

DATA SHEET:

# TS Evans M3 11.5 (1.545) 2048



Governing Units: Metric

Mechanical Specifications	Metric		Imperial	
Fully Annealed Al Cross-sectional Area*	1037.83	mm <sup>2</sup>	2048.11	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	39.243	mm	1.545	in
Cross-sectional Area of the Conductor (Exclude Covering)	1141.70	mm <sup>2</sup>	1.76963	in <sup>2</sup>
Ultimate Tensile Strength of Conductor 1) ,2)	346.56	kN	77.91	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	3048.20	kg/km	2048.65	lb/kft
Fully Annealed Al Mass per unit length (Include Encapsulation)**	2867.20	kg/km	1927.00	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)	18.221	x10 <sup>-6</sup> /°C	10.123	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)	63.8	GPa	9.3	Msi
Aluminum Heat Capacity	2660.4	Watt-s/m-°C	450.5	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	1.0275			
Covered Thickness	0.000	mm	0.000	in
Electrical Specifications	Metric		Imperial	
DC Resistance at 20°C (Fully Annealed Al 63% IACS)	0.0270	ohm/km	0.0434	ohm/mile
DC Resistance at 25°C	0.0275	ohm/km	0.0443	ohm/mile
DC Resistance at 75°C	0.0331	ohm/km	0.0532	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	0.0302	ohm/km	0.0486	ohm/mile
AC Resistance at 75°C	0.0353	ohm/km	0.0569	ohm/mile
AC Resistance at 180°C	0.0461	ohm/km	0.0742	ohm/mile
Ampacity 4)		2757	@180°C, & A	
		2920	@200°C, & A	
GMR (estimated)	15.81	mm	0.0519	ft
Inductive Reactance (Xa: internal flux+external flux radius 1 ft)	0.2231	ohm/km	0.359	ohm/mile
Capacitive Reactance	0.1309	Mohm-km	0.081	Mohm-mile

\*TS Evans M3 11.5 (1.545) 2048 conductor is produced with Fully Annealed Al aluminum. The nominal Aluminum equivalent area is 1037.8 sq. mm (2048.1 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 Evans M3 11.5 (1.545) 2048 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

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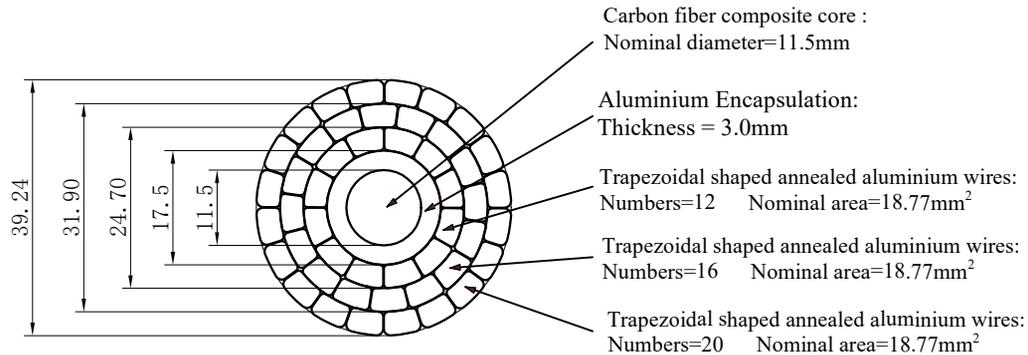
contact: info@tsconductor.com

ID:26019

Date Produced: 12/5/2023

# TS<sup>®</sup> Conductor Cross sectional drawing

Expected value at production time



TS Evans M1/M3/M4/M5 11.5 (1.545) for: 26014, 26019, 26022, 26023, 29579

<b>TS Conductor Corp.</b>		
TS Evans 11.5 (1.545) 2048 or TS Evans 11.5 (39.243) IEC 2048		
Design		
Check		
Ratify		

DATA SHEET:

# TS Evans M3 11.5 (39.243) IEC 2048



Governing Units: Metric

Mechanical Specifications	Metric		Imperial	
Fully Annealed Al Cross-sectional Area*	1037.83	mm <sup>2</sup>	2048.11	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	39.243	mm	1.545	in
Cross-sectional Area of the Conductor (Exclude Covering)	1141.70	mm <sup>2</sup>	1.76963	in <sup>2</sup>
Ultimate Tensile Strength of Conductor 1) ,2)	346.56	kN	77.91	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	3048.20	kg/km	2048.65	lb/kft
Fully Annealed Al Mass per unit length (Include Encapsulation)**	2867.20	kg/km	1927.00	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)	18.221	x10 <sup>-6</sup> /°C	10.123	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)	63.8	GPa	9.3	Msi
Aluminum Heat Capacity	2660.4	Watt-s/m-°C	450.5	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	1.0275			
Covered Thickness	0.000	mm	0.000	in
Electrical Specifications	Metric		Imperial	
DC Resistance at 20°C (Fully Annealed Al 63% IACS)	0.0270	ohm/km	0.0434	ohm/mile
DC Resistance at 25°C	0.0275	ohm/km	0.0443	ohm/mile
DC Resistance at 75°C	0.0331	ohm/km	0.0532	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	0.0295	ohm/km	0.0474	ohm/mile
AC Resistance at 75°C	0.0347	ohm/km	0.0558	ohm/mile
AC Resistance at 180°C	0.0456	ohm/km	0.0734	ohm/mile
Ampacity 4)		2770	@180°C, & A	
		2932	@200°C, & A	
GMR (estimated)	15.81	mm	0.0519	ft
Inductive Reactance (Xa: internal flux+external flux radius 1 ft)	0.1859	ohm/km	0.299	ohm/mile
Capacitive Reactance	0.1571	Mohm-km	0.098	Mohm-mile

\*TS Evans M3 11.5 (39.243) IEC 2048 conductor is produced with Fully Annealed Al aluminum. The nominal Aluminum equivalent area is 1037.8 sq. mm (2048.1 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 Evans M3 11.5 (39.243) IEC 2048 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

DATA SHEET:

# TS Evans M4 11.5 (1.545) 2048



Governing Units: Metric

Mechanical Specifications	Metric		Imperial	
Fully Annealed Al Cross-sectional Area*	1037.83	mm <sup>2</sup>	2048.11	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	39.243	mm	1.545	in
Cross-sectional Area of the Conductor (Exclude Covering)	1141.70	mm <sup>2</sup>	1.76963	in <sup>2</sup>
Ultimate Tensile Strength of Conductor 1) ,2)	382.95	kN	86.09	kip
Rated Strength of Core - 450 ksi (3100 MPa)	322.01	kN	72.39	kip
Core Mass per unit length (Exclude Encapsulation)	167.00	kg/km	112.24	lb/kft
Conductor Mass per unit length	3034.20	kg/km	2039.24	lb/kft
Fully Annealed Al Mass per unit length (Include Encapsulation)**	2867.20	kg/km	1927.00	lb/kft
Maximum Emergency Temperature at Surface 3)	200	°C	392	°F
Coefficient of Linear Expansion Above Thermal Kneepoint (core)	0.060	x10 <sup>-6</sup> /°C	0.033	x10 <sup>-6</sup> /°F
Coefficient of Linear Expansion Below Thermal Kneepoint (conductor)	17.749	x10 <sup>-6</sup> /°C	9.861	x10 <sup>-6</sup> /°F
Final Modulus of Elasticity Above Thermal Kneepoint (based on core area)	165.0	GPa	23.9	Msi
Final Modulus of Elasticity Below Thermal Kneepoint (based on conductor area)	65.2	GPa	9.5	Msi
Aluminum Heat Capacity	2660.4	Watt-s/m-°C	450.5	Watt-s/ft.°F
Core Heat Capacity	142.1	Watt-s/m-°C	24.1	Watt-s/ft.°F
Encapsulation Thickness	3.00	mm	0.11811	in
Stranding Ratio	1.0275			
Covered Thickness	0.000	mm	0.000	in
Electrical Specifications	Metric		Imperial	
DC Resistance at 20°C (Fully Annealed Al 63% IACS)	0.0270	ohm/km	0.0434	ohm/mile
DC Resistance at 25°C	0.0275	ohm/km	0.0443	ohm/mile
DC Resistance at 75°C	0.0331	ohm/km	0.0532	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	0.0302	ohm/km	0.0486	ohm/mile
AC Resistance at 75°C	0.0353	ohm/km	0.0569	ohm/mile
AC Resistance at 180°C	0.0461	ohm/km	0.0742	ohm/mile
Ampacity 4)		2757	@180°C, & A	
		2920	@200°C, & A	
GMR (estimated)	15.81	mm	0.0519	ft
Inductive Reactance (Xa: internal flux+external flux radius 1 ft)	0.2231	ohm/km	0.359	ohm/mile
Capacitive Reactance	0.1309	Mohm-km	0.081	Mohm-mile

\*TS Evans M4 11.5 (1.545) 2048 conductor is produced with Fully Annealed Al aluminum. The nominal Aluminum equivalent area is 1037.8 sq. mm (2048.1 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 Evans M4 11.5 (1.545) 2048 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

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contact: info@tsconductor.com

ID:26022

Date Produced: 12/5/2023

DATA SHEET:

# TS Evans M1 11.5 (1.545) 2048



Governing Units: Metric

Mechanical Specifications	Metric		Imperial	
Fully Annealed Al Cross-sectional Area*	1037.83	mm <sup>2</sup>	2048.11	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	39.243	mm	1.545	in
Cross-sectional Area of the Conductor (Exclude Covering)	1141.70	mm <sup>2</sup>	1.76963	in <sup>2</sup>
Ultimate Tensile Strength of Conductor 1) ,2)	284.24	kN	63.90	kip
Rated Strength of Core - 312 ksi (2150 MPa)	223.30	kN	50.20	kip
Core Mass per unit length (Exclude Encapsulation)	209.00	kg/km	140.47	lb/kft
Conductor Mass per unit length	3076.20	kg/km	2067.47	lb/kft
Fully Annealed Al Mass per unit length (Include Encapsulation)**	2867.20	kg/km	1927.00	lb/kft
Maximum Emergency Temperature at Surface 3)	200	°C	392	°F
Coefficient of Linear Expansion Above Thermal Kneepoint (core)	1.440	x10 <sup>-6</sup> /°C	0.800	x10 <sup>-6</sup> /°F
Coefficient of Linear Expansion Below Thermal Kneepoint (conductor)	19.368	x10 <sup>-6</sup> /°C	10.760	x10 <sup>-6</sup> /°F
Final Modulus of Elasticity Above Thermal Kneepoint (based on core area)	113.0	GPa	16.4	Msi
Final Modulus of Elasticity Below Thermal Kneepoint (based on conductor area)	60.5	GPa	8.8	Msi
Aluminum Heat Capacity	2660.4	Watt-s/m-°C	450.5	Watt-s/ft.°F
Core Heat Capacity	177.5	Watt-s/m-°C	30.0	Watt-s/ft.°F
Encapsulation Thickness	3.00	mm	0.11811	in
Stranding Ratio	1.0275			
Covered Thickness	0.000	mm	0.000	in
Electrical Specifications	Metric		Imperial	
DC Resistance at 20°C (Fully Annealed Al 63% IACS)	0.0270	ohm/km	0.0434	ohm/mile
DC Resistance at 25°C	0.0275	ohm/km	0.0443	ohm/mile
DC Resistance at 75°C	0.0331	ohm/km	0.0532	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	0.0302	ohm/km	0.0486	ohm/mile
AC Resistance at 75°C	0.0353	ohm/km	0.0569	ohm/mile
AC Resistance at 180°C	0.0461	ohm/km	0.0742	ohm/mile
Ampacity 4)		2757	@180°C, & A	
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GMR (estimated)	15.81	mm	0.0519	ft
Inductive Reactance (Xa: internal flux+external flux radius 1 ft)	0.2231	ohm/km	0.359	ohm/mile
Capacitive Reactance	0.1309	Mohm-km	0.081	Mohm-mile

\*TS Evans M1 11.5 (1.545) 2048 conductor is produced with Fully Annealed Al aluminum. The nominal Aluminum equivalent area is 1037.8 sq. mm (2048.1 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 Evans M1 11.5 (1.545) 2048 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

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Date Produced: 12/5/2023