

TECHNICAL DATA SHEET

HVCRC® 520 - 60 Epsilon Advanced Conductors

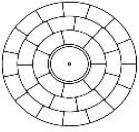
EPSILON
CABLE

International size	WARSAW
ASTM Size	CUCKOO
Technical designation	ECRC® 520-AL0/60-S1



Governing Units: Metric

STRANDING CONFIGURATION

	No. & Diameter of HVCRC core	1 x 8.76	mm
	Aluminium Layers Construction / height	33 TW x	3.16 mm
	1st layer composition and Øeq	7 x	4.54 mm
	2nd layer composition and Øeq	11 x	4.45 mm
	3st layer composition and Øeq	15 x	4.41 mm
	Lay Direction of outer layer	Right Hand (Z)	

CONDUCTOR PROPERTIES

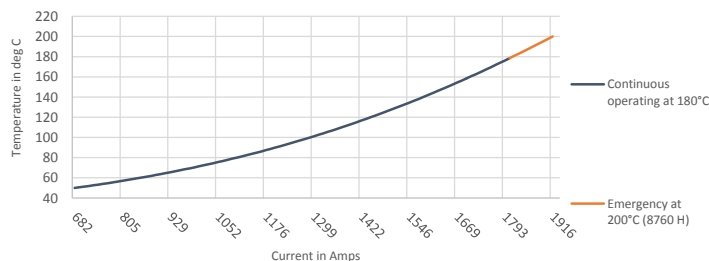
Cross Sectional Area - Annealed Aluminium	513.1	mm ²
Cross Sectional Area - HVCRC Core	60.3	mm ²
Total Area of Conductor Cross Section	573.4	mm ²
Nominal equivalent Aluminium Area (1350-H19 at 61%IACS)	529.9	mm ²
Overall Diameter of Conductor	27.72	mm
Mass per unit length - Annealed Aluminium	1,421.0	kg/km
Mass per unit length - Core	111.5	kg/km
Mass per unit length - Conductor	1,532.5	kg/km
Ultimate Tensile Strength of Conductor	166.0	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	18.49	10 ⁻⁶ K ⁻¹
Final Modulus of Elasticity Above Thermal Kneepoint	123	GPa
Final Modulus of Elasticity Below Thermal Kneepoint	62	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	1,357.1	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)	0.0546	Ω.km ⁻¹
Temperature Coefficient of Resistance	4.03	10 ⁻³ K ⁻¹
AC Nominal Resistance at 25°C (surface temperature)	0.0571	Ω.km ⁻¹
AC Nominal Resistance at 75°C (surface temperature)	0.0679	Ω.km ⁻¹
AC Nominal Resistance at 160°C (surface temperature)	0.0864	Ω.km ⁻¹
AC Nominal Resistance at 180°C (surface temperature)	0.0907	Ω.km ⁻¹
AC Nominal Resistance at 200°C (surface temperature)	0.0951	Ω.km ⁻¹
AC Current Rating at 160°C (surface temperature) ⁽¹⁾	1,703	A
AC Current Rating at 180°C (surface temperature) ⁽¹⁾	1,813	A
AC Current Rating at 200°C (surface temperature) ⁽¹⁾	1,916	A



Geometric Mean Radius (GMR)	11.22	mm
Inductive Reactance Ø0.3m radius	0.207	Ω.km ⁻¹
Capacitive Reactance Ø0.3m radius	0.177	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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