ROCKBESTOS WIRE & CABLE CO.

Division of CERRO DE PASCO CORPORATION

NEW HAVEN 4, CONNECTICUT

DISTRICT SALES OFFICES

MAIN OFFICE and FACTORY
Nicoll and Canner Sts.
NEW HAVEN 4, CONN.

NEW YORK 17, N. Y.
Room 2123, Lincoln Bldg.
60 East 42nd St.

CLEVELAND 21, OHIO
2000 Warrensville Center Road

***BURLINGAME, CALIF**
6 Guittard Road

DETROIT 21, MICH.
8830 West McNichols Road

***CHICAGO 24, ILL.**
4534 West Madison St.

LOS ANGELES 5, CAL.
4020 W. Third St.

ST. LOUIS 21, MO.
Lambert—St. Louis Municipal Airport

PITTSBURGH 19, PA.
2520 Koppers Bldg.

***Warehouses:** Chicago, Ill. – Burlingame, California

Manufactured in Canada by Phillips Electrical Company Limited, Brockville, Ontario
Manufactured in Australia by Cables Makers Australia Pty. Ltd., Liverpool, N.S.W. Australia.

ROCKBESTOS WIRE & CABLE CO.
Division of CERRO DE PASCO CORPORATION
NEW HAVEN 4, CONNECTICUT

RBB 03031

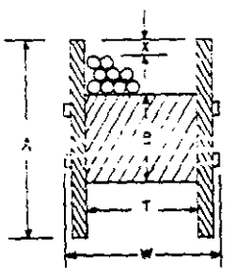
RETURNABLE REEL DATA

REEL DIMENSIONS — INCHES

Flange (A)	42	48	48	60	66	66	72	72
Traverse (T)	12	15	24	32	32	36	36	36
Drum (B)	24	24	24	32	32	40	40	48
Max. Width (W)	18¾	21¾	30½	40½	40½	45	45	45
Vol. Cu. Ft.	19.1	29.0	40.6	84.4	102	114	135	135
Approx. Lbs. Weight — All Wood	130	184	250	500		650	790	820
Approx. Lbs. Weight — Wood-Steel Drum	185		275	500	550	650	790	820

Cable Diam., Inches	Recommended Maximum Capacity — Feet Per Reel							
.300	8080							
.320	7190							
.340	6300							
.360	5670	10714						
.380	4990	9938						
.400	4530	8883						
.420	4100	8129						
.440	3710	7417						
.460	3460	6882						
.480	3170	6133						
.500	2890	5670	9070					
.550	2410	4691	7500					
.600	1980	3910	6260					
.650	1680	3360	5380					
.700	1450	2840	4540	9630				
.750	1300	2490	3980	8490				
.800	1120	2170	3470	7250	9810	9590		8980
.850	976	1910	3060	6440	8300	7800		7950
.900	891	1760	2810	5730	7460	6940		7220
.950	777	1560	2490	5090	6700	6130	8370	6420
1.00	716	1380	2210	4730	6000	5680	7540	5740
1.05	629	1280	2050	4224	5360	5100	6790	5270
1.10	582	1140	1820	3770	5190	4560	6310	4730
1.15	543	1060	1700	3540	4630	4250	5710	4380
1.20	477	946	1510	3180	4110	3810	5170	3950
1.25	445	888	1420	2990	3990	3550	4850	3670
1.30	418	841	1350	2690	3530	3200	4400	3440
1.35	394	747	1190	2540	3440	3020	4150	3120
1.40	345	706	1130	2400	3020	2840	3770	2920
1.45	326	672	1070	2160	2950	2570	3580	2750
1.50	308	594	949	2050	2570	2420	3400	2490
1.55	292	565	905	1950	2510	2300	3070	2360
1.60	278	541	864	1760	2460	2190	2930	2230
1.65	262	516	825	1670	2120	1970	2650	2120
1.70	231	456	728	1600	2080	1880	2540	1920
1.75				1530	2040	1800	2430	1830
1.80				1370	1740	1710	2360	1740
1.85				1320	1710	1550	2110	1660
1.90				1270	1680	1480	2030	1590
2.00				1090	1390	1360	1870	1380
2.10				1010	1350	1260	1630	1260
2.20				938	1100	1090	1520	1170
2.30						1010	1420	1080
2.40						941	1230	941
2.50						880	1160	874
2.60						762	1090	818
2.70						714	1030	764
2.80						671	894	718
2.90								625
3.00								588

MAXIMUM CAPACITY FOR SOLID CONDUCTOR OR LEADED CABLE



X = Clearance between top layer of cable and flange edge.

NOTES:

1. Clearance (X) meets IPCEA Standards on .300" diameter and over.
2. Use max. dia. of cable to determine reel size.
3. All capacities shown in this table meet a recommended drum diameter (B) equal to 14 times the cable diameter. For all leaded and solid conductor AVA cables, the recommended drum diameters (B) are 18 times the cable diameter—see above solid line.
4. All reels with leaded cables (30" flange and larger) to be wood lagged. Lagging adds the following to reel weight:

Size Reel	Wgt. of Lagging Lbs.	Size Reel	Wgt. of Lagging Lbs.
		60x32	210
42x12	80	66x32	240
48x15	90	66x36	270
48x24	101	72x36	300

RBB 03030

BARE COPPER WIRE DATA

ALL DATA TO ASTM B-258
RESISTANCE (BUREAU OF STANDARDS)

Size AWG	Diam. Inches	Circular Mils	LBS/1000'	FT/LB	OHMS/1000' 20°C (68°F)	Size AWG
4/0	.460	211.600	640.5	1.561	.04901	4/0
3/0	.410	167.800	507.9	1.968	.06180	3/0
2/0	.365	133.100	402.8	2.482	.07793	2/0
1/0	.325	105.600	319.5	3.130	.09827	1/0
1	.289	83.690	253.3	3.947	.1239	1
2	.258	66.360	200.9	4.977	.1563	2
3	.229	52.620	159.3	6.276	.1970	3
4	.204	41.740	126.4	7.914	.2485	4
5	.182	33.090	100.2	9.980	.3133	5
6	.162	26.240	79.46	12.58	.3951	6
7	.144	20.820	63.02	15.87	.4982	7
8	.128	16.510	49.98	20.01	.6282	8
9	.114	13.090	39.63	25.23	.7921	9
10	.102	10.380	31.43	31.82	.9989	10
11	.091	8.230	24.92	40.12	1.260	11
12	.081	6.530	19.77	50.59	1.588	12
13	.072	5.180	15.68	63.80	2.003	13
14	.064	4.110	12.43	80.44	2.525	14
15	.057	3.260	9.858	101.4	3.184	15
16	.051	2.580	7.818	127.9	4.016	16
17	.045	2.050	6.200	161.3	5.064	17
18	.040	1.620	4.917	203.4	6.385	18
19	.036	1.290	3.899	256.5	8.051	19
20	.032	1.020	3.092	323.4	10.15	20
21	.028	812	2.452	407.8	12.80	21
22	.025	640	1.945	514.2	16.14	22
23	.0226	511	1.542	648.4	20.36	23
24	.020	404	1.223	817.7	25.67	24
25	.0179	320	.9699	1031.	32.37	25
26	.0159	253	.7692	1300.	40.81	26
27	.0142	202	.6100	1639.	51.47	27
28	.0126	159	.4837	2067.	64.90	28
29	.0113	128	.3836	2607.	81.83	29
30	.010	100	.3042	3287.	103.2	30
31	.0089	79.2	.2413	4145.	130.1	31
32	.0080	64.0	.1913	5227.	164.1	32
33	.0071	50.4	.1517	6591.	206.9	33
34	.0063	39.7	.1203	8310.	260.9	34
35	.0056	31.4	.09542	10480.	329.0	35
36	.0050	25.0	.07568	13210.	414.8	36
37	.0045	20.2	.06001	16660.	523.1	37
38	.0040	16.0	.04759	21010.	659.6	38
39	.0035	12.2	.03774	26500.	831.8	39
40	.0031	9.61	.02993	33410.	1049.	40

RBB 03029

CURRENT RATING CORRECTION FACTORS FOR VARIOUS GROUPINGS OF CABLES OR CONDUITS

(I. P. C. E. A. PUBLICATION No. P-29-226)

These tables list correction factors for the specific groupings of conduits and cables and are applied to current ratings determined by the NEC Tables on pages 70 and 71.

Simply multiply the current rating by the correction factors for the specific groupings of conduits or cables.

For Cables in Conduit—Values of K

Number of Conduits Horizontally	1	2	3	4	5	6
Vertically						
1	1.00	0.94	0.91	0.88	0.87	0.86
2	0.92	0.87	0.84	0.81	0.80	0.79
3	0.85	0.81	0.78	0.76	0.75	0.74
4	0.82	0.78	0.74	0.73	0.72	0.72
5	0.80	0.76	0.72	0.71	0.70	0.70
6	0.79	0.75	0.71	0.70	0.69	0.68

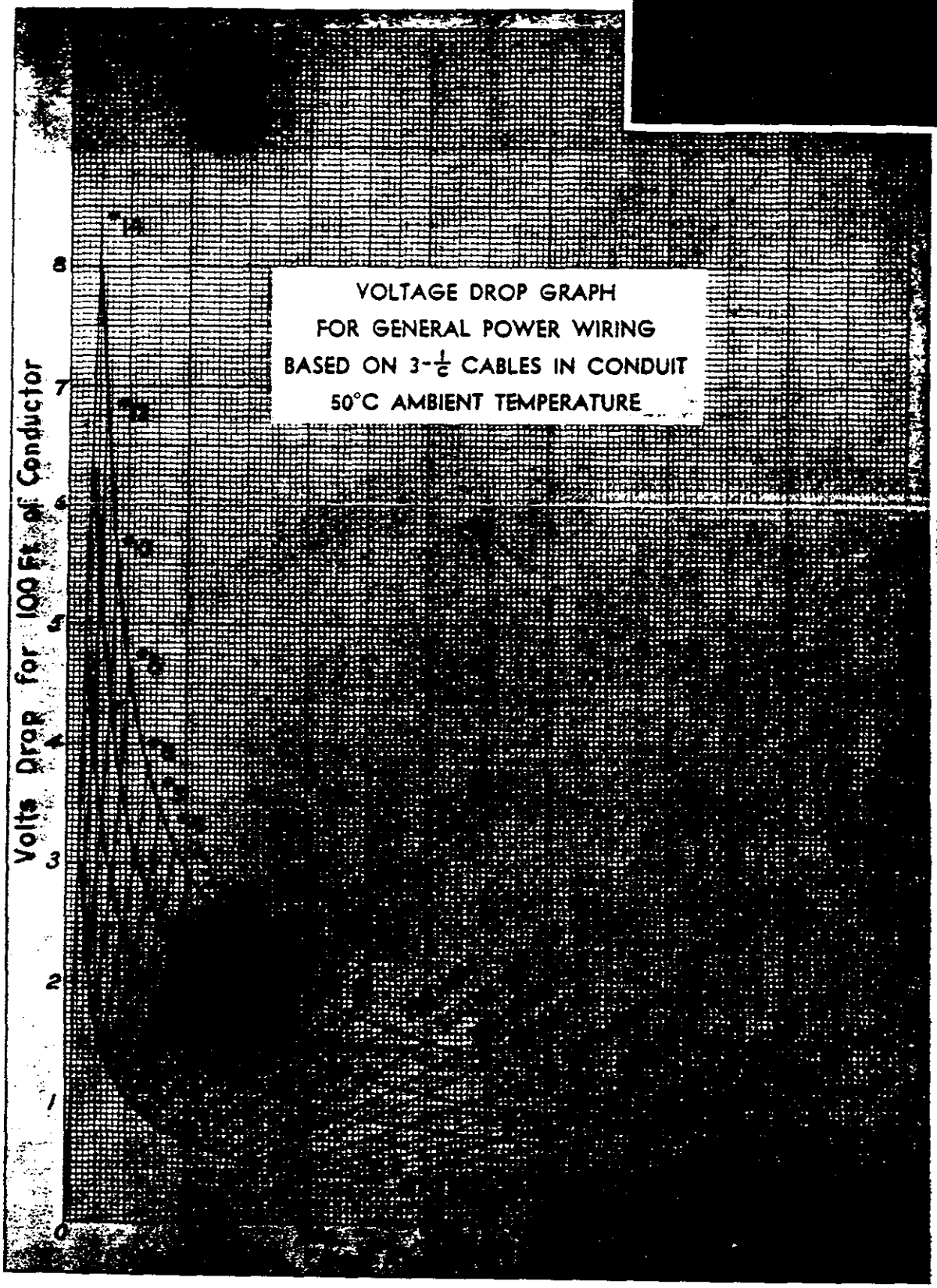
For Cables in Air—Values of K

Number of Cables Horizontally	1	2	3	4	5	6
Vertically						
1	1.00	0.93	0.87	0.84	0.83	0.82
2	0.89	0.83	0.79	0.76	0.75	0.74
3	0.80	0.76	0.72	0.70	0.69	0.68
4	0.77	0.72	0.68	0.67	0.66	0.65
5	0.75	0.70	0.66	0.65	0.64	0.63
6	0.74	0.69	0.64	0.63	0.62	0.61

Note—These correction factors apply only when the spacing between cable or conduit surfaces is not greater than cable or conduit diameter, or less than one-quarter of cable or conduit diameter.

Minimum Bending Radii for Rockbestos Wires and Cables

This catalog shows many "standard" and "special" Rockbestos wires and cables and because both construction and diameter determine the Bending Radius, information on any specific wire or cable will be furnished on request.


VOLTAGE DROP GRAPH
FOR GENERAL POWER WIRING
BASED ON 3-½ CABLES IN CONDUIT
50°C AMBIENT TEMPERATURE
Volts Drop for 100 Ft. of Conductor
8
7
6
5
4
3
2
1
0

RBB 03027

PERMISSIBLE CIRCUIT LENGTH FOR ONE VOLT DROP—100% POWER FACTOR

3 Single Conductor 600 Volt Type AVA Cables in Iron Conduit Carrying Rated Current at 30°C, 40°C, 50°C, 60°C and 70°C Ambient Temperature

(MAXIMUM COPPER TEMPERATURE 110°C)

Cond. Size AWG or MCM	Resistance Ohms per 1000′			Reactance Ohms per 1000′ at 60 cycles Spacing OD + 10%	Circuit Length Single Phase for One Volt Drop (One Wire)									
					30°C Ambient		40°C Ambient		50°C Ambient		60°C Ambient		70°C Ambient	
	AC 60°C	AC 75°C	AC 110°C	Iron Conduit	Rated Current Amperes	Circuit Length Feet	Rated Current Amperes	Circuit Length Feet	Rated Current Amperes	Circuit Length Feet	Rated Current Amperes	Circuit Length Feet	Rated Current Amperes	Circuit Length Feet
14	2.980	3.130	3.480	0570	30	9.5	28	10.5	26	11.0	24	12.0	21	13.5
12	1.880	1.970	2.190	0530	35	13.0	33	14.0	30	15.0	28	16.5	25	18.5
10	1.180	1.238	1.376	0497	45	16.0	42	17.0	39	18.5	36	20.0	32	22.5
8	.742	.780	.866	0465	60	19.0	56	20.0	52	22.0	47	24.0	43	27.0
6	.466	.490	.544	0432	80	22.5	75	24.0	70	26.0	63	28.5	57	32.0
5	.370	.388	.432	0419	95	24.5	89	26.0	83	28.0	75	31.0	68	34.5
4	.293	.308	.342	0407	105	28.0	99	30.0	91	32.0	83	35.5	75	39.5
3	.233	.244	.272	0392	120	31.0	113	33.0	105	35.5	95	39.0	85	43.5
2	.187	.197	.219	0382	135	34.0	127	36.0	118	39.0	107	43.0	96	48
1	.147	.155	.172	0376	160	36.0	150	38.0	139	41.5	127	45.5	114	50
1/0	.118	.124	.138	0548	190	38.0	178	40.5	165	43.5	150	48.0	135	53.5
2/0	.0945	.0995	.110	0533	215	42.0	202	44.5	187	48.0	170	53.0	153	59.0
3/0	.0760	.0798	.0888	0517	245	46.0	230	49.0	213	53.0	194	58.0	174	65.0
4/0	.0608	.0638	.0710	0504	275	51.0	258	54.5	239	58.5	217	65.0	195	72.0
250	.0518	.0545	.0605	0513	315	52.5	296	56.0	274	60.0	249	66.5	224	74.0
300	.0437	.0459	.0510	0505	345	57.0	324	60.5	300	65.0	272	72.0	244	80.0
350	.0378	.0397	.0442	0497	390	58.0	366	61.5	339	66.5	308	73.5	277	82.0
400	.0338	.0355	.0395	0488	420	60.5	395	64.5	366	69.5	331	76.5	298	85.0
500	.0277	.0291	.0323	0476	470	66.0	442	70.0	409	76.0	371	83.5	333	93.0
600	.0237	.0249	.0277	0466	525	69.0	493	73.0	457	79.0	415	87.5	372	97.0
700	.0208	.0218	.0242	0459	560	74.0	526	78.5	487	85.0	443	94.0	397	104.0
750	.0197	.0208	[illegible]	0456	580	75.0	545	80.0	509	86.0	458	95.0	412	106.0
800	.0187	.0197	[illegible]	0455	600	76.5	564	81.5	522	88.0	474	97.0	426	108.0
1000	.0158	.0166	[illegible]	0446	680	80.0	640	85.0	592	92.0	538	101.0	483	112.0

All circuit lengths and voltage drops calculated on basis reactance is increased 50% on Sizes #1/0 and larger due to iron conduit.

Circuit lengths in above table based on 110°C copper temperature.

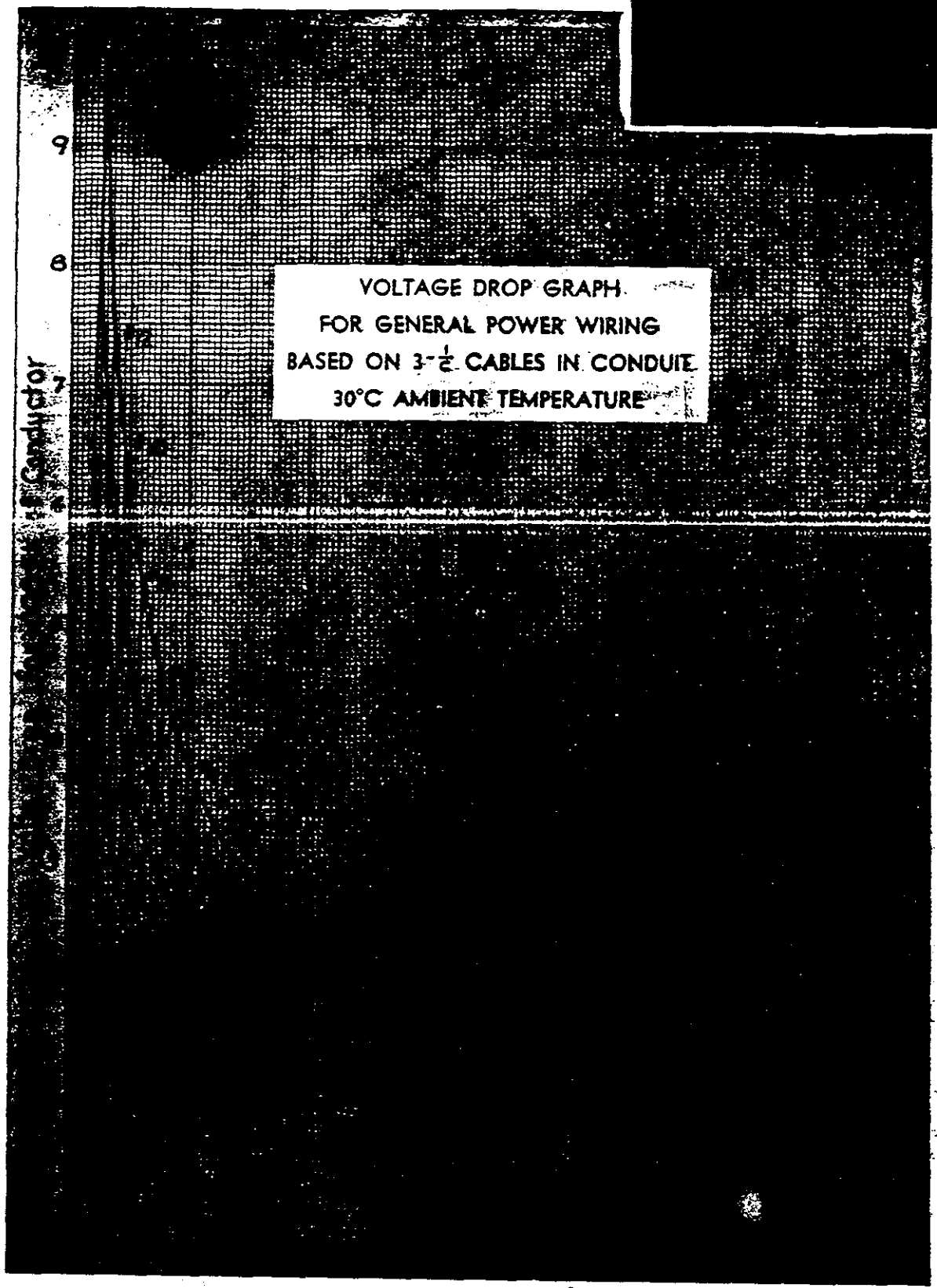
Circuit lengths and volts drop shown are for one wire only.

For other circuits: *Divide* the *circuit length* in table by factor shown below

***Multiply* the volts drop in graphs on pages 75 and 77 by factor shown below**

2 wire single phase Factor = 2

Three phase circuit Factor = 1.73


VOLTAGE DROP GRAPH
FOR GENERAL POWER WIRING
BASED ON 3-½ CABLES IN CONDUIT
30°C AMBIENT TEMPERATURE

PERMISSIBLE CIRCUIT LENGTHS
CALCULATION OF VOLTAGE DROP

USE OF TABLE AND GRAPHS

Example 1—To find permissible circuit length for a #4 AWG lighting feeder, 3 wire single phase, to carry 100 amperes at 30°C ambient and not to exceed 1 percent voltage drop:

120 volts x 1% = 1.2 volts, permissible drop. Refer to graph for 30°C ambient. Find the intersection of 100 amperes and #4 AWG. From this point move horizontally to the left and read a drop of 3.15 volts for 100 feet of conductor.

$\frac{1.2}{3.15} \times 100 = 38$ feet permissible circuit length.

Example 2—For the same circuit length, voltage and load as in Example 1 find the required conductor size for 50°C ambient: From the graph on page 77 for 50°C ambient note that #3 AWG is the smallest cable that can carry 100 amperes at 50°C. From the intersection of 100 amperes and #3 AWG move horizontally to the left. The voltage drop for this combination of load and conductor size is 2.70 volts per 100 feet. $\frac{1.2}{2.70} \times 100 = 44$ feet. Therefore, #3 AWG is satisfactory for this requirement.

FOR OTHER THAN RATED LOADS

The table on page 76 shows permissible circuit lengths for rated load only. An approximation may be made for other currents by multiplying by the ratio of the currents. For more accurate results the graph should be used.

FOR OTHER THAN 100% POWER FACTOR

Table—page 76—Divide the circuit length from the table by the factor given in the POWER FACTOR CORRECTION TABLE for 110°C. Conductor temperature for the desired power factor.

Graphs—Locate the intersection of load amperes and conductor size. Note approximate conductor temperature. At the left read volts drop. Multiply the volts drop by the POWER FACTOR CORRECTION factor for the indicated conductor temperature. Where necessary interpolate the factor between temperatures listed or use factor for next lower temperature below that read from graph.

Example 3—To find proper conductor size for 325 foot power circuit 440 volt 3 phase, 325 amperes, 80% power factor, 30°C ambient, voltage drop not to exceed 3%: Permissible voltage drop is 440 x .03 = 13.2 volts phase to phase. From graph for 30°C ambient note that 300-MCM is smallest conductor that can carry 325 amperes. From intersection of 325 amperes and 300 MCM read 1.62 volts drop per 100 feet of conductor at 100% power factor. Conductor will be operating at approximately 95°C. From the POWER FACTOR CORRECTION TABLE for 80% power factor, interpolate the factor for 95°C = 1.41. The voltage drop at 80% power factor would be: 1.62 x 1.41 x 3.25 (number of hundred feet of circuit) x 1.73 (since this is a 3 phase circuit) = 12.84 volts. This is less than the 13.2 volts drop phase to phase permitted; therefore, 300 MCM meets the requirements of the circuit.

POWER FACTOR CORRECTION FACTORS (Based on Conductor Temperatures)

Conductor Size AWG or MCM	90% Power Factor			80% Power Factor			70% Power Factor			60% Power Factor		
	Conductor Temperature											
	60°C	75°C	110°C	60°C	75°C	110°C	60°C	75°C	110°C	60°C	75°C	110°C
14	.91	.91	.91	.81	.81	.81	.72	.72	.72	.61	.61	.61
12	.91	.91	.91	.81	.81	.81	.72	.72	.72	.62	.62	.62
10	.92	.91	.91	.82	.82	.82	.73	.73	.73	.63	.63	.63
8	.92	.92	.92	.83	.83	.83	.74	.74	.74	.64	.64	.64
6	.94	.94	.94	.85	.85	.85	.77	.77	.76	.67	.67	.66
5	.95	.95	.95	.87	.87	.86	.79	.78	.77	.69	.69	.68
4	.96	.96	.95	.88	.88	.87	.81	.80	.79	.71	.71	.69
3	.97	.97	.96	.90	.90	.89	.83	.82	.81	.74	.73	.72
2	.99	.99	.98	.93	.92	.91	.85	.84	.83	.77	.76	.74
1	1.02	1.01	1.00	.95	.95	.93	.88	.87	.86	.81	.79	.77
1/0	1.10	1.10	1.07	1.08	1.06	1.04	1.03	1.02	.99	.97	.95	.92
2/0	1.14	1.14	1.12	1.14	1.12	1.09	1.10	1.08	1.04	1.05	1.03	.98
3/0	1.20	1.18	1.16	1.20	1.19	1.15	1.19	1.16	1.12	1.15	1.12	1.06
4/0	1.26	1.25	1.21	1.30	1.28	1.22	1.30	1.27	1.20	1.26	1.24	1.17
250	1.32	1.30	1.28	1.38	1.35	1.31	1.38	1.35	1.30	1.37	1.33	1.28
300	1.39	1.37	1.34	1.48	1.44	1.39	1.51	1.47	1.40	1.51	1.47	1.39
350	1.46	1.43	1.40	1.57	1.53	1.47	1.61	1.57	1.50	1.63	1.58	1.50
400	1.52	1.49	1.45	1.65	1.61	1.54	1.71	1.66	1.58	1.74	1.68	1.59
500	1.63	1.60	1.55	1.82	1.76	1.69	1.90	1.84	1.74	1.95	1.88	1.78
600	1.76	1.72	1.65	1.98	1.93	1.81	2.10	2.03	1.90	2.18	2.10	1.94
700	1.87	1.82	1.74	2.13	2.07	1.93	2.27	2.20	2.04	2.38	2.30	2.11
800	1.96	1.90	1.83	2.26	2.18	2.04	2.42	2.33	2.17	2.54	2.44	2.26
1000	2.13	2.07	1.98	2.50	2.42	2.25	2.70	2.61	2.42	2.87	2.76	2.54

CONDUIT SIZE TABLES

TABLE EL — LEAD SHEATHED A.V.C. POWER CABLE

Cable Size	Cable Diam. Inches	No. Cables in Conduit			
		1	2	3	4
		Minimum Size of Conduit			
18	.270	1/2	3/4	3/4	1
16	.285	1/2	3/4	3/4	1
14	.300	1/2	3/4	3/4	1
12	.320	1/2	1	1	1
10	.340	1/2	1	1	1 1/4
8	.370	1/2	1	1	1 1/4
6	.420	1/2	1 1/4	1 1/4	1 1/4
5	.440	1/2	1 1/4	1 1/4	1 1/2
4	.470	3/4	1 1/4	1 1/4	1 1/2
3	.495	3/4	1 1/4	1 1/4	1 1/2
2	.560	3/4	1 1/2	1 1/2	2
1	.620	1	1 1/2	2	2
1/0	.660	1	2	2	2 1/2
2/0	.705	1	2	2	2 1/2
3/0	.760	1	2	2 1/2	2 1/2
4/0	.815	1 1/4	2 1/2	2 1/2	3
250	.945	1 1/4	2 1/2	3	3
300	1.000	1 1/4	3	3	3 1/2
350	1.050	1 1/2	3	3	3 1/2
400	1.095	1 1/2	3	3	4
450	1.140	1 1/2	3	3 1/2	4
500	1.180	1 1/2	3	3 1/2	4
550	1.265	2	3 1/2	3 1/2	4 1/2
600	1.300	2	3 1/2	4	4 1/2
650	1.340	2	3 1/2	4	4 1/2
700	1.375	2	3 1/2	4	4 1/2
750	1.405	2	4	4	5
800	1.440	2	4	4	5
850	1.470	2	4	4	5
900	1.500	2	4	4 1/2	5
950	1.530	2	4	4 1/2	5
1000	1.560	2 1/2	4 1/2	4 1/2	6
1250	1.770	2 1/2	5	5	6
1500	1.890	3	5	6	—
1750	2.005	3	6	6	—
2000	2.110	3	6	6	—

TABLE CL — LEAD SHEATHED A.V.C. LIGHTING WIRE

Cable Size	Cable Diam. Inches	No. Cables in Conduit			
		1	2	3	4
		Minimum Size of Conduit			
18	.245	1/2	3/4	3/4	3/4
16	.255	1/2	3/4	3/4	1
14	.270	1/2	3/4	3/4	1
12	.285	1/2	3/4	3/4	1
10	.310	1/2	3/4	1	1
8	.355	1/2	1	1	1 1/4
6	.400	1/2	1	1 1/4	1 1/4
5	.420	1/2	1 1/4	1 1/4	1 1/4
4	.440	1/2	1 1/4	1 1/4	1 1/2
3	.465	3/4	1 1/4	1 1/4	1 1/2
2	.495	3/4	1 1/4	1 1/4	1 1/2
1	.575	3/4	1 1/2	1 1/2	2
1/0	.610	1	1 1/2	2	2
2/0	.650	1	2	2	2 1/2
3/0	.695	1	2	2	2 1/2
4/0	.745	1	2	2	2 1/2

COMBINATIONS OF CONDUCTORS

TABLE NO. 3 NEC Per Cent Area of Conduit or Tubing

	Number of Conductors				
	1	2	3	4	Over 4
Conductors (not lead covered)....	53	31	43	40	40
Lead-Covered conductors	55	30	40	38	35
For rewiring existing raceways for increased load where it is impracticable to increase the size of the raceway due to structural conditions	60	40	50	50	50

MAXIMUM CABLE DIAMETERS FOR PERMISSIBLE CONDUIT FILL

Conduit Size Inches	NOT LEAD COVERED				LEAD COVERED				REWIRING			
	No. Cables per Conduit				No. Cables per Conduit				No. Cables per Conduit			
	1	2	3	4	1	2	3	4	1	2	3	4
1/2	.450	.243	.234	.195	.458	.239	.225	.190	.479	.276	.252	.218
3/4	.598	.323	.311	.260	.609	.318	.300	.253	.636	.367	.335	.290
1	.762	.412	.396	.331	.776	.405	.382	.322	.811	.468	.427	.370
1 1/4	1.000	.543	.523	.437	1.025	.535	.505	.426	1.070	.618	.564	.489
1 1/2	1.170	.634	.610	.510	1.195	.624	.588	.496	1.248	.721	.658	.570
2	1.505	.814	.783	.654	1.535	.801	.755	.637	1.602	.925	.844	.731
2 1/2	1.795	.972	.935	.781	1.832	.956	.902	.761	1.913	1.105	1.008	.873
3	2.232	1.206	1.161	.969	2.275	1.187	1.120	.945	2.375	1.371	1.251	1.084
3 1/2	2.585	1.398	1.345	1.123	2.635	1.375	1.295	1.094	2.750	1:588	1.450	1.255
4	2.930	1.585	1.524	1.273	2.985	1.559	1.470	1.240	3.118	1.800	1.643	1.423
4 1/2	3.281	1.776	1.706	1.425	3.345	1.745	1.646	1.389	3.490	2.015	1.840	1.593
5	3.675	1.987	1.910	1.596	3.745	1.955	1.843	1.555	3.910	2.257	2.060	1.784
6	4.415	2.390	2.296	1.920	4.500	2.350	2.215	1.870	4.700	2.715	2.480	2.145

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CONDUIT SIZE TABLES

Percent Occupancy Allowed by NEC.
(For Rewiring see page 73)

TABLE C 600 VOLT A.V.C. LIGHTING WIRE

Cable Size	Cable Diam. Inches	Number of Cables in Conduit								
		1	2	3	4	5	6	7	8	9
		Minimum Size of Conduit								
18	.220	1/2	1/2	1/2	3/4	3/4	1	1	1	1
16	.235	1/2	1/2	3/4	3/4	1	1	1	1 1/4	1 1/4
14	.245	1/2	3/4	3/4	3/4	1	1	1	1 1/4	1 1/4
12	.265	1/2	3/4	3/4	1	1	1	1 1/4	1 1/4	1 1/4
10	.285	1/2	3/4	3/4	1	1	1 1/4	1 1/4	1 1/4	1 1/4
8	.310	1/2	3/4	3/4	1	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2
6	.385	1/2	1	1	1 1/4	1 1/4	1 1/2	1 1/2	2	2
5	.405	1/2	1	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2
4	.425	1/2	1 1/4	1 1/4	1 1/4	1 1/2	2	2	2	2
3	.450	1/2	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2	2 1/2
2	.480	3/4	1 1/4	1 1/4	1 1/2	2	2	2	2 1/2	2 1/2
1	.540	3/4	1 1/4	1 1/2	2	2	2 1/2	2 1/2	2 1/2	3
1/0	.575	3/4	1 1/2	1 1/2	2	2	2 1/2	2 1/2	3	3
2/0	.615	1	1 1/2	2	2	2 1/2	2 1/2	3	3	3
3/0	.660	1	2	2	2 1/2	2 1/2	3	3	3	3 1/2
4/0	.710	1	2	2	2 1/2	3	3	3	3 1/2	3 1/2

TABLE E 600 VOLT A.V.C. POWER CABLE

Cable Size	Cable Diam. Inches	Number of Cables in Conduit								
		1	2	3	4	5	6	7	8	9
		Minimum Size of Conduit								
18	.235	1/2	1/2	3/4	3/4	1	1	1	1 1/4	1 1/4
16	.250	1/2	3/4	3/4	3/4	1	1	1	1 1/4	1 1/4
14	.265	1/2	3/4	3/4	1	1	1	1 1/4	1 1/4	1 1/4
12	.285	1/2	3/4	3/4	1	1	1 1/4	1 1/4	1 1/4	1 1/4
10	.310	1/2	3/4	3/4	1	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2
8	.350	1/2	1	1	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	2
6	.405	1/2	1	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2
5	.430	1/2	1 1/4	1 1/4	1 1/4	1 1/2	2	2	2	2
4	.455	3/4	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2	2 1/2
3	.480	3/4	1 1/4	1 1/4	1 1/2	2	2	2	2 1/2	2 1/2
2	.515	3/4	1 1/4	1 1/4	2	2	2	2 1/2	2 1/2	2 1/2
1	.585	3/4	1 1/2	1 1/2	2	2	2 1/2	2 1/2	3	3
1/0	.625	1	1 1/2	2	2	2 1/2	2 1/2	3	3	3
2/0	.670	1	2	2	2 1/2	2 1/2	3	3	3	3 1/2
3/0	.720	1	2	2	2 1/2	3	3	3	3 1/2	3 1/2
4/0	.780	1 1/4	2	2	2 1/2	3	3	3 1/2	3 1/2	4
250	.875	1 1/4	2 1/2	2 1/2	3	3 1/2	3 1/2	4	4	4 1/2
300	.930	1 1/4	2 1/2	2 1/2	3	3 1/2	4	4	4 1/2	4 1/2
350	.985	1 1/4	3	3	3 1/2	3 1/2	4	4 1/2	4 1/2	5
400	1.030	1 1/2	3	3	3 1/2	4	4	4 1/2	5	5
450	1.075	1 1/2	3	3	3 1/2	4	4 1/2	4 1/2	5	6
500	1.115	1 1/2	3	3	3 1/2	4	4 1/2	5	5	6
550	1.165	1 1/2	3	3 1/2	4	4 1/2	5	5	6	6
600	1.205	2	3	3 1/2	4	4 1/2	5	5	6	6
650	1.240	2	3 1/2	3 1/2	4	4 1/2	5	6	6	6
700	1.275	2	3 1/2	3 1/2	4 1/2	4 1/2	5	6	6	6
750	1.310	2	3 1/2	3 1/2	4 1/2	5	6	6	6	—
800	1.345	2	3 1/2	3 1/2	4 1/2	5	6	6	6	—
850	1.375	2	3 1/2	4	4 1/2	5	6	6	—	—
900	1.405	2	4	4	4 1/2	5	6	6	—	—
950	1.435	2	4	4	5	6	6	6	—	—
1000	1.465	2	4	4	5	6	6	—	—	—
1250	1.640	2 1/2	4 1/2	4 1/2	6	6	—	—	—	—
1500	1.765	2 1/2	4 1/2	5	6	—	—	—	—	—
1750	1.880	3	5	5	6	—	—	—	—	—
2000	1.985	3	5	6	—	—	—	—	—	—

NEC CURRENT CARRYING CAPACITIES

3 - SINGLE CONDUCTOR CABLES IN CONDUIT

WITH CORRECTION FACTORS APPLIED
FOR 40°C, 55°C and 80°C AMBIENT

TABLE OF CURRENT CARRYING CAPACITIES

AMBIENT TEMPERATURE 30°C—86°F

Size		Type			
AWG	CM	AVA	R	RH	V
14	4107	30	15	15	25
12	6530	35	20	20	30
10	10380	45	30	30	40
8	16510	60	40	45	50
6	25250	80	55	65	70
4	41740	105	70	85	90
3	52640	120	80	100	105
2	66370	135	95	115	120
1	83690	160	110	130	140
0	105500	190	125	150	155
00	133100	215	145	175	185
000	167800	245	165	200	210
0000	211600	275	195	230	235
	250000	315	215	255	270
	300000	345	240	285	300
	350000	390	260	310	325
	400000	420	280	335	360
	500000	470	320	380	405
	600000	525	355	420	455
	700000	560	385	460	490
	750000	580	400	475	500
	800000	600	410	490	515
	1000000	680	455	545	585

TABLE OF CURRENT CARRYING CAPACITIES

AMBIENT TEMPERATURE 40°C—104°F

Size		Type			
AWG	CM	AVA	R	RH	V
14	4107	28	12	13	23
12	6530	33	16	18	27
10	10380	42	25	26	36
8	16510	56	33	40	45
6	25250	75	45	57	63
4	41740	99	57	75	81
3	52640	113	66	88	95
2	66370	127	78	101	108
1	83690	150	90	114	126
0	105500	179	103	132	140
00	133100	202	119	154	167
000	167800	230	135	176	189
0000	211600	259	160	202	212
	250000	296	176	224	243
	300000	325	197	251	270
	350000	367	213	273	293
	400000	395	230	295	324
	500000	442	262	334	365
	600000	494	291	370	410
	700000	526	316	405	441
	750000	545	328	418	450
	800000	564	336	431	464
	1000000	639	373	480	527

TABLE OF CURRENT CARRYING CAPACITIES

AMBIENT TEMPERATURE 55°C—131°F

Size		Type			
AWG	CM	AVA	R	RH	V
14	4107	25	6	10	19
12	6530	29	8	13	22
10	10380	37	12	20	30
8	16510	50	16	30	37
6	25250	66	23	44	52
4	41740	87	29	57	67
3	52640	100	33	67	78
2	66370	112	39	77	89
1	83690	133	45	87	104
0	105500	158	51	101	115
00	133100	178	59	117	137
000	167800	203	68	134	155
0000	211600	228	80	154	174
	250000	261	88	171	200
	300000	286	98	191	222
	350000	324	107	208	241
	400000	349	115	224	266
	500000	390	131	255	300
	600000	436	146	281	337
	700000	465	158	308	363
	750000	481	164	318	370
	800000	498	168	328	381
	1000000	564	187	365	433

TABLE OF CURRENT CARRYING CAPACITIES

AMBIENT TEMPERATURE 80°C—176°F

Size		Type			
AWG	CM	AVA	R	RH	V
14	4107	18			8
12	6530	21			9
10	10380	27			12
8	16510	37			15
6	25250	49			21
4	41740	64			27
3	52640	73			32
2	66370	82			36
1	83690	98			42
0	105500	116			47
00	133100	131			56
000	167800	149			63
0000	211600	168			71
	250000	192			81
	300000	210			90
	350000	238			98
	400000	256			108
	500000	287			122
	600000	320			137
	700000	342			147
	750000	354			150
	800000	366			155
	1000000	415			176

No Rating as Ambient in Excess of Allowable Copper Temperature

No Rating as Ambient in Excess of Allowable Copper Temperature

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ALLOWABLE CURRENT-CARRYING CAPACITIES OF INSULATED COPPER CONDUCTORS IN AMPERES

(Based on Room Temperature of 30°C. 86°F)

NATIONAL ELECTRICAL CODE—TABLE 310-12

Not more than three conductors in Raceway or Cable or Direct Burial

Size AWG MCM	Rubber Type R, Type RW, Type RU, Type RUW (14-2), Type RH-RW See note 9, Thermoplastic Type T, Type TW	Rubber Type RH, RUH (14-2), Type RH-RW See note 9, Type RHW Thermoplastic Type THW	Paper Thermoplastic Asbestos Type TA, SA, Type V, Asbestos Var-Cam Type AVB, MI Cable RHH*	Asbestos Var-Cam Type AVA, Type AVL	Impregnated Asbestos Type AI (14-8) Type AIA	Asbestos Type A (14-8) Type AA
14	15	15	25	30	30	30
12	20	20	30	35	40	40
10	30	30	40	45	50	55
8	40	45	50	60	65	70
6	55	65	70	80	85	95
4	70	85	90	105	115	120
3	80	100	105	120	130	145
2	95	115	120	135	145	165
1	110	130	140	160	170	190
0	125	150	155	190	200	225
00	145	175	185	215	230	260
000	165	200	210	245	265	285
0000	195	230	235	275	310	340
250	215	255	270	315	335	...
300	240	285	300	345	380	...
350	260	310	325	390	420	...
400	280	335	360	420	450	...
500	320	380	405	470	500	...
600	355	420	455	525	545	...
700	385	460	490	560	600	...
750	400	475	500	580	620	...
800	410	490	515	600	640	...
900	435	520	555	...	...	...
1,000	455	545	585	680	730	...
1,250	495	590	645	...	...	...
1,500	520	625	700	785	...	...
1,750	545	650	735	...	...	...
2,000	560	665	775	840	...	...

CORRECTION FACTOR FOR ROOM TEMPERATURES OVER 30°C. 86°F.

C	F						
40	104	.82	.88	.90	.94	.95	...
45	113	.71	.82	.85	.90	.92	...
50	122	.58	.75	.80	.87	.89	...
55	131	.41	.67	.74	.83	.86	...
60	140	...	.58	.67	.79	.83	.91
70	158	...	.35	.52	.71	.76	.87
75	167	...	...	.43	.66	.72	.86
80	176	...	...	.30	.61	.69	.84
90	194	...	...	...	.50	.61	.80
100	212	...	...	...	...	.51	.77
120	248	...	...	...	...	...	.69
140	284	...	...	...	...	...	.59

NATIONAL ELECTRICAL CODE—TABLE 310-13

Single conductor in free Air

Size AWG MCM	Rubber Type R, Type RW, Type RU, Type RUW (14-2), Type RH-RW See note 9, Thermoplastic Type T, Type TW	Rubber Type RH, RUH (14-2), Type RH-RW See note 9, Type RHW Thermoplastic Type THW	Thermoplastic Asbestos Type TA, SA, Type V, Asbestos Var-Cam Type AVB, MI Cable RHH*	Asbestos Var-Cam Type AVA, Type AVL	Impregnated Asbestos Type AI (14-8) Type AIA	Asbestos Type A (14-8) Type AA	Slow-Burning Type SB
14	20	20	30	40	40	45	30
12	25	25	40	50	50	55	40
10	40	40	55	65	70	75	55
8	55	65	70	85	90	100	70
6	80	95	100	120	125	135	100
4	105	125	135	160	170	180	130
3	120	145	155	180	195	210	150
2	140	170	180	210	225	240	175
1	165	195	210	245	265	280	205
0	195	230	245	285	305	325	235
00	225	265	285	330	355	370	275
000	260	310	330	385	410	430	320
0000	300	360	385	445	475	510	370
250	340	405	425	495	530	...	410
300	375	445	480	555	590	...	460
350	420	505	530	610	655	...	510
400	455	545	575	665	710	...	555
500	515	620	660	765	815	...	630
600	575	690	740	855	910	...	710
700	630	755	815	940	1005	...	780
750	655	785	845	980	1045	...	810
800	680	815	880	1020	1085	...	845
900	730	870	940	....	....	...	905
1000	780	935	1000	1165	1240	...	965
1250	890	1065	1130	....	....	....	....
1500	980	1175	1260	1450	....	...	1215
1750	1070	1280	1370	....	....	....	....
2000	1155	1385	1470	1715	....	...	1405

CORRECTION FACTOR FOR ROOM TEMPERATURES OVER 30°C. 86°F.

C	F							
40	104	.82	.88	.90	.94	.95	....	....
45	113	.71	.82	.85	.90	.92	....	....
50	122	.58	.75	.80	.87	.89	....	....
55	131	.41	.67	.74	.83	.86	....	....
60	140	....	.58	.67	.79	.83	.91	....
70	158	....	.35	.52	.71	.76	.87	....
75	167	....	....	.43	.66	.72	.86	....
80	176	....	....	.30	.61	.69	.84	....
90	194	....	....	....	.50	.61	.80	....
100	212	....	....	....	....	.51	.77	....
120	248	....	....	....	....	....	.69	....
140	284	....	....	....	....	....	.59	....

*The current-carrying capacities for Type RHH conductors for sizes AWG 14, 12 and 10 shall be the same as designated for Type RH conductors in this Table.

NATIONAL ELECTRICAL CODE (NOTES TO TABLES 310-12 and 310-13)

1. **Explanation of Tables.** For explanation of Type Letters, and for recognized size of conductors for the various conductor insulations, see Sections 310-2 and 310-3. For installation requirements, see Section 310-1 through 310-7, and the various Articles of this Code. For flexible cords see Tables 400-9 and 400-11.

2. **Application of Tables.** For open wiring on insulators and for concealed knob-and-tube work, the allowable current-carrying capacities of Tables 310-13 and 310-15 shall be used. For all other recognized wiring methods, the allowable current-carrying capacities of Tables 310-12 and 310-14 shall be used, unless otherwise provided in this Code.

3. **Aluminum Conductors.** For aluminum conductors, the allowable current-carrying capacities shall be in accordance with Tables 310-14 and 310-15.

4. **Bare Conductors.** Where bare conductors are used with insulated conductors, their allowable current-carrying capacity shall be limited to that permitted for the insulated conductors of the same size.

5. **Type MI Cable.** The temperature limitation on which the current-carrying capacities of Type MI cable are based, is determined by the insulating materials used in the end seal. Termination fittings incorporating unimpregnated organic insulating materials are limited to 85°C. operation.

6. **Ultimate Insulation Temperature.** In no case shall conductors be associated together in such a way with respect to the kind of circuit, the wiring method employed, or the number of conductors, that the limiting temperature of the conductors will be exceeded.

7. **Use of Conductors With Higher Operating Temperatures.** Where the room temperature is within 10 degrees C of the maximum allowable operating temperature of the insulation, it is desirable to use an insulation with a higher maximum allowable operating temperature; although insulation can be used in a room temperature approaching its maximum allowable operating temperature limit if the current is reduced in accordance with the Correction Factors for different room temperatures.

8. **More Than Three Conductors in a Raceway or Cable.** Tables 310-12 and 310-14 give the allowable current-carrying capacities for not more than three conductors in a raceway or cable. Where the number of conductors in a raceway or cable exceeds three, the allowable current-carrying capacity of each conductor shall be reduced as shown in the following Table:

Number of Conductors	Per Cent of Values in Tables 310-12 and 310-14
4 to 6	80
7 to 24	70
25 to 42	60
43 and above	50

Exception—When conductors of different systems, as provided in Section 300-3, are installed in a common raceway the derating factors shown above apply to the number of Power and Lighting (Articles 210, 215, 220 and 230) conductors only.

9. **Where Type RH-RW** rubber insulated wire is used in wet locations the allowable current-carrying capacities shall be that of Column 2 in Tables 310-12 through 310-15. Where used in dry locations the allowable current-carrying capacities shall be that of Column 3 in Tables 310-12 through 310-15.

10. **Overcurrent Protection.** Where the standard ratings and settings of overcurrent devices do not correspond with the ratings and settings allowed for conductors, the next higher standard rating and setting may be used.

11. **Neutral Conductor.** A neutral conductor which carries only the unbalanced current from other conductors, as in the case of normally balanced circuits of three or more conductors, shall not be counted in determining current-carrying capacities as provided for in Note 8.

In a 3-wire circuit consisting of two phase wires and the neutral of a 4-wire, 3-phase system, a common conductor carries approximately the same current as the other conductors and is not therefore considered as a neutral conductor.

12. **Voltage Drop.** The allowable current-carrying capacities in Tables 310-12 through 310-15 are based on temperature alone and do not take voltage drop into consideration.

13. **Deterioration of Insulation.** It should be noted that even the best grades of rubber insulation will deteriorate in time, so eventually will need to be replaced.

SWITCHBOARD WIRES and FULL REEL TESTS

SPECIAL TESTS FOR SWITCHBOARD WIRES

(IPCEA Standard S-28-357) (NEMA Standard WC-1-55)

Type	Page	Description	Rated Voltage	Initial Dielectric Tests: Period of Test Voltage Application Minutes	Initial Dielectric Tests: Test potentials (KV) to be applied to sizes: 18-8 AWG	6-2 AWG	1-4/0 AWG	Standard Flame Resistance Test NEMA AVC 6-78B	Dielectric Failure Test NEMA AVC 6-80D1	Leakage Resistance Test NEMA AVC 6-80D2	Bend—Dielectr Test NEMA AVC 6-8
AVB	38	Switchboard Wire	600	5	3.0	4.0	4.0	X	Shall withstand not less than 15,000 volts conductor to metal foil on an unbent sample. Voltage raised at uniform rate of from 500 to 1000 volts per second.	Sample with ends sealed and foil bands 2" apart exposed 16 hours at temperature not less than 25°C in closed chamber containing open vessel of water. Removed and 200 volts D.C. immediately applied between bands. Leakage resistance shall be not less than 1 megohm per inch length per inch of circumference.	Two 90° bends o 15" sample in same plane 2" ap around mandrel h ing same diameter sample. No rupt of covering and st not break down less than 5000 v conductor to me foil, filings or st Voltage raised at u form rate of fr 500 to 1000 v per second. Test required o of sizes 8 AWG smaller.
AVB	39	Hinge Cable	600	5	3.0	—	—	X			
TA	42	Switchboard Wire	600	5	3.0	4.0	5.0	X			
TA	42	Hinge Cable	600	5	3.0	4.0	5.0	X			

TESTS TO BE MADE ON EACH FULL REEL LENGTH

(IPCEA Standard S-28-357) (NEMA Standard WC-1-55)

Type	Page	Description	Conductors: Single	Conductors: Multi-Conductor	Lead Sheath	Rated Voltage	Full Reel Dielectr Test NEMA AVC 6-80. and A4 *Test Voltage (K
AVL	26	Lighting Wire	X	—	X	600	1.5
AVA	20-21	Control Cable	—	X	—	600	1.5
AVL	34-35	Control Cable	X	X	X	600	1.5
AVL	27-29	Power Cable	X	—	X	600	1.5
	31-33	3/C Power Cable	—	X	X	1000	2.5
or						2000	5.0
						3000	7.5
AVA	23-25	3/C Power Cable	—	X	—	4000	10.0
						5000	12.5
None	49	2/C-3/C All-asbestos Flexible Cord	—	X	—	300	0.75
None	19	2/C-3/C AVC Flexible Cord	—	X	—	600	1.5

*On Type AVL Single Conductor Cables voltage shall be applied for 5 minutes between conductor and lead sheath.
On Type AVL Multi-Conductor Cables voltage shall be applied for 5 minutes between conductors and between the outer layer of conductors and lead sheath.
On Type AVA Multi-Conductor Cables voltage shall be applied for 5 minutes between conductors.

(IPCEA STANDARD S-28-357) (NEMA Standard WC-1-55)

Type	Pages	Description	Rated Voltage	Initial Dielectric Tests—(Kilovolts)* NEMA AVC 6-80A: Test Period Minutes	All Sizes	18-16 AWG	14-4/0 AWG	250-1000 MCM	Above 1000 MCM	Standard Flame Resistance Test NEMA AVC 6-78B	1 Minute Dielectric Tests (kv): **After Flame NEMA AVC 6-80B	***After Immersion NEMA AVC 6-80C
AVA	13	Lighting Wire	600	5	—	3.0	3.0	—	—	X	0.9	1.2
"	15	1/C Power Cable	600	5	—	3.0	3.0	4.0	5.0	X	0.9	1.2
"	15	" " "	1000	5	—	—	4.5	4.5	—	X	1.5	2.0
"	16	" " "	2000	5	—	—	6.0	6.0	—	X	3.0	4.0
"	16	" " "	3000	5	—	—	8.0	8.0	—	X	4.5	6.0
"	17	" " "	4000	5	—	—	10.0	10.0	—	X	6.0	8.0
"	17	" " "	5000	5	—	—	12.5	12.5	—	X	7.5	10.0
"	20	Motor Lead & Apparatus Cable	...	5	...	...	...	...	—	X	0.9	1.2
"	21	Control Cable	600	5	3.0	—	—	—	—	X	0.9	1.2
"	23	3/C Power Cable	600	5	—	—	3.0	4.0	—	X	0.9	1.2
"	23	" " "	1000	5	—	—	4.5	4.5	—	X	1.5	2.0
"	24	" " "	2000	5	—	—	6.0	6.0	—	X	3.0	4.0
"	24	" " "	3000	5	—	—	8.0	8.0	—	X	4.5	6.0
"	25	" " "	4000	5	—	—	10.0	10.0	—	X	6.0	8.0
"	25	" " "	5000	5	—	—	12.5	12.5	—	X	7.5	10.0
AVL	26	Lighting Wire	600	Not Required—See Test on Full Reel Lengths								
"	27	1/C Power Cable	600									
"	27	" " "	1000									
"	28	" " "	2000									
"	28	" " "	3000									
"	29	" " "	4000									
"	29	" " "	5000									
"	31	3/C Power Cable	600									
"	31	" " "	1000									
"	32	" " "	2000									
"	32	" " "	3000									
"	33	" " "	4000									
"	33	" " "	5000									
"	34-35	Control Cable	600									
AVB	40	Switchboard Bus Cable	600	5	—	3.0	3.0	4.0	—	X	0.9	—
"	41	Headlight Wire	600	5	3.0	—	—	—	—	X	0.9	—
AA	45	Apparatus Cable	300	1	1.0	—	—	—	—	X	1.0	—
AIA	46	Rheostat Wire	600	5	1.5	—	—	—	—	X	0.9	1.2
"	47	Power & Rheostat Cable	600	5	1.5	—	—	—	—	X	0.9	1.2
"	48	Apparatus Cable	600	5	1.5	—	—	—	—	X	0.9	1.2
AF	50	Fixture Wires	300	Tests as required by Underwriters' Laboratories Standard for Flexible Cord and Fixture Wire								
AFPD	51	Flexible Cord	300									
None	49	Flexible Cord	300	1	1.0	—	—	—	—	X	1.0	0.6
None	19	A.V.C. Flexible Cord	600	5	3.0	—	—	—	—	X	0.9	1.2

*On single conductor cables voltage shall be applied between conductor and metal foil wrap.
On multi-conductor cables voltage shall be applied between conductors and between the outer layer of conductors and metal foil.
**Voltage shall be applied between conductor and metal foil, iron filings or fine shot as required.
***Voltage shall be applied between conductor and water.

TERMINAL and JOINT INSULATION FOR A.V.C. CABLE

In general, no special precautions are necessary in the insulating and waterproofing of terminals or joints in A.V.C. cable runs. This is because of the additional thermal capacity of thermal ends and joints, plus the fact that in general such terminal ends or joints are in cooler ambient locations than the main run of the cable.

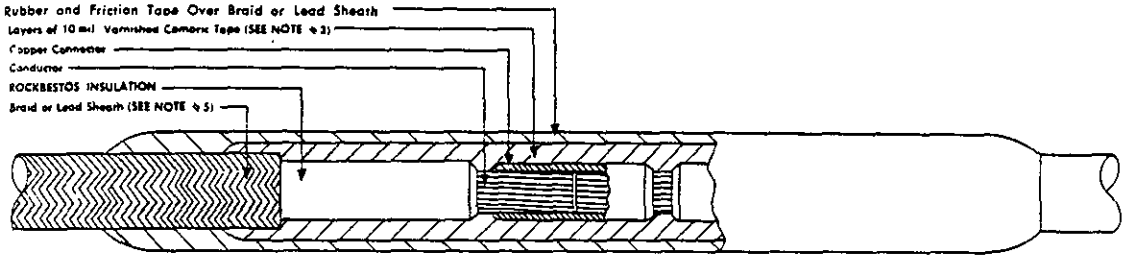
In this type of location it is common practice to use rubber tape and friction tape as a means of insulation. For large sizes of A.V.C. cable where a splice is necessary, it is advisable to build up the joint with layers of varnished cambric tapes prior to the application of the rubber and friction tapes.

In wet locations where lead covered A.V.C. cable is used, the same practice is used except that the friction tape is treated with a glyptal varnish or Irvington oil stop.

The illustration below shows a recommendation for such a cable splice.

In all high voltage, i.e. over 600 volts, all terminal ends and joints should be insulated with varnished cambric tape before applying the rubber or friction tapes. The friction tape should be treated with either glyptal varnish or Irvington oil stop.

Where it is necessary either to terminate or make a joint in a high ambient temperature zone, we recommend that the joint or terminal end be insulated with layers of varnished cambric tapes wrapped with asbestos listing. Listing can be coated with wax or covered overall with friction tape.



SUGGESTED METHOD OF SPLICING AVA OR AVL CABLE

1. Prepare cable ends and joint with standard soldered or mechanical connector.
2. Paint connection and adjacent insulation with compound such as glyptal varnish or Irvington Oil Stop.
3. Apply layers of varnished cambric tape with glyptal varnish or Irvington Oil Stop between layers to fill up space even with braid or lead sheath.
4. Apply two layers of rubber tape, and then two more layers of friction tape with glyptal varnish or Irvington Oil Stop between all layers and over surface. Extend rubber and friction tape over at least two inches of the cable sheath or braid which previously had been painted.
5. In case of lead sheathed cable where joint will be in wet location, a lead sheath and wiped joint may be used.

be made near each end of the sample of which the average shall comply with the requirements given in the tables. The measurements of cable ¾ inch diameter and smaller shall be made with a ratchet micrometer having ¼ inch diameter faces. For cable larger than ¾ inch diameter the measurement shall be made with a circumference tape. Each determination, when made with a micrometer, shall be the average of two measurements made at right angles to each other.

2. *Resistance to Flame*: All wires and cables made to this specification shall have fire resisting properties so that the test specimens will meet all of the requirements of the Underwriters' Laboratories standard vertical flame test.

B. *Electrical*

1. *Initial Dielectric Strength*

(a) *Single Conductor*: Initial dielectric strength tests shall be made on 5-foot lengths of finished wire or cable with the center 3-foot section wrapped with metal foil. Voltages as indicated in the tables shall be applied for 5 minutes on wire or cable rated 600 volts or over, and for 1 minute on wire or cable rated 300 volts.

(b) *Multi-Conductor*: Initial dielectric strength tests shall be made on full reel lengths of finished cable by applying 2½ times rated voltage between each conductor and all others for 5 minutes. Also an initial dielectric strength test shall be made on 5-foot lengths of finished cable, with the center 3-foot section wrapped with metal foil. Voltages as indicated in the tables shall be applied between each conductor and all others and metal foil, and between all conductors and metal foil, for 5 minutes on cable rated 600 volts and over, and for 1 minute on cable rated 300 volts.

(c) *Metallic Covered Cable*: Initial dielectric strength tests shall be made on full reel lengths of metallic covered cable by applying 2½ times rated voltage between conductor and covering on single conductor cable, and between each conductor and other conductors and the metallic covering on multi-conductor cable for a period of 5 minutes.

2. *Dielectric Strength After Flame*

(a) A sample of wire or cable having been previously subjected to the flame test shall be prepared with the charred area of sizes No. 6 and larger wrapped in metal foil, and sizes smaller than No. 6 buried in iron filings or fine shot. Test voltages applied for 1 minute shall be as follows:

(1) Asbestos-varnished cambric insulated wires and cables rated at 600 volts or more, 1½ times rated voltage.

(2) All-Asbestos insulated wires and cables rated at 600 volts, 2½ times rated voltage.

(3) 300 volt rated wires and cables, 1000 volts.

3. *Dielectric Strength While Immersed*

A 5-foot sample of finished wire or cable having flame, heat and moisture resisting finish shall have the center 3-foot section immersed for 1 hour in tap water at room temperature, and while still immersed shall withstand a dielectric test of 2 times rated voltage applied between conductor and water for 1 minute.

IX SAMPLING

(a) Each of the required tests shall be made on one sample of each size and type of wire or cable from each lot of 10,000 feet or fraction thereof.

(b) If a sample fails to meet a prescribed test requirement, two additional samples shall be taken from the same length. If the two additional samples meet the test requirement then the lot shall be accepted. If either of these samples fail the length may be rejected.

(c) If any length is rejected for failure to meet a requirement, then a sample shall be taken from each length of the balance of the lot and subjected to the particular test requirement to determine acceptance or rejection of that length.

of the wire or cable. The compound shall develop no injurious chemical action within itself or with any component parts of the wire or cable.

(b) *Varnished Cambric*

1. *Material*: The varnished cambric insulation, when used, shall consist of a high grade varnished cloth substantially free from blisters or other imperfections.
2. *Application*: The varnished cambric shall be applied with lubricating compound between layers and to the wall thickness specified.

IV SEPARATORS

Unless otherwise specified, suitable separators may be used over the conductor or between component layers of insulation.

V BRAIDS

(a) *Asbestos*

1. *Material*: The asbestos yarn shall be of selected quality, long-fibre, chrysotile asbestos containing not less than 80% by weight of asbestos. The total iron content shall not exceed 6% by weight of the asbestos.
2. *Application*: Asbestos braids shall be applied to conform to current NEMA standards.
3. *Finish*: Asbestos braid shall be finished with a suitable flame and heat resisting compound or saturated and finished with a flame, heat and moisture resisting compound as specified.

(b) *Cotton Marker Braids for Multi-Conductor Control Cable*

Marker braids shall comply with the current requirements of ASA specification for Cotton Braid for Insulated Wire and Cable for General Purposes—Code Braids (commonly known as NEMA Class A braid).

(c) *Finished Cotton Braid for Outer Covering*

1. Finished braid shall comply with the current requirements of ASA specification for Cotton Braid for Insulated Wire and Cable for General Purposes—Standard Braids (commonly known as NEMA Class B braid).
2. This cotton braid shall be finished with a flame and heat resisting compound or saturated and finished with a flame, heat and moisture resisting compound as specified.

VI METALLIC COVERINGS

Coverings such as lead sheath, spiral, basket weave and interlocking armor, when required, shall comply with current NEMA specifications for metallic coverings.

VII CABLING

(a) For cables consisting of more than one conductor (except flat twin cables) the individually insulated conductors shall be concentrically cabled together. The lay of the conductors in each layer shall not exceed 16 times the pitch diameter of that particular layer. The direction of lay of the conductors in each successive layer shall be reversed.

(b) Where circuit identification is required it shall be accomplished by coloring the insulation or by the use of marker braids.

(c) When required, fillers shall be used and shall be of jute or asbestos, dry or impregnated with a moisture resisting compound.

(d) In cables with coded conductors or when required for manufacturing reasons, a tape shall be applied over the cabled conductors.

VIII TESTS

A. *Physical*

1. *Dimensions*: Inspection for dimensional requirements shall consist of four determinations, two to

STANDARD SPECIFICATION FOR ROCKBESTOS A.V.C. AND ALL-ASBESTOS WIRES AND CABLES

Many companies have requested suggestions for a standard specification to aid them in the ordering of *Rockbestos* wires and cables. The following specification has been formulated for that purpose and covers Rockbestos A. V. C. and All-Asbestos constructions described in this catalog.

NOTE: This specification is in accordance with the requirements of the National Electrical Code and the National Electrical Manufacturers Association Standards for Asbestos and Asbesto-Varnished Cambric Insulated Wires and Cables with which all Rockbestos wires and cables of standard construction comply.

I GENERAL

(a) *Purpose*: The purpose of this specification is to insure the furnishing of wire and cable of the proper quality, manufactured in accordance with accepted practice.

(b) *Scope*: This specification covers the construction and test requirements for asbestos-varnished cambric and all-asbestos insulated wires and cables.

(c) *Materials and Workmanship*: All materials and workmanship employed in manufacturing wires and cables to this specification shall be of high quality so as to provide a finished product best suited for the purpose intended.

(d) *Applications*

A.V.C. Insulations.

These wires and cables are suitable for operation at the specified voltages in either open or conduit installations in locations where they must operate under both heat and casual moisture conditions. If wire or cable is to be installed where it may operate under excessive condensation conditions or be submerged, lead sheathed type should be specified.

All-Asbestos Insulations.

These wires and cables are suitable for operation at the specified voltages as exposed wiring in high temperature locations where little or no moisture is encountered.

II CONDUCTORS

(a) *Solid*: Solid conductors shall be either plain, tinned or lead alloy coated copper in accordance with current ASA or ASTM specifications.

(b) *Stranded*: Stranded conductors shall be bunched, concentric or rope lay as required. The make-up of stranded conductors shall conform to current ASTM specifications. The individual strands shall be as specified for solid conductors in II(a).

(c) Conductors other than copper shall be specified to meet individual requirements.

III INSULATION

(a) *Asbestos*

1. *Material*: The asbestos insulation shall consist of selected quality, long fibre, chrysotile asbestos commercially free from foreign particles of dirt, cotton seed and metallic oxides. It shall be well carded to prevent lumps and irregularities in the finished wire or cable.
   The asbestos insulation shall be applied to form a smooth, felted wall of uniform thickness as specified in the tables.
   The asbestos insulation after extraction of the impregnating compound shall contain not less than 80% by weight of asbestos. The total iron content shall not exceed 4% by weight of the asbestos.
2. *Impregnation*: The asbestos insulation shall be dried and saturated with a flame and heat resisting compound or a flame, heat and moisture resisting compound as specified. The compound shall consist of suitable high grade ingredients and shall retain its initial qualities during the normal life

CHECK LIST FOR INQUIRIES AND ORDERS

TO AID IN THE PROPER PROCESSING OF YOUR ORDERS OR INQUIRIES, THE FOLLOWING ESSENTIAL INFORMATION SHOULD BE INCLUDED:

INQUIRIES

1. Characteristics of system on which cable is to be used.
   (a) Current, alternating or direct.
   (b) Frequency, cycles per second.
   (c) Normal operating voltage between phases, or between conductors—if D.C.
   (d) Number of phases and conductors.
   (e) Operated with neutral solidly grounded, if grounded through resistance or reactance, state amount.

INSTALLATION—DESCRIPTION

1. In buildings.
2. In underground ducts.
3. Direct burial in ground.
4. Conditions other than above.

INSTALLATION—CONDITIONS

1. Size of Conductors—A.W.G. or Circular Mils.
2. Maximum Load, Amperes or KVA.
3. Load factor.
4. Ambient temperature.
5. In conduit or open wiring.
6. Number of loaded cables in duct bank or conduit.
7. If in conduit, give type (metallic or non-metallic), number of loaded conduits, enclosed or exposed, and spacing between conduits.
8. Method of bonding and grounding of lead sheaths.

QUANTITIES OF CABLE UPON WHICH QUOTATIONS ARE DESIRED

(a) Number of feet and lengths required.
(b) Number of conductors.
(c) Rated circuit voltage—phase to phase.
(d) Size of conductors—A.W.G. or Circular Mils. If conditions require stranding other than standard, complete description should be given.

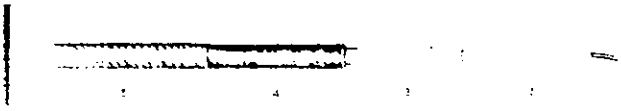
ORDERING INFORMATION

1. Give Rockbestos table letter and voltage.
2. Size of conductors.
3. Number of conductors.
4. Stranding
5. Colors.
6. Lengths required—each item.
7. Delivery point and shipping date required.

NEW HAVEN, CONNECTICUT

RBB 03013

ROCKBESTOS SPECIAL INDUSTRIAL HEATING CABLE



THESE ROCKBESTOS HEATING CABLES ARE TYPICAL OF THE SPECIAL CONSTRUCTIONS DEVELOPED TO MEET THE SPECIFIC REQUIREMENTS OF OUR CUSTOMERS. THEY ARE SHOWN ONLY TO ILLUSTRATE VARIED CONSTRUCTIONS SUCCESSFULLY DEVELOPED FOR INDUSTRIAL AND PRODUCT USES WHERE THE APPLICATION OF A CONTROLLED HEAT SOURCE WAS NECESSARY.

CONSTRUCTION

1. Special Alloy Wire
2. Felted Asbestos
3. Teflon Tapes
4. Felted Asbestos
5. Lead Sheath

Here is a special lead sheathed heating cable designed to solve a problem in the manufacture of refrigeration units. The problem was to speed the time required in the deicing cycle without appreciable temperature rise in the cold chamber. The answer here was to design a heating cable suitable for higher voltage operation than our Table LH industrial heating cable shown on page 61. This heating cable construction has successfully solved this problem. It is suitable for 440 volt service and has a maximum sheath temperature of 350°F.

CONSTRUCTION

1. Special Alloy Wires
2. Felted Asbestos
3. Teflon Tapes
4. Felted Asbestos—Silicone Treated
5. Glass Braid—Silicone Treated

Along with the trend toward outdoor power plants came the need for protecting high temperature steam and [illegible] lines from freezing during shutdown periods. Rockbes... Field Engineers called in to study this problem designed this special construction to be applied between the layers of pipe insulation. This provided an ideal solution as the silicone treated insulation and silicone treated glass braid construction withstood the high temperatures developed during the normal operation of steam lines and when steam lines were not operating provided a heat source of sufficient temperature to keep the condensate from freezing.
This heating cable is rated at 440 volts and has maximum operating temperature of 500°F.

Rockbestos Heating Cable Designs can be developed to solve your electrical heating problems—furnish complete data covering temperature desired, heat dissipation, etc. with your inquiry.

ROCKBESTOS
INDUSTRIAL HEATING CABLES

TABLE LH

MAXIMUM LEAD SHEATH TEMP. [illegible]°F

[redacted]

SPECIAL ALLOY WIRE | FELTED ASBESTOS | LEAD SHEATH

TABLE LHV

MAXIMUM LEAD SHEATH TEMP. 135°F.

U.L. Approved by report for pipe heating applications

[redacted]

SPECIAL ALLOY WIRE | FELTED ASBESTOS | YARN SHED CAMBRIC | LEAD SHEATH

FOR THE CONTROLLED DISTRIBUTION OF MILD HEAT TO PREVENT FREEZING OF WATER, WASTE PIPES, EAVES TROUGHS DOWN SPOUTS AND VALVES—TO INSURE FLOW OF VISCOUS FLUIDS, OILS, PAINT, CHOCOLATE, ETC.

This Rockbestos heating cable was originally developed to force the growth of early spring plants in hothouses. After its introduction to florists, market gardeners and amateur horticulturists, it found its way into industry as a useful heat source for the distribution of even mild heat. It performed to better advantage and more economically than steel strip heaters.

Flexible, easily bent and formed, it can be threaded through apertures or made to conform to irregular shaped objects. It is best used wrapped around pipes and covered with a good standard pipe insulation for greatest economy. We can only touch on a few typical applications to which our customers have put this heating cable, but they will give you a good idea of the varied uses to which it has been put.

In many plants the cable is used as a safeguard against frozen water pipes making unnecessary the rearrangement of piping or costly replacement. Waste pipes, eaves troughs and down spouts can also be kept free and clear of ice.

Paint, soap, varnish, ink, chocolate, molasses and sulphur, to name a few, can be kept at fluid temperatures insuring against irregular flow and clogged conveyor pipes.

Wet pipe sprinkler systems located in unheated areas are easily heated and kept at non-freezing temperatures that assure positive operation.

Steel mills use it around roll-necks to prevent the lubricant from congealing and a utilities engineer wound the cable around the pipes connecting the conservator tank to the main tank of a conservator type transformer, covered it with lagging, and eliminated congealing of oil and freezing of condensate.

The resistance of Rockbestos Industrial Heating Cable is approximately 0.5 ohms per foot. In order to keep the temperature low enough so that the insulation will not be injured, the generally recommended length across 115 volts, is 60 feet. The recommended wattage limit is 7 watts per foot. At 110 volts a 60 ft. length is rated at 400 watts, 6.66 watts per ft. Across 220 volts use a 120 ft. length for the same current value and double the total wattage. **Caution:** Do not use Table LH where maximum voltage exceeds 120 volts to ground. Table LHV is suitable for 440 volt service in 240 foot lengths and is U.L. approved by report for pipe heating applications.

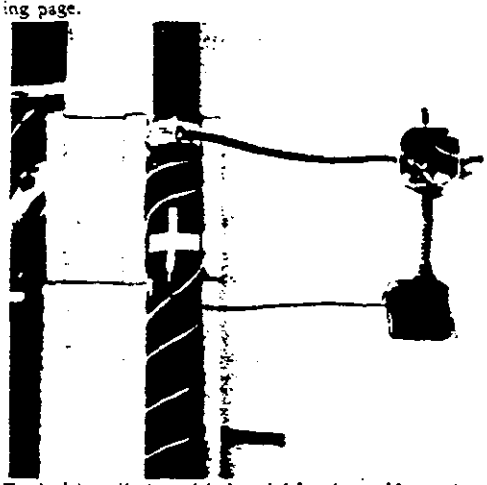
When installed permanently, Rockbestos Industrial Heating Cable should be covered by some form of heat insulating material for operating economy.

Precise temperature control is established by means of a low priced thermostat available from a number of manufacturers. We will be glad to refer you to several. The characteristics of this particular heating cable are given simply because it is a standard product and usually available from stock. We are equipped, however, to make up heating cable characteristics to your specification. Furnish complete details concerning temperature desired, heat dissipation, etc. with inquiry.

In applications where this cable is used close to physical contact with personnel, the lead sheath should be grounded.

Rockbestos De-Icing Heating Cable Kits not shown in this catalog, containing 60, 40 or 20 feet of heating cable with Flexible non-heating connector and weatherproof plug attached, are available for de-icing, pipe heating or soil heating applications.

Other industrial heating cables are shown on the following page.



Typical installation of industrial heating cable to pipes using insulation and thermostat for precise temperature control.

TABLE LH and LHV

Table	Approx. A.W.G. Size	Conductor	Bare Diam. Inches	Approx. Resistance Ohms per Ft.	Nom. Thickness Insulation Mils	Lead Sheath Inches	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	Standard Shipping Length Feet	Shipping Weight in Lbs. per 1000′
LH	19	Nickel Chrome Iron	.034	.5052	40—Asbestos	3/64	.215	143	60, 120 and 240 ft. lengths and in bulk on Reels	178 on Reels
LHV	19	Nickel Chrome Iron	.034	.5052	31—Asbestos 21—Varnished Cambric	3/64	.240	160		200 on Reels

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture.

[redacted]

RBB 03011

ROCKBESTOS
FIREPROOF LOW VOLTAGE
VAULT CABLE

1. STRANDED PLAIN COPPER CONDUCTOR 2. SPECIAL ROCKBESTOS INSULATION 3. SYNTHETIC TAPE 4. ASBESTOS BRAID

Rockbestos low voltage vault cable was designed to provide a heatproof, fireproof and moistureproof cable for bus installation in underground vaults of low voltage distribution systems. The typical installation is between transformers and network protectors, mounted on porcelain insulators without phase to phase or phase to ground contact.

The special insulation on Rockbestos Vault Cable is like the insulation in Rockbestos Secondary Network Cable—impregnated pure asbestos which is unaffected by heat or age and positively will not burn. In addition, to seal the insulation against the moisture so often encountered in underground vaults, a thin layer of waterproof synthetic tape material is applied over the asbestos insulation, under the asbestos braid. With extreme overheating or actual fault conditions the only smoke or gas generated is from the decomposition of the synthetic waterproof tape layer, and is of such small quantity, due to the thin layer, that it is negligible and does not interfere with prompt access to the vault for service restoratio

Supplied with standard concentric stranding or segment- conductor.

TABLE UV

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: Felted Wall	Nominal Thickness — Mils: Synthetic Tape	Nominal Thickness — Mils: Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
0 AWG	19/.0745	.373	93	20	45	.690	450	1000′ R	562
00	19/.0837	.419	93	20	45	.735	545	1000′ R	681
000	19/.0940	.470	93	20	45	.790	665	1000′ R	831
0000	19/.1055	.528	93	20	45	.845	815	1000′ R	1018
250.000 CM	37/.0822	.575	93	20	45	.895	945	500′ R	1181
300.000	37/.0900	.630	93	20	45	.950	1115	500′ R	1393
350.000	37/.0973	.681	93	20	45	1.000	1280	500′ R	1600
400.000	37/.1040	.728	93	20	45	1.045	1445	500′ R	1806
450.000	37/.1103	.772	93	20	45	1.090	1610	500′ R	2012
500.000	37/.1162	.813	93	20	45	1.130	1775	500′ R	2218
750.000	61/.1109	.998	120	20	45	1.370	2650	500′ R	3312
1.000.000	61/.1280	1.152	120	20	45	1.525	3470	500′ R	4337
1.500.000	91/.1284	1.412	155	20	45	1.855	5185	500′ R	6481
2.000.000	127/.1255	1.632	155	20	45	2.075	6810	500′ R	8512

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels

RBB 03010

ROCKBESTOS
125 VOLT A.C.
SECONDARY NETWORK CABLE

1 2 3

1. STRANDED PLAIN COPPER CONDUCTOR 2. SPECIAL ROCKBESTOS INSULATION 3. LEAD SHEATH

Rockbestos Low Voltage A.C. Secondary Network Cable was developed exclusively for secondary network distribution systems but several utility companies have extended its use, where regulations permit, to include service installations in which limited space, high ambient temperature and emergency overloads must be considered.

Under the worst fault conditions, whether single, two, or three-phase, loose or solid, Rockbestos A.C. Secondary Network Cable will clear cleanly and quickly without burning or generating toxic inflammable or explosive gases. It also definitely eliminates the smoke nuisance because neither the insulation, which is pure asbestos, nor the impregnating compounds will burn.

Another advantage is positive resistance to deterioration normally resulting from age or heat. Under overloads when the cables become warm, there need be no fear of failure as the insulation will remain intact up to the melting point of copper. However, the melting point of solder joints, if used, and the copper temperature at which regulation difficulties would be experienced, determine the load the cable can carry. A temperature of 150°C has been set as the recommended maximum copper temperature for extended periods, although in emergency conditions much higher temperatures will not endanger the cable.

TABLE UL — 125 VOLTS

Size	Stranding	Bare Diam. Inches	Nom. Thickness: Felted Wall Mils	Nom. Thickness: Lead Sheath Inches	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
4 AWG	7/.0772	.232	93	6/64	.610	975	1000′ R	1218
3	7/.0867	.260	93	6/64	.635	1055	1000′ R	1318
2	7/.0974	.292	93	6/64	.670	1150	1000′ R	1437
1	19/.0664	.332	93	6/64	.710	1270	1000′ R	1587
0	19/.0745	.373	93	6/64	.750	1400	1000′ R	1750
00	19/.0837	.419	93	6/64	.795	1560	1000′ R	1950
000	19/.0940	.470	93	6/64	.845	1755	1000′ R	2193
0000	19/.1055	.528	93	6/64	.905	1985	1000′ R	2481
250,000 CM	37/.0822	.575	93	6/64	.950	2180	500′ R	2725
300,000	37/.0900	.630	93	6/64	1.005	2425	500′ R	3031
350,000	37/.0973	.681	93	6/64	1.055	2665	500′ R	3331
400,000	37/.1040	.728	93	6/64	1.105	2895	500′ R	3618
450,000	37/.1103	.772	93	6/64	1.150	3125	500′ R	3906
500,000	37/.1162	.815	93	7/64	1.220	3660	500′ R	4575

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels

ROCKBESTOS A.V.C. AND ALL-ASBESTOS PYROMETER AND THERMOCOUPLE WIRES

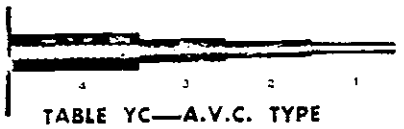


TABLE YC—A.V.C. TYPE
Single Conductor

TABLE YS—ALL-ASBESTOS TYPE
Single Conductor

TABLE YV—A.V.C. TYPE
Two Conductor

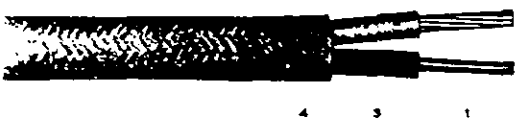


TABLE YA—ALL-ASBESTOS TYPE
Two Conductor

1. CONDUCTOR 2. VARNISHED CAMBRIC 3. FELTED ASBESTOS 4. ASBESTOS BRAID

Rockbestos manufactures Pyrometer and Thermocouple wire with two types of insulation—Rockbestos A.V.C. and All-Asbestos. If preferred, either construction may be had with lacquered cotton or glass braid instead of asbestos braid.

These Rockbestos Pyrometer and Thermocouple wires are not only heat and moisture resisting, but fireproof as well. They will not grow hard or brittle, or crack under temperatures that would be destructive to other types of insulation. Neither will they rot or bloom even if exposed constantly to oil, oil fumes or grease. If fires involve the circuits, there will be no plugging of conduit, and in many cases the wire will continue to operate properly. These qualities are inherent because the insulation is made from asbestos, the basic heat-resisting and fireproof material.

For short conduit runs subjected only to heat, oil or fumes, the All-Asbestos insulation will be satisfactory. If the conduit run is likely to be subjected to condensation or whenever this condition is doubtful, we recommend the A.V.C. insulation.

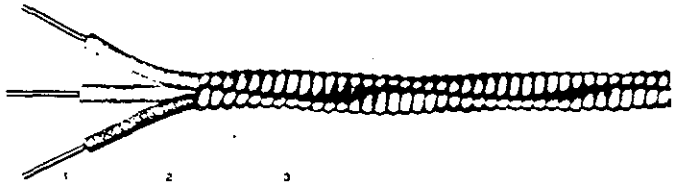
We can supply All-Asbestos or A.V.C. insulated single conductor pyrometer and thermocouple wire with solid or stranded iron, or solid or stranded copper conductors. T insulations are also applied to conductors furnished by ... customer. *See special note.

We also offer the parallel construction illustrated above. Duplex construction can be furnished if both conductors are stranded. Both are covered with an asbestos braid, and polarity identification can be supplied by means of either colored asbestos insulation or a marker thread.

There are so many combinations of solid or stranded conductors and dissimilar metals that it is impossible to tabulate them, but we will quote prices on any combination on request. Let us know size, whether solid or stranded, enameled or plain copper, what combination of copper, iron or alloy conductors you are using, and whether you want to use two single conductors or to combine both under one braid, and we will draw up specifications and quote.

*NOTE: When specifications call for an alloy conductor, it must be furnished by the customer as we cannot accept the responsibility of supplying alloy conductor having the proper thermoelectric characteristics.

ROCKBESTOS
THERMOSTAT CONTROL WIRE



1. ENAMELED COPPER CONDUCTOR 2. POLARIZED FELTED ASBESTOS 3. COATED STEEL ARMOR

FOR LOW VOLTAGE SIGNAL, INTERCOMMUNICATIONS AND ALARM SYSTEMS, FUEL BURNER CONTROLS, GAS BURNER SAFETY PILOTS, OVENS, HEATERS, FURNACES, INDUSTRIAL DRYERS, AIR CONDITIONERS, APPARATUS, ETC.

The wiring of the control systems of early automatic coal and oil burning installations formerly gave frequent trouble. To get short runs it was often installed close to, or actually resting on, hot water or steam pipes and the heat naturally deteriorated ordinary insulated wire to the point where trouble frequently occurred. Cases are on record where serious damage has resulted from faulty control wiring.

Abrasion, too, has always been a source of trouble when fishing ordinary control wire, particularly in buildings already up. Sharp corners, brickwork, plaster, protruding nails and rough beams all tend to damage the insulation.

With these conditions in mind, and with the wide adoption of automatic fuel burning systems, a large manufacturer of heat control apparatus asked us to design a wire which would be heatproof and abrasion resisting—and Rockbestos Thermostat Control Wire was the result.

Rockbestos Thermostat Control Wire is very strong mechanically because of its firm felted asbestos insulation and its rugged, abrasion resisting spiral steel armor or metal braid. It is heatproof and will not dry out under heat or with age. It eliminates fire hazard because it cannot burn. Neither can rats damage it as has been known to happen occasionally with unprotected wires. Where resistance to abrasion or protection against rodents is not essential, a cotton braid may be specified instead of metallic sheath. With these advantages it is of value for control and intercommunicating systems or for any similar application where a low voltage, multi-conductor cable is required.

Rockbestos Thermostat Control Wire is designed to be used at low voltages, usually fed by a step-down transformer. For this application the 12½ mil wall insulation is generally used. However, some users prefer the 25 mil insulation thickness for its added mechanical and dielectric strength. Where this cable is to be used direct on 115 volt circuits a minimum insulation thickness of 31 mils is recommended. Data for cables with all three insulations is listed in the table below.

NOTE: The metal braid covering mentioned in the fourth paragraph is an optional suggestion.

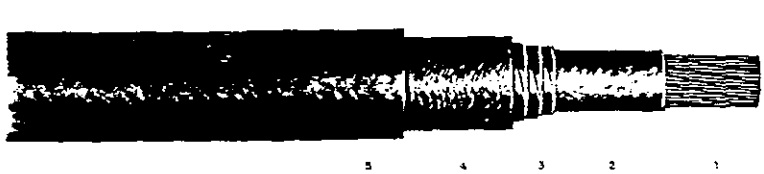
TABLE TC 12½ mil. **TABLE TCC 25 mil.** **TABLE TCS 31 mil.**

Size A.W.G.	Number of Conductors	Nominal Wall Thickness Finished Diameters* (Inches)			Approximate Weights per M Feet (Pounds)						Standard Shipping Lengths (Feet)
		For Low Voltage Service		115 Volt Service	For Low Voltage Service				115 Volt Service		
		12½ Mil *O. D.	25 Mil *O. D.	31 Mil *O. D.	12½ Mil		25 Mil		31 Mil		Coils
					Net	Ship.	Net	Ship.	Net	Ship.	
16	2	.175	.225	.265	35	41	43	49	47	53	500
16	3	.185	.240	.285	46	52	56	62	62	68	500
16	4	.210	.270	.315	58	64	69	75	79	85	500
16	5	.235	.305	.355	69	75	84	90	97	106	500
18	2	.155	.205	.245	26	30	34	40	37	43	500
18	3	.165	.215	.260	34	39	43	49	49	55	500
18	4	.180	.240	.290	43	49	53	59	61	67	500
18	5	.205	.275	.325	50	56	64	70	75	81	500

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture.

ROCKBESTOS A.V.C.
600 VOLT MINING CABLE

MAXIMUM OPERATING TEMP. 110°C (230°F)



1. FLEXIBLE TINNED COPPER CONDUCTOR 2. FELTED ASBESTOS 3. VARNISHED CAMBRIC 4. FELTED ASBESTOS 5. ASBESTOS BRAID

FOR ALL INTERNAL CIRCUITS OF ELECTRIFIED MINING EQUIPMENT.

This original Rockbestos A.V.C. Mining Cable was designed to meet requirements for a cable that would operate dependably under the unusual conditions prevailing in the mining industry and is not a National Electrical Code Standard.

Similar in construction to Rockbestos A.V.C. Motor Lead Cable, but made to diameters that fit equipment bushings properly, its impregnated felted asbestos insulation and heavy asbestos braid withstands conductor-heating overloads and the heat of resistor grids in the tightly sealed compartments of permissible equipment. It won't burn or carry flame, won't bloom, rot or flow under exposure to grease or oil, and has ample resistance to moisture and the destructive action of alkaline water.

Standard of leading mining machine manufacturers for dependability and safety since 1928, it is widely used by mine electricians to keep equipment in full-time operation and reduce maintenance.

NOTE: This cable is not designed or intended for use as drag or reel cable. To avoid error specify Table ML, Rockbestos A.V.C. for use in cutters, loaders and locomotives.

Standard finish colors: Black and white. Authorized stock item: Black.

TABLE ML — 600 VOLTS

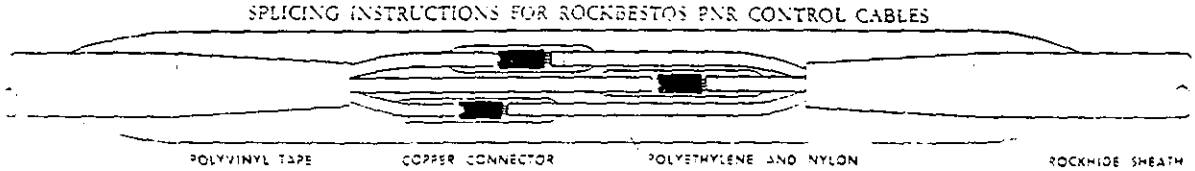
Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	VC Insert	2nd Felted Wall	Asbestos Braid	*Maximum Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
14 AWG	41/.010	.075	10	40	10	27 1/2	.273	40	500′ C	45
12	65/.010	.095	10	40	10	27 1/2	.294	51	500′ C	56
10	104/.010	.120	10	40	10	27 1/2	.313	67	500′ C	72
8	133/.0111	.167	10	40	10	27 1/2	.359	95	500′ C	100
6	133/.0140	.210	10	40	10	27 1/2	.405	135	500′ R	168
5	133/.0158	.237	10	40	10	27 1/2	.428	160	500′ R	200
4	133/.0177	.266	10	40	10	35	.473	195	500′ R	243
3	133/.0199	.299	10	40	10	35	.506	235	500′ R	293
2	133/.0223	.335	10	40	10	35	.546	285	500′ R	356
1	259/.0180	.378	15	40	15	45	.620	370	500′ R	462
0	259/.0202	.424	15	40	15	45	.669	450	500′ R	562
00	259/.0227	.477	15	40	15	45	.716	550	500′ R	687
000	259/.0255	.536	15	40	15	45	.779	675	500′ R	843
0000	259/.0286	.601	15	40	15	45	.849	825	500′ R	1031
250.000 CM	427/.0242	.653	20	40	40	45	.988	1020	500′ R	1275
300.000	427/.0265	.716	20	40	40	45	1.056	1195	500′ R	1493
350.000	427/.0286	.772	20	40	40	45	1.115	1370	500′ R	1712
400.000	427/.0306	.826	20	40	40	45	1.172	1545	500′ R	1931
450.000	427/.0325	.878	20	40	40	45	1.226	1730	500′ R	2162
500.000	427/.0342	.923	20	40	40	45	1.274	1895	500′ R	2368

*Minimum diameter 92½% of maximum diameter. †C—Coils, R—Reels

ROCKBESTOS® PNR
600 VOLT SMALL DIAMETER
CONTROL CABLE

MAXIMUM OPERATING TEMP. 75°C (167°F)

SPLICING INSTRUCTIONS FOR ROCKBESTOS PNR CONTROL CABLES



The following methods and materials are recommended to obtain minimum overall diameter and adequate weathering protection for spliced cable:

1. Remove Rockhide sheath. For minimum diameter at the splice, the joints on individual conductors should be staggered. Remove the Rockhide sheath to expose at least 4" of the shortest conductor. Caution: Do not cut through the cable tape into the nylon sheath of the single conductors.
2. Remove the black binder tape and jute fillers, if present.
3. Fan out conductors keeping original [illegible]
4. Individual conductors should be so cut as to permit staggered joints for minimum bulk at splice.
5. Remove each conductor insulation (nylon and polyethylene) for a distance equal to one-half the length of the indentor (mechanical crimp type connector) (plus ½" if split tinned soldered connector is to be used). (Diagram illustrates use of mechanical crimp type connector).
6. Remove the nylon from the single conductors so as to leave ½" of the polyethylene uncovered.
7. Apply two layers of polyethylene (Polyken #822) tape one-half lapped with 10% elongation to insure a smooth flat lay of the tape. Extend the two layers of tape 2" beyond each end of the splicing sleeve or connector.
8. Taper Rockhide sheath approximately 1½". Buff the tapered area with a fine rasp, wire brush or similar tool without injuring nylon sheath on individual conductors.
9. Lay spliced conductors in original sequence. Bind together with one layer of friction tape one-half lapped. Apply a polyvinyl tape (Scotch Electrical #33) one-half lapped over the friction tape and build up to 1.5 times the original sheath thickness. Extend the tape beyond the shoulder of the taper in the sheath for the following distances, tapering down to the sheath.

Diameter of Sheath—Inches	Extend Tape onto Original Sheath—Inches
1.0 or less	3
over 1.0	3½

TABLE PMD — AWG NO. 12-19/25

Number of Conductors	Sheath Thickness Inches	*Nominal Finished Diameter	Approx. Net Wgt. per 1000′ pounds	Standard Shipping Length feet	Shipping Weight per 1000′ pounds
1	....	.150	24	1000′ Reel	30
** 2	3/64	.380	87	1000′ Reel	109
3	3/64	.400	107	1000′ Reel	134
4	3/64	.435	135	1000′ Reel	169
5	3/64	.475	166	1000′ Reel	208
6	3/64	.515	197	1000′ Reel	246
7	3/64	.515	214	1000′ Reel	268
8	4/64	.595	261	1000′ Reel	326
9	4/64	.635	294	1000′ Reel	368
10	4/64	.680	326	1000′ Reel	408
11	4/64	.690	331	1000′ Reel	414
12	4/64	.710	357	1000′ Reel	446
13	4/64	.725	383	1000′ Reel	479
14	4/64	.745	409	1000′ Reel	511
15	4/64	.765	436	1000′ Reel	545
16	4/64	.785	464	1000′ Reel	580
17	4/64	.810	493	1000′ Reel	616
18	4/64	.825	518	1000′ Reel	648
19	4/64	.825	533	1000′ Reel	666

TABLE PMF — AWG NO. 14-19/27

Number of Conductors	Sheath Thickness Inches	*Nominal Finished Diameter	Approx. Net Wgt. per 1000′ pounds	Standard Shipping Length feet	Shipping Weight per 1000′ pounds
1	....	.130	16	1000′ Reel	20
** 2	3/64	.340	67	1000′ Reel	76
3	3/64	.360	84	1000′ Reel	98
4	3/64	.390	105	1000′ Reel	121
5	3/64	.425	125	1000′ Reel	148
6	3/64	.460	150	1000′ Reel	175
7	3/64	.460	160	1000′ Reel	186
8	3/64	.495	175	1000′ Reel	211
9	4/64	.565	215	1000′ Reel	255
10	4/64	.605	235	1000′ Reel	301
11	4/64	.610	245	1000′ Reel	304
12	4/64	.630	265	1000′ Reel	316
13	4/64	.640	280	1000′ Reel	336
14	4/64	.660	300	1000′ Reel	360
15	4/64	.680	320	1000′ Reel	385
16	4/64	.695	340	1000′ Reel	410
17	4/64	.715	355	1000′ Reel	429
18	4/64	.730	375	1000′ Reel	454
19	4/64	.750	385	1000′ Reel	465

TABLE PMY — AWG NO. 9-19/22

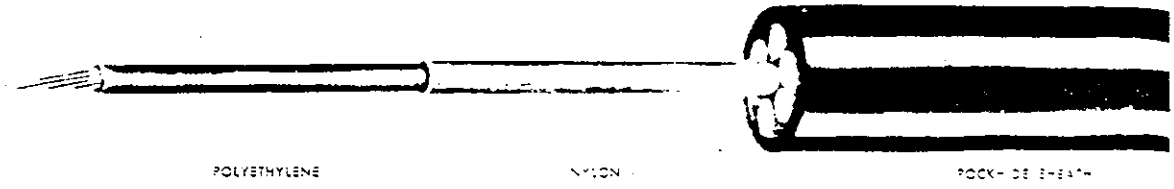
Number of Conductors	Sheath Thickness Inches	*Nominal Finished Diameter	Approx. Net Wgt. per 1000′ pounds	Standard Shipping Length feet	Shipping Weight per 1000′ pounds
1	....	.185	45	1000′ Reel	56
** 2	3/64	.455	137	1000′ Reel	171
3	3/64	.480	181	1000′ Reel	226
4	3/64	.525	228	1000′ Reel	285
5	4/64	.610	299	1000′ Reel	374
6	4/64	.665	355	1000′ Reel	444
7	4/64	.665	391	1000′ Reel	489
8	4/64	.715	445	1000′ Reel	556
9	4/64	.770	504	1000′ Reel	630
10	4/64	.825	566	1000′ Reel	708
11	4/64	.835	584	1000′ Reel	730
12	5/64	.895	662	1000′ Reel	828
13	5/64	.915	700	1000′ Reel	875
14	5/64	.940	748	1000′ Reel	935
15	5/64	.970	798	1000′ Reel	998
16	5/64	.995	856	1000′ Reel	1070
17	5/64	1.025	903	1000′ Reel	1129
18	5/64	1.045	952	1000′ Reel	1190
19	5/64	1.045	989	1000′ Reel	1236

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture.
**The standard makeup on two conductor construction is to cable the conductors with fillers to make round.

RBB 03005

ROCKBESTOS PNR
600 VOLT SMALL DIAMETER
CONTROL CABLE

MAXIMUM OPERATING TEMP. 75°C (167°F)



CONSTRUCTIONAL FEATURES

Rockbestos PNR was designed and developed in close cooperation with a power company who had the problem of rewiring existing conduits where space was a problem. This called for a small diameter, light, tough, flexible control cable to operate at a temperature of 75°C.

Rockbestos Engineers provided the answer to this problem by designing an electrical insulation which combined Polyethylene, Nylon and Rockhide, (Polyvinylchloride). Because of the excellent properties of these thermoplastics the application for this new construction was extended to control circuits exposed to weather and to installations requiring direct burial.

Polyethylene was used because of its excellent dielectric properties, resistance to water and moisture, and flexibility at low temperatures. Nylon, extruded over the Polyethylene on the individual conductors provided exceptional resistance to abrasion, oils, gasolines and high temperatures. These individual conductors were cabled together as a concentric cable with lateral fillers added where necessary and the completed core wrapped with a sheath tape. A tough outer covering of Rockhide (Polyvinylchloride) was used to jacket the individual conductors because of its extreme chemical inertness. It is unaffected by alkalies, weather and sunlight.

This original Rockbestos PNR construction, since its inception in 1948, has been service proved through the successful operation of millions of feet of this cable by utilities and industrial plants.

Advantages in Using Rockbestos PNR:

Small in diameter

Smaller conduit required—You can put twelve conductor cable in conduit where you now use six or seven, or you can use smaller conduit and fittings to save on steel and installation costs.

High dielectric strength—Dielectric breakdown . . . over 40 times operating voltage.

Excellent moisture resistant—Withstands attacks of chemicals, acid or alkaline soils, oil, grease, gasoline and alcohol.

Abrasion resistant—The tough Rockhide sheathed control cable can be buried directly in the ground.

Good low temperature flexibility—Flexible to minus 55°C (Minus 67°F) no cracking

Non-restricted Multi-Control Cable Application—
In conduit
Direct Burial
Exposed Overhead

Total=A small, light, tough, flexible control cable to give long life at low cost.

SPECIFICATIONS

Construction

Individual Conductors: Stranded copper #9 AWG 19 [illegible] #12 AWG 19/25, and #14 AWG 19/27.

PNR Control Cables can be supplied in other sizes including #16 and #18 with any number of conductors and with heavier wall thicknesses where required. Single conductors are not recommended for Direct Burial or exposed overhead applications without Rockhide Sheath covering.

Primary Insulation: 20½ mils (16½ mils of extruded heat and light stabilized Polyethylene and 4 mils of extruded Nylon over the Polyethylene).

Cabling: Individual conductors are cabled together as a concentric cable with non-wicking jute laterals where required. The complete core is wrapped with a sheath tape. The standard make-up on two conductor construction is to cable the conductors with fillers to make round.

Jacket: Extruded Rockhide.

Color Code

Coded to NEMA Standard Color Code for Multi-Conductor Control Cables, (See page 20) or can be supplied with simplified color code using all conductors black except one conductor white in each layer.

Rating

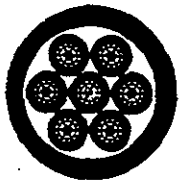
For 600 volt operating, conductor operating temperature 75°C (167°F).

ROCKBESTOS PNR®
600 VOLT SMALL DIAMETER
CONTROL CABLE

MAXIMUM OPERATING TEMP. 75°C (167°F)

Typical Applications where Rockbestos PNR Small Diameter 600 volt Control Cable saves space and weight as well as installation and maintenance costs.

Here's the difference when it comes to DIAMETERS



Ordinary 7 conductor cable, rubber insulated #9 looks like this.

7 conductor #9 AWG cable looks like this made the Rockbestos PNR way.

RELATIVE SIZES

In many cases, you can put a 12 conductor Rockbestos PNR cable in conduit where you now have a 7 conductor conventional control cable, or use smaller size conduit for the same number of conductors.

TOUGH, SMALL, FLEXIBLE and LIGHTER IN WEIGHT

Rockbestos small diameter, low temperature control cables are designed for 600 volt operation with a conductor operating temperature of 75°C (167°F). Minimum installation temperature minus 25°C. (minus 13°F.).

These cables can be installed in conduit where their smaller sizes are of particular advantage and multi-conductor cables may also be used for direct burial or exposed overhead installations.

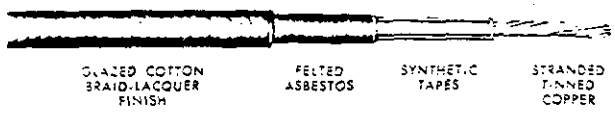
RBB 03003

ROCKBESTOS
TYPE ACA 1000 VOLT
LEAD and HOOKUP WIRES

TABLE EMA

1000 VOLT LEAD WIRE

MAXIMUM OPERATING TEMP. 90°C (194°F)



This 1000 Volt ACA Lead Wire had its inception in application wiring with the advent of cold cathode—slim line—and mercury vapor fixtures where the initial starting voltages exceed 300 volts, thereby eliminating the use of 300 Volt AF Wire. It had a distinct advantage in its small diameter. Because of this feature, it has also found usage in some industrial instrumentation and control circuits in conduit when its use does not conflict with the requirements of the National Electrical Code.

Additional uses for this wire are for automotive bus engine compartment wiring and diesel locomotive circuit wiring.

Rockbestos 1000 Volt Lead Wire is constructed with non-flowing, thin-walled, helically applied synthetic tape and felted asbestos insulation. This construction covered with a glazed cotton braid lacquer finish results in a small diameter wire with high dielectric strength. This wire strips easily and is resistant to heat, cold, flame, moisture, grease and oil.

TABLE ZM

1000 VOLT HOOKUP WIRE

MAXIMUM OPERATING TEMP. 125°C (257°F)

Here is a Hookup Wire which has developed many product and electrical maintenance applications. It is similar in construction to the 1000 Volt Lead Wire shown on this page with the exception that it is covered with a lacquered glass braid overall and is recommended for applications in which abrasion resistance requirements are less severe than for Table EMA.

This hookup wire was originally developed along government specifications for a glass braided wire suitable for use within electronic devices and instruments which would have high dielectric strength, small diameter and stability in a broad range of operating temperatures.

Like Table EMA on this page, Rockbestos 1000 Volt ACA Hookup Wire is resistant to heat, cold, flame, moisture, grease and oil. It can be terminated easily because it strips cleanly and withstands the heat of soldering.

This wire can be color coded as illustrated by the use of colored tracers inserted in the white glass braid.

TABLE EMA (COTTON BRAID) — 1000 VOLTS — TYPE ACA

Size	Stranding	Bare Diam. Inches	Nom. Thickness—Inches: Synthetic Tape	Nom. Thickness—Inches: Felted Wall	Nom. Thickness—Inches: Braid Thickness	*Nominal Finished Diam. Inches	Approx. Net Wgt. in lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
14 AWG	19/.0142	.071	.010	.020	.0125	.156	23	500′ C	28
12	19/.0179	.090	.010	.020	.0125	.175	31	500′ C	36

TABLE ZM (GLASS BRAID) — 1000 VOLTS — TYPE ACA

18 AWG	16/.010	.045	.0065	.0085	.0075	.090	8	**1000′	12
16	26/.010	.059	.0065	.0085	.010	.109	12	**1000′	16
14	41/.010	.075	.010	.0085	.010	.132	19	**1000′	23
12	65/.010	.095	.010	.010	.010	.155	28	**1000′	32
10	104/.010	.120	.010	.010	.010	.180	42	**1000′	48

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variations in process of manufacture. †C—Coils.
**Non-Returnable reels or metal spools

RBB 03002

ROCKBESTOS HEAT RESISTING
.300 VOLT FLEXIBLE CORDS
NEC TYPES AFC AND AFPD

MAXIMUM OPERATING TEMP. 150°C (302°F)†

TABLE FA—TWISTED PAIR
NEC TYPE AFC

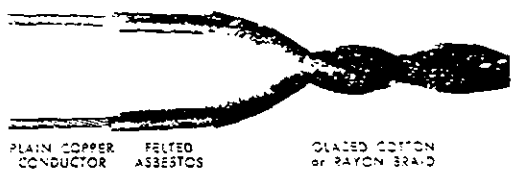


TABLE FR—DUPLEX
NEC TYPE AFPD

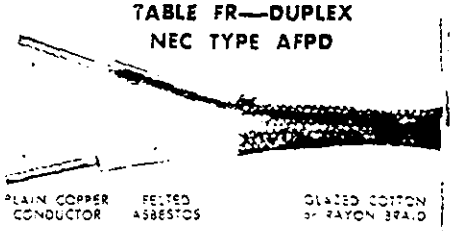


TABLE FC3—TRIPLEX
NEC TYPE AFPD

FOR PENDANT LIGHTING AND OTHER FIXTURES—LEADS FOR APPARATUS, OVENS, MOTORS, HEATING DEVICES, GLUE POTS, LABORATORY EQUIPMENT, ADDING MACHINES, CASH REGISTERS, TRANSFORMERS, RHEOSTATS, ETC.

Rockbestos Heat Resisting Flexible Cords are approved by the Underwriters' Laboratories for lighting fixture wiring under the type symbols shown above the illustrations.

In lamp sockets the usual temperature rise is from 50 to 200°C above ambient depending upon the lamp wattage, type of shade and other factors. Experience has shown that with rubber fixture cord in use, the insulation of the wires in and immediately above the socket dries up and becomes brittle until finally, with the repeated movement of the pendant, due to operation of the chain pull socket or from vibration, the insulation just above the socket cracks and crumbles, permitting the wires to short circuit.

In consideration of this condition, therefore, it is especially important to use genuinely heat-resisting cord whose insulation will not dry up and thus crack and eventually cause short circuits. Rockbestos Duplex or Twisted Pair Cord is ideal for this purpose.

The Twisted Pair and Triplex Cords have similar uses to the Duplex. The Triplex is for lighting fixtures having pendant outlet-switches, two filament lamp fixtures, three heat appliances and leads for apparatus, meters and testing.

In the Twisted Pair Cord the marker thread in the braid of one wire indicates polarity. In Duplex and Triplex Cords the insulation of the individual conductors is impregnated in different colors for the same purpose.

STANDARD COLORS AND BRAIDS

Twisted Pair: One conductor Black glazed cotton braid, one conductor same with Red tracer.

Duplex or Parallel: Black glazed cotton only.

Triplex: Black glazed cotton only.

Other colors and rayon braids can be supplied on request.

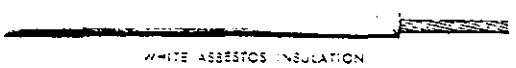
Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: Min. Felted Wall	Nominal Thickness — Mils: Cotton Braid	*Nominal Finished Diameter Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
TABLE FA (TWISTED PAIR)			**300 VOLTS**					**TYPE AFC**
18 AWG	16/30	.045	31	15	.280	24	500′ C	28
16	26/30	.059	31	15	.310	32	500′ C	36
14	41/30	.075	31	15	.340	44	500′ C	49
TABLE FR (DUPLEX)			**300 VOLTS**					**TYPE AFPD**
18 AWG	16/30	.045	31	15	.250	24	500′ C	28
16	26/30	.059	31	15	.280	33	500′ C	37
14	41/30	.075	31	15	.310	45	500′ C	50
TABLE FC3 (TRIPLEX)			**300 VOLTS**					**TYPE AFPD**
18 AWG	16/30	.045	31	15	.265	34	500′ C	39
16	26/30	.059	31	15	.295	47	500′ C	52
14	41/30	.075	31	15	.330	66	500′ C	71

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils
†The temperature limit of 150°C. applies only to the impregnated asbestos insulation where the cord is employed within an appliance. Cotton and Rayon braids are limited to 90°C.

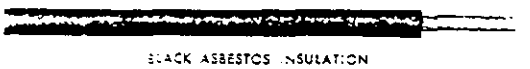
ROCKBESTOS ALL-ASBESTOS
300 VOLT FIXTURE WIRES

National Electrical Code Type AF

MAXIMUM OPERATING TEMP. 150°C (302°F)



WHITE ASBESTOS INSULATION



BLACK ASBESTOS INSULATION

SOLID COLOR BRAID

SOLID COLOR BRAID WITH MARKER

FOR LIGHTING FIXTURES, SUN LAMPS, OFFICE EQUIPMENT, RADIO APPARATUS, LEADS FOR SMALL MOTORS AND TRANSFORMERS, MINIATURE SWITCHBOARDS, ETC.

These heat resisting fixture wires are used for lighting fixtures, sun lamps, office equipment, radio apparatus, leads for small motors and transformers, miniature switchboards, etc. They are approved by the Underwriters' Laboratories for lighting fixture wiring and bear their labels.

For fixtures where the wiring is concealed in stems or brackets, the PLAIN type wire is recommended. It has no braid. Made in black and white to indicate polarity.

When wiring is exposed, such as on a chain pendant fixture, the BRAIDED wire is recommended. Made in solid color braids and solid color with marker thread to indicate polarity.

ORDERING INFORMATION

Standard Packing: Both plain and braided fixture wires are put up on metal spools and in coils, and where quantity warrants (5000 to 10,000 feet depending on size) on factory reels.

Rockbestos plain fixture wire is furnished in standard colors black, white and red. Green, yellow, gray, orange and brown can be furnished to order.

Authorized stock items: Black and white.

Rockbestos braided fixture wire is finished in standard colors, mahogany brown and black in glazed cotton. Other colors and polarity marker threads can be furnished to order.

In ordering specify:

A.W.G. size and stranding.

Whether plain type or braided type.

If plain whether half the order black, other half white finish or all one color.

If braided type, whether half order solid color braid, other half with marker or all one way.

Color of braid.

TABLE FS (PLAIN) — 300 VOLTS — TYPE AF

Size	Stranding	Bare Diam. Inches	Min. Felted Wall Mils	*Nominal Finished Diameter Inches	Approx. Net Wgt. in Lbs. per 1000′	*Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
18 AWG	16/30	.045	31	.110	10	500′ S	12
16	26/30	.059	31	.125	14	500′ S	17
14	41/30	.075	31	.140	20	500′ S	23
12	65/30	.095	47	.190	34	500′ S	37
10	104/30	.120	47	.210	48	500′ C	51

TABLE FSB (BRAIDED) — 300 VOLT — TYPE AF

18 AWG	16/30	.045	31	.140	12	500′ S	14
16	26/30	.059	31	.155	16	500′ S	19
14	41/30	.075	31	.170	22	500′ S	25
12	65/30	.095	47	.220	37	500′ S	40
10	104/30	.120	47	.240	52	500′ C	55

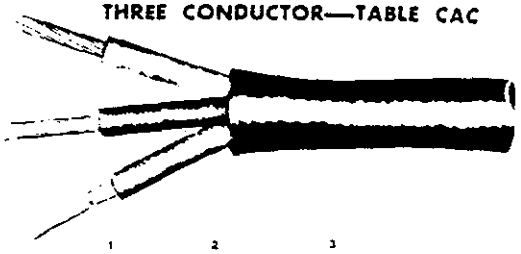
*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils, S—Spools

ROCKBESTOS ALL-ASBESTOS
300 VOLT
FLEXIBLE CORDS

MAXIMUM OPERATING TEMP. 125°C (257°F)

TWO CONDUCTOR—TABLE CA

THREE CONDUCTOR—TABLE CAC



1. STRANDED PLAIN COPPER CONDUCTOR 2. FELTED ASBESTOS 3. ASBESTOS BRAID

FOR RAILWAY LOCOMOTIVE CAB AND GAUGE LIGHTING CIRCUITS, PENDANT LIGHTING FIXTURES, BLUEPRINT MACHINES, SPOT AND FLOODLIGHTS, LEADS FOR FURNACES, OVENS, APPARATUS, ETC.

Rockbestos All-Asbestos Cord was originally developed for cab and gauge lighting circuits of steam locomotives to replace rubber insulated cords which failed to stand up under heat and vibration. Because of this use it is widely known in the railroad field as Cab Cord.

There is no rubber whatever in this construction. Instead the basis of the insulation is asbestos, applied to the wire by our unique insulating process and impregnated and compressed to form the felted asbestos wall. It meets a demand for a heat-resisting, fireproof, permanently flexible cord which will operate without failure under exposure to heat, corrosive fumes, oil, grease or fire hazard.

Because it will not dry up and crack under heat, it makes an ideal heavy duty cord for pendant lighting fixtures located in high temperature areas in steel mills, boiler rooms, kilns, glass plants, etc. It is also used for leads in heat-developing apparatus and for the wiring of blueprint machines, flood and spot lights and other high wattage units which develop temperatures that are ruinous to other types of insulated wires. For applications in which moisture may be encountered, use Rockbestos A.V.C. Flexible Cord described on page 19. If a perfectly round construction is desired it can be made up with fillers on special order.

If required for AFPD applications it can be made with polarized conductors on special order.

Standard finish colors: Black and white.
Authorized stock items: Black.

RAILROADS NOTE: For lighting circuits in locomotives equipped with train control apparatus we recommend using Rockbestos A.V.C. Flexible Cord because of its higher insulation resistance.

TABLE CA — 300 VOLTS

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: Felted Wall	Nominal Thickness — Mils: Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
18 AWG	16/30	.045	30	40	.285	40	500' C	46
16	26/30	.059	30	40	.310	51	500' C	56
14	41/30	.075	30	45	.350	64	500' C	69
12	65/30	.095	40	45	.430	96	250' C	101
10	104/30	.120	40	45	.480	130	250' C	136

TABLE CAC — 300 VOLTS

18 AWG	16/30	.045	30	40	.300	52	500' C	58
16	26/30	.059	30	40	.330	68	500' C	73
14	41/30	.075	30	45	.370	86	500' C	92
12	65/30	.095	40	45	.455	130	250' C	136
10	104/30	.120	40	45	.510	180	250' C	186

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variations in process of manufacture. †C—Coils.

ROCKBESTOS ALL-ASBESTOS
600 VOLT
FLEXIBLE APPARATUS CABLE

MAXIMUM OPERATING TEMP. 125°C (257°F)

3 2 1

1 FLEXIBLE TINNED COPPER CONDUCTOR 2 FELTED ASBESTOS 3 ASBESTOS BRAID

FOR FLEXIBLE LEADS AND CONNECTIONS OF APPARATUS SUCH AS LISTED UNDER TABLES "A" AND "R"—OVENS, FURNACES, DRYERS, AUTOMOTIVE BUS IMMERSION HEATER LEADS, BATTERY LEADS AND ENGINE COMPARTMENT WIRING.

This cable is recommended wherever flexible leads or connections must be used in open-wired high temperature installations.

Steel mills sometimes use this cable for motor leads exposed to heat where the possibility of a moisture condition is remote. It will not deteriorate under constant high ambient temperatures and is highly resistant to corrosive fumes, flame, grease and oil, characteristics which make it ideal for jumper leads, etc. (For high dielectric strength and moisture resistance see Rockbestos A.V.C. Motor Lead and Apparatus Cable on page 18.)

Automotive bus manufacturers and operators use it for engine compartment wiring and leads for batteries, crank case and radiator immersion heaters because of its high resistance to heat and flame. (For smaller diameter cable for these applications and diesel locomotive control circuit wiring inquire about special Type ACA engine compartment or control cables.)

This cable is National Electrical Code Type AIA and is listed by the Underwriters' Laboratories' as Type AIA wire. Maximum operating temperature is 125°C (257°F). Standard finish colors: Black and white. Authorized stock item: Black. This cable can be made up with extra flexible stranded tinned conductor if required.

For 300 volt construction refer to page 44, Table RF-300.

TABLE RF — **600 VOLTS** — **TYPE AIA**

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: Felted Wall	Nominal Thickness — Mils: Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
**18 AWG	16/.010	.045	30	40	.185	23	500′ C	27
**16	26/.010	.059	30	40	.200	27	500′ C	32
14	41/.010	.075	30	40	.215	34	500′ C	39
12	65/.010	.095	40	40	.255	49	500′ C	54
10	104/.010	.120	40	40	.280	65	500′ C	71
8	133/.0111	.167	40	40	.330	94	500′ C	99
6	133/.0140	.210	60	45	.420	135	500′ R	168
5	133/.0158	.237	60	45	.450	165	500′ R	206
4	133/.0177	.266	60	45	.480	195	500′ R	243
3	133/.0199	.299	60	45	.510	235	500′ R	293
2	133/.0223	.335	60	45	.545	285	500′ R	356
1	259/.0180	.378	75	45	.620	360	500′ R	450
0	259/.0202	.424	75	45	.665	445	500′ R	556
00	259/.0227	.477	75	45	.720	540	500′ R	675
000	259/.0255	.536	75	45	.780	665	500′ R	831
0000	259/.0286	.601	75	45	.845	810	500′ R	1012
250.000 CM	427/.0242	.653	90	45	.925	985	500′ R	1231
300.000	427/.0265	.716	90	45	.990	1120	500′ R	1400
350.000	427/.0286	.772	90	45	1.045	1330	500′ R	1662
400.000	427/.0306	.826	90	45	1.100	1460	500′ R	1825
450.000	427/.0325	.878	90	45	1.150	1690	500′ R	2112
500.000	427/.0342	.923	90	45	1.195	1805	500′ R	2256

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils, R—Reels
**Not listed in National Electrical Code.

RBB 02998

ROCKBESTOS ALL-ASBESTOS

600 VOLT POWER and RHEOSTAT CABLE

National Electrical Code Type AIA

MAXIMUM OPERATING TEMP. 125°C (257°F)

1. STRANDED PLAIN COPPER CONDUCTOR 2. FELTED ASBESTOS 3. ASBESTOS BRAID

FOR GRID JUMPER CONNECTIONS AND CONNECTIONS FROM GRIDS TO FACEPLATES, INFRA-RED DRYERS, OVENS, ELECTRIC STOVE BUS CIRCUITS, ELEMENT LEADS ON WELL TYPE ANNEALING FURNACES AND OPEN WIRING EXPOSED TO EXTREMELY HIGH TEMPERATURES, CORROSIVE FUMES, GREASE, OIL OR FIRE HAZARD.

This wire is listed by Underwriters' Laboratories as Type AIA wire.

Standard finish colors: Black and white.
Authorized stock items: Black (white also in sizes nos. 12 and 14).

For 300 volt construction refer to page 44. Table R-300 Rockbestos High Temperature Rheostat Wire.

TABLE R — 600 VOLTS — TYPE AIA

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: Felted Wall	Nominal Thickness — Mils: Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
**18 AWG	7/.0152	.046	30	40	.190	22	500′ C	27
**16	7/.0192	.058	30	40	.200	28	500′ C	33
14	7/.0242	.073	30	40	.215	33	500′ C	39
12	7/.0305	.092	40	40	.255	47	500′ C	53
10	7/.0385	.116	40	40	.280	64	500′ C	69
8	7/.0486	.146	40	40	.310	90	500′ C	94
6	7/.0612	.184	60	45	.395	130	500′ R	162
5	7/.0688	.206	60	45	.420	155	500′ R	193
4	7/.0772	.232	60	45	.445	185	500′ R	231
3	7/.0867	.260	60	45	.470	225	500′ R	281
2	7/.0974	.292	60	45	.505	270	500′ R	337
1	19/.0664	.332	75	45	.575	345	500′ R	431
0	19/.0745	.373	75	45	.615	420	500′ R	525
00	19/.0837	.419	75	45	.660	520	500′ R	650
000	19/.0940	.470	75	45	.710	635	500′ R	793
0000	19/.1055	.528	75	45	.770	785	500′ R	981
250,000 CM	37/.0822	.575	90	45	.845	920	500′ R	1150
300,000	37/.0900	.630	90	45	.900	1080	500′ R	1350
350,000	37/.0973	.681	90	45	.955	1245	500′ R	1556
400,000	37/.1040	.728	90	45	1.000	1405	500′ R	1756
450,000	37/.1103	.772	90	45	1.045	1570	500′ R	1962
500,000	37/.1162	.813	90	45	1.085	1730	500′ R	2162
550,000	61/.0950	.855	105	45	1.155	1890	500′ R	2362
600,000	61/.0992	.893	105	45	1.195	2080	500′ R	2600
650,000	61/.1032	.929	105	45	1.230	2240	500′ R	2800
700,000	61/.1071	.964	105	45	1.265	2415	500′ R	3018
750,000	61/.1109	.998	105	45	1.300	2560	500′ R	3200
800,000	61/.1145	1.031	105	45	1.335	2730	500′ R	3412
850,000	61/.1180	1.062	105	45	1.365	2890	500′ R	3612
900,000	61/.1215	1.093	105	45	1.395	3050	500′ R	3812
950,000	61/.1248	1.123	105	45	1.425	3215	500′ R	4018
1,000,000	61/.1280	1.152	105	45	1.455	3375	500′ R	4218

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils, R—Reels
**Not listed in National Electrical Code.

ROCKBESTOS ALL-ASBESTOS
600 VOLT RHEOSTAT WIRE

National Electrical Code Type AIA

MAXIMUM OPERATING TEMP. 125°C (257°F)

3 2 1

1. SOLID PLAIN COPPER CONDUCTOR 2. FELTED ASBESTOS 3. ASBESTOS BRAID

FOR GRID JUMPER CONNECTIONS AND CONNECTIONS FROM GRIDS TO FACEPLATES, INFRA-RED DRYERS, OVENS, ELECTRIC STOVE BUS CIRCUITS, ELEMENT LEADS ON WELL TYPE ANNEALING FURNACES AND OPEN WIRING EXPOSED TO EXTREMELY HIGH TEMPERATURES, CORROSIVE FUMES, GREASE, OIL OR FIRE HAZARD.

Asbestos rheostat wire was originally produced by putting two or three braids of asbestos yarn on the wire and finishing each braid with compound. This had several disadvantages. For example, its moisture resistance was very low due to the comparatively open covering so that many engineers considered that spaced wiring was necessary in order to prevent possible leakage under damp conditions. The labor cost of doing this type of wiring is high.

Another disadvantage—though really more of an annoyance—was that in working with this wire a good deal of the compound flaked off and continued to do so after the installation was completed, spoiling the appearance of an otherwise nice job.

The Rockbestos development of the felted and impregnated wall of asbestos insulation was a distinct improvement. Instead of a relatively open covering on the wire, the asbestos is applied in the form of a homogeneous insulation. The dielectric strength is thereby increased. Next, the impregnating compound is an integral part of the insulating wall, not painted on after the wall is formed. That means that, through repeated heating and cooling cycles, the compound can never fall away from the asbestos. The dielectric strength and moisture resistance of Rockbestos Rheostat Wire are, therefore, practically constant. And there is none of the usual flaking when working with Rockbestos Rheostat Wire and Cable, with either white or black braid.

Because of its comparatively high moisture resistance Rockbestos Rheostat Wire may be bunch-wired with safety, and it is also recommended for open wiring carrying less than 600 volts which is subject to high temperatures or rotting, corrosive fumes. For a 300 volt construction of the same type *refer to page 44.*

This wire is National Electrical Code Type AIA listed by the Underwriters' Laboratories as Type AIA wire and has a maximum operating temperature 125°C (257°F).

Standard finish colors: Black and white.

Authorized stock items: Black (white also in sizes nos. 6, 8, 10, 12 and 14.

TABLE A — 600 VOLTS — TYPE AIA

Size	Bare Diam. Inches	Nominal Thickness — Mils: Felted Wall	Nominal Thickness — Mils: Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
**18 AWG	.040	30	40	.180	22	500′ C	27
**16	.051	30	40	.195	26	500′ C	32
14	.064	30	40	.205	32	500′ C	37
12	.081	30	40	.225	42	500′ C	47
10	.102	30	40	.245	56	500′ C	61
8	.128	30	40	.270	79	500′ C	84
6	.162	40	40	.325	115	500′ R	143
5	.182	40	45	.355	140	500′ R	175
4	.204	40	45	.375	165	500′ R	206
3	.229	40	45	.400	205	500′ R	256
2	.258	40	45	.430	255	500′ R	318
1	.289	60	45	.500	320	500′ R	400
0	.325	60	45	.535	395	500′ R	493
00	.365	60	45	.575	485	500′ R	606
000	.410	60	45	.620	600	500′ R	750
0000	.460	60	45	.670	745	500′ R	931

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils, R—Reels
**Not listed in National Electrical Code.

ROCKBESTOS ALL-ASBESTOS

300 VOLT EXTRA FLEXIBLE APPARATUS CABLE

National Electrical Code Type AA

MAXIMUM OPERATING TEMP. 150°C (302°F)

FOR MOVIE PROJECTORS, SUN-ARCS, SPOT LIGHTS, EFFECT MACHINES, HIGH TEMPERATURE LIGHTING EQUIPMENT, FURNACES, LAB OVENS, ETC.

1. ROPE LAY STRANDED PLAIN COPPER CONDUCTOR 2. FELTED ASBESTOS 3. ASBESTOS BRAID

This cable was originally developed as "Motion Picture Cable" for specific use in motion picture projector lamp houses and sun-arc lamps, but its use has been extended to product and industrial applications requiring extra-flexible insulated conductors that will resist the baking effects of high temperatures.

The felted asbestos insulation and the asbestos braid are both impregnated with heat and flame resisting compound to assure the highest possible resistance to heat and maximum flexibility. The braid finish is white.

This cable is National Electrical Code Type AA, listed by the Underwriters' Laboratories as Type AA wire and has a maximum operating temperature of 150°C (302°F). Stranded Copper conductors employing No. 27 AWG or smaller strands limited to 150°C (302°F) by Underwriters' Laboratories. It will remain flexible under continuous operation at rated temperature, doesn't burn or support combustion even when exposed to an arc, and has typical Rockbestos resistance to fumes, grease or oil.

Standard finish colors: White and black.
Authorized stock items: White:

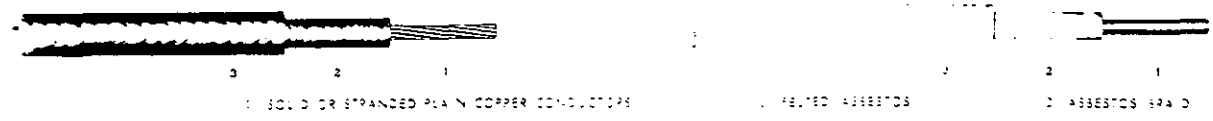
TABLE W — **300 VOLTS** — **TYPE AA**

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: Felted Wall	Nominal Thickness — Mils: Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
**18 AWG	41/34	.047	30	40	.190	18	500′ C	23
**16	65/34	.061	30	40	.205	23	500′ C	28
14	104/34	.077	30	40	.220	30	500′ C	36
12	259/36	.102	30	40	.245	41	500′ C	47
10	413/36	.130	30	40	.270	58	500′ C	63
8	665/36	.165	30	40	.305	75	500′ C	80
6	1050/36	.205	40	45	.375	115	500′ C	121
4	1666/36	.275	40	45	.445	170	250′ C	176
2	2646/36	.350	40	45	.520	255	200′ C	262
1	3332/36	.400	60	45	.610	330	200′ C	337
0	4214/36	.440	60	45	.650	410	200′ C	417
00	5292/36	.500	60	45	.710	500	200′ NR	507
000	6713/36	.570	60	45	.780	630	200′ NR	637
0000	8512/36	.640	60	45	.850	780	200′ NR	787

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils, NR—Non-returnable Reels.
**Not listed in National Electrical Code.

ROCKBESTOS ALL-ASBESTOS 300 VOLT HIGH TEMPERATURE RHEOSTAT WIRE

MAXIMUM OPERATING TEMP.: 200°C (392°F) — TABLES A-300, R-300
150°C (302°F) TABLE RF-300



1. SOLID OR STRANDED PLAIN COPPER CONDUCTORS
2. FELTED ASBESTOS
3. ASBESTOS BRAID

FOR GRID JUMPER CONNECTIONS AND CONNECTIONS FROM GRIDS TO FACEPLATES, INFRA-RED DRYERS, OVENS, ELECTRIC STOVE BUS CIRCUITS, ELEMENT LEADS ON WELL TYPE ANNEALING FURNACES AND OPEN WIRING EXPOSED TO EXTREMELY HIGH TEMPERATURES, CORROSIVE FUMES, GREASE, OIL OR FIRE HAZARD.

CONDUCTORS: TABLE A-300 (SOLID) TABLE R-300 (STRANDED) TABLE RF-300 (FLEXIBLE STRANDED)
These wires are [illegible] Underwriters' Laboratories as Type AA wire.
Standard braid finishes are white and black—colors on special order.

TABLE A-300 (Solid) 300 VOLTS TYPE AA

Size	Bare Diam. Inches	Nominal Thickness — Mils: Felted Wall	Nominal Thickness — Mils: Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
**18 AWG	.040	30	40	.180	18	500' C	22
**16	.051	30	40	.195	22	500' C	28
14	.064	30	40	.205	28	500' C	33
12	.081	30	40	.225	38	500' C	43
10	.102	30	40	.245	52	500' C	57
8	.128	30	40	.270	69	500' C	79

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils

TABLE R-300 (Stranded) 300 VOLTS TYPE AA

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: Felted Wall	Nominal Thickness — Mils: Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
**18 AWG	7/.0152	.046	30	40	.190	18	500' C	24
**16	7/.0192	.058	30	40	.200	23	500' C	28
14	7/.0242	.073	30	40	.215	29	500' C	35
12	7/.0305	.092	30	40	.235	44	500' C	45
10	7/.0385	.116	30	40	.260	54	500' C	60
8	7/.0486	.146	30	40	.290	72	500' C	83

TABLE RF-300 (Flexible Stranded) 300 VOLTS (Maximum Operating Temp. 150°C) TYPE AA

**18 AWG	16/.010	.045	30	40	.185	18	500' C	24
**16	26/.010	.059	30	40	.200	23	500' C	28
14	41/.010	.075	30	40	.215	30	500' C	35
12	65/.010	.095	30	40	.235	40	500' C	46
10	104/.010	.120	30	40	.260	56	500' C	61
8	133/.0111	.167	30	40	.307	75	500' C	88

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils
**Not listed in National Electrical Code.

RBB 02994

ROCKBESTOS ALL-ASBESTOS

RHEOSTAT WIRES | **APPARATUS CABLES**
FLEXIBLE CORDS | **FIXTURE WIRES**

NEC TYPE AA

MAX. OPERATING TEMP.* 200 C (392 F)

The Rockbestos 300 volt [illegible] constructions [illegible] Apparatus [illegible] are impregnated [illegible] flame resisting compound in both the [illegible] and [illegible] asbestos braid. This [illegible] resistance to heat. These impregnated all-asbestos constructions will not burn or support combustion even when exposed to an arc. They have typical Rockbestos resistance to fumes, grease, and oil. From the constructions listed on these pages [illegible] solid, stranded, flexible [illegible] Underwriters' Laboratories [illegible] Type AA wire.

[illegible] No. [illegible] AWG [illegible] smaller strands limited to 150°C (302°F) by Underwriters' Laboratories.

NEC TYPE AIA

MAX. OPERATING TEMP. 125°C (257°F)

Pages 46-48 list Rockbestos all-asbestos constructions in Rheostat, Power and Apparatus Wires and Cables for 600 volt service. They are recommended for open wiring in high ambient dry locations. The impregnated asbestos insulations used will not deteriorate under constant high temperatures, and they are resistant to corrosive fumes, flame, moisture, grease and oil. For applications requiring more flexible conductors, extra flexible strandings may be specified for maximum flexibility. These wires are listed by Underwriters' Laboratories as Type AIA wire.

NEC TYPE AF

MAX. OPERATING TEMP. 150°C (302°F)

Page 50 in this section lists both plain and braided fixture wires for 300 volt service. In fixtures where the wiring is concealed in stems or brackets, the PLAIN type is recommended. It has no braid. Made in black and white to indicate polarity.

When wiring is exposed, such as on chain pendant fixtures, the BRAIDED wire is recommended. Made in solid color braids and solid color with marker thread to indicate polarity.

Rockbestos Heat Resisting Fixture Wires are approved by the Underwriters' Laboratories for lighting fixtures and bear their labels. The impregnated asbestos insulation withstands the high socket temperatures developed by high wattage or flush type fixtures without drying out or becoming hard or brittle. This type of insulation also eliminates fire hazard as it is resistant to flame as well as heat. Furthermore, it is moisture resisting, an important factor where fixtures hang in damp or humid locations.

NEC TYPE AFC AND AFPD

MAX. OPERATING TEMP. 150°C (302°F)

The 300 volt Flexible Cords listed on pages 49 and 51 are useful for lighting pendants and for apparatus and test leads where non-deteriorating heat resisting cord is required. The constructions illustrated on these two pages offer a selection of either cotton or asbestos braid.

The flexible cords on page 51 are approved by Underwriters' Laboratories for lighting fixture wiring under the type symbols shown.

The 300 volt All-asbestos Flexible Cords shown on page 49 were originally developed for cab and gauge lighting circuits of steam locomotives to replace rubber insulated cords which failed to stand up under exposure to heat and vibration. Its heavy duty asbestos braid construction made it ideal for pendant lighting fixtures located in high temperature locations in steel mills, boiler rooms, kilns and glass plants requiring a heavy duty flexible cord which would operate without failure under exposure to heat, corrosive fumes, oil, grease, and fire hazard.

RBB 02993

ROCKBESTOS THERMOPLASTIC and ASBESTOS
600 VOLT SWITCHBOARD WIRES AND FLEXIBLE HINGE CABLE

National Electrical Code Type TA

TABLE XB, SOLID—TABLE XBS, STRANDED
TABLE XBH, FLEXIBLE STRANDED HINGE CABLE
MAXIMUM OPERATING TEMP. 90°C (194°F)

1. SOLID OR STRANDED TINNED COPPER CONDUCTOR 2. THERMOPLASTIC INSULATION 3. FELTED ASBESTOS 4. FLAMEPROOF COTTON BRAID

FOR SWITCHBOARDS, CONTROL PANELS AND HINGE CONNECTIONS

Standard finish colors: Gray and black. Authorized stock items: Gray.

TABLE XB (Solid) — 600 VOLTS — TYPE TA

Size	Bare Diam. Inches	Minimum Thermoplastic Insulation Mils	Nominal Thickness—Mils: Felted Wall	Nominal Thickness—Mils: Cotton Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
**18 AWG	.040	20	20	16	.160	20	500′ C	26
**16	.051	20	20	16	.170	25	500′ C	31
14	.064	20	20	16	.185	30	500′ C	36
12	.081	20	20	16	.200	40	500′ C	46
10	.102	20	20	16	.225	55	500′ C	61
8	.128	20	20	17	.250	75	500′ C	81
6	.162	30	25	17	.315	120	500′ R	150
5	.182	30	25	17	.335	145	500′ R	181
4	.204	30	25	17	.360	175	500′ R	218
3	.229	30	25	17	.385	210	500′ R	262
2	.258	30	25	20	.420	260	500′ R	325
1	.289	40	30	20	.480	330	500′ R	412
0	.325	40	30	20	.515	405	500′ R	506
00	.365	40	30	20	.555	495	500′ R	618
000	.410	40	30	20	.600	605	500′ R	756
0000	.460	40	30	20	.650	750	500′ R	937

TABLE XBS (Stranded) — 600 VOLTS — TYPE TA

Size	Stranding	Bare Diam. Inches	Minimum Thermoplastic Insulation Mils	Nom. Thickness — Mils: Felted Wall	Nom. Thickness — Mils: Cotton Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
**18 AWG	7/.0152	.046	20	20	16	.165	20	500′ C	26
**16	7/.0192	.058	20	20	16	.180	25	500′ C	31
14	7/.0242	.073	20	20	16	.195	32	500′ C	38
12	7/.0305	.092	20	20	16	.215	41	500′ C	47
10	7/.0385	.116	20	20	17	.240	56	500′ C	63
8	7/.0486	.146	20	20	17	.270	79	500′ C	85
6	7/.0612	.184	30	25	17	.340	125	500′ R	156
5	7/.0688	.206	30	25	17	.365	150	500′ R	187
4	7/.0772	.232	30	25	17	.395	180	500′ R	225
3	7/.0867	.260	30	25	20	.425	240	500′ R	300
2	7/.0974	.292	30	25	20	.455	265	500′ R	331
1	19/.0664	.332	40	30	20	.525	345	500′ R	431
0	19/.0745	.373	40	30	20	.565	420	500′ R	525
00	19/.0837	.419	40	30	20	.610	515	500′ R	643
000	19/.0940	.470	40	30	20	.660	635	500′ R	793
0000	19/.1055	.528	40	30	20	.720	780	500′ R	975

TABLE XBH (Flexible Stranded) — 600 VOLTS — TYPE TA

**18 AWG	16/.010	.045	20	20	16	.165	20	500′ C	25
**16	26/.010	.059	20	20	16	.180	25	500′ C	30
14	41/.010	.075	20	20	16	.195	31	500′ C	37
12	65/.010	.095	20	20	16	.215	42	500′ C	47
10	104/.010	.120	20	20	17	.245	57	500′ C	63
8	133/.0111	.167	20	20	17	.290	84	500′ C	89
6	133/.0140	.210	30	25	17	.365	130	500′ R	162
5	133/.0158	.237	30	25	20	.395	160	500′ R	200
4	133/.0177	.266	30	25	20	.425	190	500′ R	237
3	133/.0199	.299	30	25	20	.460	230	500′ R	287
2	133/.0223	.335	30	25	20	.495	280	500′ R	350
1	259/.0180	.378	40	30	20	.570	360	500′ R	450
0	259/.0202	.424	40	30	20	.615	435	500′ R	543
00	259/.0227	.477	40	30	20	.670	535	500′ R	668
000	259/.0255	.536	40	30	20	.730	660	500′ R	825
0000	259/.0286	.601	40	30	20	.795	810	500′ R	1012

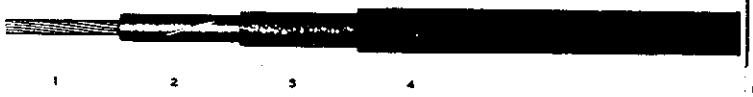
*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils, R—Reels
**Not listed in National Electrical Code.

ROCKBESTOS A.V.C.

600 VOLT HEADLIGHT WIRE

NEC TYPE AVB—ROCKBESTOS A.V.C.

MAXIMUM OPERATING TEMP. 90°C (194°F)



1. STRANDED TINNED COPPER CONDUCTOR
2. VARNISHED CAMBRIC
3. FELTED ASBESTOS
4. FLAMEPROOF COTTON BRAID

FOR LIGHTING AND CONTROL CIRCUITS OF LOCOMOTIVES—CAN BE USED FOR SWITCHBOARDS, RADIO AND TELEVISION TRANSMITTERS, MOTOR DRIVEN RHEOSTATS, CONTROL PANELS FOR MOTOR STARTERS, ELEVATORS, FIRE DOORS, CRANES, INDUCTION HEATING APPARATUS, ETC.

This wire was designed for railway locomotive applications in which a single conductor wire is more convenient to use than A.V.C. Flexible Cords (Cab Cords).

The construction illustrated above has the same characteristics that are to be found in other A.V.C. wires, cables and cords—high dielectric strength and resistance to heat and moisture.

Standard finish colors: Black and gray.

Be sure to specify braid color desired on order.

This wire can be finished in grey to match the appearance of our standard switchboard wires listed in this section. Its flexible conductor offers an intermediate stranding between Table BS and Table BH for Switchboard Applications. This construction also lends itself to many applications in which stranded conductors are not only preferred but are an essential requirement because of their greater flexibility.

This Rockbestos A.V.C. 600 volt Headlight wire is designated as National Electrical Code Type AVB and has a maximum operating temperature of 90°C (194°F).

TABLE T **600 VOLTS** **TYPE AVB**

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils			*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
			VC	Felted Wall	Cotton Braid				
16 AWG	19/.0117	.059	30	20	16	.195	25	500′ C	31
14	19/.0147	.074	30	20	16	.210	30	500′ C	36
12	19/.0185	.093	30	20	16	.225	45	500′ C	41
10	19/.0234	.117	30	20	17	.255	60	500′ C	66

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils

ROCKBESTOS A.V.C.

600 VOLT SWITCHBOARD BUS CABLE

NEC TYPE AVB—ROCKBESTOS A.V.C.

MAXIMUM OPERATING TEMP. 90°C (194°F)

1. STRANDED PLAIN COPPER CONDUCTOR 2. FELTED ASBESTOS 3. VARNISHED CAMBRIC 4. FELTED ASBESTOS 5. FLAMEPROOF COTTON BRAID

The general use of Rockbestos A.V.C. Switchboard Wire and Hinge Cable by switchboard builders, power companies, industrial plants, etc. brought forth requests for a cable with the same characteristics and finish for bus circuits. For this application we designed the cable illustrated above, similar in construction to our A.V.C. Power Cable but covered with a cotton braid instead of asbestos yarn.

This cable may also be used for conduit installations where Rockbestos A.V.C. Power Cable diameters run too large. It is National Electrical Code Type AVB, has a maximum operating temperature of 90°C (194°F), is listed by Underwriters' Laboratories, and complies with NEMA Standards

Standard finish colors: Black and gray.

TABLE P — 600 VOLTS — TYPE AVB

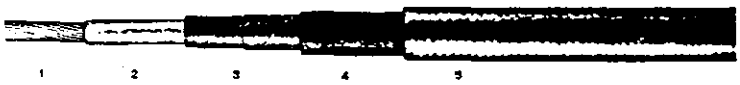
Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	VC Insert	2nd Felted Wall	Cotton Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
**18 AWG	7/.0152	.046	10	30	15	16	.190	25	500' C	31
**16	7/.0192	.058	10	30	15	16	.200	30	500' C	36
14	7/.0242	.073	10	30	15	16	.215	35	500' C	41
12	7/.0305	.092	10	30	15	17	.240	45	500' C	51
10	7/.0385	.116	10	30	15	17	.260	60	500' C	66
8	7/.0486	.146	10	30	15	17	.290	85	500' C	91
6	7/.0612	.184	15	30	20	17	.350	125	500' R	156
5	7/.0688	.206	15	30	20	17	.370	150	500' R	187
4	7/.0772	.232	15	30	20	20	.405	190	500' R	237
3	7/.0867	.260	15	30	20	20	.430	220	500' R	275
2	7/.0974	.292	15	30	20	20	.465	275	500' R	343
1	19/.0664	.332	20	30	30	20	.535	345	500' R	431
0	19/.0745	.373	20	30	30	20	.575	430	500' R	537
00	19/.0837	.419	20	30	30	20	.620	515	500' R	643
000	19/.0940	.470	20	30	30	20	.670	630	500' R	787
0000	19/.1055	.528	20	30	30	20	.730	780	500' R	975
250,000 CM	37/.0822	.575	25	40	40	20	.825	945	500' R	1181
300,000	37/.0900	.630	25	40	40	25	.890	1145	500' R	1431
350,000	37/.0973	.681	25	40	40	25	.945	1310	500' R	1637
400,000	37/.1040	.728	25	40	40	25	.990	1480	500' R	1850
450,000	37/.1103	.772	25	40	40	25	1.035	1645	500' R	2056
500,000	37/.1162	.813	25	40	40	25	1.075	1810	500' R	2262
550,000	61/.0950	.855	30	40	40	25	1.125	1990	500' R	2487
600,000	61/.0992	.893	30	40	40	25	1.165	2165	500' R	2706
650,000	61/.1032	.929	30	40	40	25	1.200	2330	500' R	2912
700,000	61/.1071	.964	30	40	40	25	1.235	2490	500' R	3112
750,000	61/.1109	.998	30	40	40	25	1.270	2655	500' R	3318
800,000	61/.1145	1.031	30	40	40	25	1.305	2818	500' R	3522
850,000	61/.1180	1.062	30	40	40	25	1.335	2980	500' R	3725
900,000	61/.1215	1.093	30	40	40	25	1.365	3140	500' R	3925
950,000	61/.1248	1.123	30	40	40	25	1.395	3305	500' R	4131
1,000,000	61/.1280	1.152	30	40	40	25	1.425	3465	500' R	4331
1,250,000	91/.1172	1.289	30	50	50	32	1.615	4340	500' R	5425
1,500,000	91/.1284	1.412	30	50	50	32	1.740	5160	500' R	6450
1,750,000	127/.1174	1.526	30	50	50	32	1.850	6000	500' R	7500
2,000,000	127/.1255	1.632	30	50	50	32	1.960	6740	500' R	8425

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils, R—Reels
**Not listed in National Electrical Code.

RBB 02990

ROCKBESTOS A.V.C.
600 VOLT SWITCHBOARD HINGE CABLE

NEC TYPE AVB—ROCKBESTOS A.V.C.
MAXIMUM OPERATING TEMP. 90°C (194°F)



1. STRANDED TINNED COPPER CONDUCTOR 2. FELTED ASBESTOS 3. VARNISHED CAMBRIC 4. FELTED ASBESTOS 5. FLAMEPROOF COTTON BRAID

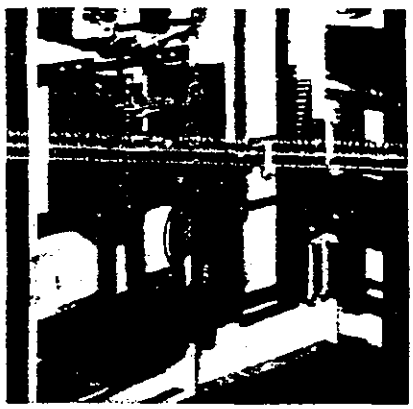
FOR HINGE AND JUMPER CONNECTIONS ON SWINGING INSTRUMENT AND SYNCHRONIZING METER PANELS, MOTOR LEADS AND APPLICATIONS SUCH AS LISTED UNDER TABLES B AND BS.

As a companion wire to Rockbestos Switchboard Wire we offer this heat, flame and moisture resisting flexible Hinge Cable, designed primarily for hinge or jumper connections on swinging instrument and synchronizing meter panels, etc., it is also used in various applications in electrical apparatus to maintain dependable performance. It may also be used for conduit wiring where conditions are not severe enough to require an asbestos braid.

Standard construction employs a flexible stranded, tinned copper conductor, insulated with a felted wall of asbestos, an insert of varnished cambric tape, another wall of felted asbestos, impregnated with flameproof and moisture resisting insulating compounds, and a cotton braid finished with flameproof compound.

The diameters of Rockbestos Hinge Cable are approximately the same as those of other Rockbestos Switchboard Wires, and braid finishes are identical to assure matching appearance when used on the same board.

Rockbestos A. V. C. Hinge Cable is designated as National Electrical Code Type AVB, has a maximum operating temperature of 90°C (194°F) and is listed by the Underwriters' Laboratories. It complies with the NEMA Small Wiring for Switchboards Standard and is approved by Factory Mutual Laboratories, switchboard manufacturers and power companies.



Showing application of Rockbestos Table BH 600 Volt Hinge Cable to swinging panel.

Standard finish colors: Gray and black.

Authorized stock items: Gray.

Be sure to specify braid color desired on order.

TABLE BH **600 VOLTS** **TYPE AVB**

Size	Stranding Tinned	Bare Diam. Inches	Nominal Thickness — Mils				*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
			1st Felted Wall	VC Insert	2nd Felted Wall	Cotton Braid				
**18 AWG	16/.010	.045	10	30	15	16	.190	25	500′ C	31
**16	26/.010	.059	10	30	15	16	.205	30	500′ C	36
14	41/.010	.075	10	30	15	16	.220	35	500′ C	41
12	65/.010	.095	10	30	15	17	.240	45	500′ C	51
10	104/.010	.120	10	30	15	17	.265	60	500′ C	66
8	133/.0111	.167	10	30	15	17	.315	90	500′ C	96

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils
**Not listed in National Electrical Code.

ROCKBESTOS A.V.C.

600 VOLT SWITCHBOARD WIRES

NEC TYPE AVB—ROCKBESTOS A.V.C.

TABLE B—SOLID **TABLE BS—STRANDED**

MAXIMUM OPERATING TEMP. 90°C (194°F)

1. SOLID OR STRANDED TINNED COPPER CONDUCTOR 2. VARNISHED CAMBRIC 3. FELTED ASBESTOS 4. FLAMEPROOF COTTON BRAID

FOR SWITCHBOARDS, RADIO AND TELEVISION TRANSMITTERS, MOTOR DRIVEN RHEOSTATS, CONTROL PANELS FOR MOTOR STARTERS, ELEVATORS, FIRE DOORS, CRANES, INDUCTION HEATING APPARATUS, OIL BURNING BOILER UNITS, ETC.

Standard finish colors; Gray and Black. Authorized stock-items: Gray.

TABLE B (Solid) — 600 VOLTS — TYPE AVB

Size	Bare Diam. Inches	Nominal Thickness — Mils			*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
		VC	Felted Wall	Cotton Braid				
18 AWG	.040	30	20	16	.175	20	500′ C	25
16	.051	30	20	16	.185	25	500′ C	31
14	.064	30	20	16	.200	30	500′ C	36
12	.081	30	20	16	.220	40	500′ C	46
10	.102	30	20	17	.240	55	500′ C	61
8	.128	30	20	17	.270	80	500′ C	86
6	.162	40	30	17	.340	125	500′ R	156
5	.182	40	30	17	.360	150	500′ R	187
4	.204	40	30	17	.380	175	500′ R	218
3	.229	40	30	20	.415	215	500′ R	268
2	.258	40	30	20	.445	260	500′ R	325
1	.289	40	40	20	.495	330	500′ R	412
0	.325	40	40	20	.530	405	500′ R	506
00	.365	40	40	20	.570	495	500′ R	618
000	.410	40	40	20	.615	610	500′ R	762
0000	.460	40	40	20	.665	750	500′ R	937

TABLE BS (Stranded) — 600 VOLTS — TYPE AVB

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils			*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
			VC	Felted Wall	Cotton Braid				
16 AWG	7/.0192	.058	30	20	16	.190	25	500′ C	31
14	7/.0242	.073	30	20	16	.205	35	500′ C	41
12	7/.0305	.092	30	20	16	.225	45	500′ C	51
10	7/.0385	.116	30	20	17	.250	60	500′ C	66
8	7/.0486	.146	30	20	17	.280	80	500′ C	86
6	7/.0612	.184	40	30	17	.360	130	500′ R	162
5	7/.0688	.206	40	30	17	.380	150	500′ R	187
4	7/.0772	.232	40	30	20	.415	185	500′ R	231
3	7/.0867	.260	40	30	20	.440	225	500′ R	281
2	7/.0974	.292	40	30	20	.475	280	500′ R	350
1	19/.0664	.332	40	40	20	.535	345	500′ R	431
0	19/.0745	.373	40	40	20	.575	420	500′ R	525
00	19/.0837	.419	40	40	20	.620	515	500′ R	643
000	19/.0940	.470	40	40	20	.670	630	500′ R	787
0000	19/.1055	.528	40	40	20	.730	780	500′ R	975

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils, R—Reels

RBB 02988

ROCKBESTOS
600 VOLT SWITCHBOARD WIRES
NEC TYPE AVB—ROCKBESTOS A.V.C.
and National Electrical Code Type TA

MAXIMUM OPERATING TEMP. 90°C (194°F)

NEC TYPE AVB
ROCKBESTOS A.V.C.

Rockbestos A.V.C. Switchboard Wire is designated as National Electrical Code Type AVB, has a maximum operating temperature of 90°C (194°F) and is listed by the Underwriters' Laboratories. It complies with the NEMA Small Wiring for Switchboards Standard and is approved by Factory Mutual Laboratories, switchboard manufacturers and power companies. It is used for switchboards, radio and television transmitters, motor driven rheostats, control panels for motor starters, elevators, fire doors, cranes, induction heating apparatus, oil burning boiler units, etc.

Fine appearance of completed boards is also assured because Rockbestos A.V.C. Switchboard Wire can be bent at right angles without cracking the braid. This desirable characteristic is contributed by the felted asbestos wall of insulation which acts like a cushion beneath the braid and gives slightly when a sharp bend is made. For this reason boards can be wired faster than with other types of switchboard wire which must be handled carefully if breaks are to be avoided. On switchboards installed in locations where the wiring is exposed to very high temperatures, we recommend the use of our Table C, Rockbestos A.V.C. Lighting Wire, on page 13 in this catalog.

Braid Colors:
Standard finish colors: Gray and black.
Authorized stock items: Gray.
Other colors or striped patterns can be furnished on special order.
Be sure to specify braid color desired on order.

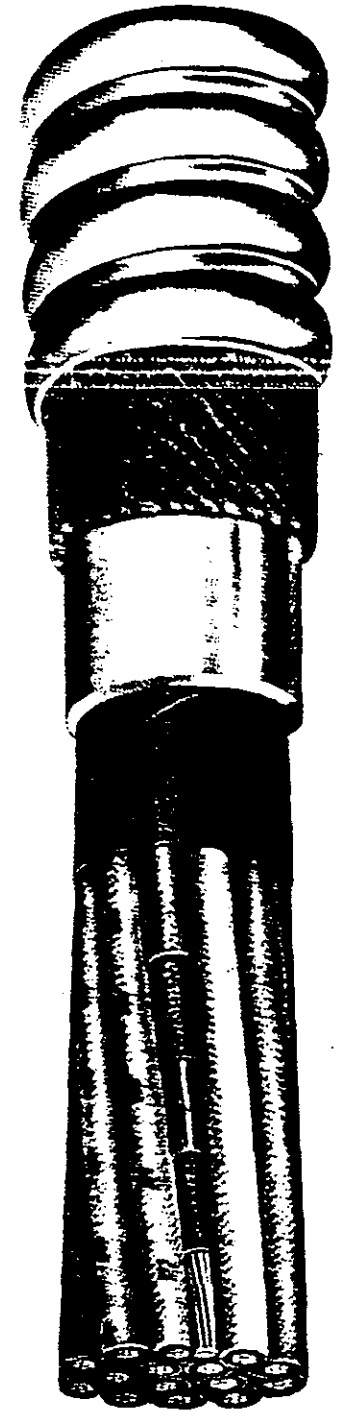
NEC TYPE TA

Available in both solid and stranded conductors, Rockbestos National Electrical Code Type TA Switchboard Wire has a maximum operating temperature of 90°C. (194°F.) and is insulated with a seamless Polyvinylchloride sheath, impregnated felted asbestos and covered with a cotton braid finished with flame resistant compound. It strips easily and takes right angle bends without cracking. It is approved for switchboard wiring application only.

This cable is listed by the Underwriters' Laboratories and complies with NEMA Standards.

Braid Colors:
Standard finish colors: Gray and black.
Authorized stock items: Gray.
Other colors or striped patterns can be furnished on special order.
Be sure to specify braid color desired on order.

SPECIAL CONSTRUCTIONS FOR ROCKBESTOS POWER AND CONTROL CABLES



This Rockbestos A.V.C. Control Cable illustrated is one of the many multi-conductor cables designed to meet specific requirements in control and power circuits. They are made up as shown or with either lead sheath or armor only as specified and in ratings ranging from 600 to 5000 volts. (Synthetic sheathings may also be specified for control cables where temperatures permit.) This type of cable not only protects operation of circuits exposed to heat and moisture and other severe operating conditions, but also increases the flexibility of wiring systems and makes circuits more easily accessible.

The felted asbestos insulation, impregnated with heat, flame and moisture resisting compounds, withstands high temperatures, corrosive fumes, aging and conductor-heating overloads. The lead sheath protects it from excessive condensation resulting from heating and cooling cycles and complete submersion. The spiral bronze armor eliminates the need for conduit, an important consideration in capacity expansion programs, as the cable can be run in troughs, up vertical risers or over and around obstructions. Its flame and heat resistant structure will also maintain vital alarm and control system circuits for longer periods under exposure to flame than other conventional types.

The cable illustrated on this page is a special construction which is typical of many "specials" designed by Rockbestos to meet severe or unusual operating conditions.

Its construction consists of:

Conduit saving bronze armor covering for protection against abrasion.
Impregnated jute serve to cushion the armor and to protect the lead sheath from mechanical damage.

Lead sheathing for protection against immersion or excessive condensation.
Friction tape to bind the cabled conductors securely together to maintain the lay.

INDIVIDUAL CONDUCTORS

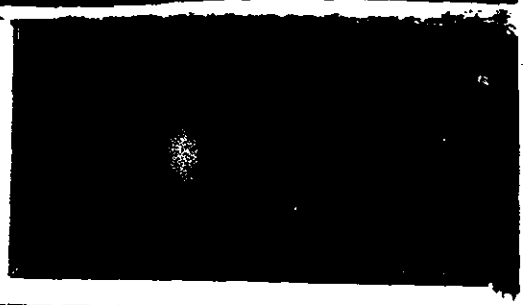
Coded individual cotton braided conductors for easy circuit identification.
Felted asbestos beneath the cotton braid impregnated with heat, flame and moisture resistant compounds.

Varnished cambric for high dielectric strength and added moisture resistance.
Inner wall of felted asbestos to complete the A.V.C. construction serving as a baffle between the varnished cambric and heated conductors.

RBB 02986

...Your best buy

ROCKBESTOS A.V.C.
LEAD SHEATHED
600 VOLT CONTROL CABLE
TYPE AVL—ROCKBESTOS A.V.C.
MAXIMUM OPERATING TEMPERATURE: 110°C (230°F)



Nominal Sizes—9 and 12 AWG 1-19 Conductors

(See Opposite Page for General Information)

Standard conductor sizes are No. 9-19/22 and No. 12-19/25 tinned copper, insulated with a 10 mil wall of felted and impregnated asbestos, 30 mil wall varnished cambric insert, another 15 mil wall of felted asbestos and a cotton braid colored according to the NEMA Control Cable Color Code for Multi-conductor Cables, listed on the opposite page. The individual conductors are then cabled with jute fillers where necessary, a layer of cable tape is applied, and finally a lead sheath is applied for absolute moisture protection.

The standard make-up on two conductor construction is to cable the conductors with fillers to make round, but it can also be furnished in parallel construction. Parallel must be specified if desired.

These Rockbestos Type AVL Control Cables can also be made up with No. 14, 16 and 18 AWG conductors.

TABLE MDL (AWG No. 12-19/25) 600 VOLTS TYPE AVL

Number of Conductors	Stranding	Bare Diam. inches	Lead Thickness	*Nominal Finished Diam Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
**1	19/25	.090	3/64	.315	245	500′ R	306
***2	19/25	.090	4/64	.580	625	500′ R	781
3	19/25	.090	4/64	.620	695	500′ R	869
4	19/25	.090	4/64	.680	800	500′ R	1000
5	19/25	.090	4/64	.745	890	500′ R	1113
6	19/25	.090	4/64	.815	985	500′ R	1231
7	19/25	.090	4/64	.845	1005	500′ R	1256
8	19/25	.090	5/64	.915	1380	500′ R	1725
9	19/25	.090	5/64	.985	1520	500′ R	1900
10	19/25	.090	5/64	1.065	1650	500′ R	2063
11	19/25	.090	5/64	1.065	1670	500′ R	2088
12	19/25	.090	5/64	1.100	1750	500′ R	2188
13	19/25	.090	5/64	1.130	1830	500′ R	2288
14	19/25	.090	5/64	1.160	1905	500′ R	2381
15	19/25	.090	5/64	1.205	1975	500′ R	2469
16	19/25	.090	6/64	1.260	2380	500′ R	2975
17	19/25	.090	6/64	1.305	2520	500′ R	3150
18	19/25	.090	6/64	1.325	2585	500′ R	3231
19	19/25	.090	6/64	1.325	2610	500′ R	3263

TABLE MTL (AWG No. 9-19/22) 600 VOLTS TYPE AVL

**1	19/22	.127	3/64	.355	300	500′ R	375
***2	19/22	.127	4/64	.665	770	500′ R	963
3	19/22	.127	4/64	.705	860	500′ R	1075
4	19/22	.127	4/64	.775	995	500′ R	1244
5	19/22	.127	5/64	.885	1355	500′ R	1694
6	19/22	.127	5/64	.965	1535	500′ R	1919
7	19/22	.127	5/64	.965	1595	500′ R	1994
8	19/22	.127	5/64	1.050	1740	500′ R	2175
9	19/22	.127	5/64	1.135	1930	500′ R	2413
10	19/22	.127	6/64	1.255	2430	500′ R	3038
11	19/22	.127	6/64	1.255	2490	500′ R	3113
12	19/22	.127	6/64	1.300	2600	500′ R	3250
13	19/22	.127	6/64	1.335	2715	500′ R	3394
14	19/22	.127	6/64	1.370	2830	500′ R	3538
15	19/22	.127	6/64	1.420	2970	500′ R	3713
16	19/22	.127	6/64	1.450	3080	500′ R	3850
17	19/22	.127	6/64	1.505	3240	500′ R	4050
18	19/22	.127	6/64	1.530	3335	500′ R	4169
19	19/22	.127	6/64	1.530	3400	500′ R	4250

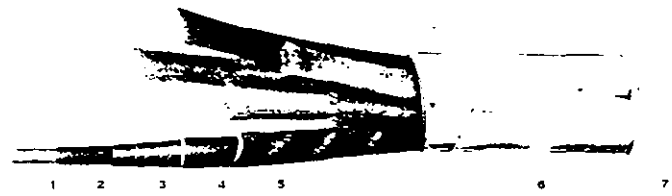
*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels
**Single conductor has no cotton braid. Second felted wall is increased to 25 mils.
***Can be furnished either parallel or cabled with fillers to make round.

RBB 02985

ROCKBESTOS A.V.C.
LEAD SHEATHED
600 VOLT CONTROL CABLE

TYPE AVL—ROCKBESTOS A.V.C.

MAXIMUM OPERATING TEMPERATURE: 110°C (230°F)



APPLICATION

Rockbestos Lead Sheathed Control Cables are used in steel mills, power stations, boiler rooms, automotive, ceramic and glass plants or other industries in which control and signal circuits or control apparatus are exposed to excessive moisture or complete submersion.

SPECIFICATIONS

1. Tinned Copper Conductor
2. Felted Asbestos
3. Varnished Cambric
4. Felted Asbestos
5. Color Coded Cotton Braids
6. Cable Tape
7. Lead Sheath

This cable is NEMA Type AVL with a maximum operating temperature of 110°C (230°F).

Special Coverings

These control cables may be made up with lead sheath and armor as illustrated on page 36 of this catalog.
Synthetic sheathing is optional also where temperatures permit.

Conductors

The standard strandings furnished on these Rockbestos A.V.C. Control Cables are 19/22 (No. 9 AWG) and 19/25 (No. 12 AWG) but any desired stranding can be furnished to order and cabled into any required number of conductors.

Insulation

The insulation of the individual conductors is the same type as that on Rockbestos Power Cables with the exception of the braid which is color coded cotton braid for circuit identification. When furnished for single conductor use, the second felted wall is increased to 25 mils beneath the lead sheath.

Impregnated walls of felted asbestos seal the varnished cambric from heat, flame and oxidation. Moistureproof tape is wrapped over the cabled conductors, and a lead sheath is applied to a thickness in accordance with NEMA standard for lead sheathed control cable.

Coding

The individual wires are braided in colors according to the NEMA Standard Color Code for Multi-conductor Cable, which is reproduced below. Special color combinations can be furnished to specification.

NEMA STANDARD COLOR CODE FOR MULTI-CONDUCTOR CONTROL CABLE

Conductors	Base Color	Conductors	Base Color	Tracer	Conductors	Base Color	Tracer
1	Black	7	White	Black	14	Green	White
2	White	8	Red	Black	15	Blue	White
3	Red	9	Green	Black	16	Black	Red
4	Green	10	Orange	Black	17	White	Red
5	Orange	11	Blue	Black	18	Orange	Red
6	Blue	12	Black	White	19	Blue	Red
		13	Red	White			

RBB 02984

ROCKBESTOS A.V.C.
LEAD SHEATHED

THREE CONDUCTOR POWER CABLE

TABLE 4HCL, 4000 VOLTS — MAX. OPERATING TEMP. 103°C (217°F)

TABLE HCL, 5000 VOLTS — MAX. OPERATING TEMP. 100°C (212°F)

[redacted]

TABLE 4HCL — 4000 VOLTS — TYPE AVL

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: Felted Wall	Varnished Cambric	2nd Felted Wall	Lead Sheath Thickness Inches	Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
12 AWG	7/.0305	.092	15	[illegible]	25	5/64	1.025	1560	500' R	2563
10	7/.0385	.116	15	[illegible]	25	5/64	1.060	1675	500' R	2718
8	7/.0486	.146	15	[illegible]	25	5/64	1.125	1855	500' R	2918
6	7/.0612	.184	15	[illegible]	25	5/64	1.215	2105	500' R	3218
5	7/.0688	.206	15	100	25	5/64	1.295	2565	500' R	3730
4	7/.0772	.232	15	100	25	6/64	1.350	2760	500' R	3950
3	7/.0867	.260	15	100	25	6/64	1.410	2995	500' R	4245
2	7/.0974	.292	15	100	25	6/64	1.480	3265	500' R	4565
1	19/.0664	.332	20	100	30	6/64	1.595	3700	500' R	4625
0	19/.0745	.373	20	100	30	6/64	1.680	4100	500' R	5125
00	19/.0837	.419	20	100	30	7/64	1.810	5040	500' R	6300
000	19/.0940	.470	20	100	30	7/64	1.920	5650	500' R	7062
0000	19/.1055	.528	20	100	30	7/64	2.045	6355	500' R	7943
250,000 CM	37/.0822	.575	25	100	40	7/64	2.150	7160	500' R	8950
300,000	37/.0900	.630	25	100	40	8/64	2.340	8500	500' R	10625
350,000	37/.0973	.681	25	100	40	8/64	2.450	9295	500' R	11620
400,000	37/.1040	.728	25	100	40	8/64	2.555	10060	500' R	12575
450,000	37/.1103	.772	25	100	40	8/64	2.650	10775	500' R	13468
500,000	37/.1162	.813	25	100	40	8/64	2.740	11525	500' R	14406

TABLE HCL — 5000 VOLTS — TYPE AVL

10 AWG	7/.0385	.116	15	120	25	5/64	1.165	1855	500' R	2318
8	7/.0486	.146	15	120	25	6/64	1.260	2360	500' R	2950
6	7/.0612	.184	15	120	25	6/64	1.330	2605	500' R	3256
5	7/.0688	.206	15	120	25	6/64	1.380	2770	500' R	3462
4	7/.0772	.232	15	120	25	6/64	1.435	2975	500' R	3718
3	7/.0867	.260	15	120	25	6/64	1.495	3205	500' R	4006
2	7/.0974	.292	15	120	25	6/64	1.565	3480	500' R	4350
1	19/.0664	.332	20	120	30	6/64	1.680	3940	500' R	4925
0	19/.0745	.373	20	120	30	7/64	1.800	4770	500' R	5962
00	19/.0837	.419	20	120	30	7/64	1.895	5315	500' R	6643
000	19/.0940	.470	20	120	30	7/64	2.005	5910	500' R	7387
0000	19/.1055	.528	20	120	30	7/64	2.140	6650	500' R	8312
250,000 CM	37/.0822	.575	25	120	40	8/64	2.310	8010	500' R	10012
300,000	37/.0900	.630	25	120	40	8/64	2.450	8830	500' R	11037
350,000	37/.0973	.681	25	120	40	8/64	2.540	9635	500' R	12043
400,000	37/.1040	.728	25	120	40	8/64	2.640	10365	500' R	12956
450,000	37/.1103	.772	25	120	40	8/64	2.735	11120	500' R	13900
500,000	37/.1162	.813	25	120	40	8/64	2.825	11840	500' R	14800

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels

[redacted]

RBB 02983

ROCKBESTOS A.V.C.
LEAD SHEATHED
THREE CONDUCTOR POWER CABLE

TABLE FCL, 2000 VOLTS — MAX. OPERATING TEMP. 109°C (228°F)

TABLE GCL, 3000 VOLTS — MAX. OPERATING TEMP. 106°C (222°F)

TABLE FCL — 2000 VOLTS — TYPE AVL

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	Nominal Thickness — Mils: VC Insert	Nominal Thickness — Mils: 2nd Felted Wall	Lead Sheath Thickness Inches	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	Standard Shipping Length Feet	Approx. Shipping Weight per 1000
12 AWG	7/.0305	.092	15	60	25	5/64	.855	1225	500' R	1551
10	7/.0385	.116	15	60	25	5/64	.905	1350	500' R	1687
8	7/.0486	.146	15	60	25	5/64	.970	1520	500' R	1890
6	7/.0612	.184	15	60	25	5/64	1.040	1740	500' R	2175
5	7/.0688	.206	15	60	25	5/64	1.090	1875	500' R	2343
4	7/.0772	.232	15	60	25	5/64	1.145	2060	500' R	2575
3	7/.0867	.260	15	60	25	6/64	1.210	2320	500' R	2900
2	7/.0974	.292	15	60	25	6/64	1.305	2845	500' R	3556
1	19/.0664	.332	20	60	30	6/64	1.420	3265	500' R	4081
0	19/.0745	.373	20	60	30	6/64	1.510	3660	500' R	4575
00	19/.0837	.419	20	60	30	6/64	1.605	4115	500' R	5143
000	19/.0940	.470	20	60	30	7/64	1.750	5125	500' R	6406
0000	19/.1055	.528	20	60	30	7/64	1.875	5825	500' R	7281
250.000 CM	37/.0822	.575	25	60	40	7/64	2.020	6605	500' R	8256
300.000	37/.0900	.630	25	60	40	7/64	2.135	7365	500' R	9206
350.000	37/.0973	.681	25	60	40	8/64	2.280	8665	500' R	10831
400.000	37/.1040	.728	25	60	40	8/64	2.380	9425	500' R	11781
450.000	37/.1103	.772	25	60	40	8/64	2.475	10130	500' R	12662
500.000	37/.1162	.813	25	60	40	8/64	2.565	10860	500' R	13575

TABLE GCL — 3000 VOLTS — TYPE AVL

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	Nominal Thickness — Mils: VC Insert	Nominal Thickness — Mils: 2nd Felted Wall	Lead Sheath Thickness Inches	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	Standard Shipping Length Feet	Approx. Shipping Weight per 1000
12 AWG	7/.0305	.092	15	80	25	5/64	.940	1390	500' R	1612
10	7/.0385	.116	15	80	25	5/64	.990	1520	500' R	1900
8	7/.0486	.146	15	80	25	5/64	1.055	1685	500' R	2106
6	7/.0612	.184	15	80	25	5/64	1.130	1905	500' R	2381
5	7/.0688	.206	15	80	25	5/64	1.175	2055	500' R	2568
4	7/.0772	.232	15	80	25	6/64	1.265	2555	500' R	3193
3	7/.0867	.260	15	80	25	6/64	1.325	2785	500' R	3481
2	7/.0974	.292	15	80	25	6/64	1.395	3055	500' R	3818
1	19/.0664	.332	20	80	30	6/64	1.505	3470	500' R	4337
0	19/.0745	.373	20	80	30	6/64	1.595	3870	500' R	4837
00	19/.0837	.419	20	80	30	7/64	1.725	4770	500' R	5962
000	19/.0940	.470	20	80	30	7/64	1.835	5370	500' R	6712
0000	19/.1055	.528	20	80	30	7/64	1.960	6105	500' R	7631
250.000 CM	37/.0822	.575	25	80	40	7/64	2.105	6875	500' R	8593
300.000	37/.0900	.630	25	80	40	8/64	2.255	8200	500' R	10250
350.000	37/.0973	.681	25	80	40	8/64	2.365	8965	500' R	11206
400.000	37/.1040	.728	25	80	40	8/64	2.465	9705	500' R	12131
450.000	37/.1103	.772	25	80	40	8/64	2.560	10450	500' R	13062
500.000	37/.1162	.813	25	80	40	8/64	2.650	11155	500' R	13943

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels

RBB 02982

Hi ... Your best buy

ROCKBESTOS A.V.C.
LEAD SHEATHED
THREE CONDUCTOR POWER CABLE

TABLE ECL, 600 VOLTS — MAX. OPERATING TEMP. 110°C (230°F)

TABLE EMCL, 1000 VOLTS — MAX. OPERATING TEMP. 110°C (230°F)

TABLE ECL — 600 VOLTS — TYPE AVL

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	VC Insert	2nd Felted Wall	Lead Sheath Thickness Inches	Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000	Standard Shipping Length Feet	Approx. Shipping Weight per 1000
12 AWG	7/.0305	.092	15	30	25	4/64	.680	795	500' R	994
10	7/.0385	.116	15	30	25	4/64	.735	900	500' R	1125
8	7/.0486	.146	15	30	25	4/64	.800	1040	500' R	1300
6	7/.0612	.184	15	30	25	5/64	.900	1475	500' R	1844
5	7/.0688	.206	15	30	25	5/64	.950	1620	500' R	2025
4	7/.0772	.232	15	30	25	5/64	1.005	1775	500' R	2219
3	7/.0867	.260	15	30	25	5/64	1.065	1975	500' R	2469
2	7/.0974	.292	15	30	25	5/64	1.135	2210	500' R	2763
1	19/.0664	.332	20	30	30	6/64	1.280	2925	500' R	3656
0	19/.0745	.373	20	30	30	6/64	1.370	3300	500' R	4125
00	19/.0837	.419	20	30	30	6/64	1.470	3740	500' R	4675
000	19/.0940	.470	20	30	30	6/64	1.580	4295	500' R	5369
0000	19/.1055	.528	20	30	30	6/64	1.695	4795	500' R	5994
250,000 CM	37/.0822	.575	25	40	40	7/64	1.800	6105	500' R	7631
300,000	37/.0900	.630	25	40	40	7/64	1.975	6835	500' R	8544
350,000	37/.0973	.681	25	40	40	7/64	2.085	7580	500' R	9475
400,000	37/.1040	.728	25	40	40	7/64	2.195	8280	500' R	10350
450,000	37/.1103	.772	25	40	40	8/64	2.315	9560	500' R	11950
500,000	37/.1162	.813	25	40	40	8/64	2.400	10240	500' R	12800

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. +R—Reels

TABLE EMCL — 1000 VOLTS — TYPE AVL

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	VC Insert	2nd Felted Wall	Lead Sheath Thickness Inches	Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000	Standard Shipping Length Feet	Approx. Shipping Weight per 1000
12 AWG	7/.0305	.092	15	45	25	4/64	.680	795	500' R	994
10	7/.0385	.116	15	45	25	4/64	.735	900	500' R	1125
8	7/.0486	.146	15	45	25	4/64	.800	1040	500' R	1300
6	7/.0612	.184	15	45	25	5/64	.900	1475	500' R	1844
5	7/.0688	.206	15	45	25	5/64	.950	1620	500' R	2025
4	7/.0772	.232	15	45	25	5/64	1.005	1775	500' R	2219
3	7/.0867	.260	15	45	25	5/64	1.065	1975	500' R	2469
2	7/.0974	.292	15	45	25	5/64	1.135	2210	500' R	2763
1	19/.0664	.332	20	45	30	6/64	1.280	2925	500' R	3656
0	19/.0745	.373	20	45	30	6/64	1.370	3300	500' R	4125
00	19/.0837	.419	20	45	30	6/64	1.470	3740	500' R	4675
000	19/.0940	.470	20	45	30	6/64	1.580	4295	500' R	5369
0000	19/.1055	.528	20	45	30	7/64	1.735	5410	500' R	6763
250,000 CM	37/.0822	.575	25	45	40	7/64	1.880	6170	500' R	7713
300,000	37/.0900	.630	25	45	40	7/64	2.000	6905	500' R	8631
350,000	37/.0973	.681	25	45	40	7/64	2.110	7640	500' R	9550
400,000	37/.1040	.728	25	45	40	7/64	2.215	8360	500' R	10450
450,000	37/.1103	.772	25	45	40	8/64	2.335	9650	500' R	12063
500,000	37/.1162	.813	25	45	40	8/64	2.425	10330	500' R	12913

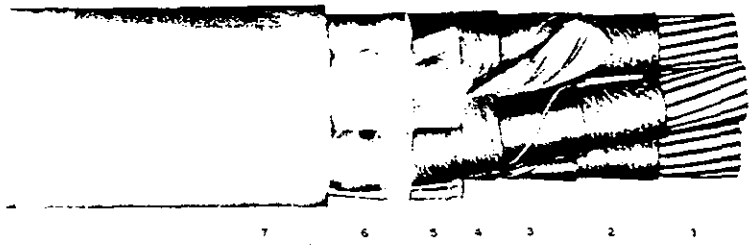
*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. +R—Reels

RBB 02981

LEAD SHEATHED—THREE CONDUCTOR

POWER CABLE

TYPE AVL—ROCKBESTOS A.V.C.



600 TO 1000 VOLT CONSTRUCTION

MAXIMUM OPERATING TEMP. 110 C 230 F

APPLICATIONS

These Rockbestos A.V.C. lead sheathed three conductor power cables are used for power circuits exposed to high temperatures in combination with [illegible] or complete submersion. You can safely use these cables where a conduit run is exposed to widely varying conditions throughout its length, particularly in power stations located on tidewater where certain ducts are sometimes flooded but where another part of the same circuit is exposed to high temperatures.

Rockbestos Hi-I A.V.C. Multi-conductor power cables (Type AVL) consist of single conductor AVA cables of the required voltage rating but without individual braids, cabled together with suitable lay and with impregnated jute fillers to maintain circularity of cross section. The assembled conductors are wrapped with a cable tape over which a lead sheath is applied.

These three conductor lead sheath cables are manufactured to NEMA Standards.

SPECIFICATIONS

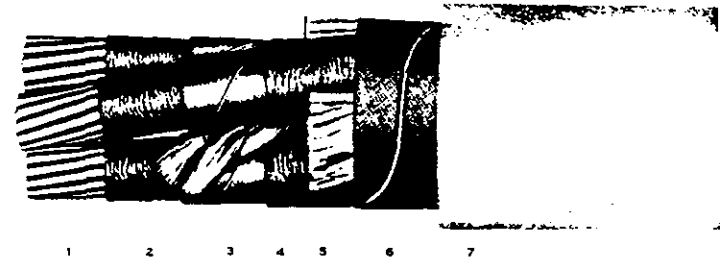
Construction

1. Stranded plain copper conductor
2. Felted asbestos
3. Varnished cambric
4. Felted asbestos
5. Jute fillers
6. Cable tape
7. Lead sheath

Maximum operating temperature is 110°C (230°F). Asbestos fillers may be substituted for jute if desired.

2000 TO 5000 VOLT CONSTRUCTIONS

MAXIMUM OPERATING TEMPERATURES:
2000 VOLT 109°C (228°F)
3000 VOLT 106°C (222°F)
4000 VOLT 103°C (217°F)
5000 VOLT 100°C (212°F)



APPLICATIONS

Rockbestos three conductor power cables in voltage ratings of 2000 to 5000 volts have the same general applications as listed above under the 600 to 1000 volt construction.

They can also be furnished with armor or lead sheath and armor as shown on page 36 on special order.

SPECIFICATIONS

Construction

1. Stranded plain copper conductor
2. Felted asbestos
3. Varnished cambric
4. Felted asbestos
5. Jute fillers
6. Varnished cambric
7. Lead sheath

ROCKBESTOS A.V.C.
LEAD SHEATHED
SINGLE CONDUCTOR POWER CABLE

TABLE 4HL, 4000 VOLTS
MAX. OPERATING TEMP.
103°C (217°F)

TABLE HL, 5000 VOLTS
MAX. OPERATING TEMP.
100°C (212°F)

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	V-C Insert	2nd Felted Wall	Lead Sheath Thickness Inches	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000
TABLE 4HL				**4000 VOLTS**						**TYPE AVL**
12 AWG	7/.0385	.092	15	100	25	3/64	.470	410	500' R	512
10	7/.0355	.116	15	100	25	3/64	.490	445	500' R	556
8	7/.0486	.146	15	100	25	4/64	.555	625	500' R	781
6	7/.0612	.184	15	100	25	4/64	.590	705	500' R	881
5	7/.0688	.206	15	100	25	4/64	.615	760	500' R	950
4	7/.0772	.232	15	100	25	4/64	.640	810	500' R	1012
3	7/.0867	.260	15	100	25	4/64	.665	880	500' R	1100
2	7/.0974	.292	15	100	25	4/64	.700	960	500' R	1200
1	19/.0664	.332	20	100	30	4/64	.760	1095	500' R	1368
0	19/.0745	.373	20	100	30	4/64	.800	1210	500' R	1512
00	19/.0837	.419	20	100	30	5/64	.875	1580	500' R	1975
000	19/.0940	.470	20	100	30	5/64	.930	1770	500' R	2212
0000	19/.1055	.528	20	100	30	5/64	.985	1990	500' R	2487
250,000 CM	37/.0822	.575	25	100	40	5/64	1.065	2245	500' R	2806
300,000	37/.0900	.630	25	100	40	5/64	1.120	2485	500' R	3106
350,000	37/.0973	.681	25	100	40	5/64	1.170	2720	500' R	3400
400,000	37/.1040	.728	25	100	40	6/64	1.250	3265	500' R	4081
450,000	37/.1103	.772	25	100	40	6/64	1.290	3495	500' R	4368
500,000	37/.1162	.813	25	100	40	6/64	1.335	3730	500' R	4662
550,000	61/.0950	.855	30	100	40	6/64	1.385	3985	500' R	4868
600,000	61/.0992	.893	30	100	40	6/64	1.425	4210	500' R	5262
650,000	61/.1032	.929	30	100	40	6/64	1.460	4430	500' R	5537
700,000	61/.1071	.964	30	100	40	6/64	1.495	4645	500' R	5806
750,000	61/.1109	.998	30	100	40	6/64	1.530	4860	500' R	6075
800,000	61/.1145	1.031	30	100	40	6/64	1.560	5075	500' R	6343
850,000	61/.1180	1.062	30	100	40	6/64	1.590	5285	500' R	6606
900,000	61/.1215	1.093	30	100	40	6/64	1.625	5495	500' R	6868
950,000	61/.1248	1.123	30	100	40	6/64	1.655	5705	500' R	7131
1,000,000	61/.1280	1.152	30	100	40	6/64	1.680	5910	500' R	7387
TABLE HL				**5000 VOLTS**						**TYPE AVL**
10 AWG	7/.0385	.116	15	120	25	4/64	.565	615	500' R	768
8	7/.0486	.146	15	120	25	4/64	.595	674	500' R	842
6	7/.0612	.184	15	120	25	4/64	.630	750	500' R	937
5	7/.0688	.206	15	120	25	4/64	.655	820	500' R	1025
4	7/.0772	.232	15	120	25	4/64	.680	860	500' R	1075
3	7/.0867	.260	15	120	25	4/64	.705	930	500' R	1162
2	7/.0974	.292	15	120	25	4/64	.740	1010	500' R	1262
1	19/.0664	.332	20	120	30	4/64	.800	1150	500' R	1437
0	19/.0745	.373	20	120	30	5/64	.870	1480	500' R	1850
00	19/.0837	.419	20	120	30	5/64	.915	1645	500' R	2056
000	19/.0940	.470	20	120	30	5/64	.970	1830	500' R	2287
0000	19/.1055	.528	20	120	30	5/64	1.025	2055	500' R	2568
250,000 CM	37/.0822	.575	25	120	40	5/64	1.105	2305	500' R	2881
300,000	37/.0900	.630	25	120	40	5/64	1.160	2544	500' R	3180
350,000	37/.0973	.681	25	120	40	6/64	1.240	3095	500' R	3868
400,000	37/.1040	.728	25	120	40	6/64	1.290	3335	500' R	4168
450,000	37/.1103	.772	25	120	40	6/64	1.330	3565	500' R	4456
500,000	37/.1162	.813	25	120	40	6/64	1.375	3800	500' R	4750
550,000	61/.0950	.855	30	120	40	6/64	1.425	4040	500' R	5050
600,000	61/.0992	.893	30	120	40	6/64	1.465	4280	500' R	5350
650,000	61/.1032	.929	30	120	40	6/64	1.500	4495	500' R	5618
700,000	61/.1071	.964	30	120	40	6/64	1.535	4715	500' R	5893
750,000	61/.1109	.998	30	120	40	6/64	1.570	4930	500' R	6162
800,000	61/.1145	1.031	30	120	40	6/64	1.600	5145	500' R	6431
850,000	61/.1180	1.062	30	120	40	6/64	1.630	5398	500' R	6747
900,000	61/.1215	1.093	30	120	40	6/64	1.665	5570	500' R	6962
950,000	61/.1248	1.123	30	120	40	7/64	1.725	6234	500' R	7792
1,000,000	61/.1280	1.152	30	120	40	7/64	1.755	6430	500' R	8037

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels

ROCKBESTOS A.V.C.

LEAD SHEATHED

SINGLE CONDUCTOR POWER CABLE

TABLE FL, 2000 VOLTS
MAX. OPERATING TEMP.
109°C (228°F)

TABLE G, 3000 VOLTS
MAX. OPERATING TEMP.
106°C (222°F)

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: Felted Wall	VC Insert	2nd Felted Wall	Lead Sheath Thickness Inches	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
TABLE FL				**2000 VOLTS**						**TYPE AVL**
14 AWG	7/.0242	.073	15	60	25	3/64	.370	290	500' R	362
12	7/.0305	.092	15	60	25	3/64	.390	315	500' R	393
10	7/.0385	.116	15	60	25	3/64	.410	350	500' R	437
8	7/.0486	.146	15	60	25	3/64	.440	400	500' R	500
6	7/.0612	.184	15	60	25	3/64	.480	460	500' R	575
5	7/.0688	.206	15	60	25	3/64	.500	510	500' R	637
4	7/.0772	.232	15	60	25	4/64	.560	675	500' R	843
3	7/.0867	.260	15	60	25	4/64	.590	755	500' R	943
2	7/.0974	.292	15	60	25	4/64	.620	830	500' R	1037
1	19/.0664	.332	20	60	30	4/64	.680	960	500' R	1200
0	19/.0745	.373	20	60	30	4/64	.720	1080	500' R	1350
00	19/.0837	.419	20	60	30	4/64	.765	1215	500' R	1518
000	19/.0940	.470	20	60	30	4/64	.820	1370	500' R	1712
0000	19/.1055	.528	20	60	30	5/64	.905	1820	500' R	2275
250.000 CM	37/.0822	.575	25	60	40	5/64	.985	2060	500' R	2575
300.000	37/.0900	.630	25	60	40	5/64	1.040	2295	500' R	2868
350.000	37/.0973	.681	25	60	40	5/64	1.090	2520	500' R	3150
400.000	37/.1040	.728	25	60	40	5/64	1.135	2745	500' R	3431
450.000	37/.1103	.772	25	60	40	5/64	1.180	2990	500' R	3737
500.000	37/.1162	.813	25	60	40	6/64	1.255	3475	500' R	4343
550.000	61/.0950	.855	30	60	40	6/64	1.305	3775	500' R	4718
600.000	61/.0992	.893	30	60	40	6/64	1.345	3965	500' R	4956
650.000	61/.1032	.929	30	60	40	6/64	1.380	4215	500' R	5268
700.000	61/.1071	.964	30	60	40	6/64	1.415	4395	500' R	5493
750.000	61/.1109	.998	30	60	40	6/64	1.450	4610	500' R	5762
800.000	61/.1145	1.031	30	60	40	6/64	1.480	4830	500' R	6037
850.000	61/.1180	1.062	30	60	40	6/64	1.510	5075	500' R	6343
900.000	61/.1215	1.093	30	60	40	6/64	1.545	5245	500' R	6556
950.000	61/.1248	1.123	30	60	40	6/64	1.575	5485	500' R	6856
1.000.000	61/.1280	1.152	30	60	40	6/64	1.600	5645	500' R	7056
TABLE GL				**3000 VOLTS**						**TYPE AVL**
12 AWG	7/.0305	.092	15	80	25	3/64	.430	365	500' R	456
10	7/.0385	.116	15	80	25	3/64	.450	400	500' R	500
8	7/.0486	.146	15	80	25	3/64	.480	450	500' R	562
6	7/.0612	.184	15	80	25	3/64	.520	640	500' R	800
5	7/.0688	.206	15	80	25	4/64	.575	700	500' R	875
4	7/.0772	.232	15	80	25	4/64	.600	745	500' R	931
3	7/.0867	.260	15	80	25	4/64	.630	810	500' R	1012
2	7/.0974	.292	15	80	25	4/64	.660	890	500' R	1112
1	19/.0664	.332	20	80	30	4/64	.720	1020	500' R	1275
0	19/.0745	.373	20	80	30	4/64	.760	1140	500' R	1425
00	19/.0837	.419	20	80	30	4/64	.805	1275	500' R	1593
000	19/.0940	.470	20	80	30	5/64	.890	1675	500' R	2093
0000	19/.1055	.528	20	80	30	5/64	.945	1805	500' R	2256
250.000 CM	37/.0822	.575	25	80	40	5/64	1.025	2140	500' R	2675
300.000	37/.0900	.630	25	80	40	5/64	1.080	2375	500' R	2968
350.000	37/.0973	.681	25	80	40	5/64	1.130	2600	500' R	3250
400.000	37/.1040	.728	25	80	40	5/64	1.175	2855	500' R	3568
450.000	37/.1103	.772	25	80	40	6/64	1.250	3370	500' R	4212
500.000	37/.1162	.813	25	80	40	6/64	1.295	3600	500' R	4500
550.000	61/.0950	.855	30	80	40	6/64	1.345	3870	500' R	4837
600.000	61/.0992	.893	30	80	40	6/64	1.385	4065	500' R	5081
650.000	61/.1032	.929	30	80	40	6/64	1.420	4305	500' R	5381
700.000	61/.1071	.964	30	80	40	6/64	1.455	4500	500' R	5625
750.000	61/.1109	.998	30	80	40	6/64	1.490	4710	500' R	5887
800.000	61/.1145	1.031	30	80	40	6/64	1.520	4925	500' R	6156
850.000	61/.1180	1.062	30	80	40	6/64	1.550	5225	500' R	6531
900.000	61/.1215	1.093	30	80	40	6/64	1.585	5340	500' R	6675
950.000	61/.1248	1.123	30	80	40	6/64	1.615	5591	500' R	6988
1.000.000	61/.1280	1.152	30	80	40	6/64	1.640	5750	500' R	7187

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels

...Your best buy

ROCKBESTOS A.V.C.
LEAD SHEATHED
SINGLE CONDUCTOR POWER CABLE

TABLE EL, 600 VOLTS — MAX. OPERATING TEMP. 110°C (230°F)

TABLE EML, 1000 VOLTS — MAX. OPERATING TEMP. 110°C (230°F)

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	Nominal Thickness — Mils: VC Insert	Nominal Thickness — Mils: 2nd Felted Wall	Lead Sheath Thickness Inches	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	*Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
TABLE EL				**600 VOLTS**						**TYPE AVL**
18 AWG	7/.0152	.046	10	30	25	3/64	.270	165	500' R	215
16	7/.0192	.058	10	30	25	3/64	.285	205	500' R	255
14	7/.0242	.073	10	30	25	3/64	.300	225	500' R	281
12	7/.0305	.092	10	30	25	3/64	.320	250	500' R	312
10	7/.0385	.116	10	30	25	3/64	.340	275	500' R	343
8	7/.0486	.146	10	30	25	3/64	.370	325	500' R	406
6	7/.0612	.184	15	30	25	3/64	.420	395	500' R	493
5	7/.0688	.206	15	30	25	3/64	.440	445	500' R	556
4	7/.0772	.232	15	30	25	3/64	.470	490	500' R	612
3	7/.0867	.260	15	30	25	3/64	.495	550	500' R	687
2	7/.0974	.292	15	30	25	4/64	.560	745	500' R	931
1	19/.0664	.332	20	30	30	4/64	.620	875	500' R	1093
0	19/.0745	.373	20	30	30	4/64	.660	1000	500' R	1250
00	19/.0837	.419	20	30	30	4/64	.705	1125	500' R	1406
000	19/.0940	.470	20	30	30	4/64	.760	1290	500' R	1612
0000	19/.1055	.528	20	30	30	4/64	.815	1490	500' R	1862
250,000 CM	37/.0822	.575	25	40	40	5/64	.945	1985	500' R	2481
300,000	37/.0900	.630	25	40	40	5/64	1.000	2240	500' R	2800
350,000	37/.0973	.681	25	40	40	5/64	1.050	2445	500' R	3056
400,000	37/.1040	.728	25	40	40	5/64	1.095	2665	500' R	3331
450,000	37/.1103	.772	25	40	40	5/64	1.140	2925	500' R	3656
500,000	37/.1162	.813	25	40	40	5/64	1.180	3095	500' R	3868
550,000	61/.0950	.855	30	40	40	6/64	1.265	3780	500' R	4725
600,000	61/.0992	.893	30	40	40	6/64	1.300	3870	500' R	4837
650,000	61/.1032	.929	30	40	40	6/64	1.340	4130	500' R	5162
700,000	61/.1071	.964	30	40	40	6/64	1.375	4250	500' R	5312
750,000	61/.1109	.998	30	40	40	6/64	1.405	4515	500' R	5643
800,000	61/.1145	1.031	30	40	40	6/64	1.440	4720	500' R	5900
850,000	61/.1180	1.062	30	40	40	6/64	1.470	5030	500' R	6287
900,000	61/.1215	1.093	30	40	40	6/64	1.500	5140	500' R	6425
950,000	61/.1248	1.123	30	40	40	6/64	1.530	5395	500' R	6743
1,000,000	61/.1280	1.152	30	40	40	6/64	1.560	5540	500' R	6925
1,250,000	91/.1172	1.289	30	50	50	7/64	1.770	7135	500' R	8918
1,500,000	91/.1284	1.412	30	50	50	7/64	1.890	8140	500' R	10175
1,750,000	127/.1174	1.526	30	50	50	7/64	2.005	9210	500' R	11512
2,000,000	127/.1255	1.632	30	50	50	7/64	2.110	10120	500' R	12650
TABLE EML				**1000 VOLTS**						**TYPE AVL**
14 AWG	7/.0242	.073	15	45	25	3/64	.340	260	500' R	325
12	7/.0305	.092	15	45	25	3/64	.360	285	500' R	356
10	7/.0385	.116	15	45	25	3/64	.380	320	500' R	400
8	7/.0486	.146	15	45	25	3/64	.410	370	500' R	462
6	7/.0612	.184	15	45	25	3/64	.450	430	500' R	537
5	7/.0688	.206	15	45	25	3/64	.470	490	500' R	612
4	7/.0772	.232	15	45	25	3/64	.500	520	500' R	650
3	7/.0867	.260	15	45	25	4/64	.560	710	500' R	887
2	7/.0974	.292	15	45	25	4/64	.590	790	500' R	987
1	19/.0664	.332	20	45	30	4/64	.650	915	500' R	1143
0	19/.0745	.373	20	45	30	4/64	.690	1030	500' R	1287
00	19/.0837	.419	20	45	30	4/64	.735	1165	500' R	1456
000	19/.0940	.470	20	45	30	4/64	.790	1335	500' R	1668
0000	19/.1055	.528	20	45	30	5/64	.875	1760	500' R	2200
250,000 CM	37/.0822	.575	25	45	40	5/64	.955	2005	500' R	2506
300,000	37/.0900	.630	25	45	40	5/64	1.010	2235	500' R	2793
350,000	37/.0973	.681	25	45	40	5/64	1.060	2465	500' R	3081
400,000	37/.1040	.728	25	45	40	5/64	1.105	2685	500' R	3356
450,000	37/.1103	.772	25	45	40	5/64	1.150	2905	500' R	3631
500,000	37/.1162	.813	25	45	40	5/64	1.190	3115	500' R	3893
550,000	61/.0950	.855	30	45	40	6/64	1.275	3330	500' R	4162
600,000	61/.0992	.893	30	45	40	6/64	1.315	3895	500' R	4868
650,000	61/.1032	.929	30	45	40	6/64	1.350	4110	500' R	5137
700,000	61/.1071	.964	30	45	40	6/64	1.385	4320	500' R	5400
750,000	61/.1109	.998	30	45	40	6/64	1.420	4534	500' R	5667
800,000	61/.1145	1.031	30	45	40	6/64	1.450	4745	500' R	5931
850,000	61/.1180	1.062	30	45	40	6/64	1.480	4980	500' R	6225
900,000	61/.1215	1.093	30	45	40	6/64	1.515	5160	500' R	6450
950,000	61/.1248	1.123	30	45	40	6/64	1.545	5400	500' R	6750
1,000,000	61/.1280	1.152	30	45	40	6/64	1.570	5565	500' R	6956

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels
**Not listed in National Electrical Code.

RBB 02977

LEAD SHEATHED

POWER CABLE

NEC TYPE AVL—ROCKBESTOS A.V.C.
600 TO 5,000 VOLT RATINGS

SINGLE CONDUCTOR—STRANDED

APPLICATIONS

These Rockbestos Lead Sheathed Power Cables are used for Power and Lighting Circuits exposed to high temperatures in combination with excessive condensation or complete submersion.

Use this cable where a conduit run is exposed to widely varying conditions throughout its length, particularly in power stations located on tidewater where certain ducts are sometimes flooded but where another section of the same circuit is exposed to high temperatures. Also around ash pits where the wetting down of the ashes results in abnormal condensation.

The Cables listed in this section all conform to NEMA Standards for Asbestos Varnished Cambric wires and cables with lead sheath.

The lead sheath has no effect on the ability of these cables to withstand high temperatures but affords protection against abnormal condensation or complete submersion.

SPECIFICATIONS

Construction

1. Stranded plain copper conductor
2. Felted Asbestos
3. Varnished cambric
4. Felted asbestos
5. Lead sheath

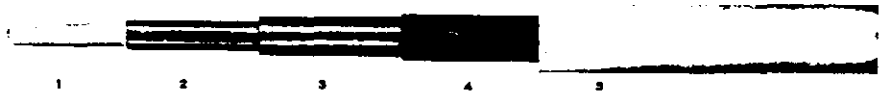
This cable is National Electrical Code Type AVL, listed by the Underwriters' Laboratories and is available in sizes up to 2,000,000 CM. Maximum operating temperatures are as follows:

600	Volt	110°C	(230°F)
1000	Volt	110°C	(230°F)
2000	Volt	109°C	(228°F)
3000	Volt	106°C	(222°F)
4000	Volt	103°C	(217°F)
5000	Volt	100°C	(212°F)

These cables are our Standard Power Cable constructions with a lead sheath instead of an asbestos braid.

LIGHTING WIRE LEAD SHEATHED (SOLID)

MAXIMUM OPERATING TEMP: 110°C (230°F)



1. SOLID PLAIN COPPER CONDUCTOR 2. FELTED ASBESTOS 3. VARNISHED CAMBRIC 4. FELTED ASBESTOS 5. LEAD SHEATH

Size	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	VC Insert	2nd Felted Wall	Lead Sheath Thickness Inches	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
TABLE CL			**600 VOLTS**						**TYPE AVL**
**18 AWG	.040		30	25	3/64	.245	170	500′ R	212
**16	.051		30	25	3/64	.255	180	500′ R	225
14	.064		30	25	3/64	.270	200	500′ R	250
12	.081		30	25	3/64	.285	220	500′ R	275
10	.102		30	25	3/64	.310	250	500′ R	312
8	.128		30	25	3/64	.335	285	500′ R	356
6	.162	15	30	25	3/64	.400	380	500′ R	475
5	.182	15	30	25	3/64	.420	420	500′ R	525
4	.204	15	30	25	3/64	.440	465	500′ R	581
3	.229	15	30	25	3/64	.465	520	500′ R	650
2	.258	15	30	25	3/64	.495	585	500′ R	731
1	.289	20	30	30	4/64	.575	830	500′ R	1037
0	.325	20	30	30	4/64	.610	940	500′ R	1175
00	.365	20	30	30	4/64	.650	1070	500′ R	1337
000	.410	20	30	30	4/64	.695	1225	500′ R	1531
0000	.460	20	30	30	4/64	.745	1415	500′ R	1768

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels
**Not listed in National Electrical Code.

ROCKBESTOS A.V.C.
THREE CONDUCTOR POWER CABLE

TABLE 4HC, 4000 VOLTS
MAX. OPERATING TEMP.
103°C (217°F)

TABLE HC, 5000 VOLTS
MAX. OPERATING TEMP.
100°C (212°F)

TABLE 4HC — 4000 VOLTS — TYPE AVA

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	VC Insert	2nd Felted Wall	Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
12 AWG	7/.0305	.092	15	100	25	45	.945	425	500' R	656
10	7/.0385	.116	15	100	25	45	.995	475	500' R	718
8	7/.0486	.146	15	100	25	45	1.060	580	500' R	850
6	7/.0612	.184	15	100	25	45	1.145	725	500' R	1031
5	7/.0688	.206	15	100	25	45	1.190	820	500' R	1150
4	7/.0772	.232	15	100	25	45	1.245	935	500' R	1293
3	7/.0867	.260	15	100	25	45	1.310	1085	500' R	1481
2	7/.0974	.292	15	100	25	45	1.375	1250	500' R	1687
1	19/.0664	.332	20	100	30	45	1.493	1525	500' R	2031
0	19/.0745	.373	20	100	30	45	1.585	1805	500' R	2381
00	19/.0837	.419	20	100	30	45	1.680	2135	500' R	2793
000	19/.0940	.470	20	100	30	45	1.795	2545	500' R	3306
0000	19/.1055	.528	20	100	30	45	1.920	3040	500' R	3925
250.000 CM	37/.0822	.575	25	100	40	45	2.060	3600	500' R	4625
300.000	37/.0900	.630	25	100	40	45	2.180	4150	500' R	5312
350.000	37/.0973	.681	25	100	40	45	2.290	4725	500' R	6031
400.000	37/.1040	.728	25	100	40	45	2.395	5285	500' R	6731
450.000	37/.1103	.772	25	100	40	45	2.490	5810	500' R	7512
500.000	37/.1162	.813	25	100	40	45	2.580	6385	500' R	8231

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels

TABLE HC — 5000 VOLTS — TYPE AVA

10 AWG	7/.0385	.116	15	120	25	45	1.085	560	500' R	700
8	7/.0486	.146	15	120	25	45	1.150	660	500' R	825
6	7/.0612	.184	15	120	25	45	1.230	805	500' R	1006
5	7/.0688	.206	15	120	25	45	1.280	905	500' R	1131
4	7/.0772	.232	15	120	25	45	1.335	1025	500' R	1281
3	7/.0867	.260	15	120	25	45	1.395	1165	500' R	1456
2	7/.0974	.292	15	120	25	45	1.465	1345	500' R	1681
1	19/.0664	.332	20	120	30	45	1.580	1650	500' R	2062
0	19/.0745	.373	20	120	30	45	1.670	1885	500' R	2356
00	19/.0837	.419	20	120	30	45	1.770	2260	500' R	2825
000	19/.0940	.470	20	120	30	45	1.880	2660	500' R	3325
0000	19/.1055	.528	20	120	30	45	2.000	3170	500' R	3962
250.000 CM	37/.0822	.575	25	120	40	45	2.150	3720	500' R	4650
300.000	37/.0900	.630	25	120	40	45	2.270	4305	500' R	5381
350.000	37/.0973	.681	25	120	40	45	2.380	4890	500' R	6237
400.000	37/.1040	.728	25	120	40	45	2.480	5425	500' R	6906
450.000	37/.1103	.772	25	120	40	45	2.575	5990	500' R	7612
500.000	37/.1162	.813	25	120	40	45	2.665	6530	500' R	8287

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels

RBB 02975

ROCKBESTOS A.V.C.

THREE CONDUCTOR POWER CABLE

TABLE FC, 2000 VOLTS
MAX. OPERATING TEMP.
109°C (228°F)

TABLE GC, 3000 VOLTS
MAX. OPERATING TEMP.
106°C (222°F)

TABLE FC — 2000 VOLTS — TYPE AVA

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: Felted Wall	VC Insert	2nd Felted Wall	Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
12 AWG	7/.0305	.092	15	60	25	45	.770	300	500' R	375
10	7/.0385	.116	15	60	25	45	.825	360	500' R	450
8	7/.0486	.146	15	60	25	45	.890	455	500' R	568
6	7/.0612	.184	15	60	25	45	.970	590	500' R	737
5	7/.0688	.206	15	60	25	45	1.020	670	500' R	837
4	7/.0772	.232	15	60	25	45	1.075	825	500' R	1031
3	7/.0867	.260	15	60	25	45	1.135	925	500' R	1156
2	7/.0974	.292	15	60	25	45	1.205	1080	500' R	1350
1	19/.0664	.332	20	60	30	45	1.325	1340	500' R	1675
0	19/.0745	.373	20	60	30	45	1.410	1610	500' R	2012
00	19/.0837	.419	20	60	30	45	1.510	1920	500' R	2400
000	19/.0940	.470	20	60	30	45	1.620	2325	500' R	2906
0000	19/.1055	.528	20	60	30	45	1.745	2810	500' R	3512
250,000 CM	37/.0822	.575	25	60	40	45	1.890	3335	500' R	4168
300,000	37/.0900	.630	25	60	40	45	2.010	3890	500' R	4862
350,000	37/.0973	.681	25	60	40	45	2.120	4435	500' R	5543
400,000	37/.1040	.728	25	60	40	45	2.220	4995	500' R	6243
450,000	37/.1103	.772	25	60	40	45	2.315	5510	500' R	6887
500,000	37/.1162	.813	25	60	40	45	2.405	6065	500' R	7581

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels

TABLE GC — 3000 VOLTS — TYPE AVA

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: Felted Wall	VC Insert	2nd Felted Wall	Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
12 AWG	7/.0305	.092	15	80	25	45	.860	360	500' R	450
10	7/.0385	.116	15	80	25	45	.910	430	500' R	537
8	7/.0486	.146	15	80	25	45	.975	515	500' R	643
6	7/.0612	.184	15	80	25	45	1.055	665	500' R	831
5	7/.0688	.206	15	80	25	45	1.105	745	500' R	931
4	7/.0772	.232	15	80	25	45	1.160	855	500' R	1068
3	7/.0867	.260	15	80	25	45	1.220	995	500' R	1243
2	7/.0974	.292	15	80	25	45	1.290	1165	500' R	1456
1	19/.0664	.332	20	80	30	45	1.410	1420	500' R	1775
0	19/.0745	.373	20	80	30	45	1.500	1695	500' R	2118
00	19/.0837	.419	20	80	30	45	1.595	2010	500' R	2512
000	19/.0940	.470	20	80	30	45	1.705	2420	500' R	3025
0000	19/.1055	.528	20	80	30	45	1.830	2935	500' R	3668
250,000 CM	37/.0822	.575	25	80	40	45	1.980	3455	500' R	4318
300,000	37/.0900	.630	25	80	40	45	2.095	4015	500' R	5018
350,000	37/.0973	.681	25	80	40	45	2.205	4565	500' R	5706
400,000	37/.1040	.728	25	80	40	45	2.305	5105	500' R	6381
450,000	37/.1103	.772	25	80	40	45	2.400	5660	500' R	7075
500,000	37/.1162	.813	25	80	40	45	2.490	6185	500' R	7731

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels

ROCKBESTOS A.V.C.

THREE CONDUCTOR POWER CABLE

TABLE EC, 600 VOLTS
MAX. OPERATING TEMP.
110°C (230°F)

TABLE EMC, 1000 VOLTS
MAX. OPERATING TEMP.
110°C (230°F)

TABLE EC — 600 VOLTS — TYPE AVA

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	VC Insert	2nd Felted Wall	Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
12 AWG	7/.0305	.092	10	30	15	45	.525	165	500' R	206
10	7/.0385	.116	10	30	15	45	.575	215	500' R	269
8	7/.0486	.146	10	30	15	45	.640	295	500' R	369
6	7/.0612	.184	15	30	20	45	.755	450	500' R	538
5	7/.0688	.206	15	30	20	45	.800	505	500' R	631
4	7/.0772	.232	15	30	20	45	.860	630	500' R	788
3	7/.0867	.260	15	30	20	45	.920	745	500' R	933
2	7/.0974	.292	15	30	20	45	.990	890	500' R	1113
1	19/.0664	.332	20	30	30	45	1.130	1145	500' R	1431
0	19/.0745	.373	20	30	30	45	1.220	1400	500' R	1750
00	19/.0837	.419	20	30	30	45	1.305	1705	500' R	2131
000	19/.0940	.470	20	30	30	45	1.415	2080	500' R	2600
0000	19/.1055	.528	20	30	30	45	1.540	2565	500' R	3206
250,000 CM	37/.0822	.575	25	40	40	45	1.730	3110	500' R	3888
300,000	37/.0900	.630	25	40	40	45	1.850	3640	500' R	4550
350,000	37/.0973	.681	25	40	40	45	1.960	4195	500' R	5244
400,000	37/.1040	.728	25	40	40	45	2.060	4715	500' R	5894
450,000	37/.1103	.772	25	40	40	45	2.155	5255	500' R	6569
500,000	37/.1162	.813	25	40	40	45	2.240	5760	500' R	7200

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels

TABLE EMC — 1000 VOLTS — TYPE AVA

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	VC Insert	2nd Felted Wall	Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
12 AWG	7/.0305	.092	15	45	25	45	.630	225	500' R	281
10	7/.0385	.116	15	45	25	45	.685	280	500' R	350
8	7/.0486	.146	15	45	25	45	.750	360	500' R	450
6	7/.0612	.184	15	45	25	45	.830	490	500' R	613
5	7/.0688	.206	15	45	25	45	.880	580	500' R	725
4	7/.0772	.232	15	45	25	45	.935	670	500' R	838
3	7/.0867	.260	15	45	25	45	.995	795	500' R	994
2	7/.0974	.292	15	45	25	45	1.065	955	500' R	1194
1	19/.0664	.332	20	45	30	45	1.185	1195	500' R	1494
0	19/.0745	.373	20	45	30	45	1.275	1450	500' R	1813
00	19/.0837	.419	20	45	30	45	1.370	1750	500' R	2188
000	19/.0940	.470	20	45	30	45	1.480	2140	500' R	2675
0000	19/.1055	.528	20	45	30	45	1.605	2630	500' R	3288
250,000 CM	37/.0822	.575	25	45	40	45	1.750	3135	500' R	3919
300,000	37/.0900	.630	25	45	40	45	1.870	3670	500' R	4588
350,000	37/.0973	.681	25	45	40	45	1.980	4160	500' R	5200
400,000	37/.1040	.728	25	45	40	45	2.080	4735	500' R	5919
450,000	37/.1103	.772	25	45	40	45	2.175	5280	500' R	6600
500,000	37/.1162	.813	25	45	40	45	2.265	5785	500' R	7231

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels

POWER CABLE

TYPE AVA—ROCKBESTOS A.V.C.

600 TO 1000 VOLT CONSTRUCTION

MAXIMUM OPERATING TEMPERATURE:
110°C (230°F)

APPLICATIONS

The three conductor Power Cables listed in this section are used for power circuits exposed to heat and moisture, corrosive fumes and fire hazard around boilers, furnaces, steam lines, in power plants, etc. These cables are recommended for open wiring applications or for conduit runs. Rockbestos Three Conductor Power Cables have the same heat and moisture resisting qualities as single conductor constructions.

Rockbestos Hi-I A.V.C. Multi-Conductor Power Cables (Type AVA) consist of single conductor AVA cables of the required voltage ratings but without individual braids, cabled together with suitable lay and with impregnated jute fillers to maintain circularity of cross section. The assembled conductors are wrapped with a cable tape over which is applied heavy asbestos braid. Lead sheath, armor, or lead sheath and armor can be furnished instead of asbestos braid on special order. These three conductor power cables are manufactured to NEMA Standards.

SPECIFICATIONS

Construction

1. Stranded plain copper conductor
2. Felted asbestos
3. Varnished cambric
4. Felted asbestos
5. Jute fillers
6. Cable tape
7. Asbestos braid

This construction consists of three individual power cables minus their outer braids, cabled together with jute fillers, taped and covered with a heavy asbestos braid.

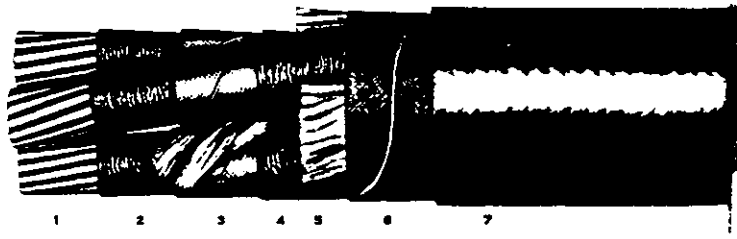
Asbestos fillers may be substituted for jute if required.

Standard finish color: Black.

2000 TO 5000 VOLT CONSTRUCTIONS

MAXIMUM OPERATING TEMPERATURES:

2000 VOLT 109°C (228°F)
3000 VOLT 106°C (222°F)
4000 VOLT 103°C (217°F)
5000 VOLT 100°C (212°F)



APPLICATIONS

Rockbestos three conductor power cables in voltage ratings of 2000 volts to 5000 volts have the same general applications as listed above under the 600 volt to 1000 volt construction.

They can also be furnished with lead sheath, armor, or lead sheath and armor instead of the asbestos braid on special order.

SPECIFICATIONS

Construction

1. Stranded plain copper conductor
2. Felted asbestos
3. Varnished cambric
4. Felted asbestos
5. Jute fillers
6. Varnished cambric
7. Asbestos braid

RBB 02972

...Your best buy

600 VOLT
CONTROL CABLE

TYPE AVA—ROCKBESTOS A.V.C.

[redacted]

Nominal sizes—9 and 12 AWG 1-19 Conductors

(See Opposite Page for General Information)

Standard conductor sizes are AWG No. 9-19/22 and No. 12-19/25 tinned copper, insulated with a 10 mil wall of felted and impregnated asbestos, 30 mil wall varnished cambric insert, another 15 mil wall of felted asbestos and a cotton braid colored according to the NEMA Control Cable Color Code for Multi-Conductor Cables, listed on the opposite page. The individual conductors are then cabled with jute fillers where necessary, a layer of cable tape is applied and finally an asbestos braid finished with black, flame, heat and moisture resisting compound.

The standard make-up on two conductor construction is to cable the conductors with fillers to make round, but it can also be furnished in parallel construction. Parallel must be specified if desired.

Lead sheath, armor, lead sheath and armor or synthetic sheathing can be substituted instead of asbestos braid. Specify preference.

These Rockbestos A.V.C. control cables can also be made up with No. 14, 16 and 18 A.W.G. conductors.

TABLE MD (AWG No. 12-19/25) **600 VOLTS** **TYPE AVA**

Number of Conductors	Stranding	Bare Diam. Inches	Braid Thickness	Finished Diam. Inches *Nominal	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
**1	19/25	.090	40	.280	52	500′ R	65
***2	19/25	.090	45	.545	145	500′ R	181
3	19/25	.090	45	.585	180	500′ R	225
4	19/25	.090	45	.645	230	500′ R	228
5	19/25	.090	45	.710	260	500′ R	325
6	19/25	.090	45	.780	305	500′ R	381
7	19/25	.090	45	.780	330	500′ R	413
8	19/25	.090	45	.850	380	500′ R	475
9	19/25	.090	45	.920	435	500′ R	544
10	19/25	.090	45	1.000	470	500′ R	588
11	19/25	.090	45	1.000	495	500′ R	619
12	19/25	.090	45	1.035	535	500′ R	669
13	19/25	.090	45	1.065	580	500′ R	725
14	19/25	.090	45	1.095	620	500′ R	775
15	19/25	.090	45	1.135	670	500′ R	838
16	19/25	.090	45	1.160	705	500′ R	881
17	19/25	.090	45	1.205	755	500′ R	944
18	19/25	.090	45	1.230	790	500′ R	988
19	19/25	.090	45	1.230	815	500′ R	1019

TABLE MT (AWG No. 9-19/22) **600 VOLTS** **TYPE AVA**

**1	19/22	.127	40	.520	80	500′ R	100
***2	19/22	.127	45	.630	215	500′ R	269
3	19/22	.127	45	.670	275	500′ R	344
4	19/22	.127	45	.740	340	500′ R	425
5	19/22	.127	45	.820	395	500′ R	494
6	19/22	.127	45	.900	475	500′ R	594
7	19/22	.127	45	.900	535	500′ R	669
8	19/22	.127	45	.985	590	500′ R	738
9	19/22	.127	45	1.070	670	500′ R	838
10	19/22	.127	45	1.160	735	500′ R	919
11	19/22	.127	45	1.160	795	500′ R	994
12	19/22	.127	45	1.200	845	500′ R	1056
13	19/22	.127	45	1.255	915	500′ R	1144
14	19/22	.127	45	1.275	970	500′ R	1213
15	19/22	.127	45	1.320	1040	500′ R	1300
16	19/22	.127	45	1.350	1105	500′ R	1381
17	19/22	.127	45	1.405	1180	500′ R	1475
18	19/22	.127	45	1.430	1245	500′ R	1556
19	19/22	.127	45	1.430	1310	500′ R	1638

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †R—Reels
**Single conductor has no cotton braid. Asbestos braid is applied directly over insulation.
***Can be furnished either parallel or cabled with fillers to make round. Specify which.

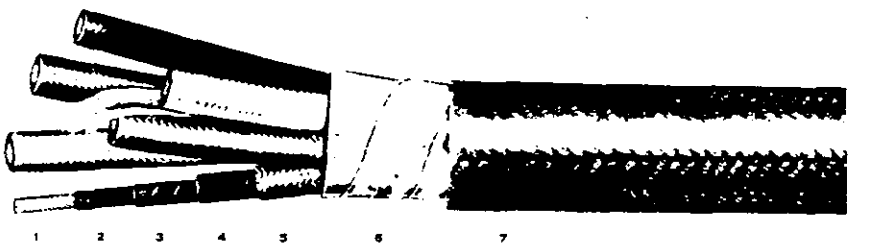
[redacted]

RBB 02971

[redacted]

ROCKBESTOS A.V.C.
600 VOLT CONTROL CABLE
TYPE AVA—ROCKBESTOS A.V.C.

MAXIMUM OPERATING TEMPERATURE: 110°C (230°F)



APPLICATIONS

Modified in design from our Soaking Pit Cable for cover door control wiring which must withstand the intense heat of red-hot ingots when adjacent covers are off, this A. V. C. control cable has proven resistance to high temperatures.

This cable finds its use in steel mills, power stations, boiler rooms, automotive, ceramic and glass plants or other industries in which control and signal circuits or control apparatus are exposed to heat or fire hazard. It is especially recommended for use in circuits and apparatus in metal making mills, boiler rooms, and power plants as it is highly resistant to heat, corrosive fumes, oil, grease and flame and has ample moisture resistance for installation either open or in conduit. Under exposure to flame this cable will maintain viral control and alarm system circuits for longer periods than other types of insulated cables.

SPECIFICATIONS

1. Tinned copper conductor
2. Felted asbestos
3. Varnished cambric
4. Felted asbestos
5. Color coded cotton braids
6. Cable tape
7. Asbestos braid

This cable is NEMA TYPE AVA with a maximum operating temperature of 110°C (230°F).

Conductors

The standard strandings furnished on these Rockbestos A.V.C. Control Cables is 19/22 (No. 9 A.W.G.) and 19/25 (No. 12 A.W.G.) but any desired stranding can be furnished to order and cabled into any required number of conductors.

Insulation

The insulation of the individual conductors is the same type as that on the power cables described on the previous pages with the exception of the outer braid which is a color coded cotton braid to obtain circuit identification. When furnished for single conductor use asbestos braid replaces cotton braid. Impregnated felted asbestos walls seal the varnished cambric from heat, flame and oxidation. Moisture-proof tape is wrapped over the cabled conductors and the outer covering of tough, braided asbestos yarn is finished with heat, flame and moisture resisting compounds.

Coding

The individual wires are braided in colors according to the NEMA standard color code for multi-conductor cable, which is reproduced below. Special color combinations can be furnished to specification.

Lead or Armor Covering

These cables may be made up with either lead sheath, armor, or lead sheath and armor covering. Synthetic sheathing is optional also where temperatures permit.

Finish

The standard finish of the outer braided asbestos jacket is a black, flame, heat and moisture resisting compound.

NEMA STANDARD COLOR CODE FOR MULTI-CONDUCTOR CONTROL CABLE

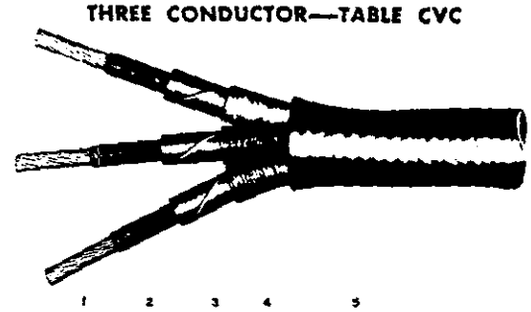
Conductors	Base Color	Conductors	Base Color	Tracer	Conductors	Base Color	Tracer
1	Black	7	White	Black	14	Green	White
2	White	8	Red	Black	15	Blue	White
3	Red	9	Green	Black	16	Black	Red
4	Green	10	Orange	Black	17	White	Red
5	Orange	11	Blue	Black	18	Orange	Red
6	Blue	12	Black	White	19	Blue	Red
		13	Red	White			

ROCKBESTOS A.V.C.
600 VOLT
FLEXIBLE CORDS

MAXIMUM OPERATING TEMPERATURE: 110°C (230°F)

TWO CONDUCTOR—TABLE CV

THREE CONDUCTOR—TABLE CVC



APPLICATIONS

These Rockbestos A.V.C. Flexible Cords were originally developed for locomotive cab and gauge lighting circuits, and because of its high insulation resistance found a special application in railroad locomotives equipped with train control apparatus. They are recommended for floodlights, pendant and high wattage lighting units, lighting and control circuits, space heater leads, wiring of apparatus which develops heat or is used in high temperature areas.

Rockbestos A.V.C. Flexible Cords should be used for the wiring of industrial type pendant lighting fixtures in hot locations where high humidity or moisture is prevalent. It is also the correct type of cord to use in heat-developing equipment and high wattage lighting units that may be operated where moisture exists.

SPECIFICATIONS

1. Stranded tinned conductor
2. Felted asbestos
3. Varnished Cambric
4. Felted asbestos
5. Asbestos braid

If a perfectly round construction is desired, it can be made up with fillers on special order. For general extension use where cord may be dragged over masonry and rough floors, a good rubber jacketed cord is recommended.

If required for AVPD applications it can be made with polarized conductors on special order.

Standard finish colors: Black and white.

Authorized stock items: Black.

TABLE CV — 600 VOLTS

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	VC Insert	2nd Felted Wall	Asbestos Braid	*Nominal Finished Diameter Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
18 AWG	16/30	.045	10	30	15	45	.390	60	500′ C	65
16	26/30	.059	10	30	15	45	.420	70	500′ C	75
14	41/30	.075	10	30	15	45	.450	85	500′ C	91
12	65/30	.095	10	30	15	45	.485	110	250′ C	116
10	104/30	.120	10	30	15	45	.535	145	250′ C	152

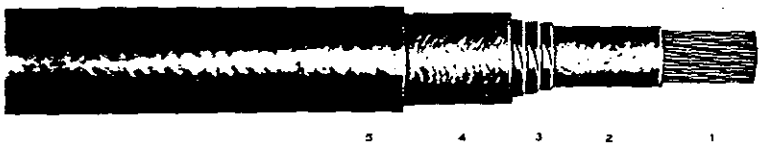
TABLE CVC — 600 VOLTS

18 AWG	16/30	.045	10	30	15	45	.415	80	500′ C	88
16	26/30	.059	10	30	15	45	.445	95	500′ C	102
14	41/30	.075	10	30	15	45	.475	115	500′ C	123
12	65/30	.095	10	30	15	45	.520	150	250′ C	158
10	104/30	.120	10	30	15	45	.570	205	250′ C	213

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils.

RBB 02969

ROCKBESTOS A.V.C.
600 VOLT FLEXIBLE CONDUCTOR
MOTOR LEAD and APPARATUS CABLE
NEC TYPE AVA—ROCKBESTOS A.V.C.
MAXIMUM OPERATING TEMP. 110°C (230°F)



APPLICATION

This cable was designed and developed to meet the demand for greater resistance to conductor-heating overloads, high ambient temperatures, other destructive conditions and fire hazard. It is widely used in electrical apparatus for coil connections and motor leads on either AC or DC. Because of its A.V.C. construction it is ideal for wiring transformers, resistors, hoists, cranes, traction and mill motors which must function under exposure to heat and moisture, corrosive fumes, grease or oil.

SPECIFICATIONS

Construction

1. Flexible tinned copper conductor
2. Felted asbestos
3. Varnished cambric
4. Felted asbestos
5. Asbestos braid

This cable is National Electrical Code Type AVA, maximum operating temperature 110°C (230°F) listed by the Underwriters' Laboratories.

Rockbestos Motor Lead and Apparatus Cable is available in voltage ratings up to 5000 volts and may be furnished with extra-flexible conductors.

Standard finish colors: Black and white.

Authorized stock items: Black.

TABLE L — 600 VOLTS — TYPE AVA

Size	Stranding	Bare Diam. Inches	Nominal Thickness—Mils: 1st Felted Wall	VC Insert	2nd Felted Wall	Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
**18 AWG	16/.010	.045	10	30	15	40	.235	30	500' C	36
**16	26/.010	.059	10	30	15	40	.250	35	500' C	41
14	41/.010	.075	10	30	15	40	.265	45	500' C	51
12	65/.010	.095	10	30	15	40	.285	55	500' C	61
10	104/.010	.120	10	30	15	40	.310	75	500' C	81
8	133/.0111	.167	10	30	15	45	.370	100	500' C	106
6	133/.0140	.210	15	30	20	45	.430	150	500' R	187
5	133/.0158	.237	15	30	20	45	.460	175	500' R	218
4	133/.0177	.266	15	30	20	45	.490	210	500' R	262
3	133/.0199	.299	15	30	20	45	.520	255	500' R	318
2	133/.0223	.335	15	30	20	45	.555	305	500' R	381
1	259/.0180	.378	20	30	30	45	.630	385	500' R	481
0	259/.0202	.424	20	30	30	45	.675	470	500' R	587
00	259/.0227	.477	20	30	30	45	.730	570	500' R	712
000	259/.0255	.536	20	30	30	45	.790	700	500' R	875
0000	259/.0286	.601	20	30	30	45	.855	850	500' R	1062
250,000 CM	427/.0242	.653	25	40	40	45	.955	1030	500' R	1287
300,000	427/.0265	.716	25	40	40	45	1.020	1205	500' R	1506
350,000	427/.0286	.772	25	40	40	45	1.075	1380	500' R	1725
400,000	427/.0306	.826	25	40	40	45	1.130	1555	500' R	1943
450,000	427/.0325	.878	25	40	40	45	1.180	1740	500' R	2175
500,000	427/.0342	.923	25	40	40	45	1.225	1905	500' R	2381
550,000	427/.0359	.969	30	40	40	45	1.280	2100	500' R	2625
600,000	427/.0375	1.013	30	40	40	45	1.325	2305	500' R	2881
650,000	427/.0390	1.053	30	40	40	45	1.365	2440	500' R	3050
700,000	427/.0405	1.094	30	40	40	45	1.405	2570	500' R	3212
750,000	427/.0419	1.131	30	40	40	45	1.445	2780	500' R	3475
800,000	427/.0433	1.169	30	40	40	45	1.480	2855	500' R	3568
900,000	427/.0459	1.239	30	40	40	45	1.550	3223	500' R	4028
1,000,000	427/.0484	1.307	30	40	40	45	1.620	3590	500' R	4487

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils. R—Reels
**Not listed in National Electrical Code.

...Your best buy

ROCKBESTOS A.V.C.

SINGLE CONDUCTOR POWER CABLE

TABLE 4H, 4000 VOLTS
MAX. OPERATING TEMP.
103°C (217°F)

TABLE H, 5000 VOLTS
MAX. OPERATING TEMP.
100°C (212°F)

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	VC Insert	2nd Felted Wall	Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000'	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
TABLE 4H				**4000 VOLTS**						**TYPE AVA**
12 AWG	7/.0305	.092	15	100	25	45	.465	115	500' R	544
10	7/.0385	.116	15	100	25	45	.490	130	500' R	605
8	7/.0486	.146	15	100	25	45	.520	165	500' R	706
6	7/.0612	.184	15	100	25	45	.555	210	500' R	863
5	7/.0688	.206	15	100	25	45	.580	245	500' R	906
4	7/.0772	.232	15	100	25	45	.605	275	500' R	1043
3	7/.0867	.260	15	100	25	45	.630	315	500' R	1193
2	7/.0974	.292	15	100	25	45	.665	370	500' R	1462
1	19/.0664	.332	20	100	30	45	.725	450	500' R	1762
0	19/.0745	.373	20	100	30	45	.765	535	500' R	2068
00	19/.0837	.419	20	100	30	45	.810	635	500' R	2433
000	19/.0940	.470	20	100	30	45	.860	765	500' R	2956
0000	19/.1055	.528	20	100	30	45	.920	920	500' R	1150
250,000 CM	37/.0822	.575	25	100	40	45	.995	1085	500' R	1356
300,000	37/.0900	.630	25	100	40	45	1.050	1265	500' R	1581
350,000	37/.0973	.681	25	100	40	45	1.105	1440	500' R	1800
400,000	37/.1040	.728	25	100	40	45	1.150	1615	500' R	2018
450,000	37/.1103	.772	25	100	40	45	1.195	1785	500' R	2231
500,000	37/.1162	.813	25	100	40	45	1.235	1955	500' R	2443
550,000	61/.0950	.855	30	100	40	45	1.285	2145	500' R	2681
600,000	61/.0992	.893	30	100	40	45	1.325	2315	500' R	2893
650,000	61/.1032	.929	30	100	40	45	1.360	2480	500' R	3100
700,000	61/.1071	.964	30	100	40	45	1.395	2650	500' R	3312
750,000	61/.1109	.998	30	100	40	45	1.430	2820	500' R	3525
800,000	61/.1145	1.031	30	100	40	45	1.465	2990	500' R	3737
850,000	61/.1180	1.062	30	100	40	45	1.495	3155	500' R	3943
900,000	61/.1215	1.093	30	100	40	45	1.525	3320	500' R	4150
950,000	61/.1248	1.123	30	100	40	45	1.555	3500	500' R	4375
1,000,000	61/.1280	1.152	30	100	40	45	1.585	3665	500' R	4581
TABLE H				**5000 VOLTS**						**TYPE AVA**
10 AWG	7/.0385	.116	15	120	25	45	.530	150	500' R	187
8	7/.0486	.146	15	120	25	45	.560	190	500' R	237
6	7/.0612	.184	15	120	25	45	.595	230	500' R	287
5	7/.0688	.206	15	120	25	45	.620	260	500' R	325
4	7/.0772	.232	15	120	25	45	.645	295	500' R	368
3	7/.0867	.260	15	120	25	45	.670	345	500' R	431
2	7/.0974	.292	15	120	25	45	.705	395	500' R	493
1	19/.0664	.332	20	120	30	45	.765	490	500' R	612
0	19/.0745	.373	20	120	30	45	.805	555	500' R	693
00	19/.0837	.419	20	120	30	45	.850	670	500' R	837
000	19/.0940	.470	20	120	30	45	.900	795	500' R	993
0000	19/.1055	.528	20	120	30	45	.960	955	500' R	1193
250,000 CM	37/.0822	.575	25	120	40	45	1.035	1120	500' R	1400
300,000	37/.0900	.630	25	120	40	45	1.090	1300	500' R	1625
350,000	37/.0973	.681	25	120	40	45	1.145	1480	500' R	1850
400,000	37/.1040	.728	25	120	40	45	1.190	1660	500' R	2075
450,000	37/.1103	.772	25	120	40	45	1.235	1825	500' R	2281
500,000	37/.1162	.813	25	120	40	45	1.275	2010	500' R	2512
550,000	61/.0950	.855	30	120	40	45	1.325	2185	500' R	2731
600,000	61/.0992	.893	30	120	40	45	1.365	2360	500' R	2950
650,000	61/.1032	.929	30	120	40	45	1.400	2530	500' R	3162
700,000	61/.1071	.964	30	120	40	45	1.435	2700	500' R	3375
750,000	61/.1109	.998	30	120	40	45	1.470	2870	500' R	3587
800,000	61/.1145	1.031	30	120	40	45	1.505	3040	500' R	3800
850,000	61/.1180	1.062	30	120	40	45	1.535	3210	500' R	4012
900,000	61/.1215	1.093	30	120	40	45	1.565	3360	500' R	4200
950,000	61/.1248	1.123	30	120	40	45	1.595	3530	500' R	4412
1,000,000	61/.1280	1.152	30	120	40	45	1.625	3720	500' R	4650

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. R—Reels

ROCKBESTOS A.V.C.

SINGLE CONDUCTOR POWER CABLE

TABLE F, 2000 VOLTS — MAX. OPERATING TEMP. 109°C (228°F)

TABLE G, 3000 VOLTS — MAX. OPERATING TEMP. 106°C (222°F)

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	VC Insert	2nd Felted Wall	Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
TABLE F				**2000 VOLTS**						**TYPE AVA**
14 AWG	7/.0242	.073	15	60	25	45	.565	70	500′ C	87
12	7/.0305	.092	15	60	25	45	.585	80	500′ C	103
10	7/.0385	.116	15	60	25	45	.410	100	500′ R	125
8	7/.0486	.146	15	60	25	45	.440	125	500′ R	156
6	7/.0612	.184	15	60	25	45	.475	165	500′ R	206
5	7/.0688	.206	15	60	25	45	.500	195	500′ R	243
4	7/.0772	.232	15	60	25	45	.525	230	500′ R	287
3	7/.0867	.260	15	60	25	45	.550	275	500′ R	343
2	7/.0974	.292	15	60	25	45	.585	325	500′ R	406
1	19/.0664	.332	20	60	30	45	.645	400	500′ R	500
0	19/.0745	.373	20	60	30	45	.685	485	500′ R	606
00	19/.0837	.419	20	60	30	45	.730	580	500′ R	725
000	19/.0940	.470	20	60	30	45	.780	705	500′ R	881
0000	19/.1055	.528	20	60	30	45	.840	855	500′ R	1068
250,000 CM	37/.0822	.575	25	60	40	45	.915	1015	500′ R	1268
300,000	37/.0900	.630	25	60	40	45	.970	1190	500′ R	1487
350,000	37/.0973	.681	25	60	40	45	1.025	1355	500′ R	1693
400,000	37/.1040	.728	25	60	40	45	1.070	1525	500′ R	1906
450,000	37/.1103	.772	25	60	40	45	1.115	1690	500′ R	2112
500,000	37/.1162	.813	25	60	40	45	1.155	1870	500′ R	2337
550,000	61/.0950	.855	30	60	40	45	1.205	2040	500′ R	2550
600,000	61/.0992	.893	30	60	40	45	1.245	2215	500′ R	2768
650,000	61/.1032	.929	30	60	40	45	1.280	2380	500′ R	2975
700,000	61/.1071	.964	30	60	40	45	1.315	2550	500′ R	3187
750,000	61/.1109	.998	30	60	40	45	1.350	2720	500′ R	3400
800,000	61/.1145	1.031	30	60	40	45	1.385	2890	500′ R	3612
850,000	61/.1180	1.062	30	60	40	45	1.415	3055	500′ R	3818
900,000	61/.1215	1.093	30	60	40	45	1.445	3210	500′ R	4012
950,000	61/.1248	1.123	30	60	40	45	1.475	3375	500′ R	4218
1,000,000	61/.1280	1.152	30	60	40	45	1.505	3540	500′ R	4425
TABLE G				**3000 VOLTS**						**TYPE AVA**
12 AWG	7/.0305	.092	15	80	25	45	.425	95	500′ R	118
10	7/.0385	.116	15	80	25	45	.450	115	500′ R	143
8	7/.0486	.146	15	80	25	45	.480	145	500′ R	181
6	7/.0612	.184	15	80	25	45	.515	185	500′ R	231
5	7/.0688	.206	15	80	25	45	.540	220	500′ R	275
4	7/.0772	.232	15	80	25	45	.565	250	500′ R	312
3	7/.0867	.260	15	80	25	45	.590	295	500′ R	368
2	7/.0974	.292	15	80	25	45	.625	340	500′ R	425
1	19/.0664	.332	20	80	30	45	.685	425	500′ R	531
0	19/.0745	.373	20	80	30	45	.725	505	500′ R	631
00	19/.0837	.419	20	80	30	45	.770	605	500′ R	756
000	19/.0940	.470	20	80	30	45	.820	730	500′ R	912
0000	19/.1055	.528	20	80	30	45	.880	885	500′ R	1106
250,000 CM	37/.0822	.575	25	80	40	45	.955	1045	500′ R	1306
300,000	37/.0900	.630	25	80	40	45	1.010	1220	500′ R	1525
350,000	37/.0973	.681	25	80	40	45	1.065	1395	500′ R	1743
400,000	37/.1040	.728	25	80	40	45	1.110	1565	500′ R	1956
450,000	37/.1103	.772	25	80	40	45	1.155	1735	500′ R	2168
500,000	37/.1162	.813	25	80	40	45	1.195	1905	500′ R	2381
550,000	61/.0950	.855	30	80	40	45	1.245	2080	500′ R	2600
600,000	61/.0992	.893	30	80	40	45	1.285	2260	500′ R	2825
650,000	61/.1032	.929	30	80	40	45	1.320	2420	500′ R	3025
700,000	61/.1071	.964	30	80	40	45	1.355	2590	500′ R	3237
750,000	61/.1109	.998	30	80	40	45	1.390	2765	500′ R	3456
800,000	61/.1145	1.031	30	80	40	45	1.425	3050	500′ R	3812
850,000	61/.1180	1.062	30	80	40	45	1.455	3150	500′ R	3937
900,000	61/.1215	1.093	30	80	40	45	1.485	3265	500′ R	4081
950,000	61/.1248	1.123	30	80	40	45	1.515	3430	500′ R	4287
1,000,000	61/.1280	1.152	30	80	40	45	1.545	3590	500′ R	4487

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils, R—Reels

ROCKBESTOS A.V.C.

SINGLE CONDUCTOR POWER CABLE

TABLE E, 600 VOLTS — MAX. OPERATING TEMP. 110°C (230°F)

TABLE EM, 1000 VOLTS — MAX. OPERATING TEMP. 110°C (230°F)

Size	Stranding	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	VC Insert	2nd Felted Wall	Asbestos Braid	*Nominal Finished Diameter Inches	Approx. Net Wgt. in Lbs. per 1000'	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000'
TABLE E				**600 VOLTS**						**TYPE AVA**
**18 AWG	7/.0152	.046	10	30	15	40	.235	30	500' C	37
**16	7/.0192	.058	10	30	15	40	.250	35	500' C	45
14	7/.0242	.073	10	30	15	40	.265	45	500' C	56
12	7/.0305	.092	10	30	15	40	.285	55	500' C	68
10	7/.0385	.116	10	30	15	40	.310	70	500' C	87
8	7/.0486	.146	10	30	15	45	.350	95	500' C	118
6	7/.0612	.184	15	30	20	45	.405	140	500' R	175
5	7/.0688	.206	15	30	20	45	.430	165	500' R	206
4	7/.0772	.232	15	30	20	45	.455	200	500' R	250
3	7/.0867	.260	15	30	20	45	.480	240	500' R	300
2	7/.0974	.292	15	30	20	45	.515	285	500' R	356
1	19/.0664	.332	20	30	30	45	.585	370	500' R	462
0	19/.0745	.373	20	30	30	45	.625	450	500' R	562
00	19/.0837	.419	20	30	30	45	.670	545	500' R	681
000	19/.0940	.470	20	30	30	45	.720	665	500' R	831
0000	19/.1055	.528	20	30	30	45	.780	815	500' R	1018
250.000 CM	37/.0822	.575	25	40	40	45	.875	985	500' R	1231
300.000	37/.0900	.630	25	40	40	45	.930	1155	500' R	1443
350.000	37/.0973	.681	25	40	40	45	.985	1325	500' R	1656
400.000	37/.1040	.728	25	40	40	45	1.030	1490	500' R	1862
450.000	37/.1103	.772	25	40	40	45	1.075	1660	500' R	2075
500.000	37/.1162	.813	25	40	40	45	1.115	1825	500' R	2281
550.000	61/.0950	.855	30	40	40	45	1.165	2005	500' R	2506
600.000	61/.0992	.893	30	40	40	45	1.205	2175	500' R	2718
650.000	61/.1032	.929	30	40	40	45	1.240	2340	500' R	2925
700.000	61/.1071	.964	30	40	40	45	1.275	2505	500' R	3131
750.000	61/.1109	.998	30	40	40	45	1.310	2675	500' R	3343
800.000	61/.1145	1.031	30	40	40	45	1.345	2835	500' R	3543
850.000	61/.1180	1.062	30	40	40	45	1.375	3000	500' R	3750
900.000	61/.1215	1.093	30	40	40	45	1.405	3165	500' R	3956
950.000	61/.1248	1.123	30	40	40	45	1.435	3330	500' R	4162
1.000.000	61/.1280	1.152	30	40	40	45	1.465	3490	500' R	4362
1.250.000	91/.1172	1.289	30	50	50	45	1.640	4375	500' R	5468
1.500.000	91/.1284	1.412	30	50	50	45	1.765	5155	500' R	6443
1.750.000	127/.1174	1.526	30	50	50	45	1.880	6030	500' R	7537
2.000.000	127/.1255	1.632	30	50	50	45	1.985	6760	500' R	8450
TABLE EM				**1000 VOLTS**						**TYPE AVA**
14 AWG	7/.0242	.073	15	45	25	40	.325	60	500' C	75
12	7/.0305	.092	15	45	25	45	.355	70	500' C	87
10	7/.0385	.116	15	45	25	45	.380	90	500' C	112
8	7/.0486	.146	15	45	25	45	.410	115	500' C	143
6	7/.0612	.184	15	45	25	45	.445	155	500' R	193
5	7/.0688	.206	15	45	25	45	.470	180	500' R	225
4	7/.0772	.232	15	45	25	45	.495	215	500' R	268
3	7/.0867	.260	15	45	25	45	.520	255	500' R	318
2	7/.0974	.292	15	45	25	45	.555	305	500' R	381
1	19/.0664	.332	20	45	30	45	.615	380	500' R	475
0	19/.0745	.373	20	45	30	45	.655	465	500' R	581
00	19/.0837	.419	20	45	30	45	.700	560	500' R	700
000	19/.0940	.470	20	45	30	45	.750	685	500' R	856
0000	19/.1055	.528	20	45	30	45	.810	830	500' R	1037
250.000 CM	37/.0822	.575	25	45	40	45	.885	995	500' R	1243
300.000	37/.0900	.630	25	45	40	45	.940	1160	500' R	1450
350.000	37/.0973	.681	25	45	40	45	.995	1330	500' R	1662
400.000	37/.1040	.728	25	45	40	45	1.040	1500	500' R	1875
450.000	37/.1103	.772	25	45	40	45	1.085	1670	500' R	2087
500.000	37/.1162	.813	25	45	40	45	1.125	1835	500' R	2293
550.000	61/.0950	.855	30	45	40	45	1.175	2015	500' R	2518
600.000	61/.0992	.893	30	45	40	45	1.215	2185	500' R	2731
650.000	61/.1032	.929	30	45	40	45	1.250	2350	500' R	2937
700.000	61/.1071	.964	30	45	40	45	1.285	2515	500' R	3143
750.000	61/.1109	.998	30	45	40	45	1.320	2680	500' R	3350
800.000	61/.1145	1.031	30	45	40	45	1.355	2845	500' R	3556
850.000	61/.1180	1.062	30	45	40	45	1.385	3000	500' R	3750
900.000	61/.1215	1.093	30	45	40	45	1.415	3175	500' R	3968
950.000	61/.1248	1.123	30	45	40	45	1.445	3340	500' R	4175
1.000.000	61/.1280	1.152	30	45	40	45	1.475	3500	500' R	4375

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils, R—Reels
**Not listed in National Electrical Code.

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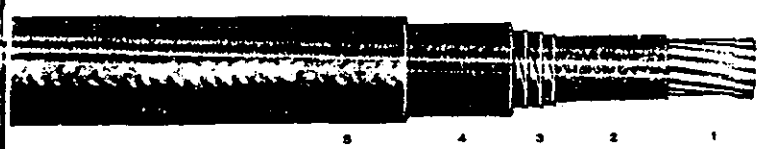
POWER CABLE

NEC TYPE AVA—ROCKBESTOS A.V.C.
600 TO 5,000 VOLT RATINGS



SINGLE CONDUCTOR—STRANDED

APPLICATIONS

Rockbestos A.V.C. (N.E.C. Type AVA) Power Cables are designed to operate at voltages from 600 to 5000 volts. They are especially recommended for circuits exposed to severe operating conditions in power stations, steel mills, refineries, tanneries, smelters, etc. and for apparatus which operates under high ambient temperatures.

On the higher voltage rated cables, suitable copper shielding tapes may be specified to eliminate effects of corona on the primary dielectric—the varnished cambric. Voltage rating of all Rockbestos Hi-I A.V.C. Power Cables is maximum phase to phase voltage. This applies to either grounded or ungrounded systems.

The cables listed in this section have ample moisture resistance for average conditions, but if there is a possibility that circuits may be submerged in water for long periods, use lead sheathed constructions in the AVL section of this catalog. The wires and cables in this section are approved National Electrical Code Types, listed by the Underwriters' and fulfill the requirements of NEMA for Asbestos-Varnished Cambric wires and cables.

SPECIFICATIONS

Construction

1. Stranded plain copper conductor
2. Felted asbestos
3. Varnished cambric
4. Felted asbestos
5. Asbestos braid

Maximum conductor operating temperatures are as follows:

600 Volt	110°C	(230°F)
1000 Volt	110°C	(230°F)
2000 Volt	109°C	(228°F)
3000 Volt	106°C	(222°F)
4000 Volt	103°C	(217°F)
5000 Volt	100°C	(212°F)

Standard finish colors: Black and white.
Authorized Stock item: (600 volt-Table E only) Black.

Flexible strandings may be specified on all constructions up to 5000 volts.

All constructions listed can be covered with lead sheath, armor, or lead sheath and armor, if desired. Interlocking armor can be furnished to special order.

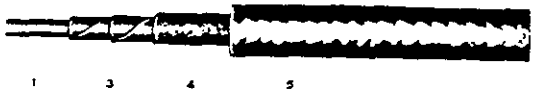
ROCKBESTOS A.V.C.

LIGHTING WIRE

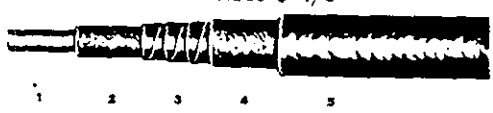
NEC TYPE AVA—ROCKBESTOS A.V.C. 600 VOLT SOLID CONDUCTOR

MAXIMUM OPERATING TEMP. 110°C (230°F)

Sizes 18-8



Sizes 6-4/0



APPLICATIONS

This wire is recommended for lighting and control circuits in boiler rooms, steel mills, steam tunnels, power, chemical and food processing plants. Also around furnaces, ovens, glass lehrs, forging presses, tenter frames, soaking pits—and in locomotives, resistors, cranes, steam tables, etc. for circuits exposed to heat.

You can safely use this lighting wire either open wired or in conduit, ducts or raceways which are exposed to heat and moisture, corrosive fumes, grease, oil or fire hazard. It is also used in electrical apparatus for panel and control wiring to insure performance under severe operating conditions. This construction permits continuous operation under temperatures ranging up to a maximum of 230°F.

It has ample moisture resistance for average conditions, but if there is a possibility that circuits may be submerged for long periods use Table CL, Rockbestos A.V.C. (N.E.C. Type AVL) 600 volt lead sheathed lighting wire on page 26.

SPECIFICATION

Construction—Sizes 6-4/0

1. Solid Plain Copper Conductor
2. Felted Asbestos
3. Varnished Cambric
4. Felted Asbestos
5. Asbestos Braid

National Electrical Code Type AVA—listed by Underwriters' Laboratories, maximum conductor operating temperature 110°C (230°F).

Construction—Sizes 18-8

1. Solid Plain Copper Conductor
3. Varnished Cambric
4. Felted Asbestos
5. Asbestos Braid

National Electrical Code Type AVA—listed by Underwriters' Laboratories, maximum conductor operating temperature 110°C (230°F).

Standard finish colors: Black and white.

Authorized stock items: Black, (white also in sizes. Nos. 10, 12 and 14.)

TABLE C — **600 VOLTS** — **TYPE AVA**

Size	Bare Diam. Inches	Nominal Thickness — Mils: 1st Felted Wall	VC Insert	2nd Felted Wall	Asbestos Braid	*Nominal Finished Diam. Inches	Approx. Net Wgt. in Lbs. per 1000′	†Standard Shipping Length Feet	Approx. Shipping Weight per 1000′
**18 AWG	.040		30	20	40	.220	28	500′ C	35
**16	.051		30	20	40	.235	33	500′ C	41
14	.064		30	20	40	.245	40	500′ C	50
12	.081		30	20	40	.265	50	500′ C	62
10	.102		30	20	40	.285	65	500′ C	81
8	.128		30	20	40	.310	89	500′ C	111
6	.162	15	30	20	45	.385	135	500′ R	168
5	.182	15	30	20	45	.405	160	500′ R	200
4	.204	15	30	20	45	.425	190	500′ R	237
3	.229	15	30	20	45	.450	230	500′ R	287
2	.258	15	30	20	45	.480	275	500′ R	343
1	.289	20	30	30	45	.540	350	500′ R	437
0	.325	20	30	30	45	.575	430	500′ R	537
00	.365	20	30	30	45	.615	525	500′ R	656
000	.410	20	30	30	45	.660	640	500′ R	800
0000	.460	20	30	30	45	.710	785	500′ R	981

*Finished diameters given above are average. A tolerance of plus or minus 5% is necessary due to variation in process of manufacture. †C—Coils, R—Reels
**Not listed in National Electrical Code.

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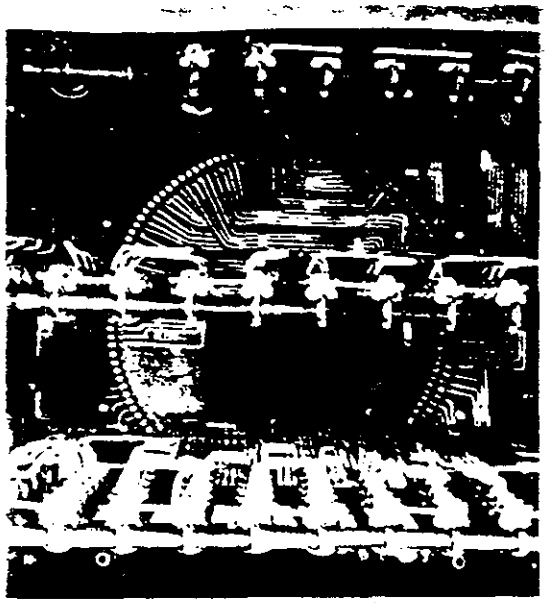
A FEW SPECIFIC USES FOR ROCKBESTOS A.V.C.

Applications	Standard A.V.C. Constructions by Table Letters
CENTRAL STATIONS	
All Lighting and Fixture Wiring (Internal)	Tables C, E, CV and CVC
Boiler Room Control Circuits	Tables C, E, MD-MT Multi-conductor control cable, MDL-MTL—Lead sheathed Multi-conductor control cable
Auxiliary Power Wiring 600-5000 Volts	Tables E, EM, F, G, 4-H and H—Single Conductor Tables EC, EMC, FC, GC, 4-HC and HC—Three Conductor Tables EL, EML, FL, GL, 4-HL and HL—Single Conductor—Lead sheath—For extreme moisture or complete submersion Tables ECL, EMCL, FCL, GCL, 4-HCL and HCL—Three Conductor—Lead sheath—For extreme moisture or complete submersion
Wiring to and Leads to Stoker Motors	Tables E and L
All Switchboards and Control Panels	Tables B and BS (Tables XB and XBS—Type TA)
Hinge Connections on Cabinet Type Panels	Table BH (Table XBH—Type TA)
STEEL MILLS, FOUNDRIES, AND FORGE SHOPS	
Wiring around Soaking Pits	Table E
Wiring around Open Hearth and Annealing Furnaces	Table E
Motor Leads	Table L
Power Wiring	Tables E, EM, F, G, 4-H and H—Single Conductor Tables EC, EMC, FC, GC, 4-HC and HC—Three Conductor Tables EL, EML, FL, GL, 4-HL and HL—Single Conductor—Lead sheath—For extreme moisture or complete submersion Tables ECL, EMCL, FCL, GCL, 4-HCL and HCL—Three Conductor—Lead sheath—For extreme moisture or complete submersion
Wiring of Mud Guns	Tables E and L
Lighting Circuits	Tables C and E
High Intensity Fixtures	Tables CV and CVC, Table EMA—1000 volt lead wire
Other Lighting Fixtures	Tables C, CV and CVC
Crane Wiring	Table E
Control Circuits	Tables C, E or MD-MT Multi-conductor control cable, MDL-MTL—Lead sheathed Multi-conductor control cable
INDUSTRIAL PLANT CONSTRUCTION AND MAINTENANCE	
Boiler Room Lighting and Control Circuits	Tables C, E or MD-MT Multi-conductor control cable
Power Wiring 600-5000 volts	Tables E, EM, F, G, 4-H and H—Single Conductor Tables EC, EMC, FC, GC, 4-HC and HC—Three Conductor Tables EL, EML, FL, GL, 4-HL and HL—Single Conductor—Lead sheath—For extreme moisture or complete submersion Tables ECL, EMCL, FCL, GCL, 4-HCL and HCL—Three Conductor—Lead sheath—For extreme moisture or complete submersion
Lighting Circuits	Tables C and E
Crane Wiring	Table E
Transformers	Table L
Infra-red Ovens	Tables B, BS and C
Around Heat Treat Furnaces	Tables C and E
Motor Leads	Table L
Process Control Wiring	Tables C, E or MD-MT Multi-conductor control cable
REWIRING BOTH COMMERCIAL AND INDUSTRIAL BUILDINGS FOR INCREASED CAPACITY IN EXISTING CONDUIT	
Power Wiring 600-5000 volts	Tables E, EM, F, G, 4-H and H—Single Conductor Tables EC, EMC, FC, GC, 4-HC and HC—Three Conductor Tables EL, EML, FL, GL, 4-HL and HL—Single Conductor—Lead sheath—For extreme moisture or complete submersion Tables ECL, EMCL, FCL, GCL, 4-HCL and HCL—Three Conductor—Lead sheath—For extreme moisture or complete submersion
Lighting Fixtures and Pendant Lighting	Tables C, CV and CVC
COAL MINES	
Internal Wiring of Locomotives, Coal Cutters, and Loaders	Tables C and ML
Internal Leads of Electric Drills	Table L
Hoist Wiring	Table E
MANUFACTURERS OF ELECTRICAL MACHINERY AND EQUIPMENT	
Crane and Hoist Wiring	Tables E and L
Induction Heaters	Table E
Generators	Table E
Fans	Table E
Pumps	Table E
Grinding Mills	Table E
Traction and Mill Motors	Table L
Industrial Furnaces and Ovens	Tables C and E
Switchboards and Control Panels	Tables B, BS and BH (Tables XB, XBS and XBH—Type TA)
Radio and Television Transmitters	Tables B and BS
Coal Mining Equipment	Tables C, ML and Special A.V.C. Control Cables
Transformers	Tables L, B, BS and BH (Tables XB, XBS and XBH—Type TA)

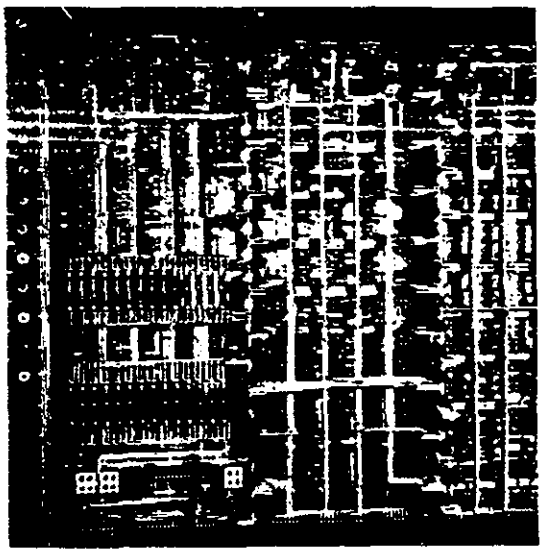
LIGHTING and CONTROL CIRCUITS HIGH TEMPERATURES



RHEOSTAT AND APPARATUS WIRING

Rockbestos All-Asbestos Rheostat Wires and Cables were designed primarily for open wiring. Operating temperatures of 125°C for 600 volt ratings and 200°C for 300 volt applications can be safely met as constant elevated temperatures will not cause the compounds to fall away or flake off even through repeated heating and cooling cycles.

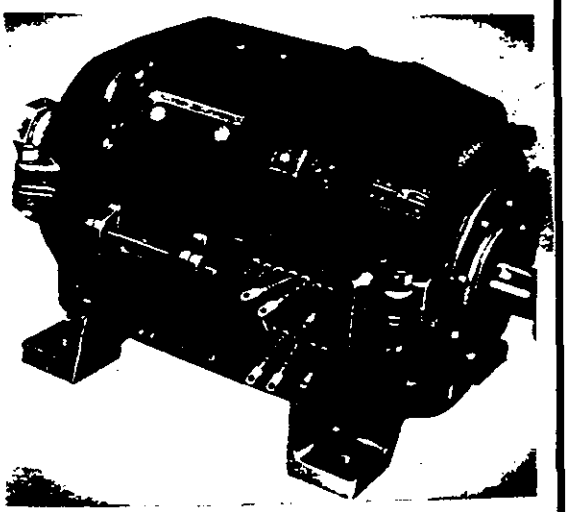
It is especially recommended for grid jumper connections from grids to faceplates, ovens and element leads on well type annealing furnaces and open wiring exposed to extremely high temperatures, corrosive fumes, grease, oil or fire hazard.



SWITCHBOARDS AND PANEL BOARDS

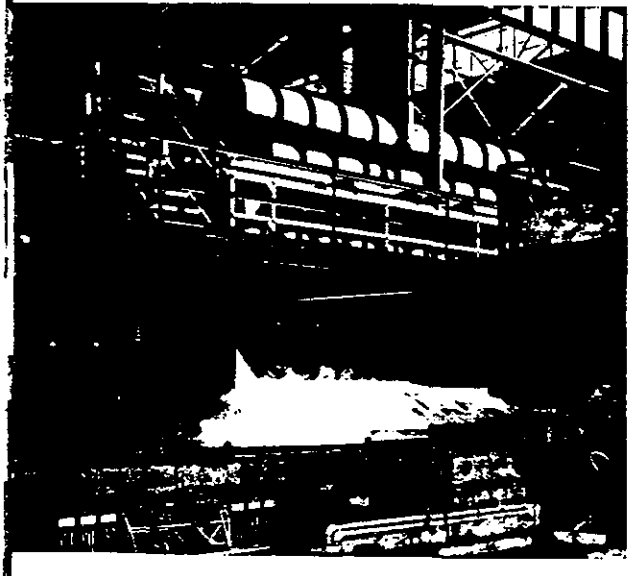
Millions of feet of Rockbestos fireproof A.V.C. (N.E.C. Type AVB) Switchboard Wire have been used by switchboard manufacturers, power stations and industrial plants since we originated and patented the A.V.C. type. Fine appearance is assured completed boards because it can be bent at right angles without cracking the braid.

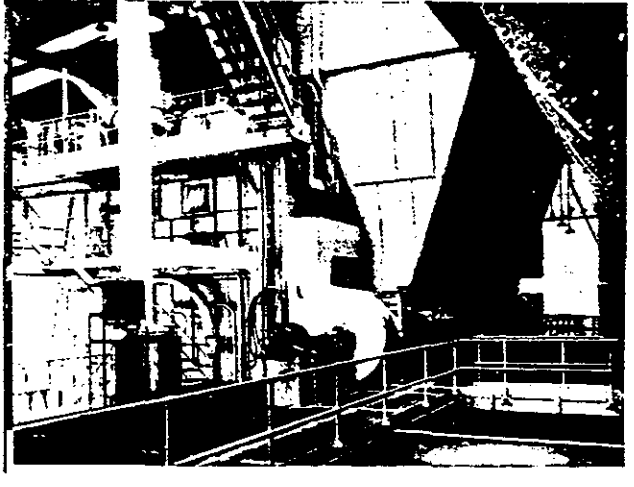
Rockbestos A.V.C. Switchboard Wires have a maximum operating temperature of 90°C (194°F) and are listed by the Underwriters' Laboratories. They comply with the NEMA Small Wiring for Switchboards Standard and are approved by Factory Mutual Laboratories, switchboard manufacturers and power companies. See Page 42 for Rockbestos synthetic and asbestos insulated switchboard wires, N.E.C. Type TA constructions.



MOTOR LEADS

Mill motors and other heavy duty stationary and traction types use Rockbestos A.V.C. Motor Lead and Apparatus Cable for protection against conductor-heating overloads and high ambient temperatures. This cable retains its flexibility indefinitely because it won't dry out with heat or age, won't rot or bloom from contact with oil or grease and won't burn or carry flame. These performance-protecting characteristics make it ideal for motor wiring in steel mills, generating stations, all types of coal mining equipment, industrial plants—and numerous electrical apparatus applications.





TYPICAL APPLICATIONS FOR POWE
WHERE SUBJECTED

POWER CIRCUITS UP TO 5000 VOLT SERVICE

Standard Rockbestos A.V.C. (Code Type AVA) Power Cables are available in voltage ratings of 600 to 5000 volts. They are designed to protect circuits that must operate without failure under continuous exposure to high temperatures and other severe operating conditions. Copper shielding can be provided where required. They are available in single or multi-conductor constructions with either lead sheaths or asbestos braids. Interlocking armor can be furnished to special order. Rockbestos A.V.C. (Code Type AVA) Power Cable constructions are approved by the National Electrical Code, listed by the Underwriters' Laboratories and conform to NEMA standards.

CONDUIT WIRING AROUND FURNACES, OVENS, SOAKING PITS, BOILERS, ETC.

Rockbestos A.V.C. Power Cables and Lighting Wires can be run in conduit as they are built to withstand the normal moisture conditions resulting from condensation caused by heating and cooling cycles. In cases where power and lighting circuits are exposed to high temperatures in combination with excessive condensation or complete submersion, use lead sheathed Code Type AVL.

LIGHTING AND POWER CIRCUITS

Rockbestos Hi-I A.V.C. (Code Type AVA) Lighting and Power Cables are *high temperature cables.* This A.V.C. construction—two layers of impregnated felted asbestos encasing the varnished cambric—permits continuous operation at copper temperatures of 230°F (110°C), thus making Hi-I cables ideal for high ambient "Hot Spot" locations or, in normal ambient installations, permitting the use of smaller cables with consequent savings of copper, conduit, fittings and man-hours of labor as compared with cables having ordinary insulation.

APPROVED USES FOR ROCKBESTOS CONSTRUCTIONS

Rockbestos Construction	NEC Type	Maximum Copper Operating Temp.	Insulation	Outer Covering	Special Provisions
Rockbestos A.V.C.	AVA	110°C (230°F)	Impregnated Asbestos and Varnished Cambric	Asbestos Braid	Dry locations only
	AVB	90°C (194°F)	Impregnated Asbestos and Varnished Cambric	Cotton Braid	Dry locations only
	AVL	110°C (230°F)	Impregnated Asbestos and Varnished Cambric	Lead Sheath	Wet locations
	TA	90°C (194°F)	Thermoplastic and Asbestos	Cotton Braid	Switchboard Wiring only
Rockbestos All-Asbestos	A	200°C (392°F) 150°C (302°F) for conductor strands #27 and smaller	Asbestos	Without asbestos braid	Dry locations only. Not for general use. In raceways, only for leads to or within apparatus. Limited to 300 V.
	AI	125°C (257°F)	Impregnated Asbestos	Without asbestos braid	Same as above
	AA	200°C (392°F) 150°C (302°F) for conductor strands #27 and smaller	Asbestos	With asbestos braid	Dry locations only. Open wiring. Not for general use. In raceways, only for leads to or within apparatus. Limited to 300 V.
	AIA	125°C (257°F)	Impregnated Asbestos	With asbestos braid	Same as above but for 600V Service
	AF	150°C (302°F)	Impregnated Asbestos	None	Fixture wiring. Limited to 300 V.

THE QUESTION OF MOISTURE

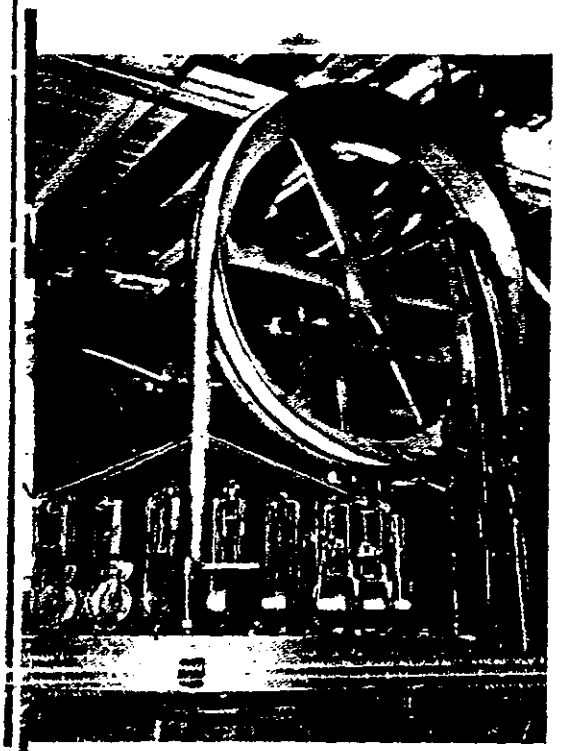
Article 310, Chapter III, of the National Electrical Code under the heading of "Conductors" states that the AVA and AVB type wires shall be used in dry locations only and the AVL type should be used in wet locations. In clarification of these limitations, Article 100 in Chapter I defines a dry location as being one not normally subject to dampness or wetness—and goes on to say that a location classified as dry may be temporarily subject to dampness or wetness as in the case of a building under construction. Under this regulation AVA and AVB types can be used where occasional moisture is present, for example moisture which is usually the result of condensation.

This is as it should be! Heat and moisture in conduit applications cannot be dissociated. Where heat is present for any period of time, a moisture condition sooner or later will appear. Usually the condition occurs during periodic shutdowns, as in the case of weekend holidays, where sudden changes in conduit temperatures from hot to cold result in condensation. Again condensation can and does occur where a sufficient temperature differential exists along the conduit. A case in point would be a single conduit run from a high temperature furnace area to a cold outside wall. A certain amount of air circulation exists within the conduit, and moisture is precipitated at the colder end—a condition identical with precipitation on cold water pipes in basements during a humid summer day.

Rockbestos A.V.C. (N.E.C. Type AVA) was designed to meet these conditions as it is constructed of asbestos, thoroughly impregnated with heat, flame and moisture resistant compounds, together with high dielectric varnished cambric tapes.

Since the inception of this design, Rockbestos Research has been running continuous laboratory projects simulating actual field service conditions on various A.V.C. constructions. A.V.C. constructions installed in conduit were subjected to steam, heat, a combination of heat and water—even complete submersion for extended periods to simulate emergency conditions. The results proved conclusively that Rockbestos A.V.C. has not only a built in factor of safety against "moisture" as defined by the National Electrical Code but substantial ability to withstand extreme conditions encountered in conduit applications as well.

Since then millions of feet of Rockbestos A.V.C. have been used successfully in industry to further prove its dependable operation. Where a portion of a circuit in conduit is subjected to heat and another portion subjected to water, as in the case of steel mill furnace control circuits running partially through under-slab duct systems, AVL is recommended.



OTHER ROCKBESTOS OUTER COVERINGS

Any wire of our manufacture can be furnished with lead sheath, ba. weave metal armor, interlocking steel or bronze armor or with almost any type of special covering needed for a specific application. These coverings when applied comply with current NEMA specifications for metallic coverings.

Metallic and synthetic sheathings may be used on Rockbestos A.V.C. Power and Control constructions in ratings ranging from 600 to 5000 volts

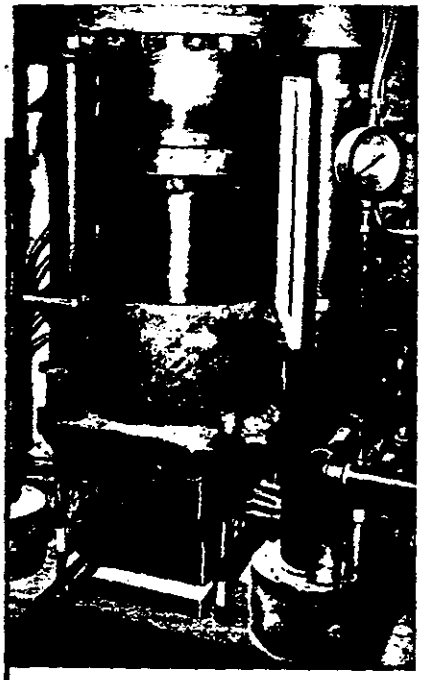
Metallic Braid Coverings

The braiders weave coverings of wire just as well as those of cotton or asbestos yarn. This armor braider is weaving a protective basket weave metal braid over the synthetic sheath of the cable. Such metals as Aluminum, Steel and Bronze are used on these armor braiders to form heavy duty coverings for circuits requiring greatest mechanical strength and abrasion resistance. Electrical shields of tinned copper can also be applied when specified.

Interlocked Armor Coverings

Cables covered with either steel or bronze interlocked armor are not only protected from exposure to severe heat and moisture, but their use eliminates the need for conduit giving increased flexibility to wiring systems. The cable so protected can be run in troughs, up vertical risers or over and around obstructions.

On orders for these types of special coverings, give complete specifications and state cutting lengths on order.

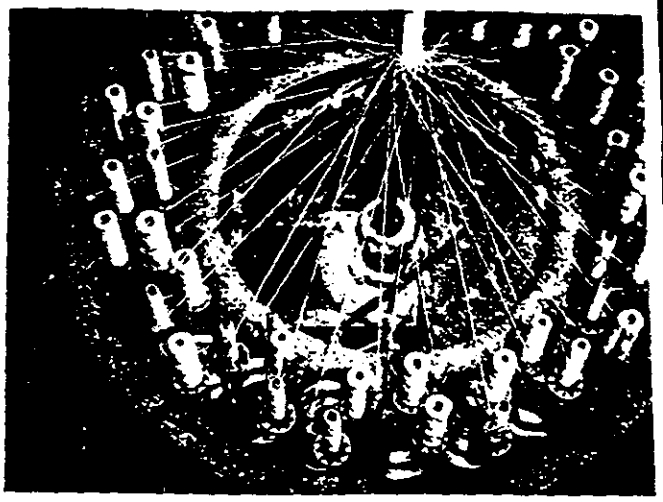


EXTRUDED LEAD and SYNTHETIC SHEATHS

Lead sheaths such as are required on Rockbestos A.V.C. Type AVL Power Cables are extruded by lead presses like the one pictured at the left. A pressure of approximately 1,000 tons per square inch is used to apply the lead sheaths to the cable. These moistureproof sheaths are used on Rockbestos standard Power, Control and Industrial Heating Cables.

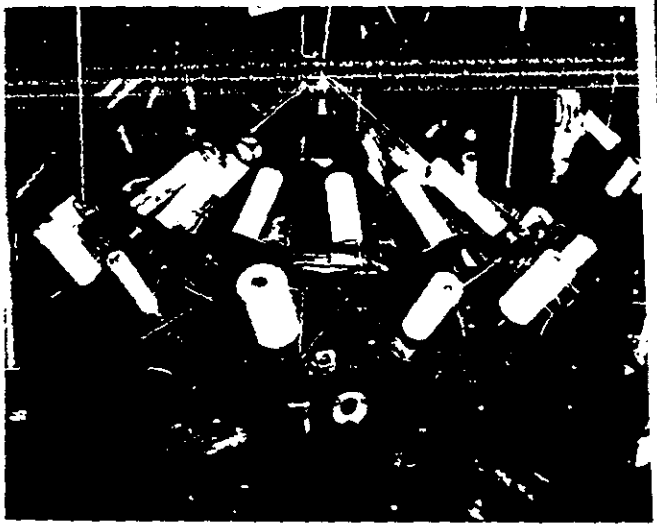
The Tuber pictured to the right is extruding a thermoplastic synthetic sheath over a large asbestos insulated shipboard cable. Other tubers similarly sheathe or apply synthetic insulation to small wires and cables.

APPLY BRAIDS and FINISHES



ASBESTOS BRAIDS

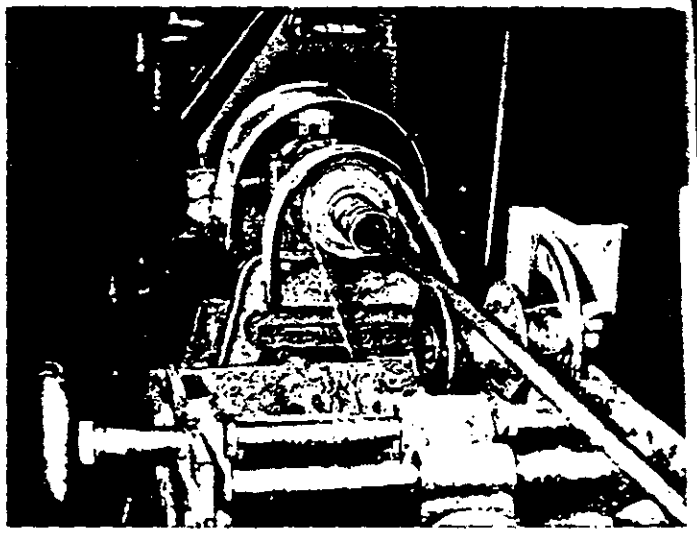
Standard Rockbestos A.V.C. Type AVA wires and cables are supplied with a black asbestos braid and Type AVB with flameproof gray cotton braid, but these wires and cables can be furnished with other braid materials and colors for other special applications. This picture to the right shows one of the big cable braiders. The carriers and their spools of asbestos yarn weave in and out in a may-pole dance to form the rugged heat and flame resistant outer braid. Cable diameters, yarn sizes and the number of ends and picks per inch must be taken into consideration to obtain proper coverage and allowance for flexing action in service.



COTTON BRAIDS

This close-up of a high speed braider is shown applying a braid of cotton to a Rockbestos A.V.C. Type AVB Switchboard Wire. The weaving action of this machine is accomplished by rotating two levels of carriers in opposite directions and diverting threads from the lower level alternately over and under the threads from the top level by a series of cams. Rockbestos finished cotton braids as used for outer coverings comply with the current requirements of ASA specifications for Cotton Braid for Insulated Wire and Cable for General Purposes—Code Braids (commonly known as NEMA Class B Braid).

Other materials such as rayon, glass, silk, etc. are also braided on this type of machine.

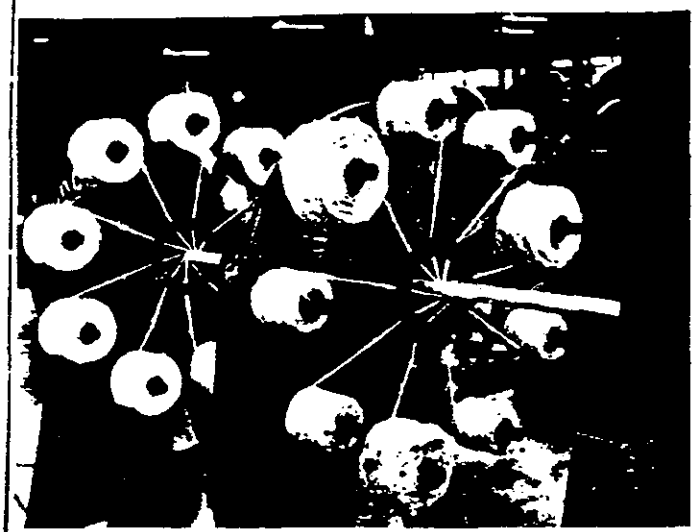


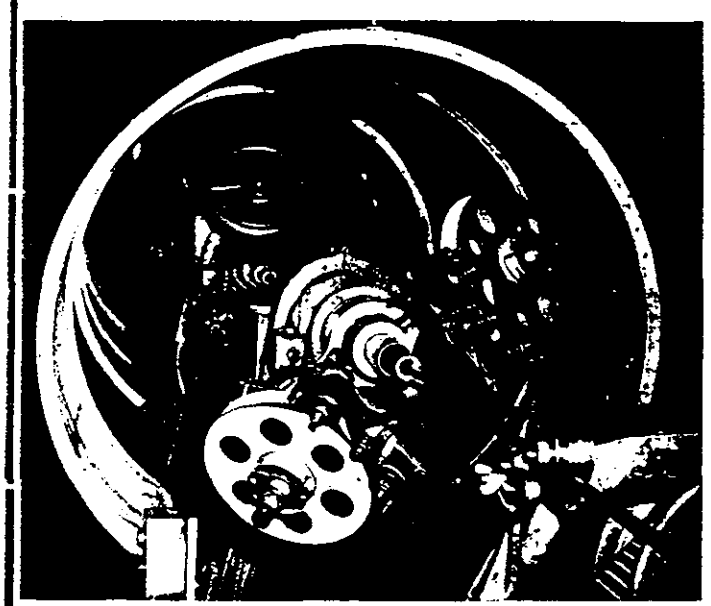
STANDARD AND SPECIAL FINISHES

ASBESTOS BRAIDS are finished with a suitable flame and heat resisting compound or saturated and finished with a flame, heat and moisture resisting compound, as specified.

COTTON BRAIDS are finished with a flame and heat resisting compound or saturated and finished with a flame, heat and moisture resisting compound, as specified.

On any of the standard wires shown in this catalog, special cotton twine, linen, glass or rayon braids can be substituted if necessary. Also a variety of special braid finishes such as lacquer, wax, asphalt or aluminum paint can be applied overall.





HOW W
INSULATION . .

FELTED ASBESTOS WALLS

This close-up of a double insulator to the left shows the operation performed by the battery of insulating machines pictured below. Single or double heads, carrying the cheeses of fluffy asbestos roving, revolve around the conductor to apply a uniform wall of asbestos which is then impregnated and compressed to specified thicknesses. This dense wall, resistant to heat, flame, grease, oil and fumes, is the basis of the insulation of Rockbestos All-Asbestos and A.V.C. type wires and cables.

IMPREGNATING COMPOUNDS

In general the felted asbestos insulating walls of all Rockbestos wires, cables and cords are impregnated with a chemically neutral, black insulating compound which is heat, moisture and flame resisting. Wherever identifying colors are required on wires having no outer braid, the insulation can be furnished in white, black or plain colors. In special cases where a wire will be exposed only to extremely high temperatures and no moisture, white compound may be used in the impregnation of the felted asbestos walls and for the finish of the braid. See page 45 Rockbestos Extra Flexible All-Asbestos Apparatus Cable.

HIGH DIELECTRIC TAPES

One of the large wrapping machines which applies varnished cambric or synthetic tapes to various types of Rockbestos A.V.C. cables. Rotating heads apply tapes selected to provide specified mil wall thicknesses, desired lap and length of lay required by the type of cable in process.

Varnished cambric tapes are being applied over the first felted asbestos wall of the Rockbestos A.V.C. Power Cable in the machine.

WHY ROCKBESTOS A.V.C. WAS DEVELOPED

Since the early days of electrified industry, there has been a definite need for an electrical conductor insulation which would operate dependably in elevated ambient temperatures. High ambient temperatures were a problem then as they are today, and the performance of ordinary wires and cables at that time was restricted by the very nature of the materials used. Rubber, for instance, while known to be high in moisture resistance, was affected by high temperatures which caused it to become dry and porous limiting its length of effective service. The life of straight varnished cambric insulations too was seriously affected by high ambient temperatures which tended to cause deterioration of the tapes. Early asbestos insulations proved unsatisfactory because they consisted only of a series of asbestos braids filled with paint or other compound.

Recognizing that high temperatures and moisture were the major threats to the life of insulations, Rockbestos Engineers designed and developed their A.V.C. construction. This A.V.C. construction used as a basis dense felted walls of thoroughly impregnated asbestos to form a continuous insulation which would permanently resist heat, flame and moisture. High dielectric varnished cambric tapes were added as an insert between the felted asbestos to give added dielectric strength and moisture resistance. In this combination the felted asbestos also provided protection for the Varnished Cambric tapes against mechanical damage, deterioration from oxidation and prevents the formation of a continuous carbon path from conductor to ground. This basic construction was covered overall with either impregnated asbestos or flameproof cotton braids. This new Rockbestos A.V.C construction was designed primarily to safely and dependably carry electrical loads in high ambient locations and to withstand additional operating hazards such as attacks of chemicals, oils, grease and fumes. Here was an insulation designed to give a long life of dependable operation under severest conditions.

Since the introduction of Rockbestos A.V.C. wires and cables in 1927, many millions of feet have been installed throughout the world under normal and abnormal operating conditions. These installations have covered a wide range of high temperatures and moisture conditions in practically every known industry. Rockbestos Field Engineers have constantly checked many of these installations in various industries since 1927 to check field conditions against long time tests run by our Research Laboratory to confirm the ability of Rockbestos A.V.C. to meet unusual service conditions. Because of their successful operation, these asbestos-varnished cambric wires and cables were included in the National Electrical Code in the 1937 Edition and designated as N.E.C. Types AVA, AVL and AVB. The trade name "A.V.C." as registered by Rockbestos and used commercially is synonymous with National Electrical Code Types AVA, AVL and AVB. That is, A.V.C. finished with asbestos braid is Type AVA, with lead sheath is Type AVL and with cotton braid is Type AVB.

THE HI-I STORY

Maximum current carrying capacities of insulated conductors are determined within practical limits by the maximum temperature the insulation will stand without undue deterioration.

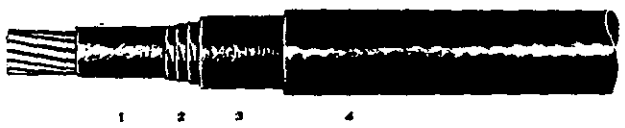
The Code in rating this original Rockbestos A.V.C. construction permitted it a higher temperature limit than ordinary insulations because its impregnated felted asbestos walls safely resisted deterioration under high ambients and the heat from current loads. Chapter 10, Tables I and II, under "Allowable Current-Carrying Capacities at 30°C" list Rockbestos A.V.C. Type AVA construction with greater current carrying capacity size for size than for cables with ordinary insulations. The practical advantages of Rockbestos A.V.C. begin here. As ambient temperatures increase and correction factors are applied, A.V.C. is de-rated far less than ordinary constructions, all because of its insulation.

At 70°C, for instance, other types of insulations are de-rated as much as 65% while Rockbestos A.V.C. is de-rated only 29%. At ambient temperatures in excess of 85°C, a limiting point for other types of insulations, Rockbestos A.V.C. rated at 110°C continues to provide permanent protection for electrical circuits.

Plant layouts and expansion programs are given greater flexibility by installing Rockbestos A.V.C. because not only does it provide greater current carrying capacity for intermittent demands and future load growth in existing circuits, but the installation of heat generating equipment is not restricted by its nearness to vital electrical circuits. The fact that you can use a smaller sized cable to carry a given load can start a whole series of cumulative savings.

Smaller cable means smaller conduit and fittings. Easier, quicker installations, plus years of dependable performance, prove Rockbestos Hi-I A.V.C. . . . Your Best Buy.

ROCKBESTOS A.V.C. CONSTRUCTION



(1) First impregnated felted asbestos wall.
(2) Varnished cambric tapes.
(3) Second impregnated felted asbestos wall.
(4) Impregnated asbestos braid for Type AVA cables. (Flameproof cotton braid for Type AVB cables.) (Lead Sheath for Type AVL cables.)

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ASBESTOS . . . OUR BASIC RAW MATERIAL

In entering upon a description of Rockbestos wires and cables, a brief outline of the characteristics of asbestos, the chief material used in their insulation, is a logical beginning.

Asbestos is a mineral, consequently inorganic in its nature, and in this principal feature different from all other types of material in use for insulating wires and cables. Asbestos fibres are solid, that is to say they have no capillary opening through their center like cotton, wool or other organic fibres. Because of this fact, there is no tendency for individual asbestos fibres to act as capillaries if their ends are exposed, and it only becomes necessary to fill the voids of interstices between the fibres to produce a relatively impervious layer.

Asbestos has demonstrated its ability to withstand time without the deterioration that occurs in other forms of electrical insulating materials such as rubber and the general class of organic fibres. Furthermore, it will not rot or carbonize under any conditions. It may be fairly stated indeed that asbestos is ageless, and time, as every engineer well knows, is a much more exacting test of a material than almost any laboratory accelerated life test which can be made. During the centuries since the asbestos was formed, it has been exposed to high earth temperatures and, as earth cooled, to moisture and the wide variety of earth acids and alkalis, all with no apparent change in any of its properties.

We have investigated the world's sources of asbestos to find and secure the softest, silkiest, purest, long fibred asbestos . . . and we find it in certain deposits of Chrysotile (Serpentine Group)—the aristocrat of the asbestos family.

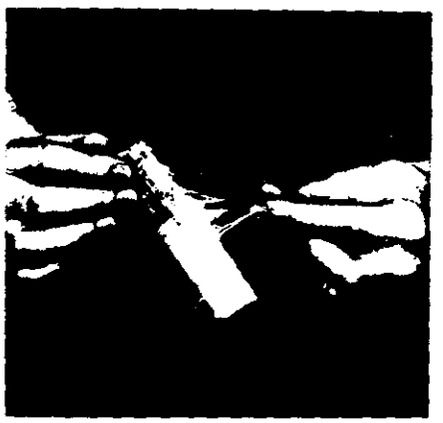
Chrysotile is a hydrated magnesium silicate which occurs in crystalline form in veins or striations in the mother rock and is widely distributed. Each crystal is a "fibre", square in cross section, having a diameter of about 1/500,000 inch and a length equal to the width of the vein. There are a number of sources of Chrysotile fibre, the principal ones being Rhodesia, Canada, Russia, Arizona and Australia. The largest deposits are in Rhodesia and Canada.

Asbestos retains its strength and fibrous form under all conditions except extremely high temperatures. Chrysotile asbestos in crude (unopened form) begins to lose some of its water crystallization at about 450°C and is almost completely dehydrated at 850°C. It fuses at about 1500°C. When applied to wires or cables in felted form, its low heat conductivity enables it to withstand melting the copper conductor by passage of high currents without material loss of its mechanical strength. Tests of fabrics woven of Chrysotile asbestos show that after three hours at 500°C they still have their original tensile strength.

Asbestos, after it is mined, is broken up, fiberized and cleaned. It is then combed and carded into soft, fluffy roving.

In this form it is applied to the conductor, impregnated with neutral insulating compounds, and compressed into the felted wall which is Rockbestos insulation that is not only fireproof but practically impervious to the destruction normally caused by heat and moisture, oil, grease, corrosive fumes or age.

What a material to use where endurance and resistance to deterioration are so important!



Hard as a rock in the vein, asbestos is soft as silk when fiberized. Each silky fiber is a crystal 1/500,000th of an inch in diameter.

A million-year-old handful! This asbestos has been completely fiberized and prepared and is now ready to be carded into roving.

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AFPD

AF & AFC

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ENGINEERING DATA

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OF CODE TYPES AND ROCKBESTOS TABLE LETTERS

GENERAL INFORMATION

AVA

AVL

AVB

TA

This is the Rockbestos Handbook and Catalog No. 10-G, which illustrates and describes wires, cables and flexible cords designed with Asbestos Varnished Cambric, and All Asbestos insulations for use where wiring in electrical products or in the power, control and lighting circuits of industry is exposed to heat, corrosive fumes, grease, oil or fire hazard.

Also contained in this catalog are Rockbestos special constructions developed for special and specific applications.

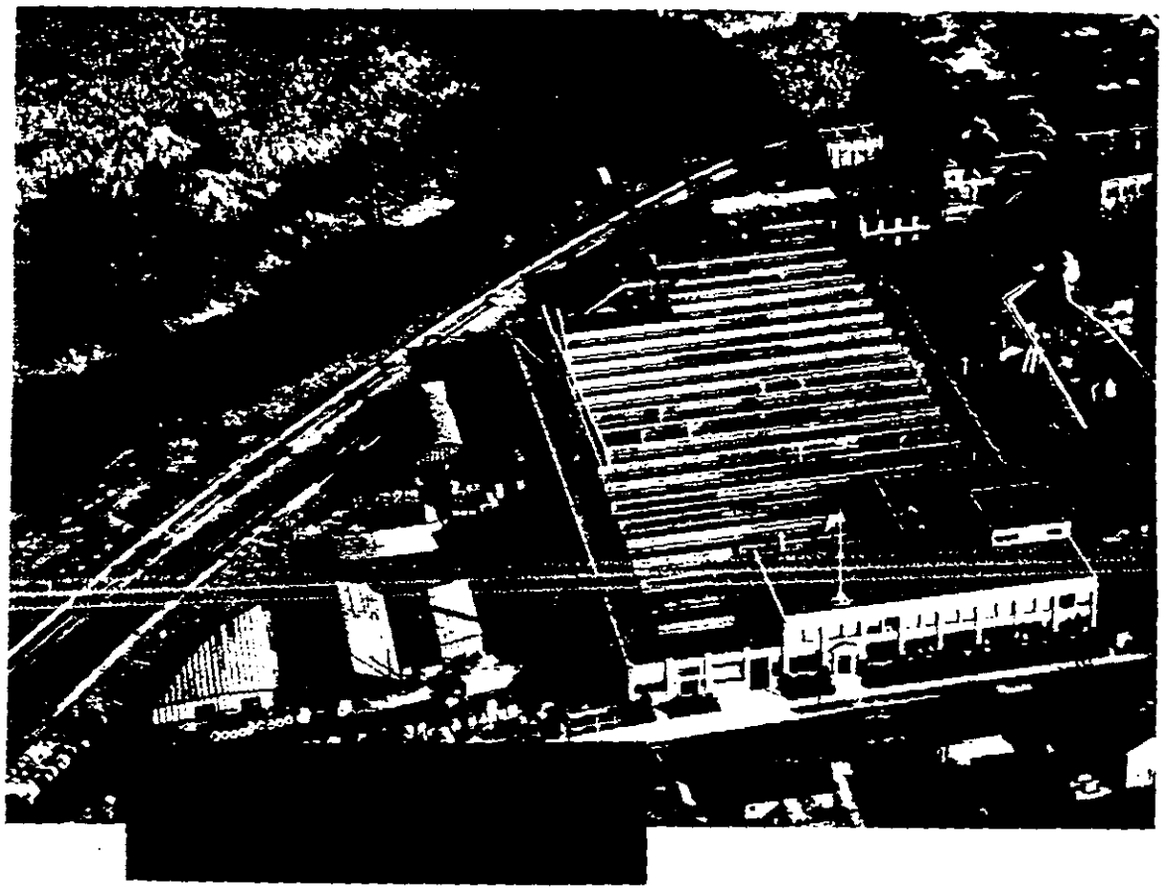
All data subject to change without notice.

ROCKBESTOS WIRE & CABLE CO.

Division of CERRO DE PASCO CORPORATION

Main Office and Works

NICOLL AND CANNER STS., NEW HAVEN 4, CONN., U. S. A.



ROCKBESTOS is the name for a wide line of wires, cables and cords, including more than 125 different standard constructions, which have been designed and developed to give long and dependable service under severe operating conditions.

Early in 1918 a small group of Rockbestos Electrical Engineers and Chemists perfected a method of applying asbestos to wires and cables as a heat resisting electrical insulation. This first step resulted in the production of wire that industry and electrical engineers had been looking for. Here was an insulated conductor resistant to high temperatures, aging, corrosive fumes, grease, oil and flame. Success from the start—and just the beginning for this company which was later to distinguish itself to be the only company in industry devoted exclusively to the manufacture of permanently insulated wires and cables. Rockbestos grew along with the then rapidly growing electrical industry, solving its electrical insulation problems as they became apparent with this unique mineral, ASBESTOS. Other materials are often combined with asbestos, i.e. Varnished cambric, Synthetics, DuPont "Teflon" Tetrafluoroethylene resin, cotton, rayon, nylon and glass, to provide special characteristics. Two broad lines of permanently insulated wires, cables and cords—Rockbestos A.V.C. asbestos-varnished cambric insulated (N.E.C. Types AVA and AVB) and Rockbestos ALL-Asbestos (N.E.C. Types A, AA, AI, AIA and AF)—have been developed for innumerable industrial applications.

Rockbestos engineering and research are constantly abreast of electrical problems in both science and industry, providing answers through the development of trouble-free, ageless electrical insulations designed for each specific application. May we offer you our research facilities for the development of special wires designed to meet any unusual requirements.

Paul C. Plummer
Cost Estimating Section

ROCKBESTOS WIRE & CABLE CO.

Division of CERRO DE PASCO CORPORATION

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NICOLL AND CANNER STS., NEW HAVEN 4, CONN., U. S. A.

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