



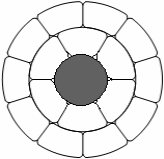
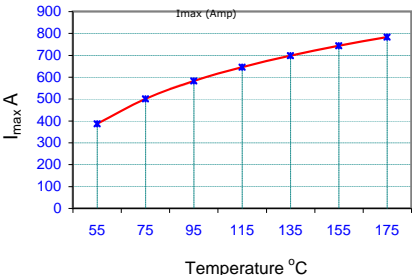
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET




Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor ACCC 150

<b>Conductor Type &amp; Code</b> ACCC 150 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	160 sq.mm																
Cross Sectional Area - Aluminum	154.51 sq.mm																
Cross Sectional Area - CTC Core	27.99 sq.mm																
Total Area of Cross Section	182.5 sq.mm																
Overall Diameter of Conductor	15.65 mm																
Mass per Unit length - Aluminum	427kg /km																
Mass per Unit length - Core	54kg/km																
Mass per unit length - Conductor	481kg/km																
Rated Strength of the Conductor *	69.3kN*																
Maximum DC Resistance at 20°C	0.1839Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 172 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 6020 mtr. (19750 ft.)																
Stranding configuration No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer	1 x 5.97mm 2 N° 8 x 3.09mm 12 x 3.17mm																
Individual Aluminum wires Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa Composite Core Conductivity Nil Minimum Breaking Load 60.4kN	 Trapezoidal wires height 2.42 mm Area : Layer-1 7.49 sqmm Layer-2 7.88 sqmm																
Coefficient of thermal expansion above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 17.92 x10 <sup>-6</sup> /°C	Modulus of elasticity above thermal knee point 117 GPa below thermal knee point 75.5 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 783 Amp. AC Resistance at max.operating temp. 0.29889 Ω/ km Calculated max.current at 120 Deg.C ^ 660 Amp. Calculated AC Resistance at 120 Deg.C 0.25816 Ω/km Geometric Mean Radius(GMR) 6.09 mm Inductive Reactance @0.3m radius at 60Hz 0.29498 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.1748 MΩ.km ^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5 * Extreme Load Safety Strength of Conductor =63.96 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>380</td></tr> <tr><td>75</td><td>500</td></tr> <tr><td>95</td><td>580</td></tr> <tr><td>115</td><td>650</td></tr> <tr><td>135</td><td>700</td></tr> <tr><td>155</td><td>750</td></tr> <tr><td>175</td><td>800</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	380	75	500	95	580	115	650	135	700	155	750	175	800
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General Specification Standard : ASTM B 857

Document version : Preliminary

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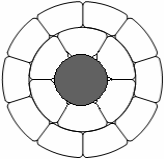
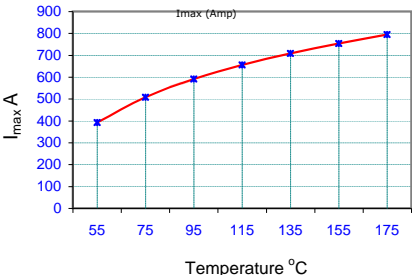
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET




Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor ACCC 160

<b>Conductor Type &amp; Code</b> ACCC 160 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	170 sq.mm																
Cross Sectional Area - Aluminum	160.22 sq.mm																
Cross Sectional Area - CTC Core	18.25 sq.mm																
Total Area of Cross Section	178.47 sq.mm																
Overall Diameter of Conductor	15.5 mm																
Mass per Unit length - Aluminum	443kg /km																
Mass per Unit length - Core	34kg/km																
Mass per unit length - Conductor	477kg/km																
Rated Strength of the Conductor *	51.03kN*																
Maximum DC Resistance at 20°C	0.1773Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 171 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 5620 mtr. (18440 ft.)																
Stranding configuration No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer	1 x 4.82mm 2 N° 7 x 3.28mm 12 x 3.28mm																
Individual Aluminum wires Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa Composite Core Conductivity Nil Minimum Breaking Load 41.8kN	 Trapezoidal wires height 2.67 mm Area : Layer-1 8.44 sqmm Layer-2 8.43 sqmm																
Coefficient of thermal expansion above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 19.50 x10 <sup>-6</sup> /°C	Modulus of elasticity above thermal knee point 117 GPa below thermal knee point 73 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 795 Amp. AC Resistance at max.operating temp. 0.28828 Ω/ km Calculated max.current at 120 Deg.C ^ 670 Amp. Calculated AC Resistance at 120 Deg.C 0.24901 Ω/km Geometric Mean Radius(GMR) 6.04 mm Inductive Reactance @0.3m radius at 60Hz 0.29571 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.17526 MΩ.km ^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5 * Extreme Load Safety Strength of Conductor =45.49 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>380</td></tr> <tr><td>75</td><td>500</td></tr> <tr><td>95</td><td>600</td></tr> <tr><td>115</td><td>680</td></tr> <tr><td>135</td><td>750</td></tr> <tr><td>155</td><td>800</td></tr> <tr><td>175</td><td>850</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	380	75	500	95	600	115	680	135	750	155	800	175	850
Temperature (°C)	Imax (Amp)																
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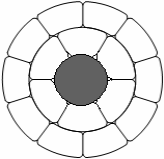
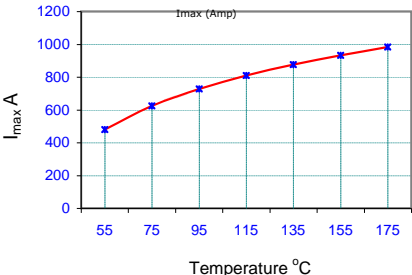
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

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Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor ACCC 220

<b>Conductor Type &amp; Code</b> ACCC 220 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	230 sq.mm																
Cross Sectional Area - Aluminum	220.66 sq.mm																
Cross Sectional Area - CTC Core	27.99 sq.mm																
Total Area of Cross Section	248.65 sq.mm																
Overall Diameter of Conductor	18.29 mm																
Mass per Unit length - Aluminum	610kg /km																
Mass per Unit length - Core	54kg/km																
Mass per unit length - Conductor	664kg/km																
Rated Strength of the Conductor *	73.11kN*																
Maximum DC Resistance at 20°C	0.1287Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 201 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 4110 mtr. (13480 ft.)																
Stranding configuration No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer	1 x 5.97mm 2 N° 8 x 3.62mm 12 x 3.83mm																
Individual Aluminum wires Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa Composite Core Conductivity Nil Minimum Breaking Load 60.4kN	 Trapezoidal wires height 3.08 mm Area : Layer-1 10.29 sqmm Layer-2 11.53 sqmm																
Coefficient of thermal expansion above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 19.17 x10 <sup>-6</sup> /°C	Modulus of elasticity above thermal knee point 117 GPa below thermal knee point 73.5 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 984 Amp. AC Resistance at max.operating temp. 0.20943 Ω/ km Calculated max.current at 120 Deg.C ^ 827 Amp. Calculated AC Resistance at 120 Deg.C 0.18092 Ω/km Geometric Mean Radius(GMR) 7.12 mm Inductive Reactance @0.3m radius at 60Hz 0.28323 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.16736 MΩ.km ^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5 * Extreme Load Safety Strength of Conductor =65.48 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>500</td></tr> <tr><td>75</td><td>600</td></tr> <tr><td>95</td><td>700</td></tr> <tr><td>115</td><td>800</td></tr> <tr><td>135</td><td>880</td></tr> <tr><td>155</td><td>950</td></tr> <tr><td>175</td><td>1000</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	500	75	600	95	700	115	800	135	880	155	950	175	1000
Temperature (°C)	Imax (Amp)																
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General Specification Standard : ASTM B 857

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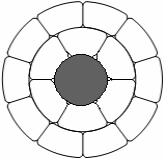
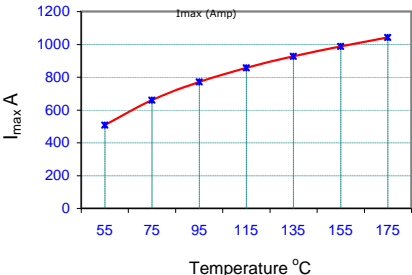
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET




Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor ACCC 235

<b>Conductor Type &amp; Code</b> ACCC 235 mm <sup>2</sup>	
Nominal equivalent Aluminum Area	250 sq.mm
Cross Sectional Area - Aluminum	237.25 sq.mm
Cross Sectional Area - CTC Core	47.17 sq.mm
Total Area of Cross Section	284.42 sq.mm
Overall Diameter of Conductor	19.53 mm
Mass per Unit length - Aluminum	656kg /km
Mass per Unit length - Core	87kg/km
Mass per unit length - Conductor	743kg/km
Rated Strength of the Conductor *	115.47kN*
Maximum DC Resistance at 20°C	0.1199Ω/km
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand
Preferred Lay of outer layer 215 mm	Surface finish Standard or Non Specular
	Max.Single length /Drum 3940 mtr. (12930 ft.)
Stranding configuration No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer	1 x 7.75mm 2 N° 8 x 3.85mm 12 x 3.91mm
Individual Aluminum wires Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa Composite Core Conductivity Nil Minimum Breaking Load 101.8kN	 Trapezoidal wires height 2.95 mm Area : Layer-1 11.63 sqmm Layer-2 12.02 sqmm
Coefficient of thermal expansion above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 17.55 x10 <sup>-6</sup> /°C	Modulus of elasticity above thermal knee point 117 GPa below thermal knee point 76.1 GPa
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 1043 Amp. AC Resistance at max.operating temp. 0.19496 Ω/ km Calculated max.current at 120 Deg.C ^ 875 Amp. Calculated AC Resistance at 120 Deg.C 0.16842 Ω/km Geometric Mean Radius(GMR) 7.6 mm Inductive Reactance @0.3m radius at 60Hz 0.27828 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.16423 MΩ.km ^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5 * Extreme Load Safety Strength of Conductor =107.27 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	

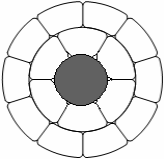
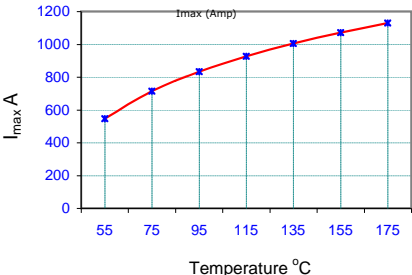
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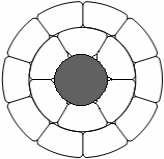
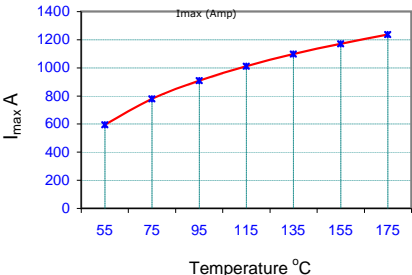


Concentric Lay Stranded Trapezoidal Conductor ACCC 285

<b>Conductor Type &amp; Code</b> ACCC 285 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	280 sq.mm																
Cross Sectional Area - Aluminum	270.03 sq.mm																
Cross Sectional Area - CTC Core	39.7 sq.mm																
Total Area of Cross Section	309.74 sq.mm																
Overall Diameter of Conductor	20.5 mm																
Mass per Unit length - Aluminum	747kg /km																
Mass per Unit length - Core	76kg/km																
Mass per unit length - Conductor	823kg/km																
Rated Strength of the Conductor *	101.35kN*																
Maximum DC Resistance at 20°C	0.1053Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 226 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 3390 mtr. (11120 ft.)																
<b>Stranding configuration</b> No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer	1 x 7.11mm 2 N° 8 x 4.03mm 12 x 4.22mm																
<b>Individual Aluminum wires</b> Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa <b>Composite Core</b> Conductivity Nil Minimum Breaking Load 85.8kN	 Trapezoidal wires height 3.35 mm Area : Layer-1 12.78 sqmm Layer-2 13.98 sqmm																
<b>Coefficient of thermal expansion</b> above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 18.68 x10 <sup>-6</sup> /°C	<b>Modulus of elasticity</b> above thermal knee point 117 GPa below thermal knee point 74.3 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 1130 Amp. AC Resistance at max.operating temp. 0.17138 Ω/ km Calculated max.current at 120 Deg.C ^ 947 Amp. Calculated AC Resistance at 120 Deg.C 0.14808 Ω/km Geometric Mean Radius(GMR) 7.98 mm Inductive Reactance @0.3m radius at 60Hz 0.27463 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.16191 MΩ.km <small>^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 &amp; absorptivity: 0.5</small> * Extreme Load Safety Strength of Conductor =92.02 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>550</td></tr> <tr><td>75</td><td>700</td></tr> <tr><td>95</td><td>850</td></tr> <tr><td>115</td><td>950</td></tr> <tr><td>135</td><td>1050</td></tr> <tr><td>155</td><td>1100</td></tr> <tr><td>175</td><td>1130</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	550	75	700	95	850	115	950	135	1050	155	1100	175	1130
Temperature (°C)	Imax (Amp)																
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75	700																
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135	1050																
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175	1130																



Concentric Lay Stranded Trapezoidal Conductor ACCC 310

<b>Conductor Type &amp; Code</b> ACCC 310 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	320 sq.mm																
Cross Sectional Area - Aluminum	309.56 sq.mm																
Cross Sectional Area - CTC Core	39.7 sq.mm																
Total Area of Cross Section	349.27 sq.mm																
Overall Diameter of Conductor	21.78 mm																
Mass per Unit length - Aluminum	855kg /km																
Mass per Unit length - Core	76kg/km																
Mass per unit length - Conductor	931kg/km																
Rated Strength of the Conductor *	103.63kN*																
Maximum DC Resistance at 20°C	0.0918Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 240 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 2440 mtr. (8010 ft.)																
<b>Stranding configuration</b> No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer	1 x 7.11mm 2 N° 6 x 4.95mm 10 x 4.97mm																
<b>Individual Aluminum wires</b> Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa <b>Composite Core</b> Conductivity Nil Minimum Breaking Load 85.8kN	 Trapezoidal wires height 3.67 mm Area : Layer-1 19.25 sqmm Layer-2 19.41 sqmm																
<b>Coefficient of thermal expansion</b> above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 19.13 x10 <sup>-6</sup> /°C	<b>Modulus of elasticity</b> above thermal knee point 117 GPa below thermal knee point 73.6 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 1235 Amp. AC Resistance at max.operating temp. 0.14944 Ω/ km Calculated max.current at 120 Deg.C ^ 1034 Amp. Calculated AC Resistance at 120 Deg.C 0.12915 Ω/km Geometric Mean Radius(GMR) 8.48 mm Inductive Reactance @0.3m radius at 60Hz 0.27006 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.15902 MΩ.km <small>^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 &amp; absorptivity: 0.5</small> * Extreme Load Safety Strength of Conductor =92.93 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>600</td></tr> <tr><td>75</td><td>800</td></tr> <tr><td>95</td><td>950</td></tr> <tr><td>115</td><td>1050</td></tr> <tr><td>135</td><td>1150</td></tr> <tr><td>155</td><td>1200</td></tr> <tr><td>175</td><td>1235</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	600	75	800	95	950	115	1050	135	1150	155	1200	175	1235
Temperature (°C)	Imax (Amp)																
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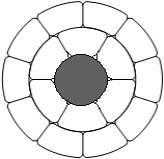
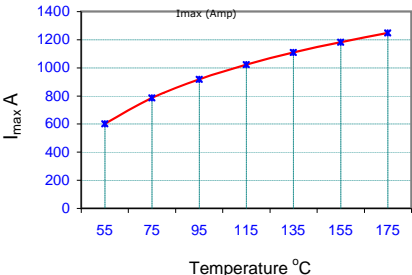
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET




Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : ACCC 310.HS

<b>Conductor Type &amp; Code</b> ACCC 310 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	320 sq.mm																
Cross Sectional Area - Aluminum	310.44 sq.mm																
Cross Sectional Area - CTC Core	60.27 sq.mm																
Total Area of Cross Section	370.71 sq.mm																
Overall Diameter of Conductor	22.4 mm																
Mass per Unit length - Aluminum	859kg /km																
Mass per Unit length - Core	113kg/km																
Mass per unit length - Conductor	972kg/km																
Rated Strength of the Conductor *	147.98kN*																
Maximum DC Resistance at 20°C	0.0916Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 246 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 3010 mtr. (9880 ft.)																
Stranding configuration No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer	1 x 8.76mm 2 N° 8 x 4.39mm 12 x 4.48mm																
Individual Aluminum wires Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa Composite Core Conductivity Nil Minimum Breaking Load 130.1kN	 Trapezoidal wires height 3.41 mm Area : Layer-1 15.16 sqmm Layer-2 15.77 sqmm																
Coefficient of thermal expansion above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 17.64 x10 <sup>-6</sup> /°C	Modulus of elasticity above thermal knee point 117 GPa below thermal knee point 76 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 1248 Amp. AC Resistance at max.operating temp. 0.14911 Ω/ km Calculated max.current at 120 Deg.C ^ 1044 Amp. Calculated AC Resistance at 120 Deg.C 0.12884 Ω/km Geometric Mean Radius(GMR) 8.72 mm Inductive Reactance @0.3m radius at 60Hz 0.26795 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.15768 MΩ.km ^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5 * Extreme Load Safety Strength of Conductor =137.25 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>600</td></tr> <tr><td>75</td><td>800</td></tr> <tr><td>95</td><td>950</td></tr> <tr><td>115</td><td>1050</td></tr> <tr><td>135</td><td>1150</td></tr> <tr><td>155</td><td>1200</td></tr> <tr><td>175</td><td>1248</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	600	75	800	95	950	115	1050	135	1150	155	1200	175	1248
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General Specification Standard : ASTM B 857

Document version : Preliminary

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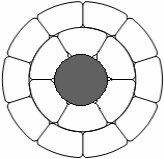
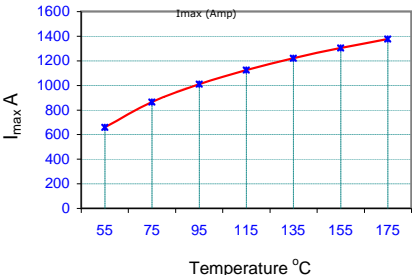
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET




Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : ACCC 360

<b>Conductor Type &amp; Code</b> ACCC 360 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	380 sq.mm																
Cross Sectional Area - Aluminum	365.11 sq.mm																
Cross Sectional Area - CTC Core	47.17 sq.mm																
Total Area of Cross Section	412.28 sq.mm																
Overall Diameter of Conductor	23.55 mm																
Mass per Unit length - Aluminum	1009kg /km																
Mass per Unit length - Core	87kg/km																
Mass per unit length - Conductor	1096kg/km																
Rated Strength of the Conductor *	122.83kN*																
Maximum DC Resistance at 20°C	0.0778Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 259 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 2280 mtr. (7480 ft.)																
<b>Stranding configuration</b> No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer	1 x 7.75mm 2 N° 7 x 4.98mm 11 x 5.14mm																
<b>Individual Aluminum wires</b> Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa <b>Composite Core</b> Conductivity Nil Minimum Breaking Load 101.8kN	 Trapezoidal wires height 3.95 mm Area : Layer-1 19.5 sqmm Layer-2 20.78 sqmm																
<b>Coefficient of thermal expansion</b> above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 19.11 x10 <sup>-6</sup> /°C	<b>Modulus of elasticity</b> above thermal knee point 117 GPa below thermal knee point 73.6 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 1376 Amp. AC Resistance at max.operating temp. 0.12681 Ω/ km Calculated max.current at 120 Deg.C ^ 1150 Amp. Calculated AC Resistance at 120 Deg.C 0.10962 Ω/km Geometric Mean Radius(GMR) 9.17 mm Inductive Reactance @0.3m radius at 60Hz 0.26417 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.15529 MΩ.km <small>^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 &amp; absorptivity: 0.5</small> * Extreme Load Safety Strength of Conductor =110.21 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>600</td></tr> <tr><td>75</td><td>800</td></tr> <tr><td>95</td><td>1000</td></tr> <tr><td>115</td><td>1150</td></tr> <tr><td>135</td><td>1250</td></tr> <tr><td>155</td><td>1350</td></tr> <tr><td>175</td><td>1400</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	600	75	800	95	1000	115	1150	135	1250	155	1350	175	1400
Temperature (°C)	Imax (Amp)																
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Concentric Lay Stranded Trapezoidal Conductor : ACCC 415

Conductor Type & Code		ACCC 415 mm <sup>2</sup>																
Nominal equivalent Aluminum Area		430 sq.mm																
Cross Sectional Area - Aluminum		417.81 sq.mm																
Cross Sectional Area - CTC Core		51.91 sq.mm																
Total Area of Cross Section		469.72 sq.mm																
Overall Diameter of Conductor		25.14 mm																
Mass per Unit length - Aluminum		1154kg /km																
Mass per Unit length - Core		98kg/km																
Mass per unit length - Conductor		1252kg/km																
Rated Strength of the Conductor *		136.17kN*																
Maximum DC Resistance at 20°C		0.068Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16		Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 277 mm		Surface finish Standard or Non Specular																
		Max.Single length /Drum 2130 mtr. (6990 ft.)																
Stranding configuration																		
No. & Diameter of CTC Core		1 x 8.13mm																
No. of Aluminum Layers		2 N°																
No & equivalent Dia. of Trapezoidal wires in first layer		7 x 5.32mm																
No. & equivalent Dia.of Trapezoidal wires in second layer		12 x 5.28mm																
Individual Aluminum wires																		
Minimum conductivity 63 %IACS			Trapezoidal wires height 4.25 mm															
Minimum Tensile Strength 60 MPa			Area : Layer-1 22.21 sqmm Layer-2 21.86 sqmm															
Composite Core																		
Conductivity Nil																		
Minimum Breaking Load 112.1kN																		
Coefficient of thermal expansion		Modulus of elasticity																
above thermal knee point 1.61 x10 <sup>-6</sup> /°C		above thermal knee point 117 GPa																
below thermal knee point 19.23 x10 <sup>-6</sup> /°C		below thermal knee point 73.4 GPa																
Max.allowable continuous operating temp. 175°C		<table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>700</td></tr> <tr><td>75</td><td>900</td></tr> <tr><td>95</td><td>1100</td></tr> <tr><td>115</td><td>1250</td></tr> <tr><td>135</td><td>1350</td></tr> <tr><td>155</td><td>1450</td></tr> <tr><td>175</td><td>1500</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	700	75	900	95	1100	115	1250	135	1350	155	1450	175	1500
Temperature (°C)	Imax (Amp)																	
55	700																	
75	900																	
95	1100																	
115	1250																	
135	1350																	
155	1450																	
175	1500																	
Rated current at max. temperature ^ 1505 Amp.																		
AC Resistance at max.operating temp. 0.11093 Ω/ km																		
Calculated max.current at 120 Deg.C ^ 1256 Amp.																		
Calculated AC Resistance at 120 Deg.C 0.09593 Ω/km																		
Geometric Mean Radius(GMR) 9.79 mm																		
Inductive Reactance @0.3m radius at 60Hz 0.25924 Ω/km																		
Capacitive Reactance @0.3m radius at 60Hz 0.15218 MΩ.km																		
^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5																		
* Extreme Load Safety Strength of Conductor =121.73 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)																		



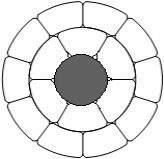
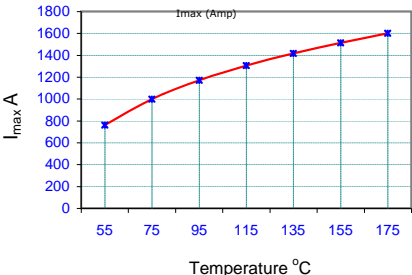
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET




Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : ACCC 460

<b>Conductor Type &amp; Code</b> ACCC 460 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	470 sq.mm																
Cross Sectional Area - Aluminum	457.89 sq.mm																
Cross Sectional Area - CTC Core	60.27 sq.mm																
Total Area of Cross Section	518.16 sq.mm																
Overall Diameter of Conductor	26.4 mm																
Mass per Unit length - Aluminum	1265kg /km																
Mass per Unit length - Core	113kg/km																
Mass per unit length - Conductor	1378kg/km																
Rated Strength of the Conductor *	156.47kN*																
Maximum DC Resistance at 20°C	0.062Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 290 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 2210 mtr. (7250 ft.)																
<b>Stranding configuration</b> No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer	1 x 8.76mm 2 N° 8 x 5.22mm 14 x 5.1mm																
<b>Individual Aluminum wires</b> Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa <b>Composite Core</b> Conductivity Nil Minimum Breaking Load 130.1kN	 Trapezoidal wires height 4.41 mm Area : Layer-1 21.44 sqmm Layer-2 20.46 sqmm																
Coefficient of thermal expansion above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 19.05 x10 <sup>-6</sup> /°C	Modulus of elasticity above thermal knee point 117 GPa below thermal knee point 73.7 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 1601 Amp. AC Resistance at max.operating temp. 0.10129 Ω/ km Calculated max.current at 120 Deg.C ^ 1335 Amp. Calculated AC Resistance at 120 Deg.C 0.08761 Ω/km Geometric Mean Radius(GMR) 10.28 mm Inductive Reactance @0.3m radius at 60Hz 0.25556 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.14984 MΩ.km ^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5 * Extreme Load Safety Strength of Conductor =140.65 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>750</td></tr> <tr><td>75</td><td>1000</td></tr> <tr><td>95</td><td>1150</td></tr> <tr><td>115</td><td>1300</td></tr> <tr><td>135</td><td>1450</td></tr> <tr><td>155</td><td>1550</td></tr> <tr><td>175</td><td>1600</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	750	75	1000	95	1150	115	1300	135	1450	155	1550	175	1600
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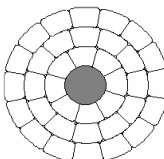
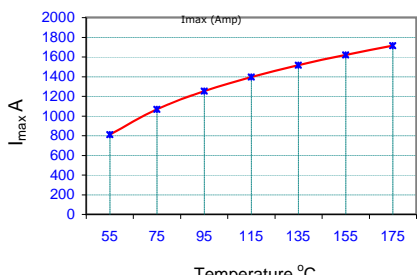
General Specification Standard : ASTM B 857

Document version : Preliminary

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Concentric Lay Stranded Trapezoidal Conductor : ACCC 510

<b>Conductor Type &amp; Code</b> ACCC 510 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	530 sq.mm																
Cross Sectional Area - Aluminum	510.64 sq.mm																
Cross Sectional Area - CTC Core	60.27 sq.mm																
Total Area of Cross Section	570.9 sq.mm																
Overall Diameter of Conductor	27.72 mm																
Mass per Unit length - Aluminum	1417kg /km																
Mass per Unit length - Core	113kg/km																
Mass per unit length - Conductor	1530kg/km																
Rated Strength of the Conductor *	159.51kN*																
Maximum DC Resistance at 20°C	0.0559Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer      Right Hand																
Preferred Lay of outer layer      305 mm	Surface finish      Standard or Non Specular																
	Max.Single length /Drum      2900 mtr. (9510 ft.)																
<b>Stranding configuration</b> No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer No & equivalent Dia. of Trapezoidal wires in third layer	1 x 8.76mm 3 N° 8 x 4.21mm 11 x 4.44mm 14 x 4.57mm																
<b>Individual Aluminum wires</b> Minimum conductivity      63 %IACS Minimum Tensile Strength      60 MPa <b>Composite Core</b> Conductivity      Nil Minimum Breaking Load      130.1kN	 Trapezoidal wires height      3.16 mm Area : Layer-1      13.9 sqmm Layer-2      15.47 sqmm Layer-3      16.37 sqmm																
<b>Coefficient of thermal expansion</b> above thermal knee point      1.61 x10 <sup>-6</sup> /°C below thermal knee point      19.39 x10 <sup>-6</sup> /°C	<b>Modulus of elasticity</b> above thermal knee point      117 GPa below thermal knee point      73.2 GPa																
Max.allowable continuous operating temp.      175°C Rated current at max. temperature ^      1714 Amp. AC Resistance at max.operating temp.      0.09135 Ω/ km Calculated max.current at 120 Deg.C ^      1427 Amp. Calculated AC Resistance at 120 Deg.C      0.07905 Ω/km Geometric Mean Radius(GMR)      10.79 mm Inductive Reactance @0.3m radius at 60Hz      0.25188 Ω/km Capacitive Reactance @0.3m radius at 60Hz      0.14751 MΩ.km ^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5 * Extreme Load Safety Strength of Conductor =141.87 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>800</td></tr> <tr><td>75</td><td>1000</td></tr> <tr><td>95</td><td>1200</td></tr> <tr><td>115</td><td>1350</td></tr> <tr><td>135</td><td>1500</td></tr> <tr><td>155</td><td>1650</td></tr> <tr><td>175</td><td>1700</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	800	75	1000	95	1200	115	1350	135	1500	155	1650	175	1700
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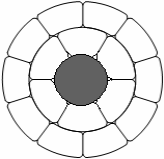
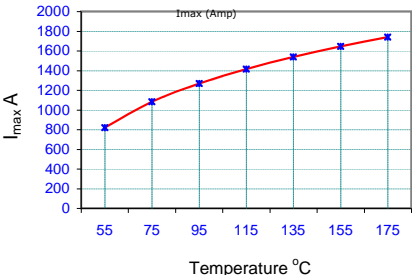
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET




Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : ACCC 520

<b>Conductor Type &amp; Code</b> ACCC 520 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	540 sq.mm																
Cross Sectional Area - Aluminum	517.97 sq.mm																
Cross Sectional Area - CTC Core	71.33 sq.mm																
Total Area of Cross Section	589.3 sq.mm																
Overall Diameter of Conductor	28.15 mm																
Mass per Unit length - Aluminum	1431kg /km																
Mass per Unit length - Core	132kg/km																
Mass per unit length - Conductor	1563kg/km																
Rated Strength of the Conductor *	183.64kN*																
Maximum DC Resistance at 20°C	0.0548Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 310 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 1940 mtr. (6360 ft.)																
Stranding configuration No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer	1 x 9.53mm 2 N° 8 x 5.57mm 14 x 5.42mm																
Individual Aluminum wires Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa Composite Core Conductivity Nil Minimum Breaking Load 153.8kN	 Trapezoidal wires height 4.66 mm Area : Layer-1 24.37 sqmm Layer-2 23.07 sqmm																
Coefficient of thermal expansion above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 18.90 x10 <sup>-6</sup> /°C	Modulus of elasticity above thermal knee point 117 GPa below thermal knee point 73.9 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 1740 Amp. AC Resistance at max.operating temp. 0.08965 Ω/ km Calculated max.current at 120 Deg.C ^ 1448 Amp. Calculated AC Resistance at 120 Deg.C 0.07758 Ω/km Geometric Mean Radius(GMR) 10.96 mm Inductive Reactance @0.3m radius at 60Hz 0.25072 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.14678 MΩ.km ^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5 * Extreme Load Safety Strength of Conductor =165.73 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>800</td></tr> <tr><td>75</td><td>1000</td></tr> <tr><td>95</td><td>1200</td></tr> <tr><td>115</td><td>1400</td></tr> <tr><td>135</td><td>1550</td></tr> <tr><td>155</td><td>1700</td></tr> <tr><td>175</td><td>1740</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	800	75	1000	95	1200	115	1400	135	1550	155	1700	175	1740
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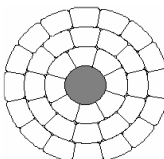
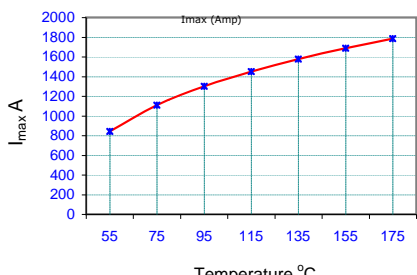
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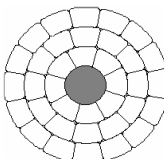
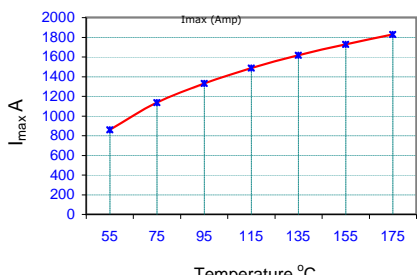


Concentric Lay Stranded Trapezoidal Conductor : ACCC 540

<b>Conductor Type &amp; Code</b> ACCC 540 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	560 sq.mm																
Cross Sectional Area - Aluminum	542.24 sq.mm																
Cross Sectional Area - CTC Core	60.27 sq.mm																
Total Area of Cross Section	602.51 sq.mm																
Overall Diameter of Conductor	28.62 mm																
Mass per Unit length - Aluminum	1505kg /km																
Mass per Unit length - Core	113kg/km																
Mass per unit length - Conductor	1618kg/km																
Rated Strength of the Conductor *	161.33kN*																
Maximum DC Resistance at 20°C	0.0526Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 315 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 2710 mtr. (8890 ft.)																
<b>Stranding configuration</b> No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer No & equivalent Dia. of Trapezoidal wires in third layer	1 x 8.76mm 3 N° 8 x 4.31mm 12 x 4.38mm 14 x 4.72mm																
<b>Individual Aluminum wires</b> Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa <b>Composite Core</b> Conductivity Nil Minimum Breaking Load 130.1kN	 Trapezoidal wires height 3.31 mm Area : Layer-1 14.59 sqmm Layer-2 15.06 sqmm Layer-3 17.48 sqmm																
<b>Coefficient of thermal expansion</b> above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 19.57 x10 <sup>-6</sup> /°C	<b>Modulus of elasticity</b> above thermal knee point 117 GPa below thermal knee point 72.9 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 1785 Amp. AC Resistance at max.operating temp. 0.08611 Ω/ km Calculated max.current at 120 Deg.C ^ 1485 Amp. Calculated AC Resistance at 120 Deg.C 0.07454 Ω/km Geometric Mean Radius(GMR) 11.14 mm Inductive Reactance @0.3m radius at 60Hz 0.24947 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.14599 MΩ.km ^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5 * Extreme Load Safety Strength of Conductor =142.59 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>800</td></tr> <tr><td>75</td><td>1100</td></tr> <tr><td>95</td><td>1300</td></tr> <tr><td>115</td><td>1450</td></tr> <tr><td>135</td><td>1600</td></tr> <tr><td>155</td><td>1700</td></tr> <tr><td>175</td><td>1800</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	800	75	1100	95	1300	115	1450	135	1600	155	1700	175	1800
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55	800																
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175	1800																



Concentric Lay Stranded Trapezoidal Conductor : ACCC 560

<b>Conductor Type &amp; Code</b> ACCC 560 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	580 sq.mm																
Cross Sectional Area - Aluminum	562.48 sq.mm																
Cross Sectional Area - CTC Core	60.27 sq.mm																
Total Area of Cross Section	622.75 sq.mm																
Overall Diameter of Conductor	29.1 mm																
Mass per Unit length - Aluminum	1561kg /km																
Mass per Unit length - Core	113kg/km																
Mass per unit length - Conductor	1674kg/km																
Rated Strength of the Conductor *	162.5kN*																
Maximum DC Resistance at 20°C	0.0507Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 320 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 2980 mtr. (9780 ft.)																
<b>Stranding configuration</b> No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer No & equivalent Dia. of Trapezoidal wires in third layer	1 x 8.76mm 3 N° 8 x 4.38mm 12 x 4.46mm 16 x 4.5mm																
<b>Individual Aluminum wires</b> Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa <b>Composite Core</b> Conductivity Nil Minimum Breaking Load 130.1kN	 Trapezoidal wires height 3.39 mm Area : Layer-1 15.04 sqmm Layer-2 15.62 sqmm Layer-3 15.92 sqmm																
<b>Coefficient of thermal expansion</b> above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 19.67 x10 <sup>-6</sup> /°C	<b>Modulus of elasticity</b> above thermal knee point 117 GPa below thermal knee point 72.7 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 1828 Amp. AC Resistance at max.operating temp. 0.08307 Ω/ km Calculated max.current at 120 Deg.C ^ 1520 Amp. Calculated AC Resistance at 120 Deg.C 0.07193 Ω/km Geometric Mean Radius(GMR) 11.33 mm Inductive Reactance @0.3m radius at 60Hz 0.24822 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.14519 MΩ.km ^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5 * Extreme Load Safety Strength of Conductor =143.06 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>800</td></tr> <tr><td>75</td><td>1100</td></tr> <tr><td>95</td><td>1300</td></tr> <tr><td>115</td><td>1450</td></tr> <tr><td>135</td><td>1600</td></tr> <tr><td>155</td><td>1700</td></tr> <tr><td>175</td><td>1800</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	800	75	1100	95	1300	115	1450	135	1600	155	1700	175	1800
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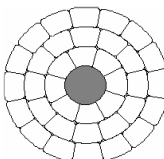
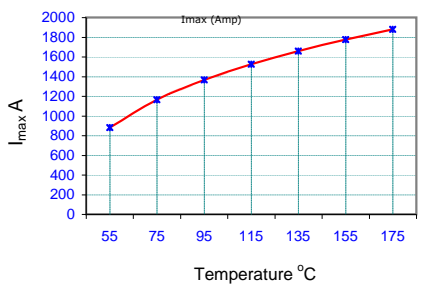
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET




Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : ACCC 580

Conductor Type & Code		ACCC 580 mm <sup>2</sup>	
Nominal equivalent Aluminum Area		610 sq.mm	
Cross Sectional Area - Aluminum		584.05 sq.mm	
Cross Sectional Area - CTC Core		71.33 sq.mm	
Total Area of Cross Section		655.38 sq.mm	
Overall Diameter of Conductor		29.84 mm	
Mass per Unit length - Aluminum		1621kg /km	
Mass per Unit length - Core		132kg/km	
Mass per unit length - Conductor		1753kg/km	
Rated Strength of the Conductor *		187.44kN*	
Maximum DC Resistance at 20°C		0.0489Ω/km	
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16		Lay Direction of outer layer Right Hand	
Preferred Lay of outer layer 328 mm		Surface finish Standard or Non Specular	
		Max.Single length /Drum 2900 mtr. (9510 ft.)	
Stranding configuration			
No. & Diameter of CTC Core		1 x 9.53mm	
No. of Aluminum Layers		3 N <sup>o</sup>	
No & equivalent Dia. of Trapezoidal wires in first layer		9 x 4.25mm	
No. & equivalent Dia.of Trapezoidal wires in second layer		12 x 4.54mm	
No & equivalent Dia. of Trapezoidal wires in third layer		16 x 4.56mm	
Individual Aluminum wires		Trapezoidal wires	
Minimum conductivity 63 %IACS		height 3.39 mm	
Minimum Tensile Strength 60 MPa		Area : Layer-1 14.19 sqmm	
Composite Core		Layer-2 16.22 sqmm	
Conductivity Nil		Layer-3 16.35 sqmm	
Minimum Breaking Load 153.8kN			
			
Coefficient of thermal expansion		Modulus of elasticity	
above thermal knee point 1.61 x10 <sup>-6</sup> /°C		above thermal knee point 117 GPa	
below thermal knee point 19.29 x10 <sup>-6</sup> /°C		below thermal knee point 73.3 GPa	
Max.allowable continuous operating temp. 175°C			
Rated current at max. temperature ^ 1879 Amp.			
AC Resistance at max.operating temp. 0.08002 Ω/ km			
Calculated max.current at 120 Deg.C ^ 1561 Amp.			
Calculated AC Resistance at 120 Deg.C 0.06929 Ω/km			
Geometric Mean Radius(GMR) 11.62 mm			
Inductive Reactance @0.3m radius at 60Hz 0.24632 Ω/km			
Capacitive Reactance @0.3m radius at 60Hz 0.144 MΩ.km			
^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5			
* Extreme Load Safety Strength of Conductor =167.26 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)			

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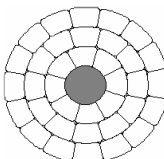
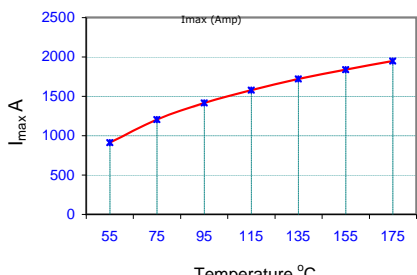
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET




Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : ACCC 620

<b>Conductor Type &amp; Code</b> ACCC 620 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	640 sq.mm																
Cross Sectional Area - Aluminum	619.42 sq.mm																
Cross Sectional Area - CTC Core	60.27 sq.mm																
Total Area of Cross Section	679.69 sq.mm																
Overall Diameter of Conductor	30.41 mm																
Mass per Unit length - Aluminum	1719kg /km																
Mass per Unit length - Core	113kg/km																
Mass per unit length - Conductor	1832kg/km																
Rated Strength of the Conductor *	165.78kN*																
Maximum DC Resistance at 20°C	0.0461Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 335 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 2680 mtr. (8790 ft.)																
<b>Stranding configuration</b> No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer No & equivalent Dia. of Trapezoidal wires in third layer	1 x 8.76mm 3 N° 8 x 4.56mm 12 x 4.68mm 16 x 4.74mm																
<b>Individual Aluminum wires</b> Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa <b>Composite Core</b> Conductivity Nil Minimum Breaking Load 130.1kN	 Trapezoidal wires height 3.61 mm Area : Layer-1 16.3 sqmm Layer-2 17.21 sqmm Layer-3 17.66 sqmm																
<b>Coefficient of thermal expansion</b> above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 19.93 x10 <sup>-6</sup> /°C	<b>Modulus of elasticity</b> above thermal knee point 117 GPa below thermal knee point 72.3 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 1946 Amp. AC Resistance at max.operating temp. 0.07558 Ω/ km Calculated max.current at 120 Deg.C ^ 1616 Amp. Calculated AC Resistance at 120 Deg.C 0.06549 Ω/km Geometric Mean Radius(GMR) 11.84 mm Inductive Reactance @0.3m radius at 60Hz 0.2449 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.14309 MΩ.km <small>^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 &amp; absorptivity: 0.5</small> * Extreme Load Safety Strength of Conductor =144.37 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>900</td></tr> <tr><td>75</td><td>1200</td></tr> <tr><td>95</td><td>1400</td></tr> <tr><td>115</td><td>1600</td></tr> <tr><td>135</td><td>1800</td></tr> <tr><td>155</td><td>1950</td></tr> <tr><td>175</td><td>2000</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	900	75	1200	95	1400	115	1600	135	1800	155	1950	175	2000
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General Specification Standard : ASTM B 857

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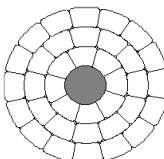
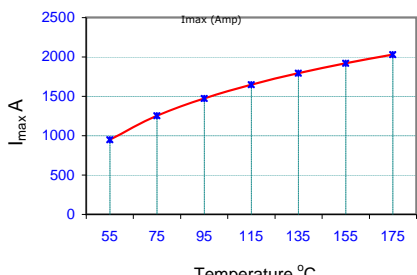
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET




Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : ACCC 650

<b>Conductor Type &amp; Code</b> ACCC 650 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	680 sq.mm																
Cross Sectional Area - Aluminum	658.42 sq.mm																
Cross Sectional Area - CTC Core	71.33 sq.mm																
Total Area of Cross Section	729.75 sq.mm																
Overall Diameter of Conductor	31.5 mm																
Mass per Unit length - Aluminum	1827kg /km																
Mass per Unit length - Core	132kg/km																
Mass per unit length - Conductor	1959kg/km																
Rated Strength of the Conductor *	191.73kN*																
Maximum DC Resistance at 20°C	0.0433Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 347 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 2550 mtr. (8370 ft.)																
<b>Stranding configuration</b> No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer No & equivalent Dia. of Trapezoidal wires in third layer	1 x 9.53mm 3 N° 8 x 4.74mm 12 x 4.83mm 16 x 4.87mm																
<b>Individual Aluminum wires</b> Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa <b>Composite Core</b> Conductivity Nil Minimum Breaking Load 153.8kN	 Trapezoidal wires height 3.66 mm Area : Layer-1 17.64 sqmm Layer-2 18.29 sqmm Layer-3 18.61 sqmm																
<b>Coefficient of thermal expansion</b> above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 19.64 x10 <sup>-6</sup> /°C	<b>Modulus of elasticity</b> above thermal knee point 117 GPa below thermal knee point 72.8 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 2030 Amp. AC Resistance at max.operating temp. 0.07116 Ω/ km Calculated max.current at 120 Deg.C ^ 1684 Amp. Calculated AC Resistance at 120 Deg.C 0.06168 Ω/km Geometric Mean Radius(GMR) 12.27 mm Inductive Reactance @0.3m radius at 60Hz 0.24224 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.14141 MΩ.km <small>^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 &amp; absorptivity: 0.5</small> * Extreme Load Safety Strength of Conductor =168.97 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>1000</td></tr> <tr><td>75</td><td>1250</td></tr> <tr><td>95</td><td>1500</td></tr> <tr><td>115</td><td>1750</td></tr> <tr><td>135</td><td>1900</td></tr> <tr><td>155</td><td>2000</td></tr> <tr><td>175</td><td>2000</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	1000	75	1250	95	1500	115	1750	135	1900	155	2000	175	2000
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ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

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Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : ACCC 680

<b>Conductor Type &amp; Code</b> ACCC 680 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area 710 sq.mm																	
Cross Sectional Area - Aluminum 681.19 sq.mm																	
Cross Sectional Area - CTC Core 60.27 sq.mm																	
Total Area of Cross Section 741.46 sq.mm																	
Overall Diameter of Conductor 31.77 mm																	
Mass per Unit length - Aluminum 1891kg /km																	
Mass per Unit length - Core 113kg/km																	
Mass per unit length - Conductor 2004kg/km																	
Rated Strength of the Conductor * 169.34kN*																	
Maximum DC Resistance at 20°C 0.0419Ω/km																	
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 349 mm	Surface finish Standard or Non Specular																
Max.Single length /Drum 2420 mtr. (7940 ft.)																	
<b>Stranding configuration</b>																	
No. & Diameter of CTC Core 1 x 8.76mm																	
No. of Aluminum Layers 3 N°																	
No & equivalent Dia. of Trapezoidal wires in first layer 8 x 4.74mm																	
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<b>Individual Aluminum wires</b>																	
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Minimum Tensile Strength 60 MPa																	
<b>Composite Core</b>																	
Conductivity Nil	Trapezoidal wires height 3.84 mm																
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above thermal knee point 1.61 x10 <sup>-6</sup> /°C	<b>Modulus of elasticity</b>																
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below thermal knee point 72 GPa																	
Max.allowable continuous operating temp. 175°C																	
Rated current at max. temperature ^ 2069 Amp.																	
AC Resistance at max.operating temp. 0.06889 Ω/ km																	
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^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5																	
* Extreme Load Safety Strength of Conductor =145.79 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)																	
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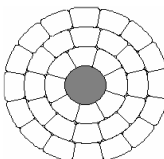
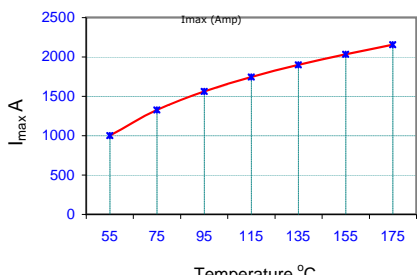
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET




Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : ACCC 720

<b>Conductor Type &amp; Code</b> ACCC 720 mm <sup>2</sup>	
Nominal equivalent Aluminum Area	750 sq.mm
Cross Sectional Area - Aluminum	721.88 sq.mm
Cross Sectional Area - CTC Core	71.33 sq.mm
Total Area of Cross Section	793.21 sq.mm
Overall Diameter of Conductor	32.85 mm
Mass per Unit length - Aluminum	2003kg /km
Mass per Unit length - Core	132kg/km
Mass per unit length - Conductor	2135kg/km
Rated Strength of the Conductor *	195.38kN*
Maximum DC Resistance at 20°C	0.0395Ω/km
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand
Preferred Lay of outer layer 361 mm	Surface finish Standard or Non Specular
	Max.Single length /Drum 2310 mtr. (7580 ft.)
<b>Stranding configuration</b> No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer No & equivalent Dia. of Trapezoidal wires in third layer	1 x 9.53mm 3 N° 8 x 4.92mm 12 x 5.05mm 16 x 5.12mm
<b>Individual Aluminum wires</b> Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa <b>Composite Core</b> Conductivity Nil Minimum Breaking Load 153.8kN	 Trapezoidal wires height 3.89 mm Area : Layer-1 19.04 sqmm Layer-2 20.05 sqmm Layer-3 20.56 sqmm
<b>Coefficient of thermal expansion</b> above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 19.89 x10 <sup>-6</sup> /°C	<b>Modulus of elasticity</b> above thermal knee point 117 GPa below thermal knee point 72.4 GPa
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 2154 Amp. AC Resistance at max.operating temp. 0.06508 Ω/ km Calculated max.current at 120 Deg.C ^ 1785 Amp. Calculated AC Resistance at 120 Deg.C 0.05645 Ω/km Geometric Mean Radius(GMR) 12.79 mm Inductive Reactance @0.3m radius at 60Hz 0.23908 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.13941 MΩ.km <small>^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 &amp; absorptivity: 0.5</small> * Extreme Load Safety Strength of Conductor =170.43 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	

General Specification Standard : ASTM B 857

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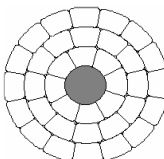
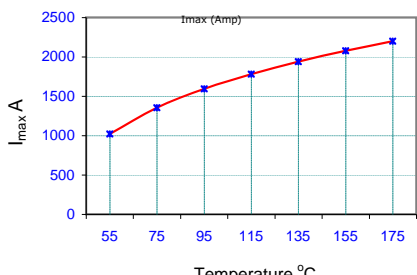
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET




Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : ACCC 740

<b>Conductor Type &amp; Code</b> ACCC 740 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	770 sq.mm																
Cross Sectional Area - Aluminum	744.96 sq.mm																
Cross Sectional Area - CTC Core	75.12 sq.mm																
Total Area of Cross Section	820.09 sq.mm																
Overall Diameter of Conductor	33.4 mm																
Mass per Unit length - Aluminum	2068kg /km																
Mass per Unit length - Core	142kg/km																
Mass per unit length - Conductor	2210kg/km																
Rated Strength of the Conductor *	205.01kN*																
Maximum DC Resistance at 20°C	0.0383Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 367 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 2240 mtr. (7350 ft.)																
<b>Stranding configuration</b> No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer No & equivalent Dia. of Trapezoidal wires in third layer	1 x 9.78mm 3 N° 8 x 5.01mm 12 x 5.13mm 16 x 5.19mm																
<b>Individual Aluminum wires</b> Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa <b>Composite Core</b> Conductivity Nil Minimum Breaking Load 162.1kN	 Trapezoidal wires height 3.94 mm Area : Layer-1 19.72 sqmm Layer-2 20.69 sqmm Layer-3 21.18 sqmm																
<b>Coefficient of thermal expansion</b> above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 19.84 x10 <sup>-6</sup> /°C	<b>Modulus of elasticity</b> above thermal knee point 117 GPa below thermal knee point 72.5 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 2200 Amp. AC Resistance at max.operating temp. 0.06311 Ω/ km Calculated max.current at 120 Deg.C ^ 1822 Amp. Calculated AC Resistance at 120 Deg.C 0.05476 Ω/km Geometric Mean Radius(GMR) 13.01 mm Inductive Reactance @0.3m radius at 60Hz 0.23782 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.13862 MΩ.km ^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5 * Extreme Load Safety Strength of Conductor =179.26 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>1000</td></tr> <tr><td>75</td><td>1300</td></tr> <tr><td>95</td><td>1600</td></tr> <tr><td>115</td><td>1800</td></tr> <tr><td>135</td><td>1950</td></tr> <tr><td>155</td><td>2100</td></tr> <tr><td>175</td><td>2200</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	1000	75	1300	95	1600	115	1800	135	1950	155	2100	175	2200
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General Specification Standard : ASTM B 857

Document version : Preliminary

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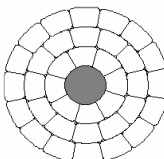
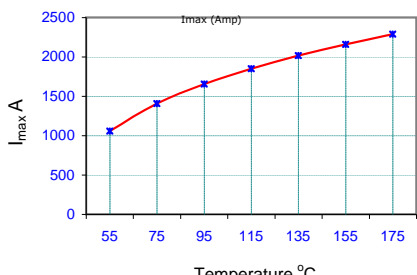
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET




Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : ACCC 795

<b>Conductor Type &amp; Code</b> ACCC 795 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	830 sq.mm																
Cross Sectional Area - Aluminum	796.78 sq.mm																
Cross Sectional Area - CTC Core	60.27 sq.mm																
Total Area of Cross Section	857.05 sq.mm																
Overall Diameter of Conductor	34.17 mm																
Mass per Unit length - Aluminum	2211kg /km																
Mass per Unit length - Core	113kg/km																
Mass per unit length - Conductor	2324kg/km																
Rated Strength of the Conductor *	175.99kN*																
Maximum DC Resistance at 20°C	0.0358Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 376 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 2140 mtr. (7020 ft.)																
<b>Stranding configuration</b> No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer No & equivalent Dia. of Trapezoidal wires in third layer	1 x 8.76mm 3 N° 8 x 5.06mm 12 x 5.31mm 18 x 5.12mm																
<b>Individual Aluminum wires</b> Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa <b>Composite Core</b> Conductivity Nil Minimum Breaking Load 130.1kN	 Trapezoidal wires height 4.24 mm Area : Layer-1 20.1 sqmm Layer-2 22.13 sqmm Layer-3 20.58 sqmm																
<b>Coefficient of thermal expansion</b> above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 20.54 x10 <sup>-6</sup> /°C	<b>Modulus of elasticity</b> above thermal knee point 117 GPa below thermal knee point 71.4 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 2289 Amp. AC Resistance at max.operating temp. 0.0592 Ω/ km Calculated max.current at 120 Deg.C ^ 1894 Amp. Calculated AC Resistance at 120 Deg.C 0.05143 Ω/km Geometric Mean Radius(GMR) 13.31 mm Inductive Reactance @0.3m radius at 60Hz 0.23611 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.13753 MΩ.km ^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5 * Extreme Load Safety Strength of Conductor =148.46 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>1000</td></tr> <tr><td>75</td><td>1400</td></tr> <tr><td>95</td><td>1700</td></tr> <tr><td>115</td><td>1900</td></tr> <tr><td>135</td><td>2050</td></tr> <tr><td>155</td><td>2150</td></tr> <tr><td>175</td><td>2289</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	1000	75	1400	95	1700	115	1900	135	2050	155	2150	175	2289
Temperature (°C)	Imax (Amp)																
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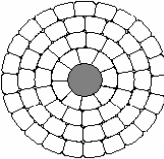
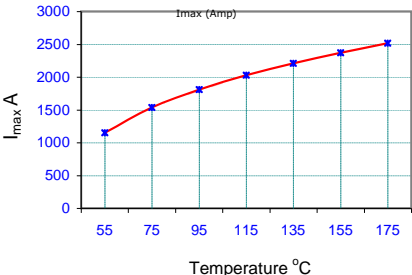
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET




Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : ACCC 920

Conductor Type & Code		ACCC 920 mm <sup>2</sup>	
Nominal equivalent Aluminum Area		960 sq.mm	
Cross Sectional Area - Aluminum		921.99 sq.mm	
Cross Sectional Area - CTC Core		75.12 sq.mm	
Total Area of Cross Section		997.11 sq.mm	
Overall Diameter of Conductor		36.85 mm	
Mass per Unit length - Aluminum		2574kg /km	
Mass per Unit length - Core		142kg/km	
Mass per unit length - Conductor		2716kg/km	
Rated Strength of the Conductor *		215.21kN*	
Maximum DC Resistance at 20°C		0.0311Ω/km	
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16		Lay Direction of outer layer Right Hand	
Preferred Lay of outer layer 405 mm		Surface finish Standard or Non Specular	
		Max.Single length /Drum 2870 mtr. (9420 ft.)	
Stranding configuration			
No. & Diameter of CTC Core		1 x 9.78mm	
No. of Aluminum Layers		4 N <sup>o</sup>	
No & equivalent Dia. of Trapezoidal wires in first layer		9 x 4.29mm	
No. & equivalent Dia.of Trapezoidal wires in second layer		12 x 4.57mm	
No & equivalent Dia. of Trapezoidal wires in third layer		16 x 4.58mm	
No. & equivalent Dia. of Trapezoidal wires in fourth layer		20 x 4.59mm	
Individual Aluminum wires		Trapezoidal wires	
Minimum conductivity 63 %IACS		height 3.38 mm	
Minimum Tensile Strength 60 MPa		Area : Layer-1 14.46 sqmm	
Composite Core		Layer-2 16.42 sqmm	
Conductivity Nil		Layer-3 16.5 sqmm	
Minimum Breaking Load 162.1kN		Layer-4 16.54 sqmm	
			
Coefficient of thermal expansion		Modulus of elasticity	
above thermal knee point 1.61 x10 <sup>-6</sup> /°C		above thermal knee point 117 GPa	
below thermal knee point 20.37 x10 <sup>-6</sup> /°C		below thermal knee point 71.7 GPa	
Max.allowable continuous operating temp. 175°C			
Rated current at max. temperature ^ 2515 Amp.			
AC Resistance at max.operating temp. 0.05173 Ω/ km			
Calculated max.current at 120 Deg.C ^ 2076 Amp.			
Calculated AC Resistance at 120 Deg.C 0.045 Ω/km			
Geometric Mean Radius(GMR) 14.35 mm			
Inductive Reactance @0.3m radius at 60Hz 0.23041 Ω/km			
Capacitive Reactance @0.3m radius at 60Hz 0.13392 MΩ.km			
^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5			
* Extreme Load Safety Strength of Conductor =183.34 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)			

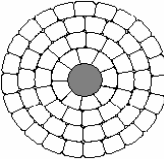
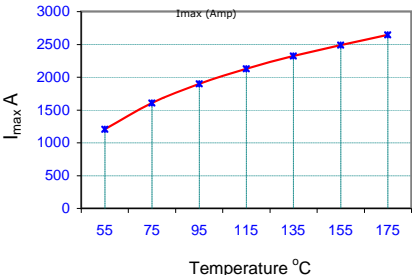
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Concentric Lay Stranded Trapezoidal Conductor : ACCC 1000

<b>Conductor Type &amp; Code</b> ACCC 1000 mm <sup>2</sup>																	
Nominal equivalent Aluminum Area	1040 sq.mm																
Cross Sectional Area - Aluminum	995.99 sq.mm																
Cross Sectional Area - CTC Core	75.12 sq.mm																
Total Area of Cross Section	1071.12 sq.mm																
Overall Diameter of Conductor	38.2 mm																
Mass per Unit length - Aluminum	2780kg /km																
Mass per Unit length - Core	142kg/km																
Mass per unit length - Conductor	2922kg/km																
Rated Strength of the Conductor *	219.47kN*																
Maximum DC Resistance at 20°C	0.0288Ω/km																
Lay ratio - Outer layer of Aluminum wires : Min.10 Max.13 - Inner layer of Aluminum wires : Min.10 Max.16	Lay Direction of outer layer Right Hand																
Preferred Lay of outer layer 420 mm	Surface finish Standard or Non Specular																
	Max.Single length /Drum 2640 mtr. (8660 ft.)																
<b>Stranding configuration</b> No. & Diameter of CTC Core No. of Aluminum Layers No & equivalent Dia. of Trapezoidal wires in first layer No. & equivalent Dia.of Trapezoidal wires in second layer No & equivalent Dia. of Trapezoidal wires in third layer No. & equivalent Dia. of Trapezoidal wires in fourth layer	1 x 9.78mm 4 N° 8 x 4.69mm 12 x 4.74mm 16 x 4.77mm 20 x 4.78mm																
<b>Individual Aluminum wires</b> Minimum conductivity 63 %IACS Minimum Tensile Strength 60 MPa <b>Composite Core</b> Conductivity Nil Minimum Breaking Load 162.1kN	 Trapezoidal wires height 3.55 mm Area : Layer-1 17.3 sqmm Layer-2 17.68 sqmm Layer-3 17.87 sqmm Layer-4 17.98 sqmm																
<b>Coefficient of thermal expansion</b> above thermal knee point 1.61 x10 <sup>-6</sup> /°C below thermal knee point 20.54 x10 <sup>-6</sup> /°C	<b>Modulus of elasticity</b> above thermal knee point 117 GPa below thermal knee point 71.4 GPa																
Max.allowable continuous operating temp. 175°C Rated current at max. temperature ^ 2642 Amp. AC Resistance at max.operating temp. 0.04808 Ω/ km Calculated max.current at 120 Deg.C ^ 2177 Amp. Calculated AC Resistance at 120 Deg.C 0.04189 Ω/km Geometric Mean Radius(GMR) 14.88 mm Inductive Reactance @0.3m radius at 60Hz 0.2277 Ω/km Capacitive Reactance @0.3m radius at 60Hz 0.13221 MΩ.km ^ Ampacity calculated at 25 Deg.C ambient, wind velocity 0.6m/s solar radiation: 900w/sq.mm emissivity coefficient: 0.6 & absorptivity: 0.5 * Extreme Load Safety Strength of Conductor =185.05 kN (Applicable if sustained load over 80% RTS expected for prolonged periods)	 <table border="1"> <caption>Imax (Amp) vs Temperature (°C)</caption> <thead> <tr> <th>Temperature (°C)</th> <th>Imax (Amp)</th> </tr> </thead> <tbody> <tr><td>55</td><td>1200</td></tr> <tr><td>75</td><td>1500</td></tr> <tr><td>95</td><td>1800</td></tr> <tr><td>115</td><td>2100</td></tr> <tr><td>135</td><td>2300</td></tr> <tr><td>155</td><td>2500</td></tr> <tr><td>175</td><td>2600</td></tr> </tbody> </table>	Temperature (°C)	Imax (Amp)	55	1200	75	1500	95	1800	115	2100	135	2300	155	2500	175	2600
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