

TECHNICAL DATA SHEET

HVCRC® 160 - 28 Epsilon Advanced Conductors

EPSILON
CABLE

International size	HELSINKI
ASTM Size	PASADENA
Technical designation	ECRC® 160-AL0/28-L1



Governing Units: Metric

STRANDING CONFIGURATION

	No. & Diameter of HVCRC core	1 x 5.97	mm
	Aluminium Layers Construction / height	18 TW x	2.42 mm
	1st layer composition and ϕ_{eq}	7 x	3.29 mm
	2nd layer composition and ϕ_{eq}	11 x	3.28 mm
	Lay Direction of outer layer	Right Hand (Z)	

CONDUCTOR PROPERTIES

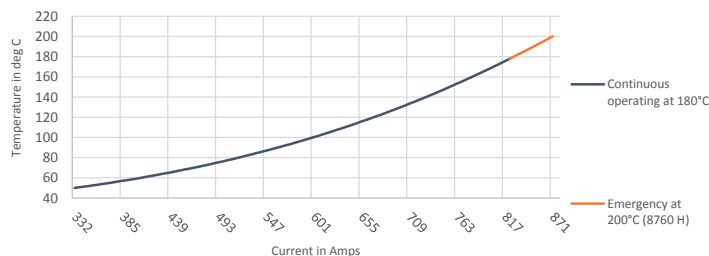
Cross Sectional Area - Annealed Aluminium	152.5	mm ²
Cross Sectional Area - HVCRC Core	28.0	mm ²
Total Area of Conductor Cross Section	180.5	mm ²
Nominal equivalent Aluminium Area (1350-H19 at 61%IACS)	157.5	mm ²
Overall Diameter of Conductor	15.65	mm
Mass per unit length - Annealed Aluminium	422.0	kg/km
Mass per unit length - Core	51.8	kg/km
Mass per unit length - Conductor	473.8	kg/km
Ultimate Tensile Strength of Conductor	69.0	kN
Core Rated Tensile Strength	59.8	kN
Coefficient of Linear Expansion Above Thermal Kneepoint	1.6	10 ⁻⁶ K ⁻¹
Coefficient of Linear Expansion Below Thermal Kneepoint	17.18	10 ⁻⁶ K ⁻¹
Final Modulus of Elasticity Above Thermal Kneepoint	112	GPa
Final Modulus of Elasticity Below Thermal Kneepoint	64	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	403.0	W.s/m.°C
Thermal Heat Capacity for Composite Core	41.4	W.s/m.°C

ELECTRICAL SPECIFICATIONS

Maximum DC Electrical Resistance at 20°C (1370-O at 63%IACS)	0.1836	Ω.km ⁻¹
Temperature Coefficient of Resistance	4.03	10 ⁻³ K ⁻¹
AC Nominal Resistance at 25°C (surface temperature)	0.1877	Ω.km ⁻¹
AC Nominal Resistance at 75°C (surface temperature)	0.2247	Ω.km ⁻¹
AC Nominal Resistance at 160°C (surface temperature)	0.2875	Ω.km ⁻¹
AC Nominal Resistance at 180°C (surface temperature)	0.3023	Ω.km ⁻¹
AC Nominal Resistance at 200°C (surface temperature)	0.3170	Ω.km ⁻¹
AC Current Rating at 160°C (surface temperature) ⁽¹⁾	780	A
AC Current Rating at 180°C (surface temperature) ⁽¹⁾	827	A
AC Current Rating at 200°C (surface temperature) ⁽¹⁾	871	A



Geometric Mean Radius (GMR)	6.44	mm
Inductive Reactance Ø0.3m radius	0.242	Ω.km ⁻¹
Capacitive Reactance Ø0.3m radius	0.21	MΩ.km

(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.

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