YASKAWA

HV600 DRIVE

MULTIPLE RATINGS SUPPLEMENT

HVAC FAN & PUMP DRIVE

AFFECTED DOCUMENTS:

HV600 Installation & Primary Operation (TOEPC71061732)
HV600 Technical Reference (SIEPC71061732)
HV600 Quick Setup Procedures (TOEPC71061774, TOEPC71061775, TOEPC71061776)

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DOCUMENT NUMBER: TOEPYAISUP25

1 Supplemental Information - Applicable Documents

The contents of this supplement apply to the product instructions in Table 1.1.

Table 1.1 Affected Documents

Drive Series	Document
HV600	Installation & Primary Operation (TOEPC71061732)
	Technical Reference (SIEPC71061732)
	Quick Setup Procedure (TOEPC71061774)
	Quick Setup Procedure (TOEPC71061775)
	Quick Setup Procedure for IP55/UL Type 12 (TOEPC71061776)

2 Multiple Ratings for HV600 AC Drives

This document details the various ratings available for HV600 drives and outlines the correct sizing of branch circuit protection along with input and output conductors for HV600 installations.

Per the National Electric Code (NEC), input conductors must be rated at 125% of the drive maximum input current, and output conductors must be rated at 125% of the motor Full Load Amps (FLA). In the tables below, the drive output current rating was used instead of the motor FLA.

This reduced rating sizing approach is ideal in certain applications, such as emergency drive replacements that use a larger drive, drive systems with multiple motors, or where the drive is significantly oversized for the connected motor.

In these applications, power distribution components are often unnecessarily oversized to maintain NEC compliance. To mitigate this issue, UL permits multiple ratings for a single drive, providing a more efficient approach to conductor and branch circuit protection component sizing.

◆ Multiple Ratings

Calculate the total FLA for all motors connected to the drive by summing their individual FLA values. The value set for *E2-01* becomes the reference value for motor protection and the torque limit. Enter the motor rated current as written on the motor nameplate. Auto-Tuning automatically sets *E2-01* to the value input for “Motor Rated Current”.

Once you have the total FLA, refer to Table 2.1 to Table 2.22 depending on the desired drive rating, and use the calculated current value to determine the appropriate allowable input current rating for the drive. This ensures proper conductor sizing while optimizing system efficiency. The following tables and examples are provided for guidance only. You must comply with NEC and local codes when you select conductors and branch circuit protection for your application.

Fuse, MCCB, and MCP recommendations are provided in the tables below. You cannot reduce semiconductor fuses or MCP device sizes. Class CC, J, or T fuses (sized at 175% of drive output FLA rating) and MCCBs (sized at 250% of drive output FLA rating) can use the reduced ratings, and you must follow NEC and local codes.

■ Three-Phase 208 V

Table 2.1 100% Ratings for HV600 AC Drives (Three-Phase 208 V)

Drive Catalog Code HV60U	100%							
	Semiconductor Fuse *1 Part Number	Class CC, J, or T Fuse *2 Maximum Amps	MCCB Maximum Amps	MCP Part Number *Manufacturer: Schneider*	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2011	FWH-40B	17.5	25	HLL36030M71	14	14	8.4	11
2017	FWH-45B	25	40	HLL36030M71	12	10	13.6	17
2024	FWH-80B	40	60	HLL36050M72	10	8	19.7	24
2031	FWH-125B	50	75	HLL36050M72	8	8	26.5	31
2046	FWH-125B	80	110	HLL36100M73	8	6	38.2	46
2059	FWH-175B	100	125	HLL36100M73	4	4	51.5	59

Drive Catalog Code HV60U	100%							
	Semiconductor Fuse *1 Part Number	Class CC, J, or T Fuse *2 Maximum Amps	MCCB Maximum Amps	MCP Part Number *Manufacturer: Schneider*	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2075	FWH-200B	125	175	HLL36150M74	4	3 or 2	63.1	75
2088	FWH-225A	150	200	HLL36150M74	3 or 2	2	74.6	88
2114	FWH-225A	200	250	HLL36150M74	1/0	1/0	100.7	114
2143	FWH-250A	250	350	JLL36250M75	2/0	3/0	123.5	143
2169	FWH-275A	250	400	JLL36250M75	3/0	4/0	149.4	169
2211	FWH-600A	350	500	LLL36400M37X	1/0 × 2P	1/0 × 2P	181.8	211
2273	FWH-800A	450	600	LLL36400M37X	2/0 × 2P	2/0 × 2P	246.2	273

*1 When you use semiconductor fuses as UL listed drive protection, the drives and fuses must be in the same enclosure.
*2 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.2 95% Ratings for HV600 AC Drives (Three-Phase 208 V)

Drive Catalog Code HV60U	95%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2011	17.5	25	14	14	8	10.1
2017	25	35	12	12	12.9	15.9
2024	40	50	10	10	18.7	23
2031	50	70	8	8	25.6	29.3
2046	70	100	8	6	36.1	43.9
2059	90	125	6	4	49.4	56.4
2075	110	175	4	3	59.9	71.1
2088	125	200	3	2	71.3	83.6
2114	175	250	1	1/0	96	108.3
2143	225	300	2/0	2/0	117.8	135.9
2169	250	400	3/0	4/0	141.6	160.6
2211	350	500	4/0	1/0 × 2P	172.9	200.5
2273	450	600	2/0 × 2P	2/0 × 2P	233.7	259.4

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.3 90% Ratings for HV600 AC Drives (Three-Phase 208 V)

Drive Catalog Code HV60U	90%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2011	15	20	14	14	7.6	9.5
2017	25	35	12	12	12.2	15
2024	35	50	10	10	17.7	21.8
2031	45	60	8	8	24.3	27.7
2046	70	100	8	6	34.2	41.6
2059	90	125	6	4	46.8	53.5
2075	110	150	4	4	56.7	67.3
2088	125	175	3	3	67.5	79.2
2114	175	250	1	1	90.9	102.6
2143	225	300	1/0	2/0	111.6	128.7

Drive Catalog Code HV60U	90%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2169	250	350	2/0	3/0	134.1	152.1
2211	300	450	4/0	1/0 × 2P	163.8	189.9
2273	400	600	2/0 × 2P	2/0 × 2P	221.4	245.7

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.4 85% Ratings for HV600 AC Drives (Three-Phase 208 V)

Drive Catalog Code HV60U	85%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2011	15	20	14	14	7.1	9
2017	20	35	12	12	11.6	14.2
2024	35	50	10	10	16.8	20.6
2031	45	60	10	8	23	26.2
2046	60	90	8	8	32.3	39.3
2059	80	125	6	6	44.2	50.5
2075	110	150	4	4	53.6	63.6
2088	125	175	4	3	63.8	74.8
2114	150	225	2	1	85.9	96.9
2143	200	300	1/0	2/0	105.4	121.6
2169	250	350	2/0	3/0	126.7	143.7
2211	300	400	4/0	1/0 × 2P	154.7	179.4
2273	400	500	1/0 × 2P	1/0 × 2P	209.1	232.1

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.5 80% Ratings for HV600 AC Drives (Three-Phase 208 V)

Drive Catalog Code HV60U	80%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2011	12	20	14	14	6.7	8.5
2017	20	30	14	12	10.9	13.4
2024	30	45	10	10	15.8	19.4
2031	40	60	10	8	21.6	24.6
2046	60	90	8	8	30.4	37
2059	80	110	6	6	41.6	47.5
2075	100	125	4	4	50.4	59.8
2088	110	175	4	3	60	70.4
2114	150	225	2	2	80.8	91.2
2143	200	250	1	1/0	99.2	114.4
2169	225	300	2/0	2/0	119.2	135.2
2211	250	400	3/0	4/0	145.6	168.8
2273	350	500	1/0 × 2P	1/0 × 2P	196.8	218.4

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.6 75% Ratings for HV600 AC Drives (Three-Phase 208 V)

Drive Catalog Code HV60U	75%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2011	12	15	14	14	6.3	8
2017	20	30	14	12	10.2	12.5
2024	30	45	12	10	14.8	18.2
2031	40	50	10	10	20.3	23.1
2046	60	80	8	8	28.5	34.7
2059	70	110	6	6	39	44.6
2075	90	125	6	4	47.3	56.1
2088	110	150	4	4	56.3	66
2114	125	200	3	2	75.8	85.5
2143	175	250	1	1/0	93	107.3
2169	200	300	1/0	2/0	111.8	126.8
2211	250	350	3/0	3/0	136.5	158.3
2273	350	500	1/0 × 2P	1/0 × 2P	184.5	204.8

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.7 70% Ratings for HV600 AC Drives (Three-Phase 208 V)

Drive Catalog Code HV60U	70%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2011	12	15	14	14	5.9	7.4
2017	20	25	14	14	9.5	11.7
2024	25	40	12	10	13.8	16.9
2031	35	50	10	10	18.9	21.6
2046	50	80	8	8	26.6	32.3
2059	70	100	8	6	36.4	41.6
2075	90	125	6	4	44.1	52.4
2088	100	150	4	4	52.5	61.6
2114	125	175	3	3	70.7	79.8
2143	175	250	2	1	86.8	100.1
2169	200	250	1/0	1/0	104.3	118.3
2211	250	350	2/0	3/0	127.4	147.7
2273	300	450	4/0	1/0 × 2P	172.2	191.1

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.8 65% Ratings for HV600 AC Drives (Three-Phase 208 V)

Drive Catalog Code HV60U	65%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2011	12	15	14	14	5.5	6.9
2017	17.5	25	14	14	8.8	10.9
2024	25	35	12	12	12.8	15.7
2031	35	50	10	10	17.6	20

Drive Catalog Code HV60U	65%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2046	50	75	8	8	24.7	30
2059	60	90	8	8	33.8	38.6
2075	80	110	6	6	41	48.6
2088	100	125	6	4	48.8	57.2
2114	125	175	3	3	65.7	74.1
2143	150	225	2	1	80.6	93
2169	175	250	1	1/0	96.9	109.9
2211	225	300	2/0	2/0	118.3	137.2
2273	300	400	4/0	4/0	159.9	177.5

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.9 60% Ratings for HV600 AC Drives (Three-Phase 208 V)

Drive Catalog Code HV60U	60%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2011	10	15	14	14	5	6.4
2017	17.5	25	14	14	8.2	10
2024	25	35	12	12	11.8	14.5
2031	30	45	10	10	16.2	18.5
2046	45	60	10	8	22.8	27.7
2059	60	80	8	8	31.2	35.6
2075	70	110	8	6	37.8	44.9
2088	90	125	6	4	45	52.8
2114	110	150	4	3	60.6	68.4
2143	150	200	3	2	74.4	85.8
2169	175	250	1	1	89.4	101.4
2211	200	300	1/0	2/0	109.2	126.6
2273	250	400	3/0	4/0	147.6	163.8

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.10 55% Ratings for HV600 AC Drives (Three-Phase 208 V)

Drive Catalog Code HV60U	55%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2011	10	15	14	14	4.6	5.8
2017	15	20	14	14	7.5	9.2
2024	20	30	14	12	10.8	13.3
2031	25	40	12	10	14.9	16.9
2046	40	60	10	8	20.9	25.4
2059	50	80	8	8	28.6	32.7
2075	70	100	8	6	34.7	41.1
2088	80	110	6	6	41.3	48.4
2114	100	150	4	4	55.6	62.7

Drive Catalog Code HV60U	55%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2143	125	175	3	3	68.2	78.7
2169	150	225	2	1	82	93
2211	200	250	1/0	1/0	100.1	116.1
2273	250	350	3/0	3/0	135.3	150.2

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.11 50% Ratings for HV600 AC Drives (Three-Phase 208 V)

Drive Catalog Code HV60U	50%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
2011	9	15	14	14	4.2	5.3
2017	12	20	14	14	6.8	8.4
2024	20	30	14	12	9.9	12.1
2031	25	35	12	12	13.5	15.4
2046	40	50	10	10	19	23.1
2059	50	70	8	8	26	29.7
2075	60	90	8	8	31.5	37.4
2088	70	110	8	6	37.5	44
2114	90	125	4	4	50.5	57
2143	125	175	4	3	62	71.5
2169	125	200	3	2	74.5	84.5
2211	175	250	1	1/0	91	105.5
2273	225	300	2/0	2/0	123	136.5

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

■ Three-Phase 480 V

Table 2.12 100% Ratings for HV600 AC Drives (Three-Phase 480 V)

Drive Catalog Code HV60U	100%							
	Semiconductor Fuse *1 Part Number	Class CC, J, or T Fuse *2 Maximum Amps	MCCB Maximum Amps	MCP Part Number *Manufacturer: Schneider*	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4005	FWH-25A14F	8	15	HLL36030M71	14	14	3.6	5
4008	FWH-30A14F	12	15	HLL36030M71	14	14	5.9	8
4011	FWH-40B	17.5	25	HLL36030M71	14	14	8.6	11
4014	FWH-45B	20	35	HLL36030M71	14	12	11.5	14
4021	FWH-60B	35	50	HLL36030M71	10	10	16.6	21
4027	FWH-80B	45	60	HLL36050M72	10	8	22.4	27
4034	FWH-100B	60	80	HLL36050M72	8	8	27.4	34
4040	FWH-125B	70	100	HLL36100M73	8	8	32.4	40
4052	FWH-150B	90	125	HLL36100M73	6	6	43.8	52
4065	FWH-200B	110	150	HLL36100M73	4	4	53.7	65
4077	FWH-225A	125	175	HLL36100M73	4	3 or 2	65	77
4096	FWH-225A	150	225	HLL36150M74	2	1	79	96

Drive Catalog Code HV60U	100%							
	Semiconductor Fuse *1 Part Number	Class CC, J, or T Fuse *2 Maximum Amps	MCCB Maximum Amps	MCP Part Number *Manufacturer: Schneider*	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4124	FWH-225A	200	300	JLL36250M75	1/0	2/0	107	124
4156	FWH-325A	250	350	JLL36250M75	2/0	3/0	128	156
4180	FWH-500A	300	450	JLL36250M75	1/0 × 2P	1/0 × 2P	155.8	180
4240	FWH-600A	400	600	LLL36400M37X	1/0 × 2P	1/0 × 2P	211.3	240
4302	FWH-700A	500	700	LLL36400M37X	3/0 × 2P	3/0 × 2P	259.7	302

*1 When you use semiconductor fuses as UL listed drive protection, the drives and fuses must be in the same enclosure.
*2 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.13 95% Ratings for HV600 AC Drives (Three-Phase 480 V)

Drive Catalog Code HV60U	95%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4005	7	15	14	14	3.4	4.6
4008	12	15	14	14	5.6	7.2
4011	17.5	25	14	14	8.2	10.5
4014	20	30	14	12	10.9	13.3
4021	30	45	10	10	15.8	20
4027	40	60	10	8	21.3	25.7
4034	50	80	8	8	25.6	32.3
4040	60	90	8	8	30.4	38
4052	80	110	6	6	41.8	49.4
4065	100	150	4	4	51.3	61.8
4077	125	175	4	3	61.8	73.2
4096	150	225	3	2	75.1	91.2
4124	200	250	1/0	1/0	101.7	117.8
4156	250	350	2/0	3/0	121.6	148.2
4180	250	400	3/0	4/0	148.2	171
4240	350	500	1/0 × 2P	1/0 × 2P	200.5	228
4302	500	700	3/0 × 2P	3/0 × 2P	247	286.9

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.14 90% Ratings for HV600 AC Drives (Three-Phase 480 V)

Drive Catalog Code HV60U	90%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4005	7	15	14	14	3.2	4.3
4008	10	15	14	14	5.3	6.8
4011	15	20	14	14	7.7	9.9
4014	20	30	14	12	10.4	12.6
4021	30	45	12	10	14.9	18.9
4027	40	60	10	8	20.2	24.3
4034	50	75	8	8	24.3	30.6
4040	60	90	8	8	28.8	36

Drive Catalog Code HV60U	90%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4052	80	110	6	6	39.6	46.8
4065	100	125	6	4	48.6	58.5
4077	110	150	4	3	58.5	69.3
4096	150	200	3	2	71.1	86.4
4124	175	250	1	1/0	96.3	111.6
4156	225	350	1/0	3/0	115.2	140.4
4180	250	400	3/0	4/0	140.4	162
4240	350	500	1/0 × 2P	1/0 × 2P	189.9	216
4302	450	600	2/0 × 2P	2/0 × 2P	234	271.8

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.15 85% Ratings for HV600 AC Drives (Three-Phase 480 V)

Drive Catalog Code HV60U	85%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4005	7	15	14	14	3.1	4.1
4008	10	15	14	14	5	6.5
4011	15	20	14	14	7.3	9.4
4014	20	25	14	14	9.8	11.9
4021	30	40	12	10	14.1	17.9
4027	40	50	10	10	19	23
4034	50	70	10	8	23	28.9
4040	50	80	8	8	27.2	34
4052	70	110	8	6	37.4	44.2
4065	90	125	6	4	45.9	55.3
4077	110	150	4	4	55.3	65.5
4096	125	200	3	2	67.2	81.6
4124	175	250	1	1/0	91	105.4
4156	225	300	1/0	2/0	108.8	132.6
4180	250	350	2/0	3/0	132.6	153
4240	350	500	1/0 × 2P	1/0 × 2P	179.4	204
4302	400	600	2/0 × 2P	2/0 × 2P	221	256.7

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.16 80% Ratings for HV600 AC Drives (Three-Phase 480 V)

Drive Catalog Code HV60U	80%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4005	6	15	14	14	2.9	3.8
4008	10	15	14	14	4.7	6.1
4011	15	20	14	14	6.9	8.8
4014	17.5	25	14	14	9.2	11.2
4021	25	40	12	10	13.3	16.8

Drive Catalog Code HV60U	80%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4027	35	50	10	10	17.9	21.6
4034	45	60	10	8	21.6	27.2
4040	50	80	8	8	25.6	32
4052	70	100	8	6	35.2	41.6
4065	90	125	6	6	43.2	52
4077	100	150	4	4	52	61.6
4096	125	175	4	3	63.2	76.8
4124	150	225	2	1	85.6	99.2
4156	200	300	1/0	2/0	102.4	124.8
4180	250	350	2/0	3/0	124.8	144
4240	300	450	4/0	1/0 × 2P	168.8	192
4302	400	600	1/0 × 2P	2/0 × 2P	208	241.6

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.17 75% Ratings for HV600 AC Drives (Three-Phase 480 V)

Drive Catalog Code HV60U	75%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4005	6	15	14	14	2.7	3.6
4008	9	15	14	14	4.4	5.7
4011	12	20	14	14	6.5	8.3
4014	17.5	25	14	14	8.6	10.5
4021	25	35	12	12	12.5	15.8
4027	35	50	10	10	16.8	20.3
4034	40	60	10	8	20.3	25.5
4040	50	75	8	8	24	30
4052	60	90	8	8	33	39
4065	80	110	6	6	40.5	48.8
4077	100	125	6	4	48.8	57.8
4096	125	175	4	3	59.3	72
4124	150	225	2	1	80.3	93
4156	200	250	1	1/0	96	117
4180	225	300	2/0	2/0	117	135
4240	300	450	4/0	1/0 × 2P	158.3	180
4302	350	500	1/0 × 2P	1/0 × 2P	195	226.5

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.18 70% Ratings for HV600 AC Drives (Three-Phase 480 V)

Drive Catalog Code HV60U	70%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4005	5	15	14	14	2.5	3.4
4008	9	15	14	14	4.1	5.3

Drive Catalog Code HV60U	70%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4011	12	15	14	14	6	7.7
4014	15	20	14	14	8	9.8
4021	25	35	12	12	11.6	14.7
4027	30	45	10	10	15.7	18.9
4034	40	50	10	10	18.9	23.8
4040	45	70	10	8	22.4	28
4052	60	90	8	8	30.8	36.4
4065	70	110	8	6	37.8	45.5
4077	90	125	6	4	45.5	53.9
4096	110	150	4	4	55.3	67.2
4124	150	200	3	2	74.9	86.8
4156	175	250	1	1/0	89.6	109.2
4180	200	300	1/0	2/0	109.2	126
4240	250	400	3/0	4/0	147.7	168
4302	350	500	1/0 × 2P	1/0 × 2P	182	211.4

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.19 65% Ratings for HV600 AC Drives (Three-Phase 480 V)

Drive Catalog Code HV60U	65%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4005	5	15	14	14	2.3	3.1
4008	8	15	14	14	3.8	4.9
4011	12	15	14	14	5.6	7.2
4014	15	20	14	14	7.5	9.1
4021	20	30	14	12	10.8	13.7
4027	30	40	12	10	14.6	17.6
4034	35	50	10	10	17.6	22.1
4040	45	60	10	8	20.8	26
4052	50	80	8	8	28.6	33.8
4065	70	100	8	6	35.1	42.3
4077	80	125	6	6	42.3	50.1
4096	100	150	4	4	51.4	62.4
4124	125	200	3	2	69.6	80.6
4156	175	250	2	1	83.2	101.4
4180	200	250	1/0	1/0	101.4	117
4240	250	350	3/0	3/0	137.2	156
4302	300	450	4/0	1/0 × 2P	169	196.3

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.20 60% Ratings for HV600 AC Drives (Three-Phase 480 V)

Drive Catalog Code HV60U	60%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4005	5	15	14	14	2.2	2.9
4008	7	15	14	14	3.5	4.6
4011	10	15	14	14	5.2	6.6
4014	12	20	14	14	6.9	8.4
4021	20	30	14	12	10	12.6
4027	25	40	12	10	13.4	16.2
4034	35	50	10	10	16.2	20.4
4040	40	60	10	10	19.2	24
4052	50	75	8	8	26.4	31.2
4065	60	90	8	8	32.4	39
4077	80	110	6	6	39	46.2
4096	100	125	6	4	47.4	57.6
4124	125	175	4	3	64.2	74.4
4156	150	225	3	1	76.8	93.6
4180	175	250	1	1/0	93.6	108
4240	250	350	2/0	3/0	126.6	144
4302	300	450	4/0	1/0 × 2P	156	181.2

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.21 55% Ratings for HV600 AC Drives (Three-Phase 480 V)

Drive Catalog Code HV60U	55%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4005	4.5	15	14	14	2	2.6
4008	7	15	14	14	3.3	4.2
4011	10	15	14	14	4.7	6.1
4014	12	15	14	14	6.3	7.7
4021	20	25	14	14	9.1	11.6
4027	25	35	12	12	12.3	14.9
4034	30	45	12	10	14.9	18.7
4040	35	50	10	10	17.6	22
4052	50	70	8	8	24.2	28.6
4065	60	80	8	8	29.7	35.8
4077	70	100	8	6	35.8	42.4
4096	90	125	6	4	43.5	52.8
4124	110	150	4	3	58.8	68.2
4156	150	200	3	2	70.4	85.8
4180	150	225	2	1	85.8	99
4240	225	300	2/0	2/0	116.1	132
4302	250	400	3/0	4/0	143	166.1

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

Table 2.22 50% Ratings for HV600 AC Drives (Three-Phase 480 V)

Drive Catalog Code HV60U	50%					
	Class CC, J, or T Fuse *1 Maximum Amps	MCCB Maximum Amps	Input Cable AWG	Motor Cable AWG	Rated Input Current (A)	Rated Output Current (A)
4005	4	15	14	14	1.8	2.4
4008	6	15	14	14	3	3.8
4011	9	15	14	14	4.3	5.5
4014	12	15	14	14	5.8	7
4021	17.5	25	14	14	8.3	10.5
4027	20	30	14	12	11.2	13.5
4034	25	40	12	10	13.5	17
4040	35	50	10	10	16	20
4052	45	60	10	8	22	26
4065	50	80	8	8	27	32.5
4077	60	90	8	8	32.5	38.5
4096	80	110	6	6	39.5	48
4124	100	150	4	4	53.5	62
4156	125	175	4	3	64	78
4180	150	225	2	2	78	90
4240	200	300	1/0	1/0	105.5	120
4302	250	350	2/0	3/0	130	151

*1 Class T fuses are fast-acting (non-time-delay) only. You can substitute a Class J time-delay fuse for a Class J non-time-delay fuse.

3 Application Examples

◆ Multiple Motor Application with Decreased Current Rating

In this example, we have an application where one model HV60U4124 drive with *E2-01 [Motor Rated Current (FLA)]* set to 99.2 A controls seven 10 HP motors. Each motor draws 14 A, which results in a combined motor current of 98 A. According to *Multiple Ratings for HV600 AC Drives on page 2*, the drive can be re-rated to 80% capacity, allowing for an output current of 99.2 A—sufficient for this application.

Under traditional NEC-based sizing, the 107 A input current rating of the HV60U4124 drive would require 1/0 AWG input conductors and 2/0 AWG output conductors. However, using the 80% re-rating (99.2 A output, 85.6 A input), 2 AWG input and 1 AWG output conductors can be used instead.

Similarly, standard fuse sizing for a 124 A rating would typically require a 200 A fuse. By applying the 80% re-rating, a 150 A fuse can be used instead.

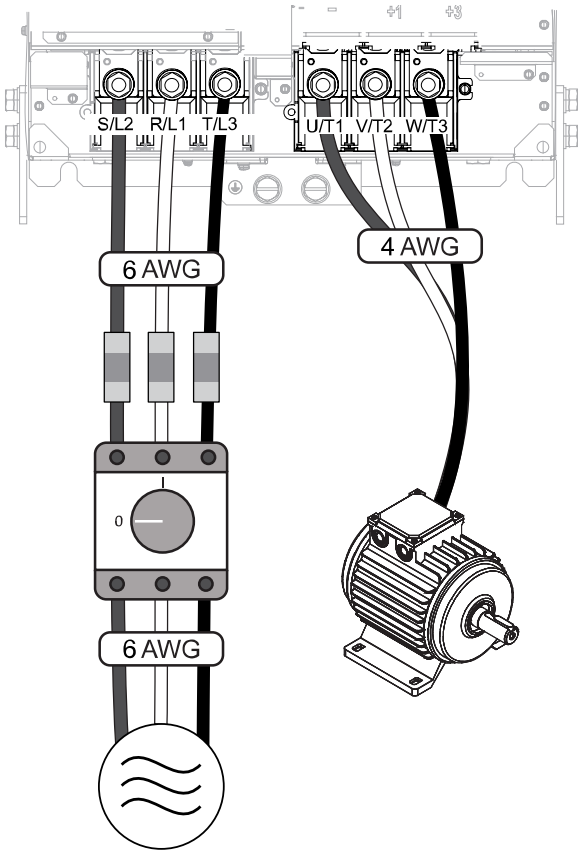
This decreased current rating results in the use of smaller conductors and lower-rated fuses, leading to lower installation costs and potentially saving panel space.

◆ Wire Is too Small to Fit in the Drive Terminal Block

For a 75 HP model HV60U4077 drive with *E2-01 [Motor Rated Current (FLA)]* set to 45.5 A, the requirement is 4 AWG input conductors and 3 AWG output conductors. However, in this specific application, the motor operates at only 70% load, drawing 45.5 A. This decreased load permits the use of 6 AWG conductors for input wiring and 4 AWG conductors for output wiring.

A key advantage of the HV600 drive design is that its input terminals can accommodate conductors up to three sizes smaller than the drive standard cable requirement. As a result, no additional conversion components are necessary to transition between wire sizes.

In this case, using 6 AWG wiring for the drive input conductors, as well as for the long run upstream of the fused disconnect, and 4 AWG for motor output conductors decreases material costs and simplifies installation while maintaining compliance with electrical standards.

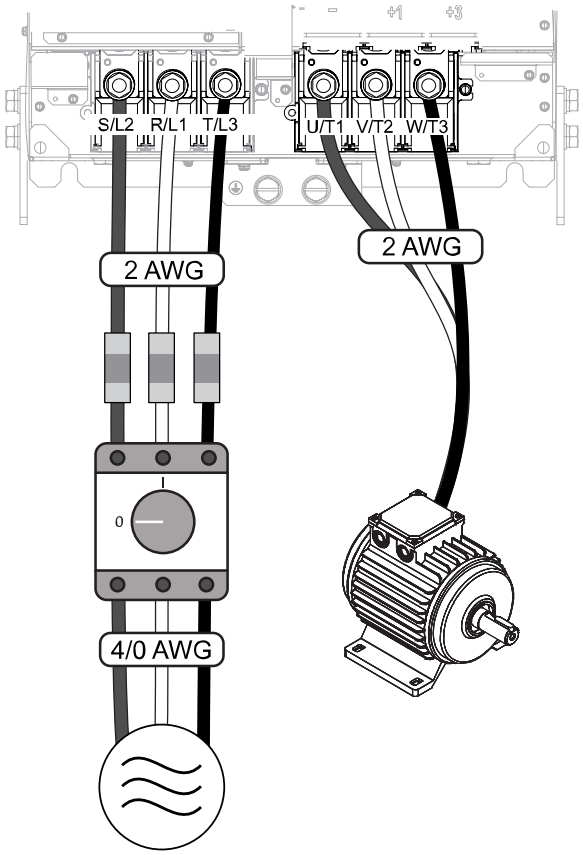


◆ Smaller Wire and Disconnect

For a 180 A model HV60U4180 drive with *E2-01 [Motor Rated Current (FLA)]* set to 90.0 A operating at 50% load (90 A), the conductor size can be decreased from 1/0 ×2P AWG (required for the full 180 A load) to a single 2 AWG conductor, which is appropriately rated for
90 A.

Similarly, the standard 300 A fuse, typically required for a 180 A load, can be downsized to 150 A based on the reduced 90 A load. However, the disconnect switch must remain rated at 200 A.

This adjustment optimizes conductor and fuse sizing for the actual operating load, decreasing material costs and simplifying installation while maintaining compliance with electrical standards.



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YASKAWA

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