

(d) *Issuance of permit.* When the inspection discloses full compliance with the applicable requirements of this subpart, the Assistant Secretary will issue a permit sanctioning the operation of a single unit in a gassy mine or tunnel, as designated in the application. If the applicant is not the assembler of the equipment, a copy of the permit also may be sent to the assembler.

(e) *Duration of permit.* A permit will be effective for a period of 6 months. For a valid reason, to be stated in a written application, the Administrator of MSHA may grant an extension of a permit for an additional period, not exceeding 6 months. Further extension will be granted only where, after investigation, the Assistant Secretary finds that for reasons beyond the control of the user, it has not been possible to complete the experiment within the period covered by the extended permit.

(f) *Permit label.* With the notification granting a permit, the applicant will receive a photographic copy of a permit label bearing the following:

- (1) Emblem of the Mine Safety and Health Administration.
- (2) Permit number.
- (3) Expiration date of the permit.
- (4) Name of machine.
- (5) Name of the user and mine or tunnel.

The applicant shall attach the photographic copy of the permit label, or replica thereof, to the experimental equipment. If a photograph is used, a clear plastic covering shall be provided for it.

(g) *Withdrawal of permit.* The Assistant Secretary may rescind, for cause, any permit granted under this subpart.

[33 FR 4660, Mar. 19, 1968, as amended at 43 FR 12314, Mar. 24, 1978; 52 FR 17514, May 8, 1987; 60 FR 35693, July 11, 1995; 67 FR 38384, June 4, 2002; 73 FR 52211, Sept. 9, 2008]

APPENDIX I TO SUBPART D OF PART 18  
LIST OF TABLES

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1	Portable power cable ampacities—600 volts.
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3	Portable power cable ampacities—601 to 5,000 volts.
4	Normal diameter of round cables with tolerances in inches—600 volts.
5	Nominal dimension of flat cables with tolerances in inches—600 volts.
6	Nominal diameter of heavy jacketed cords with tolerances in inches—600 volts.
7	Nominal diameter of three-conductor portable power cables with tolerances in inches—601 to 5,000 volts.
8	Fuse ratings or instantaneous settings of circuit breakers for short-circuit protection of portable cables.
9	Specifications for portable cables longer than 500 feet.
10	High voltage trailing cable ampacities and outside diameters.

TABLE 1—PORTABLE POWER CABLE AMPACITIES—600 VOLTS (AMPERES PER CONDUCTOR BASED ON 60 °C. COPPER TEMPERATURE—40 °C. AMBIENT)

Conductor size—AWG or MCM	Single conductor	2-conductor, round or flat	3-conductor, round or flat	4-conductor	5-conductor	6-conductor
8	45	40	35	30	25	20
6	60	50	50	40	35	30
4	85	70	65	55	45	35
3	95	80	75	65	55	45
2	110	95	90	75	65	55
1	130	110	100	85	75	65
1/0	150	130	120	100	90	80
2/0	175	150	135	115	105	95
3/0	205	175	155	130	120	110
4/0	235	200	180	150	140	130
250	275	220	200	160	.....	.....
300	305	240	220	175	.....	.....
350	345	240	235	190	.....	.....
400	375	280	250	200	.....	.....
450	400	300	270	215	.....	.....
500	425	320	290	230	.....	.....

TABLE 2—PORTABLE CORD AMPACITIES—600 VOLTS (AMPERES PER CONDUCTOR BASED ON 60 °C. COPPER TEMPERATURE—40 °C. AMBIENT)

Conductor size—AWG	1–3 conductor	4–6 conductor	7–9 conductor
14 .....	15	12	8
12 .....	20	16	11
10 .....	25	20	14

TABLE 3—PORTABLE POWER CABLE AMPACITIES—601 TO 5,000 VOLTS (AMPERES PER CONDUCTOR BASED ON 75 °C. COPPER TEMPERATURE—40 °C. AMBIENT)

Conductor size—AWG or MCM	3-conductor types G-GC and SIIC-GC 2,000 volts	3-conductor type SHD-GC 2,001–5,000 volts
6 .....	65	65
4 .....	85	85
3 .....	100	100
2 .....	115	115
1 .....	130	130
1/0 .....	145	145
2/0 .....	170	170
3/0 .....	195	195
4/0 .....	220	220
250 .....	245	245
300 .....	275	275
350 .....	305	305

TABLE 4—NOMINAL DIAMETERS OF ROUND CABLES WITH TOLERANCES IN INCHES—600 VOLTS

Conductor size—AWG or MCM	Single conductor	2-conductor			3-conductor			4-conductor—Types W & G	5-conductor—Types W & G	6-conductor	
		Types W & G twisted	Type PG, 2 power	Type PCG, 3 power, ground	Types W & G	Type PG, 3 power, ground	Type PCG, 3 power, 2 control, ground			Type w	Tolerance
8 .....	0.44	0.81	0.84	0.94	0.91	0.93	1.03	0.99	1.07	1.18	±0.03
6 .....	.51	.93	.93	.98	1.01	1.03	1.18	1.10	1.21	1.31	±0.03
4 .....	.57	1.08	1.08	1.10	1.17	1.20	1.29	1.27	1.40	1.52	±0.03
3 .....	.63	1.17	1.17	1.20	1.24	1.27	1.31	1.34	1.48	1.61	±0.03
2 .....	.66	1.27	1.27	1.29	1.34	1.34	1.39	1.48	1.61	1.75	±0.03
1 .....	.74	1.44	1.44	1.44	1.51	1.52	1.52	1.68	1.88	2.05	±0.03
1/0 .....	.77	1.52	1.52	1.52	1.65	1.68	1.68	1.79	1.96	2.13	±0.04
2/0 .....	.82	1.65	1.65	1.65	1.75	1.79	1.79	1.93	2.13	2.32	±0.04
3/0 .....	.87	1.77	1.77	1.77	1.89	1.93	1.93	2.07	2.26	2.49	±0.05
4/0 .....	.93	1.92	1.92	1.92	2.04	2.13	2.13	2.26	2.46	2.71	±0.05
250 .....	1.03	2.16	2.16	2.16	2.39	2.39	2.39	2.66	.....	.....	±0.06
300 .....	1.09	2.32	.....	.....	2.56	.....	.....	2.84	.....	.....	±0.06
350 .....	1.15	2.43	.....	.....	2.68	.....	.....	2.98	.....	.....	±0.06
400 .....	1.20	2.57	.....	.....	2.82	.....	.....	3.14	.....	.....	±0.06
450 .....	1.26	2.67	.....	.....	2.94	.....	.....	3.26	.....	.....	±0.06
500 .....	1.31	2.76	.....	.....	3.03	.....	.....	3.40	.....	.....	±0.06

TABLE 5—NOMINAL DIMENSIONS OF FLAT CABLES WITH TOLERANCES IN INCHES—600 VOLTS

Conductor size—AWG	2-conductor								3-conductor—Type G			
	Type W				Type G				Major		Minor	
	Major		Minor		Major		Minor		O.D.	Tolerance	O.D.	Tolerance
	O.D.	Tolerance	O.D.	Tolerance	O.D.	Tolerance	O.D.	Tolerance				
8 .....	0.84	±0.04	0.51	±0.03	1.02	±0.04	0.56	±0.03	1.65	±0.06	0.67	±0.05
6 .....	.93	±0.04	.56	±0.03	1.15	±0.04	.61	±0.03	1.85	±0.06	.75	±0.05
4 .....	1.05	±0.04	.61	±0.03	1.26	±0.04	.68	±0.03	1.99	±0.06	.77	±0.05
3 .....	1.14	±0.04	.68	±0.03	1.35	±0.04	.73	±0.06	2.10	±0.06	.81	±0.05
2 .....	1.24	±0.04	.73	±0.03	1.55	±0.04	.81	±0.03	2.43	±0.06	.97	±0.05
1 .....	1.40	±0.04	.81	±0.03	1.67	±0.04	.93	±0.03	.....	.....	.....	.....
1/0 .....	1.51	±0.04	.93	±0.03	1.85	±0.04	.99	±0.03	.....	.....	.....	.....
2/0 .....	1.63	±0.04	.99	±0.03	.....	.....	.....	.....	.....	.....	.....	.....

TABLE 5—NOMINAL DIMENSIONS OF FLAT CABLES WITH TOLERANCES IN INCHES—600 VOLTS—Continued

Conductor size—AWG	2-conductor								3-conductor—Type G			
	Type W				Type G				Major		Minor	
	Major		Minor		Major		Minor		O.D.	Tolerance	O.D.	Tolerance
	O.D.	Tolerance	O.D.	Tolerance	O.D.	Tolerance	O.D.	Tolerance				
3/0 .....	1.77	±.04	1.03	±.03	2.00	±.04	1.03	±.03				
4/0 .....	1.89	±.04	1.10	±.03	2.10	±.04	1.10	±.03				

TABLE 6—NOMINAL DIAMETERS OF HEAVY JACKETED CORDS WITH TOLERANCES IN INCHES—600 VOLTS

Conductor size—AWG	2-conductor		3-conductor		4-conductor		5-conductor		6-conductor		7-conductor	
	Diameter	Tolerance	Diameter	Tolerance	Diameter	Tolerance	Diameter	Tolerance	Diameter	Tolerance	Diameter	Tolerance
14 .....	0.64	±0.02	0.67	±0.02	0.71	±0.02	0.78	±0.03	0.83	±0.03	0.89	±0.03
12 .....	.68	±.02	.72	±.03	.76	±.03	.83	±.03	.89	±.03	.98	±.03
10 .....	.73	±.03	.80	±.03	.84	±.03	.90	±.03	1.00	±.03	1.07	±.03

TABLE 7—NOMINAL DIAMETERS OF THREE-CONDUCTOR PORTABLE POWER CABLES WITH TOLERANCES IN INCHES—601 TO 5,000 VOLTS

Conductor size—AWG or MCM	Type G-GC (non-shielded) 2,000 volts		Type SHC-GC (shielded overall) 2,000 volts		Type SHD-GC (individually shielded power conductors) 2,001-3,000 volts		Type SHD-GC (individually shielded power conductors) 3,001-5,000 volts	
	Diameter	Tolerance	Diameter	Tolerance	Diameter	Tolerance	Diameter	Tolerance
6 .....	1.25	+0.10, -0.06	1.39	+0.11, -0.07	1.62	+0.13, -0.08	1.78	+0.14, -0.09
4 .....	1.40	+ .11, - .07	1.55	+ .12, - .08	1.77	+ .14, - .09	1.90	+ .15, - .10
3 .....	1.48	+ .12, - .07	1.62	+ .13, - .08	1.84	+ .15, - .09	1.98	+ .16, - .10
2 .....	1.55	+ .12, - .08	1.71	+ .14, - .09	1.92	+ .15, - .10	2.09	+ .17, - .11
1 .....	1.74	+ .14, - .09	1.89	+ .15, - .09	2.04	+ .16, - .10	2.18	+ .17, - .11
1/0 .....	1.84	+ .15, - .09	2.02	+ .16, - .10	2.18	+ .17, - .11	2.34	+ .19, - .12
2/0 .....	1.99	+ .16, - .10	2.16	+ .17, - .11	2.29	+ .18, - .12	2.46	+ .20, - .12
3/0 .....	2.12	+ .17, - .11	2.30	+ .18, - .11	2.45	+ .20, - .12	2.62	+ .21, - .13
4/0 .....	2.30	+ .18, - .12	2.48	+ .20, - .12	2.62	+ .21, - .13	2.76	+ .22, - .14
250 .....	2.46	+ .20, - .12	2.70	+ .22, - .13	.....	.....	.....	.....
300 .....	2.63	+ .21, - .13	2.84	+ .23, - .14	.....	.....	.....	.....
350 .....	2.75	+ .22, - .14	2.97	+ .24, - .15	.....	.....	.....	.....

TABLE 8—FUSE RATINGS OR INSTANTANEOUS SETTING OF CIRCUIT BREAKERS FOR SHORT-CIRCUIT PROTECTION OF PORTABLE CABLES AND CORDS

Conductor size—AWG or MCM	Ohms/1,000 ft. at 25 °C.	Maximum allowable fuse rating (amperes)	Maximum allowable circuit breaker instantaneous setting (amperes) <sup>1</sup>
14 .....		2.62	20
12 .....		1.65	30
10 .....		1.04	40
8 .....		.654	80
6 .....		.410	100
4 .....		.259	200
3 .....		.205	250
2 .....		.162	300
1 .....		.129	375
1/0 .....		.102	500
2/0 .....		.081	.....
3/0 .....		.064	.....
4/0 .....		.051	.....
250 .....		.043	.....
300 .....		.036	.....

TABLE 8—FUSE RATINGS OR INSTANTANEOUS SETTING OF CIRCUIT BREAKERS FOR SHORT-CIRCUIT PROTECTION OF PORTABLE CABLES AND CORDS—Continued

Conductor size—AWG or MCM	Ohms/1,000 ft. at 25 °C.	Maximum allowable fuse rating (amperes)	Maximum allowable circuit breaker instantaneous setting (amperes) <sup>1</sup>
350 .....	.031	.....	2,500
400 .....	.027	.....	2,500
450 .....	.024	.....	2,500
500 .....	.022	.....	2,500

<sup>1</sup> Higher circuit-breaker settings may be permitted for special applications when justified.

TABLE 9—SPECIFICATIONS FOR PORTABLE CABLES LONGER THAN 500 FEET<sup>1</sup>

Conductor size—AWG or MCM	Max. allowable length (feet)	Normal ampacity at 60 °C. copper temperature (40 °C. ambient)	Resistance at 60 °C. copper temperature (ohms)
6 .....	550	50	0.512
4 .....	600	70	.353
3 .....	650	80	.302
2 .....	700	95	.258
1 .....	750	110	.220
1/0 .....	800	130	.185
2/0 .....	850	150	.157
3/0 .....	900	175	.130
4/0 .....	1,000	200	.116
250 .....	1,000	220	.098
300 .....	1,000	240	.082
350 .....	1,000	260	.070
400 .....	1,000	280	.061
450 .....	1,000	300	.054
500 .....	1,000	320	.050

<sup>1</sup> Fuses shall not be used for short-circuit protection of these cables. Circuit breakers shall be used with the instantaneous trip settings not to exceed the values given in Table 8.

[33 FR 4660, Mar. 19, 1968; 33 FR 6345, Apr. 26, 1968, as amended at 42 FR 8373, Feb. 10, 1977]

TABLE 10—HIGH VOLTAGE TRAILING CABLE AMPACITIES AND OUTSIDE DIAMETERS

Power conductor Size AWG or kcmil	Ampacity* Amperes per conductor	Outside diameter** (inches)		
		SHD—GC 2001 to 5000 volts	SHD—CGC 2001 to 5000 volts	SHD—PCG 2001 to 5000 volts
6 .....	93	1.56	1.62	
4 .....	122	1.68	1.73	
3 .....	140	1.78	1.82	1.94
2 .....	159	1.87	1.91	2.03
1 .....	184	1.95	1.98	2.12
1/0 .....	211	2.08	2.10	2.26
2/0 .....	243	2.20	2.20	2.40
3/0 .....	279	2.36	2.36	2.58
4/0 .....	321	2.50	2.50	2.76
250 .....	355	2.69	2.69	
300 .....	398	2.81	2.81	
350 .....	435	2.95	2.95	
500 .....	536	3.31	3.31	

\* These ampacities are based on single isolated conductor in air, operated with open-circuited shield for a 90 °C conductor temperature and an ambient temperature of 40 °C.

\*\* Tolerances for the outside diameter are +8%/- 5%.

[75 FR 17549, Apr. 6, 2010, as amended at 75 FR 20918, Apr. 22, 2010]

APPENDIX II TO SUBPART D OF PART 18  
LIST OF FIGURES

Figure No.	Title
1	Typical layout drawing of a machine.
2	Sample bill of material (to accompany layout drawing shown on figure 1)