

INTRODUCTION

LewVac's Kapton® insulated wires are suitable for both HV and UHV applications at temperatures ranging from -269 to 200°C with maximum bakeout temperature of 260°C. Silver plated copper conductors are employed (except in cryogenic wire where stainless steel is used and thermocouple pair) with Kapton® type F insulation and dielectric. Wires are heat treated to minimise trapped volumes and prepared ready for use in the most demanding UHV environments.

GENERAL SPECIFICATIONS FOR KAPTON® TYPE F FILM

Excellent chemical resistance (except strong bases)

Moisture absorption @ 50% RH = 1.3%

Radiation resistance = 10⁷ rads* (* Wires are wrapped and will withstand this dosage only in non flexing applications)

Thermal		Mechanical		Electrical	
Maximum operating temp	200°C	Density	1.53g/cm ³	Dielectric constant	3.1
Maximum bakeout temp	260°C	Initial tear	13.4N	Dielectric strength	80kV/mm
Minimum operating temp	-269°C	Propagating tear	0.08N	Dissipation factor	0.0015
Zero strength temp	1088K	Tensile strength	10MPa		
Flammability	Will not propagate flame No after flame	Tensile modulus	2.5GPa		
Limiting oxygen index	37	Elongation	75%		
Shrinkage	0.1 - 0.25% (after 30mins @ 150°C)				

Single Core Cables

Part code	Conductor diameter (mm)	Conductor CSA (mm ²)	Maximum Wire OD (mm)	Wire length(m)	Outer finish	Voltage rating AC (rms)	Voltage rating DC	Current rating *	Resistance Ω/km @20°C	Impedance
KAPW1X015	0.15	0.018	0.17	10	Kapton®	450V	1.5kV	0.25A	N/A	N/A
KAPW1X025	0.25	0.049	0.55	10	Kapton®	600V	2kV	2A	377	N/A
KAPW1X040	0.40	0.126	0.64	10	Kapton®	600V	2kV	3A	146	N/A
KAPW1X050	0.50	0.196	0.76	10	Kapton®	600V	2kV	4A	88.3	N/A
KAPW1X061	0.60	0.283	0.9	10	Kapton®	600V	2kV	7A	64.3	N/A
KAPW1X1016	1.016	0.811	1.27	5	Kapton®	600V	2kV	14A	21.85	N/A
KAPW1X942	0.942	0.697	1.48	10	Kapton®	1kV	5kV	13A	25.8	N/A

Single Core Cable - Cryogenic - Stainless Steel Conductor

Part code	Conductor diameter (mm)	Conductor CSA (mm ²)	Maximum Wire OD (mm)	Wire length(m)	Outer finish	Voltage rating AC (rms)	Voltage rating DC	Current rating *	Resistance Ω/km @20°C	Impedance
KAPW1X050C	0.508	0.202	1.57	5	Kapton®	1KV	3kV	0.25A	3500	N/A

* Based on temp rise of 40°C (single wire in air)

Stranded Core Cables

Part code	Conductor diameter (mm)	Conductor CSA (mm ²)	Maximum Wire OD (mm)	Wire length(m)	Outer finish	Voltage rating AC (rms)	Voltage rating DC	Current rating *	Resistance Ω/km @20°C	Impedance
KAPW7X008	7 x 0.08	0.035	0.54	10	Kapton®	600V	2kV	1.5A	558	N/A
KAPW7X0106	7 x 0.1016	0.056	0.55	10	Kapton®	600V	2kV	2A	353	N/A
KAPW7X0127	7 x 0.127	0.087	0.51	10	Kapton®	600V	2kV	2A	244	N/A
KAPW7X0152	7 x 0.152	0.127	0.64	10	Kapton®	600V	2kV	3A	159	N/A
KAPW7X0203	7 x 0.203	0.227	0.90	10	Kapton®	600V	2kV	4A	88.3	N/A
KAPW7X015	7 x 0.15	0.127	1.58	10	Kapton®	3kV	10kV	4A	159	N/A
KAPW7X031	7 x 0.3175	0.554	2.28	5	Kapton®	10kV	30kV	11A	32.18	N/A
KAPW19X010	19 x 0.100	0.149	0.67	10	Kapton®	250V	1kV	2.5A	119	N/A
KAPW19X0127	19 x 0.127	0.241	1.05	10	Kapton®	600V	2kV	6A	58.6	N/A
KAPW19X0178	19 x 0.2	0.597	1.30	10	Kapton®	600V	2kV	8A	32.5	N/A
KAPW19X0229	19 x 0.229	0.783	1.55	10	Kapton®	600V	2kV	11A	20.6	N/A
KAPW19X0254	19 x 0.254	0.963	1.80	10	Kapton®	600V	2kV	14A	14.3	N/A
KAPW19X0279	19 x 0.279	1.162	1.98	10	Kapton®	600V	2kV	16A	11.4	N/A
KAPW19X0381	19 x 0.381	2.166	2.55	10	Kapton®	600V	2kV	25A	6.2	N/A

Twisted Pair Cables

Part code	Conductor diameter (mm)	Conductor CSA (mm ²)	Maximum Wire OD (mm)	Wire length(m)	Outer finish	Voltage rating AC (rms)	Voltage rating DC	Current rating *	Resistance Ω/km @20°C	Impedance
KAPWTP7X0127	(2x) 7 x 0.127	0.087	1.01	2	Kapton®	600V	2kV	2A	244	N/A
KAPWTP7X0203	(2x) 7 x 0.203	0.227	1.52	2	Kapton®	600V	2kV	4A	88.3	N/A
KAPWTP19X0127	(2x) 19x0.127	0.241	1.78	2	Kapton®	600V	2kV	6A	58.6	N/A
KAPWTP19X0229	(2x) 19x0.229	0.783	2.54	2	Kapton®	600V	2kV	11A	20.6	N/A

Screened Twisted Pair Cables

Part code	Conductor diameter (mm)	Conductor CSA (mm ²)	Maximum Wire OD (mm)	Wire length(m)	Outer finish	Voltage rating AC (rms)	Voltage rating DC	Current rating *	Resistance Ω/km @20°C	Impedance
KAPWTPS7X0127	(2x) 7 x 0.127	(2x) 0.013	1.52	10	Ag plated Cu braid	600V	2kV	2A	244	N/A
KAPWTPS19X0381	(2x) 19 x 0.38	(2x) 2.155	5.08	2	Ag plated Cu braid	600V	2kV	25A	6.2	N/A
KAPW2TPS7X0127-500	(4x) 7 x 0.127	(4x) 0.013	2.54	0.5	Ag plated Cu braid	600V	2kV	2A	6.2	N/A
KAPW2TPS7X0127-1M	(4x) 7 x 0.127	(4x) 0.013	2.54	1	Ag plated Cu braid	600V	2kV	2A	6.2	N/A
KAPW2TPS7X0127-2.5M	(4x) 7 x 0.127	(4x) 0.013	2.54	2.5	Ag plated Cu braid	600V	2kV	2A	6.2	N/A
KAPW4TPS7X0127-500	(8x) 7 x 0.127	(8x) 0.013	2.79	0.5	Ag plated Cu braid	600V	2kV	2A	6.2	N/A
KAPW4TPS7X0127-1M	(8x) 7 x 0.127	(8x) 0.013	2.79	1	Ag plated Cu braid	600V	2kV	2A	6.2	N/A
KAPW4TPS7X0127-2.5M	(8x) 7 x 0.127	(8x) 0.013	2.79	2.5	Ag plated Cu braid	600V	2kV	2A	6.2	N/A
KAPW6TPS7X0127-500	(12x) 7 x 0.127	(12x) 0.013	3.81	0.5	Ag plated Cu braid	600V	2kV	2A	6.2	N/A
KAPW6TPS7X0127-1M	(12x) 7 x 0.127	(12x) 0.013	3.81	1	Ag plated Cu braid	600V	2kV	2A	6.2	N/A
KAPW6TPS7X0127-2.5M	(12x) 7 x 0.127	(12x) 0.013	3.81	2.5	Ag plated Cu braid	600V	2kV	2A	6.2	N/A
KAPW12TPS7X0127-500	(24x) 7 x 0.127	(24x) 0.013	4.67	0.5	Ag plated Cu braid	600V	2kV	2A	6.2	N/A
KAPW12TPS7X0127-1M	(24x) 7 x 0.127	(24x) 0.013	4.67	1	Ag plated Cu braid	600V	2kV	2A	6.2	N/A
KAPW12TPS7X0127-2.5M	(24x) 7 x 0.127	(24x) 0.013	4.67	2.5	Ag plated Cu braid	600V	2kV	2A	6.2	N/A

* Based on temp rise of 40°C (single wire in air)

Thermocouple Twisted Pair Cable

Part code	Conductor diameter (mm)	Conductor CSA (mm ²)	Maximum Wire OD (mm)	Wire length(m)	Outer finish	Voltage rating AC (rms)	Voltage rating DC	Current rating *	Resistance Ω/km @20°C	Impedance
KAPWTCK1X020	(2x) 0.20	(2x) 0.031	0.39	2	Kapton®	Signal	Signal	Signal	N/A	N/A
KAPWTCK1X025	(2x) 0.25	(2x) 0.05	0.51	10	Kapton®	Signal	Signal	Signal	N/A	N/A

Stranded Core Coaxial Cables

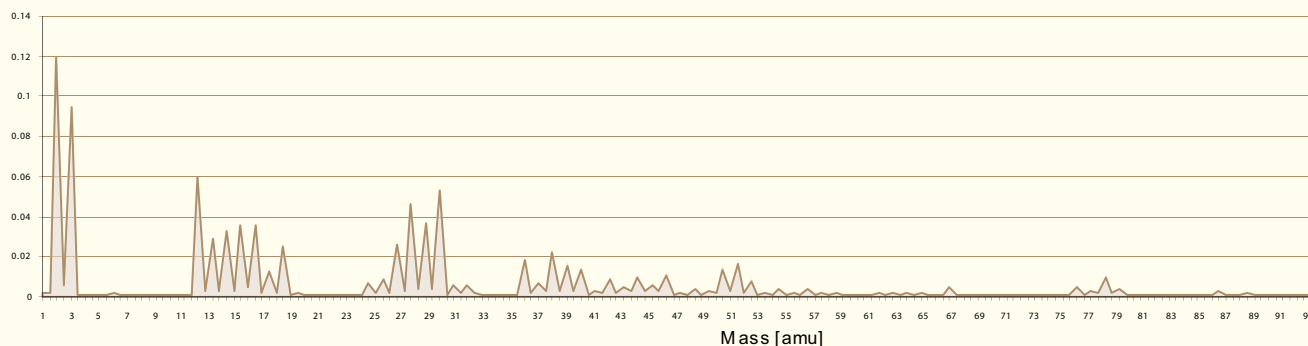
Part code	Conductor diameter (mm)	Conductor CSA (mm ²)	Maximum Wire OD (mm)	Wire length(m)	Outer finish	Voltage rating AC (rms)	Voltage rating DC	Current rating *	Resistance Ω/km @20°C	Impedance
KAPWC7X0038	7 X 0.038	0.008	1.27	5	Kapton®	600V	2kV	0.5A	47.8	50Ω
KAPWC7X010	7 X 0.1	0.055	1.7	5	Kapton®	600V	2kV	1.5A	55	50Ω
KAPWC7X0127	7 x 0.317	0.552	3.18	5	Kapton®	10kV	30kV	9A	32.18	50Ω
KAPW50OHM	7 x 0.15	0.124	2.35	5	Kapton®	600V	2kV	4A	159	50Ω
KAPWC1X025	0.25	0.049	1.04	10	Ag plated Cu braid	600V	2kV	2A	377	32Ω
KAPWC7X020	7 x 0.2	0.22	1.48	10	Kapton®	600V	2kV	6A	88.3	18Ω

Triaxial Cable

Part code	Conductor diameter (mm)	Conductor CSA (mm ²)	Maximum Wire OD (mm)	Wire length(m)	Outer finish	Voltage rating AC (rms)	Voltage rating DC	Current rating *	Resistance Ω/km @20°C	Impedance
KAPWT1X0317-1M	0.317	0.078	2.41	5	Kapton®	1kV	3kV	2.5A	229	50Ω
KAPWT7X015-##	7 x 0.15	0.124	4.32	0.5, 1	PEEK braid	600V	2kV	3A	159	N/A

MASS SPECTRUM OF KAPTON® TYPE F FILM

Ion current E-9A



* Based on temp rise of 40°C (single wire in air)