7.5(22.0)	SXLC	3UA5400-2C	40	40	30*
10(28.0)	SXLD	3UA5800-2D	50	50	
15(42.0)	SXLD	3UA5800-2F	70	70	
20(54.0)	SXLE	3UA5800-2T	90	90	
25(68.0)	SXLE	3UA5800-2U	150	150	
30(80.0)	SXLE	3UA5800-8W	175	175	
40(104.0)	SXLF	3UA6200-3H	225	225	
50(130.0)	SXLF	3UA6200-3J	250	250	
60(154.0)	SXLG	3UA6600-3B	300	300	
75(192.0)	SXLG	3UA6600-3C	400	400	
100(248.0)	SXLG	3UA6600-3D	500	450	

#### 460 Volt, Three-Phase Motors

HP(FLC)	STARTER	OLR	MAXIMUM FUSE		
			LPN-RK_SP CLASS RK1	LPJ_SP CLASS J	LP-CC CLASS CC
.5(1.1)	SXLA	3UA5000-1A	1.6	2	2.25
.75(1.6)	SXLA	3UA5000-1A	1.6	2*	2.25*
1(2.1)	SXLA	3UA5000-1C	2.8	3*	3*
1.5(3.0)	SXLA	3UA5000-1D	6	6	6
2(3.4)	SXLA	3UA5000-1E	6	6	6*
3(4.8)	SXLB	3UA5400-1G	10	10	10
5(7.6)	SXLB	3UA5400-1H	15	15	20
7.5(11.0)	SXLC	3UA5400-1K	20	20	30
10(14.0)	SXLC	3UA5400-2A	25	25	30
15(21.0)	SXLD	3UA5800-2C	40	40	30*
20(27.0)	SXLD	3UA5800-2D	50	50	
25(34.0)	SXLD	3UA5800-2E	60	60	
30(40.0)	SXLE	3UA5800-2F	70	70	
40(52.0)	SXLE	3UA5800-2T	90	90	
50(65.0)	SXLE	3UA5800-2V	125	125	
60(77.0)	SXLF	3UA6200-2W	175†	175†	
75(96.0)	SXLF	3UA6200-2X	200	200	
100(124.0)	SXLF	3UA6200-3J	250	250	
125(156.0)	SXLG	3UA6600-3B	300	300	
150(180.0)	SXLG	3UA6600-3C	400	400	
200(240.0)	SXLG	3UA6600-3D	500	450	

\* May be too small to allow some motors to start.

† Sized larger than code max for single motor.

# MOTOR CONTROLLER AND FUSE SELECTION TABLE FOR TYPE 2 PROTECTION (UL & CSA VERIFIED)



## Busmann®/Cutler-Hammer Freedom Series

### IEC

#### 200 Volt, Three-Phase Motors

HP(FLC)	STARTER NUMBER	HEATER ELEMENT	MAX. FUSE	
			LPJ_SP CLASS J	LP-CC CLASS CC
.5(2.5)	AE16ANSO_C	H2106B-3	6	6
.75(3.7)	AE16ANSO_C	H2107B-3	6	6*
1(4.8)	AE16ANSO_C	H2108B-3	10	15
1.5(6.9)	AE16ANSO_C	H2109B-3	15	20
2(7.8)	AE16BNSO_C	H2110B-3	17.5	25
3(11.0)	AE16CNSO_C	H2111B-3	20	
5(17.5)	AE16DNSO_C	H2112B-3	35	
7.5(25.3)	AE16ENSO_B	H2114B-3	50	
10(32.2)	AE16HNSO_B	H2115B-3	70	
15(48.3)	AE16JNSO_B	H2116B-3	100	
20(62.1)	AE16KNSO_B	H2117B-3	110	
25(78.2)	AE16LNSO_	H2022-3	150	
30(92.0)	AE16MNSO_	H2023-3	200	
40(119.6)	AE16NNSO_	H2024-3	200	

#### 230 Volt, Three-Phase Motors

HP(FLC)	STARTER NUMBER	HEATER ELEMENT	MAX. FUSE	
			LPJ_SP CLASS J	LP-CC CLASS CC
.5(2.2)	AE16ANSO_C	H2106B-3	6	6
.75(3.2)	AE16ANSO_C	H2107B-3	6	6*
1(4.2)	AE16ANSO_C	H2108B-3	10	15
1.5(6.0)	AE16ANSO_C	H2109B-3	15	20
2(6.8)	AE16BNSO_C	H2109B-3	15	20
3(9.6)	AE16BNSO_C	H2110B-3	20	
5(15.2)	AE16DNSO_C	H2112B-3	30	
7.5(22.0)	AE16ENSO_C	H2113B-3	45	
10(28.0)	AE16FNSO_B	H2114B-3	50	
15(42.0)	AE16HNSO_B	H2116B-3	90	
20(54.0)	AE16JNSO_B	H2117B-3	110	
25(68.2)	AE16KNSO_B	H2117B-3	110	
30(80.0)	AE16LNSO_	H2022-3	150	
40(104.0)	AE16MNSO_	H2023-3	200	
50(130.0)	AE16NNSO_	H2024-3	200	

#### 460 Volt, Three-Phase Motors

HP(FLC)	STARTER NUMBER	HEATER ELEMENT	MAX. FUSE	
			LPJ_SP CLASS J	LP-CC CLASS CC
.5(1.1)	AE16ANSO_C	H2104B-3	3	3
.75(1.6)	AE16ANSO_C	H2105B-3	3	3*
1(2.1)	AE16ANSO_C	H2106B-3	6	6
1.5(3.0)	AE16ANSO_C	H2106B-3	6	6
2(3.4)	AE16ANSO_C	H2107B-3	6	6*
3(4.8)	AE16ANSO_C	H2108B-3	10	15
5(7.6)	AE16BNSO_C	H2110B-3	15	25
7.5(11.0)	AE16CNSO_C	H2111B-3	20	
10(14.0)	AE16DNSO_C	H2111B-3	30	
15(21.0)	AE16ENSO_C	H2113B-3	45	
20(27.0)	AE16FNSO_B	H2114B-3	50	
25(34.0)	AE16GNSO_B	H2115B-3	70	
30(40.0)	AE16HNSO_B	H2116B-3	90	
40(52.0)	AE16JNSO_B	H2116B-3	100	
50(65.0)	AE16KNSO_B	H2117B_3	110	
60(77.0)	AE16LNSO_	H2022-3	150	
75(96.0)	AE16MNSO_	H2023-3	200	
100(124.0)	AE16NNSO_	H2024-3	200	

#### 575 Volt, Three-Phase Motors

HP(FLC)	STARTER NUMBER	HEATER ELEMENT	MAX. FUSE	
			LPJ_SP CLASS J	LP-CC CLASS CC
.75(1.3)	AE16ANSO_C	H2104B-3	3	3
1(1.7)	AE16ANSO_C	H2105B-3	3	3*
1.5(2.4)	AE16ANSO_C	H2106B-3	6	6
2(2.7)	AE16ANSO_C	H2107B-3	6	6
3(3.9)	AE16ANSO_C	H2108B-3	10	15
5(6.1)	AE16ANSO_C	H2109B-3	15	20
7.5(9.0)	AE16BNSO_C	H2110B-3	20	
10(11.0)	AE16CNSO_C	H2111B-3	20	
15(17.0)	AE16DNSO_C	H2112B-3	35	
20(22.0)	AE16ENSO_C	H2113B-3	45	
25(27.0)	AE16FNSO_B	H2114B-3	50	
30(32.0)	AE16GNSO_B	H2115B-3	70	
40(41.0)	AE16HNSO_B	H2116B-3	90	
50(52.0)	AE16KNSO_B	H2116B-3	100	
60(62.0)	AE16LNSO_	H2021-3	110	
75(77.0)	AE16LNSO_	H2022-3	150	
100(99.0)	AE16MNSO_	H2023-3	200	
125(125.0)	AE16NNSO_	H2024-3	200	

\*- Empty space designates where coil suffix must be added.

\* May be too small to allow some motors to start.

## Bussmann®/Cutler-Hammer Freedom Series

### IEC

#### 200 Volt, Three-Phase Motors

HP(FLC)	STARTER NUMBER (Fixed Heaters)	MAX. FUSE	
		LPJ_SP CLASS J	LP-CC CLASS CC
.5(2.5)	AE17ANSO_FJ	6	6
.75(3.7)	AE17ANSO_FK	6	6
1(4.8)	AE17ANSO_FL	10	15
1.5(6.9)	AE17ANSO_FM	15	15
2(7.8)	AE17BNSO_FP	17.5	25
3(11.0)	AE17CNSO_FQ	20	20*
5(17.5)	AE17DNSO_FR	35	
7.5(25.3)	AE17FNSO_FT	50	
10(32.2)	AE17HNSO_KC	70	
15(48.3)	AE17JNSO_KE	100	
20(62.1)	AE17KNSO_KF	110	

#### 230 Volt, Three-Phase Motors

HP(FLC)	STARTER NUMBER (Fixed Heaters)	MAX. FUSE	
		LPJ_SP CLASS J	LP-CC CLASS CC
.5(2.2)	AE17ANSO_FH	3*	3*
.75(3.2)	AE17ANSO_FK	6	6*
1(4.2)	AE17ANSO_FK	6*	6*
1.5(6.0)	AE17ANSO_FM	15	15
2(6.8)	AE17BNSO_FN	15	15
3(9.6)	AE17CNSO_FP	20	20*
5(15.2)	AE17DNSO_FR	30	30*
7.5(22.0)	AE17ENSO_FS	45	
10(28.0)	AE17FNSO_FT	60	
15(42.0)	AE17HNSO_KD	90	
20(54.0)	AE17JNSO_KE	110	
25(68.2)	AE17KNSO_KF	110	

#### 460 Volt, Three-Phase Motors

HP(FLC)	STARTER NUMBER (Fixed Heaters)	MAX. FUSE	
		LPJ_SP CLASS J	LP-CC CLASS CC
.5(1.0)	AE17ANSO_FF	2	2
.75(1.6)	AE17ANSO_FG	3	3
1(2.1)	AE17ANSO_FH	3	3*
1.5(3.0)	AE17ANSO_FJ	6	6
2(3.4)	AE17ANSO_FK	6	6*
3(4.8)	AE17ANSO_FM	10	15
5(7.6)	AE17BNSO_FN	15	15
7.5(11.0)	AE17CNSO_FQ	20	20*
10(14.0)	AE17DNSO_FR	30	30*
15(21.0)	AE17ENSO_FS	45	
20(27.0)	AE17FNSO_FT	60	
25(34.0)	AE17GNSO_KC	70	
30(40.0)	AE17HNSO_KD	90	
40(52.0)	AE17JNSO_KE	110	
50(65.0)	AE17KNSO_KF	110	

#### 575 Volt, Three-Phase Motors

HP(FLC)	STARTER NUMBER (Fixed Heaters)	MAX. FUSE	
		LPJ_SP CLASS J	LP-CC CLASS CC
.75(1.3)	AE17ANSO_FF	2	2*
1(1.7)	AE17ANSO_FG	3	3*
1.5(2.4)	AE17ANSO_FH	3*	3*
2(2.7)	AE17ANSO_FJ	6	6
3(3.9)	AE17ANSO_FL	10	15
5(6.1)	AE17ANSO_FM	15	15
7.5(9.0)	AE17BNSO_FP	20	20*
10(11.0)	AE17CNSO_FQ	20	20*
15(17.0)	AE17DNSO_FR	35	
20(22.0)	AE17ENSO_FS	45	
25(27.0)	AE17FNSO_FT	60	
30(32.0)	AE17GNSO_KC	70	
40(41.0)	AE17HNSO_KD	90	
50(52.0)	AE17KNSO_KE	110	

\* - Empty space designates where coil suffix must be added.

\* May be too small to allow some motors to start.

# MOTOR CONTROLLER AND FUSE SELECTION TABLE FOR TYPE 2 PROTECTION (UL & CSA VERIFIED)



## Busmann®/Cutler-Hammer Freedom Series

### NEMA

#### 200 Volt, Three-Phase Motors

HP(FLC)	SIZE	STARTER CAT. #	HEATER ELEMENT	MAX. FUSE
				LPN-RK SP CLASS RK1
.5(2.5)	00	AN16ANO_C	H2006B-3	4.5
.75(3.7)	00	AN16ANO_C	H2008B-3	8
1(4.8)	00	AN16ANO_C	H2009B-3	10
1.5(6.9)	0	AN16NDO_C	H2010B-3	15
2(7.8)	0	AN16BNO_C	H2010B-3	17.5
3(11.0)	0	AN16BNO_C	H2011B-3	20
7.5(25.3)	1	AN16DNO_B	H2013B-3	45
10(32.2)	2	AN16GNO_B	H2015B-3	70
15(48.3)	3	AN16KNO_	H2021-3	100
20(62.1)	3	AN16KNO_	H2021-3	110
25(78.2)	3	AN16KNO_	H2022-3	175
40(119.6)	4	AN16NNO_	H2024-3	200
50(149.5)	5	AN16SNO_B	H2007B-3	300
60(166.8)	5	AN16SNO_B	H2007B-3	350
75(220.8)	5	AN16SNO_B	H2008B-3	400

#### 230 Volt, Three-Phase Motors

HP(FLC)	SIZE	STARTER CAT. #	HEATER ELEMENT	MAX. FUSE
				LPN-RK SP CLASS RK1
.5(2.2)	00	AN16ANO_C	H2006B-3	4.5
.75(3.2)	00	AN16ANO_C	H2007B-3	5.6
1(4.2)	00	AN16ANO_C	H2008B-3	8
1.5(6.0)	00	AN16ANO_C	H2009B-3	12
2(6.8)	0	AN16BNO_C	H2009B-3	12
3(9.6)	0	AN16BNO_C	H2011B-3	20
5(15.2)	1	AN16DNO_B	H2012B-3	30
7.5(22.0)	1	AN16DNO_B	H2013B-3	45
7.5(22.0)	2	AN16GNO_B	H2013B-3	45
10(28.0)	2	AN16GNO_B	H2014B-3	60
15(42.0)	2	AN16GNO_B	H2015B-3	70
20(54.0)	3	AN16KNO_	H2021-3	110
25(68.2)	3	AN16KNO_	H2022-3	150
30(80.0)	3	AN16KNO_	H2022-3	175
30(92.0)	4	AN16NNO_	H2023-3	200
40(104.0)	4	AN16NNO_	H2023-3	200
50(130.0)	4	AN16NNO_	H2024-3	200
60(145.0)	5	AN16SNO_B	H2007B-3	300
75(192.0)	5	AN16SNO_B	H2007B-3	400
100(248.0)	5	AN16SNO_B	H2008B-3	400

#### 460 Volt, Three-Phase Motors

HP(FLC)	SIZE	STARTER CAT. #	HEATER ELEMENT	MAX. FUSE
				LPS-RK SP CLASS RK1
.5(1.1)	00	AN16ANO_C	H2004B-3	2
.75(1.6)	00	AN16ANO_C	H2005B-3	2.8
1(2.1)	00	AN16ANO_C	H2006B-3	4.5
1.5(3.0)	00	AN16ANO_C	H2007B-3	5.6
2(3.4)	00	AN16ANO_C	H2008B-3	7
3(4.8)	0	AN16BNO_C	H2009B-3	10
5(7.6)	0	AN16BNO_C	H2010B-3	15
7.5(11.0)	1	AN16DNO_B	H2011B-3	20
10(14.0)	1	AN16DNO_B	H2012B-3	30
15(21.0)	2	AN16GNO_B	H2013B-3	45
20(27.0)	2	AN16GNO_B	H2014B-3	60
25(34.0)	2	AN16GNO_B	H2015B-3	70
30(40.0)	3	AN16KNO_	H2020-3	80
40(52.0)	3	AN16KNO_	H2021-3	110
50(65.0)	3	AN16KNO_	H2022-3	125
60(77.0)	4	AN16NNO_	H2022-3	150
75(96.0)	4	AN16NNO_	H2023-3	200
100(124.0)	4	AN16NNO_	H2024-3	200
125(156.0)	5	AN16SNO_B	H2007B-3	350
150(180.0)	5	AN16SNO_B	H2007B-3	400
200(240.0)	5	AN16SNO_B	H2008B-3	400

#### 575 Volt, Three-Phase Motors

HP(FLC)	SIZE	STARTER CAT. #	HEATER ELEMENT	MAX. FUSE
				LPS-RK SP CLASS RK1
.75(1.3)	00	AN16ANO_C	H2005B-3	2.8
1(1.7)	00	AN16ANO_C	H2005B-3	2.8
1.5(2.4)	00	AN16ANO_C	H2006B-3	4.5
2(2.7)	00	AN16ANO_C	H2007B-3	5.6
3(3.9)	0	AN16BNO_C	H2008B-3	8
5(6.1)	0	AN16BNO_C	H2009B-3	12
7.5(9.0)	1	AN16DNO_B	H2010B-3	17.5
10(11.0)	1	AN16DNO_B	H2011B-3	20
15(17.0)	2	AN16GNO_B	H2012B-3	35
20(22.0)	2	AN16GNO_B	H2013B-3	45
25(27.0)	2	AN16GNO_B	H2014B-3	60
30(32.0)	3	AN16KNO_	H2019-3	60
40(41.0)	3	AN16KNO_	H2020-3	80
50(52.0)	3	AN16KNO_	H2021-3	110
60(62.0)	4	AN16NNO_	H2021-3	110
75(77.0)	4	AN16NNO_	H2022-3	150
100(99.0)	4	AN16NNO_	H2023-3	200
125(125.0)	5	AN16SNO_B	H2006B-3	250
150(144.0)	5	AN16SNO_B	H2007B-3	300
200(192.0)	5	AN16SNO_B	H2007B-3	400

\*\_\* - Empty space designates where coil suffix must be added.