Overcurrent Protection Tables

Overcurrent protection on both the primary and secondary sides of transformers are specified in UL 508 and the National Electrical Code. The maximum acceptable ratings are shown below. Due to high inrush currents present when a transformer is initially energized, it is recommended that the primary fuse be time delay to prevent nuisance trips during startup.

Table 9-94. Maximum Acceptable Rating of Primary Overcurrent Protection

Primary Voltage	VA Rating																
	25	50	75	100	150	200	250	300	350	500	750	1000	1500	2000	3000	5000	7000
115	6/10 (1)	1-1/4 (2)	1-8/10 (3-2/10)	2-1/2 (4)	3-1/2 (6-1/4)	5 (8)	4	5	5	8	10	15	20	25	—	—	—
120	6/10 (1)	1-1/4 (2)	1-8/10 (3)	2-1/4 (4)	3-1/2 (6-1/4)	5 (8)	4	5	5	8	10	15	15	20	—	—	—
200	3/10 (6/10)	3/4 (1-1/4)	1-1/8 (1-8/10)	1-1/2 (2-1/2)	2-1/4 (3-1/2)	3 (5)	3-1/2 (6-1/4)	4-1/2 (7-1/2)	5 (8)	4-1/2	7	9	15	15	20	—	—
208	3/10 (6/10)	6/10 (1-1/8)	1 (1-8/10)	1-4/10 (2-1/4)	2 (3-1/2)	2-8/10 (4-1/2)	3-1/2 (6)	4 (7)	5 (8)	4	6	8	12	15	20	30	—
220	3/10 (1/2)	6/10 (1-1/8)	1 (1-6/10)	1-1/4 (2-1/4)	2 (3-2/10)	2-1/2 (4-1/2)	3-2/10 (5-6/10)	4 (6-1/4)	4-1/2 (7-1/2)	4	6	8	12	15	20	30	—
230	3/10 (1/2)	6/10 (1)	8/10 (1-6/10)	1-1/4 (2)	1-8/10 (3-2/10)	2-1/2 (4)	3-2/10 (5)	3-1/2 (6-1/4)	4-1/2 (7-1/2)	4	6	8	10	15	20	30	—
240	3/10 (1/2)	6/10 (1)	8/10 (1-1/2)	1-1/4 (2)	1-8/10 (3)	2-1/4 (4)	3 (5)	3-1/2 (6-1/4)	4 (7)	3-1/2	5	7	10	15	20	30	—
277	1/4 (4/10)	1/2 (8/10)	8/10 (1-1/4)	1 (1-8/10)	1-6/10 (2-1/2)	2 (3-1/2)	2-1/2 (4-1/2)	3-2/10 (5)	3-1/2 (6-1/4)	5 (9)	5	6	9	12	15	25	—
380	3/16 (3/10)	3/10 (6/10)	1/2 (8/10)	3/4 (1-1/4)	1-1/8 (1-8/10)	1-1/2 (2-1/2)	1-8/10 (3-2/10)	2-1/4 (3-1/2)	2-1/2 (4-1/2)	3-1/2 (6-1/4)	5-6/10 (9)	4-1/2	6-1/4	9	15	20	25
400	3/16 (3/10)	3/10 (6/10)	1/2 (8/10)	3/4 (1-1/4)	1-1/8 (1-8/10)	1-1/2 (2-1/2)	1-8/10 (3)	2-1/4 (3-1/2)	2-1/2 (4)	3-1/2 (6-1/4)	5-6/10 (9)	4-1/2	6-1/4	9	12	15	20
416	15/100 (3/10)	3/10 (6/10)	1/2 (8/10)	6/10 (1-1/8)	1 (1-8/10)	1-4/10 (2-1/4)	1-8/10 (3)	2 (3-1/2)	2-1/2 (4)	3-1/2 (6)	5 (9)	4	6	8	12	15	20
440	15/100 (1/4)	3/10 (1/2)	1/2 (8/10)	6/10 (1-1/8)	1 (1-6/10)	1-1/4 (2-1/4)	1-6/10 (2-8/10)	2 (3-2/10)	2-1/4 (3-1/2)	3-2/10 (5)	5 (8)	4	6	8	12	15	20
460	15/100 (1/4)	3/10 (1/2)	4/10 (8/10)	6/10 (1)	8/10 (1-1/2)	1-1/4 (2)	1-6/10 (2-1/2)	1-8/10 (3-2/10)	2-1/4 (3-2/10)	3-2/10 (5)	4-1/2 (8)	3-1/2	6	8	12	15	20
480	15/100 (1/4)	3/10 (1/2)	4/10 (3/4)	6/10 (1)	8/10 (1-1/2)	1-1/4 (2)	1-1/2 (2-1/2)	1-8/10 (3)	2 (3-1/2)	3 (5)	4-1/2 (7-1/2)	3-1/2	5	7	10	15	20
550	1/8 (2/10)	1/4 (4/10)	4/10 (6/10)	1/2 (8/10)	8/10 (1-1/4)	1 (1-8/10)	1-1/4 (2-1/4)	1-6/10 (2-1/2)	1-8/10 (3)	2-1/2 (4-1/2)	4 (6-1/4)	5	4-1/2	6	9	15	15
575	1/8 (2/10)	1/4 (4/10)	3/10 (6/10)	1/2 (8/10)	3/4 (1-1/4)	1 (1-6/10)	1-1/4 (2)	1-1/2 (2-1/2)	1-8/10 (3)	2-1/2 (4)	3 (6-1/4)	5	4-1/2	6	9	15	15
600	1/8 (2/10)	2/10 (4/10)	3/10 (6/10)	1/2 (8/10)	3/4 (1-1/4)	8/10 (1-6/10)	1-1/4 (2)	1-1/2 (2-1/2)	1-6/10 (2-8/10)	2-1/4 (4)	3-1/2 (6-1/4)	5	4	6	9	15	15

Note: If the rated primary current is less than 2 amperes, the maximum rating of the overcurrent device is 300% for power circuits, shown above, or 500% for control circuits, shown above (in brackets). If the rated primary current is 2 amperes or more, the maximum rating of the overcurrent device is 250%. All figures assume secondary overcurrent protection per NEC/UL.
References: NEC 430-72 (c) exception 2, 450-3 (b) 1 & 2, UL 508 32.7, UL 845 11.16 and 11.17.

Table 9-95. Maximum Acceptable Rating of Secondary Overcurrent Protection

Secondary Voltage	VA Rating															
	25	50	75	100	150	200	250	300	350	500	750	1000	1500	2000	3000	5000
12	3-1/2	7	10	15	20	30	—	—	—	—	—	—	—	—	—	—
24	1-6/10	3-2/10	5	6-1/4	10	12	15	20	20	30	—	—	—	—	—	—
90	4/10	8/10	1-1/4	1-8/10	2-1/2	3-1/2	4-1/2	5	6-1/4	9	12	15	30	30	—	—
95	4/10	8/10	1-1/4	1-6/10	2-1/2	3-1/2	4	5	6	8	12	15	20	30	—	—
100	4/10	8/10	1-1/4	1-6/10	2-1/2	3-2/10	4	5	5-6/10	8	12	15	20	30	—	—
110	3/10	3/4	1-1/8	1-1/2	2-1/4	3	3-1/2	4-1/2	5	7-1/2	10	15	20	30	—	—
115	3/10	6/10	1	1-4/10	2	2-8/10	3-1/2	4	5	7	10	15	20	30	—	—
120	3/10	6/10	1	1-1/4	2	2-1/2	3-2/10	4	4-1/2	6-1/4	10	15	20	20	—	—
220	15/100	3/10	1/2	3/4	1-1/8	1-1/2	1-8/10	2-1/4	2-1/2	3-1/2	5-6/10	7	9	15	20	30
230	15/100	3/10	1/2	6/10	1	1-4/10	1-8/10	2	2-1/2	3-1/2	5	7	8	15	20	30
240	15/100	3/10	1/2	6/10	1	1-1/4	1-6/10	2	2-1/2	3-2/10	5	7	8	12	20	30

Note: If the rated secondary current is less than 9 amperes, the maximum rating of the overcurrent device is 167%; 9 amperes or more, the maximum rating of the overcurrent device is 125%. If 125% does not correspond to a standard fuse rating, the next highest standard rating may be used.
References: NEC 430-72 (c) exception 2, 450-3 (b) 1 & 2, UL 508 32.7, UL 845 11.16 and 11.17.