ACHIEVING TYPE 2 "NO DAMAGE" MOTOR START PROTECTION
CUTLER HAMMER FREEDOM SERIES NEMA INTERCHANGEABLE HEATER STARTERS & MERSEN FUSES

TYPE 2 "NO DAMAGE" PROTECTION - WHAT IS IT AND WHICH FUSES ARE BEST?

Type 2 protection, also referred to as "no damage" protection, simply means that if a short circuit occurs, the short circuit protective device will operate fast enough to prevent fault current damage to healthy equipment in the system. Tests show that current-limiting fuses are the best choice for the protection of the motor controllers if damage-free performance is required. To ensure that correct fuse choices are made, short circuit tests must be made on every possible combination of motor control and fuse. This sheet summarizes a major manufacturer's motor starter and the Mersen time-delay fuses which give Type 2 "no damage" protection. All combinations are UL witnessed and certified.

200 Volt, Three-Phase Motors

HP	Size	Starter No.	Heater No.	Class RK1	SCCR (kA)
1/2	00	AN16AN0_C	H2006B-3	A6D5R	100
3/4	00	AN16AN0_C	H2007B-3	A6D6R	100
1	00	AN16AN0_C	H2008B-3	A6D8R	100
1 1/2	0	AN16ND0_C	H2009B-3	A6D12R	100
2	0	AN16BN0_C	H2010B-3	A6D17-1/2R	100
3	0	AN16BN0_C	H2011B-3	A6D25R	100
7 1/2	1	AN16DN0_B	H2013B-3	A6D45R	100
10	2	AN16GN0_B	H2015B-3	A6D70R	100
15	3	AN16KN0_	H2021-3	A6D110R	100
20	3	AN16KN0_	H2021-3	A6D110R	100
25	3	AN16KN0_	H2022-3	A6D175R	100
30	4	AN16NN0_	H2023-3	A6D200R	100
40	4	AN16NN0_	H2024-3	A6D200R	100
50	5	AN16SN0_B	H2007B-3	A6D400R	100
60	5	AN16SN0_B	H2007B-3	A6D400R	100
75	5	AN16SN0_B	H2008B-3	A6D400R	100

230 Volt, Three-Phase Motors

HP	Size	Starter No.	Heater No.	Class RK1	SCCR (kA)
1/2	00	AN16AN0_C	H2006B-3	A6D5R	100
3/4	00	AN16AN0_C	H2007B-3	A6D6R	100
1	00	AN16AN0_C	H2008B-3	A6D8R	100
1 1/2	00	AN16AN0_C	H2009B-3	A6D12R	100
2	0	AN16BN0_C	H2009B-3	A6D12R	100
3	0	AN16BN0_C	H2011B-3	A6D25R	100
5	1	AN16DN0_B	H2012B-3	A6D40R	100
7 1/2	1	AN16DN0_B	H2013B-3	A6D45R	100
7 1/2	2	AN16GN0_B	H2013B-3	A6D45R	100
10	2	AN16GN0_B	H2014B-3	A6D60R	100
15	2	AN16GN0_B	H2015B-3	A6D70R	100
20	3	AN16KN0_	H2021-3	A6D110R	100
25	3	AN16KN0_	H2022-3	A6D175R	100
30	3	AN16KN0_	H2022-3	A6D175R	100
40	4	AN16NN0_	H2023-3	A6D200R	100
50	4	AN16NN0_	H2024-3	A6D200R	100
60	5	AN16SN0_B	H2007B-3	A6D400R	100
75	5	AN16SN0_B	H2007B-3	A6D400R	100
100	5	AN16SN0_B	H2008B-3	A6D400R	100

"_" Empty space designates where coil suffix must be added.

ACHIEVING TYPE 2 "NO DAMAGE" MOTOR START PROTECTION
CUTLER HAMMER FREEDOM SERIES NEMA INTERCHANGEABLE HEATER STARTERS & MERSEN FUSES

460 Volt, Three-Phase Motors

HP	Size	Starter No.	Heater No.	Class RK1	SCCR (kA)
1/2	00	AN16AN0_C	H2004B-3	A6D2-1/4R	100
3/4	00	AN16AN0_C	H2005B-3	A6D3-2/10R	100
1	00	AN16AN0_C	H2006B-3	A6D5R	100
1 1/2	00	AN16AN0_C	H2007B-3	A6D6R	100
2	00	AN16AN0_C	H2008B-3	A6D8R	100
3	0	AN16BN0_C	H2009B-3	A6D12R	100
5	0	AN16BN0_C	H2010B-3	A6D17-1/2R	100
7 1/2	1	AN16DN0_B	H2011B-3	A6D25R	100
10	1	AN16DN0_B	H2012B-3	A6D40R	100
15	2	AN16GN0_B	H2013B-3	A6D45R	100
20	2	AN16GN0_B	H2014B-3	A6D60R	100
25	2	AN16GN0_B	H2015B-3	A6D70R	100
30	3	AN16KN0_	H2020-3	A6D80R	100
40	3	AN16KN0_	H2021-3	A6D110R	100
50	3	AN16KN0_	H2022-3	A6D175R	100
60	4	AN16NN0_	H2022-3	A6D175R	100
75	4	AN16NN0_	H2023-3	A6D200R	100
100	4	AN16NN0_	H2024-3	A6D200R	100
125	5	AN16SN0_B	H2007B-3	A6D400R	100
150	5	AN16SN0_B	H2007B-3	A6D400R	100
200	5	AN16SN0_B	H2008B-3	A6D400R	100

"_" Empty space designates where coil suffix must be added.

575 Volt, Three-Phase Motors

HP	Size	Starter No.	Heater No.	Class RK1	SCCR (kA)
3/4	00	AN16AN0_C	H2004B-3	A6D2-1/4R	100
1	00	AN16AN0_C	H2005B-3	A6D3-2/10R	100
1 1/2	00	AN16AN0_C	H2006B-3	A6D5R	100
2	00	AN16AN0_C	H2007B-3	A6D6R	100
3	0	AN16BN0_C	H2008B-3	A6D8R	100
5	0	AN16BN0_C	H2009B-3	A6D12R	100
7 1/2	1	AN16DN0_B	H2010B-3	A6D17-1/2R	100
10	1	AN16DN0_B	H2011B-3	A6D25R	100
15	2	AN16GN0_B	H2012B-3	A6D40R	100
20	2	AN16GN0_B	H2013B-3	A6D45R	100
25	2	AN16GN0_B	H2014B-3	A6D60R	100
30	3	AN16KN0_	H2019-3	A6D60R	100
40	3	AN16KN0_	H2020-3	A6D80R	100
50	3	AN16KN0_	H2021-3	A6D110R	100
60	4	AN16NN0_	H2021-3	A6D110R	100
75	4	AN16NN0_	H2022-3	A6D175R	100
100	4	AN16NN0_	H2023-3	A6D200R	100
125	5	AN16SN0_B	H2006B-3	A6D400R	100
150	5	AN16SN0_B	H2007B-3	A6D400R	100
200	5	AN16SN0_B	H2007B-3	A6D400R	100

ACHIEVING TYPE 2 "NO DAMAGE" MOTOR START PROTECTION
CUTLER HAMMER FREEDOM SERIES IEC INTERCHANGEABLE HEATER STARTERS & MERSEN FUSES

TYPE 2 "NO DAMAGE" PROTECTION - WHAT IS IT AND WHICH FUSES ARE BEST?

Type 2 protection, also referred to as "no damage" protection, simply means that if a short circuit occurs, the short circuit protective device will operate fast enough to prevent fault current damage to healthy equipment in the system. Tests show that current-limiting fuses are the best choice for the protection of the motor controllers if damage-free performance is required. To ensure that correct fuse choices are made, short circuit tests must be made on every possible combination of motor control and fuse. This sheet summarizes a major manufacturer's motor starter and the Mersen time-delay fuses which give Type 2 "no damage" protection. All combinations are UL witnessed and certified.

200 Volt, Three-Phase Motors

HP (FLC)	Starter No.	Heater No.	Class J	Class CC	SCCR (kA)
1/2	AE16ANSO_C	H2106B-3	AJT6	ATDR6	100
3/4	AE16ANSO_C	H2107B-3	AJT6	ATDR6†	100
1	AE16ANSO_C	H2108B-3	AJT15	ATDR15	100
1 1/2	AE16ANSO_C	H2109B-3	AJT15	ATDR15	100
2	AE16BNSO_C	H2110B-3	AJT25	ATDR25	100
3	AE16CNSO_C	H2111B-3	AJT35	-	100
5	AE16DNSO_C	H2112B-3	AJT50	-	100
7 1/2	AE16ENSO_B	H2114B-3	AJT60	-	100
10	AE16HNSO_B	H2115B-3	AJT80	-	100
15	AE16JNSO_B	H2116B-3	AJT110	-	100
20	AE16KNSO_B	H2117B-3	AJT110	-	100
25	AE16LNSO_	H2022-3	AJT150	-	100
30	AE16MNSO_	H2023-3	AJT200	-	100
40	AE16NNSO_	H2024-3	AJT200	-	100

230 Volt, Three-Phase Motors

HP (FLC)	Starter No.	Heater No.	Class J	Class CC	SCCR (kA)
1/2	AE16ANSO_C	H2106B-3	AJT6	ATDR6	100
3/4	AE16ANSO-C	H2106B-3	AJT6	ATDR6†	100
1	AE16ANSO-C	H2108B-3	AJT15	ATDR15	100
1 1/2	AE16ANSO-C	H2109B-3	AJT15	ATDR15	100
2	AE16BNSO_C	H2109B-3	AJT15	ATDR15	100
3	AE16BNSO_C	H2110B-3	AJT25	ATDR25	100
5	AE16DNSO_C	H2112B-3	AJT50	-	100
7 1/2	AE16ENSO_C	H2113B-3	AJT50	-	100
10	AE16FNSO_B	H2114B-3	AJT60	-	100
15	AE16HNSO_B	H2116B-3	AJT110	-	100
20	AE16JNSO_B	H2117B-3	AJT110	-	100
25	AE16KNSO_B	H2117B-3	AJT110	-	100
30	AE16LNSO_	H2022-3	AJT150	-	100
40	AE16MNSO_	H2023-3	AJT200	-	100
50	AE16NNSO_	H2024-3	AJT200	-	100

460 Volt, Three-Phase Motors

HP (FLC)	Starter No.	Heater No.	Class J	Class CC	SCCR (kA)
1/2	AE16ANSO_C	H2104B-3	AJT3	ATDR3	100
3/4	AE16ANSO_C	H2105B-3	AJT3	ATDR3†	100
1	AE16ANSO_C	H2105B-3	AJT3	ATDR3	100
1 1/2	AE16ANSO_C	H2106B-3	AJT6	ATDR6	100
2	AE16ANSO_C	H2108B-3	AJT15	ATDR15	100
3	AE16ANSO_C	H2108B-3	AJT15	ATDR15	100
5	AE16BNSO_C	H2110B-3	AJT25	ATDR25	100
7 1/2	AE16CNSO_C	H2111B-3	AJT35	-	100
10	AE16DNSO_C	H2111B-3	AJT35	-	100
15	AE16ENSO_C	H2113B-3	AJT50	-	100
20	AE16FNSO_B	H2114B-3	AJT60	-	100
25	AE16GNSO_B	H2115B-3	AJT80	-	100
30	AE16HNSO_B	H2116B-3	AJT110	-	100
40	AE16JNSO_B	H2116B-3	AJT110	-	100
50	AE16KNSO_B	H2117B-3	AJT110	-	100
60	AE16LNSO_	H2022-3	AJT150	-	100
75	AE16MNSO_	H2023-3	AJT200	-	100
100	AE16NNSO_	H2024-3	AJT200	-	100

575 Volt, Three-Phase Motors

HP (FLC)	Starter No.	Heater No.	Class J	Class CC	SCCR (kA)
3/4	AE16ANSO_C	H2104B-3	AJT3	ATDR3	100
1	AE16ANSO_C	H2105B-3	AJT3	ATDR3†	100
1 1/2	AE16ANSO_C	H2106B-3	AJT6	ATDR6	100
2	AE16ANSO_C	H2107B-3	AJT6	ATDR6	100
3	AE16ANSO_C	H2108B-3	AJT15	ATDR15	100
5	AE16ANSO_C	H2109B-3	AJT15	ATDR15	100
7 1/2	AE16BNSO_C	H2110B-3	AJT25	ATDR25	100
10	AE16CNSO_C	H2111B-3	AJT35	-	100
15	AE16DNSO_C	H2112B-3	AJT50	-	100
20	AE16ENSO_C	H2113B-3	AJT50	-	100
25	AE16FNSO_B	H2114B-3	AJT60	-	100
30	AE16GNSO_B	H2115B-3	AJT80	-	100
40	AE16HNSO_B	H2116B-3	AJT110	-	100
50	AE16KNSO_B	H2116B-3	AJT110	-	100
60	AE16LNSO_	H2021-3	AJT110	-	100
75	AE16LNSO_	H2022-3	AJT150	-	100
100	AE16MNSO_	H2023-3	AJT200	-	100
125	AE16NNSO_	H2024-3	AJT200	-	100

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ACHIEVING TYPE 2 "NO DAMAGE" MOTOR START PROTECTION
CUTLER HAMMER FREEDOM SERIES IEC FIXED HEATER STARTERS & MERSEN FUSES

200 Volt, Three-Phase Motors

HP (FLC)	Starter No. (Fixed Heaters)	CLASS J	CLASS CC	SCCR (kA)
1/2	AE17ANSO_FJ	AJT6	ATDR6	100
3/4	AE17ANSO_FK	AJT6	ATDR6	100
1	AE17ANSO_FL	AJT15	ATDR15	100
1 1/2	AE17ANSO_FM	AJT15	ATDR15	100
2	AE17BNSO_FP	AJT25	ATDR25	100
3	AE17CNSO_FQ	AJT35	-	100
5	AE17DNSO_FR	AJT35	-	100
7 1/2	AE17FNSO_FT	AJT60	-	100
10	AE17HNSO_KC	AJT80	-	100
15	AE17JNSO_KE	AJT110	-	100
20	AE17KNSO_KF	AJT110	-	100

230 Volt, Three-Phase Motors

HP (FLC)	Starter No. (Fixed Heaters)	CLASS J	CLASS CC	SCCR (kA)
1/2	AE17ANSO_FH	AJT3†	ATDR3†	100
3/4	AE17ANSO_FK	AJT6	ATDR6†	100
1	AE17ANSO_FK	AJT6†	ATDR6†	100
1 1/2	AE17ANSO_FM	AJT15	ATDR15	100
2	AE17BNSO_FN	AJT15	ATDR15	100
3	AE17CNSO_FP	AJT25	ATDR25	100
5	AE17DNSO_FR	AJT35	-	100
7 1/2	AE17ENSO_FS	AJT50	-	100
10	AE17FNSO_FT	AJT60	-	100
15	AE17HNSO_KD	AJT110	-	100
20	AE17JNSO_KE	AJT110	-	100
25	AE17KNSO_KF	AJT110	-	100

460 Volt, Three-Phase Motors

HP (FLC)	Starter No. (Fixed Heaters)	CLASS J	CLASS CC	SCCR (kA)
1/2	AE17ANSO_FF	AJT2	ATDR2	100
3/4	AE17ANSO_FG	AJT3	ATDR3	100
1	AE17ANSO_FH	AJT3	ATDR3†	100
1 1/2	AE17ANSO_FJ	AJT6	ATDR6	100
2	AE17ANSO_FK	AJT6	ATDR6†	100
3	AE17ANSO_FM	AJT15	ATDR15	100
5	AE17BNSO_FN	AJT15	ATDR15	100
7 1/2	AE17CNSO_FQ	AJT35	-	100
10	AE17DNSO_FR	AJT35	-	100
15	AE17ENSO_FS	AJT50	-	100
20	AE17FNSO_FT	AJT60	-	100
25	AE17GNSO_KC	AJT80	-	100
30	AE17HNSO_KD	AJT110	-	100
40	AE17JNSO_KE	AJT110	-	100
50	AE17KNSO_KF	AJT110	-	100

575 Volt, Three-Phase Motors

HP (FLC)	Starter No. (Fixed Heaters)	CLASS J	CLASS CC	SCCR (kA)
3/4	AE17ANSO_FF	AJT2	ATDR2†	100
1	AE17ANSO_FG	AJT3	ATDR3†	100
1 1/2	AE17ANSO_FH	AJT3†	ATDR3†	100
2	AE17ANSO_FJ	AJT6	ATDR6	100
3	AE17ANSO_FL	AJT15	ATDR15	100
5	AE17ANSO_FM	AJT15	ATDR15	100
7 1/2	AE17BNSO_FP	AJT25	ATDR25	100
10	AE17CNSO_FQ	AJT35	-	100
15	AE17DNSO_FR	AJT35	-	100
20	AE17ENSO_FS	AJT50	-	100
25	AE17FNSO_FT	AJT60	-	100
30	AE17GNSO_KC	AJT80	-	100
40	AE17HNSO_KD	AJT110	-	100
50	AE17KNSO_KE	AJT110	-	100

"_" Empty space designates where coil suffix must be added.
† May be too small to allow some motors to start.

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