

TECHNICAL DATA SHEET
HVCRC® 320 - 60
 Epsilon Advanced Conductors

EPSILON
CABLE

International size	OSLO
ASTM Size	IRVING
Technical designation	ECRC® 320-AL0/60-S1



Governing Units: Metric

STRANDING CONFIGURATION

	No. & Diameter of HVCRC core	1 x 8.76	mm
	Aluminium Layers Construction / height	20 TW x	3.41 mm
	1st layer composition and ϕ_{eq}	8 x	4.44 mm
	2nd layer composition and ϕ_{eq}	12 x	4.50 mm
	Lay Direction of outer layer	Right Hand (Z)	

CONDUCTOR PROPERTIES

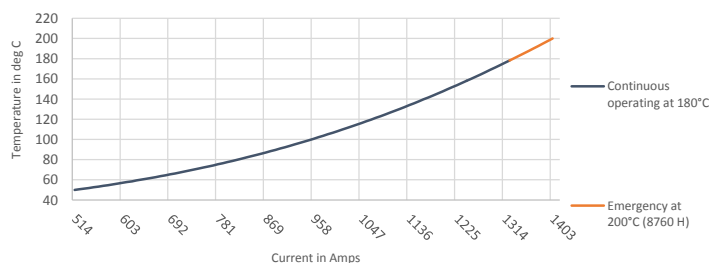
Cross Sectional Area - Annealed Aluminium	315.2	mm ²
Cross Sectional Area - HVCRC Core	60.3	mm ²
Total Area of Conductor Cross Section	375.4	mm ²
Nominal equivalent Aluminium Area (1350-H19 at 61%IACS)	325.5	mm ²
Overall Diameter of Conductor	22.4	mm
Mass per unit length - Annealed Aluminium	872.0	kg/km
Mass per unit length - Core	111.5	kg/km
Mass per unit length - Conductor	983.5	kg/km
Ultimate Tensile Strength of Conductor	154.1	kN
Core Rated Tensile Strength	135.2	kN
Coefficient of Linear Expansion Above Thermal Kneepoint	1.3	10 ⁻⁶ K ⁻¹
Coefficient of Linear Expansion Below Thermal Kneepoint	16.50	10 ⁻⁶ K ⁻¹
Final Modulus of Elasticity Above Thermal Kneepoint	123	GPa
Final Modulus of Elasticity Below Thermal Kneepoint	66	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	832.8	W.s/m.°C
Thermal Heat Capacity for Composite Core	89.2	W.s/m.°C

ELECTRICAL SPECIFICATIONS

Maximum DC Electrical Resistance at 20°C (1370-O at 63%IACS)	0.0889	Ω.km ⁻¹
Temperature Coefficient of Resistance	4.03	10 ⁻³ K ⁻¹
AC Nominal Resistance at 25°C (surface temperature)	0.0916	Ω.km ⁻¹
AC Nominal Resistance at 75°C (surface temperature)	0.1094	Ω.km ⁻¹
AC Nominal Resistance at 160°C (surface temperature)	0.1396	Ω.km ⁻¹
AC Nominal Resistance at 180°C (surface temperature)	0.1468	Ω.km ⁻¹
AC Nominal Resistance at 200°C (surface temperature)	0.1539	Ω.km ⁻¹
AC Current Rating at 160°C (surface temperature) ⁽¹⁾	1,251	A
AC Current Rating at 180°C (surface temperature) ⁽¹⁾	1,330	A
AC Current Rating at 200°C (surface temperature) ⁽¹⁾	1,403	A


Geometric Mean Radius (GMR)

9.25 mm

Inductive Reactance Ø0.3m radius

 0.22 Ω.km⁻¹
Capacitive Reactance Ø0.3m radius

0.189 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/m² 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.

Revision 02
 Ref. Document ST21-00098
 Date 12-Sep-2023

This document is the property of EPSILON COMPOSITE

contact@epsilon-cable.com
www.epsilon-cable.com