

TECHNICAL DATA SHEET

HVCRC® 160 - 18 Epsilon Advanced Conductors


EPSILON
CABLE

| | |
|-----------------------|---------------------|
| International size | BERN |
| ASTM Size | - |
| Technical designation | ECRC® 160-AL0/18-L1 |



Governing Units: Metric

STRANDING CONFIGURATION

| | | | |
|---|--|----------------|---------|
|  | No. & Diameter of HVCRC core | 1 x 4.82 | mm |
| | Aluminium Layers Construction / height | 16 TW x | 2.67 mm |
| | 1st layer composition and ϕ_{eq} | 6 x | 3.54 mm |
| | 2nd layer composition and ϕ_{eq} | 10 x | 3.57 mm |
| | Lay Direction of outer layer | Right Hand (Z) | |

CONDUCTOR PROPERTIES

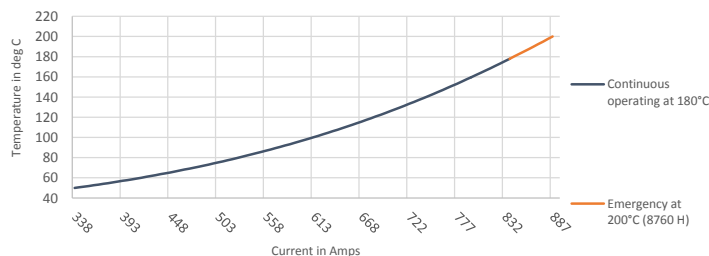
| | | |
|--|-------|----------------------------------|
| Cross Sectional Area - Annealed Aluminium | 159.1 | mm ² |
| Cross Sectional Area - HVCRC Core | 18.2 | mm ² |
| Total Area of Conductor Cross Section | 177.4 | mm ² |
| Nominal equivalent Aluminium Area (1350-H19 at 61%IACS) | 164.4 | mm ² |
| Overall Diameter of Conductor | 15.5 | mm |
| Mass per unit length - Annealed Aluminium | 440.0 | kg/km |
| Mass per unit length - Core | 33.8 | kg/km |
| Mass per unit length - Conductor | 473.8 | kg/km |
| Ultimate Tensile Strength of Conductor | 48.5 | kN |
| Core Rated Tensile Strength | 39.0 | kN |
| Coefficient of Linear Expansion Above Thermal Kneepoint | 1.6 | 10 ⁻⁶ K ⁻¹ |
| Coefficient of Linear Expansion Below Thermal Kneepoint | 18.95 | 10 ⁻⁶ K ⁻¹ |
| Final Modulus of Elasticity Above Thermal Kneepoint | 112 | GPa |
| Final Modulus of Elasticity Below Thermal Kneepoint | 61 | GPa |

THERMAL SPECIFICATIONS

| | | |
|---|-------|----------|
| Maximum Continuous Operating Temperature ⁽²⁾ (surface temperature) | 180 | °C |
| Maximum Emergency Temperature / 8760 Hours ⁽²⁾ (surface temperature) | 200 | °C |
| Thermal Heat Capacity for Annealed Aluminium Layers | 420.2 | W.s/m.°C |
| Thermal Heat Capacity for Composite Core | 27.0 | W.s/m.°C |

ELECTRICAL SPECIFICATIONS

| | | |
|---|--------|----------------------------------|
| Maximum DC Electrical Resistance at 20°C (1370-O at 63%IACS) | 0.1758 | Ω.km ⁻¹ |
| Temperature Coefficient of Resistance | 4.03 | 10 ⁻³ K ⁻¹ |
| AC Nominal Resistance at 25°C (surface temperature) | 0.1798 | Ω.km ⁻¹ |
| AC Nominal Resistance at 75°C (surface temperature) | 0.2151 | Ω.km ⁻¹ |
| AC Nominal Resistance at 160°C (surface temperature) | 0.2753 | Ω.km ⁻¹ |
| AC Nominal Resistance at 180°C (surface temperature) | 0.2894 | Ω.km ⁻¹ |
| AC Nominal Resistance at 200°C (surface temperature) | 0.3036 | Ω.km ⁻¹ |
| AC Current Rating at 160°C (surface temperature) ⁽¹⁾ | 795 | A |
| AC Current Rating at 180°C (surface temperature) ⁽¹⁾ | 843 | A |
| AC Current Rating at 200°C (surface temperature) ⁽¹⁾ | 887 | A |



(1) Ampacity calculations based on IEEE Standard 738-2012, according to the following data:

| | |
|--|---|
| 25 °C ambient temperature, | 0.61 m/s wind velocity with an angle of 90 °, |
| 1000 W/m ² solar radiation, | 0.5 solar absorption coefficient, |
| 0.6 emissivity coefficient, | Resistance AC at 50 Hz current frequency. |

(2) Temperatures defined according to ASTM B987-20.

Reference standards for core properties: ASTM B987-20.

Reference standards for electrical specifications: IEC 62219.

Reference standards for stranding parameters: ASTM B857-14/IEC 62219.

Depending on conductor manufacturer rated specifications may slightly change.

Geometric Mean Radius (GMR)

- mm

Inductive Reactance Ø0.3m radius

- Ω.km⁻¹

Capacitive Reactance Ø0.3m radius

- MΩ.km

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