

TECHNICAL DATA SHEET
HVCRC® 740 - 71

Epsilon Advanced Conductors

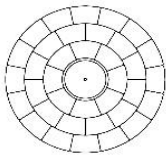
**EPSILON
CABLE**

International size	MUNICH
ASTM Size	BEAUMONT
Technical designation	ECRC® 740-AL0/71-S1



Governing Units: Metric

STRANDING CONFIGURATION

	No. & Diameter of HVCRC core	1 x 9.53	mm
	Aluminium Layers Construction / height	36 TW x	3.89 mm
	1st layer composition and ϕ_{eq}	8 x	5.00 mm
	2nd layer composition and ϕ_{eq}	12 x	5.11 mm
	3rd layer composition and ϕ_{eq}	16 x	5.16 mm
	Lay Direction of outer layer	Right Hand (Z)	

CONDUCTOR PROPERTIES

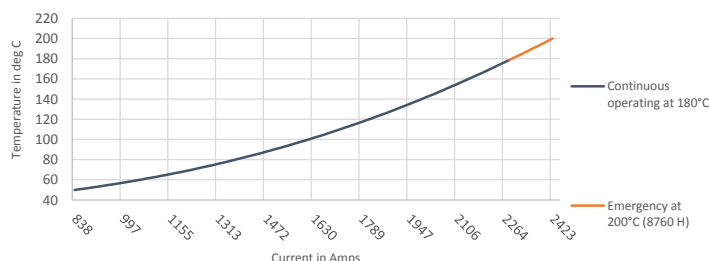
Cross Sectional Area - Annealed Aluminium	737.6	mm ²
Cross Sectional Area - HVCRC Core	71.3	mm ²
Total Area of Conductor Cross Section	808.9	mm ²
Nominal equivalent Aluminium Area (1350-H19 at 61%IACS)	761.8	mm ²
Overall Diameter of Conductor	32.87	mm
Mass per unit length - Annealed Aluminium	2,042.0	kg/km
Mass per unit length - Core	132.0	kg/km
Mass per unit length - Conductor	2,174.0	kg/km
Ultimate Tensile Strength of Conductor	204.3	kN
Core Rated Tensile Strength	160.1	kN
Coefficient of Linear Expansion Above Thermal Kneepoint	1.3	10 ⁻⁶ K ⁻¹
Coefficient of Linear Expansion Below Thermal Kneepoint	19.14	10 ⁻⁶ K ⁻¹
Final Modulus of Elasticity Above Thermal Kneepoint	123	GPa
Final Modulus of Elasticity Below Thermal Kneepoint	61	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	1,950.1	W.s/m. °C
Thermal Heat Capacity for Composite Core	105.6	W.s/m. °C

ELECTRICAL SPECIFICATIONS

Maximum DC Electrical Resistance at 20°C (1370-O at 63%IACS)	0.0380	Ω.km ⁻¹
Temperature Coefficient of Resistance	4.03	10 ⁻³ K ⁻¹
AC Nominal Resistance at 25°C (surface temperature)	0.0408	Ω.km ⁻¹
AC Nominal Resistance at 75°C (surface temperature)	0.0481	Ω.km ⁻¹
AC Nominal Resistance at 160°C (surface temperature)	0.0608	Ω.km ⁻¹
AC Nominal Resistance at 180°C (surface temperature)	0.0638	Ω.km ⁻¹
AC Nominal Resistance at 200°C (surface temperature)	0.0668	Ω.km ⁻¹
AC Current Rating at 160°C (surface temperature) ⁽¹⁾	2,145	A
AC Current Rating at 180°C (surface temperature) ⁽¹⁾	2,288	A
AC Current Rating at 200°C (surface temperature) ⁽¹⁾	2,423	A


Geometric Mean Radius (GMR)

13.22 mm

Inductive Reactance Ø0.3m radius

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

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