

## DATA SHEET:

## 624 KCMIL\_Darwin\_AECC\_TW\_M3\_TS



Governing Units: Metric

Mechanical Specifications	Metric		Imperial	
Fully Annealed Al Cross-sectional Area*	316.08	mm <sup>2</sup>	623.77	kcmil
Encapsulated Aluminum Cross-Sectional Area	70.87	mm <sup>2</sup>	0.10986	in <sup>2</sup>
Diameter of Composite Core (Exclude Encapsulation)	7.0	mm	0.27600	in
Cross-sectional Area of Core (Exclude Encapsulation)	38.50	mm <sup>2</sup>	0.05965	in <sup>2</sup>
Overall Diameter of Conductor	21.793	mm	0.858	in
Cross-sectional Area of the Conductor (Exclude Covering)	354.60	mm <sup>2</sup>	0.54958	in <sup>2</sup>
Ultimate Tensile Strength of Conductor 1) ,2)	124.91	kN	28.08	kip
Rated Strength of Core - 399 ksi (2750 MPa)	105.78	kN	23.78	kip
Core Mass per unit length (Exclude Encapsulation)	67.00	kg/km	45.03	lb/kft
Conductor Mass per unit length	934.45	kg/km	628.03	lb/kft
Fully Annealed Al Mass per unit length (Include Encapsulation)**	867.45	kg/km	583.00	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)	17.489	x10 <sup>-6</sup> /°C	9.716	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)	66.1	GPa	9.6	Msi
Aluminum Heat Capacity	810.2	Watt-s/m-°C	137.2	Watt-s/ft-°F
Core Heat Capacity	56.9	Watt-s/m-°C	9.6	Watt-s/ft-°F
Encapsulation Thickness	2.40	mm	0.09449	in
Stranding Ratio	1.0215			
Covered Thickness	0.000	mm	0.000	in
Electrical Specifications	Metric		Imperial	
DC Resistance at 20°C (Fully Annealed Al 63% IACS)	0.0880	ohm/km	0.1417	ohm/mile
DC Resistance at 25°C	0.0898	ohm/km	0.1445	ohm/mile
DC Resistance at 75°C	0.1078	ohm/km	0.1734	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	0.0906	ohm/km	0.1459	ohm/mile
AC Resistance at 75°C	0.1085	ohm/km	0.1746	ohm/mile
AC Resistance at 180°C	0.1459	ohm/km	0.2348	ohm/mile
Ampacity 4)		1286	@180°C, & A	
		1354	@200°C, & A	
GMR (estimated)	8.84	mm	0.0290	ft
Inductive Reactance (Xa: internal flux+external flux radius 1 ft)	0.2670	ohm/km	0.430	ohm/mile
Capacitive Reactance	0.1590	Mohm-km	0.099	Mohm-mile

\*624 KCMIL\_Darwin\_AECC\_TW\_M3\_TS conductor is produced with Fully Annealed Al aluminum. The nominal Aluminum equivalent area is 316.1 sq. mm (623.8 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 624 KCMIL\_Darwin\_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

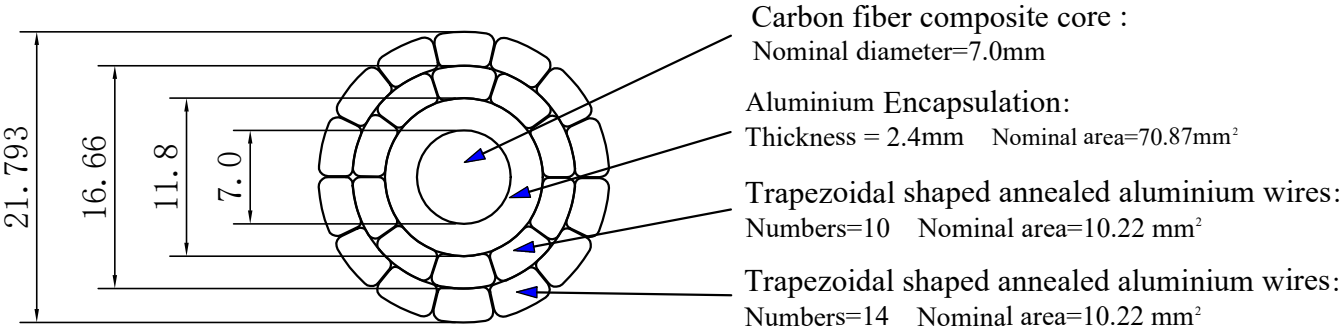
contact: info@tsconductor.com

ID:26255

Date Produced:

6/3/2025

# TS Conductor Cross sectional drawing



TS Conductor Corp.

TS Skylight M3 7 (0.858) 624-ID:26255

Design		Date	2024. 2. 18
Check		Date	2024. 2. 18
Ratify		Date	2024. 2. 18

## DATA SHEET:

## TS Skylight M3 7 (21.793) IEC 624



Governing Units: Metric

Mechanical Specifications	Metric		Imperial	
Fully Annealed Al Cross-sectional Area*	316.08	mm <sup>2</sup>	623.77	kcmil
Encapsulated Aluminum Cross-Sectional Area	70.87	mm <sup>2</sup>	0.10986	in <sup>2</sup>
Diameter of Composite Core (Exclude Encapsulation)	7.0	mm	0.27600	in
Cross-sectional Area of Core (Exclude Encapsulation)	38.50	mm <sup>2</sup>	0.05965	in <sup>2</sup>
Overall Diameter of Conductor	21.793	mm	0.858	in
Cross-sectional Area of the Conductor (Exclude Covering)	354.60	mm <sup>2</sup>	0.54958	in <sup>2</sup>
Ultimate Tensile Strength of Conductor 1) ,2)	124.91	kN	28.08	kip
Rated Strength of Core - 399 ksi (2750 MPa)	105.78	kN	23.78	kip
Core Mass per unit length (Exclude Encapsulation)	67.00	kg/km	45.03	lb/kft
Conductor Mass per unit length	934.45	kg/km	628.03	lb/kft
Fully Annealed Al Mass per unit length (Include Encapsulation)**	867.45	kg/km	583.00	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)	17.489	x10 <sup>-6</sup> /°C	9.716	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)	66.1	GPa	9.6	Msi
Aluminum Heat Capacity	810.2	Watt-s/m-°C	137.2	Watt-s/ft-°F
Core Heat Capacity	56.9	Watt-s/m-°C	9.6	Watt-s/ft-°F
Encapsulation Thickness	2.40	mm	0.09449	in
Stranding Ratio	1.0215			
Covered Thickness	0.000	mm	0.000	in
Electrical Specifications	Metric		Imperial	
DC Resistance at 20°C (Fully Annealed Al 63% IACS)	0.0880	ohm/km	0.1417	ohm/mile
DC Resistance at 25°C	0.0898	ohm/km	0.1445	ohm/mile
DC Resistance at 75°C	0.1078	ohm/km	0.1734	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	0.0904	ohm/km	0.1455	ohm/mile
AC Resistance at 75°C	0.1083	ohm/km	0.1742	ohm/mile
AC Resistance at 180°C	0.1458	ohm/km	0.2346	ohm/mile
Ampacity 4)		1286	@180°C, & A	
		1355	@200°C, & A	
GMR (estimated)	8.84	mm	0.0290	ft
Inductive Reactance (Xa: internal flux+external flux radius 1 ft)	0.2225	ohm/km	0.358	ohm/mile
Capacitive Reactance	0.1908	Mohm-km	0.119	Mohm-mile

\*TS Skylight M3 7 (21.793) IEC 624 conductor is produced with Fully Annealed Al aluminum. The nominal Aluminum equivalent area is 316.1 sq. mm (623.8 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 Skylight M3 7 (21.793) IEC 624 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

contact: info@tsconductor.com

ID:26262

Date Produced: 12/21/2023

## DATA SHEET:

## TS Skylight M1 7 (0.858) 624



Governing Units: Metric

Mechanical Specifications	Metric		Imperial	
Fully Annealed Al Cross-sectional Area*	316.08	mm <sup>2</sup>	623.77	kcmil
Encapsulated Aluminum Cross-Sectional Area	70.87	mm <sup>2</sup>	0.10986	in <sup>2</sup>
Diameter of Composite Core (Exclude Encapsulation)	7.0	mm	0.27600	in
Cross-sectional Area of Core (Exclude Encapsulation)	38.50	mm <sup>2</sup>	0.05965	in <sup>2</sup>
Overall Diameter of Conductor	21.793	mm	0.858	in
Cross-sectional Area of the Conductor (Exclude Covering)	354.60	mm <sup>2</sup>	0.54958	in <sup>2</sup>
Ultimate Tensile Strength of Conductor 1) ,2)	101.82	kN	22.89	kip
Rated Strength of Core - 312 ksi (2150 MPa)	82.69	kN	18.59	kip
Core Mass per unit length (Exclude Encapsulation)	77.00	kg/km	51.75	lb/kft
Conductor Mass per unit length	944.45	kg/km	634.75	lb/kft
Fully Annealed Al Mass per unit length (Include Encapsulation)**	867.45	kg/km	583.00	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)	18.774	x10 <sup>-6</sup> /°C	10.430	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)	62.1	GPa	9.0	Msi
Aluminum Heat Capacity	810.2	Watt-s/m-°C	137.2	Watt-s/ft-°F
Core Heat Capacity	65.8	Watt-s/m-°C	11.1	Watt-s/ft-°F
Encapsulation Thickness	2.40	mm	0.09449	in
Stranding Ratio	1.0215			
Covered Thickness	0.000	mm	0.000	in
Electrical Specifications	Metric		Imperial	
DC Resistance at 20°C (Fully Annealed Al 63% IACS)	0.0880	ohm/km	0.1417	ohm/mile
DC Resistance at 25°C	0.0898	ohm/km	0.1445	ohm/mile
DC Resistance at 75°C	0.1078	ohm/km	0.1734	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	0.0906	ohm/km	0.1459	ohm/mile
AC Resistance at 75°C	0.1085	ohm/km	0.1746	ohm/mile
AC Resistance at 180°C	0.1459	ohm/km	0.2348	ohm/mile
Ampacity 4)		1286	@180°C, & A	
		1354	@200°C, & A	
GMR (estimated)	8.84	mm	0.0290	ft
Inductive Reactance (Xa: internal flux+external flux radius 1 ft)	0.2670	ohm/km	0.430	ohm/mile
Capacitive Reactance	0.1590	Mohm-km	0.099	Mohm-mile

\*TS Skylight M1 7 (0.858) 624 conductor is produced with Fully Annealed Al aluminum. The nominal Aluminum equivalent area is 316.1 sq. mm (623.8 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 Skylight M1 7 (0.858) 624 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:26256

Date Produced:

1/4/2024

## DATA SHEET:

## TS Skylight M1 7 IEC 624



Governing Units: Metric

Mechanical Specifications	Metric		Imperial	
Fully Annealed Al Cross-sectional Area*	316.07	mm <sup>2</sup>	623.76	kcmil
Encapsulated Aluminum Cross-Sectional Area	70.87	mm <sup>2</sup>	0.10986	in <sup>2</sup>
Diameter of Composite Core (Exclude Encapsulation)	7.0	mm	0.27600	in
Cross-sectional Area of Core (Exclude Encapsulation)	38.50	mm <sup>2</sup>	0.05965	in <sup>2</sup>
Overall Diameter of Conductor	21.793	mm	0.858	in
Cross-sectional Area of the Conductor (Exclude Covering)	354.60	mm <sup>2</sup>	0.54956	in <sup>2</sup>
Ultimate Tensile Strength of Conductor 1) ,2)	101.82	kN	22.89	kip
Rated Strength of Core - 312 ksi (2150 MPa)	82.69	kN	18.59	kip
Core Mass per unit length (Exclude Encapsulation)	77.00	kg/km	51.75	lb/kft
Conductor Mass per unit length	944.45	kg/km	634.75	lb/kft
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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)	18.774	x10 <sup>-6</sup> /°C	10.430	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)	62.1	GPa	9.0	Msi
Aluminum Heat Capacity	810.2	Watt-s/m-°C	137.2	Watt-s/ft-°F
Core Heat Capacity	65.8	Watt-s/m-°C	11.1	Watt-s/ft-°F
Encapsulation Thickness	2.40	mm	0.09449	in
Stranding Ratio	1.0215			
Covered Thickness	0.000	mm	0.000	in
Electrical Specifications	Metric		Imperial	
DC Resistance at 20°C (Fully Annealed Al 63% IACS)	0.0880	ohm/km	0.1417	ohm/mile
DC Resistance at 25°C	0.0898	ohm/km	0.1445	ohm/mile
DC Resistance at 75°C	0.1078	ohm/km	0.1734	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	0.0904	ohm/km	0.1455	ohm/mile
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AC Resistance at 180°C	0.1458	ohm/km	0.2346	ohm/mile
Ampacity 4)		1282	@180°C, & A	
		1349	@200°C, & A	
GMR (estimated)	8.84	mm	0.0290	ft
Inductive Reactance (Xa: internal flux+external flux radius 1 ft)	0.2225	ohm/km	0.358	ohm/mile
Capacitive Reactance	0.1908	Mohm-km	0.119	Mohm-mile

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- 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 Skylight M1 7 IEC 624 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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ID:26263

Date Produced:

1/4/2024