

GENERAL CABLE CORPORATION

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- 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

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.

GENERAL



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 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

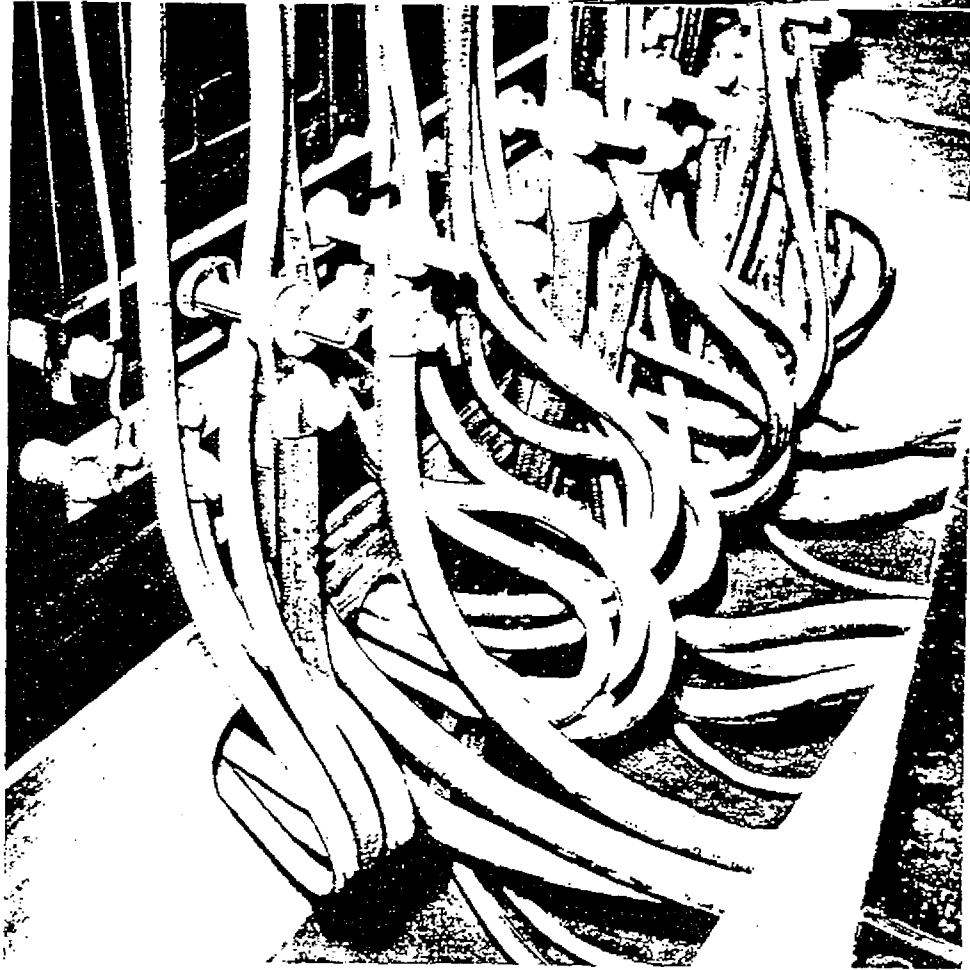


ALL-ASBESTOS AND ASBESTOS-VARNISHED CAMBRIC WIRES AND CABLES—(Continued)

STANDARD TYPES and USES

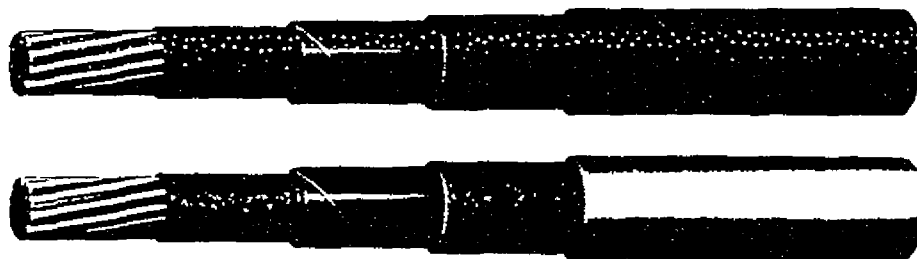
General Classification	Type Designation	Construction	Application	Rated Voltage Volts	For Complete Descriptions Refer to Pages Listed Below
Switchboard Wires and Bus Cables (Cont'd)	Gencaseal-Asbestos Hinge Cable	Flexible stranded conductors of tinned, soft annealed copper insulated with Gencaseal and 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 VARNISH 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.

roving, saturated with heat and moisture-resisting compound.

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

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

GENERAL CABLE CORPORATION . . ALL-ASBESTOS AND ASBESTOS-VARNISHED
CAMBRIC INSULATED WIRES AND CABLES

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**ASBESTOS-
VARNISHED
CAMBRIC
POWER
CABLES
and
BOILER
ROOM
WIRES
Types AVA
and AVL
600 Volts**

STANDARD SIZES, DIMENSIONS,

Size C.M. or A.W.G.	CONDUCTORS		INSULATION THICKNESS Minimum Average			BRAID FINISHED CABLES		
	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	3162
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	166
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	10	30	20	45	.320	90
10	Solid	.102	10	30	20	45	.295	70
12	Solid	.081	10	30	20	45	.275	55
14	Solid	.064	10	30	20	45	.255	47
16	Solid	.051	10	30	20	45	.245	40
18	Solid	.040	10	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 $\pm 5\%$ tolerance in overall dimensions.

The above data are approximate and



WEIGHTS AND PACKAGES

LEAD SHEATHED CABLES			STANDARD PACKAGES			Dielectric Test Voltage Volts	Size C.M. or A.W.G.
Minimum Average Sheath Thickness Inches	Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	BRAID FINISHED Feet	Weight per 1000 Ft. Gross Lbs	LEAD SHEATHED Feet			Weight per 1000 Ft. Gross Lbs
POWER CABLES							
6/64	1.560	5613	500 (Reel)	3912	500 (Reel)	6183	1,000,000
6/64	1.505	5201	500 (Reel)	3584	500 (Reel)	5771	900,000
6/64	1.440	4783	500 (Reel)	3256	500 (Reel)	5353	800,000
6/64	1.410	4570	500 (Reel)	3019	500 (Reel)	4972	750,000
6/64	1.375	4256	500 (Reel)	2926	500 (Reel)	4758	700,000
6/64	1.340	4140	500 (Reel)	2761	500 (Reel)	4542	650,000
6/64	1.305	3923	500 (Reel)	2523	500 (Reel)	4328	600,000
6/64	1.265	3786	500 (Reel)	2357	500 (Reel)	4186	550,000
5/64	1.185	3062	500 (Reel)	2185	500 (Reel)	3462	500,000
5/64	1.140	2848	500 (Reel)	2017	500 (Reel)	3248	450,000
5/64	1.095	2632	500 (Reel)	1835	500 (Reel)	2962	400,000
5/64	1.050	2413	500 (Reel)	1683	500 (Reel)	2743	350,000
5/64	1.000	2183	500 (Reel)	1514	500 (Reel)	2513	300,000
5/64	.945	1965	500 (Reel)	1344	500 (Reel)	2286	250,000
4/64	.815	1516	1000 (Reel)	1004	1000 (Reel)	1717	4/0
4/64	.755	1313	1000 (Reel)	855	1000 (Reel)	1478	3/0
4/64	.705	1144	1000 (Reel)	736	1000 (Reel)	1309	2/0
4/64	.660	1005	1000 (Reel)	576	1000 (Reel)	1170	1/0
4/64	.620	890	1000 (Reel)	471	1000 (Reel)	1055	1
4/64	.560	730	1000 (Reel)	390	1000 (Reel)	830	2
3/64	.495	532	1000 (Reel)	340	1000 (Reel)	632	3
3/64	.470	477	1000 (Reel)	300	1000 (Reel)	577	4
3/64	.440	425	1000 (Reel)	268	1000 (Reel)	525	5
3/64	.420	385	1000 (Reel)	243	1000 (Reel)	485	6
3/64	.370	289	500 (Coil)	105	1000 (Reel)	347	8
3/64	.340	281	500 (Coil)	81	1000 (Reel)	325	10
3/64***	.320	247	1000 (Coil)	66	1000 (Reel)	291	12
3/64***	.300	222	1000 (Coil)	55	1000 (Reel)	261	14
3/64***	.285	206	1000 (Coil)	49	1000 (Reel)	245	16
3/64***	.270	192	1000 (Coil)	44	1000 (Reel)	231	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
	1000 (Reel)	450	.....	.....	3000	1
SUPPLIED ON	1000 (Reel)	379	.....	.....	3000	2
	1000 (Reel)	293	.....	.....	3000	4
	1000 (Reel)	238	.....	.....	3000	6
	500 (Coil)	95	.....	.....	2000	8
	1000 (Coil)	70	.....	.....	2000	10
SPECIAL ORDER	1000 (Coil)	61	.....	.....	2000	12
	1000 (Coil)	51	.....	.....	2000	14
	1000 (Coil)	45	.....	.....	2000	16
	1000 (Coil)	41	.....	.....	2000	18
ONLY						

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

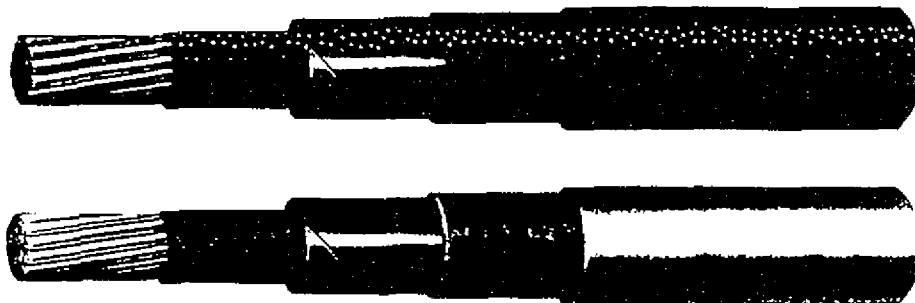
subject to normal manufacturing tolerances.

**ASBESTOS
VARNISHED
CAMBRIC
POWER
CABLES
and
BOILER
ROOM
WIRES
Types AVA
and AVL
600 Volts**



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 $(110-3E)^{\circ}\text{C}.$, 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.

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

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.

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



STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

Nominal Cable Size	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.
1000	1,000,000 61 x .1280"	1.152	30	45	40	45	1.475 3521 500 (Reel) 3911 4500
	800,000 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
	800,000 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	.555 324 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 $\pm .5\%$ tolerance in overall dimensions.

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

GENERAL CABLE CORPORATION . . ALL-ASBESTOS AND ASBESTOS-VARNISHED
CAMBRIC INSULATED WIRES AND CABLES

Circle 37



REVISED
PAGE 11
June, 1942

GC 02926

ASBESTOS-
VARNISHED
CAMBRIC
POWER-
CABLES
Types AVA
and AVL
1000
and
2000
Volts

ASBESTOS- VARNISHED CAMBRIC POWER CABLES

Type AVA
3000
and
5000
Volts

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

Rated Volt- age Phase to Phase Volts	CONDUCTORS			INSULATION THICKNESS Minimum Average			Braid Thick- ness Mils	Overall Diameter Inches	Weight per 1000 Ft. Net Lbs	STANDARD PACKAGES		Dielectric Test Voltage Volts
	Size C.M. or A.W.G.	Construc- tion	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	3591	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)	2987	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	1561	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)	160	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 $\pm 5\%$ tolerance in overall dimensions.

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



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.

ASBESTOS VARNISHED CAMBRIC POWER CABLES

Type AVMA
Three
Conductor
600 Volts†

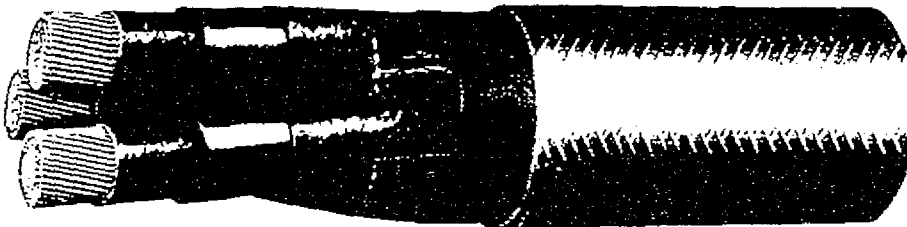
STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES;

Size C.M. or A.W.G.	CONDUCTORS			Weight per 1000 Ft. Net Lbs.	STANDARD PACKAGES	
	Construction	Diameter Inches	Overall Diameter Inches		Feet	Wt. per 1000 Ft. Gross Lbs.
500,000	37 x .1162"	.813	2.350	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	.865	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.
1600-volt multi-conductor power cable assembled with single conductor cables described on pages 7 to 9.

*Subject to $\pm 5\%$ tolerance in overall dimensions.

The above data are approximate and subject to normal manufacturing tolerances



Typical Multi-Conductor Asbestos-Varnished Cambric Power Cable

GENERAL CABLE CORPORATION . . ALL-ASBESTOS AND ASBESTOS-VARNISHED
CAMBRIC INSULATED WIRES AND CABLES

Catalog 37



REVISED
PAGE 13
June 1942

GC 02928

**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.

Outer Covering:

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

Insulation:

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

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



STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

CONDUCTORS			STANDARD PACKAGES					Dielectric Test Voltage Volts		
Size C.M. or A.W.G.	Construction	Diameter Inches	Asbestos Insulation Thickness Minimum Average Mils	Asbestos Braid Thickness Mils	Overall Diameter Inches	Weight per 1000 Ft. Net Lbs	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)	..	3632	1500
900,000	61 x .1215"	1.094	105	45	1.395	3198	500 (Reel)	..	3430	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)	..	2936	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	1509	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)	..	286	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
6	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	36	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	51	1000 (Coil)	4	58	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	.191	33	1000 (Coil)	5	36	1500

* Subject to $\pm 5\%$ tolerance in overall dimensions.

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



ALL-
ASBESTOS
POWER
CABLES
and
RHEOSTAT
WIRES
Type AI
600 Volts

**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



CONDUCTORS		INSULATION THICKNESS Minimum Average					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	First Asbestos Mils	Varnished Cambric Mils	Second Asbestos Mils	Feet				Weight per 1000 Ft. Gross Lbs.		
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)	1742	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)	1363	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)	95	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"	1.089	30	40	40	45	1.400	2633	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 $\pm 5\%$ tolerance in overall dimensions.

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

GENERAL CABLE CORPORATION . . ALL-ASBESTOS AND ASBESTOS-VARNISHED
CAMBRIC INSULATED WIRES AND CABLES

Catalog 37



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GC 02932

ALL-
ASBESTOS
and
ASBESTOS
VARNISHED
CAMBRIC
APPARATUS
and
MOTOR
LEAD
CABLES
Types AI
and AVA
600 Volts

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

Type A1
300 Volts



Recommended for the wiring of motion picture projectors, searchlights, floodlights, spot lights, stage lights, electric cranes, controllers or other similar apparatus sub-

ject 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.

Outer Covering:

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

Insulation:

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

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			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
	Construction	Diameter Inches						Feet	Weight per 1000 Ft. Gross Lbs.	
4/0	8464 x #36	.620	60	45	.630	840	150 (Coil)	860	1000	
3/0	6713 x #36	.588	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	70	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 $\pm 5\%$ tolerance in overall dimensions.

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



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.

GENCA- SEAL- ASBESTO: SWITCH- BOARD WIRES

Type SNA
600 Volts

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

CONDUCTORS			INSULATION THICKNESS		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	Gencaseal Compound	Asbestos Mils				Feet	Weight per 1000 Ft. Gross Lbs.	
4/0	Solid	.462	40	40	22	.660	789	500 (Reel)	859	3000
3/0	Solid	.410	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	.520	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	.325	141	500 (Coil)	141	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	.103	20	20	16	.195	46	500 (Coil)	49	3000
12	Solid	.081	20	20	16	.195	32	500 (Coil)	35	3000
14	Solid	.064	20	20	16	.180	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	.665	626	500 (Reel)	736	3000
2/0	19 x .0837"	.419	40	40	18	.610	520	500 (Reel)	620	3000
1/0	19 x .0745"	.373	40	40	18	.560	426	500 (Reel)	526	3000
1	19 x .0664"	.332	40	40	16	.510	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	.410	211	500 (Reel)	311	3000
4	7 x .0772"	.232	30	30	16	.380	182	500 (Reel)	282	3000
5	7 x .0688"	.206	30	30	16	.340	147	500 (Coil)	247	3000
6	7 x .0612"	.184	30	30	16	.310	120	500 (Coil)	125	3000
8	7 x .0488"	.146	20	20	16	.260	70	500 (Coil)	75	3000
10	7 x .0387"	.116	20	20	16	.210	49	500 (Coil)	52	3000
12	7 x .0325"	.092	20	20	16	.180	34	500 (Coil)	37	3000
14	7 x .0242"	.073	20	20	16	.160	26	500 (Coil)	28	3000
16	7 x .0196"	.055	20	20	16	.140	19	1000 (Coil)	20	3000
18	7 x .0161"	.045	20	20	16	.130	14	1000 (Coil)	15	3000

* Subject to $\pm 5\%$ tolerance in overall dimensions.

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

GENERAL CABLE CORPORATION . . ALL-ASBESTOS AND ASBESTOS-VARNISHED
CAMERIC INSULATED WIRES AND CABLES

Circle 37



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ASBESTOS- VARNISHED CAMBRIC SWITCH- BOARD 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.

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

Insulation:

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

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		Cotton Braid Thickness Mils	Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	STANDARD PACKAGES		Dielectric Test Voltage Volts
			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	825	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.





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.

ASBESTO VARNISH CAMBRIC SWITCH- BOARD BUS CABLES Type AVB 600 Volts

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 Thick- ness Mils	Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	STANDARD PACKAGES		
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.	Dielectric Test Voltage Volts
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 .1033"	.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"	.812	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 .1255"	.526	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	266	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	150	1000 (Reel)	250	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	41	1000 (Coil)	45	2500
14	7 x .0242"	.073	10	30	15	16	.220	31	1000 (Coil)	34	2500
16	7 x .0190"	.055	10	30	15	16	.205	25	1000 (Coil)	26	2500
18	7 x .0150"	.045	10	30	15	16	.190	19	1000 (Coil)	21	2500

* Subject to $\pm .5\%$ 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.

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

Insulation:

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

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		INSULATION THICKNESS		Cotton Braid Thick- ness Mils	Overall Diameter Inches	Weight per 1000 Ft. Net Lbs	STANDARD PACKAGES		Dielectric Test Voltage Volts
	Construction	Diameter Inches	Gencaseal Compound Mils	Felted Asbestos Mils				Feet	Wt. per 1000 Ft. Gross Lbs.	
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 $\pm 5\%$ tolerance in overall dimensions

The above data are approximate and subject to normal manufacturing tolerances



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.

ASBESTOS VARNISHED CAMBRIC HINGE CABLES Type AVB 600 Volts

CONSTRUCTION

(Refer to pages 30 and 31)

Conductors:

Flexible stranded conductors of tinned, soft annealed copper.

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

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.

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

Size A.W.G.	CONDUCTORS		INSULATION THICKNESS Minimum Average			Cotton Braid Thick- ness Mils	Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	STANDARD PACKAGES		Dielectric Test Voltage Volts
	Construction	Diameter Inches	First Asbestos Mils	Varnished Cambric Mils	Second Asbestos Mils				Feet	Wt. per 1000 Ft. Gross Lbs.	
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)	29	3000
18	16 x .010"	.045	10	30	15	16	.195	19	1000 (Coil)	22	3000

* Subject to $\pm 5\%$ 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.

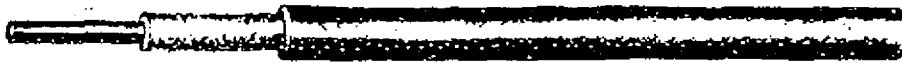
STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

CONDUCTORS				Overall Diameter		Weight per 1000 Ft.		STANDARD PACKAGES				Dielectric Test Voltage Volts
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.	Single Conductor Feet	Wt. per 1000 Ft. Gross Lbs.	Three Conductor Feet	Wt. per 1000 Ft. Gross Lbs.	
8	Solid	.126	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	.030	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	.375	36	110	1000 (Coil)	39	1000 (Coil)	113	1000
14	7 x .0242"	.073	30	.145	.290	26	67	1000 (Coil)	25	1000 (Coil)	70	1000
16	7 x .0192"	.056	30	.125	.255	18	49	1000 (Coil)	19	1000 (Coil)	50	1000
18	7 x .0153"	.045	30	.105	.230	12	37	1000 (Coil)	15	1000 (Coil)	40	1000
8	165 x .30	.151	40	.235	.500	68	206	1000 (Coil)	71	1000 (Coil)	210	1000
10	105 x .30	.121	40	.200	.435	46	140	1000 (Coil)	49	1000 (Coil)	144	1000
12	65 x .30	.099	40	.175	.380	31	97	1000 (Coil)	35	1000 (Coil)	101	1000
14	41 x .30	.075	30	.135	.290	21	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	.240	14	42	1000 (Coil)	17	1000 (Coil)	45	1000
18	16 x .30	.045	30	.105	.230	11	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		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
	Construction	Diameter Inches					Feet	Weight per 1000 Ft. Gross Lbs.	
4	Solid	.204	45	45	.375	177	500 (Coil)	277	1000
6	Solid	.162	45	45	.315	124	500 (Coil)	171	1000
8	Solid	.128	30	45	.265	89	500 (Coil)	91	1000
10	Solid	.102	30	45	.215	67	500 (Coil)	72	1000
12	Solid	.081	30	45	.175	53	500 (Coil)	58	1000
14	Solid	.064	30	45	.145	42	500 (Coil)	46	1000
16	Solid	.051	30	45	.125	37	500 (Coil)	40	1000
18	Solid	.040	30	45	.105	33	500 (Coil)	36	1000
4/0	19 x .1088"	.528	60	45	.747	827	1000 (Reel)	907	1000
3/0	19 x .0940"	.470	60	45	.687	655	1000 (Reel)	750	1000
2/0	19 x .0837"	.419	60	45	.637	543	1000 (Reel)	643	1000
1/0	19 x .0745"	.373	60	45	.587	440	1000 (Reel)	540	1000
1	19 x .0664"	.332	60	45	.547	362	1000 (Reel)	462	1000
2	7 x .0974"	.293	40	45	.467	276	1000 (Reel)	376	1000
3	7 x .0867"	.260	40	45	.427	227	1000 (Reel)	327	1000
4	7 x .0772"	.232	40	45	.387	183	1000 (Reel)	283	1000
5	7 x .0688"	.205	40	45	.347	150	1000 (Reel)	250	1000
6	7 x .0612"	.184	40	45	.317	128	500 (Coil)	131	1000
8	7 x .0486"	.146	30	45	.247	93	500 (Coil)	98	1000
10	7 x .0395"	.116	30	45	.207	69	500 (Coil)	73	1000
12	7 x .0330"	.090	30	45	.177	54	500 (Coil)	57	1000
14	7 x .0274"	.073	30	45	.147	44	500 (Coil)	47	1000
16	7 x .0230"	.058	30	45	.127	36	500 (Coil)	40	1000
18	7 x .0192"	.045	30	45	.107	30	500 (Coil)	36	1000

* Subject to ± 2% tolerance in overall dimensions

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

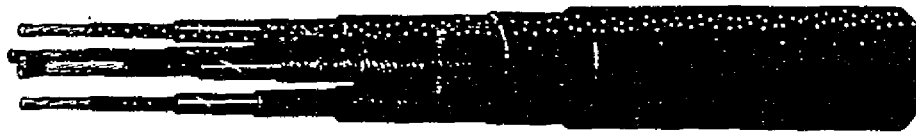
GENERAL CABLE CORPORATION . . ALL-ASBESTOS AND ASBESTOS-VARNISHED
CAMBRIC INSULATED WIRES AND CABLES

Catalog 37



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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



STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

ASBESTOS VARNISHED CAMBRIC CONTROL CABLES 600 Volts

Nom- inal Size A.W.G.	CONDUCTORS		Diameter Inches	INSULATION THICKNESS Minimum Average			Cot- ton Braid Thick- ness Mils	Tape Mils	Asbestos Braid Mils	Overall Diameter Inches	Wt. per 1000 Ft. Net Lbs.	STANDARD PACKAGES		Dielectric Test Voltage Volts
	Number	Con- struc- tion		First Asbestos Mils	Varn- ished Cambric Mils	Second Asbestos Mils						Feet	Wt. per 1000 Ft. Gross Lbs.	
9	1	19 x #22	.127	10	30	15	17	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	286	500 (Reel)	406	2000
9	4	19 x #22	.127	10	30	15	17	15	45	.780	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)	1419	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	15	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 $\pm 5\%$ 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)



**FLEXIBLE
CORDS
300 and
600 Volts**

STANDARD SIZES, DIMENSIONS, WEIGHTS AND PACKAGES

Nominal Size A.W.G.	CONDUCTORS		INSULATION THICKNESS Minimum Average			Cotton Braid Thickness Mils	Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	STANDARD PACKAGES		Dielectric Test Voltage Volts
	Construction	Diameter Inches	Varnished Cambric Mils	Asbestos Mils					Feet	Weight per 1000 Ft. Gross Lbs	
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

CONDUCTORS			INSULATION THICKNESS Minimum Average			Asbestos Braid Thick- ness Mils	Overall Diameter Inches	Weight per 1000 Ft. Net Lbs.	STANDARD PACKAGES			Dielectric Test Voltage Volts
Nominal Size A.W.G.	Construction	Diameter Inches	First Asbestos Mils	Varnished Cambric Mils	Second Asbestos Mils				Feet	Weight per 1000 Ft. Gross Lbs.		
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	.357	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.

GENERAL CABLE CORPORATION . . ALL-ASBESTOS AND ASBESTOS-VARNISHED
CAMBRIC INSULATED WIRES AND CABLES



REVISED
PAGE 29
June 1942

GC 02944

ASBESTOS and ASBESTOS- VARNISHED CAMBRIC SPECIFI- CATIONS

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 multi-conductor 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 di-

ameter—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)



ASBESTOS and ASBESTOS- VARNISHED CAMBRIC SPECIFI- CATIONS

(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: $2\frac{1}{2}$ times the rated voltage.
- (b) Asbestos-varnished cambric insulated wires and cables rated at 600 volts or more: $1\frac{1}{2}$ 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 $\frac{3}{4}$ in. O.D. and smaller shall be made with a ratchet micrometer having $\frac{1}{4}$ in. diameter faces. For cable larger than $\frac{3}{4}$ 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 $\frac{3}{8}$ 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 $\frac{1}{2}$ 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 $\frac{3}{4}$ 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.

ASBESTOS and ASBESTOS VARNISHED CAMBRIC SPECIFICATIONS

(Continued)

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.



ALLOW- ABLE CURRENT CARRYING CAPACI- TIES

(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	1332
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	563
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	..	..	..	.63

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



Size A.W.G.	HEAT AND MOISTURE-RESISTING INSULATION			HEAT-RESISTING INSULATION		
	Maximum Conductor Temperature			Maximum Conductor Temperature		
	125°C.	125°C.	125°C.	200°C.	300°C.	300°C.
	COPPER	NICKEL	MONEL	COPPER	NICKEL	MONEL
	AMPERES					
1	173	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 A1	TYPE A	
		Copper	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 . . ALL-ASBESTOS AND ASBESTOS-VARNISHED
CAMBRIC INSULATED WIRES AND CABLES

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GC 02950

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INSU-
LATED
COPPER,
NICKEL
and
MONEL
CON-
DUCTORS**

**Relative
Current
Carrying
Capacity***

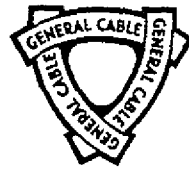
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