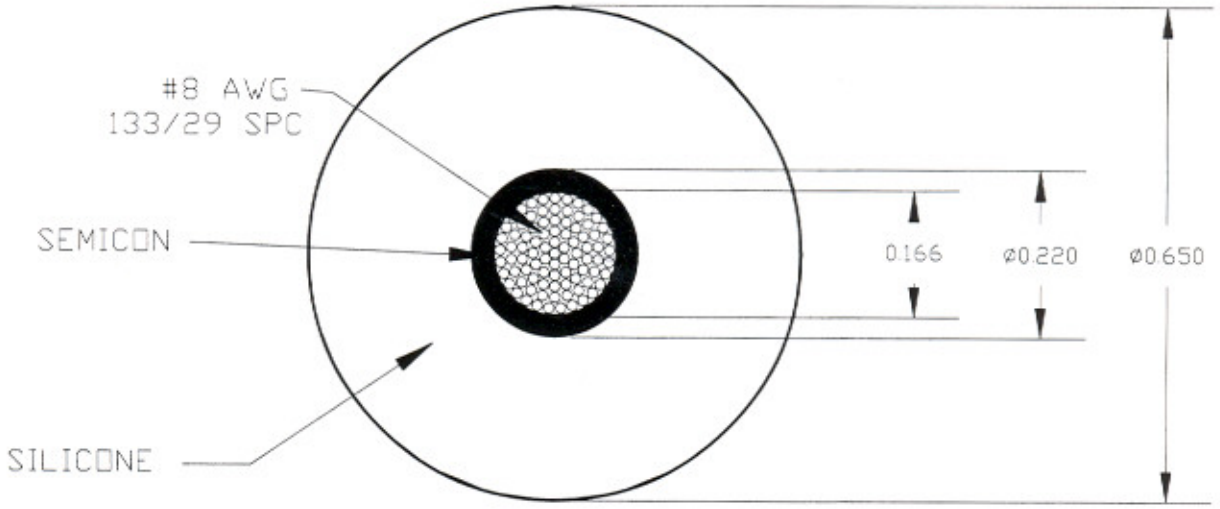
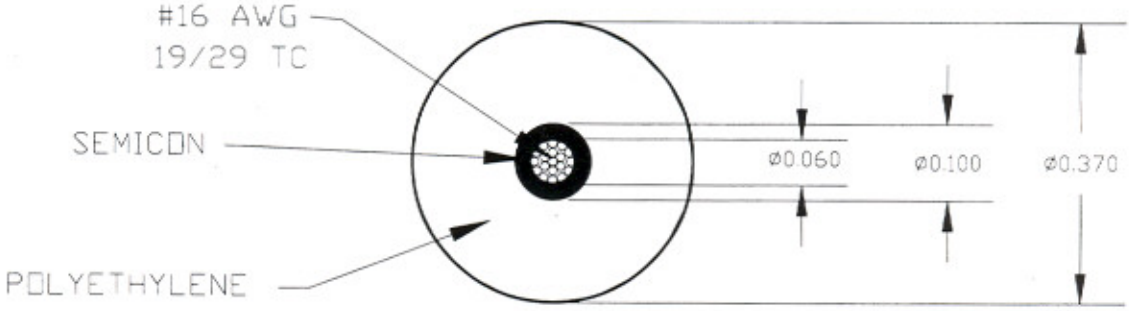
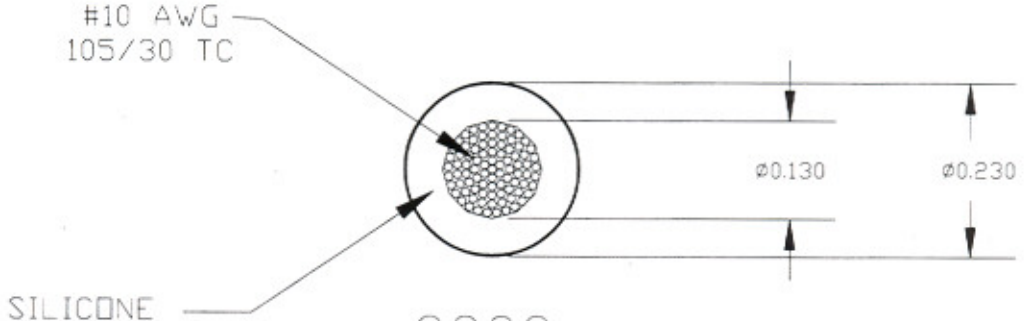


2062



2124A



2202

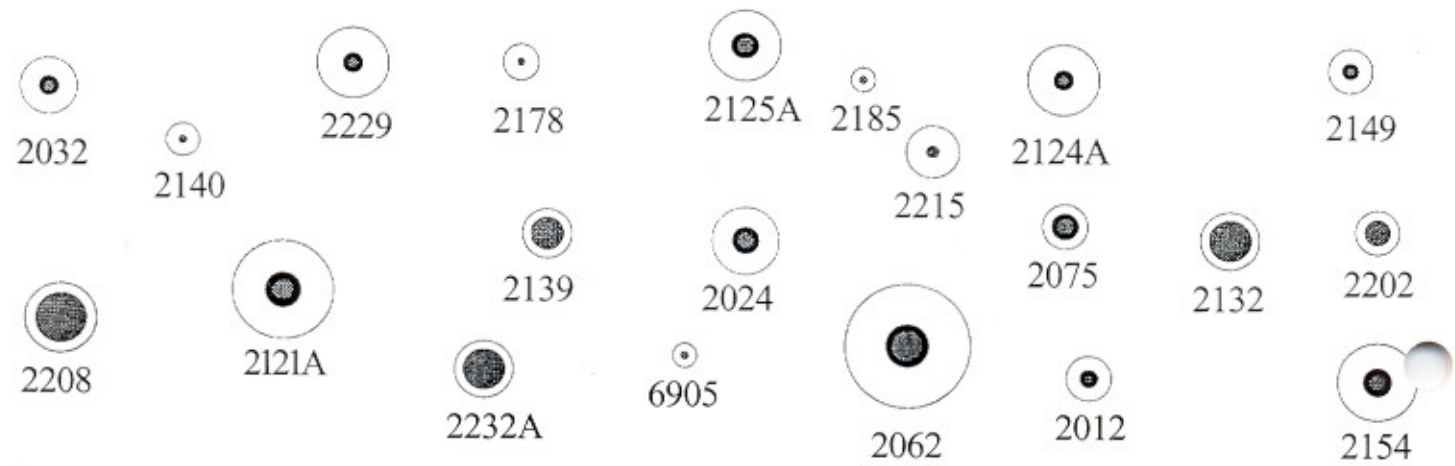
UNLESS OTHERWISE SPECIFIED	DRAWN D. A.	DATE	DIELECTRIC SCIENCES,INC CHELMSFORD, MASSACHUSETTS 01824
DIMENSIONS ARE IN INCHES TOLERANCE ON DECIMALS .xx .xxx ANGLES ±	CHECKED D. L.	DATE	
	APPROVED	DATE	UNSHIELDED CABLE SPECIFICATIONS
	MATERIAL AS NOTED		SIZE A / FSCM NO. 50509 / DWG NO. 2000 / REV 1
	FINISH		SCALE / SHEET OF

HIGH VOLTAGE UNSHIELDED CABLE SPECIFICATIONS

VOLTAGE		PART	CONDUCTOR SIZE					SEMICON		DIELECTRIC		
DC kV	AC kV	NUMBER	AWG	STRANDS	SQUARE mm	DIAMETER inches	DIAMETER cm	DIAMETER inches	DIAMETER cm	MATERIAL	DIAMETER inches	DIAMETER cm
10		2232A	#6	133/27 TC	13.30	0.210	0.53	N/A	N/A	LDHMW PE	0.300	0.76
10		6905	#22	19/34 SPC	0.32	0.032	0.08	N/A	N/A	FEP	0.105	0.27
13	5	2075	#12	19/25 SPC	3.31	0.090	0.23	0.135	0.34	Silicone	0.235	0.60
15		2208	#4	133/25 TC	6.53	0.257	0.65	N/A	N/A	Silicone	0.381	0.97
15		2132	#6	133/27 TC	13.30	0.210	0.53	N/A	N/A	Silicone	0.300	0.76
15		2139	#8	133/29 TC	8.37	0.166	0.42	N/A	N/A	Silicone	0.256	0.65
15		2202	#10	105/30 TC	5.26	0.130	0.33	N/A	N/A	Silicone	0.230	0.58
15		2185	#20	10/30 TC	0.52	0.036	0.09	N/A	N/A	Silicone	0.126	0.32
25		2140	#20	10/30 TC	0.52	0.036	0.09	N/A	N/A	Silicone	0.170	0.43
30		2215	#16	19/29 SPC	1.31	0.060	0.15	N/A	N/A	Silicone	0.275	0.70
30		2178	#20	10/30 TC	0.52	0.036	0.09	N/A	N/A	Silicone	0.186	0.47
40	15	2012	#18	19/30 SPC	0.83	0.050	0.13	0.090	0.23	Silicone	0.235	0.60
50	17	2032	#16	19/29 SPC	1.31	0.060	0.15	0.100	0.25	Silicone	0.295	0.75
60	20	2024	#12	19/25 SPC	3.31	0.090	0.23	0.135	0.34	Silicone	0.360	0.91
60	20	2149	#18	19/30 TC	0.83	0.050	0.13	0.080	0.20	LDHMW PE	0.230	0.58
80	25	2229	#12	19/25 SPC	3.31	0.090	0.23	0.135	0.34	Silicone	0.420	1.07
100	30	2062	#8	133/29 SPC	8.37	0.166	0.42	0.220	0.56	Silicone	0.650	1.65
100	30	2124A	#16	19/29 TC	1.31	0.060	0.15	0.100	0.25	LDHMW PE	0.370	0.94
100	30	2125A	#12	19/25 TC	3.31	0.090	0.23	0.130	0.33	LDHMW PE	0.370	0.94
110	35	2154	#12	19/25 TC	3.31	0.090	0.23	0.130	0.33	LDHMW PE	0.410	1.04
150	45	2121A	#12	19/25 TC	3.31	0.090	0.23	0.130	0.33	LDHMW PE	0.490	1.24

Specifications are subject to change without prior notice.

All drawing below are full scale



	IMPEDANCE ohms	CAPACITANCE pF/ft	MINIMUM BEND RADIUS		MINIMUM AMBIENT TEMP		MAXIMUM CONDUCTOR TEMP		WEIGHT	
			inches	cm	F	C	F	C	lb/ft	kG/m
	14	109	6.00	15.24	-60	-51	140	60	0.100	0.149
	49	31	1.40	3.56	-85	-65	200	93	0.010	0.015
	24	98	0.25	0.64	-85	-65	392	200	0.031	0.046
	13	133	1.50	3.81	-85	-65	300	149	0.160	0.238
	12	152	1.00	2.54	-85	-65	300	149	0.100	0.149
	15	125	1.00	2.54	-85	-65	300	149	0.070	0.104
	19	95	1.00	2.54	-85	-65	300	149	0.050	0.075
	42	43	0.50	1.27	-85	-65	300	149	0.010	0.015
	52	35	0.50	1.27	-85	-65	300	149	0.011	0.016
	51	36	0.50	1.27	-85	-65	350	177	0.043	0.064
	55	33	0.38	0.97	-85	-65	300	149	0.020	0.030
	41	56	0.38	0.97	-85	-65	392	200	0.030	0.045
	44	50	0.50	1.27	-85	-65	392	200	0.043	0.064
	38	57	0.50	1.27	-85	-65	392	200	0.075	0.112
	50	37	2.50	6.35	-60	-51	140	60	0.020	0.030
	45	46	0.50	1.27	-85	-65	392	200	0.100	0.149
	41	50	2.50	6.35	-85	-65	392	200	0.250	0.373
	61	30	5.00	12.70	-60	-51	140	60	0.050	0.075
	48	37	5.00	12.70	-60	-51	140	60	0.060	0.089
	50	37	6.00	15.24	-60	-51	140	60	0.070	0.104
	59	29	7.00	17.78	-60	-51	140	60	0.085	0.127

FORMULAS

Characteristic Impedance

$$Zo\ (ohms) = \frac{138}{\sqrt{K}\ \log_{10} D/d}$$

Capacitance

$$C\ (pF/ft.) = \frac{7.354K}{\log_{10} D/d}$$

Inductance (L)

$$L\ (microhenry/ft) = .140 \log_{10} D/d$$

Time Delay

$$Td\ (nanoseconds/ft.) = \sqrt{K}$$

Where:

C = capacitance
d = conductor diameter
D = dielectric diameter
K = dielectric constant
L = inductance
Td = time delay
Zo = characteristic impedance in ohms

HVT GROUP

Dielectric Sciences, Inc.

CABLE BROCHURE TERMINOLOGY

VOLTAGE (KV)
The recommended maximum AC or DC voltage that may be continuously applied to a wire in conformance with it's specifications. Some cables have been tested for operation above their rated voltage for a limited period. For pulsed operation or insulating dielectric environments, please consult factory.

IMPEDANCE (OHMS)
The average characteristic, or surge impedance of a coaxial cable is determined by the ratio of the outer diameter of the inner conductor to the inner diameter of the outer conductor and by the dielectric constant of the insulating material between the conductors.

CAPACITANCE
The measurement, in picofarads per foot, of the ability of a dielectric material to store electrical energy. Capacitance values for unshielded cables assume a uniform conductive surrounding.

CONDUCTOR SIZE
AWG: American Wire Gauge The standard for copper wire sizes, specifying the diameter, The smaller the AWG number, the larger the wire diameter.
Strands: The first number signifies the number of wires in the conductor. The second number signifies the wire gauge size of the strand. The letters following represent the type of plating on the copper conductor,
TC: tinned copper
SPC: silver plated copper
NPC: nickel plated copper
BC: bare copper
Square mm: The metric measurement of copper in the conductor.
Diameter: The outside diameter of the conductor in inches or centimeters.
Semicon: A semi-conducting material that has a resistance characteristic between that of insulators and conductors. When bonded between two elements of a cable, the adjacent surfaces of the two elements will maintain equal potential, providing uniform voltage stress, thus reducing internal corona. Semicon is used both for the inner conductor shielding and between the dielectric insulation and metallic shield.

DIELECTRIC
A non-conducting, insulating material with a dielectric constant, which is the ratio of capacitance of the material to the capacitance of air.
Material: specifies type of compound used.
FEP: fluorinated ethylene propylene
HMW: high molecular weight
LD: low density
PE: polyethylene
Diameter: outside dimension over dielectric in inches and centimeters

PART NUMBER
The four digit part number characterizes the basic core of the cable and can be followed by a suffix indicating the insulation jacket material or type of construction.

OUTSIDE DIAMETER
The measurement in inches and centimeters of the finished cable.

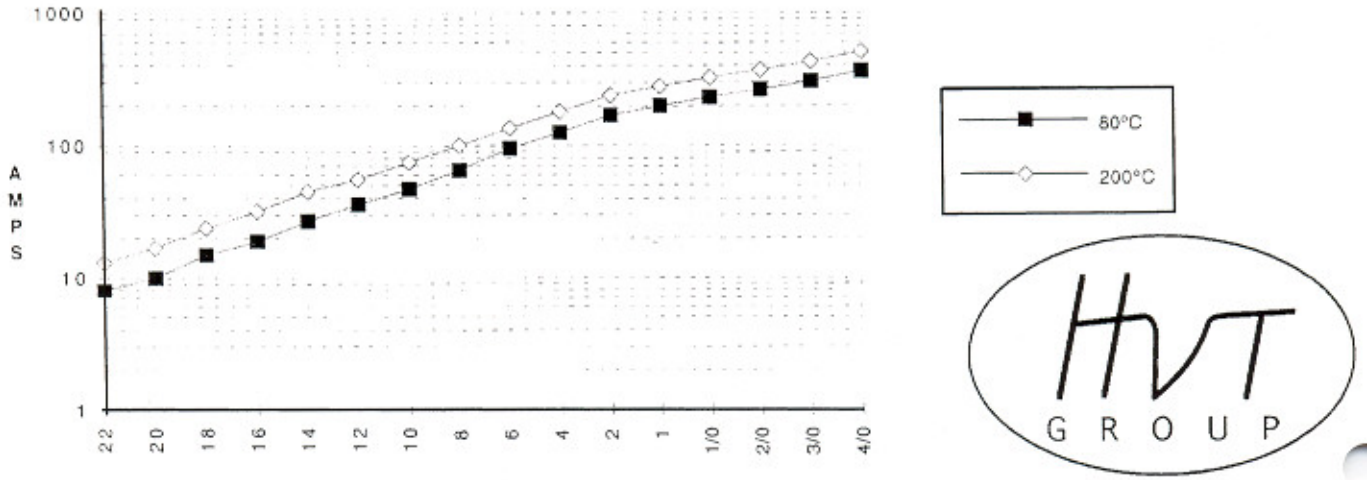
MINIMUM BEND RADIUS
The measurement of the flexibility of the finished cable determined by the strands in the conductor and the material used in the dielectric and jacket.

MINIMUM AMBIENT TEMPERATURE
The measurement, in F and C, of the safe environmental operating temperature of the finished cable determined by the dielectric materials used in the insulation

MAXIMUM CONDUCTOR TEMPERATURE
The maximum operating temperature in F and C of the finished cable determined by the size and types of materials in the cable.

WEIGHT
The weight in pounds per foot, and kilograms per meter of the finished cable.

AMPS vs AWG vs TEMPERATURE



Single Conductor in Free Air 30°C Ambient Temperature. Reference Only

HVT GROUP

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