



Quality Through Experience

# AIRFIELD LIGHTING CABLES



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**Rev No. AC-01-2025-R2**

# Airfield Lighting Cables



Quality Through Experience



**R** Lloyd's Register

### Type Approval Certificate Extension

This extends the Certificate No. 17 00002 to the additional products as detailed and referenced within.

This certificate is valid for:

<b>PRODUCER</b>	LITELE BALKANSKI PROJEKTI I SOCIETI A.D.		
<b>PLACE OF PRODUCTION</b>	Makedonski Regionalni Industrijski Park, 4. Cesta, 564, 4100, Struga, North Macedonia		
<b>DESCRIPTION</b>	Recessed downlights with LED lighting		
<b>TYPE</b>	R023		
<b>APPLICATION</b>	Industrial installation		
<b>STANDARD</b>	EN60598-1		
<b>AUTHORITY</b>	Director of State	Executive Director	Subsidiary of the
<b>OPERATIONAL LIMITATIONS</b>	Maximum ambient temperature 40°C		

**Notes:**  
 1. This certificate is valid for the specified product, design, design quality parameters which together with the manufacturer's name, the manufacturer's approval to supply the product under this certificate and the manufacturer's name in order to be used in a certificate.  
 2. The original design approval (Certificate No. 17 00002) shall be kept by the Type Approval Body and the manufacturer of the product.  
 3. All other details shall be the same as in the original Certificate No. 17 00002 to which this extension should be added.

**Details No.** 17 00002  
**Issue Date** 17 September 2016  
**Expiry Date** 27 April 2020  
**Mark** L & L  
**Issue Authority** Technical Services & Engineering Services, London & Southampton, Lloyd's Register Group, Limited

**Lloyd's Register Group Limited**  
 25 Abchurch Lane, London EC4N 3DF, UK

**R** Lloyd's Register

### Type Approval Certificate

This is a certificate for the manufacturer's product for the use of the product as detailed within the scope of the Certificate No. 17 00002.

This certificate is valid for:

<b>PRODUCER</b>	LITELE BALKANSKI PROJEKTI I SOCIETI A.D.		
<b>PLACE OF PRODUCTION</b>	Makedonski Regionalni Industrijski Park, 4. Cesta, 564, 4100, Struga, North Macedonia		
<b>DESCRIPTION</b>	Recessed downlights with LED lighting (R023)		
<b>TYPE</b>	R023		
<b>APPLICATION</b>	Industrial installation		
<b>STANDARD</b>	EN60598-1		
<b>MARKS</b>	Number of Connections	Watt	Voltage (V)
	1	20 W	230 V
	1	20 W	230 V
<b>OPERATIONAL LIMITATIONS</b>	Maximum ambient temperature 40°C		

**Notes:**  
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**Details No.** 17 00002  
**Issue Date** 28 June 2017  
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**Mark** L & L  
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<b>STANDARD</b>	EN60598-1		
<b>AUTHORITY</b>	Director of State	Executive Director	Subsidiary of the
<b>OPERATIONAL LIMITATIONS</b>	Maximum ambient temperature 40°C		

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**ВР**

МАКЕДОНСКИ РЕПУБЛИКАНСКИ СОВЕТ ЗА ТЕХНИЧКА РЕГУЛАЦИЈА  
 МАКЕДОНСКИ РЕПУБЛИКАНСКИ СОВЕТ ЗА ТЕХНИЧКА РЕГУЛАЦИЈА  
 МАКЕДОНСКИ РЕПУБЛИКАНСКИ СОВЕТ ЗА ТЕХНИЧКА РЕГУЛАЦИЈА

### СЕРТИФИКАТ ТИПА TYPE CERTIFICATE No 619

1. Ова сертификат е издаден на: **ЛТЕЛЕ БАНКАНСКИ ПРОЈЕКТИ И СОЦИЈАЛНИ Д.О.О.**  
 2. За предмет на сертификација: **Редесни светилки со LED осветлување**  
 3. Согласно стандардот: **EN 60598-1**  
 4. Согласно намената: **Индустриска инсталација**  
 5. Согласно намената: **20 W, 230 V**  
 6. Согласно намената: **20 W, 230 V**  
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 9. Согласно намената: **20 W, 230 V**  
 10. Согласно намената: **20 W, 230 V**

**Издадено на:** 28 Јуни 2017 г.  
**Издадено во:** Скопје, Македонија

**Издадено од:** Д-р. Тодорка  
 Директор на Советот  
 Македонски републикански совет за техничка регулација

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### ОГРАНИЧЕН ДЕЈСТВОР СЕРТИФИКАТ ТИПА No 619 TYPE CERTIFICATE LIMITED SCOPE

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### СЕРТИФИКАТ ТИПА TYPE CERTIFICATE No 620

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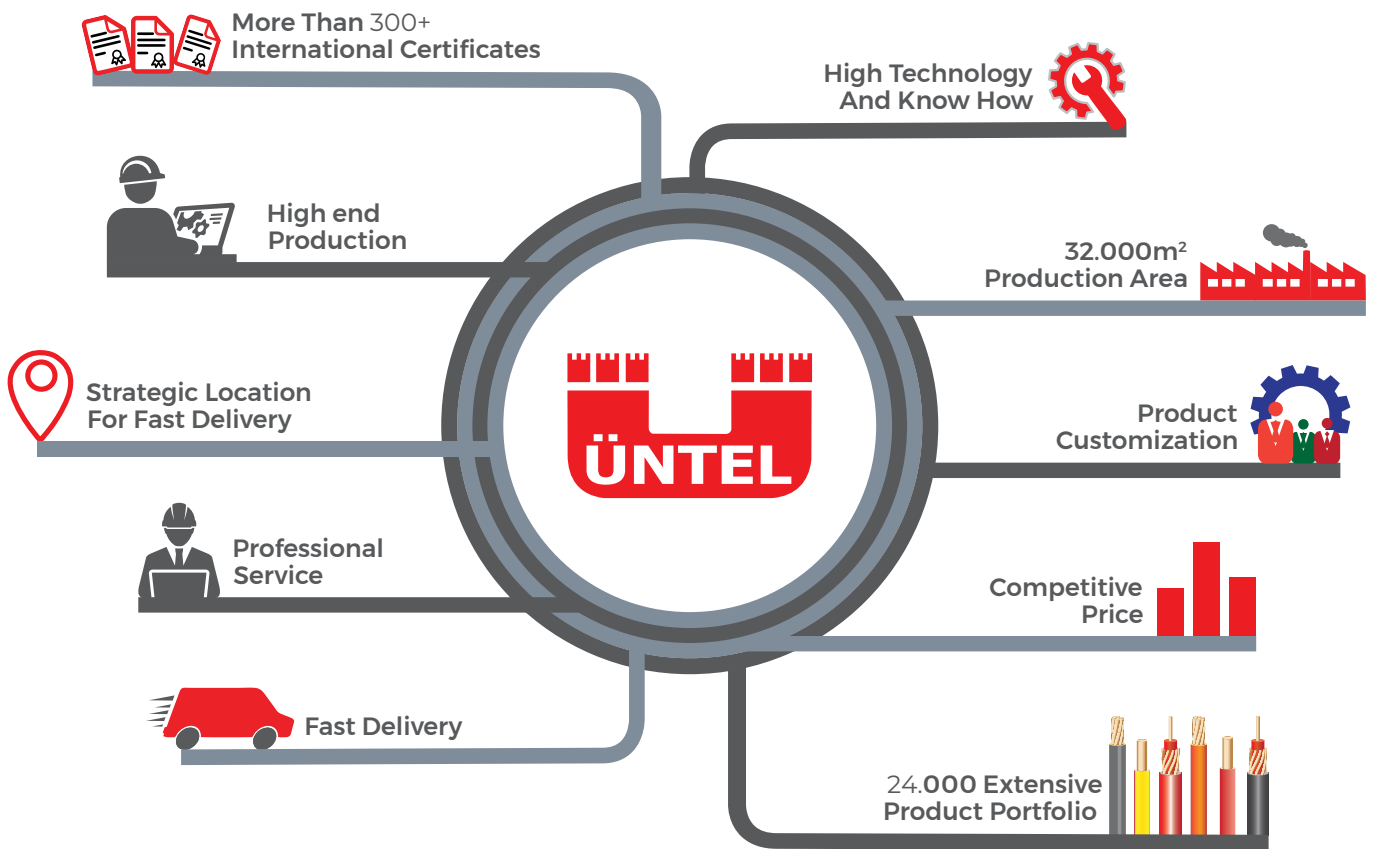
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# ALMOST 50+ YEARS IN PRODUCTION

**ALMOST 50 + YEARS IN PRODUCTION**

Exporting Over 100 Countries on 6 Continents



Industrial Cables



Marine Cables



Mining Cables



Offshore Cables



Railway Cables



Airport Runway Cables



Defense Cables



Crane Cables



# ABOUT US

## ABOUT US

**ÜNTEL KABLO**, one of leading cable manufacturers in the world was established in 1972, Turkey. With over 50 years of experience, continuously develops and optimize her product range with the help of advanced technology and well trained staff.

Product range consists over 24.000 different types of cables, covers both rubber and thermoplastic cables up to Medium Voltage (MV) range. ÜNTEL's power and instrumentation cables supplies energy for industries which requires experience like marine, offshore, mines and tunnels, airports, railways and have been used in industrial ways such as heavy-duty rubber drum reeling cables, welding cables, control cables and fire resistant cables. ÜNTEL is also able to produce tailor made products for special purposes. Today these products are exported over 100+ countries on six continents.

By the end of 2009, ÜNTEL finalized the investment of a new high-tech plant near Istanbul. Now continues her operations on 43.000 m2 land space with 32.000 m2 closed area. By having 3.000 tons copper drawing and 4.000 tons different type of

compound processing capacity, ÜNTEL produces 30.000 tones of cable per year. By means of new factory building, state of the art machines and unique ERP system investments ÜNTEL aimed absolute customer satisfaction.

Üntel's laboratories which are approved by organisations that specify the standards are equipped with advanced technology test and measurement devices. Within the scope of Quality System Certificates there is a quality management system presents in Üntel according to ISO, IQnet and TSE quality standards.. Around 200 different types of cables are certified by global organisations like VDE, KEMA, ABS, UL, BV, DNV-GL, RINA and TSE.

Üntel Kablo evaluate customer needs and expectations in a sectoral view and provide effective solutions with hundred percent customer satisfaction and qualified production philosophy. Üntel's biggest value is well trained and experienced staff and believe that exceptional quality comes through this experience.

# Üntel Kablo offers also variety of 400 Hz Ground Power Cables



400 Hz power supply systems provide the external power supply for aircraft on the ground.

# AIRPORT CABLES

## Airfield Lighting Cables

**Üntel Kablo** is one of the leading manufacturer of air ground lighting cables in Europe with decades of approved production quality.

In this catalogue Üntel Kablo presents its series of airport lighting primary and secondary cables for fixed installations.

Üntel has supplied Airport Ground Lighting cables to some of the most prestigious airport projects globally, via very well known companies such as ADB Safegate, Honeywell and Airsafe.

One of our most memorable project to supply Primary and Secondary cables for İstanbul New Airport, which on completion, will be the largest in the world.

We manufacture Rubber, LSZH and PVC cables as certified by MAK Aerodrome, FAA, LR-UNE and manufacture also according to DHMI (Turkey General Directorate Of State Airports Authority) and all military specifications. Üntel air ground lighting cables are manufactured to withstand exposure to water, UV radiation, oils and grease, to ensure the continuous operation of lighting systems of runways, taxiways, apron areas and passenger boarding bridges.

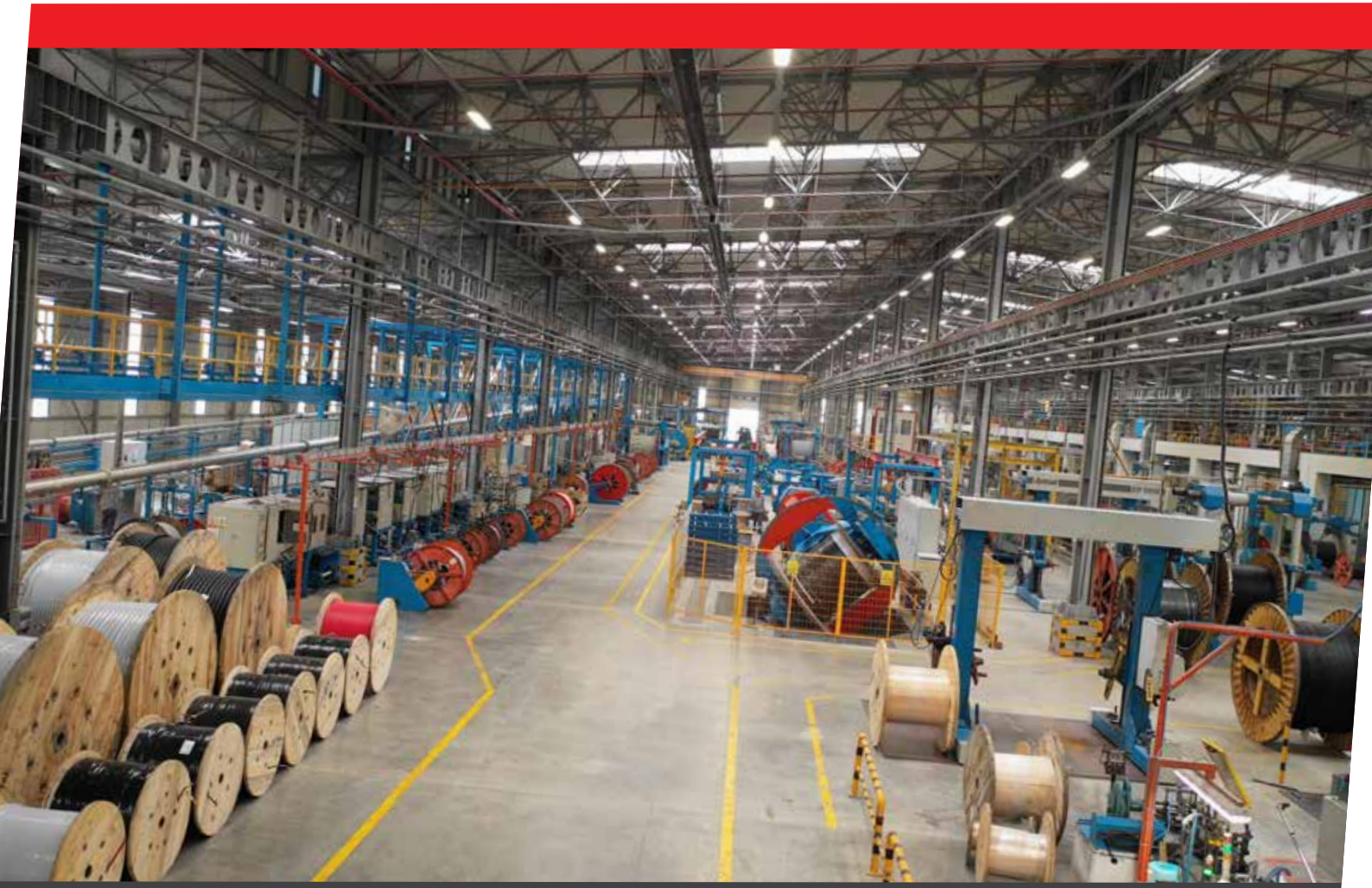
Mostly Primary and Secondary cables have been requested according to FAA specification of AC 150/5345-7 Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits. Copies of the current edition of the AC may be obtained at the FAA Website: [www.faa.gov/airports\\_airtraffic/airports/resources/advisory\\_circulars/](http://www.faa.gov/airports_airtraffic/airports/resources/advisory_circulars/) CPR compliant both primary and secondary cable alternatives are also available.

We supply both primary and secondary power cables, which are available screened or unscreened, with either copper braiding, or with copper or brass tape. All sizes are available as AWG and metric versions.

400Hz Aircraft Power Cables for use with mobile and stationary equipment are also available upon request. For detailed info about 400Hz cables you can go to our web page.

While continuously investing on Research & Development and being in the market with more than 45 years of experience, producing wide variety of cables with high-tech production machines and with well trained staff enables Üntel to satisfy customers special requests and needs by supplying the best quality products.

Please go through our product pages for further technical information, if your requirement is for more specialised or for technical support or assistance, our technical team is at your disposal.



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## CABLE STRUCTURE

Conductor	Stranded annealed tinned or bare copper wires According to IEC 60228 - Class 2 AWG types to ASTM B8 - Class B or Class C
Semiconductive Layer	Extruded Semiconductive material
Insulation	XLPE - Cross linked polyethylene material
Semiconductive Layer	Semiconductive tape helically applied
Screen	Minimum 20% overlap and 100% coverage helically applied Brass Tape
Outer Jacket	PVC or PE or HF (halogen free) or other suitable jacketing material according to NEMA WC74 / ICEA S-93-639.



## OPERATING CHARACTERISTICS

Operating Temperature	-25°C / +90°C
Rated Voltage	5 kV
Test Voltage	18 kV
Bending Radius	12 x Outer Diameter
Standards	ICEA S-93-639 / NEMA WC74 FAA Specification for L 824 - AC No. 150 / 5345-7F

Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BCL2 / EXSC / XLPE / SCT / BRT / PE	1x6 mm <sup>2</sup>	12,4	18787	3,08	52
BCL2 / EXSC / XLPE / SCT / BRT / PVC	1x6 mm <sup>2</sup>	12,4	212	3,08	52
TCL2 / EXSC / XLPE / SCT / BRT / PE	1x6 mm <sup>2</sup>	12,4	1877	3,11	52
TCL2 / EXSC / XLPE / SCT / BRT / PVC	1x6 mm <sup>2</sup>	12,4	212	3,11	52
BAWGB / EXSC / XLPE / SCT / BRT / PE	1x8 AWG	13,0	220	2,10	64
BAWGB / EXSC / XLPE / SCT / BRT / PVC	1x8 AWG	13,0	2477	2,10	64
TAWGB / EXSC / XLPE / SCT / BRT / PE	1x8 AWG	13,0	220	2,18	64
TAWGB / EXSC / XLPE / SCT / BRT / PVC	1x8 AWG	13,0	247	2,18	64
BAWGB / EXSC / XLPE / SCT / BRT / PE	1x6 AWG	14,0	282	1,33	85
BAWGB / EXSC / XLPE / SCT / BRT / PVC	1x6 AWG	14,0	311	1,33	85
TAWGB / EXSC / XLPE / SCT / BRT / PE	1x6 AWG	14,0	282	1,38	85
TAWGB / EXSC / XLPE / SCT / BRT / PVC	1x6 AWG	14,0	311	1,38	85

(\*) For explanation of coding refer to Technical Data Section

FAA L 824 – TYPE C



## CABLE STRUCTURE

Conductor	Stranded annealed tinned or bare copper wires According to IEC 60228 - Class 2 AWG types to ASTM B8 - Class B or Class C
Semiconductive Layer	Extruded Semiconductive material
Insulation	XLPE - Cross linked polyethylene material
Semiconductive Layer	Semiconductive tape helically applied
Screen	Minimum 20% overlap and 100% coverage helically applied Copper Tape
Outer Jacket	PVC or PE or HF (halogen free) or other suitable jacketing material according to NEMA WC74 / ICEA S-93-639.



## OPERATING CHARACTERISTICS

Conductor Operating Temperature	-25°C / +90°C
Rated Voltage	5 kV
Test Voltage	18 kV
Bending Radius	12 x Outer Diameter
Standard Of Test	ICEA S-93-639 / NEMA WC74 FAA Specification for L 824 - AC No. 150 / 5345-7F

Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BCL2 / EXSC / XLPE / SCT / CUT / PE	1x6 mm <sup>2</sup>	12,4	18787	3,08	52
BCL2 / EXSC / XLPE / SCT / CUT / PVC	1x6 mm <sup>2</sup>	12,4	213	3,08	52
TCL2 / EXSC / XLPE / SCT / CUT / PE	1x6 mm <sup>2</sup>	12,4	187	3,11	52
TCL2 / EXSC / XLPE / SCT / CUT / PVC	1x6 mm <sup>2</sup>	12,4	213	3,11	52
BAWGB / EXSC / XLPE / SCT / CUT / PE	1x8 AWG	13,0	221	2,10	64
BAWGB / EXSC / XLPE / SCT / CUT / PVC	1x8 AWG	13,0	248	2,10	64
TAWGB / EXSC / XLPE / SCT / CUT / PE	1x8 AWG	13,0	221	2,18	64
TAWGB / EXSC / XLPE / SCT / CUT / PVC	1x8 AWG	13,0	248	2,18	64
BAWGB / EXSC / XLPE / SCT / CUT / PE	1x6 AWG	14,0	283	1,33	85
BAWGB / EXSC / XLPE / SCT / CUT / PVC	1x6 AWG	14,0	312	1,33	85
TAWGB / EXSC / XLPE / SCT / CUT / PE	1x6 AWG	14,0	283	1,38	85
TAWGB / EXSC / XLPE / SCT / CUT / PVC	1x6 AWG	14,0	312	1,38	85

(\*) For explanation of coding refer to Technical Data Section

FAA L 824 - TYPE B



## CABLE STRUCTURE

<b>Conductor</b>	Strand of annealed tinned or bare copper wires According to IEC C 60228 - Class 2 AWG types to ASTM B8 - Class B or Class C
<b>Semiconductive Layer</b>	Extruded Semiconductive material
<b>Insulation Semiconductive Layer</b>	EPR - Etylene propylene rubber material Semiconductive tape helically applied
<b>Screen</b>	Minimum 20% overlap and 100% coverage helically applied Brass Tape
<b>Outer Jacket</b>	CPE-XL-HD or CR-HD or Neoprene or other suitable jacketing material according to NEMA WC74 / ICEA S-93-639



## OPERATING CHARACTERISTICS

<b>Operating Temperature</b>	-25°C / +90°C
<b>Rated Voltage</b>	5 kV
<b>Test Voltage</b>	18 kV
<b>Bending Radius</b>	12 x Outer Diameter
<b>Standard</b>	ICEA S-93-639 / NEMA WC74, FAA Specification for L 824 - AC No. 150 / 5345-7F

Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BCL2 / EXSC / EPR / SCT / BRT / CPE-X	1x6 mm <sup>2</sup>	12,4	225	3,08	52
TCL2 / EXSC / EPR / SCT / BRT / CPE-X	1x6 mm <sup>2</sup>	12,4	225	3,11	52
BAWGB / EXSC / EPR / SCT / BRT / CPE-X	1x8 AWG	13,0	262	2,10	64
TAWGB / EXSC / EPR / SCT / BRT / CPE-X	1x8 AWG	13,0	262	2,18	64
BAWGB / EXSC / EPR / SCT / BRT / CPE-X	1x6 AWG	14,0	329	1,33	85
TAWGB / EXSC / EPR / SCT / BRT / CPE-X	1x6 AWG	14,0	329	1,38	85

(\*) For explanation of coding refer to Technical Data Section

FAA L 824 - TYPE B



## CABLE STRUCTURE

Conductor	Strand of annealed tinned or bare copper wires According to IEC C 60228 - Class 2 AWG types to ASTM B8 - Class B or Class C
Semiconductive Layer	Extruded Semiconductive material
Insulation	EPR- Ethylene propylene rubber material
Semiconductive Layer	Semiconductive tape helically applied
Screen	Minimum 20% overlap and 100% coverage helically applied Copper Tape
Outer Jacket	CPE-XL-HD or CR - HD or Neoprene or other suitable jacketing material according to NEMA WC74 / ICEA S-93-639



## OPERATING CHARACTERISTICS

Conductor Operating Temperature	-25°C / +90°C
Rated Voltage	5 kV
Test Voltage	18 kV
Bending Radius	12 x Outer Diameter
Standard Of Test	ICEA S-93-639 / NEMA WC74 FAA Specification for L824-AC No. 150/5345-7F

Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BCL2 / EXSC / EPR / SCT / CUT / CPE-XL-HD	1x6 mm <sup>2</sup>	12,4	226	3,08	52
TCL2 / EXSC / EPR / SCT / CUT / CPE-XL-HD	1x6 mm <sup>2</sup>	12,4	226	3,11	52
BAWGB / EXSC / EPR / SCT / CUT / CPE-XL-HD	1x8 AWG	13,0	263	2,10	64
TAWGB / EXSC / EPR / SCT / CUT / CPE-XL-HD	1x8 AWG	13,0	263	2,18	64
BAWGB / EXSC / EPR / SCT / CUT / CPE-XL-HD	1x6 AWG	14,0	330	1,33	85
TAWGB / EXSC / EPR / SCT / CUT / CPE-XL-HD	1x6 AWG	14,0	330	1,38	85

(\*) For explanation of coding refer to Technical Data Section

FAA L 824 - TYPE C



## CABLE STRUCTURE

<b>Conductor</b>	Strand of annealed tinned or bare copper wires According to IEC C 60228 - Class 2 AWG types to ASTM B8 - Class B or Class C
<b>Semiconductive Layer</b>	Extruded Semiconductive material
<b>Insulation</b>	XLPE - Cross linked polyethylene material
<b>Semiconductive Layer</b>	Semiconductive tape hellically applied
<b>Screen</b>	Tinned Copper wire braiding with minimum 80% coverage
<b>Outer Jacket</b>	PVC or PE or HF (alogen free) or other suitable jacketing material according to NEMA WC74 / IECA S-93-639

## OPERATING CHARACTERISTICS

<b>Conductor Operating Temperature</b>	-25°C / +90°C
<b>Rated Voltage</b>	5 kV
<b>Test Voltage</b>	18 kV
<b>Bending Radius</b>	12 x Outer Diameter
<b>Standard Of Test</b>	IECA S-93-639 / NEMA WC74 FAA Specification for L 824 - AC No. 150 / 5345-7F

Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BCL2 / EXSC / XLPE / SCT / BCUB / PE	1x6 mm <sup>2</sup>	12,9	203	3,08	52
BCL2 / EXSC / XLPE / SCT / BCUB / PVC	1x6 mm <sup>2</sup>	12,9	230	3,08	52
TCL2 / EXSC / XLPE / SCT / TCUB / PE	1x6 mm <sup>2</sup>	12,9	203	3,11	52
TCL2 / EXSC / XLPE / SCT / TCUB / PVC	1x6 mm <sup>2</sup>	12,9	230	3,11	52
BAWGB / EXSC / XLPE / SCT / BCUB / PE	1x8 AWG	13,5	238	2,10	64
BAWGB / EXSC / XLPE / SCT / BCUB / PVC	1x8 AWG	13,5	266	2,10	64
TAWGB / EXSC / XLPE / SCT / TCUB / PE	1x8 AWG	13,5	238	2,18	64
TAWGB / EXSC / XLPE / SCT / TCUB / PVC	1x8 AWG	13,5	266	2,18	64
BAWGB / EXSC / XLPE / SCT / BCUB / PE	1x6 AWG	14,5	300	1,33	85
BAWGB / EXSC / XLPE / SCT / BCUB / PVC	1x6 AWG	14,5	331	1,33	85
TAWGB / EXSC / XLPE / SCT / TCUB / PE	1x6 AWG	14,5	300	1,38	85
TAWGB / EXSC / XLPE / SCT / TCUB / PVC	1x6 AWG	14,5	331	1,38	85

(\*) For explanation of coding refer to Technical Data Section

FAA L 824 - TYPE B



## CABLE STRUCTURE

Conductor	Strand of annealed tinned or bare copper wires According to IEC C 60228 - Class 2 AWG types to ASTM B8 - Class B or Class C
Semiconductive Layer	Extruded Semiconductive material
Insulation	EPR- Ethylene propylene rubber material
Semiconductive Layer	Semiconductive tape hellically applied
Screen	Tinned Copper wire braiding with minimum 80% coverage
Outer Jacket	CPE-XL-HD or CR - HD or Neoprene or other suitable jacketing material according to NEMA WC74 / IECA S-93-639

## OPERATING CHARACTERISTICS

Conductor Operating Temperature	-25°C / +90°C
Rated Voltage	5 kV
Test Voltage	18 kV
Bending Radius	12 x Outer Diameter
Standard Of Test	IECA S-93-639 / NEMA WC74 FAA Specification for L824-AC No. 150/5345-7F

Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BCL2 / EXSC / EPR / SCT / BCUB / CPE-X	1x6 mm <sup>2</sup>	12,9	242	3,08	52
TCL2 / EXSC / EPR / SCT / TCUB / CPE-X	1x6 mm <sup>2</sup>	12,9	242	3,11	52
BAWGB / EXSC / EPR / SCT / BCUB / CPE-X	1x8 AWG	13,5	281	2,10	64
TAWGB / EXSC / EPR / SCT / TCUB / CPE-X	1x8 AWG	13,5	281	2,18	64
BAWGB / EXSC / EPR / SCT / BCUB / CPE-X	1x6 AWG	14,5	348	1,33	85
TAWGB / EXSC / EPR / SCT / TCUB / CPE-X	1x6 AWG	14,5	348	1,38	85

(\*) For explanation of coding refer to Technical Data Section



## CABLE STRUCTURE

<b>Conductor</b>	Strand of annealed tinned or bare copper wires According to IEC C 60228 - Class 2 AWG types to ASTM B8 - Class B or Class C
<b>Semiconductive Layer</b>	Extruded Semiconductive material
<b>Insulation</b>	XLPE - Cross linked polyethylene material
<b>Outer Jacket</b>	PVC or PE or HF (halogen free) or other suitable jacketing material according to NEMA WC71 / IECA S-96-659.

## OPERATING CHARACTERISTICS

<b>Conductor Operating Temperature</b>	-25°C / +90°C
<b>Rated Voltage</b>	5 kV
<b>Test Voltage</b>	13 kV
<b>Bending Radius</b>	5 x Outer Diameter
<b>Standard Of Test</b>	NEMA WC71 / IECA S-96-659-2014 FAA Specification for L 824 - AC No.150 / 5345-7F



Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BCL2 / EXSC / XLPE / PE	1x6 mm <sup>2</sup>	14,2	196	3,08	52
BCL2 / EXSC / XLPE / PVC	1x6 mm <sup>2</sup>	14,2	231	3,08	52
TCL2 / EXSC / XLPE / PE	1x6 mm <sup>2</sup>	14,2	196	3,11	52
TCL2 / EXSC / XLPE / PVC	1x6 mm <sup>2</sup>	14,2	231	3,11	52
BAWGB / EXSC / XLPE / PE	1x8 AWG	14,8	230	2,10	64
BAWGB / EXSC / XLPE / PVC	1x8 AWG	14,8	266	2,10	64
TAWGB / EXSC / XLPE / PE	1x8 AWG	14,8	230	2,18	64
TAWGB / EXSC / XLPE / PVC	1x8 AWG	14,8	266	2,18	64
BAWGB / EXSC / XLPE / PE	1x6 AWG	15,8	291	1,33	85
BAWGB / EXSC / XLPE / PVC	1x6 AWG	15,8	331	1,33	85
TAWGB / EXSC / XLPE / PE	1x6 AWG	15,8	291	1,38	85
TAWGB / EXSC / XLPE / PVC	1x6 AWG	15,8	331	1,38	85

(\*) For explanation of coding refer to Technical Data Section

FAA L 824 - TYPE C



## CABLE STRUCTURE

<b>Conductor</b>	Strand of annealed tinned or bare copper wires According to IEC C 60228 - Class 2 AWG types to ASTM B8 - Class B or Class C
<b>Semiconductive Layer</b>	Extruded Semiconductive material
<b>Insulation</b>	XLPE - Cross linked polyethylene material
<b>Outer Jacket</b>	PVC or PE or HF (halogen free) or other suitable jacketing material according to NEMA WC71 / IECA S-96-659.

## OPERATING CHARACTERISTICS

<b>Conductor Operating Temperature</b>	-25°C / +90°C
<b>Rated Voltage</b>	5 kV
<b>Test Voltage</b>	13 kV
<b>Bending Radius</b>	5 x Outer Diameter
<b>Standard Of Test</b>	NEMA WC71 / IECA S-96-659-1999 FAA Specification for L 824 - AC No.150 / 5345-7F



Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BCL2 / EXSC / XLPE / PE	1x6 mm <sup>2</sup>	10,1	124	3,08	52
BCL2 / EXSC / XLPE / PVC	1x6 mm <sup>2</sup>	10,1	136	3,08	52
TCL2 / EXSC / XLPE / PE	1x6 mm <sup>2</sup>	10,1	124	3,11	52
TCL2 / EXSC / XLPE / PVC	1x6 mm <sup>2</sup>	10,1	136	3,11	52
BAWGB / EXSC / XLPE / PE	1x8 AWG	10,7	154	2,10	64
BAWGB / EXSC / XLPE / PVC	1x8 AWG	10,7	166	2,10	64
TAWGB / EXSC / XLPE / PE	1x8 AWG	10,7	154	2,18	64
TAWGB / EXSC / XLPE / PVC	1x8 AWG	10,7	166	2,18	64
BAWGB / EXSC / XLPE / PE	1x6 AWG	11,7	210	1,33	85
BAWGB / EXSC / XLPE / PVC	1x6 AWG	11,7	223	1,33	85
TAWGB / EXSC / XLPE / PE	1x6 AWG	11,7	210	1,38	85
TAWGB / EXSC / XLPE / PVC	1x6 AWG	11,7	223	1,38	85

(\*) For explanation of coding refer to Technical Data Section

FAA L 824 - TYPE B



## CABLE STRUCTURE

<b>Conductor</b>	Strand of annealed tinned or bare copper wires According to IEC C 60228 - Class 2 AWG types to ASTM B8 - Class B or Class C
<b>Semiconductive Layer</b>	Extruded Semiconductive material
<b>Insulation</b>	EPR- Ethylene propylene rubber material
<b>Outer Jacket</b>	CPE-XL-HD or CR - HD or NEoprene or other suitable jacketing material according to NEMA WC71 / IECA S-96-659.

## OPERATING CHARACTERISTICS

<b>Conductor Operating Temperature</b>	-25°C / +90°C
<b>Rated Voltage</b>	5 kV
<b>Test Voltage</b>	13 kV
<b>Bending Radius</b>	5 x Outer Diameter
<b>Standard Of Test</b>	NEMA WC71 /IECA S-96-659-2014 FAA Specification for L824-AC No. 150/5345-7F



Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BCL2 / EXSC / EPR / CPE-XL-HD	1x6 mm <sup>2</sup>	14,2	255	3,08	52
TCL2 / EXSC / EPR / CPE-XL-HD	1x6 mm <sup>2</sup>	14,2	255	3,11	52
BAWGB / EXSC / EPR / CPE-XL-HD	1x8 AWG	14,8	293	2,10	64
TAWGB / EXSC / EPR / CPE-XL-HD	1x8 AWG	14,8	293	2,18	64
BAWGB / EXSC / EPR / CPE-XL-HD	1x6 AWG	15,8	362	1,33	85
TAWGB / EXSC / EPR / CPE-XL-HD	1x6 AWG	15,8	362	1,38	85

(\*) For explanation of coding refer to Technical Data Section



## CABLE STRUCTURE

<b>Conductor</b>	Strand of annealed tinned or bare copper wires According to IEC C 60228 - Class 2 AWG types to ASTM B8 - Class B or Class C
<b>Semiconductive Layer</b>	Extruded Semiconductive material
<b>Insulation</b>	EPR- Ethylene propylene rubber material
<b>Outer Jacket</b>	CPE-XL-HD or CR - HD or NEoprene or other suitable jacketing material according to NEMA WC71 / IECA S-96-659.

## OPERATING CHARACTERISTICS

<b>Conductor Operating Temperature</b>	-25°C / +90°C
<b>Rated Voltage</b>	5 kV
<b>Test Voltage</b>	13 kV
<b>Bending Radius</b>	5 x Outer Diameter
<b>Standard Of Test</b>	NEMA WC71 /IECA S-96-659-1999 FAA Specification for L824-AC No. 150/5345-7F



Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BCL2 / EXSC / EPR / CPE-XL-HD	1x6 mm <sup>2</sup>	10,1	153	3,08	52
TCL2 / EXSC / EPR / CPE-XL-HD	1x6 mm <sup>2</sup>	10,1	153	3,11	52
BAWGB / EXSC / EPR / CPE-XL-HD	1x8 AWG	10,7	186	2,10	64
TAWGB / EXSC / EPR / CPE-XL-HD	1x8 AWG	10,7	186	2,18	64
BAWGB / EXSC / EPR / CPE-XL-HD	1x6 AWG	11,7	246	1,33	85
TAWGB / EXSC / EPR / CPE-XL-HD	1x6 AWG	11,7	246	1,38	85

(\*) For explanation of coding refer to Technical Data Section

FAA L 824 - TYPE C



## CABLE STRUCTURE

<b>Conductor</b>	Strand of annealed tinned or bare copper wires According to IEC C 60228 - Class 2 or Class 5 AWG types to ASTM B8 - Class B or Class C  If requested ASTM B172 or B173 flexible versions also available
<b>Insulation</b>	XLPE - Cross linked polyethylene material
<b>Outer Jacket</b>	PVC or PE or HF(halogen free) or other suitable jacketing material according to NEMA WC70 / ICEA S-96-658.

## OPERATING CHARACTERISTICS

<b>Conductor Operating Temperature</b>	-25°C / +90°C
<b>Rated Voltage</b>	600 V
<b>Test Voltage</b>	2 kV
<b>Bending Radius</b>	5 x Outer Diameter
<b>Standard Of Test</b>	NEMA WC 70 / ICEA S-95-65 FAA Specification for L824-AC No. 150/5345-7F



Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BCL2 / XLPE / PE	1x2,5 mm <sup>2</sup>	5,0	39	7,41	30
BCL2 / XLPE / PE	1x4 mm <sup>2</sup>	5,5	54	4,61	40
BCL2 / XLPE / PE	1x6 mm <sup>2</sup>	6,1	75	3,08	52
BCL2 / XLPE / PE	1x10 mm <sup>2</sup>	8,3	132	1,83	72
BCL2 / XLPE / PE	2x2,5 mm <sup>2</sup>	10,0	113	7,41	26
BCL2 / XLPE / PE	2x4 mm <sup>2</sup>	11,0	152	4,61	34
BCL2 / XLPE / PE	2x6 mm <sup>2</sup>	12,2	204	3,08	44
BCL2 / XLPE / PE	2x10 mm <sup>2</sup>	16,7	364	1,83	61
BCL5 / XLPE / PE	1x2,5 mm <sup>2</sup>	4,9	36	7,98	30
BCL5 / XLPE / PE	1x4 mm <sup>2</sup>	5,4	50	4,95	40
BCL5 / XLPE / PE	1x6 mm <sup>2</sup>	6,0	69	3,30	52
BCL5 / XLPE / PE	1x10 mm <sup>2</sup>	8,3	123	1,91	72
BCL5 / XLPE / PE	2x2,5 mm <sup>2</sup>	9,7	105	7,98	26

(\*) For explanation of coding refer to Technical Data Section

Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BCL5 /XLPE/ PE	2x4 mm <sup>2</sup>	10,8	144	4,95	34
BCL5 /XLPE/ PE	2x6 mm <sup>2</sup>	11,9	190	3,30	44
BCL5 /XLPE/ PE	2x10 mm <sup>2</sup>	16,3	343	1,91	61
BCL2 /XLPE/ PVC	1x2,5 mm <sup>2</sup>	5,0	43	7,41	30
BCL2 /XLPE/ PVC	1x4 mm <sup>2</sup>	5,5	59	4,61	40
BCL2 /XLPE/ PVC	1x6 mm <sup>2</sup>	6,1	80	3,08	52
BCL2 /XLPE/ PVC	1x10 mm <sup>2</sup>	8,3	142	1,83	72
BCL2 /XLPE/ PVC	2x2,5 mm <sup>2</sup>	10,0	141	7,41	26
BCL2 /XLPE/ PVC	2x4 mm <sup>2</sup>	11,0	184	4,61	34
BCL2 /XLPE/ PVC	2x6 mm <sup>2</sup>	12,2	242	3,08	44
BCL2 /XLPE/ PVC	2x10 mm <sup>2</sup>	16,7,7	436	1,83	61
BCL5 /XLPE/ PVC	1x2,5 mm <sup>2</sup>	4,9	40	7,98	30
BCL5 /XLPE/ PVC	1x4 mm <sup>2</sup>	5,4	55	4,95	40
BCL5 /XLPE/ PVC	1x6 mm <sup>2</sup>	6,0	74	3,30	52
BCL5 /XLPE/ PVC	1x10 mm <sup>2</sup>	8,3	133	1,91	72
BCL5 /XLPE/ PVC	2x2,5 mm <sup>2</sup>	9,77	131	7,98	26
BCL5 /XLPE/ PVC	2x4 mm <sup>2</sup>	10,8,	174	4,95	34
BCL5 /XLPE/ PVC	2x6 mm <sup>2</sup>	11,9	226	3,30	44
BCL5 /XLPE/ PVC	2x10 mm <sup>2</sup>	16,3	412	1,91	61
BAWGB /XLPE/ PE	1x12 AWG	5,3	488	5,34	36
BAWGB /XLPE/ PE	1x10 AWG	5,9	69	3,35	48
BAWGB /XLPE/ PE	1x8 AWG	7,6	110	2,10	64
BAWGB /XLPE/ PE	1x6 AWG	8,5	160	1,33	86
BAWGB /XLPE/ PE	2x12 AWG	10,7	137	5,34	30
BAWGB /XLPE/ PE	2x10 AWG	11,9	188	3,35	40
BAWGB /XLPE/ PE	2x8 AWG	16,0	321	2,10	54
BAWGB /XLPE/ PE	2x6 AWG	17,9	447	1,33	72
BAWGC /XLPE/ PE	1x12 AWG	5,4	48	5,34	36
BAWGC /XLPE/ PE	1x10 AWG	6,0	69	3,35	48
BAWGC /XLPE/ PE	1x8 AWG	7,6	110	2,10	64
BAWGC /XLPE/ PE	1x6 AWG	9,0	167	1,33	86
BAWGC /XLPE/ PE	2x12 AWG	10,7	137	5,34	30
BAWGC /XLPE/ PE	2x10 AWG	12,0	190	3,35	40
BAWGC /XLPE/ PE	2x8 AWG	16,1	323	2,10	54
BAWGC /XLPE/ PE	2x6 AWG	18,0	451	1,33	72
BAWGB /XLPE/ PVC	1x12 AWG	5,3	53	5,34	36
BAWGB /XLPE/ PVC	1x10 AWG	5,9	74	3,35	48
BAWGB /XLPE/ PVC	1x8 AWG	7,6	116	2,10	64
BAWGB /XLPE/ PVC	1x6 AWG	8,5	168	1,33	86
BAWGB /XLPE/ PVC	2x12 AWG	10,7	168	5,34	30

(\*) For explanation of coding refer to Technical Data Section

Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BAWGB /XLPE/ PVC	2x10 AWG	11,9	225	3,35	40
BAWGB /XLPE/ PVC	2x8 AWG	16,0	38888	2,10	54
BAWGB /XLPE/ PVC	2x6 AWG	17,9	529	1,33	72
BAWGC /XLPE/ PVC	1x12 AWG	5,4	53	5,34	36
BAWGC /XLPE/ PVC	1x10 AWG	6,0	74	3,35	48
BAWGC /XLPE/ PVC	1x8 AWG	7,6	117	2,10	64
BAWGC /XLPE/ PVC	1x6 AWG	9,0	178	1,33	86
BAWGC /XLPE/ PVC	2x12 AWG	10,7	1688	5,34	30
BAWGC /XLPE/ PVC	2x10 AWG	12,0	2277	3,35	40
BAWGC /XLPE/ PVC	2x8 AWG	16,1	391	2,10	54
BAWGC /XLPE/ PVC	2x6 AWG	18,0	533	1,33	72
TCL2 /XLPE/ PE	1x2,5 mm <sup>2</sup>	5,0	39	7,56	30
TCL2 /XLPE/ PE	1x4 mm <sup>2</sup>	5,5	54	4,70	40
TCL2 /XLPE/ PE	1x6 mm <sup>2</sup>	6,1	75	3,11	52
TCL2 /XLPE/ PE	1x10 mm <sup>2</sup>	8,3	132	1,84	72
TCL2 /XLPE/ PE	2x2,5 mm <sup>2</sup>	10,0	113	7,56	26
TCL2 /XLPE/ PE	2x4 mm <sup>2</sup>	11,0	152	4,70	34
TCL2 /XLPE/ PE	2x6 mm <sup>2</sup>	12,2	204	3,11	44
TCL2 /XLPE/ PE	2x10 mm <sup>2</sup>	16,77	364	1,84	61
TCL5 /XLPE/ PE	1x2,5 mm <sup>2</sup>	4,9	36	8,21	30
TCL5 /XLPE/ PE	1x6 mm <sup>2</sup>	5,4	50	5,09	40
TCL5 /XLPE/ PE	1x10 mm <sup>2</sup>	6,0	69	3,39	52
TCL5 /XLPE/ PE	2x2,5 mm <sup>2</sup>	8,3	123	1,95	72
TCL5 /XLPE/ PE	2x4 mm <sup>2</sup>	9,77	105	8,21	26
TCL5 /XLPE/ PE	2x6 mm <sup>2</sup>	11,9	190	5,09	34
TCL5 /XLPE/ PE	2x10 mm <sup>2</sup>	16,3	343	3,39	44
TCL2 /XLPE/ PVC	1x2,5 mm <sup>2</sup>	5,0	39	7,56	30
TCL2 /XLPE/ PVC	1x4 mm <sup>2</sup>	5,5	54	4,77	40
TCL2 /XLPE/ PVC	1x6 mm <sup>2</sup>	6,1	75	3,11	52
TCL2 /XLPE/ PVC	1x10 mm <sup>2</sup>	8,3	132	1,84	72
TCL2 /XLPE/ PVC	2x2,5 mm <sup>2</sup>	10,0	113	7,56	26
TCL2 /XLPE/ PVC	2x4 mm <sup>2</sup>	11,0	152	4,70	34
TCL2 /XLPE/ PVC	2x6 mm <sup>2</sup>	12,2	204	3,11	44
TCL2 /XLPE/ PVC	2x10 mm <sup>2</sup>	16,77	364	1,84	61
TCL2 /XLPE/ PVC	1x2,5 mm <sup>2</sup>	4,9	36	8,21	30
TCL5 /XLPE/ PVC	1x4 mm <sup>2</sup>	5,4	50	5,09	40
TCL5 /XLPE/ PVC	1x6 mm <sup>2</sup>	6,0	69	3,39	52
TCL5 /XLPE/ PVC	1x10 mm <sup>2</sup>	8,3	123	1,95	72
TCL5 /XLPE/ PVC	2x2,5 mm <sup>2</sup>	9,77	105	8,21	26
TCL5 /XLPE/ PVC	2x4 mm <sup>2</sup>	10,88	144	5,09	34

(\*) For explanation of coding refer to Technical Data Section

Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
TCL5 /XLPE / PVC	2x4 mm <sup>2</sup>	10,8,8	144	5,09	34
TCL5 /XLPE / PVC	2x6 mm <sup>2</sup>	11,9	190	3,39	44
TCL5 /XLPE / PVC	2x10 mm <sup>2</sup>	16,3	343	1,95	61
TAWGB /XLPE / PE	1x12 AWG	5,3	48	5,54	36
TAWGB /XLPE / PE	1x10 AWG	5,9	69	3,48	48
TAWGB /XLPE / PE	1x8 AWG	7,6	110	2,18	64
TAWGB /XLPE / PE	1x6 AWG	8,5	160	1,38	86
TAWGB /XLPE / PE	2x12 AWG	10,77	137	5,54	30
TAWGB /XLPE / PE	2x10 AWG	11,9	188	3,48	40
TAWGB /XLPE / PE	2x8 AWG	16,0	321	2,18	54
TAWGB /XLPE / PE	2x6 AWG	17,9	447	1,38	72
TAWGC /XLPE / PE	1x12 AWG	5,4	488	5,63	72
TAWGC /XLPE / PE	1x10 AWG	6,0	69	3,48	36
TAWGC /XLPE / PE	1x8 AWG	7,6	110	2,18	64
TAWGC /XLPE / PE	1x6 AWG	9,0	167	1,38	86
TAWGC /XLPE / PE	2x12 AWG	10,77	137	5,63	30
TAWGC /XLPE / PE	2x10 AWG	12,0	190	3,48	40
TAWGC /XLPE / PE	2x8 AWG	16,1	323	2,18	54
TAWGC /XLPE / PE	2x6 AWG	18,0	451	1,38	72
TAWGB /XLPE / PVC	1x12 AWG	5,3	53	5,54	36
TAWGB /XLPE / PVC	1x10 AWG	5,9	74	3,48	48
TAWGB /XLPE / PVC	1x8 AWG	7,6	116	2,18	64
TAWGB /XLPE / PVC	1x6 AWG	8,5	168	1,38	86
TAWGB /XLPE / PVC	2x12 AWG	10,77	168	5,54	30
TAWGB /XLPE / PVC	2x10 AWG	11,9	225	3,48	40
TAWGB /XLPE / PVC	2x8 AWG	16,0	388	2,18	54
TAWGB /XLPE / PVC	2x6 AWG	17,9	529	1,38	72
TAWGC /XLPE / PVC	1x12 AWG	5,4	53	5,63	36
TAWGC /XLPE / PVC	1x10 AWG	6,0	74	3,48	48
TAWGC /XLPE / PVC	1x8 AWG	7,6	117	2,18	64
TAWGC /XLPE / PVC	1x6 AWG	9,0	178	1,38	86
TAWGC /XLPE / PVC	2x12 AWG	10,7,7	1688	5,63,	30
TAWGC /XLPE / PVC	2x10 AWG	12,0	227	3,48	40
TAWGC /XLPE / PVC	2x8 AWG	16,1	391	2,18	54
TAWGC /XLPE / PVC	2x6 AWG	18,0	533	1,38	72

(\*) For explanation of coding refer to Technical Data Section

FAA L 824 - TYPE B



## CABLE STRUCTURE

<b>Conductor</b>	Strand of annealed tinned or bare copper wires According to IEC C 60228 - Class 2 or Class 5 AWG types to ASTM B8 - Class B or Class C  If requested ASTM B172 or B173 flexible versions also available
<b>Insulation</b>	EPR - Ethylene propylene rubber material
<b>Outer Jacket</b>	CPE-XL-HD or Cr - HD or NEoprene or other suitable jacketing material according to NEMA WC70 / ICEA S-95-658.

## OPERATING CHARACTERISTICS

<b>Conductor Operating Temperature</b>	-25°C / +90°C
<b>Rated Voltage</b>	600 V
<b>Test Voltage</b>	2 kV
<b>Bending Radius</b>	5 x Outer Diameter
<b>Standard Of Test</b>	NEMA WC 70 / ICEA S-95-6588

Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BCL2 / EPR / CPE-XL-HD	1x2,5 mm <sup>2</sup>	5,0	45	7,41	30
BCL2 / EPR / CPE-XL-HD	1x4 mm <sup>2</sup>	5,5	62	4,61	40
BCL2 / EPR / CPE-XL-HD	1x6 mm <sup>2</sup>	6,1	84	3,08	52
BCL2 / EPR / CPE-XL-HD	1x10 mm <sup>2</sup>	8,3	149	1,83	72
BCL2 / EPR / CPE-XL-HD	2x2,5 mm <sup>2</sup>	10,0	139	7,41	26
BCL2 / EPR / CPE-XL-HD	2x4 mm <sup>2</sup>	11,0	182	4,61	34
BCL2 / EPR / CPE-XL-HD	2x6 mm <sup>2</sup>	12,2	240	3,08	44
BCL2 / EPR / CPE-XL-HD	2x10 mm <sup>2</sup>	16,7,7	432	1,83	61
BCL5 / EPR / CPE-XL-HD	1x2,5 mm <sup>2</sup>	4,9	42	7,98	30
BCL5 / EPR / CPE-XL-HD	1x4 mm <sup>2</sup>	5,4	57	4,95	40
BCL5 / EPR / CPE-XL-HD	1x6 mm <sup>2</sup>	6,0	77	3,30	52
BCL5 / EPR / CPE-XL-HD	1x10 mm <sup>2</sup>	8,3	140	1,91	72
BCL5 / EPR / CPE-XL-HD	2x2,5 mm <sup>2</sup>	9,7	129	7,98	26
BCL5 / EPR / CPE-XL-HD	2x4 mm <sup>2</sup>	10,8	173	4,95	34

(\*) For explanation of coding refer to Technical Data Section

Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
BCL5 / EPR / CPE-XL-HD	2X6 mm <sup>2</sup>	11,9	224	3,30	44
BCL5 / EPR / CPE-XL-HD	2X10 mm <sup>2</sup>	16,3	409	1,91	61
BAWGB / EPR / CPE-XL-HD	1x12 AWG	5,3	55	5,34	36
BAWGB / EPR / CPE-XL-HD	1x10 AWG	5,9	77	3,35	48
BAWGB / EPR / CPE-XL-HD	1x8 AWG	7,6	124	2,10	64
BAWGB / EPR / CPE-XL-HD	1x6 AWG	8,5	177	1,33	86
BAWGB / EPR / CPE-XL-HD	2x12 AWG	10,7,7	166	5,34	30
BAWGB / EPR / CPE-XL-HD	2x10 AWG	11,9	222	3,35	40
BAWGB / EPR / CPE-XL-HD	2x8 AWG	16,0	385	2,10	54
BAWGB / EPR / CPE-XL-HD	2x6 AWG	17,9	525	1,33	72
BAWGC / EPR / CPE-XL-HD	1x12 AWG	5,4	55	5,34	36
BAWGC / EPR / CPE-XL-HD	1x10 AWG	6,0	77	3,35	48
BAWGC / EPR / CPE-XL-HD	1x8 AWG	7,6	124	2,10	64
BAWGC / EPR / CPE-XL-HD	1x6 AWG	9,0	185	1,33	86
BAWGC / EPR / CPE-XL-HD	2x12 AWG	10,7	166	5,34	30
BAWGC / EPR / CPE-XL-HD	2x10 AWG	12,0	224	3,35	40
BAWGC / EPR / CPE-XL-HD	2x8 AWG	16,1	388	2,10	54
BAWGC / EPR / CPE-X	2x6 AWG	18,0	529	1,33	72
TCL2 / EPR / CPE-XL-HD	1x2,5 mm <sup>2</sup>	5,0	45	7,56	30
TCL2 / EPR / CPE-XL-HD	1x4 mm <sup>2</sup>	5,5	62	4,70	40
TCL2 / EPR / CPE-XL-HD	1x6 mm <sup>2</sup>	6,1	84	3,11	52
TCL2 / EPR / CPE-XL-HD	1x10 mm <sup>2</sup>	8,3	149	1,84	72
TCL2 / EPR / CPE-XL-HD	2x2,5 mm <sup>2</sup>	10,0	139	7,56	26
TCL2 / EPR / CPE-XL-HD	2x4 mm <sup>2</sup>	11,0	182	4,70	34
TCL2 / EPR / CPE-XL-HD	2x6 mm <sup>2</sup>	12,2	240	3,11	44
TCL2 / EPR / CPE-XL-HD	2x10 mm <sup>2</sup>	16,77	432	1,84	61
TCL5 / EPR / CPE-XL-HD	1x2,5 mm <sup>2</sup>	4,9	42	8,21	30
TCL5 / EPR / CPE-XL-HD	1x4 mm <sup>2</sup>	5,4	57	5,09	40
TCL5 / EPR / CPE-XL-HD	1x6 mm <sup>2</sup>	6,0	77	3,39	52
TCL5 / EPR / CPE-XL-HD	1x10 mm <sup>2</sup>	8,3	140	1,95	72
TCL5 / EPR / CPE-XL-HD	2x2,5 mm <sup>2</sup>	9,7,7	129	8,21	26
TCL5 / EPR / CPE-XL-HD	2x4 mm <sup>2</sup>	10,88	173	5,09	34
TCL5 / EPR / CPE-XL-HD	2x6 mm <sup>2</sup>	11,9	224	3,39	44
TCL5 / EPR / CPE-XL-HD	2x10 mm <sup>2</sup>	16,3	409	1,95	61
TAWGB / EPR / CPE-XL-HD	1x12 AWG	5,3	55	5,54	36
TAWGB / EPR / CPE-XL-HD	1x10 AWG	5,9	77	3,48	48
TAWGB / EPR / CPE-XL-HD	1x8 AWG	7,6	124	2,18	64
TAWGB / EPR / CPE-XL-HD	1x6 AWG	8,5	177	1,38	86
TAWGB / EPR / CPE-XL-HD	2x12 AWG	10,7	166	5,54	30
TAWGB / EPR / CPE-XL-HD	2x10 AWG	11,9	222	3,48	40

(\*) For explanation of coding refer to Technical Data Section

Construction (*)	Cross Section	Overall Diameter mm	Approx Weight kg/km	Max. Resistance of Conductors at 20 °C (ohm/km)	Current Carrying Capacity at 45 °C (A)
TAWGB / EPR / CPE-XL-HD	2x8 AWG	16,0	385	2,18	54
TAWGB / EPR / CPE-XL-HD	2x6 AWG	17,9	525	1,38	72
TAWGC / EPR / CPE-XL-HD	1x12 AWG	5,4	55	5,63	36
TAWGC / EPR / CPE-XL-HD	1x10 AWG	6,0	77	3,48	48
TAWGC / EPR / CPE-XL-HD	1x8 AWG	7,6	124	2,18	64
TAWGC / EPR / CPE-XL-HD	1x6 AWG	9,0	185	1,38	86
TAWGC / EPR / CPE-XL-HD	2x12 AWG	10,7	166	5,63	30
TAWGC / EPR / CPE-XL-HD	2x10 AWG	12,0	224	3,48	40
TAWGC / EPR / CPE-XL-HD	2x8 AWG	16,1	388	2,18	64
TAWGC / EPR / CPE-XL-HD	2x6 AWG	18,08	529	1,38	72

(\*) For explanation of coding refer to Technical Data Section



Similar design to  
FAA L824 - TYPE B (600v)



## CABLE STRUCTURE

<b>Conductor</b>	Electrolytic annealed, class 5 stranded plain copper wires (tinned conductor on request)
<b>Separator</b>	A suitable tape may be applied over the conductor
<b>Insulation</b>	EI4 type rubber (EPR) compound
<b>Core Identification</b>	Acc. to HD 308
<b>Inner Sheath</b>	EM2 or EM3 type elastomeric rubber compound (if outer sheath thickness is greater than 2.4 mm)
<b>Outer Sheath</b>	EM2 type elastomeric rubber compound
<b>Color</b>	Black (other colors on request)

## STANDARDS & MAIN CHARACTERISTICS

<b>Construction</b>	EN 50525-2-21, DIN VDE 0282-4, BS 6500 BS 7919, IEC 60245-4
<b>General Requirements</b>	EN 50525-1, HD 22.1, DN VDE 0282-1, IEC 60245-1
<b>Guide to Use</b>	HD 516, DIN VDE 0298-300
<b>Electrical Tests</b>	EN 50395, IEC 60245-2
<b>Non - Electrical Tests</b>	EN 50396, IEC 60245-2
<b>Conductor Resistance</b>	EN / IEC 60228, HD 383, DIN VDE 0295, BS 6360
<b>Working Temperature</b>	
<b>In Mobile Use</b>	-25°C / +60°C
<b>in Fixed Use</b>	-35°C / +90°C
<b>Conductor Short - Circuit Temp.</b>	Max. 200°C
<b>Temp. on Cable Surface</b>	Max. +50°C
<b>Min. Installation Temp.</b>	-25°C
<b>Min. Bending Radius</b>	EN 50565-1 Table.3
<b>Max. Tensile Load</b>	15 N / mm <sup>2</sup>
<b>Current Carrying Capacities</b>	IEC 60 364-5-52, VDE 0298-4, EN 50565-1
<b>Flame Retardant</b>	IEC 60332-1-2, DIN VDE 0482-332-1-2
<b>Oil Resistant</b>	EN 50363-2-1, IEC 60811-404

It's allowed up to 1.000 V AC or DC using for fixed and protected installations.

Construction	Cross Section	Nominal Overall Diameter (mm)	Approximate Weight (kg / km)	Max Resistance of Conductors at 20°C (ohm / km)	Current Carrying Capacity for fixed usage (A)
BCL5 / EI4 / EM2	1x2,5 mm <sup>2</sup>	6,4	65	7,98	33
BCL5 / EI4 / EM2	1x4 mm <sup>2</sup>	7,3	90	4,95	45
BCL5 / EI4 / EM2	1x6 mm <sup>2</sup>	8,1	115	3,30	58
BCL5 / EI4 / EM2	2x2,5 mm <sup>2</sup>	10,6	165	7,98	36
BCL5 / EI4 / EM2	2x4 mm <sup>2</sup>	12,2	230	4,95	49
BCL5 / EI4 / EM2	2x6 mm <sup>2</sup>	13,6	300	3,30	63

### Notes for current carrying capacities:

Current carrying capacities are according to in open air, with adequate ventilation and ambient temperature of 30 °C

### For fixed installation :

Based on IEC 60364-5-52 : 2009 Table B.52.1 and Table B.52.12

- Referred to
- Reference installation method F for Single cores and three loaded cores in trefoil installation.
  - Reference installation method E for Multi cores for 2 core cables; two cores loaded and for 3-4-5 core cables; three cores loaded
  - Reference installation method E for Multi cores for 6 cores and above; All cores loaded except green / yellow (earth) core
  - Correction factors for ambient temperature according to Table B.52.14
  - The current ratings are based on conductor operating temperature of 90 °C

### Temperature correction factors

Ambient air temperature °C	30	35	40	45	50	55
Correction factor	1,00	0,96	0,91	0,87	0,82	0,76



## CABLE STRUCTURE

Conductor	Stranded annealed tinned or bare copper wires According to IEC 60228 - Class 2
Insulation	PVC insulation (85 °C) Colourless
Outer Jacket	Polyamide (Nylon) Compound
Color	Black

## STANDARDS & MAIN CHARACTERISTICS

Operating Temperature	-40°C / +85°C
Rated Voltage	600 V
Test Voltage	2 kV
Bending Radius	5 x Outer Diameter
Standards	According to manufacturer's standard FAA Specification for L 824 - AC No. 150 / 5345-7F UL 1581 or ISO 4892-2
UV Resistance	
Oil Resistant	
Abrasion Resistant	

Minimum laying temperature : -5 °C

Used as airport pavement cable for secondary electrical circuits.

Construction (*)	Cross Section	Nominal Overall Diameter (mm)	Approximate Weight (kg / km)	Max Resistance of Conductors at 20°C (ohm / km)	Current Carrying Capacity at 30°C (A)
BCL2 / PVC / PA	1x4 mm <sup>2</sup>	4,5	49	4,61	38

(\*) For explanation of coding refer to Technical Data Section



## CABLE STRUCTURE

Conductor	Stranded annealed tinned or bare copper wires According to IEC 60228 - Class 2
Semiconductive Layer	Extruded semiconductor layer mixture firmly adhered to insulation.
Insulation	XLPE - Cross linked polyethylene material
Semiconductive Layer	Extruded Semiconductive peelable material
Screen	Copper tape of nominal thickness 0.1 mm helically applied on the semiconductive layer over the insulation with a minimum overlap of %15
Outer Jacket	PVC flame retardant material (ST <sub>2</sub> )
Outer Jacket	Red or other colors on request

## STANDARDS & MAIN CHARACTERISTICS

Operating Temperature	-25°C / +90°C
Rated Voltage	5 kV
Test Voltage	17,5 kV (5 min.)
Bending Radius	15 x Outer Diameter
Standards	AENOR - UNE 21161:2017 IEC 60502-2
Flame Retardant	IEC 60332-1, IEC 60332/3 Cat A
CPR Class - EN 50575:2014+A12016	Cca - s3, d2, a3

Marking Example:

UNTEL CIRCUIT SERIES RHV 5 kV Cca-s3, d2, a3 17 UNE 21161

Construction (*)	Cross Section	Max. Overall Diameter (mm)	Approximate Weight (kg / km)	Max Resistance of Conductors at 20°C (ohm / km)	Current Carrying Capacity at 30°C (A)
BCL2 / EXSC / XLPE / EXSC / CUT / PVC	1x6 mm <sup>2</sup>	18,5	416	3,08	52

(\*) For explanation of coding refer to Technical Data Section



## CABLE STRUCTURE

<b>Conductor</b>	Stranded annealed tinned or bare copper wires According to IEC 60228 - Class 2
<b>Semiconductive Layer</b>	Extruded semiconductor layer mixture firmly adhered to insulation.
<b>Insulation</b>	XLPE - Cross linked polyethylene material.
<b>Semiconductive Layer</b>	Extruded semiconductive peelable material.
<b>Screen</b>	Copper tape of nominal thickness 0.1 mm helically applied on the semiconductive layer over the insulation, with a minimum overlap of 15%.
<b>Outer Jacket Color</b>	LSZH material - Halogen-free Flame Retardant polyolefin (Z1) Red or other colors on request

## STANDARDS & MAIN CHARACTERISTICS

<b>Operating Temperature</b>	-25°C / +90°C
<b>Rated Voltage</b>	5 kV
<b>Test Voltage</b>	17,5 kV (5 min.)
<b>Bending Radius</b>	15 x Outer Diameter
<b>Standards</b>	UNE 21161:2017 IEC 60502-2
<b>Flame Retardant</b>	IEC 60332-1, IEC 60332/3 Cat A
<b>CPR Class - EN 50575:2014+A12016</b>	Cca - s1b, d2, a1

Marking Example:  
UNTEL CIRCUIT SERIES RHZ1 (AS) 5 kV Cca-s1b, d2, a1 17 UNE 21161

Construction (*)	Cross Section	Max. Overall Diameter (mm)	Approximate Weight (kg / km)	Max Resistance of Conductors at 20°C (ohm / km)	Current Carrying Capacity at 30°C (A)
BCL2 / EXSC / XLPE / EXSC / CUT / LSZH	1x6 mm <sup>2</sup>	18,5	409	3,08	52

(\*) For explanation of coding refer to Technical Data Section



## CABLE STRUCTURE

Conductor	Stranded annealed tinned or bare copper wires According to IEC 60228 - Class 5
Insulation	XLPE - Cross linked polyethylene material
Outer Jacket	PVC - flame retardant material
Color	Black or other colors on request

## STANDARDS & MAIN CHARACTERISTICS

Operating Temperature	-25°C / +90°C
Rated Voltage	600 V
Test Voltage	2 kV (5 min.)
Bending Radius	5 x Outer Diameter
Standards	AENOR - UNE 21123-2 IEC 60502-1
Flame Retardant	IEC 60332-1
CPR Class - EN 50575:2014+A12016	Eca

Marking Example:

UNTEL RV-K SECONDARY CABLE - 1X 4 mm<sup>2</sup> - 600V

Construction (*)	Cross Section	Approximate Weight (kg / km)	Nominal Overall Diameter (mm)	Max Resistance of Conductors at 20°C (ohm / km)	Current Carrying Capacity at 30°C (A)
BCL5 / XLPE/ PVC	1x2,5 mm <sup>2</sup>	60	6,5	7,98	29
BCL5 / XLPE/ PVC	1x4 mm <sup>2</sup>	7777	7,0	4,95	39

(\*) For explanation of coding refer to Technical Data Section





# TECHNICAL DATA

# TECHNICAL DATA

## DEFINITIONS AND APPLICABLE STANDARDS

**ANSI** - American National Standards Institute

**ISO** - International Organization for Standardization

**NEMA** - National Electrical Manufacturers Association

**ICEA** - Insulated Cable Engineers Association, Inc.

**IEC** - International Electrotechnical Commission

**FAA** - Federal Aviation Administration

**ANSI/ICEA S-95-658 / NEMA WC70 – 2009:** Power Cables Rated 2000 V or Less for Use in the Distribution of Electrical Energy

**ANSI/ICEA S-96-659 / NEMA WC71 – 1999:** Standard for Non-Shielded Cables Rated 2001-5000 V for Use in the Distribution of Electrical Energy

**ICEA S-93-639 / NEMA WC74 – 2000:** 5-46 kV Shielded Power Cable for Use in the Transmission and Distribution of Electrical Energy

**ANSI/ICEA T-26-465 / NEMA WC54 – 2008:** Guide for Frequency of Sampling Extruded Dielectric Power, Control, Instrumentation and Portable Cables for Test

**TS EN 50575:2014+A1:2016:** Power, control and communication cables. Cables for general applications in construction works subject to reaction to fire requirements

**IEC 60502-1:2004:** Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1,2 kV) up to 30 kV (Um = 36 kV). Part 1: Cables for rated voltages of 1kV (Um = 1,2 kV) and 3 kV (Um = 3,6 kV)

**IEC 60502-2:2014:** Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1,2 kV) up to 30 kV (Um = 36 kV). Part 2: Cables for rated voltages from 6 kV (Um = 7,2 kV) up to 30 kV (Um = 36 kV)

**IEC 60364:** Low-voltage electrical installations.

**IEC 61000:** Electromagnetic compatibility (EMC).

**IEC 61200-52:** Electrical installation guide - Part 52: Selection and erection of electrical equipment - Wiring systems

**IEC 61820:** Electrical installations for lighting and beaconing of aerodromes - Constant current series circuits for aeronautical ground lighting: System design and installation requirements

**IEC 61821:** Electrical installations for lighting and beaconing of aerodromes - Maintenance of aeronautical ground lighting constant current series circuits

**IEC 60364-4-44:** Low-voltage electrical installations Part 4-44: Protection for safety.

**IEC 60228:** Conductors of insulated cables

**IEC 60331-1-2:** Test for vertical flame propagation for single insulated wire or cable.

**IEC 60331-3-22:** Test for vertical flame spread of vertically - mouted bunched wires or cables - Category A

**IEC 60332-3-24:** Test for vertical flame spread of vertically-mounted bunched wires or cables - Category C

**IEC 60754-1:** Test on gases evolved during combustion of materials from cables. Part 1: Determination of the halogen acid gas content.

**IEC 60754-2:** Test on gases evolved during combustion of materials from cables. Part 2: Determination of acidity (by pH measurement) and conductivity.

**IEC 60811:** Common test methods for insulating and sheathing materials of electric cables.

**IEC 61034-1:** Measurement of smoke density of cables burning under defined conditions - Part 1: Test apparatus.

**AC 150/5345-7:** FAA Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits

**AC 150/5345-3:** FAA Specification for L-821 Panels for Control of Airport Lighting.

**AC 150/5345-26:** FAA Specification for L-823 Plug and Receptacle,

**AC 150/5345-46:** FAA Specification for Runway and Taxiway Light Fixtures.

**AC 150/5345-47:** FAA Specification for Series to Series Isolation Transformers for Airport Lighting Systems.

**AC 150/5345-50:** FAA Specification for Portable Runway Lights.

**AC 150/5345-53:** FAA Airport Lighting Equipment Certification Program.

**AC 150/5345-54:** FAA Specification for L-884 Power and Control Unit for Land and Hold Short Lighting Systems

## NOTES:

- FAA ACs are available for download on the FAA Airports Web site: [http://www.faa.gov/airports/resources/advisory\\_Copies\\_of\\_ICEA/](http://www.faa.gov/airports/resources/advisory_Copies_of_ICEA/)
- NEMA publications may be purchased from the International Cable Engineer's Association, Inc. (ICEA) website: [www.icea.net/Public\\_Pages/Documents/NewPowerDocumentsPage.html](http://www.icea.net/Public_Pages/Documents/NewPowerDocumentsPage.html).

# TECHNICAL DATA

## DEFINITIONS AND APPLICABLE STANDARDS

### AFL - AGL

**AFL:** Air Field Lighting      **AGL:** Aerodrome Ground Lighting

Aerodrome lighting provides visual guidance to pilots for aircraft approaching departing and moving around airfield at aerodromes.

### Primary cable - Primary Circuit

The airfield lighting primary cable is the cable that connects the current power source - constant current or mains isolating transformer to the isolating transformers for the lights in the runways, airfield lighting. This cable is available in voltage ratings of 3 kV and 5 kV. The 5 kV cable was introduced to allow circuit loads above 10 kW with the resultant increased system voltage. Where primary cables with metallic screens are used, the metallic screen must be earthed.

### Secondary cable - Secondary Circuit

The Secondary cables are used for providing the connection between the runway transformers and the lamps. Secondary cable which runs from isolating transformer to the light fitting is mainly a multiple two cores rubber cables. This cable is available in two voltage ratings of 600 V. The standard wire size used to be 1.5 mm<sup>2</sup>, 2.5 and 4 mm<sup>2</sup>

### Type B Cables

Single and multiple conductor cables rated 600 volts and 5,000 volts having EPR - ethylene propylene insulation.

### Type C Cables

Single and multiple conductor cables rated 600 volts and 5,000 volts having XLPE - cross-linked polyethylene insulation.

### Series Circuits

The circuit elements of series circuits are connected in a string with the same current flowing in each element. The circuit is one continuous loop starting and ending at the output terminals of the constant current regulator. The alternative to a parallel system is to connect the lights in series.

### Parallel Circuits

Parallel circuit system uses a 'constant' voltage with two wires; one wire running to all the lights in the circuit and the other wire returning from the lights to source of power. This system of cabling is the most simple and convenient, as it requires only a constant voltage which is available from the AC mains or a DC battery supply.

### Megger test

Method of testing making use of an insulation resistance meter that will help to verify the condition of electrical insulation. Method of testing making use of an insulation resistance meter that will help to verify the condition of electrical insulation.

# TECHNICAL DATA

## CODING OF ÜNTEL AIRPORT CABLES

**BCL2:** Bare Class 2 Copper wire

**BCL5:** Bare Class 5 Copper Wire

**TCL2:** Tinned Class 2 Copper Wire

**BAWGB:** Bare Class B Copper Wire

**TAWGB:** Tinned Class B Copper Wire

**BAWGC:** Bare Class C Copper Wire

**TAWGC:** Tinned Class C Copper Wire

**CUT:** Copper Tape

**BRT:** Brass Tape

**BCUB:** Braided Screen with  
Bare Copper Wires

**EXSC:** Extruded Semi Conductive Compound

**SCT:** Semi Conductive Tape

**XLPE:** Cross-linked Polyethylen

**EPR:** Ethylene Propylene Rubber

**PE:** Polyethylene

**PVC:** Polyvinyl Chloride

**CPE-XL-HD:** Chlorinated Polyethylene, Cross-Linked, Heavy Duty

**PCP - E:** Heavy-Duty Neoprene, Polychloroprene or Equivalent

**LSZH:** Low Smoke Zero Halogen Compound

**TCUB:** Braided Screen with Tinned Copper Wires

## TOLERANCE FOR OUTER DIAMETER OF AGL CABLES

Nominal Outer Diameter (mm)	Tolerance (+/-mm)
1,0 - 10,0	0,5
10,1 - 20,0	1,0
20,1 - 30,0	1,5
30,1 - 40,0	2,0
40,1 - 50,0	2,6
50,1 - 60,0	3,0
60,1 - 70,0	3,5
70,1 - 80,0	4,0

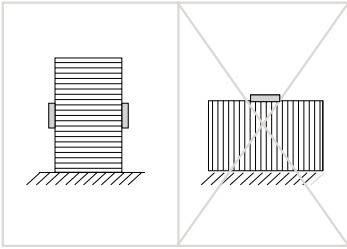
# TECHNICAL DATA

US WIRE GAUGE				METRIC SYSTEM
AWG	OR MCM	mm <sup>2</sup>	mm	mm <sup>2</sup>
	1300 MCM	659,00	28,97	625
	1000 MCM	506,71	25,40	500
	800 MCM	405,35	22,72	
	700 MCM	354,71	21,25	
	600 MCM	304,00	19,67	300
	500 MCM	253,35	17,96	240
	400 MCM	202,71	16,06	
	350 MCM	177,00	15,01	185
	300 MCM	154,00	14,00	150
	250 MCM	126,64	12,70	120
	4/0	107,20	11,68	95
	3/0	85,03	10,04	
	2/0	67,43	9,26	70
	1/0	53,48	8,25	50
	1	42,41	7,34	
	2	33,63	6,55	35
	3	26,67	5,83	
	4	21,15	5,19	25
	5	16,77	4,60	
	6	13,30	4,11	16
	7	10,55	3,67	
	8	8,37	3,26	10
	9	6,63	2,91	
	10	5,26	2,59	6
	11	4,17	2,31	
	12	3,31	2,05	4
	13	2,62	1,83	2,5
	14	2,08	1,63	2,5
	15	1,65	1,45	
	16	1,31	1,29	1,3 or 1,5
	17	1,03	1,15	1
	18	0,823	1,00	0,75
	19	0,653	0,91	
	20	0,51	0,81	0,50

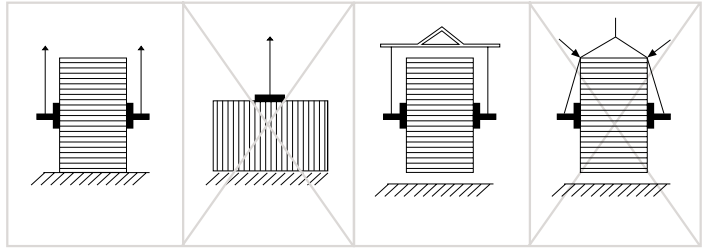
# TECHNICAL DATA

## Cables and Drums User Guide Drums Handling

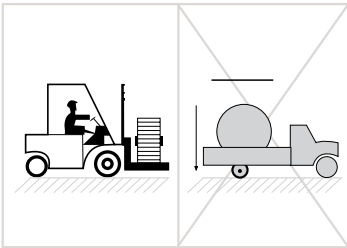
### 1.1. Position of Drums



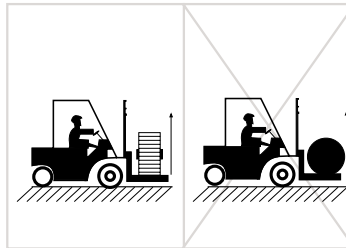
### 1.2. Loading



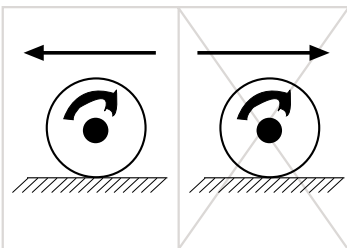
### 1.3. Unloading



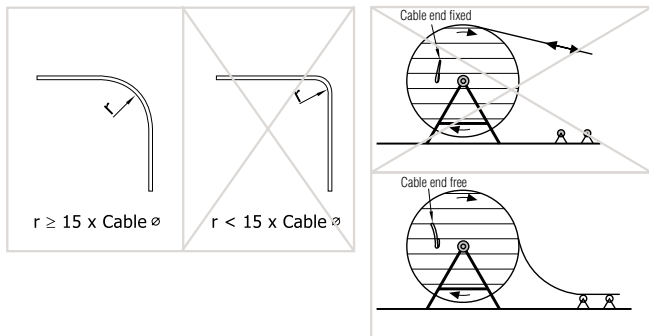
### 1.4. Handling by forklift



### 1.5. Rolling

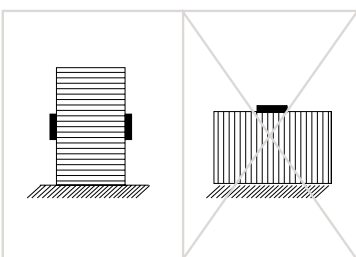


### 1.6. Paying-off the Cable

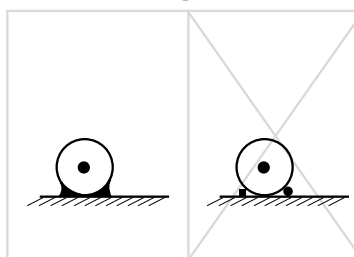


## Transport Requirements

### 2.1. Position of the Drums

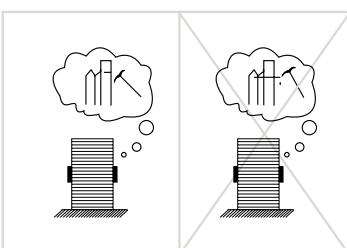


### 2.2. Fastening Drums

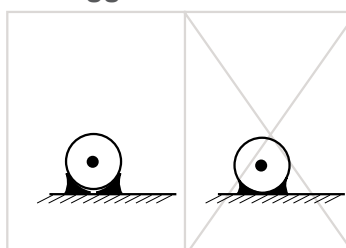


## Cables and Drums User Guide

### 2.3. Use of nails

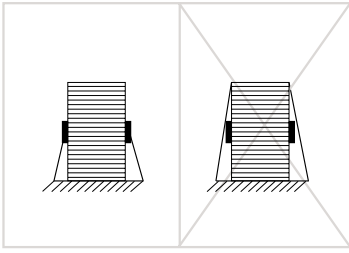


### 2.4. Bigger Drums

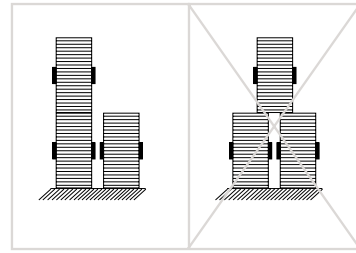


# TECHNICAL DATA

## 2.5. Binding of the Drums

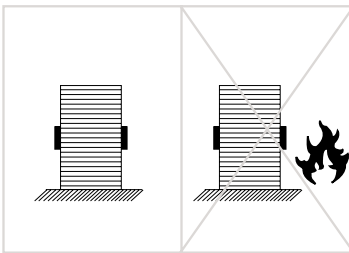


## 2.6. Multiple Drum Storage

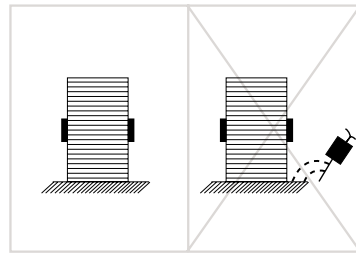


## Storage Requirements

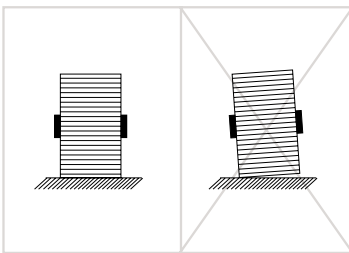
### 3.1. Do not store near heat sources



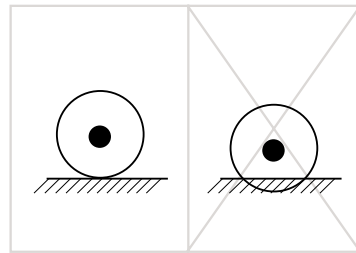
### 3.2. Do not store on vibrating surfaces. (Ship engine room etc.)



### 3.3. Do not store on irregular surfaces.



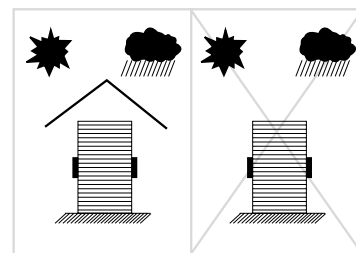
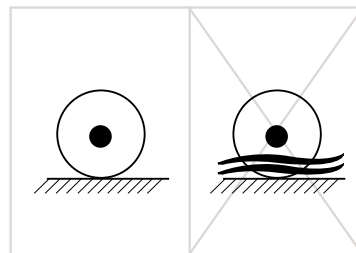
### 3.4. Do not store on soft surfaces



## Cables and Drums User Guide

3.5. Do not store on areas liable of flooding. All cable ends must be fully sealed at all times to prevent the ingress of water. It is preferable to store reels off the ground on timbers or other supports. In damp locations, it is advisable to allow at least 3 inches between reels to permit circulation of air.

3.6. If storage is likely to last more than 6 months, drums should be stored in order to be protected from effects like rain, sunlight etc.













**OFFSHORE  
CABLES**



**AIRPORT  
CABLES**



**CRANE  
CABLES**



**MINING  
CABLES**



**DEFENSE  
INDUSTRY  
CABLES**



**MARINE  
CABLES**



**RAILWAY  
CABLES**



**INDUSTRIAL  
CABLES**



**TUNNELLING  
CABLES**



**INSTRUMENTATION  
CABLES**



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