

TIP SHEET

WHAT IS THE TIME-DELAY FUSE?



Is all time-delay created equal?

You might think it is, but time-delay on Class CC and midget fuses (like the ATQR, ATDR, ATQ and TRM) is 200 % for 12 seconds, while time-delay on Class J and Class R (like the AJT, A2D, TR, A6D and TRS) is 500 % for 10 seconds.

What does that mean for you? You size a motor differently if you are using a Class CC fuse. Lets look at a motor selection table:

For a ½ horsepower (HP) motor we recommend an AJT15 or a TR15R for class J and R, but for class CC, we recommended an ATDR30 for a typical start.

Is the time-delay that important? In a word, yes.

Unlike a transformer, motor inrush last several seconds. Think of a fan: the larger the blades on the fan, the longer it will take to start them turning. For a typical motor, we assume the inrush (locked rotor) is 6 times full load current and it takes up to 5 seconds to start. In our ½ HP example, this inrush is almost 60A. Based on the time-delay, we know the AJT15 will hold 75A for 10 seconds, while an ATDR15 will hold 30A for 12 seconds. The AJT15 will allow the motor to start while the ATDR15 will not. If we increase the amp rating of the ATDR to 30, it will now hold 60A for 12 seconds, enough for the motor to start.

Single-Phase Motor Fuse Selection UL Classes RK1, RK5, J & CC

Motor HP	Full Load Current	Recommended Ampere Rating								
		RK5 and RK1 TR/A2D			J-AJT			CC-ATDR		
		Minimum	Typical	Heavy Load	Minimum	Typical	Heavy Load	Minimum	Typical	Heavy Load
115V										
		RK5 and RK1 TR/A2D			J-AJT			CC-ATDR		
1/6	4.4	5 6/10	6 1/4	8	5 6/10	6 1/4	8	12	15	17 1/2
1/4	5.8	7	8	12	8	8	12	12	17 1/2	20
1/3	7.2	9	12	15	9	12	15	17 1/2	25	25
→ 1/2	9.8	12	→ 15	17	12	15	17 1/2	20	→ 30	
3/4	13.8	17 1/2	20	25	17 1/2	20	25	30	-	-
1	16	20	25	30	20	25	30	-	-	-
1 1/2	20	25	30		25	30	35	-	-	-
2	24	30	35	40	30	35	40	-	-	-
3	34	45	50	60	45	50	60	-	-	-
5	56	70	80	100	70	80	100	-	-	-
7 1/2	80	100	125	150	100	125	150	-	-	-
10	100	125	150	175	125	150	175	-	-	-
230V										
		RK5 and RK1 TR/A2D			J-AJT			CC-ATDR		
1/6	2.2	2 8/10	3 1/2	4	3	3 1/2	4	5	7	10
1/4	2.9	3 1/2	4 1/2	5 6/10	3 1/2	4 1/2	5 6/10	6	9	10
1/3	3.6	4 1/2	5 6/10	7	4 1/2	5 6/10	7	8	12	15
1/2	4.9	6 1/4	7	9	6 1/4	7	9	12	15	17 1/2
3/4	6.9	9	12	15	9	12	15	15	20	25
1	8	10	12	15	10	12	15	20	25	30
1 1/2	10	12	15	17 1/2	12	15	17 1/2	20	30	-
2	12	15	17 1/2	25	15	17 1/2	25	25	-	-
3	17	20	25	30	20	25	30	-	-	-
5	28	35	40	50	35	40	50	-	-	-
7 1/2	40	50	60	70	50	60	70	-	-	-
10	50	60	80	90	60	80	90	-	-	-

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