

TECHNICAL DATA SHEET

HVCRC® 280 - 40 Epsilon Advanced Conductors

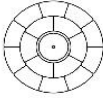
EPSILON
CABLE

International size	CASABLANCA
ASTM Size	LAREDO
Technical designation	ECRC® 280-AL0/40-S1



Governing Units: Metric

STRANDING CONFIGURATION

	No. & Diameter of HVCRC core	1 x 7.11	mm
	Aluminium Layers Construction / height	16 TW x	3.35 mm
	1st layer composition and Øeq	6 x	4.72 mm
	2nd layer composition and Øeq	10 x	4.66 mm
	Lay Direction of outer layer	Right Hand (Z)	

CONDUCTOR PROPERTIES

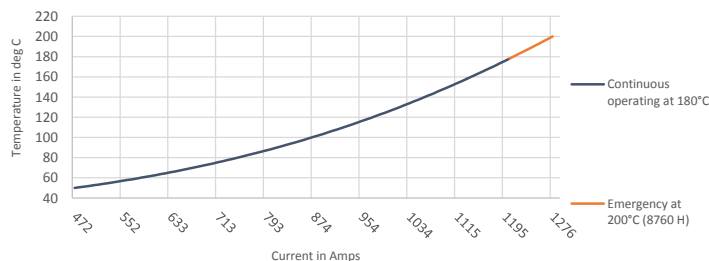
Cross Sectional Area - Annealed Aluminium	275.5	mm²
Cross Sectional Area - HVCRC Core	39.7	mm²
Total Area of Conductor Cross Section	315.2	mm²
Nominal equivalent Aluminium Area (1350-H19 at 61%IACS)	284.5	mm²
Overall Diameter of Conductor	20.51	mm
Mass per unit length - Annealed Aluminium	762.0	kg/km
Mass per unit length - Core	73.5	kg/km
Mass per unit length - Conductor	835.5	kg/km
Ultimate Tensile Strength of Conductor	105.6	kN
Core Rated Tensile Strength	89.1	kN
Coefficient of Linear Expansion Above Thermal Kneepoint	1.3	10 ⁻⁶ K ⁻¹
Coefficient of Linear Expansion Below Thermal Kneepoint	17.71	10 ⁻⁶ K ⁻¹
Final Modulus of Elasticity Above Thermal Kneepoint	123	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	727.7	W.s/m.°C
Thermal Heat Capacity for Composite Core	58.8	W.s/m.°C

ELECTRICAL SPECIFICATIONS

Maximum DC Electrical Resistance at 20°C (1370-O at 63%IACS)	0.1016	Ω.km ⁻¹
Temperature Coefficient of Resistance	4.03	10 ⁻³ K ⁻¹
AC Nominal Resistance at 25°C (surface temperature)	0.1044	Ω.km ⁻¹
AC Nominal Resistance at 75°C (surface temperature)	0.1248	Ω.km ⁻¹
AC Nominal Resistance at 160°C (surface temperature)	0.1594	Ω.km ⁻¹
AC Nominal Resistance at 180°C (surface temperature)	0.1676	Ω.km ⁻¹
AC Nominal Resistance at 200°C (surface temperature)	0.1758	Ω.km ⁻¹
AC Current Rating at 160°C (surface temperature) ⁽¹⁾	1,139	A
AC Current Rating at 180°C (surface temperature) ⁽¹⁾	1,210	A
AC Current Rating at 200°C (surface temperature) ⁽¹⁾	1,276	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/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.

Geometric Mean Radius (GMR)

8.36 mm

Inductive Reactance Ø0.3m radius

0.226 Ω.km⁻¹

Capacitive Reactance Ø0.3m radius

0.194 MΩ.km

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