

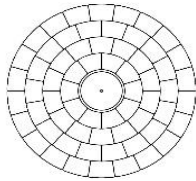
**TECHNICAL DATA SHEET**
**HVCRC® 1160 - 79**

Epsilon Advanced Conductors

**EPSILON  
CABLE**


Governing Units: Metric

**STRANDING CONFIGURATION**

	No. & Diameter of HVCRC core	1 x 10.03	mm
	Aluminium Layers Construction / height	64 TW x	3.84 mm
	1st layer composition and $\phi_{eq}$	10 x	4.50 mm
	2nd layer composition and $\phi_{eq}$	14 x	4.74 mm
	3rd layer composition and $\phi_{eq}$	18 x	4.86 mm
	4th layer composition and $\phi_{eq}$	22 x	4.91 mm
	Lay Direction of outer layer	Right Hand (Z)	

**CONDUCTOR PROPERTIES**

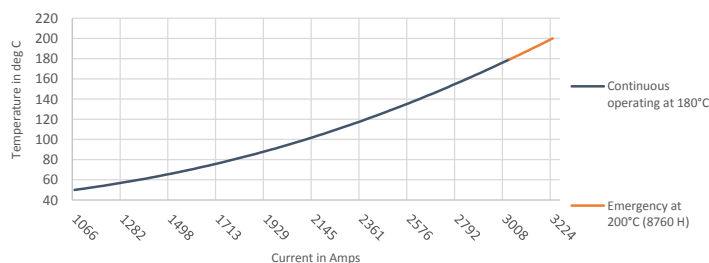
Cross Sectional Area - Annealed Aluminium	1,156.4	mm <sup>2</sup>
Cross Sectional Area - HVCRC Core	79.0	mm <sup>2</sup>
Total Area of Conductor Cross Section	1,235.4	mm <sup>2</sup>
Nominal equivalent Aluminium Area (1350-H19 at 61%IACS)	1,194.3	mm <sup>2</sup>
Overall Diameter of Conductor	40.74	mm
Mass per unit length - Annealed Aluminium	3,206.8	kg/km
Mass per unit length - Core	146.2	kg/km
Mass per unit length - Conductor	3,353.0	kg/km
Ultimate Tensile Strength of Conductor	246.7	kN
Core Rated Tensile Strength	177.3	kN
Coefficient of Linear Expansion <b>Above</b> Thermal Kneepoint	1.3	10 <sup>-6</sup> K <sup>-1</sup>
Coefficient of Linear Expansion <b>Below</b> Thermal Kneepoint	20.12	10 <sup>-6</sup> K <sup>-1</sup>
Final Modulus of Elasticity <b>Above</b> Thermal Kneepoint	123	GPa
Final Modulus of Elasticity <b>Below</b> Thermal Kneepoint	59	GPa

**THERMAL SPECIFICATIONS**

Maximum Continuous Operating Temperature <sup>(2)</sup> (surface temperature)	180	°C
Maximum Emergency Temperature / 8760 Hours <sup>(2)</sup> (surface temperature)	200	°C
Thermal Heat Capacity for Annealed Aluminium Layers	3,062.5	W.s/m. °C
Thermal Heat Capacity for Composite Core	116.9	W.s/m. °C

**ELECTRICAL SPECIFICATIONS**

Maximum DC Electrical Resistance at 20°C (1370-O at 63%IACS)	0.0243	Ω.km <sup>-1</sup>
Temperature Coefficient of Resistance	4.03	10 <sup>-3</sup> K <sup>-1</sup>
AC Nominal Resistance at 25°C (surface temperature)	0.0278	Ω.km <sup>-1</sup>
AC Nominal Resistance at 75°C (surface temperature)	0.0323	Ω.km <sup>-1</sup>
AC Nominal Resistance at 160°C (surface temperature)	0.0401	Ω.km <sup>-1</sup>
AC Nominal Resistance at 180°C (surface temperature)	0.0419	Ω.km <sup>-1</sup>
AC Nominal Resistance at 200°C (surface temperature)	0.0438	Ω.km <sup>-1</sup>
AC Current Rating at 160°C (surface temperature) <sup>(1)</sup>	2,837	A
AC Current Rating at 180°C (surface temperature) <sup>(1)</sup>	3,036	A
AC Current Rating at 200°C (surface temperature) <sup>(1)</sup>	3,224	A


**Geometric Mean Radius (GMR)**

16.25 mm

**Inductive Reactance Ø0.3m radius**

 0.221 Ω.km<sup>-1</sup>
**Capacitive Reactance Ø0.3m radius**

0.129 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<sup>2</sup> 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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