GCC
GENERAL CABLE CORPORATION

GENERAL CABLE CORPORATION

EXECUTIVE OFFICES:

730 Third Avenue, New York 17, N. Y.

PLANTS:

Baltimore, Md. • Bayonne, N. J. • Bonham, Texas • Cass City, Mich. • Chappaqua, N. Y. • Clifton Springs, N. Y. • Concord, N. H. • Elkton, Md. • Emeryville, Calif. • Hamilton, Ontario • Los Angeles, Calif. • Memphis, Tenn. • Monticello, Ill. • Muncie, Ind. • New Brunswick, N. J. • North Adams, Mass. • Palatka, Fla. • Perth Amboy, N. J. • Providence, R. I. • Quincy, Mich. Rome, N. Y. • Roselle, N. J. • St. Louis, Mo. • St. Petersburg, Fla. • Sanger, Calif. • Tampa, Fla. • Williamstown, Mass.

SALES OFFICES:

*Albuquerque, N. M. — 2100 Zearing Avenue, N. W.
*Amarillo, Texas — 323 N. Nelson Street
*Atlanta 18, Ga. — 1401 Ellsworth Industrial Drive, N. W.
*Baltimore 18, Md. — 1130 East 30th Street
*Birmingham 5, Ala. — 3508 Fourth Avenue South
*Boston, Mass. — 120 V.F.W. Parkway, Revere 51, Mass.
*Bristol, Tenn. — 21 Spruce Street
Buffalo 2, N. Y. — 17 Court Street
Cape Canaveral, Fla.—5505 N. Atlantic Ave., Coca Beach, Fla.
*Chicago 31, Ill. — 4820 N. Harlem Avenue
*Chicago 40, Ill. — 5447 N. Wolcott Avenue
*Cincinnati 37, Ohio — 7650 Production Drive
*Cleveland 14, Ohio — 2875 Superior Avenue
*Columbus 12, Ohio — 1140 Chambers Road
*Dallas 7, Texas — 1620 Oak Lawn
*Dayton 4, Ohio — 1256 Stanley Avenue
*Denver 16, Colo. — 4201 E. 48th Avenue
*Des Moines 17, Iowa — 2050 Delaware Avenue
Des Plaines, Ill. — 1800 Busse Highway
*Detroit, Mich. — 12811 Capital Avenue, Oak Park 37, Mich.
*El Paso, Texas — 1042 East Side Blvd.
Emeryville, Calif. — 6221 Hollis Street
Great Falls, Mont. — 1311 3rd. N. W.
*Honolulu 17, Hawaii — 1035 Kikowaena Place
*Houston 20, Texas — 1340 Hahlo Street
Huntsville, Ala. — 212 Gallatin Street, S. W.
*Indianapolis 7, Ind. — 1735 West 18th Street
*Jackson, Miss. — 218 Lorenz Blvd.
*Jacksonville 5, Fla. — 455 Roberts Street
*Kansas City 16, Mo. — 920 Cable Road
*Lincoln, Nebraska — 5615 Seward Street
*Los Angeles 22, Calif. — 2933 South Supply Avenue
Louisville 13, Kentucky — 4262 Poplar Level Road
*Miami 42, Fla. — 3501 N. W. 60th Street
*Milwaukee 13, Wisc. — 6520 W. State Street
*Minneapolis 20, Minn. — 404 W. 79th Street
*Newark, N. J. — 1071 Hudson Street, Union, N. J.
*New Haven, Conn. — 463 Boston Post Road, Orange, Conn.
*New Orleans 25, La. — 3923 Euphrosine Street
New York 17, N. Y. — 420 Lexington Avenue
*Philadelphia, Pa. — 95 South Eagle Rd., Havertown, Pa.
*Phoenix 34, Ariz. — 3316 E. Washington Street
Pine Bluff, Ark. — National Bldg., 2nd and Pine Sts.
*Pittsburgh 33, Pa. — 2001 Preble Ave.
*Plainview, L. I., N. Y. — Ames Court
*Portland 10, Oregon — 2215 N. W. Quimby Street
Quincy, Mich. — U. S. 112 East
*Raleigh, N. C. — 2323 Campbell Street
*Richmond 30, Va. — 2315 Westwood Avenue
*Rochester 23, N. Y. — 50 Telco Road
Rome, N. Y. — 400 Railroad Street
*Sacramento, Calif. — 915 Fee Drive, No. Sacramento 15, Calif.
*St. Louis 39, Mo. — 4983 Fyler Avenue
*Salt Lake City 4, Utah — 22 Jeremy Street
*San Antonio 10, Texas — 311 Eads Avenue
San Diego 1, Calif. — 520 E Street, Room 811
*San Francisco 24, Calif. — 185 Industrial Street
Sanger, Calif. — 1075 North Avenue
Santa Monica, Calif. — 1230 Fourth Street
*Savannah, Ga. — Savannah Industrial Park, Ross Road
*Seattle 8, Wash. — 5210 First Avenue, South
Spokane 1, Wash. — 204 Nelson Bldg., West 106 Mission Ave.
*Springfield, Ill. — 920 N. MacArthur Blvd.
*Syracuse, N. Y. — Wavel Street, East Syracuse 6, N. Y.
Tacoma 2, Wash. — 801 East 26th Street
*Tampa 10, Fla. — 2515 E. Hanna Avenue
Tucson, Ariz. — 2020 E. 13th Street
*Tulsa 5, Okla. — 6848 E. 41st Street
Washington 1, D. C. — 261 Constitution Avenue, N. W.

*Denotes Distributing Centers and Sales Offices

ALL-ASBESTOS AND ASBESTOS-VARNISHED CAMBRIC INSULATED WIRES AND CABLES

GENERAL

Users of all-asbestos and asbestos-varnished cambric wires and cables in all branches of industry have found the General Cable Corporation to be a reliable source of supply not only because of prompt delivery but primarily because of uniformly high quality of products.

Asbestos, being a mineral fibre, is practically incombustible and indestructible. The name "asbestos" meaning "unconsumed" was coined from the use of this material for the wicks of the perpetual lamps in the ancient Greek temples. In fact, an ancient method of cleaning fabrics made from asbestos was to place them in a flame and burn out the materials soiling the fabric.

Asbestos provides a truly heat-resisting insulation suitable for use at temperatures beyond the limits allowable for other standard forms of insulation.

In most cable applications the asbestos is used in combination with varnished cloth. Varnished cloth provides a flexible insulation of high dielectric strength to reinforce the normal heat-resisting characteristics of asbestos.

As a rule, the varnished cloth tapes are applied as a layer between saturated layers of felted asbestos.

All-asbestos and asbestos-varnished cambric insulated wires and cables manufactured by General Cable comply with the Standards of the National Electrical Manufacturers Association for such cables.

The following maximum operating temperatures are recommended for this class of insulation, in accordance with these Standards:

All-Asbestos (Unimpregnated, Type A) where no moisture is present	200°C.
All-Asbestos (Impregnated, Type AI) where moisture is present	125°C.
Asbestos-Varnished Cambric:	
(a) with Asbestos Braid (Type AVA) or Lead Sheath (Type AVL)	110°C.
(b) with Cotton Braid (Type AVB)	90°C.
Synthetic-Asbestos with Cotton Braid (Type SNA)	90°C.

Where operating potential exceeds 600 volts, the permissible temperature should be reduced by 3E degrees, where E equals the operating voltage between conductors in kilovolts.

STANDARD TYPES and USES

ALL-ASBESTOS AND ASBESTOS-VARNISHED CAMBRIC WIRES AND CABLES

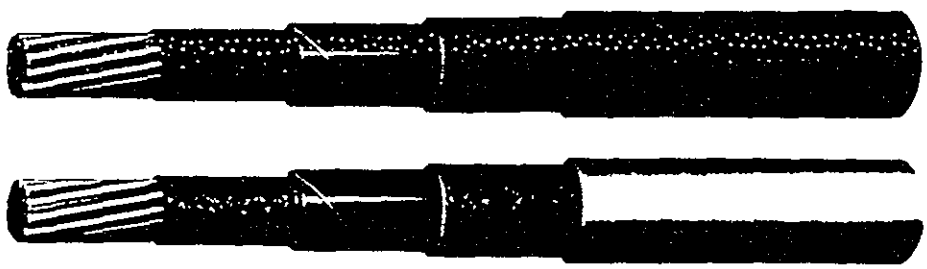
General Classification	Type Designation	Construction	Application	Rated Voltage Volts	For Complete Descriptions Refer to Pages Listed Below
Power Cables	Asbestos-Varnished Cambric Boiler Room Wire	Solid conductors of soft annealed copper, insulated with saturated felted asbestos and varnished cambric, saturated outer asbestos braid.	For general lighting and control circuits, open wiring and conduit work subjected to heat, corrosive fumes, oil, grease, etc.	600	7 to 9, 13
	Asbestos-Varnished Cambric Insulated Power Cable	Coarse stranded conductors of soft annealed copper, insulated with saturated felted asbestos and varnished cambric, saturated outer asbestos braid. 600-volt cable also supplied with lead sheath in place of braid.	For general power wiring in boiler rooms, power plants, steel mills, industrial plants, etc.	1000 to 5000	10 to 12
	All-Asbestos Power Cable and All-Asbestos Rheostat Wire	Solid or coarse stranded conductors of soft annealed copper, insulated with saturated felted asbestos, saturated outer asbestos braid.	For rheostat wiring, ranges, hot plates and general open wiring where exposed to heat, fumes, greases, etc.	600	14, 15
Apparatus Cables	Asbestos-Varnished Cambric Apparatus Cable	Flexible stranded conductors of tinned, soft annealed copper, insulated with saturated felted asbestos and varnished cambric, saturated outer asbestos braid.	For motor leads, coil connections, transformer leads, internal wiring of mining machinery, etc.	600	16, 17
	All-Asbestos Apparatus Cable	Flexible stranded conductors of tinned, soft annealed copper, insulated with saturated felted asbestos, saturated outer asbestos braid.	Where flexible leads must be installed under high temperature conditions and where no great amount of moisture is present.	600	16, 17
	All-Asbestos Extra-Flexible Motion Picture or Arc Lamp Cable	Extra-flexible stranded conductors of soft annealed copper, insulated with saturated felted asbestos, saturated outer asbestos braid.	For motion picture projectors, arc lamps, spot lights, etc., requiring exceptional flexibility.	300	18
Switchboard Wires and Bus Cables	Gencaseal-Asbestos Switchboard Wire and Cable	Solid or coarse stranded conductors of tinned, soft annealed copper, insulated with Gencaseal and felted asbestos, and enclosed in a saturated outer cotton braid.	For wiring of switchboards.	600	19
	Asbestos-Varnished Cambric Switchboard Wire and Cable	Solid or stranded conductors of tinned, soft annealed copper, insulated with varnished cambric and saturated felted asbestos, and enclosed in a saturated outer cotton braid.	For wiring of switchboards.	600	20
	Asbestos-Varnished Cambric Switchboard Bus Cable	Coarse stranded conductors of soft annealed copper, insulated with saturated felted asbestos and varnished cambric, and enclosed in a saturated outer cotton braid.	For switchboard bus wiring.	600	21

ALL-ASBESTOS AND ASBESTOS-VARNISHED CAMBRIC WIRES AND CABLES—(Continued)

STANDARD TYPES and USES

General Classification	Type Designation	Construction	Application	Rated Voltage Volts	For Complete Descriptions Refer to Pages Listed Below
Switchboard Wires and Bus Cables (Cont'd)	Gencaseal-Asbestos Hinge Cable	Flexible stranded conductors of tinned, soft annealed copper insulated with Gencaseal and saturated felted asbestos and enclosed in a saturated outer cotton braid.	For hinge or jumper connections on swinging panels, etc.	600	22
	Asbestos-Varnished Cambric Hinge Cable	Flexible stranded conductors of tinned, soft annealed copper, insulated with saturated felted asbestos and varnished cambric, and enclosed in a saturated outer cotton braid.	For hinge or jumper connections on swinging panels, etc.	600	23
Appliance Lead Wires, Range Wires, and Stove Wires	Plain Felted Asbestos Appliance Lead Wire	Solid, coarse, or flexible stranded conductors of soft annealed copper, insulated with saturated felted asbestos. Also available in three-conductor twisted assembly.	For wiring ranges, stoves, hot plates, and other electric heating appliances.	300	24
	All-Asbestos Stove Wire	Solid or coarse stranded conductors of soft annealed copper, insulated with saturated felted asbestos and saturated outer asbestos braid.	For wiring stoves, ranges, hot plates and other heating appliances.	300	25
Control Cables	Asbestos-Varnished Cambric Control Cable	Flexible stranded conductors of either size 9 or 12 A.W.G. tinned, soft annealed copper, insulated with saturated felted asbestos and varnished cambric, and enclosed in a dry color-coded cotton braid. For multi-conductor cables the required number of insulated and braided conductors are assembled by twisting and covered by a tape and a saturated asbestos braid.	For boiler rooms, power stations, and other locations where control or signal wiring is subject to temperatures beyond the operating limits of other insulations.	600	26, 27
Flexible Cords	Asbestos-Varnished Cambric Headlight Wire (Single Conductor Only)	Flexible stranded conductors of tinned, soft annealed copper, insulated with varnished cambric and saturated felted asbestos and enclosed in a saturated outer cotton braid.	For cab and gauge light wiring on locomotives, and as extension cord in steel mills, kiln rooms, etc.	600	28, 29
	All-Asbestos Two Conductor Cord (Light Duty Cab Cord)	Flexible stranded conductors of soft annealed copper, insulated with saturated felted asbestos, assembled by twisting, and covered by a saturated asbestos braid.	For cab and gauge light wiring on locomotives, and as extension cord in steel mills, kiln rooms, etc.	300	28, 29
	Asbestos-Varnished Cambric Two Conductor Cord (Heavy Duty Cab Cord)	Flexible stranded conductors of tinned, soft annealed copper, insulated with saturated felted asbestos and varnished cambric, assembled by twisting, and covered by a saturated asbestos braid.	For cab and gauge light wiring on locomotives, and as extension cord in steel mills, kiln rooms, etc., especially where there is exposure to oil, grease, moisture, etc.	600	28, 29

Asbestos—Asbestos-Varnished Cambric Cables
Syracuse Passenger Station, N. Y. C. R. R.



ASBESTO VARNISHI CAMBRIC POWER CABLES and BOILER ROOM WIRES

Types AVA and AVL 600 Volts

These constructions are recommended for either open wiring or general conduit work, where operating temperatures are above the limits of other standard insulations—particularly where subject to heat, flame, oil, grease or corrosive vapors.

Stranded conductors (Power Cables) are normally used as circuit wiring in ash pits and ash pit alleys, around soaking pits, for furnaces, ovens, lehrs, tenter frames, steam tunnels, major boiler room circuits and similar high temperature applications. Braid finished constructions are suitable for general conduit wiring, except where condensation or infiltration provides a moisture hazard. Lead sheaths should be specified for moist conditions.

Solid conductors (Boiler Room Wires) are normally used in general lighting and control circuits, around ovens, furnaces, lehrs, tenter frames, boiler rooms, soaking pits and as elevator and locomotive control panel wiring. This type is also used as switchboard wire, where an overall asbestos braid is required.

Both constructions are approved by Underwriters' Laboratories as Type AVA or AVL wires. Both types may be handled and pulled into conduit by methods similar to those used with other standard wire and cable constructions. Multi-conductor constructions are also available, as required.

The maximum recommended operating temperature is 110°C.

CONSTRUCTION

(Refer to pages 30 and 31)

Conductors:

Solid (Boiler Room Wires) or coarse stranded (Power Cables), soft annealed copper.

Insulation:

(a) Wall of felted asbestos, or asbestos roving, saturated with heat and moisture-resisting compound (excepting for solid conductor sizes No. 8 A.W.G. and smaller).

(b) Wall of varnished cloth tapes applied as a series of helical wraps and

(c) Wall of felted asbestos, or asbestos roving, saturated with heat and moisture-resisting compound.

Outer Coverings:

(a) **Type AVA:** Asbestos braid, saturated and finished with flame, heat and moisture-resisting compound (standard color—black).

(b) **Type AVA:** Also available with white heat and flame-resisting finish—on special order, or

(c) **Type AVL:** Sheath of commercially pure lead or special alloy—if so specified.

PERFORMANCE CHARACTERISTICS

Initial Dielectric Strength	Refer to page 31
*Resistance to Flame	Refer to page 32
*Dielectric Strength—following Flame Test	Refer to page 32
*Dielectric Strength—during Immersion	Refer to page 32

*Not applicable to Type AVL Cables

ASBESTOS-VARNISHED CAMBRIC POWER CABLES and BOILER ROOM WIRES

Types AVA and AVL 600 Volts

STANDARD SIZES, DIMENSIONS,

	CONDUCTORS		INSULATION THICKNESS Minimum Average			BRAID FINISHED CABLES		
Size C.M. or A.W.G.	Construction	Diameter Inches	First Asbestos Mils	Varnished Cambric Mils	Second Asbestos Mils	Braid Thickness Mils	** Overall Diameter Inches	Weight per 1000 Ft. Net Lbs
								ASBESTOS-VARNISHED CAMBRIC
1,000,000	61 x .1280"	1.152	30	40	40	45	1.465	3510
900,000	61 x .1215"	1.094	30	40	40	45	1.405	3182
800,000	61 x .1145"	1.031	30	40	40	45	1.345	2854
750,000	61 x .1109"	.998	30	40	40	45	1.310	2689
700,000	61 x .1071"	.964	30	40	40	45	1.275	2524
650,000	61 x .1032"	.929	30	40	40	45	1.240	2359
600,000	61 x .0992"	.893	30	40	40	45	1.205	2193
550,000	61 x .0950"	.855	30	40	40	45	1.165	2027
500,000	37 x .1162"	.813	25	40	40	45	1.115	1855
450,000	37 x .1103"	.772	25	40	40	45	1.075	1687
400,000	37 x .1040"	.728	25	40	40	45	1.030	1505
350,000	37 x .0973"	.681	25	40	40	45	.985	1353
300,000	37 x .0900"	.630	25	40	40	45	.930	1184
250,000	37 x .0822"	.575	25	40	40	45	.875	1014
4/0	19 x .1055"	.528	20	30	30	45	.780	839
3/0	19 x .0940"	.470	20	30	30	45	.720	690
2/0	19 x .0837"	.419	20	30	30	45	.670	571
1/0	19 x .0745"	.373	20	30	30	45	.625	476
1	19 x .0664"	.332	20	30	30	45	.585	371
2	7 x .0974"	.292	15	30	20*	45	.515	290
3	7 x .0867"	.260	15	30	20*	45	.480	240
4	7 x .0772"	.232	15	30	20*	45	.455	200
5	7 x .0688"	.206	15	30	20*	45	.430	168
6	7 x .0612"	.184	15	30	20*	45	.405	143
8	7 x .0486"	.146	10	30	15*	45	.350	100
10	7 x .0385"	.116	10	30	15*	45	.320	77
12	7 x .0305"	.092	10	30	15*	45	.295	61
14	7 x .0242"	.073	10	30	15*	45	.275	49
16	7 x .0192"	.058	10	30	15*	45	.260	43
18	7 x .0152"	.045	10	30	15*	45	.245	37
								ASBESTOS-VARNISHED CAMBRIC
4/0	Solid	.460	20	30	30	45	.710	803
3/0	Solid	.410	20	30	30	45	.660	660
2/0	Solid	.365	20	30	30	45	.615	546
1/0	Solid	.325	20	30	30	45	.575	425
1	Solid	.289	20	30	30	45	.540	350
2	Solid	.258	15	30	20	45	.480	279
4	Solid	.204	15	30	20	45	.425	193
6	Solid	.162	15	30	20	45	.385	138
8	Solid	.128	..	30	20	45	.320	90
10	Solid	.102	..	30	20	45	.295	70
12	Solid	.081	..	30	20	45	.275	55
14	Solid	.064	..	30	20	45	.255	47
16	Solid	.051	..	30	20	45	.245	40
18	Solid	.040	..	30	20	45	.230	36

*These thicknesses apply to braid finished cables: lead sheathed cables have second asbestos wall of 25 mils minimum average thickness.
**Subject to ± 5% tolerance in overall dimensions.

The above data are approximate and

ASBESTOS VARNISHED CAMBRIC POWER CABLES and BOILER ROOM WIRES

Types AVA and AVL 600 Volts

WEIGHTS AND PACKAGES

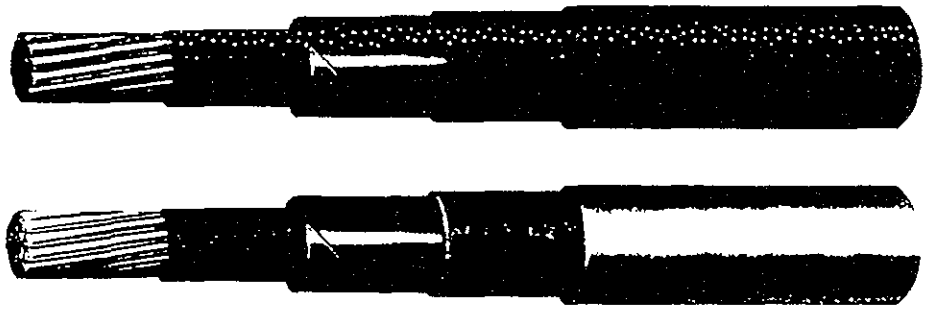
LEAD SHEATHED CABLES			STANDARD PACKAGES					
			BRAID FINISHED		LEAD SHEATHED			
Minimum Average Sheath Thickness Inches	Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	Feet	Weight per 1000 Ft. Gross Lbs	Feet	Weight per 1000 Ft. Gross Lbs	Dielectric Test Voltage Volts	Size C.M. or A.W.G.
POWER CABLES								
6/64	1.560	5613	500 (Reel)	3912	500 (Reel)	6163	4000	1,000,000
6/64	1.505	5201	500 (Reel)	3584	500 (Reel)	5771	4000	900,000
6/64	1.440	4783	500 (Reel	3256	500 (Reel	5353	4000	800,000
6/64	1.410	4570	500 (Reel	3019	500 (Reel	4970	4000	750,000
6/64	1.375	4356	500 (Reel	2926	500 (Reel	4758	4000	700,000
6/64	1.340	4140	500 (Reel	2761	500 (Reel	4542	4000	650,000
6/64	1.305	3923	500 (Reel	2523	500 (Reel	4325	4000	600,000
6/64	1.265	3786	500 (Reel	2357	500 (Reel	4186	4000	550,000
5/64	1.180	3062	500 (Reel	2185	500 (Reel	3462	4000	500,000
5/64	1.140	2848	500 (Reel	2017	500 (Reel	3248	4000	450,000
5/64	1.095	2632	500 (Reel)	1835	500 (Reel)	2962	4000	400,000
5/64	1.050	2413	500 (Reel	1683	500 (Reel	2743	4000	350,000
5/64	1.000	2183	500 (Reel)	1514	500 (Reel)	2513	4000	300,000
5/64	.945	1965	500 (Reel)	1344	500 (Reel)	2286	4000	250,000
4/64	.815	1516	1000 (Reel)	1004	1000 (Reel)	1717	3000	4/0
4/64	.755	1313	1000 (Reel)	855	1000 (Reel)	1478	3000	3/0
4/64	.705	1144	1000 (Reel)	736	1000 (Reel)	1309	3000	2/0
4/64	.660	1005	1000 (Reel)	576	1000 (Reel)	1170	3000	1/0
4/64	.620	890	1000 (Reel)	471	1000 (Reel)	1055	3000	1
4/64	.560	730	1000 (Reel)	390	1000 (Reel)	830	3000	2
3/64	.495	532	1000 (Reel)	340	1000 (Reel)	632	3000	3
3/64	.470	477	1000 (Reel)	300	1000 (Reel)	577	3000	4
3/64	.440	425	1000 (Reel)	268	1000 (Reel)	525	3000	5
3/64	.420	385	1000 (Reel)	243	1000 (Reel)	485	3000	6
3/64	.370	289	500 (Coil)	105	1000 (Reel)	347	2500	8
3/64	.340	281	500 (Coil)	81	1000 (Reel)	325	2500	10
3/64***	.320	247	1000 (Coil)	66	1000 (Reel)	291	2500	12
3/64***	.300	222	1000 (Coil)	55	1000 (Reel)	261	2500	14
3/64***	.285	206	1000 (Coil)	49	1000 (Reel)	245	2500	16
3/64***	.270	192	1000 (Coil)	44	1000 (Reel)	231	2500	18
BOILER ROOM WIRE								
			500 (Reel)	953	.....	...	3000	4/0
			500 (Reel)	760	.....	....	3000	3/0
			500 (Reel)	646	...	....	3000	2/0
			500 (Reel)	525	.....	....	3000	1/0
SUPPLIED ON			1000 (Reel)	450	.....	....	3000	1
			1000 (Reel)	379	.....	...	3000	2
SPECIAL ORDER			1000 (Reel)	293	.....	....	3000	4
			1000 (Reel)	238	.....	....	3000	6
ONLY			500 (Coil)	95	.....	....	2000	8
			1000 (Coil)	70	.....	....	2000	10
			1000 (Coil)	61	....	....	2000	12
			1000 (Coil)	51	.....	...	2000	14
			1000 (Coil)	45	.....	..	2000	16
			1000 (Coil)	41	.....	....	2000	18

***Size No. 12 A.W.G. and smaller can be supplied with alternate 2/64" lead sheaths.

subject to normal manufacturing tolerances.

ASBESTOS-VARNISHED CAMBRIC POWER CABLES

Types AVA and AVL 1000-5000 Volts



These cables are recommended, either for open wiring or in conduits, for general power circuits in boiler rooms, power plants, steel mills, industrial plants and other locations where the operating temperatures are above the normal limits of other standard insulations. The maximum recommended operating temperature for these constructions is (110—3E)°C., where E represents the operating voltage between conductors in kilovolts.

Standard braid finished constructions are recommended for all applications where cables are not subject to either continuous immersion or severe moisture hazards. For such locations as tidewater level installations or in conduits subject to pocket condensation, Type AVL lead sheathed cables are recommended.

Interlocking armor jacketed types are also available for indoor rack installations, to replace conduit. Metallic shielding tapes can be furnished, and are especially recommended for those locations where there may be shock hazards.

All types can be furnished in either single or multi-conductor constructions, as desired.

CONSTRUCTION

(Refer to pages 30 and 31)

Conductors:

Coarse stranded conductors of soft annealed copper.

Insulation:

(a) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

(b) Wall of varnished cloth tapes applied as a series of helical wraps.

(c) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

Outer Covering:

Asbestos braid, saturated and finished with flame, heat and moisture-resisting compound (standard color—black).

NOTE: Also available with white heat and flame-resisting finish—on special order, or lead sheath.

PERFORMANCE CHARACTERISTICS

Initial Dielectric Strength . . . . . Refer to page 31
*Dielectric Strength—while Immersed . . . . Refer to page 32
*Resistance to Flame . . . . . Refer to page 32
*Dielectric Strength—following Flame Test . . Refer to page 32

* Not applicable to Type AVL Cables

ANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

ASBESTOS-VARNISHED CAMBRIC POWER-CABLES

Types AVA and AVL 1000 and 2000 Volts

Phase Volts	CONDUCTORS Size C.M. or A.W.G.	Construction	Diameter Inches	INSULATION THICKNESS Minimum Average First Asbestos Mils	Varnished Cambric Mils	Second Asbestos Mils	Braid Thickness Mils	* Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	STANDARD PACKAGES Feet	Wt. per 1000 Ft. Gross Lbs	Dielectric Test Voltage Volts
1000	1,000,000	61 x .1280"	1.152	30	45	40	45	1.475	3521	500 (Reel)	3911	4500
	900,000	61 x .1215"	1.094	30	45	40	45	1.415	3187	500 (Reel)	3577	4500
	800,000	61 x .1145"	1.031	30	45	40	45	1.355	2853	500 (Reel)	3243	4500
	750,000	61 x .1109"	.998	30	45	40	45	1.320	2687	500 (Reel)	2987	4500
	700,000	61 x .1071"	.964	30	45	40	45	1.285	2521	500 (Reel)	2821	4500
	650,000	61 x .1032"	.929	30	45	40	45	1.250	2355	500 (Reel)	2655	4500
	600,000	61 x .0992"	.893	30	45	40	45	1.215	2189	500 (Reel)	2489	4500
	550,000	61 x .0950"	.855	30	45	40	45	1.175	2023	500 (Reel)	2323	4500
	500,000	37 x .1162"	.813	25	45	40	45	1.125	1847	500 (Reel)	2087	4500
	450,000	37 x .1103"	.772	25	45	40	45	1.085	1681	500 (Reel)	1921	4500
	400,000	37 x .1040"	.728	25	45	40	45	1.040	1515	500 (Reel)	1711	4500
	350,000	37 x .0973"	.681	25	45	40	45	.995	1349	500 (Reel)	1498	4500
	300,000	37 x .0900"	.630	25	45	40	45	.940	1183	500 (Reel)	1333	4500
	250,000	37 x .0822"	.575	25	45	40	45	.885	1014	500 (Reel)	1164	4500
	4/0	19 x .1055"	.528	20	45	30	45	.810	857	1000 (Reel)	977	4500
	3/0	19 x .0940"	.470	20	45	30	45	.750	708	1000 (Reel)	828	4500
	2/0	19 x .0837"	.419	20	45	30	45	.700	588	1000 (Reel)	708	4500
	1/0	19 x .0745"	.373	20	45	30	45	.655	491	1000 (Reel)	591	4500
	1	19 x .0664"	.332	20	45	30	45	.615	413	1000 (Reel)	513	4500
	2	7 x .0974"	.292	15	45	25	45	.555	310	1000 (Reel)	410	4500
	3	7 x .0867"	.260	15	45	25	45	.520	260	1000 (Reel)	360	4500
	4	7 x .0772"	.232	15	45	25	45	.495	219	1000 (Reel)	319	4500
	5	7 x .0688"	.206	15	45	25	45	.470	185	1000 (Reel)	285	4500
	6	7 x .0612"	.184	15	45	25	45	.445	159	1000 (Reel)	259	4500
	8	7 x .0486"	.146	15	45	25	45	.405	115	500 (Coil)	120	3500
	10	7 x .0385"	.116	15	45	25	45	.375	90	500 (Coil)	94	3500
	12	7 x .0305"	.092	15	45	25	45	.350	72	1000 (Coil)	75	3500
	14	7 x .0242"	.073	15	45	25	45	.335	57	1000 (Coil)	60	3500
2000	1,000,000	61 x .1280"	1.152	30	60	40	45	1.505	3558	500 (Reel)	3960	6000
	900,000	61 x .1215"	1.094	30	60	40	45	1.445	3230	500 (Reel)	3632	6000
	800,000	61 x .1145"	1.031	30	60	40	45	1.385	2907	500 (Reel)	3309	6000
	750,000	61 x .1109"	.998	30	60	40	45	1.350	2738	500 (Reel)	3140	6000
	700,000	61 x .1071"	.964	30	60	40	45	1.315	2569	500 (Reel)	2971	6000
	650,000	61 x .1032"	.929	30	60	40	45	1.280	2403	500 (Reel)	2805	6000
	600,000	61 x .0992"	.893	30	60	40	45	1.245	2236	500 (Reel)	2638	6000
	550,000	61 x .0950"	.855	30	60	40	45	1.205	2066	500 (Reel)	2468	6000
	500,000	37 x .1162"	.813	25	60	40	45	1.155	1866	500 (Reel)	2266	6000
	450,000	37 x .1103"	.772	25	60	40	45	1.115	1702	500 (Reel)	2102	6000
	400,000	37 x .1040"	.728	25	60	40	45	1.070	1537	500 (Reel)	1777	6000
	350,000	37 x .0973"	.681	25	60	40	45	1.025	1362	500 (Reel)	1602	6000
	300,000	37 x .0900"	.630	25	60	40	45	.970	1190	500 (Reel)	1430	6000
	250,000	37 x .0822"	.575	25	60	40	45	.915	1018	500 (Reel)	1258	6000
	4/0	19 x .1055"	.528	20	60	30	45	.840	878	1000 (Reel)	998	6000
	3/0	19 x .0940"	.470	20	60	30	45	.780	715	1000 (Reel)	835	6000
	2/0	19 x .0837"	.419	20	60	30	45	.730	594	1000 (Reel)	714	6000
	1/0	19 x .0745"	.373	20	60	30	45	.685	492	1000 (Reel)	612	6000
	1	19 x .0664"	.332	20	60	30	45	.645	412	1000 (Reel)	532	6000
	2	7 x .0974"	.292	15	60	25	45	.585	324	1000 (Reel)	424	5500
	3	7 x .0867"	.260	15	60	25	45	.550	269	1000 (Reel)	369	5500
	4	7 x .0772"	.232	15	60	25	45	.525	233	1000 (Reel)	333	5500
	5	7 x .0688"	.206	15	60	25	45	.500	197	1000 (Reel)	297	5000
	6	7 x .0612"	.184	15	60	25	45	.475	172	1000 (Reel)	272	5000
	8	7 x .0486"	.146	15	60	25	45	.440	130	1000 (Reel)	230	4500
	10	7 x .0385"	.116	15	60	25	45	.410	104	1000 (Reel)	204	4500
	12	7 x .0305"	.092	15	60	25	45	.385	85	1000 (Reel)	185	4500
	14	7 x .0242"	.073	15	60	25	45	.365	70	1000 (Reel)	170	4500

* Subject to ±5% tolerance in overall dimensions.

The above data are approximate and subject to normal manufacturing tolerances.

ASBESTOS-VARNISHED CAMBRIC POWER CABLES

Type AVA 3000 and 5000 Volts

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

Rated Voltage Phase to Phase Volts	CONDUCTORS			INSULATION THICKNESS Minimum Average			Braid Thickness Mils	* Overall Diameter Inches	Weight per 1000 Ft. Net Lbs	STANDARD PACKAGES		Dielectric Test Voltage Volts
	Size C.M. or A.W.G.	Construction	Diameter Inches	First Asbestos Mils	Varnished Cambric Mils	Second Asbestos Mils				Feet	Wt. per 1000 Ft. Gross Lbs.	
3000	1,000,000	61 x .1280"	1.152	30	80	40	45	1.545	3592	500 (Reel)	3992	9000
	900,000	61 x .1215"	1.094	30	80	40	45	1.485	3257	500 (Reel)	3657	9000
	800,000	61 x .1145"	1.031	30	80	40	45	1.425	2924	500 (Reel)	3326	9000
	750,000	61 x .1109"	.998	30	80	40	45	1.390	2755	500 (Reel)	3157	9000
	700,000	61 x .1071"	.964	30	80	40	45	1.355	2585	500 (Reel)	2967	9000
	650,000	61 x .1032"	.929	30	80	40	45	1.320	2412	500 (Reel)	2814	9000
	600,000	61 x .0992"	.893	30	80	40	45	1.285	2284	500 (Reel)	2640	9000
	550,000	61 x .0950"	.855	30	80	40	45	1.245	2074	500 (Reel)	2476	9000
	500,000	37 x .1162"	.813	25	80	40	45	1.195	1905	500 (Reel)	2305	9000
	450,000	37 x .1103"	.772	25	80	40	45	1.155	1736	500 (Reel)	2136	9000
	400,000	37 x .1040"	.728	25	80	40	45	1.110	1562	500 (Reel)	1962	9000
	350,000	37 x .0973"	.681	25	80	40	45	1.065	1393	500 (Reel)	1633	9000
	300,000	37 x .0900"	.630	25	80	40	45	1.010	1219	500 (Reel)	1459	9000
	250,000	37 x .0822"	.575	25	80	40	45	.955	1044	500 (Reel)	1284	9000
	4/0	19 x .1055"	.528	20	80	30	45	.880	900	1000 (Reel)	1100	8500
	3/0	19 x .0940"	.470	20	80	30	45	.820	746	1000 (Reel)	866	8500
	2/0	19 x .0837"	.419	20	80	30	45	.770	625	1000 (Reel)	745	8500
	1/0	19 x .0745"	.373	20	80	30	45	.725	525	1000 (Reel)	647	8500
	1	19 x .0664"	.332	20	80	30	45	.685	445	1000 (Reel)	565	8500
	2	7 x .0974"	.292	15	80	25	45	.625	368	1000 (Reel)	536	8000
	3	7 x .0867"	.260	15	80	25	45	.590	315	1000 (Reel)	415	8000
	4	7 x .0772"	.232	15	80	25	45	.565	245	1000 (Reel)	345	8000
	5	7 x .0688"	.206	15	80	25	45	.540	210	1000 (Reel)	310	7500
	6	7 x .0612"	.184	15	80	25	45	.515	182	1000 (Reel)	282	7500
	8	7 x .0486"	.146	15	80	25	45	.480	143	1000 (Reel)	243	7000
	10	7 x .0385"	.116	15	80	25	45	.450	115	1000 (Reel)	215	7000
	12	7 x .0305"	.092	15	80	25	45	.425	95	1000 (Reel)	195	7000
	14	7 x .0242"	.073	15	80	25	45	.405	80	1000 (Reel)	180	7000
5000	1,000,000	61 x .1280"	1.152	30	120	40	45	1.625	3721	500 (Reel)	4291	12000
	900,000	61 x .1215"	1.094	30	120	40	45	1.565	3379	500 (Reel)	3949	12000
	800,000	61 x .1145"	1.031	30	120	40	45	1.505	3040	500 (Reel)	3442	12000
	750,000	61 x .1109"	.998	30	120	40	45	1.470	2876	500 (Reel)	3278	12000
	700,000	61 x .1071"	.964	30	120	40	45	1.435	2701	500 (Reel)	3103	12000
	650,000	61 x .1032"	.929	30	120	40	45	1.400	2532	500 (Reel)	2934	12000
	600,000	61 x .0992"	.893	30	120	40	45	1.365	2362	500 (Reel)	2764	12000
	550,000	61 x .0950"	.855	30	120	40	45	1.325	2190	500 (Reel)	2592	12000
	500,000	37 x .1162"	.813	25	120	40	45	1.275	1993	500 (Reel)	2393	12000
	450,000	37 x .1103"	.772	25	120	40	45	1.235	1821	500 (Reel)	2221	12000
	400,000	37 x .1040"	.728	25	120	40	45	1.190	1653	500 (Reel)	2053	12000
	350,000	37 x .0973"	.681	25	120	40	45	1.145	1482	500 (Reel)	1882	12000
	300,000	37 x .0900"	.630	25	120	40	45	1.090	1307	500 (Reel)	1547	12000
	250,000	37 x .0822"	.575	25	120	40	45	1.035	1137	500 (Reel)	1377	12000
	4/0	19 x .1055"	.528	20	120	30	45	.960	967	1000 (Reel)	1167	12000
	3/0	19 x .0940"	.470	20	120	30	45	900	812	1000 (Reel)	1012	12000
	2/0	19 x .0837"	.419	20	120	30	45	.850	687	1000 (Reel)	887	12000
	1/0	19 x .0745"	.373	20	120	30	45	.805	582	1000 (Reel)	702	12000
	1	19 x .0664"	.332	20	120	30	45	.765	497	1000 (Reel)	617	12000
	2	7 x .0974"	.292	15	120	25	45	.705	402	1000 (Reel)	522	12000
	3	7 x .0867"	.260	15	120	25	45	.670	363	1000 (Reel)	483	12000
	4	7 x .0772"	.232	15	120	25	45	.645	319	1000 (Reel)	439	12000
	5	7 x .0688"	.206	15	120	25	45	.620	285	1000 (Reel)	405	12000
	6	7 x .0612"	.184	15	120	25	45	.595	251	1000 (Reel)	351	12000
	8	7 x .0486"	.146	15	120	25	45	.560	182	1000 (Reel)	282	12000
	10	7 x .0385"	.116	15	120	25	45	.530	152	1000 (Reel)	252	12000
	12	7 x .0305"	.092	15	120	25	45	.505	132	1000 (Reel)	232	12000
	14	7 x .0242"	.073	15	120	25	45	.485	117	1000 (Reel)	217	12000

*Subject to ±5% tolerance in overall dimensions.

The above data are approximate and subject to normal manufacturing tolerances.

ASBESTOS VARNISHED CAMBRIC POWER CABLES

Type AVMA Three Conductor 600 Volts†

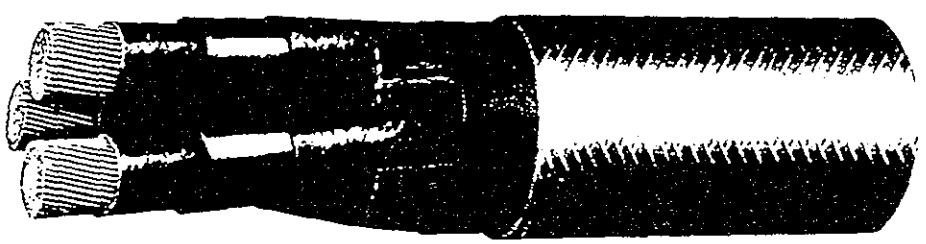
Where multi-conductor cable is required, three single conductor cables minus their outer braids, cabled together with jute fillers, taped and covered with a heavy asbestos braid, is recommended. Asbestos fillers, lead sheathing or armoring can be furnished.

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES‡

CONDUCTORS					STANDARD PACKAGES	
Size C.M. or A.W.G.	Construction	Diameter Inches	*Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	Feet	Wt. per 1000 Ft. Gross Lbs.
500,000	37 x .1162"	.813	2.360	6076	500 (Reel)	7595
450,000	37 x .1103"	.772	2.265	5527	500 (Reel)	6909
400,000	37 x .1040"	.728	2.170	4979	500 (Reel)	6224
350,000	37 x .0973"	.681	2.070	4426	500 (Reel)	5533
300,000	37 x .0900"	.630	1.955	3869	500 (Reel)	4836
250,000	37 x .0822"	.575	1.835	3298	500 (Reel)	4123
4/0	19 x .1055"	.528	1.610	2680	500 (Reel)	3350
3/0	19 x .0940"	.470	1.480	2189	500 (Reel)	2736
2/0	19 x .0837"	.419	1.370	1806	1000 (Reel)	2358
1/0	19 x .0745"	.373	1.275	1486	1000 (Reel)	1858
1	19 x .0664"	.332	1.190	1238	1000 (Reel)	1548
2	7 x .0974"	.292	1.015	952	1000 (Reel)	1190
3	7 x .0867"	.260	.940	793	1000 (Reel)	991
4	7 x .0772"	.232	.885	661	1000 (Reel)	826
5	7 x .0688"	.206	.835	560	1000 (Reel)	700
6	7 x .0612"	.184	.780	474	1000 (Reel)	593
8	7 x .0486"	.146	.705	352	1000 (Reel)	440
10	7 x .0385"	.116	.640	270	1000 (Reel)	338
12	7 x .0305"	.092	.585	217	1000 (Reel)	271

†Multi-conductor power cables for higher rated voltages, with individual conductors as shown in preceding pages are also available.
‡600-volt multi-conductor power cable assembled with single conductor cables described on pages 7 to 9.
*Subject to ± 5% tolerance in overall dimensions.

The above data are approximate and subject to normal manufacturing tolerances



Typical Multi-Conductor Asbestos-Varnished Cambric Power Cable

ALL-ASBESTOS POWER CABLES and RHEOSTAT WIRES

Type AI 600 Volts

All-Asbestos Power Cable

All-Asbestos Rheostat Wire

Recommended for open wiring applications, subject to extreme heat or fire hazards, such as rheostats, furnaces and oven connections. Also applicable to switchboard wiring or elevator and control panel wiring—rated at 600 volts or less. These constructions have adequate electrical and moisture-resisting properties to allow bunch-wired installations with perfect safety as grid jumper connections, connections between grids and faceplates, etc.

The following maximum operating temperatures are recommended:

Where no moisture is present . . . . . 200°C.

Where moisture is present, 125°C.

CONSTRUCTION

(Refer to pages 30 and 31)

Conductors:

Solid (Rheostat Wires) or coarse stranded (Power Cables) of soft annealed copper.

Insulation:

Wall of felted asbestos, or asbestos roving, saturated with flame, heat and moisture-resisting compound.

Outer Covering:

Asbestos braid, saturated and finished with flame, heat and moisture-resisting compound (standard color—black).

NOTE: These types are also available with the insulation and outer braid saturated and coated with special heat and flame-resisting compound (standard color—white).

PERFORMANCE CHARACTERISTICS

Initial Dielectric Strength . . . . . Refer to page 31
Resistance to Flame . . . . . Refer to page 32
Dielectric Strength—following Flame Test . . . Refer to page 32
Dielectric Strength—during Immersion . . . . Refer to page 32

ALL-ASBESTOS POWER CABLES and RHEOSTAT WIRES

Type AI 600 Volts

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

CONDUCTORS			Asbestos Insulation Thickness Minimum Average Mils	Asbestos Braid Thickness Mils	* Overall Diameter Inches	Weight per 1000 Ft. Net Lbs	STANDARD PACKAGES			Dielectric Test Voltage Volts
Size C.M. or A.W.G.	Construction	Diameter Inches					Feet	Number of Coils per Carton	Weight per 1000 Ft. Gross Lbs.	
ALL-ASBESTOS POWER CABLES										
1,000,000	61 x .1280"	1.152	105	45	1.455	3530	500 (Reel)	..	3932	1500
900,000	61 x .1215"	1.094	105	45	1.395	3198	500 (Reel)	..	3600	1500
800,000	61 x .1145"	1.031	105	45	1.335	2866	500 (Reel)	..	3268	1500
750,000	61 x .1109"	.998	105	45	1.300	2699	500 (Reel)	..	3101	1500
700,000	61 x .1071"	.964	105	45	1.265	2536	500 (Reel)	..	2938	1500
650,000	61 x .1032"	.929	105	45	1.230	2371	500 (Reel)	..	2773	1500
600,000	61 x .0992"	.893	105	45	1.195	2204	500 (Reel)	..	2606	1500
550,000	61 x .0950"	.855	105	45	1.155	2037	500 (Reel)	..	2367	1500
500,000	37 x .1162"	.813	90	45	1.085	1814	500 (Reel)	..	2144	1500
450,000	37 x .1103"	.772	90	45	1.045	1656	500 (Reel)	..	1988	1500
400,000	37 x .1040"	.728	90	45	1.000	1505	500 (Reel)	..	1835	1500
350,000	37 x .0973"	.681	90	45	.955	1329	500 (Reel)	..	1659	1500
300,000	37 x .0900"	.630	90	45	.900	1151	500 (Reel)	..	1481	1500
250,000	37 x .0822"	.575	90	45	.845	989	500 (Reel)	..	1187	1500
4/0	19 x .1055"	.528	75	45	.770	831	1000 (Reel)	..	996	1500
3/0	19 x .0940"	.470	75	45	.710	679	1000 (Reel)	..	844	1500
2/0	19 x .0837"	.419	75	45	.660	559	1000 (Reel)	..	724	1500
1/0	19 x .0745"	.373	75	45	.615	460	1000 (Reel)	..	629	1500
1	19 x .0664"	.332	75	45	.575	379	1000 (Reel)	..	479	1500
2	7 x .0974"	.292	60	45	.505	274	1000 (Reel)	..	374	1500
3	7 x .0867"	.260	60	45	.470	227	1000 (Reel)	..	327	1500
4	7 x .0772"	.232	60	45	.445	188	1000 (Reel)	..	288	1500
5	7 x .0688"	.205	60	45	.420	157	1000 (Reel)	..	257	1500
6	7 x .0612"	.184	60	45	.395	132	1000 (Reel)	..	232	1500
8	7 x .0486"	.146	40	45	.320	98	500 (Coil)	..	101	1500
10	7 x .0385"	.116	40	45	.290	75	500 (Coil)	1	78	1500
12	7 x .0305"	.092	40	45	.265	60	1000 (Coil)	4	63	1500
14	7 x .0242"	.073	30	45	.225	44	1000 (Coil)	4	47	1500
16	7 x .0193"	.058	30	45	.210	38	1000 (Coil)	5	41	1500
18	7 x .0151"	.045	30	45	.195	34	1000 (Coil)	5	37	1500
ALL-ASBESTOS RHEOSTAT WIRE										
4/0	Solid	.460	60	45	.670	765	500 (Reel)	..	965	1500
3/0	Solid	.410	60	45	.620	624	500 (Reel)	..	824	1500
2/0	Solid	.365	60	45	.575	481	500 (Reel)	..	681	1500
1/0	Solid	.325	60	45	.535	392	500 (Reel)	..	592	1500
1	Solid	.289	60	45	.500	322	1000 (Reel)	..	422	1500
2	Solid	.258	40	45	.430	250	1000 (Reel)	..	350	1500
4	Solid	.204	40	45	.375	170	1000 (Reel)	..	270	1500
6	Solid	.162	40	45	.335	118	500 (Coil)	..	121	1500
8	Solid	.128	30	45	.280	88	500 (Coil)	..	91	1500
10	Solid	.102	30	45	.255	66	1000 (Coil)	1	69	1500
12	Solid	.081	30	45	.235	52	1000 (Coil)	4	55	1500
14	Solid	.064	30	45	.215	43	1000 (Coil)	4	46	1500
16	Solid	.051	30	45	.205	37	1000 (Coil)	5	40	1500
18	Solid	.040	30	45	.190	33	1000 (Coil)	5	36	1500

* Subject to ±5% tolerance in overall dimensions.

The above data are approximate and subject to normal manufacturing tolerances.

ALL-ASBESTOS and ASBESTOS-VARNISHED CAMBRIC APPARATUS and MOTOR LEAD CABLES

Types AI and AVA 600 Volts

All-Asbestos Apparatus Cable

Asbestos-Varnished Cambric Apparatus Cable

Flexible stranded constructions, recommended for wiring of all low-voltage apparatus in power plants, steel mills, foundries, boiler rooms, ash pits, cranes or other applications where operating temperatures are above the limits of other standard insulations.

All-asbestos constructions are recommended only for open wiring (such as jumper leads) while asbestos-varnished cambric types may be used for either open wiring or in conduits.

Maximum recommended operating temperatures:

1—**All-Asbestos Types:**
Where no moisture is present. 200°C.
Where moisture is present. . 125°C.

2—**Asbestos-Varnished Cambric Types** . . . . . 110°C.

CONSTRUCTION

(Refer to pages 30 and 31)

Conductors:

Flexible stranded conductors of tinned, soft annealed copper.

Insulation:

1—**All-Asbestos Type:** Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

2—**Asbestos-Varnished Cambric Type:**

(a) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

(b) Wall of varnished cloth tapes applied as a series of helical wraps.

(c) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

Outer Covering:

Asbestos braid, saturated and finished with flame, heat and moisture-resisting compound (standard color—black).

NOTE: Both types also available with flame and heat-resisting finish (standard color—white).

PERFORMANCE CHARACTERISTICS

Initial Dielectric Strength . . . . . Refer to page 31
Resistance to Flame . . . . . Refer to page 32
Dielectric Strength—following Flame Test. . . . Refer to page 32
Dielectric Strength—during Immersion . . . . Refer to page 32

ALL-ASBESTOS and ASBESTOS VARNISHED CAMBRIC APPARATUS and MOTOR LEAD CABLES

Types AI and AVA 600 Volts

CONDUCTORS			INSULATION THICKNESS Minimum Average						STANDARD PACKAGES		
Size C.M. or A.W.G.	Construction	Diameter Inches	First Asbestos Mils	Varnished Cambric Mils	Second Asbestos Mils	Asbestos Braid Thickness Mils	* Overall Diameter Inches	Weight per 1000 Ft. Net Lbs	Feet	Weight per 1000 Ft. Gross Lbs.	Dielectric Test Voltage Volts
ALL-ASBESTOS INSULATED											
500,000	427 x .0342"	.923	90	..	..	45	1.195	1919	500 (Reel)	2321	1500
450,000	427 x .0325"	.878	90	..	..	45	1.150	1775	500 (Reel)	2177	1500
400,000	427 x .0306"	.826	90	..	..	45	1.100	1589	500 (Reel)	1919	1500
350,000	427 x .0286"	.772	90	..	..	45	1.045	1412	500 (Reel)	1740	1500
300,000	427 x .0265"	.716	90	..	..	45	.990	1233	500 (Reel)	1563	1500
250,000	427 x .0242"	.653	90	..	..	45	.925	1053	1000 (Reel)	1383	1500
4/0	259 x .0286"	.600	75	..	..	45	.840	884	1000 (Reel)	1085	1500
3/0	259 x .0255"	.536	75	..	..	45	.780	721	1000 (Reel)	866	1500
2/0	259 x .0227"	.477	75	..	..	45	.720	593	1000 (Reel)	758	1500
1/0	259 x .0202"	.424	75	..	..	45	.665	488	1000 (Reel)	653	1500
1	259 x .0180"	.378	75	..	..	45	.620	405	1000 (Reel)	570	1500
2	133 x .0223"	.336	60	..	..	45	.550	290	1000 (Reel)	390	1500
3	133 x .0199"	.299	60	..	..	45	.510	240	1000 (Reel)	340	1500
4	133 x .0177"	.266	60	..	..	45	.480	203	1000 (Reel)	303	1500
5	133 x .0158"	.237	60	..	..	45	.450	166	1000 (Reel)	266	1500
6	133 x .0140"	.212	60	..	..	45	.425	140	1000 (Reel)	240	1500
8	133 x .0111"	.168	40	..	..	45	.340	92	500 (Coil)	98	1500
10	104 x .010"	.120	40	..	..	45	.290	65	500 (Coil)	68	1500
12	65 x .010"	.095	40	..	..	45	.265	49	1000 (Coil)	52	1500
14	41 x .010"	.075	30	..	..	45	.225	44	1000 (Coil)	47	1500
16	26 x .010"	.059	30	..	..	45	.210	38	1000 (Coil)	41	1500
18	16 x .010"	.045	30	..	..	45	.195	33	1000 (Coil)	36	1500
ASBESTOS-VARNISHED CAMBRIC INSULATED											
1,000,000	427 x .0484"	1.295	30	40	40	45	1.605	3719	500 (Reel)	4119	4000
900,000	427 x .0459"	1.222	30	40	40	45	1.535	3373	500 (Reel)	3773	4000
800,000	427 x .0433"	1.153	30	40	40	45	1.465	3038	500 (Reel)	3438	4000
750,000	427 x .0414"	1.134	30	40	40	45	1.445	2869	500 (Reel)	3268	4000
700,000	427 x .0405"	1.088	30	40	40	45	1.400	2693	500 (Reel)	3093	4000
600,000	427 x .0395"	1.027	30	40	40	45	1.340	2330	500 (Reel)	2730	4000
500,000	427 x .0342"	.923	25	40	40	45	1.225	1953	500 (Reel)	2353	4000
450,000	427 x .0325"	.878	25	40	40	45	1.180	1781	500 (Reel)	2021	4000
400,000	427 x .0306"	.826	25	40	40	45	1.130	1601	500 (Reel)	1841	4000
350,000	427 x .0286"	.772	25	40	40	45	1.075	1417	500 (Reel)	1657	4000
300,000	427 x .0265"	.716	25	40	40	45	1.020	1244	500 (Reel)	1484	4000
250,000	427 x .0242"	.653	25	40	40	45	955	1064	500 (Reel)	1304	4000
4/0	259 x .0286"	.600	20	30	30	45	.850	884	1000 (Reel)	1084	3000
3/0	259 x .0255"	.536	20	30	30	45	.785	726	1000 (Reel)	845	3000
2/0	259 x .0227"	.477	20	30	30	45	.730	593	1000 (Reel)	713	3000
1/0	259 x .0202"	.424	20	30	30	45	.675	490	1000 (Reel)	610	3000
1	259 x .0180"	.378	20	30	30	45	.630	406	1000 (Reel)	506	3000
2	133 x .0223"	.336	15	30	20	45	560	318	1000 (Reel)	418	3000
3	133 x .0199"	.299	15	30	20	45	.520	264	1000 (Reel)	364	3000
4	133 x .0177"	.266	15	30	20	45	490	225	1000 (Reel)	325	3000
5	133 x .0158"	.237	15	30	20	45	.460	185	1000 (Reel)	283	3000
6	133 x .0140"	.212	15	30	20	45	.435	158	1000 (Reel)	258	3000
8	133 x .0111"	.168	10	30	15	45	.370	104	500 (Coil)	107	2500
10	104 x .010"	.120	10	30	15	45	.320	76	500 (Coil)	79	2500
12	65 x .010"	.095	10	30	15	45	295	59	1000 (Coil)	62	2500
14	41 x .010"	.075	10	30	15	45	.275	45	1000 (Coil)	48	2500
16	26 x .010"	.059	10	30	15	45	.260	38	1000 (Coil)	41	2500
18	16 x .010"	.045	10	30	15	45	.245	32	1000 (Coil)	35	2500

* Subject to ± 5% tolerance in overall dimensions.

The above data are approximate and subject to normal manufacturing tolerances.

ALL-ASBESTOS EXTRA-FLEXIBLE MOTION PICTURE or ARC LAMP CABLES

Type AI 300 Volts

Recommended for the wiring of motion picture projectors, searchlights, floodlights, spot lights, stage lights, electric cranes, controllers or other similar apparatus subject to exceptionally high temperatures, where a wire or cable of extreme flexibility is required and operating potentials do not exceed 300 volts.

CONSTRUCTION

(Refer to pages 30 and 31)

Conductors:

Extra-flexible stranded conductors of soft annealed copper.

Insulation:

Wall of felted asbestos, saturated with flame and heat-resisting compound.

Outer Covering:

Asbestos braid, saturated and finished with flame and heat-resisting compound (standard color—white).

NOTE: Also available with moisture-resisting saturation and finish.

PERFORMANCE CHARACTERISTICS

Initial Dielectric Strength . . . . . Refer to page 31
Resistance to Flame . . . . . Refer to page 32
Dielectric Strength—following Flame Test . . . . Refer to page 32

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

Nominal Size A.W.G.	CONDUCTORS Construction	Diameter Inches	Asbestos Insulation Thickness Minimum Average Mils	Asbestos Braid Thickness Mils	* Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	STANDARD PACKAGES Feet	Weight per 1000 Ft. Gross Lbs.	Dielectric Test Voltage Volts
4/0	8464 x #36	.620	60	45	.630	840	150 (Coil)	860	1000
3/0	6713 x #36	.555	60	45	.765	690	150 (Coil)	705	1000
2/0	5292 x #36	.490	60	45	.700	550	150 (Coil)	565	1000
1/0	4214 x #36	.440	60	45	.650	465	200 (Coil)	480	1000
1	3332 x #36	.360	60	45	.570	370	200 (Coil)	385	1000
2	2646 x #36	.325	40	45	.495	285	200 (Coil)	300	1000
4	1666 x #36	.255	40	45	.425	195	250 (Coil)	210	1000
6	1050 x #36	.205	40	45	.375	135	500 (Coil)	150	1000
8	661 x #36	.165	30	45	.315	96	500 (Coil)	99	1000
10	413 x #36	.130	30	45	.280	72	500 (Coil	75	1000
12	259 x #36	.102	30	45	.255	55	1000 (Coil)	58	1000
14	105 x #34	.077	30	45	.230	44	1000 (Coil	47	1000
16	65 x #34	.061	30	45	.215	37	1000 (Coil	40	1000
18	41 x #34	.047	30	45	.200	33	1000 (Coil	36	1000

* Subject to ±5% tolerance in overall dimensions

The above data are approximate and subject to normal manufacturing tolerances

GC 02933

GENCA-SEAL-ASBESTOS SWITCH-BOARD WIRES

Type SNA 600 Volts

Recommended for wiring of switchboards and all other types of control apparatus, where the operating temperature does not exceed 90°C. The basic Gencaseal insulation is a solid wall of synthetic compound, impervious to moisture, oil, acid or similar solutions and therefore provides a maintained high dielectric strength under all conditions of operation. Approved by the Underwriters' Laboratories as Type SNA.

CONSTRUCTION

(Refer to pages 30 and 31)

Conductors:

Solid or stranded conductors of tinned, soft annealed copper.

Insulation:

(a) Wall of Gencaseal compound, so applied as to allow removal by commercial stripping machines. Can be supplied with a separator under the insulation, to provide exceptional free-stripping properties and

(b) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

Outer Covering:

Cotton braid with a flame and heat-resisting finish (standard—color—gray).

PERFORMANCE CHARACTERISTICS

Initial Dielectric Strength . . . . . Refer to page 31
Resistance to Flame . . . . . Refer to page 32
Dielectric Failure . . . . . Refer to page 33
Leakage Resistance . . . . . Refer to page 33
Bend—Dielectric . . . . . Refer to page 33

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

Size A.W.G.	CONDUCTORS Construction	Diameter Inches	INSULATION THICKNESS Minimum Average Gencaseal Compound	Asbestos Mils	Cotton Braid Thickness Mils	Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	STANDARD PACKAGES Feet	Weight per 1000 Ft. Gross Lbs.	Dielectric Test Voltage Volts
4/0	Solid	.460	40	40	22	.660	759	500 (Reel)	859	3000
3/0	Solid	.415	40	40	18	.605	615	500 (Reel)	715	3000
2/0	Solid	.365	40	40	18	.560	501	500 (Reel)	601	3000
1/0	Solid	.325	40	40	18	.522	409	500 (Reel)	509	3000
1	Solid	.289	40	40	18	.485	336	500 (Reel)	436	3000
2	Solid	.258	30	30	16	.410	259	500 (Reel)	359	3000
3	Solid	.229	30	30	16	.380	204	500 (Reel)	304	3000
4	Solid	.204	30	30	16	.360	170	500 (Reel)	270	3000
5	Solid	.182	30	30	16	.335	141	500 (Coil)	144	3000
6	Solid	.162	30	30	16	.315	117	500 (Coil)	120	3000
8	Solid	.128	20	20	16	.250	67	500 (Coil)	70	3000
10	Solid	.102	20	20	16	.225	46	500 (Coil)	49	3000
12	Solid	.081	20	20	16	.196	32	500 (Coil)	35	3000
14	Solid	.064	20	20	16	.179	23	500 (Coil)	25	3000
16	Solid	.051	20	20	16	.165	18	1000 (Coil)	21	3000
18	Solid	.040	20	20	16	.155	14	1000 (Coil)	17	3000
4/0	19 x .1055"	.528	40	40	22	.730	785	500 (Reel)	885	3000
3/0	19 x .0940"	.470	40	40	18	.666	636	500 (Reel)	738	3000
2/0	19 x .0837"	.419	40	40	18	.615	523	500 (Reel)	625	3000
1/0	19 x .0745"	.373	40	40	18	.569	426	500 (Reel)	526	3000
1	19 x .0664"	.332	40	40	18	.528	349	500 (Reel)	449	3000
2	7 x .0974"	.292	30	30	16	.450	269	500 (Reel)	369	3000
3	7 x .0867"	.260	30	30	16	.440	221	500 (Reel)	321	3000
4	7 x .0772"	.233	30	30	16	.389	182	500 (Reel)	283	3000
5	7 x .0688"	.206	30	30	16	.361	147	500 (Coil)	247	3000
6	7 x .06[illegible]"	.184	30	30	16	.343	122	500 (Coil)	125	3000
8	7 x .0486"	.146	20	20	16	.266	72	500 (Coil)	75	3000
10	7 x .0385"	.116	20	20	16	.236	49	500 (Coil)	51	3000
12	7 x .0305"	.092	20	20	16	.206	34	500 (Coil)	37	3000
14	7 x .0242"	.073	20	20	16	.181	25	500 (Coil)	28	3000
16	7 x .0192"	.055	20	20	16	.161	19	1000 (Coil)	21	3000
18	7 x .0152"	.045	20	20	16	.151	14	1000 (Coil)	17	3000

*Subject to ±5% tolerance in overall dimensions.

The above data are approximate and subject to normal manufacturing tolerances

GC 02934

ASBESTOS-VARNISHED CAMBRIC SWITCHBOARD WIRES and CABLES

Type AVB 600 Volts

Recommended for wiring switchboards and all other types of control apparatus. Will resist heat, flame, oil and corrosive vapors. Outer cotton braid especially designed to accommodate sharp bends associated with these types of installation. Approved by Underwriters' Laboratories as Type AVB.

Maximum recommended operating temperature is 90°C. For wiring of boards where temperatures exceed this limit, the use of All-Asbestos Rheostat Wire (refer to page 14) is recommended.

CONSTRUCTION

(Refer to pages 30 and 31)

Conductors:

Solid or coarse stranded conductors of tinned, soft annealed copper.

Insulation:

(a) Wall of varnished cloth tapes applied as a series of helical wraps.

(b) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

Outer Covering:

Cotton braid with a flame and heat-resisting finish (standard color—gray).

PERFORMANCE CHARACTERISTICS

Initial Dielectric Strength . . . . . Refer to page 31
Resistance to Flame . . . . . Refer to page 32
Dielectric Failure . . . . . Refer to page 33
Leakage Resistance . . . . . Refer to page 33
Bend—Dielectric . . . . . Refer to page 33

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

CONDUCTORS			INSULATION THICKNESS Minimum Average		Cotton Braid Thickness Mils	Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	STANDARD PACKAGES		Dielectric Test Voltage Volts
Size A.W.G.	Construction	Diameter Inches	Varnished Cambric Mils	Asbestos Mils				Feet	Weight per 1000 Ft. Gross Lbs.	
4/0	Solid	.460	40	40	20	.665	800	500 (Reel)	900	4000
3/0	Solid	.410	40	40	20	.615	650	500 (Reel)	750	4000
2/0	Solid	.365	40	40	20	.570	530	500 (Reel)	630	4000
1/0	Solid	.325	40	40	20	.530	435	500 (Reel)	535	4000
1	Solid	.289	40	40	20	.495	365	1000 (Reel)	465	4000
2	Solid	.258	40	30	20	.440	300	1000 (Reel)	400	4000
4	Solid	.204	40	30	17	.380	210	1000 (Reel)	310	4000
6	Solid	.162	40	30	17	.340	155	1000 (Reel)	255	4000
8	Solid	.128	30	20	17	.265	74	500 (Coil)	77	2500
10	Solid	.102	30	20	17	.240	52	500 (Coil)	55	2500
12	Solid	.081	30	20	16	.215	38	500 (Coil)	41	2500
14	Solid	.064	30	20	16	.200	28	500 (Coil)	31	2500
16	Solid	.051	30	20	16	.185	22	1000 (Coil)	25	2000
18	Solid	.040	30	20	16	.175	17	1000 (Coil)	20	2000
4/0	19 x .1055"	.528	40	40	20	.735	835	500 (Reel)	985	4000
3/0	19 x .0940"	.470	40	40	20	.675	675	500 (Reel)	825	4000
2/0	19 x .0837"	.418	40	40	20	.625	555	500 (Reel)	655	4000
1/0	19 x .0745"	.373	40	40	20	.580	460	500 (Reel)	560	4000
1	19 x .0664"	.332	40	40	20	.540	380	1000 (Reel)	480	4000
2	7 x .0974"	.292	40	30	20	.475	315	1000 (Reel)	415	4000
4	7 x .0772"	.232	40	30	20	.415	225	1000 (Reel)	325	4000
6	7 x .0612"	.184	40	30	17	.360	163	1000 (Reel)	263	4000
8	7 x .0486"	.146	30	20	17	.285	77	500 (Coil)	80	2500
10	7 x .0385"	.116	30	20	17	.255	55	500 (Coil)	58	2500
12	7 x .0305"	.092	30	20	16	.225	40	500 (Coil)	43	2500
14	7 x .0242"	.073	30	20	16	.205	30	500 (Coil)	33	2500
16	7 x .0193"	.058	30	20	16	.190	23	1000 (Coil)	26	2000
18	7 x .0151"	.045	30	20	16	.180	18	1000 (Coil)	21	2000

The above data are approximate and subject to normal manufacturing tolerances.

ASBESTOS VARNISHED CAMBRIC SWITCHBOARD BUS CABLES

Type AVB 600 Volts

Recommended for wiring of switchboards and all other types of control apparatus where a coarse stranded conductor is desired and an overall cotton braid is permissible.

Maximum recommended operating temperature is 90°C. Approved by Underwriters' Laboratories as Type AVB.

CONSTRUCTION

(Refer to pages 30 and 31)

Conductors:

Coarse stranded conductors of soft annealed copper.

Insulation:

(a) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

(b) Wall of varnished cloth tapes applied as a series of helical wraps.

(c) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

Outer Covering:

Cotton braid with a flame and heat-resisting finish (standard color—gray).

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

CONDUCTORS			INSULATION THICKNESS Minimum Average			Cotton Braid Thickness Mils	* Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	STANDARD PACKAGES		Dielectric Test Voltage Volts
Size C.M. or A.W.G.	Construction	Diameter Inches	First Asbestos Mils	Varnished Cambric Mils	Second Asbestos Mils				Feet	Wt. per 1000 Ft. Gross Lbs.	
1,000,000	61 x .1280"	1.152	30	40	40	26	1.435	3524	500 (Reel)	3924	4000
900,000	61 x .1215"	1.094	30	40	40	26	1.375	3190	500 (Reel)	3590	4000
800,000	61 x .1145"	1.031	30	40	40	26	1.315	2856	500 (Reel)	3256	4000
750,000	61 x .1109"	.998	30	40	40	26	1.280	2695	500 (Reel)	3095	4000
700,000	61 x .1071"	.964	30	40	40	26	1.245	2522	500 (Reel)	2922	4000
650,000	61 x .1032"	.929	30	40	40	26	1.210	2355	500 (Reel)	2755	4000
600,000	61 x .0992"	.893	30	40	40	26	1.175	2188	500 (Reel)	2428	4000
550,000	61 x .0950"	.855	30	40	40	26	1.135	2021	500 (Reel)	2261	4000
500,000	37 x .1162"	.813	25	40	40	26	1.085	1779	500 (Reel)	2019	4000
450,000	37 x .1103"	.772	25	40	40	26	1.045	1614	500 (Reel)	1854	4000
400,000	37 x .1040"	.728	25	40	40	26	1.000	1451	500 (Reel)	1691	4000
350,000	37 x .0973"	.681	25	40	40	26	.955	1281	500 (Reel)	1521	4000
300,000	37 x .0900"	.630	25	40	40	26	.900	1119	500 (Reel)	1316	4000
250,000	37 x .0822"	.575	25	40	40	20	.845	926	500 (Reel)	1152	4000
4/0	19 x .1055"	.528	20	30	30	20	.735	820	1000 (Reel)	940	3000
3/0	19 x .0940"	.470	20	30	30	20	.675	670	1000 (Reel)	790	3000
2/0	19 x .0837"	.419	20	30	30	20	.625	555	1000 (Reel)	675	3000
1/0	19 x .0745"	.373	20	30	30	20	.580	455	1000 (Reel)	555	3000
1	19 x .0664"	.332	20	30	30	20	.540	350	1000 (Reel)	450	3000
2	7 x .0974"	.292	15	30	20	17	.470	268	1000 (Reel)	366	3000
3	7 x .0867"	.260	15	30	20	17	.435	217	1000 (Reel)	317	3000
4	7 x .0772"	.232	15	30	20	17	.405	179	1000 (Reel)	279	3000
5	7 x .0688"	.206	15	30	20	17	.380	152	1000 (Reel)	252	3000
6	7 x .0612"	.184	15	30	20	17	.355	125	1000 (Reel)	225	3000
8	7 x .0486"	.146	10	30	15	17	.300	83	500 (Coil)	86	2500
10	7 x .0385"	.116	10	30	15	17	.260	67	500 (Coil)	60	2500
12	7 x .0305"	.092	10	30	15	17	.240	42	1000 (Coil)	45	2500
14	7 x .0242"	.073	10	30	15	16	.220	31	1000 (Coil)	34	2500
16	7 x .0192"	.058	10	30	15	16	.205	25	1000 (Coil)	26	2500
18	7 x .0152"	.046	10	30	15	16	.190	19	1000 (Coil)	21	2500

* Subject to ± 5% tolerance in overall dimensions

The above data are approximate and subject to normal manufacturing tolerances.

GENCA-SEAL-ASBESTOS HINGE CABLES

Type SNA 600 Volts

Recommended for swinging panel connections and other general panel work where an extra-flexible construction is required, and the operating temperature does not exceed 90°C. This construction is comparable to Gencaseal-asbestos switchboard wire. Approved by Underwriters' Laboratories as Type SNA.

CONSTRUCTION

(Refer to pages 30 and 31)

Conductors:

Flexible stranded conductors of tinned, soft annealed copper.

Insulation:

(a) Wall of Gencaseal compound, so applied as to allow removal by commercial stripping machines.

(b) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

Outer Covering:

Cotton braid with a flame, heat and moisture-resisting finish (standard color—gray).

PERFORMANCE CHARACTERISTICS

Initial Dielectric Strength . . . . . Refer to page 31
Resistance to Flame . . . . . Refer to page 32
Dielectric Failure . . . . . Refer to page 33
Leakage Resistance . . . . . Refer to page 33
Bend—Dielectric . . . . . Refer to page 33

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

Size A.W.G.	CONDUCTORS Construction	Diameter Inches	INSULATION THICKNESS Minimum Average Gencaseal Compound Mils	Felted Asbestos Mils	Cotton Braid Thickness Mils	*Overall Diameter Inches	Weight per 1000 Ft. Net Lbs	STANDARD PACKAGES Feet	Wt. per 1000 Ft. Gross Lbs.	Dielectric Test Voltage Volts
4/0	259 x .0286"	.600	40	40	22	.805	843	500 (Reel)	1008	3000
3/0	259 x .0255"	.536	40	40	22	.740	683	500 (Reel)	848	3000
2/0	259 x .0227"	.477	40	40	22	.680	558	500 (Reel)	723	3000
1/0	259 x .0202"	.424	40	40	18	.620	457	500 (Reel)	622	3000
1	259 x .0180"	.378	40	40	18	.575	377	500 (Reel)	542	3000
2	133 x .0223"	.336	30	30	18	.495	289	500 (Reel)	389	3000
3	133 x .0199"	.299	30	30	18	.455	237	500 (Reel)	337	3000
4	133 x .0177"	.266	30	30	16	.420	196	500 (Reel)	296	3000
5	133 x .0158"	.237	30	30	16	.390	164	500 (Reel)	264	3000
6	133 x .0140"	.212	30	30	16	.365	132	500 (Reel)	135	3000
8	133 x .0111"	.168	20	20	16	.285	83	500 (Coil)	86	3000
10	104 x .010"	.120	20	20	16	.235	58	500 (Coil)	61	3000
12	65 x .010"	.095	20	20	16	.210	41	500 (Coil)	44	3000
14	41 x .010"	.075	20	20	16	.190	31	500 (Coil)	34	3000
16	26 x .010"	.059	20	20	16	.175	25	1000 (Coil)	28	3000
18	16 x .010"	.045	20	20	16	.160	20	1000 (Coil)	22	3000

* Subject to ±5% tolerance in overall dimensions

The above data are approximate and subject to normal manufacturing tolerances

ASBESTOS VARNISHED CAMBRIC HINGE CABLES

Type AVB 600 Volts

Recommended for swinging panel connections and other general panel work where an extra-flexible construction is required. Approved by Underwriters' Laboratories as Type AVB.

Maximum recommended operating temperature is 90°C.

CONSTRUCTION

(Refer to pages 30 and 31)

Conductors:

Flexible stranded conductors of tinned, soft annealed copper.

Insulation:

(a) Wall of felted asbestos, saturated with flame and heat-resisting compound.

(b) Wall of varnished cloth tapes applied as a series of helical wraps.

(c) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

Outer Covering:

Cotton braid with a flame and heat-resisting finish (standard color—gray).

PERFORMANCE CHARACTERISTICS

Initial Dielectric Strength . . . . . Refer to page 31
Resistance to Flame . . . . . Refer to page 32
Dielectric Failure . . . . . Refer to page 33
Leakage Resistance . . . . . Refer to page 33

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

CONDUCTORS			INSULATION THICKNESS Minimum Average						STANDARD PACKAGES		
Size A.W.G.	Construction	Diameter Inches	First Asbestos Mils	Varnished Cambric Mils	Second Asbestos Mils	Cotton Braid Thickness Mils	* Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	Feet	Wt. per 1000 Ft. Gross Lbs.	Dielectric Test Voltage Volts
8	133 x .011"	.168	10	30	15	17	.315	84	500 (Coil)	87	3000
10	104 x .010"	.120	10	30	15	17	.265	58	500 (Coil)	61	3000
12	65 x .010"	.095	10	30	15	16	.240	43	500 (Coil)	46	3000
14	41 x .010"	.075	10	30	15	16	.220	32	500 (Coil)	35	3000
16	26 x .010"	.059	10	30	15	16	.205	25	1000 (Coil)	28	3000
18	16 x .010"	.045	10	30	15	16	.190	19	1000 (Coil)	22	3000

* Subject to ± 5% tolerance in overall dimensions.

The above data are approximate and subject to normal manufacturing tolerances.

ALL-ASBESTOS APPLIANCE LEAD WIRES (RANGE WIRES)

Type AI 300 Volts

Recommended for wiring of small portable electric appliances such as waffle irons, hot plates, grills, stoves, flat irons, toasters, percolators, etc., as well as small motors, water heaters, small switchboards, battery control panels, blue print machines and radio and medical apparatus, particularly where severe heat conditions exist. Can be supplied with either copper, monel or nickel conductors.

Available in two types: (a) Heat-resisting—having a special high temperature saturant, which is also especially flame-resisting, but not suitable where moisture hazards exist, and

(b) Moisture-resisting—having a moisture and heat-resisting impregnant of a character which is somewhat more susceptible to smoking at elevated temperatures. Both types available in either black, white, red or green colors—with other colors on special order.

Also available in three conductor twisted form, for use on all heating devices and appliances using a three-heat switch for controlling current flow.

Maximum recommended operating temperatures:

Where no moisture is present . 200°C.
Where moisture is present . . . 125°C.

CONSTRUCTION

(Refer to pages 30 and 31)

Conductors:

Solid, coarse or flexible stranded conductors of soft annealed copper.

Insulation:

Wall of felted asbestos, saturated with flame and heat-resisting compound (standard color—white) or flame, heat and moisture-resisting compound (standard colors—black or white) or with alternate color finishes as specified by the purchaser.

Cable Assembly:

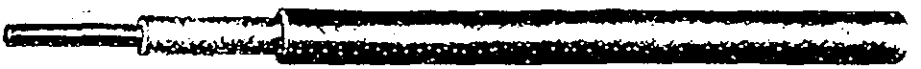
Also available as a three conductor assembly of three single conductor types, as outlined above, assembled by twisting.

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

CONDUCTORS				Overall Diameter		Weight per 1000 Ft.		STANDARD PACKAGES				
								Single Conductor		Three Conductor		
Size A.W.G.	Construction	Diameter Inches	Asbestos Insulation Thickness Minimum Average Mils	* Single Cond. Inches	* Three Cond. Inches	Single Cond. Net Lbs	Three Cond. Net Lbs.	Feet	Wt. per 1000 Ft Gross Lbs.	Feet	Wt. per 1000 Ft. Gross Lbs	Dielectric Test Voltage Volts
8	Solid	.128	40	.210	. .	70	..	1000 (Coil)	73	. . . . .	..	1000
10	Solid	.102	40	.185		49	. . .	1000 (Coil)	52			1000
12	Solid	.081	40	.165	.350	34	105	1000 (Coil)	37	1000 (Coil)	106	1000
14	Solid	.064	30	.125	.270	21	64	1000 (Coil)	24	1000 (Coil	67	1000
16	Solid	.051	30	.115	.240	15	46	1000 (Coil)	18	1000 (Coil	49	1000
17	Solid	.045	30	.105	.230	13	40	1000 (Coil)	16	1000 (Coil)	43	1000
18	Solid	.040	30	.100	.220	11	35	1000 (Coil)	14	1000 (Coil)	38	1000
20	Solid	.032	30	.095	.200	9	27	1000 (Coil)	12	1000 (Coil)	30	1000
10	7 x .0385"	.116	40	.200	.425	51	155	1000 (Coil)	54	1000 (Coil)	158	1000
12	7 x .0305"	.092	40	.175	.370	36	110	1000 (Coil)	39	1000 (Coil)	115	1000
14	7 x .0242"	.073	30	.135	.290	22	67	1000 (Coil)	25	1000 (Coil)	70	1000
16	7 x .0192"	.056	30	.120	.255	16	49	1000 (Coil)	19	1000 (Coil	55	1000
18	7 x .0152"	.045	30	.105	.230	12	37	1000 (Coil)	15	1000 (Coil	43	1000
8	165 x .30	.151	40	.235	.500	68	206	1000 (Coil)	71	1000 (Coil	210	1000
10	105 x .30	.120	40	.200	.435	46	140	1000 (Coil)	49	1000 (Coil)	144	1000
12	65 x .30	.095	40	.175	.380	31	97	1000 (Coil)	35	1000 (Coil)	101	1000
14	41 x .30	.075	30	.135	.290	22	67	1000 (Coil)	23	1000 (Coil)	70	1000
16	26 x .30	.059	30	.120	.260	16	49	1000 (Coil)	19	1000 (Coil)	53	1000
17	20 x .30	.054	30	.115	.245	14	42	1000 (Coil)	17	1000 (Coil	45	1000
18	16 x .30	.049	30	.105	.230	12	36	1000 (Coil)	15	1000 (Coil	39	1000
20	10 x .30	.038	30	.100	.210	9	28	1000 (Coil)	12	1000 (Coil	31	1000

Subject to ±5% tolerance in overall dimensions.

The above data are approximate and subject to normal manufacturing tolerances



ALL-ASBESTOS ELECTRIC STOVE-WIRES

Type AI 300 Volts

Recommended for the wiring of electric ranges, space heaters, electric water heaters, bake ovens, cookers, hot plates and similar apparatus. Available with either copper, nickel or monel conductors.

Available in two finishes. Recommended type dependent upon moisture hazards.

The heat-resisting type is preferably used where heat conditions are severe, but little or no moisture is encountered. Maximum recommended operating temperature is 200°C.

The moisture-resisting type is treated with moisture and heat-resisting compounds and is therefore applicable to similar applications where moderate moisture hazards are encountered. However, at elevated temperatures these impregnating compounds are subject to some smoking. Maximum recommended operating temperature is 125°C. (if moisture is present).

NOTE: Stove wires are considered to have a materially higher abrasion resistance than range wires and are therefore recommended for use when subject to intermittent flexure as in armored leads between grids of domestic appliances.

CONSTRUCTION

(Refer to pages 30 and 31)

Conductors:

Solid or coarse stranded conductors of soft annealed copper.

Insulation:

Wall of felted asbestos, saturated with either a flame and heat-resisting compound or a flame, heat and moisture-resisting compound as specified by the purchaser.

Outer Covering:

Asbestos braid saturated and finished with either a flame and heat-resisting compound (standard color—white) or a flame, heat and moisture-resisting compound (standard color—black) or with alternate color finishes as specified by the purchaser.

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

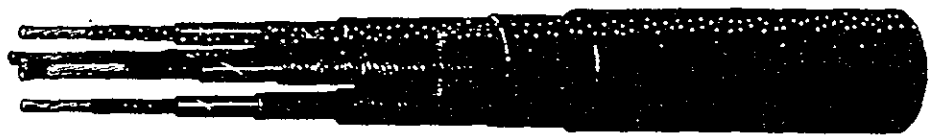
Size A.W.G.	CONDUCTORS Construction	Diameter Inches	Asbestos Insulation Thickness Minimum Average Mils	Asbestos Braid Thickness Mils	* Overall Diameter Inches	Weight per 1000 Ft Net Lbs.	STANDARD PACKAGES Feet	Weight per 1000 Ft Gross Lbs	Dielectric Test Voltage Volts
4	Solid	.204	40	45	.375	177	500 (Coil)	277	1000
6	Solid	.162	40	45	.335	124	500 (Coil)	177	1000
8	Solid	.128	30	45	.285	89	500 (Coil)	92	1000
10	Solid	.102	30	45	.255	67	500 (Coil)	70	1000
12	Solid	.081	30	45	.235	53	500 (Coil)	56	1000
14	Solid	.064	30	45	.215	43	500 (Coil)	46	1000
16	Solid	.051	30	45	.205	37	500 (Coil)	40	1000
18	Solid	.040	30	45	.195	33	500 (Coil)	36	1000
4/0	19 x .1055"	.528	60	45	.747	807	1000 (Reel)	907	1000
3/0	19 x .0940"	.470	60	45	.689	655	1000 (Reel)	755	1000
2/0	19 x .0837"	.419	60	45	.638	543	1000 (Reel)	643	1000
1/0	19 x .0745"	.373	60	45	.592	440	1000 (Reel)	540	1000
1	19 x .0664"	.332	60	45	.551	362	1000 (Reel)	462	1000
2	7 x .0974"	.292	40	45	.465	278	1000 (Reel)	378	1000
3	7 x .0867"	.260	40	45	.433	227	1000 (Reel)	331	1000
4	7 x .0772"	.232	40	45	.405	183	1000 (Reel)	285	1000
5	7 x .0688"	.206	40	45	.381	150	1000 (Reel)	251	1000
6	7 x .0612"	.184	40	45	.359	128	500 (Coil)	131	1000
8	7 x .0486"	.146	30	45	.321	90	500 (Coil)	96	1000
10	7 x .0385"	.116	30	45	.291	69	500 (Coil)	75	1000
12	7 x .0305"	.092	30	45	.267	54	500 (Coil)	61	1000
14	7 x .0242"	.073	30	45	.248	44	500 (Coil)	51	1000
16	7 x .0192"	.058	30	45	.233	35	500 (Coil)	41	1000
18	7 x .0152"	.045	30	45	.220	33	500 (Coil)	36	1000

* Subject to ±5% tolerance in overall dimensions

The above data are approximate and subject to normal manufacturing tolerances.

ASBESTOS-VARNISHED CAMBRIC CONTROL CABLES

600 Volts



For control wiring in boiler rooms, power stations, and other locations where subject to temperatures beyond the limits of other standard insulations.

Maximum recommended operating temperature is 100°C.

CONSTRUCTION

(Refer to pages 30 and 31)

Conductors:

Flexible stranded conductors of either size 9 or 12 A.W.G. (nominal size) tinned, soft annealed copper.

Insulation:

(a) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

(b) Wall of standard varnished cloth tapes applied as a series of helical wraps.

(c) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

Covering:

Dry cotton braid, color-coded for ready conductor identification.

Assembly:

(Multi-conductor) Required number of insulated and braid covered conductors are assembled by twisting.

Outer Coverings:

(Multi-conductor) Tape and asbestos braid, saturated and finished with flame, heat and moisture-resisting compound (standard color—black).

STANDARD NEMA COLOR SCHEME FOR CONTROL CABLES

Conductor No.	Base Braid	Tracer
1	Black	None
2	White	None
3	Red	None
4	Green	None
5	Orange	None
6	Blue	None
7	White	Black
8	Red	Black
9	Green	Black
10	Orange	Black
11	Blue	Black
12	Black	White
13	Red	White
14	Green	White
15	Blue	White
16	Black	Red
17	White	Red
18	Orange	Red
19	Blue	Red

ASBESTOS-VARNISHED CAMBRIC CONTROL CABLES

600 Volts

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

Nominal Size A.W.G.	CONDUCTORS Number	Construction	Diameter Inches	INSULATION THICKNESS Minimum Average First Asbestos Mils	Varnished Cambric Mils	Second Asbestos Mils	Cotton Braid Thickness Mils	Thickness of Overall Coverings Tape Mils	Asbestos Braid Mils	* Overall Diameter Inches	Wt. per 1000 Ft. Net Lbs.	STANDARD PACKAGES Feet	Wt. per 1000 Ft. Gross Lbs.	Dielectric Test Voltage Volts
9	1	19 x #22	.127	10	30	15	..	..	45	.327	86	500 (Reel)	140	2000
9	2	19 x #22	.127	10	30	15	17	15	45	.665	229	500 (Reel)	349	2000
9	3	19 x #22	.127	10	30	15	17	15	45	.705	288	500 (Reel)	408	2000
9	4	19 x #22	.127	10	30	15	17	15	45	.782	359	500 (Reel)	487	2000
9	5	19 x #22	.127	10	30	15	17	15	45	.857	433	500 (Reel)	561	2000
9	6	19 x #22	.127	10	30	15	17	15	45	.938	526	500 (Reel)	716	2000
9	7	19 x #22	.127	10	30	15	17	15	45	.938	561	500 (Reel)	751	2000
9	8	19 x #22	.127	10	30	15	17	15	45	1.021	640	500 (Reel)	830	2000
9	9	19 x #22	.127	10	30	15	17	15	45	1.104	741	500 (Reel)	959	2000
9	10	19 x #22	.127	10	30	15	17	15	45	1.209	823	500 (Reel)	1041	2000
9	11	19 x #22	.127	10	30	15	17	15	45	1.209	883	500 (Reel)	1101	2000
9	12	19 x #22	.127	10	30	15	17	15	45	1.251	913	500 (Reel)	1131	2000
9	13	19 x #22	.127	10	30	15	17	15	45	1.320	986	500 (Reel)	1352	2000
9	14	19 x #22	.127	10	30	15	17	15	45	1.320	1052	500 (Reel)	1418	2000
9	15	19 x #22	.127	10	30	15	17	15	45	1.358	1117	500 (Reel)	1483	2000
9	16	19 x #22	.127	10	30	15	17	15	45	1.399	1200	500 (Reel)	1566	2000
9	17	19 x #22	.127	10	30	15	17	15	45	1.480	1291	500 (Reel)	1657	2000
9	18	19 x #22	.127	10	30	15	17	15	45	1.480	1338	500 (Reel)	1704	2000
9	19	19 x #22	.127	10	30	15	17	15	45	1.480	1385	500 (Reel)	1751	2000
12	1	19 x #25	.090	10	30	15	..	..	45	.290	61	500 (Reel)	115	2000
12	2	19 x #25	.090	10	30	15	15	15	45	.581	162	500 (Reel)	224	2000
12	3	19 x #25	.090	10	30	15	15	15	45	.616	198	500 (Reel)	268	2000
12	4	19 x #25	.090	10	30	15	15	15	45	.675	244	500 (Reel)	364	2000
12	5	19 x #25	.090	10	30	15	15	15	45	.740	292	500 (Reel)	412	2000
12	6	19 x #25	.090	10	30	15	15	15	45	.809	346	500 (Reel)	474	2000
12	7	19 x #25	.090	10	30	15	15	15	45	.809	366	500 (Reel)	494	2000
12	8	19 x #25	.090	10	30	15	15	15	45	.878	416	500 (Reel)	606	2000
12	9	19 x #25	.090	10	30	15	15	15	45	.947	483	500 (Reel)	673	2000
12	10	19 x #25	.090	10	30	15	15	15	45	1.036	535	500 (Reel)	725	2000
12	11	19 x #25	.090	10	30	15	15	15	45	1.036	572	500 (Reel)	762	2000
12	12	19 x #25	.090	10	30	15	15	15	45	1.071	588	500 (Reel)	806	2000
12	13	19 x #25	.090	10	30	15	15	15	45	1.129	638	500 (Reel)	856	2000
12	14	19 x #25	.090	10	30	15	15	15	45	1.129	678	500 (Reel)	896	2000
12	15	19 x #25	.090	10	30	15	15	15	45	1.161	717	500 (Reel)	935	2000
12	16	19 x #25	.090	10	30	15	15	15	45	1.195	763	500 (Reel)	981	2000
12	17	19 x #25	.090	10	30	15	15	15	45	1.264	822	500 (Reel)	1040	2000
12	18	19 x #25	.090	10	30	15	15	15	45	1.264	849	500 (Reel)	1067	2000
12	19	19 x #25	.090	10	30	15	15	15	45	1.264	876	500 (Reel)	1094	2000

* Subject to ± 5% tolerance in overall dimensions.

NOTE: Also available with lead sheath in place of standard braid finish (recommended for moist locations).

The above data are approximate and subject to normal manufacturing tolerances

FLEXIBLE CORDS 300 and 600 Volts

HEADLIGHT WIRE—Single Conductor—Asbestos-Varnished Cambric and CAB CORD—Two Conductor—All-Asbestos (300 Volts) Light Duty and Asbestos-Varnished Cambric (600 Volts) Heavy Duty

CONSTRUCTION

(Refer to pages 30 and 31)

SINGLE CONDUCTOR HEADLIGHT WIRE (600 Volts)

Conductors:

Flexible stranded tinned, soft annealed copper.

Insulation:

(a) Wall of varnished cloth tapes applied as a series of helical wraps.

(b) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

Outer Covering:

Cotton braid, saturated and finished with flame, heat and moisture-resisting compound (standard color—black).

TWO CONDUCTOR LIGHT DUTY CAB CORD (300 Volts)

Conductors:

Flexible stranded conductors of soft annealed copper.

Insulation:

Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

Assembly:

Insulated conductors assembled by twisting.

Outer Covering:

Asbestos braid, saturated and finished with flame, heat and moisture-resisting compound (standard color—black).

TWO CONDUCTOR HEAVY DUTY CAB CORD (600 Volts)

Conductors:

Flexible stranded conductors of tinned, soft annealed copper.

Insulation:

(a) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

(b) Wall of varnished cloth tapes applied as a series of helical wraps.

(c) Wall of felted asbestos, saturated with flame, heat and moisture-resisting compound.

Assembly:

Insulated conductors are assembled by twisting.

Outer Covering:

Asbestos braid, saturated and finished with flame, heat and moisture-resisting compound (standard color—black).

USE

Single Conductor Headlight Wire (600 Volts).

For use as cab and gauge-light wiring on locomotives, and as extension cord in steel mills, kiln rooms, etc.

Two Conductor Light Duty Cab Cord (300 Volts).

For use as cab and gauge-light wiring on locomotives, and as extension cord in steel mills, kiln rooms, etc.

Two Conductor Heavy Duty Cab Cord (600 Volts).

For use similar to Light Duty Cab Cord, but especially where there is exposure to oil, grease, moisture, etc.

Maximum recommended operating temperatures:

All-Asbestos Insulated, 200°C. where no moisture is present.

Asbestos-Varnished Cambric Insulated—(100—3 E)°C. where E represents the operating voltage between conductors in kilovolts.

ASBESTOS-VARNISHED CAMBRIC, COTTON BRAIDED HEADLIGHT WIRE (600 VOLTS)

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

Nominal Size A.W.G.	CONDUCTORS Construction	CONDUCTORS Diameter Inches	INSULATION THICKNESS Minimum Average Varnished Cambric Mils	INSULATION THICKNESS Minimum Average Asbestos Mils	Cotton Braid Thickness Mils	Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	STANDARD PACKAGES Feet	STANDARD PACKAGES Weight per 1000 Ft. Gross Lbs.	Dielectric Test Voltage Volts
12	19 x #25	.090	30	20	16	.225	39	500 (Coil)	42	2500
14	19 x #27	.071	30	20	16	.205	29	500 (Coil)	32	2500
16	19 x #29	.056	30	20	16	.190	23	1000 (Coil)	26	2500

The above data are approximate and subject to normal manufacturing tolerances.

ALL-ASBESTOS AND ASBESTOS-VARNISHED CAMBRIC CAB CORDS

Light Duty All-Asbestos Insulated (300 Volts)

Heavy Duty Asbestos-Varnished Cambric Insulated (600 Volts)

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

Nominal Size A.W.G.	CONDUCTORS Construction	CONDUCTORS Diameter Inches	INSULATION THICKNESS Minimum Average First Asbestos Mils	Varnished Cambric Mils	Second Asbestos Mils	Asbestos Braid Thickness Mils	Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	STANDARD PACKAGES Feet	STANDARD PACKAGES Weight per 1000 Ft. Gross Lbs.	Dielectric Test Voltage Volts
LIGHT DUTY ALL-ASBESTOS INSULATED (300 Volts)											
10	105 x #30	.120	40	..	..	45	.486	93	250 (Coil)	96	1000
12	65 x #30	.095	40	..	..	45	.435	66	500 (Coil)	69	1000
14	41 x #30	.075	30	..	..	45	.387	43	500 (Coil)	46	1000
16	26 x #30	.059	30	..	..	45	.327	36	500 (Coil)	39	1000
18	16 x #30	.045	30	..	..	45	.302	30	500 (Coil)	33	1000
HEAVY DUTY ASBESTOS-VARNISHED CAMBRIC INSULATED (600 Volts)											
10	105 x #30	.120	10	30	15	45	.546	98	250 (Coil)	101	2000
12	65 x #30	.095	10	30	15	45	.495	81	500 (Coil)	84	2000
14	41 x #30	075	10	30	15	45	.457	60	500 (Coil)	63	2000
16	26 x #30	059	10	30	15	45	.427	51	500 (Coil)	54	2000
18	16 x #30	.045	10	30	15	45	.402	45	500 (Coil)	48	2000

The above data are approximate and subject to normal manufacturing tolerances.

ASBESTOS and ASBESTOS-VARNISHED CAMBRIC SPECIFICATIONS

STANDARDS

FOR ASBESTOS AND ASBESTOS-VARNISHED CAMBRIC INSULATED WIRES AND CABLES

GENERAL

1—**Scope:** These standards cover electrical conductors insulated with asbestos or combinations of asbestos and varnished cambric and finished with cotton braids, asbestos braids, or lead sheaths, the purpose, use and constructional dimensions of which are shown in the tables following the text. The rated voltages specified on these tables are phase to phase voltages for either grounded or ungrounded systems.

These standards do not cover multiconductor power cable or other special constructions.

CONSTRUCTION

2—**Conductors:** Unless otherwise specified, solid conductors and wires making up stranded conductors shall be of soft copper having, before stranding, physical characteristics in accordance with the following specifications:

(a) ASA "Specifications for Soft or Annealed Copper Wire" C8b2, or latest revision (for bare copper), or

(b) ASA "Specifications for Tinned Soft or Annealed Copper Wire" for Rubber Insulation C8b1, or latest revision (for tinned wire).

The conductor shall be solid or stranded as indicated in each table for the particular type of wire involved—or as specified on order.

INSULATION

3—**Asbestos:** The asbestos insulation shall consist of best 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 cable.

The asbestos insulation after extraction of impregnating compound shall contain not less than 80 per cent by weight of asbestos. The total iron content shall not exceed 4 per cent by weight of the asbestos and the magnetic iron content shall not exceed 2 per cent by weight of the asbestos.

The wall of felted asbestos insulation shall be applied to form a smooth wall of uniform thickness as specified in the tables, with the conductor well centered. It shall be thoroughly dried and completely saturated with a flame-resisting and heat-resisting or moisture-resisting compound as specified in the tables. This compound shall consist of suitable high-grade ingredients and shall retain its initial qualities during the normal life of the cable. The compound shall develop no injurious chemical action within itself or with any component parts of the completed cable.

4—**Varnished Cloth:** The varnished cambric insulation where used in these wires and cables shall consist of a high-grade varnished cloth substantially free from blisters or other imperfections, applied with a lubricating compound between layers.

It shall comply in all respects with the requirements for varnished cloth outlined in existing NEMA standards for Varnished Cambric Insulated Cables.

5—**Synthetic Insulation:** Synthetic insulation where used shall be a thermoplastic compound of the polyvinyl chloride type, or a copolymer of vinyl chloride and vinyl acetate, or a compound of similar characteristics. It shall be applied so as to provide a continuous solid wall of insulation. General requirements are such that the finished wire or cable shall meet all of the performance tests specified herein for that type.

BRAIDS

6—**Cotton Marker Braids for Multi-conductor Control Cables:** Cotton braids for this use shall conform to the Code Braid (commonly known as NEMA Class A Braid) requirements of ASA Specifications for Cotton Braid for Insulated Wires and Cables, C8.12. Unless otherwise specified, the colors shall conform to the NEMA Color Code for control cable.

7—**Cotton Braids for Outer Coverings:** Cotton Braids for this use shall comply with the Standard Braid (commonly known as NEMA Class B Braids) requirements of ASA Specifications for Cotton Braid for Insulated Wires and Cables, C8.12.

Cotton outside braids shall be finished with either a suitable flame and heat-resisting compound or saturated and finished with a flame, heat and moisture-resisting compound, as specified in the tables.

8—**Asbestos Braids:** Asbestos braids shall be closely woven from a good quality, long-fibre chrysotile yarn containing not less than 80 per cent by weight of asbestos. The total iron content shall not exceed 6 per cent by weight of the asbestos. The magnetic iron content shall not exceed 2 per cent by weight of the asbestos.

Asbestos outside braid shall be saturated with either a suitable flame and heat-resisting, or flame, heat and moisture-resisting compound, as specified in the tables.

LEAD SHEATH

9—The lead sheath shall consist of commercially pure lead (unless an alloyed sheath is specified by the customer) and shall be tightly formed around the core. It shall comply in all respects with the requirements for lead sheath appearing in existing NEMA standards for Varnished Cambric Cables. The thickness shall be in conformity with that required for varnished cambric cables of corresponding core diameter—unless other dimensions are specified.

FILLERS

10—Fillers, when used in multi-conductor control cable shall be of dry jute, unless otherwise specified.

CABLING

11—In multi-conductor control cables, the individual control wires shall be concentrically cabled together. The lay of conductors in each layer shall not exceed 16 times the diameter over that particular layer. The lay of conductors in successive layers shall be reversed.

TAPE

12—Multi-conductor control cables shall have the cabled conductors wrapped with a protective tape lapped at least 10 per cent of its width. This tape shall be helically applied and shall be under the outer braid.

ELECTRICAL AND PHYSICAL TESTS

13—Unless otherwise specified in the tables, electrical and physical tests shall be made in conformance with the following paragraphs.

ELECTRICAL

14—**Initial Dielectric Strength Tests:**

(a) All wires and cables specified herein and rated at 600 volts or more: Test voltages as specified in the tables; test to be made on five-foot lengths of finished cable wrapped in tinfoil; voltage to be applied five minutes.

(b) 300-volt rated wires and cables: One thousand volts applied for one minute; test to be made on five-foot lengths of finished cable wrapped in tinfoil.

ASBESTOS and ASBESTOS-VARNISHED CAMBRIC SPECIFICATIONS (Continued)

15—**Dielectric Strength After Flame Tests:** Samples of cables having been previously subjected to the Flame Test (Section 18) shall be prepared with the charred area of size 6 A.W.G. and larger wrapped in tinfoil, and sizes smaller than 6 A.W.G. buried in iron filings or fine shot and tested for one minute as follows:

(a) All-asbestos insulated wires and cables rated at 600 volts: 2½ times the rated voltage.

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

(c) 300-volt rated wires and cables: 1000 volts.

16—**Dielectric Strength While Immersed:** A five-foot sample of finished cables (having flame and moisture-resisting finish) shall be immersed except ends, for one hour in tap water at room temperature and while still immersed, shall withstand a dielectric test of twice the rated voltage between conductor and water for one minute.

PHYSICAL

17—**Measurement of Dimensional Requirements:** Inspection for dimensional requirements shall consist of four measurements, two to be made near each end of the sample, of which the average shall comply with the requirements given below. The measurements of cable ¾ in. O.D. and smaller shall be made with a ratchet micrometer having ¼ in. diameter faces. For cable larger than ¾ in. O.D. the measurement shall be made with a circumference tape. Diameter determinations when made with the micrometer shall be the average of 2 measurements made at right angles to each other. The average diameter over any component layer of the insulation and braid shall not vary more than ±5 per cent from the theoretical diameter over that layer based on the nominal wall thicknesses shown in the tables.

18—**Resistance to Flame:** All of these wires and cables shall have such fire-resisting properties that the test specimens will not convey flame, nor continue to burn for more than one minute after five fifteen-second applications of a standard test flame, the period between applications of the flame being fifteen seconds.

NOTE: Compliance of the wire with the requirements of the preceding paragraph shall be determined with the apparatus and according to the method described in Sections 19 and 20. For dielectric test after flame test see Section 15.

19—**Apparatus for Testing Flame-retarding Properties:** The apparatus for this test consists of a test chamber of sheet metal 12 inches wide, 14 inches deep, and 24 inches high, open at top and front and provided with means for supporting the test sample in a vertical position; a Tirrill burner having a bore of ⅜ inch and a length of 4 inches above the primary air inlets; a 20-degree angle block for supporting the burner; a supply of ordinary illuminating gas at normal pressure; a watch or clock with a hand which makes one complete revolution each minute; and flame indicators consisting of strips of gummed Kraft paper, 5 mils in nominal thickness and ½ inch width.

20—**Method of Testing Flame-retarding Properties:** The test is made in a room from which all drafts are excluded. An 18-inch sample of wire is supported from the upper end in the test chamber and is held in a vertical position by a four-pound weight attached to the lower end of the wire. A paper indicator is applied to the sample so that the lower edge is 10 inches above the point to which the flame is to be applied. The indicator is wrapped once around the sample with the gummed side toward the conductor and the ends pasted evenly together and projecting ¾ inch away from the wire on the opposite side of the wire to that to which the flame is to be applied.

The height of the flame with the burner vertical is adjusted to 5 inches with an

inner blue cone 1½ inches high. The burner is then tilted to an angle of 20 degrees from vertical and the flame applied to the sample so that the tip of the inner blue cone touches the sample at a point approximately 3 inches above its lower end. The side of the flame is brought up to the sample in such a manner that the vertical plane through the axis of the burner is perpendicular to the line of approach. The flame is applied for 15 seconds and then removed for 15 seconds. This process is repeated four times.

If more than 25 per cent of the extended portion of the indicator is burned, the wire is considered to have conveyed flame.

SPECIAL TESTS FOR ASBESTOS-VARNISHED CLOTH AND GENCASEAL-ASBESTOS SWITCHBOARD WIRES AND HINGE CABLES

21—**Dielectric Failure Test:** A dielectric failure test of not less than 15,000 volts, 60 cycles, applied between conductors and metal foil, at least 5 inches wide, wrapped tightly around the braid of an unbent sample of wire at least 10 inches long. The voltage shall be raised from initial application of 3000 volts at a rate of approximately 1000 volts per second.

22—**Leakage Resistance Test:** The leakage resistance between metal foil bands placed two inches apart as measured with a voltage of approximately 200 volts d-c on a sample immediately after exposure for 16 hours at a temperature of not less than 25°C. to an atmosphere of moisture in a bell jar in which is placed an open vessel of water, shall not be less than one megohm per inch length per inch of circumference.

23—**Bend—Dielectric Test:** On sizes 8 A.W.G. and smaller a 15-inch sample shall be bent 90 degrees around a mandrel having the same diameter as the wire. Two bends in the same plane shall be made 2 inches apart, only sufficient pressure being applied to prevent the sample from slipping due to its own weight.

A sample subjected to this test shall show no rupture of the covering and it shall not break down at less than 5000 volts, 60 cycles, applied between the conductor and foil wrapped tightly around the braid of the bent sample at the point of the bend (fine filings or shot may be used in place of wrapping the sample in metal foil). The voltage shall be raised from initial application of 3000 volts at a rate of approximately 1000 per second.

SAMPLING

24—Each of the required tests shall be made on one sample of each size and type of wire from each lot of 10,000 feet or fraction thereof unless otherwise specified in the tables.

If a sample fails to meet any of the prescribed requirements, two additional samples shall be taken from the same length. If either of these samples fail, the length may be rejected. If any of the lengths fail to meet any of the requirements, samples shall be taken from each length or reel of the lot and tested for this particular requirement to determine acceptance of each reel.

ALLOWABLE CURRENT CARRYING CAPACITIES (National Electrical Code, 1940)

Size C.M. or A.W.G.	Three Conductor Cable or Three Conductors in Conduit				Single Conductors in Free Air			
	Types SNA AVB	Types AVA AVL	Type AI	Type A	Types SNA AVB	Type AVA	Type AI	Type A
	COPPER TEMPERATURE °C.							
	90	110	125	200	90	110	125	200
	AMPERES PER CONDUCTOR							
1,000,000	583	681	730	811	1001	1163	1238	1330
900,000	556	650	665	760	941	1090	1110	1240
800,000	514	600	641	720	879	1020	1085	1150
750,000	502	582	621	690	846	981	1044	1118
700,000	488	562	598	668	813	942	1003	1065
600,000	453	525	543	612	738	857	912	970
500,000	404	468	498	554	660	765	814	870
400,000	361	418	450	488	575	665	710	755
350,000	325	392	419	462	529	612	653	698
300,000	299	347	380	415	480	555	592	632
250,000	272	315	334	372	427	495	528	562
4/0	237	275	308	340	383	446	476	510
3/0	209	243	265	284	330	384	410	429
2/0	184	217	230	249	284	331	354	372
1/0	157	190	202	223	245	287	306	325
1	138	161	172	188	211	247	264	280
2	118	137	147	163	179	211	226	241
3	104	121	131	145	155	182	194	211
4	88	107	114	122	133	158	169	180
5	78	94	99	110	115	136	145	158
6	68	80	85	95	99	119	126	134
8	50	60	63	71	71	85	91	100
10	38	47	49	54	54	65	69	75
12	29	36	38	42	40	51	52	57
14	23	28	29	32	30	39	40	43

CORRECTION FACTOR FOR ROOM TEMPERATURES OVER 30° C.

40°C.	104°F.	.90	.94	.95	..	.90	.94	.95	..
50°C.	122°F.	.80	.87	.89	..	.80	.87	.89	..
60°C.	140°F.	.67	.79	.83	.97	.67	.79	.83	.97
70°C.	158°F.	.52	.71	.76	.93	.52	.71	.76	.93
80°C.	176°F.	.30	.61	.69	.89	.30	.61	.69	.89
90°C.	194°F.	..	.50	.61	.86	..	.50	.61	.86
100°C.	212°F.	..	..	.51	.82	..	..	.51	.82
120°C.	248°F.	..	..	..	.72	..	..	..	.72
140°C.	284°F.	..	..	..	.63	..	..	..	.62

NOTE: For copper conductors only and cables rated at not over 600 volts.

ALL-ASBESTOS INSULATED COPPER, NICKEL and MONEL CONDUCTORS

Relative Current Carrying Capacity*

Size A.W.G.	HEAT AND MOISTURE-RESISTING INSULATION — Maximum Conductor Temperature 125°C. COPPER	125°C. NICKEL	125°C. MONEL	HEAT-RESISTING INSULATION — Maximum Conductor Temperature 200°C. COPPER	300°C. NICKEL	300°C. MONEL
			AMPERES			
1	172	72.0	42.0	188	88.2	53.7
2	147	62.0	36.0	163	77.4	46.6
3	131	55.0	32.0	145	68.8	41.5
4	114	48.0	27.9	122	57.9	35.0
6	85	36.0	20.7	95	45.0	27.2
8	63	26.4	15.4	71	33.7	20.3
10	49	20.6	12.0	54	25.6	15.5
12	38	16.0	9.3	42	20.0	12.0
14	29	12.1	7.1	32	15.2	9.1
16	22	9.2	5.4	23	10.9	6.6
18	17	7.1	4.1	18	8.5	5.2

NOTE: Use 80% of these current ratings when 4 to 6 conductors are laid close together, and 70% for 7 to 9 conductors.

TEMPERATURE CORRECTION FACTORS

Temp. Deg. C.	TYPE AI	TYPE A Copper	TYPE A Nickel and Monel
30	1.00	...	...
40	.95	...	...
50	.89	1.00	1.00
60	.83	.97	.98
70	.76	.93	.96
80	.69	.89	.94
90	.61	.86	.92
100	.51	.82	.90
120	...	.72	.85
140	...	.63	.80

NOTE: Use 80% of these current ratings when 4 to 6 conductors are laid close together, and 70% for 7 to 9 conductors.

* Based on installation equivalent to three single conductor wires in conduit.

GENERAL CABLE CORPORATION

BARE AND INSULATED CONDUCTORS FOR
TRANSMISSION AND DISTRIBUTION

PAPER • VARNISHED CAMBRIC • RUBBER
BRAIDED • LEADED • ARMORED
AERIAL • SUBMARINE
UNDERGROUND

CABLE TERMINALS AND ACCESSORIES

All Sizes and Types for Any Condition of Service

"A Standard of Quality for Over Half a Century"

SALES OFFICES

ATLANTA, GA.	DALLAS, TEXAS	PITTSBURGH, PENNA.
BOSTON, MASS.	DETROIT, MICH.	ROME, N. Y.
BUFFALO, N. Y.	HOUSTON, TEXAS	ST. LOUIS, MO.
CHICAGO, ILL.	KANSAS CITY, MO.	SAN FRANCISCO, CALIF.
CINCINNATI, OHIO	LOS ANGELES, CALIF.	SEATTLE, WASH.
CLEVELAND, OHIO	NEW YORK, N. Y.	WASHINGTON, D. C.
	PHILADELPHIA, PENNA.	

PLANTS

BAYONNE, N. J.	EMERYVILLE, CALIF.	PAWTUCKET, R. I.
BUFFALO, N. Y.	LOS ANGELES, CALIF.	PERTH AMBOY, N. J.
ROME, N. Y.		ST. LOUIS, MO.

GC 02951