

DATA SHEET:

1220 KCMIL_Bear_AECC_TW_M3_TS



Governing Units: Metric

Mechanical Specifications	Metric		Imperial	
Fully Annealed Al Cross-sectional Area*	618.31	mm ²	1220.22	kcmil
Encapsulated Aluminum Cross-Sectional Area	112.97	mm ²	0.17511	in ²
Diameter of Composite Core (Exclude Encapsulation)	9.5	mm	0.37400	in
Cross-sectional Area of Core (Exclude Encapsulation)	70.90	mm ²	0.10987	in ²
Overall Diameter of Conductor	30.429	mm	1.198	in
Cross-sectional Area of the Conductor (Exclude Covering)	689.20	mm ²	1.06825	in ²
Ultimate Tensile Strength of Conductor 1) ,2)	231.84	kN	52.12	kip
Rated Strength of Core - 399 ksi (2750 MPa)	194.92	kN	43.82	kip
Core Mass per unit length (Exclude Encapsulation)	123.00	kg/km	82.67	lb/kft
Conductor Mass per unit length	1823.68	kg/km	1225.67	lb/kft
Fully Annealed Al Mass per unit length (Include Encapsulation)**	1700.68	kg/km	1143.00	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)	17.715	x10 ⁻⁶ /°C	9.842	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)	65.3	GPa	9.5	Msi
Aluminum Heat Capacity	1585.0	Watt-s/m-°C	268.4	Watt-s/ft-°F
Core Heat Capacity	104.8	Watt-s/m-°C	17.8	Watt-s/ft-°F
Encapsulation Thickness	2.90	mm	0.11417	in
Stranding Ratio	1.0235			
Covered Thickness	0.000	mm	0.000	in
Electrical Specifications	Metric		Imperial	
DC Resistance at 20°C (Fully Annealed Al 63% IACS)	0.0451	ohm/km	0.0726	ohm/mile
DC Resistance at 25°C	0.0460	ohm/km	0.0741	ohm/mile
DC Resistance at 75°C	0.0552	ohm/km	0.0889	ohm/mile
Temperature Coefficient of Resistance at 20°C	0.00408	1/°C	0.00227	1/°F
Frequency	60	Hz	60	Hz
AC Resistance at 25°C	0.0476	ohm/km	0.0767	ohm/mile
AC Resistance at 75°C	0.0566	ohm/km	0.0911	ohm/mile
AC Resistance at 180°C	0.0754	ohm/km	0.1213	ohm/mile
Ampacity 4)		1987	@180°C, & A	
		2098	@200°C, & A	
GMR (estimated)	12.31	mm	0.0404	ft
Inductive Reactance (Xa: internal flux+external flux radius 1 ft)	0.2420	ohm/km	0.389	ohm/mile
Capacitive Reactance	0.1431	Mohm-km	0.089	Mohm-mile

*1220 KCMIL_Bear_AECC_TW_M3_TS conductor is produced with Fully Annealed Al aluminum. The nominal Aluminum equivalent area is 618.3 sq. mm (1220.2 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 1220 KCMIL_Bear_AECC_TW_M3_TS 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.60 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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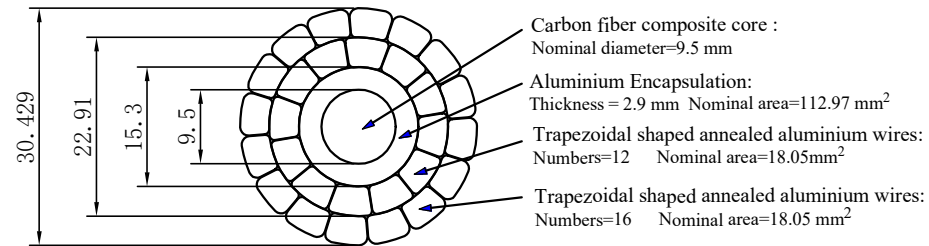
ID:26446

Date Produced:

6/3/2025

TS[®] Conductor Cross sectional drawing

Expected value at production time



TS Conductor Corp.

TS Bear M3 9.5 (1.198) ID:26446

Design

Check

Ratify

DATA SHEET:

TS Bear M3 9.5 (30.429) IEC 1220



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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	0.0472	ohm/km	0.0759	ohm/mile
AC Resistance at 75°C	0.0562	ohm/km	0.0904	ohm/mile
AC Resistance at 180°C	0.0751	ohm/km	0.1209	ohm/mile
Ampacity 4)		1982	@180°C, & A	
		2092	@200°C, & A	
GMR (estimated)	12.31	mm	0.0404	ft
Inductive Reactance (Xa: internal flux+external flux radius 1 ft)	0.2016	ohm/km	0.324	ohm/mile
Capacitive Reactance	0.1717	Mohm-km	0.107	Mohm-mile

*TS Bear M3 9.5 (30.429) IEC 1220 conductor is produced with Fully Annealed Al aluminum. The nominal Aluminum equivalent area is 618.3 sq. mm (1220.2 kcmil)

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Date Produced:

2/28/2024