

TECHNICAL DATA SHEET

HVCRC® 1020 - 75
Epsilon Advanced Conductors

EPSILON
CABLE

International size	MADRID
ASTM Size	LAPWING
Technical designation	ECRC® 1020-AL0/75-S1



Governing Units: Metric

STRANDING CONFIGURATION

	No. & Diameter of HVCRC core	1 x 9.78	mm
	Aluminium Layers Construction / height	56 TW x	3.55 mm
	1st layer composition and Øeq	8 x	4.76 mm
	2nd layer composition and Øeq	12 x	4.80 mm
	3st layer composition and Øeq	16 x	4.81 mm
	4st layer composition and Øeq	20 x	4.81 mm
	Lay Direction of outer layer	Right Hand (Z)	

CONDUCTOR PROPERTIES

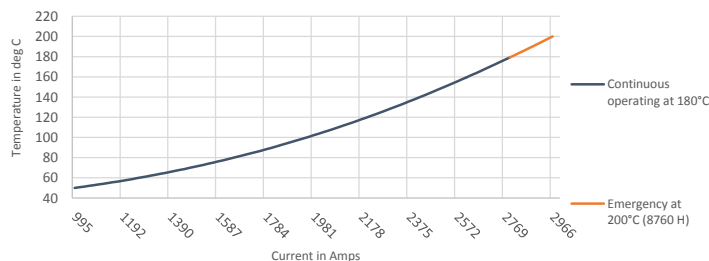
Cross Sectional Area - Annealed Aluminium	1,012.7	mm ²
Cross Sectional Area - HVCRC Core	75.1	mm ²
Total Area of Conductor Cross Section	1,087.8	mm ²
Nominal equivalent Aluminium Area (1350-H19 at 61%IACS)	1,045.9	mm ²
Overall Diameter of Conductor	38.18	mm
Mass per unit length - Annealed Aluminium	2,805.0	kg/km
Mass per unit length - Core	139.0	kg/km
Mass per unit length - Conductor	2,944.0	kg/km
Ultimate Tensile Strength of Conductor	229.3	kN
Core Rated Tensile Strength	168.6	kN
Coefficient of Linear Expansion Above Thermal Kneepoint	1.3	10 ⁻⁶ K ⁻¹
Coefficient of Linear Expansion Below Thermal Kneepoint	19.91	10 ⁻⁶ K ⁻¹
Final Modulus of Elasticity Above Thermal Kneepoint	123	GPa
Final Modulus of Elasticity Below Thermal Kneepoint	60	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	2,678.8	W.s/m.°C
Thermal Heat Capacity for Composite Core	111.2	W.s/m.°C

ELECTRICAL SPECIFICATIONS

Maximum DC Electrical Resistance at 20°C (1370-O at 63%IACS)	0.0277	Ω.km ⁻¹
Temperature Coefficient of Resistance	4.03	10 ⁻³ K ⁻¹
AC Nominal Resistance at 25°C (surface temperature)	0.0309	Ω.km ⁻¹
AC Nominal Resistance at 75°C (surface temperature)	0.0361	Ω.km ⁻¹
AC Nominal Resistance at 160°C (surface temperature)	0.0452	Ω.km ⁻¹
AC Nominal Resistance at 180°C (surface temperature)	0.0473	Ω.km ⁻¹
AC Nominal Resistance at 200°C (surface temperature)	0.0495	Ω.km ⁻¹
AC Current Rating at 160°C (surface temperature) ⁽¹⁾	2,615	A
AC Current Rating at 180°C (surface temperature) ⁽¹⁾	2,796	A
AC Current Rating at 200°C (surface temperature) ⁽¹⁾	2,966	A



Geometric Mean Radius (GMR)	15.27	mm
Inductive Reactance Ø0.3m radius	0.188	Ω.km ⁻¹
Capacitive Reactance Ø0.3m radius	0.159	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.

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