

DATA SHEET:

# TS Scaffell M3 11.5 (43.180) IEC 2516



Governing Units: Metric

Mechanical Specifications	Metric		Imperial	
Fully Annealed Al Cross-sectional Area*	1274.85	mm <sup>2</sup>	2515.86	kcmil
Encapsulated Aluminum Cross-Sectional Area	136.66	mm <sup>2</sup>	0.21182	in <sup>2</sup>
Diameter of Composite Core (Exclude Encapsulation)	11.5	mm	0.45300	in
Cross-sectional Area of Core (Exclude Encapsulation)	103.90	mm <sup>2</sup>	0.16100	in <sup>2</sup>
Overall Diameter of Conductor	43.180	mm	1.700	in
Cross-sectional Area of the Conductor (Exclude Covering)	1378.70	mm <sup>2</sup>	2.13701	in <sup>2</sup>
Ultimate Tensile Strength of Conductor 1) ,2)	359.91	kN	80.91	kip
Rated Strength of Core - 399 ksi (2750 MPa)	285.62	kN	64.21	kip
Core Mass per unit length (Exclude Encapsulation)	181.00	kg/km	121.65	lb/kft
Conductor Mass per unit length	3719.25	kg/km	2499.65	lb/kft
Fully Annealed Al Mass per unit length (Include Encapsulation)**	3538.25	kg/km	2378.00	lb/kft
Maximum Emergency Temperature at Surface 3)	200	°C	392	°F
Coefficient of Linear Expansion Above Thermal Kneepoint (core)	0.500	x10 <sup>-6</sup> /°C	0.278	x10 <sup>-6</sup> /°F
Coefficient of Linear Expansion Below Thermal Kneepoint (conductor)	18.944	x10 <sup>-6</sup> /°C	10.524	x10 <sup>-6</sup> /°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)	62.2	GPa	9.0	Msi
Aluminum Heat Capacity	3268.0	Watt-s/m-°C	553.4	Watt-s/ft.°F
Core Heat Capacity	153.6	Watt-s/m-°C	26.0	Watt-s/ft.°F
Encapsulation Thickness	3.00	mm	0.11811	in
Stranding Ratio	1.0320			
Covered Thickness	0.000	mm	0.000	in
Electrical Specifications	Metric		Imperial	
DC Resistance at 20°C (Fully Annealed Al 63% IACS)	0.0221	ohm/km	0.0355	ohm/mile
DC Resistance at 25°C	0.0225	ohm/km	0.0363	ohm/mile
DC Resistance at 75°C	0.0270	ohm/km	0.0435	ohm/mile
Temperature Coefficient of Resistance at 20°C	0.00408	1/°C	0.00227	1/°F
Frequency	50	Hz	50	Hz
AC Resistance at 25°C	0.0249	ohm/km	0.0401	ohm/mile
AC Resistance at 75°C	0.0291	ohm/km	0.0468	ohm/mile
AC Resistance at 180°C	0.0378	ohm/km	0.0609	ohm/mile
Ampacity 4)		3139	@180°C, & A	
		3328	@200°C, & A	
GMR (estimated)	17.30	mm	0.0568	ft
Inductive Reactance (Xa: internal flux+external flux radius 1 ft)	0.1803	ohm/km	0.290	ohm/mile
Capacitive Reactance	0.1517	Mohm-km	0.094	Mohm-mile

\*TS Scaffell M3 11.5 (43.180) IEC 2516 conductor is produced with Fully Annealed Al aluminum. The nominal Aluminum equivalent area is 1274.8 sq. mm (2515.9 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 Scaffell M3 11.5 (43.180) IEC 2516 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

The information contained herein is offered in good faith. All values are nominal unless specifically indicated as maximum or minimum. The actual configuration of a given size may vary between conductor manufacturers and may result in slight variations in some of the indicated values. Data herein is to be considered confidential and proprietary to TS Conductor

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