



Airport lighting cable

CEDD® Airfield Eca 1.2 Direct Buried 2 kV

Article number: 39006

23-01-2024

Description

TKF CEDD® Direct Buried

Introduction

The CEDD® Direct Buried cable is part of the CEDD® Airfield Ground Lighting system and is designed for direct installation in soil, tubes or ducts. It consists of a twisted pair assembly of two 6,8 mm² insulated and sheathed conductors covered by a hydro barrier filler and chemical resistant outer sheath with tough mechanical properties.

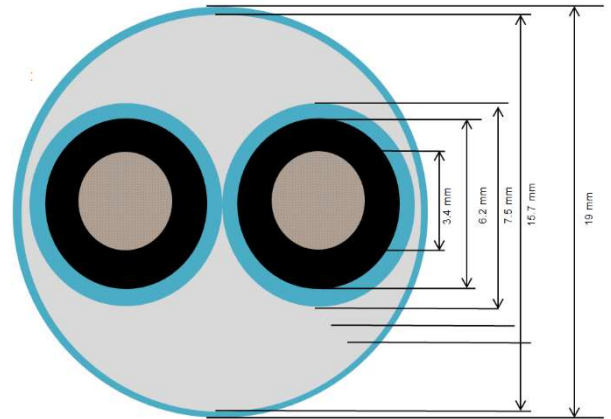
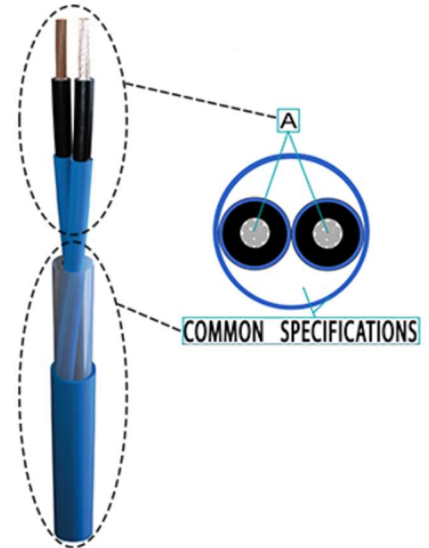
The mechanical design of the construction, in combination with the applied materials, results in a cable covering the relevant airfield lighting cable standards in addition to the CEDD® system needs for installation, power transmission and data transfer.

The CEDD® Airfield cable is designed and tested to the functional requirements of the FAA L-824, FAA AC 150/5345-7F, ANSI/ICEA S-95-658, and NEMA WC70 standards for Airfield Lighting cables..

Handling and installation of the cable

To allow installation of the free twisted pair cores inside the nodes, the outer sheath and PE filler have to be removed, using a window cut method. To avoid ingress of water or chemicals the edges from the cut have to be sealed with CEDD® repair kit solution.

In cable installation, care shall be taken not to exceed the maximum pulling force of 620 N. When the cable is pulled or moved over rough surface areas, such as Tarmac, special care should be given to protect the cable against abrasion. If the cable is fed into tubes, the tube should be smooth, free of debris and have a smooth opening.





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Trading information

Product group	Airport lighting cable
Type	CEDD Airfield Eca 1.2 Direct Buried 2 kV
Net. Weight	0.414 kg/m
Sheath marking	{Length} TKF - TKH Airport Solutions CEDD ® Airfield U20-00178 R0 - 2 x 6,8 mm ² - 2 kV - {Batch} {Year}

Trade lengths

Minimal order

1 meter	(39006 / 8713182309770)	1 MTR
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Construction characteristics

Standardization	Gen. FAA L824/ ICEA S-95-658-2009 / NEMA WC 70-2009
Number of cores	2
Nominal cross section conductor	6.8 mm ²
Conductor material, according to IEC 60228	Tinned Copper
Shape of conductor	Round
Conductor category, according to IEC 60228	Class 5
Insulation Material	XLPO (E-2 acc. to ANSI/ICEA S-95-658 table 3)
Diameter over outer sheath	19 mm
Outer sheath thickness	1,65 mm
Material Outer Sheath	PVC
Diameter over Filler	15.7 mm
Diameter over CEDD core	7.5 mm
Insulation wall thickness	1.38 mm
Outersheath CEDD core thickness	0.62 mm
Twisted pair overall diameter	15 mm
Twisted pair twists per Meter	Randomized twist length with 5 twists/meter
Flame retardance	IEC 60332-1-2
CPR Class	Eca
Colour outer sheath	Blue, close to RAL 5005

Electrical characteristics

Maximum rated circuit voltage phase to phase (U)	2 kV
Voltage test completed cable (100%)	10 kV AC during 5 minutes
Voltage test insulation (100%)	10 kV AC
Insulation Resistance	typically >10 GΩ/km



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DC Conductor resistance @ 20°C	< 2.7 Ω/km
AC Conductor resistance @ 20kHz, 90°C	< 6.0 Ω/km
Mutual Capacitance (in air) @ 20 kHz	46 nF/km
Mutual Inductance @ 20 kHz	0.66 mH/km
Attenuation @ 20kHz (in air)	0.4 dB/km
Attenuation @ 400kHz (in air)	2.6 dB/km
Attenuation @ 1300kHz (in air)	7.8 dB/km
Relative permittivity ϵ_r (single core in air)	Typically 2,47

Values Insulation Resistance Test after installation

IR>10 GΩ /km	Circuit is ok
IR> 2 < 10 GΩ /km	Circuit requires investigation
IR< 2 GΩ /km	Circuit not ok, high probability cable damage

Installation and operation properties

Minimum bending radius after installation @-40C to +70C	60 mm
Minimum bending radius during installation @0C to +50C	60 mm
Tensile load (max)	620 N
Crush Resistance (max)	10000 N
Conductor temperature (max)	90° C
Installation temperature (min/max)	0 / +40°C
Operating temperature (min/max)	-40 / +75°C
Emergency overload temperature (max)	130° C

Chemical resistance	Test Method	Test Duration	Result
Jet Fuel (UN1863)	IEC 60811:2012	4 h @ 70°C	Pass
		24 h @ 70°C	Pass
Airplane De-icing fluid (Propylene Glycol)	IEC 60811:2012	4 h @ 80°C	Pass
		24 h @ 80°C	Pass
Airplane De-icing fluid (Ethylene Glycol)	IEC 60811:2012	4 h @ 80°C	Pass
		24 h @ 80°C	Pass
Runway De-icing (Potassium Acetate, Clearway®)	IEC 60811:2012	4 h @ 50°C	Pass
		24 h @ -18°C	Pass
Diesel (EDC 95-11)	IEC 60811:2012	4 h @ 80°C	Pass
		24 h @ 80°C	Pass
Oil (IRM 902)	IEC 60811:2012	4 h @ 80°C	Pass
		24 h @ 80°C	Pass
Blowing Lubricant	IEC 60811:2012	4 h @ 80°C	Pass
		24 h @ 80°C	Pass
Runway rejuvenator (Eshalite healtack)	ϵ_r change	48 h @ 50°C	< 1%

Pass = mechanical properties outer sheath material comply with table 4.2 in ANSI/NEMA WC 70-2009/ICEA S-95-658-2009 for oil resistance requirements.



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Environmental Resistance	Test Method	Condition/Duration	Result
Sunlight resistance (UV)	UL 1581:1200	720 hours	Pass
Cold vibration	FAA Advisory Circular 150/5345-46D paragraph 4.5.5.1	-40°C	Pass
Cold bend	IEC 60811-504:2014	-40°C	Pass
Cold impact	IEC 60811-506:2014	-35°C	Pass