DATA SHEET:

TS Britton M3 4.5 2 (12.78) IEC 212

Governing Units: Metric

Mechanical Specifications	Metric		Imperial	
Fully Annealed Al Cross-sectional Area*	107.37	mm^2	211.88	kcmil
Encapsulated Aluminum Cross-Sectional Area	40.84	mm^2	0.06330	in^2
Diameter of Composite Core (Exclude Encapsulation)	4.5	mm	0.17700	in
Cross-sectional Area of Core (Exclude Encapsulation)	15.90	mm^2	0.02465	in^2
Overall Diameter of Conductor	12.780	mm	0.503	in
Cross-sectional Area of the Conductor (Exclude Covering)	123.30	mm^2	0.19107	in^2
Ultimate Tensile Strength of Conductor 1) ,2)	50.49	kN	11.35	kip
Rated Strength of Core - 399 ksi (2750 MPa)	43.68	kN	9.82	kip
Core Mass per unit length (Exclude Encapsulation)	28.00	kg/km	18.82	lb/kft
Conductor Mass per unit length	321.12	kg/km	215.82	lb/kft
Fully Annealed AlMass per unit length (Include Encapsulation)**	293.12	kg/km	197.00	lb/kft
Maximum Emergency Temperature at Surface 3)	200	°C	392	°F
Coefficient of Linear Expansion Above Thermal Kneepoint (core)	0.500	$x10^{-6}/°C$	0.278	$x10^{-6}/°F$
Coefficient of Linear Expansion Below Thermal Kneepoint (conductor)	16.723	$x10^{-6}/°C$	9.291	$x10^{-6}/°F$
Final Modulus of Elasticity Above Thermal Kneepoint (based on core area)	150.0	GPa	21.8	Msi
Final Modulus of Elasticity Below Thermal Kneepoint (based on conductor area)	69.1	GPa	10.0	Msi
Aluminum Heat Capacity	275.2	Watt-s/m-°C	46.6	Watt-s/ft-°F
Core Heat Capacity	23.5	Watt-s/m-°C	4.0	Watt-s/ft-°F
Encapsulation Thickness	2.00	mm	0.07874	in
Stranding Ratio	1.0200			
Covered Thickness	0.000	mm	0.000	in
Electrical Specifications	**Metric**		**Imperial**	
DC Resistance at 20ºC (Fully Annealed Al 63% IACS)	0.2580	ohm/km	0.4153	ohm/mile
DC Resistance at 25ºC	0.2633	ohm/km	0.4237	ohm/mile
DC Resistance at 75ºC	0.3159	ohm/km	0.5085	ohm/mile
Temperature Coefficient of Resistance at 20ºC	0.00408	1/°C	0.00227	1/°F
Frequency	50	Hz	50	Hz
AC Resistance at 25ºC	0.2635	ohm/km	0.4240	ohm/mile
AC Resistance at 75ºC	0.3161	ohm/km	0.5087	ohm/mile
AC Resistance at 180ºC	0.4266	ohm/km	0.6865	ohm/mile
Ampacity 4)		640	@180°C, & A	
		672	@200°C, & A	
GMR (estimated)	5.22	mm	0.0171	ft
Inductive Reactance (Xa: internal flux+external flux radius 1 ft)	0.2555	ohm/km	0.411	ohm/mile
Capacitive Reactance	0.2214	Mohm-km	0.138	Mohm-mile

*TS Britton M3 4.5 2 (12.78) IEC 212 conductor is produced with Fully Annealed Al aluminum. The nominal Aluminum equivaelnt area is 107.4 sq. mm (211.9 kcmil)

**TS® Conductors are required to exhibit lay lengths (ratios) that conform to established ACSR and ACSS standards.

1) Fully Annealed Al rated tensile strength based on applicable standard. Core tensile strength based on 100% of its strength.

2) Strength at ambient temperature, Strength may be reduced to Rated Core Strength when temperature is above knee point

3) Maximum continuous operating temperature of TS Britton M3 4.5 2 (12.78) IEC 212 is 180°C and a maximum emergency temperature of 200°C

4). Ampacity based on: 25°C ambient temperature, 2ft/s (0.6 m/s) perpendicular wind, 0.5 Emis 0.5 Absorb.50 Hz, sea level (0) elevation, 30°N line Azimuth, noon on June 10th (96W/sq.ft, 1033W/sq.m), clear atmosphere

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