RayFlite High Voltage Power Cables

Engineered for Next-Generation Aerospace Applications
Raychem Wire and Cable

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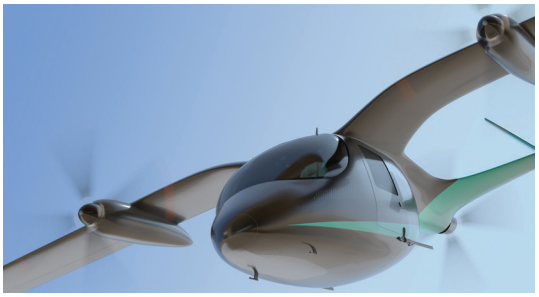


HIGH PERFORMANCE

- Hybrid electric propulsion systems
- Battery and hydrogen fuel cell technologies
- UAV power distribution
- High-voltage aerospace applications

Powering the Future of Aerospace

TE Connectivity's (TE) RayFlite power cables represent a breakthrough in high voltage power distribution technology. Flexible, highly conductive and insulated for application at altitude, RayFlite power cables are specifically designed for the evolving needs of battery powered and hybrid electric aircraft applications.

Why Choose RayFlite Power Cables?

- Specifically designed for high-voltage, high-altitude applications by engineers that understand the dynamics of power, safety, and propulsion
- TE's RayFlite power cables have been tested and validated in our specialized high voltage lab in Swindon, UK
- Our cables are bespoke designs specifically engineered for aerospace applications
- Quantified performance values for total system reliability
- Complete connectorized system with TE's 987 connectors. Tested for partial discharge inception voltage (PDIV) in complete assembly

Target Markets

- Aerospace
- Urban Air Mobility
- Unmanned Vehicles

Applications

- Hybrid electric propulsion systems
- Battery and hydrogen fuel cell technologies
- eVTOL, eCTOL and eSTOL Urban Air Mobility
- UAV power distribution
- High-voltage aerospace applications

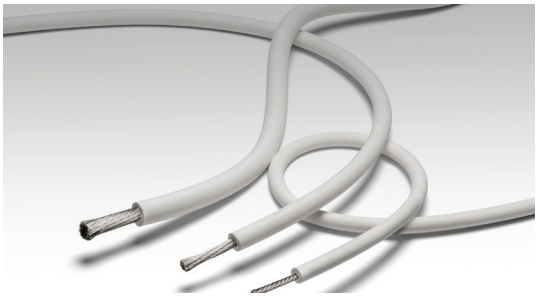
Partner with TE Connectivity

With decades of experience in critical aerospace applications, TE delivers solutions that meet the evolving needs of the aerospace industry. Contact us today to learn how RayFlite power cables can support your next-generation aircraft design.

For more information or to request samples, contact your TE Connectivity representative today.

RayFlite RFHVE Series Cables

1.5 kV AC PDIV at 40,000 ft, 170°C



RayFlite RFHVE series high voltage ETFE power cables are designed to control partial discharge (PDIV) at high altitudes suitable for commercial and military aerospace applications.

Key Features and Benefits

Excellent Flexibility

- Highly flexible conductor and insulation material
- 3x OD bend radius
- Easier installation in tight spaces, reducing assembly time

Altitude-Tested Performance

- Tested at high altitudes for partial discharge
- 1.5 kV AC PDIV at 40,000 ft
- 2 kV AC PDIV at 30,000 ft
- 4 kV AC PDIV at sea level

Enhanced Design

- Modified ETFE insulation
- Extruded jacket
- High strand nickel coated copper conductor
- Operating temperature rating: 170°C for 10,000 hours
- Voltage breakdown > 30 kV

Target Markets

- Commercial aerospace
- Unmanned aerial vehicles

Applications

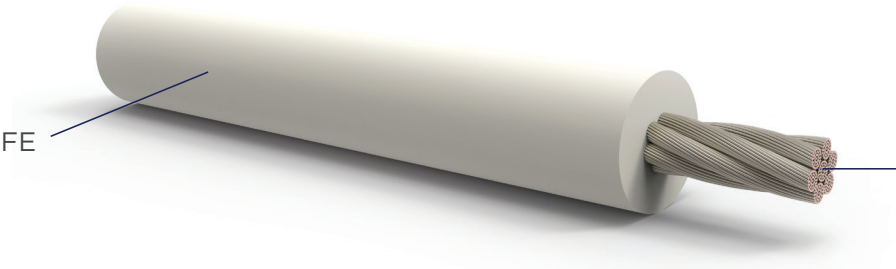
- Military and commercial air hybrid electric power, e.g. hydrogen fuel cell, hybrid battery technology

Data for cable at 162 mbar and 170°C, 5X mandrel

Cable	PDIV*	PDEV
RFHVE-0418-00-9	1650 V	1300 V

***Partial Discharge Inception Voltage** is dependent on several factors including altitude, ambient temperature and how the cable is installed. The data chart shows typical partial discharge data (PDIV and PDEV) for cable tested at 43,000 feet and 170°C, while wrapped around a 5X diameter mandrel.

Insulation
Modified Flexible ETFE



Conductor
High Strand Nickel Coated Copper

Construction Details

Part Description	Conductor				Finished Cable				
	Wire Size (AWG)	Conductor Stranding No x AWG	Max. Diameter (mm)	Maximum DC Resistance @ 20°C (Ohms/km)	Min. Wall Thickness (mm)	Outer Diameter (mm)			Max. Weight (kg/km)
						Lower Spec Limit	Nom.	Upper Spec Limit	
RFHVE-0418-8-*	8	1078 x 38	4.57	2.33	3.10	11.55	11.90	12.26	256
RFHVE-0418-6-*	6	1764 x 38	5.61	1.57	3.10	12.59	12.97	13.36	331
RFHVE-0418-4-*	4	1666 x 36	7.37	1.05	3.10	14.35	14.78	15.22	445
RFHVE-0418-2-*	2	2646 x36	8.81	0.62	3.10	15.79	16.26	16.75	603
RFHVE-0418-0-*	0	4256 x 36	10.92	0.43	3.10	17.90	18.44	18.99	836
RFHVE-0418-00-*	00	5320 x 36	12.10	0.33	3.10	19.08	19.65	20.24	995

The '*' in the part number shall be replaced by a standard color code designator in accordance with Mil Std 681. 'e.g. RFHVE-0418-8-9, White Insulation. Standard Color: White Insulation. Other colors available upon request.

RayFlite RFFLX Series Cables

1kV AC PDIV at 15,000 ft, 200°C

RayFlite RFFLX series high voltage radiation cross linked ETFE power cables are designed for flexibility with weight in mind for Urban Air Mobility and UAV applications to control partial discharge (PDIV and PDEV) caused by high voltages at tested altitude and voltage. With braided, jacketed versions they also offer excellent protection from EMI and lightning strikes.

Key Features and Benefits

Excellent Flexibility

- Highly stranded flexible conductor and insulation material
- Modified insulation materials to improve flexibility
- 3x OD bend radius
- Easier installation in tight spaces, reducing assembly time
- Tested for flex endurance on bespoke equipment designed to simulate propellor transition during vertical take off to flight for eVTOL aircraft

Flex endurance test data available on request or tailored to customer needs

Altitude-Tested Performance

- Tested at high altitudes for partial discharge
- 1kV AC PDIV at 15,000 ft
- 0.7kV AC PDIV at 15,000 ft

Enhanced Design

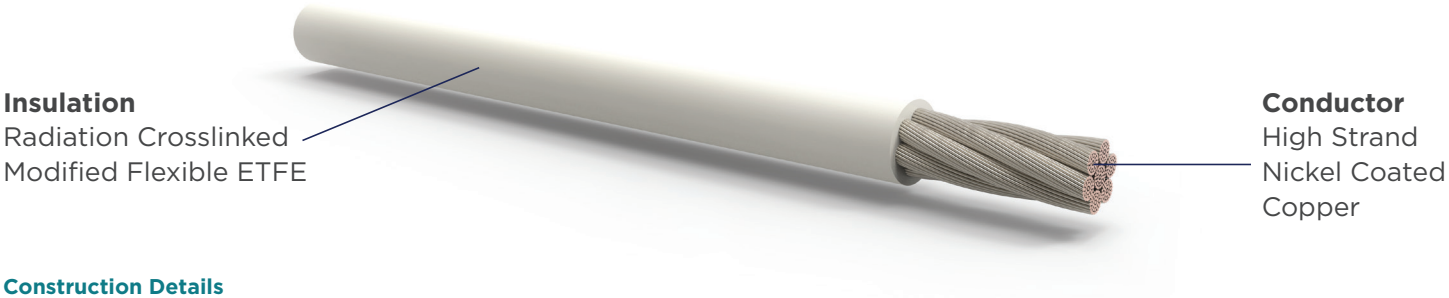
- Modified radiation cross linked ETFE insulation
- Lightweight, thin wall extruded jacket
- High strand nickel coated copper conductor
- Operating temperature rating: 200° C for 10,000 hours
- Braided, jacketed version available to offer EMI and lightning strike protection

Target Markets

- Urban Air Mobility (eVTOL, eCTOL and eSTOL)
- Unmanned Autonomous Vehicle (UAV) Aircraft/Drones

Applications

- Power distribution for electric powered light aircraft where high voltages are required



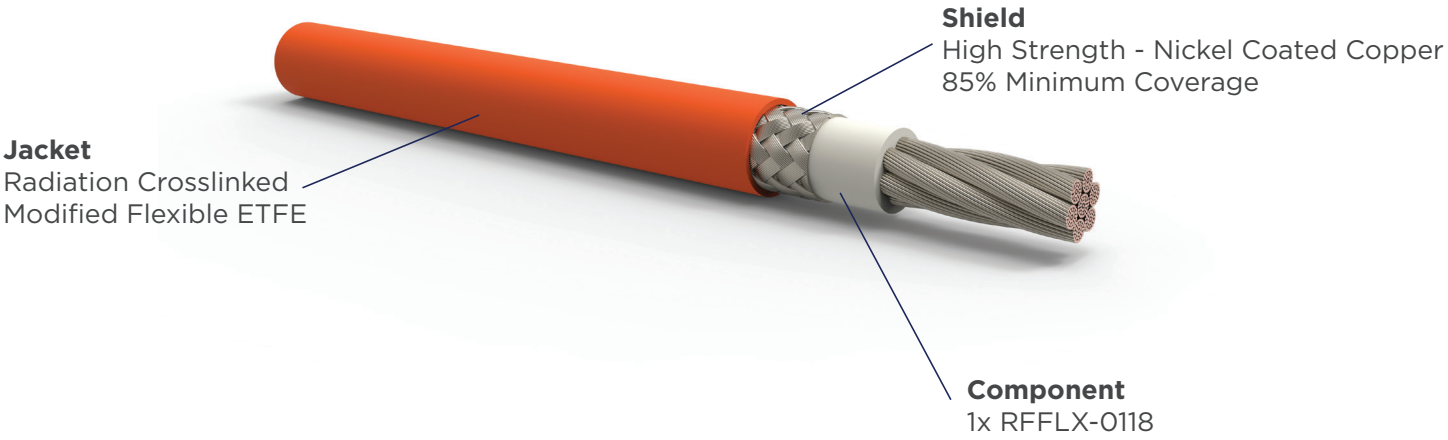
Construction Details

Part Description	Conductor				Finished Cable						
	Wire Size (AWG)	Conductor Stranding No x AWG	Max. Diameter (mm)	Maximum DC Resistance @ 20°C (Ohms/km)	Insulation Wall Thickness (mm)		Outer Diameter (mm)			Target Weight (kg/km)	Max. Weight (kg/km)
					Min.	Nom.	Lower Spec Limit	Target	Upper Spec Limit		
RFFLX-0118-8-*	8	1078 x 38	4.57	2.33	0.53	0.60	5.36	5.51	5.87	99.0	108.6
RFFLX-0118-6-*	6	1764 x 38	5.61	1.57	0.53	0.60	6.30	6.49	6.91	150.3	163.9
RFFLX-0118-4-*	4	1666 x 36	7.37	1.05	0.53	0.60	7.71	8.09	8.67	220.1	245.6
RFFLX-0118-2-*	2	2646 x36	8.81	0.62	0.66	0.74	9.80	9.97	10.41	359.2	383.6
RFFLX-0118-0-*	0	4256 x 36	10.92	0.43	0.76	0.89	11.75	12.19	12.77	542.4	584.0
RFFLX-0118-00-*	00	5320 x 36	12.10	0.33	0.94	1.07	13.38	13.73	14.38	686.5	736.7

The '*' in the part number shall be replaced by a standard color code designator in accordance with Mil Std 681. 'e.g. RFFLX-0118-8-9, White Insulation. Standard Color: White Insulation. Other colors available upon request.

RayFlite RFFLX Series Cables

1 kV AC PDIV at 15,000 ft, 200°C
Shielded Jacketed Cable



Construction Details

Part Description	Wire Size (AWG)	Shield Size (mm)	Jacket Thickness (mm)		Overall Diameter (mm)			Nom. Weight (kg/km)	Max. Weight (kg/km)
			Min.	Nom.	Min.	Nom.	Max.		
RFFLX-1118-8-*	8	0.127	0.41	0.46	6.73	6.98	7.42	134.3	153.1
RFFLX-1118-6-*	6	0.127	0.41	0.46	7.67	7.96	8.46	191.3	216.7
RFFLX-1118-4-*	4	0.127	0.53	0.58	9.35	9.82	10.52	276.7	322.6
RFFLX-1118-2-*	2	0.127	0.53	0.58	11.43	11.70	12.28	428.0	471.8
RFFLX-1118-0-*	0	0.127	0.66	0.71	13.63	14.17	14.93	634.6	706.6
RFFLX-1118-00-*	00	0.127	0.66	0.71	15.26	15.71	16.54	789.7	876.3

The '*' in the part number shall be replaced by a standard color code designator in accordance with Mil Std 681. 'e.g. RFFLX-1118-8-9-3, White Insulation, Orange Jacket.
Standard colors: White Insulation, Orange Jacket. Other colors available upon request.

Compatible Products

987 Series Engine Connectors

- Based on highly reliable 983 series connector technology
- Lightweight by optimum insert arrangement
- Contact latching with safety pin protection
- Helps withstand vibration under harsh and demanding conditions

COPALUM Lite Terminals

- Up to 60% weight savings vs. copper terminals
- Full qualification for use in commercial aircraft
- Single-step crimp for conductor termination and watertight wire sealing
- Grease-free COPALUM dry crimp technology

983 Series Connectors

- Self-locking system
- High temperature operating (260°C)
- Fire-resistant inserts (thermoset and fluorinated silicon)
- Fluid resistant inserts

Heat Shrink Molded Boots

- Self-sealing for water-resistance (sealant coated parts only)
- Temperature and solvent resistant
- Heat shrinkability for range taking
- Materials are mil-spec qualified

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Notes

Connect With Us

We make it easy to connect with our experts and are ready to provide all the support you need.
Visit te.com/support to chat with a Product Information Specialist.

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