

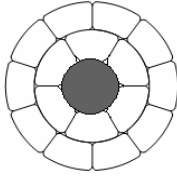
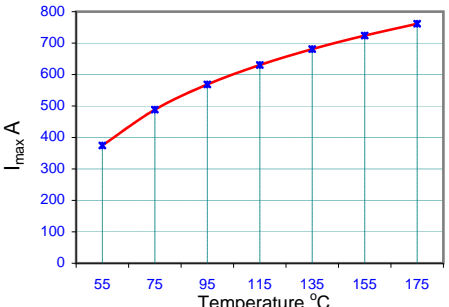
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : HELSINKI

| | | |
|--|---|--|
| Conductor Type & Code ACCC - Helsinki (ACCC 160 mm ²) | | |
| Nominal equivalent Aluminum Area | 159,38 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 | 427 kg/km | |
| Mass per Unit length - Core | 54 kg/km | |
| Mass per unit length - Conductor | 481 kg/km | |
| Rated Strength of the Conductor * | 69,09 kN* | |
| Maximum DC Resistance at 20°C | 0,1839 Ω/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 | |
| Prefered Lay of outer layer 172 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 6020 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 5,97 mm | |
| No. of Aluminum Layers | 2 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 8 x 3,09 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 3,17 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 2,42 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 7,49 sqmm | |
| Composite Core | Layer-2 7,88 sqmm | |
| Conductivity Nil | | |
| Rated Breaking Load 60,4 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 17,86 x10 ⁻⁶ /°C | below thermal knee point 75,8 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 762 Amp. | | |
| AC Resistance at max. operating temp. 0,29889 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 644 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 50Hz 0,24582 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,20976 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =64 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |



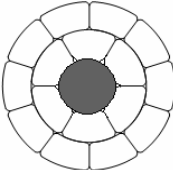
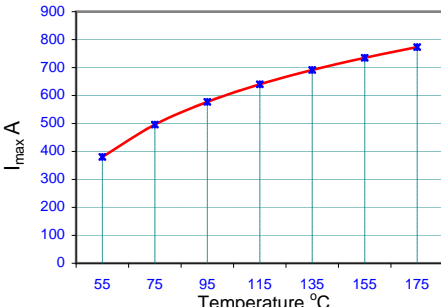
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : BERN

| | | |
|--|---|--|
| Conductor Type & Code ACCC - Bern (ACCC 165 mm ²) | | |
| Nominal equivalent Aluminum Area | 165,27 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 | 443 kg/km | |
| Mass per Unit length - Core | 34 kg/km | |
| Mass per unit length - Conductor | 477 kg/km | |
| Rated Strength of the Conductor * | 50,81 kN* | |
| Maximum DC Resistance at 20°C | 0,1773 Ω/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 | |
| Prefered Lay of outer layer 171 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 5620 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 4,82 mm | |
| No. of Aluminum Layers | 2 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 7 x 3,28 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 3,28 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 2,67 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 8,44 sqmm | |
| Composite Core | Layer-2 8,43 sqmm | |
| Conductivity Nil | | |
| Rated Breaking Load 41,8 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 19,46 x10 ⁻⁶ /°C | below thermal knee point 73,2 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 773 Amp. | | |
| AC Resistance at max. operating temp. 0,28828 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 654 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 50Hz 0,24642 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,21031 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =45 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |



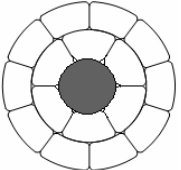
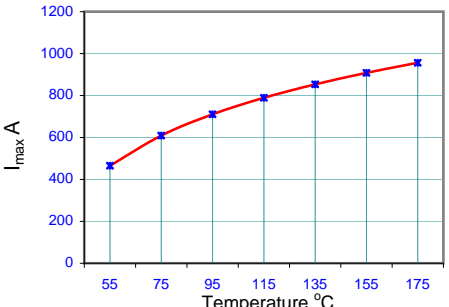
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : COPENHAGEN

| | | |
|--|---|--|
| Conductor Type & Code ACCC - Copenhagen (ACCC 230 mm ²) | | |
| Nominal equivalent Aluminum Area | 227,61 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 | 610 kg/km | |
| Mass per Unit length - Core | 54 kg/km | |
| Mass per unit length - Conductor | 664 kg/km | |
| Rated Strength of the Conductor * | 72,81 kN* | |
| Maximum DC Resistance at 20°C | 0,1287 Ω/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 | |
| Prefered Lay of outer layer 201 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 4110 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 5,97 mm | |
| No. of Aluminum Layers | 2 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 8 x 3,62 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 3,83 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 3,08 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 10,29 sqmm | |
| Composite Core | Layer-2 11,53 sqmm | |
| Conductivity Nil | | |
| Rated Breaking Load 60,4 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 19,12 x10 ⁻⁶ /°C | below thermal knee point 73,7 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 956 Amp. | | |
| AC Resistance at max. operating temp. 0,20943 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 806 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 50Hz 0,23602 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,20083 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =65 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |



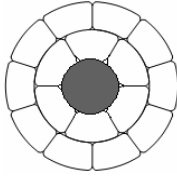
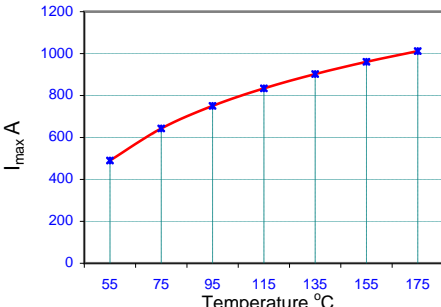
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : GLASGOW

| Conductor Type & Code ACCC - Glasgow (ACCC 245 mm ²) | | | | | | | | | | | | | | | | | |
|--|---|------------------|----------------------|----|-----|----|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Nominal equivalent Aluminum Area | 244,97 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 | 656 kg/km | | | | | | | | | | | | | | | | |
| Mass per Unit length - Core | 87 kg/km | | | | | | | | | | | | | | | | |
| Mass per unit length - Conductor | 743 kg/km | | | | | | | | | | | | | | | | |
| Rated Strength of the Conductor * | 115,15 kN* | | | | | | | | | | | | | | | | |
| Maximum DC Resistance at 20°C | 0,1199 Ω/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 Surface finish Standard or Non Specular | | | | | | | | | | | | | | | | |
| Prefered Lay of outer layer 215 mm | Max. single length /Drum 3940 m | | | | | | | | | | | | | | | | |
| 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 7,75 mm 2 N° 8 x 3,85 mm 12 x 3,91 mm | | | | | | | | | | | | | | | | |
| Individual Aluminum wires Minimum conductivity 63 %IACS ASTM minimum Tensile Strength 58,6 MPa Composite Core Conductivity Nil Rated Breaking Load 101,8 kN |  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 ⁻⁶ /°C below thermal knee point 17,49 x10 ⁻⁶ /°C | Modulus of elasticity above thermal knee point 118,6 GPa below thermal knee point 76,4 GPa | | | | | | | | | | | | | | | | |
| Max. allowable continuous operating temp. (surface) 175°C Rated current at max. temperature ^ 1012 Amp. AC Resistance at max. operating temp. 0,19496 Ω/ km Calculated max. current at 120 Deg.C ^ 852 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 50Hz 0,2319 Ω/km Capacitive Reactance @0,3m radius at 50Hz 0,19707 MΩ.km ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 * Extreme Load Safety Strength of Conductor =107 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) |  <table border="1"> <caption>Graph Data: I_{max} vs Temperature</caption> <thead> <tr> <th>Temperature (°C)</th> <th>I_{max} (A)</th> </tr> </thead> <tbody> <tr><td>55</td><td>480</td></tr> <tr><td>75</td><td>650</td></tr> <tr><td>95</td><td>750</td></tr> <tr><td>115</td><td>820</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) | I _{max} (A) | 55 | 480 | 75 | 650 | 95 | 750 | 115 | 820 | 135 | 880 | 155 | 950 | 175 | 1000 |
| Temperature (°C) | I _{max} (A) | | | | | | | | | | | | | | | | |
| 55 | 480 | | | | | | | | | | | | | | | | |
| 75 | 650 | | | | | | | | | | | | | | | | |
| 95 | 750 | | | | | | | | | | | | | | | | |
| 115 | 820 | | | | | | | | | | | | | | | | |
| 135 | 880 | | | | | | | | | | | | | | | | |
| 155 | 950 | | | | | | | | | | | | | | | | |
| 175 | 1000 | | | | | | | | | | | | | | | | |



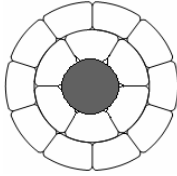
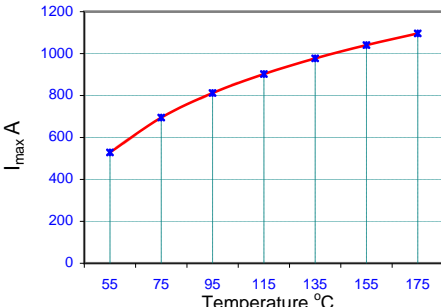
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : CASABLANCA

| | | |
|--|---|--|
| Conductor Type & Code ACCC - Casablanca (ACCC 285 mm ²) | | |
| Nominal equivalent Aluminum Area | 278,82 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 | 747 kg/km | |
| Mass per Unit length - Core | 76 kg/km | |
| Mass per unit length - Conductor | 823 kg/km | |
| Rated Strength of the Conductor * | 100,99 kN* | |
| Maximum DC Resistance at 20°C | 0,1053 Ω/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 | |
| Prefered Lay of outer layer 226 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 3390 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 7,11 mm | |
| No. of Aluminum Layers | 2 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 8 x 4,03 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 4,22 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 3,35 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 12,78 sqmm | |
| Composite Core | Layer-2 13,98 sqmm | |
| Conductivity Nil | | |
| Rated Breaking Load 85,8 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 18,63 x10 ⁻⁶ /°C | below thermal knee point 74,5 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 1096 Amp. | | |
| AC Resistance at max. operating temp. 0,17138 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 922 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 50Hz 0,22886 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,1943 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =92 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |



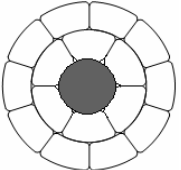
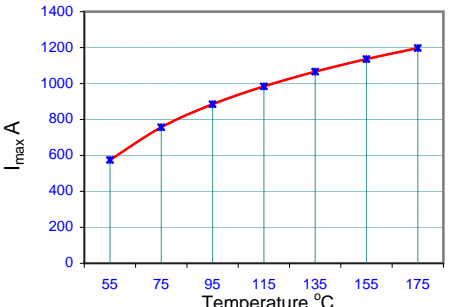
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : LISBON

| | | |
|--|---|--|
| Conductor Type & Code ACCC - Lisbon (ACCC 325 mm ²) | | |
| Nominal equivalent Aluminum Area | 319,32 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 | 855 kg/km | |
| Mass per Unit length - Core | 76 kg/km | |
| Mass per unit length - Conductor | 931 kg/km | |
| Rated Strength of the Conductor * | 103,21 kN* | |
| Maximum DC Resistance at 20°C | 0,0918 Ω/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 | |
| Prefered Lay of outer layer 240 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 2440 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 7,11 mm | |
| No. of Aluminum Layers | 2 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 6 x 4,95 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 10 x 4,97 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 3,67 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 19,25 sqmm | |
| Composite Core | Layer-2 19,41 sqmm | |
| Conductivity Nil | | |
| Rated Breaking Load 85,8 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 19,09 x10 ⁻⁶ /°C | below thermal knee point 73,8 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 1197 Amp. | | |
| AC Resistance at max. operating temp. 0,14944 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 1006 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 50Hz 0,22505 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,19083 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =93 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |



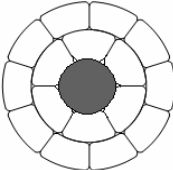
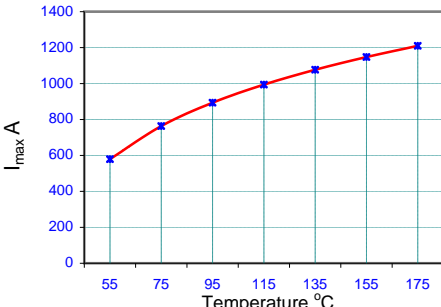
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

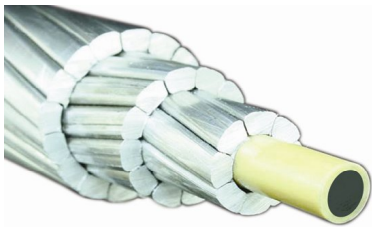
TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : OSLO

| Conductor Type & Code ACCC - Oslo (ACCC 325 mm ²) | | | | | | | | | | | | | | | | | |
|---|--|------------------|----------------------|----|-----|----|-----|----|-----|-----|------|-----|------|-----|------|-----|------|
| Nominal equivalent Aluminum Area | 320,54 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 | 859 kg/km | | | | | | | | | | | | | | | | |
| Mass per Unit length - Core | 113 kg/km | | | | | | | | | | | | | | | | |
| Mass per unit length - Conductor | 972 kg/km | | | | | | | | | | | | | | | | |
| Rated Strength of the Conductor * | 147,56 kN* | | | | | | | | | | | | | | | | |
| Maximum DC Resistance at 20°C | 0,0916 Ω/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 Surface finish Standard or Non Specular | | | | | | | | | | | | | | | | |
| Prefered Lay of outer layer 246 mm | Max. single length /Drum 3010 m | | | | | | | | | | | | | | | | |
| 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 8,76 mm 2 N ^o 8 x 4,39 mm 12 x 4,48 mm | | | | | | | | | | | | | | | | |
| Individual Aluminum wires Minimum conductivity 63 %IACS ASTM minimum Tensile Strength 58,6 MPa Composite Core Conductivity Nil Rated Breaking Load 130,1 kN |  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 ⁻⁶ /°C below thermal knee point 17,59 x10 ⁻⁶ /°C | Modulus of elasticity above thermal knee point 118,6 GPa below thermal knee point 76,2 GPa | | | | | | | | | | | | | | | | |
| Max. allowable continuous operating temp. (surface) 175°C Rated current at max. temperature ^ 1210 Amp. AC Resistance at max. operating temp. 0,14911 Ω/ km Calculated max. current at 120 Deg.C ^ 1016 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 50Hz 0,22329 Ω/km Capacitive Reactance @0,3m radius at 50Hz 0,18922 MΩ.km ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 * Extreme Load Safety Strength of Conductor =137 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) |  <table border="1"> <caption>Graph Data: I_{max} vs Temperature</caption> <thead> <tr> <th>Temperature (°C)</th> <th>I_{max} (A)</th> </tr> </thead> <tbody> <tr><td>55</td><td>550</td></tr> <tr><td>75</td><td>750</td></tr> <tr><td>95</td><td>900</td></tr> <tr><td>115</td><td>1000</td></tr> <tr><td>135</td><td>1100</td></tr> <tr><td>155</td><td>1150</td></tr> <tr><td>175</td><td>1200</td></tr> </tbody> </table> | Temperature (°C) | I _{max} (A) | 55 | 550 | 75 | 750 | 95 | 900 | 115 | 1000 | 135 | 1100 | 155 | 1150 | 175 | 1200 |
| Temperature (°C) | I _{max} (A) | | | | | | | | | | | | | | | | |
| 55 | 550 | | | | | | | | | | | | | | | | |
| 75 | 750 | | | | | | | | | | | | | | | | |
| 95 | 900 | | | | | | | | | | | | | | | | |
| 115 | 1000 | | | | | | | | | | | | | | | | |
| 135 | 1100 | | | | | | | | | | | | | | | | |
| 155 | 1150 | | | | | | | | | | | | | | | | |
| 175 | 1200 | | | | | | | | | | | | | | | | |



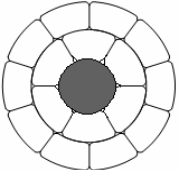
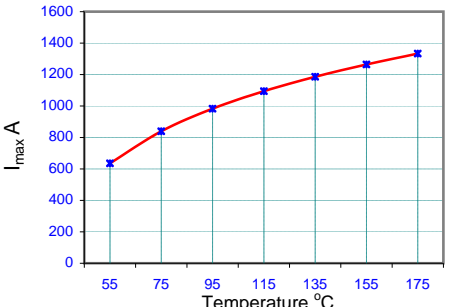
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

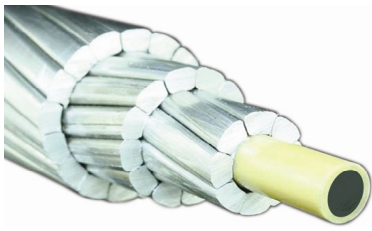
TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : AMSTERDAM

| | |
|---|---|
| Conductor Type & Code ACCC - Amsterdam (ACCC 380 mm ²) | |
| Nominal equivalent Aluminum Area | 376,61 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 | 1009 kg/km |
| Mass per Unit length - Core | 87 kg/km |
| Mass per unit length - Conductor | 1096 kg/km |
| Rated Strength of the Conductor * | 122,34 kN* |
| Maximum DC Resistance at 20°C | 0,0778 Ω/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 |
| Prefered Lay of outer layer 259 mm | Surface finish Standard or Non Specular |
| | Max. single length /Drum 2280 m |
| Stranding configuration | |
| No. & Diameter of CTC Core | 1 x 7,75 mm |
| No. of Aluminum Layers | 2 N ^o |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 7 x 4,98 mm |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 11 x 5,14 mm |
| Individual Aluminum wires | Trapezoidal Wires |
| Minimum conductivity 63 %IACS | height 3,95 mm |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 19,5 sqmm |
| Composite Core | Layer-2 20,78 sqmm |
| Conductivity Nil | |
| Rated Breaking Load 101,8 kN | |
| |  |
| Coefficient of thermal expansion | Modulus of elasticity |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa |
| below thermal knee point 19,07 x10 ⁻⁶ /°C | below thermal knee point 73,8 GPa |
| Max. allowable continuous operating temp. (surface) 175°C | |
| Rated current at max. temperature ^ 1333 Amp. | |
| AC Resistance at max. operating temp. 0,12681 Ω/ km | |
| Calculated max. current at 120 Deg.C ^ 1119 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 50Hz 0,22014 Ω/km | |
| Capacitive Reactance @0,3m radius at 50Hz 0,18635 MΩ.km | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | |
| * Extreme Load Safety Strength of Conductor =110 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | |
| |  |



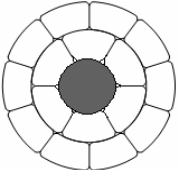
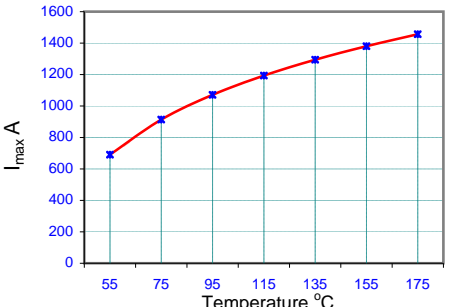
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : BRUSSELS

| | | |
|---|---|--|
| Conductor Type & Code ACCC - Brussels (ACCC 430 mm ²) | | |
| Nominal equivalent Aluminum Area | 430,97 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 | 1154 kg/km | |
| Mass per Unit length - Core | 98 kg/km | |
| Mass per unit length - Conductor | 1252 kg/km | |
| Rated Strength of the Conductor * | 135,6 kN* | |
| Maximum DC Resistance at 20°C | 0,068 Ω/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 | |
| Prefered Lay of outer layer 277 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 2130 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 8,13 mm | |
| No. of Aluminum Layers | 2 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 7 x 5,32 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 5,28 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 4,25 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 22,21 sqmm | |
| Composite Core | Layer-2 21,86 sqmm | |
| Conductivity Nil | | |
| Rated Breaking Load 112,1 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 19,19 x10 ⁻⁶ /°C | below thermal knee point 73,6 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 1457 Amp. | | |
| AC Resistance at max. operating temp. 0,11093 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 1220 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 50Hz 0,21604 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,18261 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =122 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |



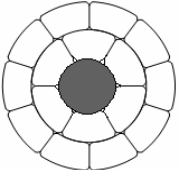
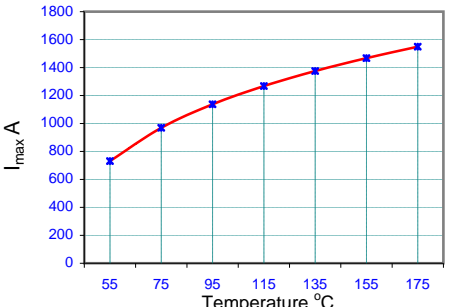
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : STOCKHOLM

| | |
|---|---|
| Conductor Type & Code ACCC - Stockholm (ACCC 470 mm ²) | |
| Nominal equivalent Aluminum Area | 472,32 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 | 1265 kg/km |
| Mass per Unit length - Core | 113 kg/km |
| Mass per unit length - Conductor | 1378 kg/km |
| Rated Strength of the Conductor * | 155,86 kN* |
| Maximum DC Resistance at 20°C | 0,062 Ω/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 |
| Prefered Lay of outer layer 290 mm | Surface finish Standard or Non Specular |
| | Max. single length /Drum 2210 m |
| Stranding configuration | |
| No. & Diameter of CTC Core | 1 x 8,76 mm |
| No. of Aluminum Layers | 2 N ^o |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 8 x 5,22 mm |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 14 x 5,1 mm |
| Individual Aluminum wires | Trapezoidal Wires |
| Minimum conductivity 63 %IACS | height 4,41 mm |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 21,44 sqmm |
| Composite Core | Layer-2 20,46 sqmm |
| Conductivity Nil | |
| Rated Breaking Load 130,1 kN | |
| |  |
| Coefficient of thermal expansion | Modulus of elasticity |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa |
| below thermal knee point 19,01 x10 ⁻⁶ /°C | below thermal knee point 73,9 GPa |
| Max. allowable continuous operating temp. (surface) 175°C | |
| Rated current at max. temperature ^ 1549 Amp. | |
| AC Resistance at max. operating temp. 0,10129 Ω/ km | |
| Calculated max. current at 120 Deg.C ^ 1296 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 50Hz 0,21296 Ω/km | |
| Capacitive Reactance @0,3m radius at 50Hz 0,17981 MΩ.km | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | |
| * Extreme Load Safety Strength of Conductor =140 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | |
| |  |



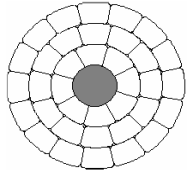
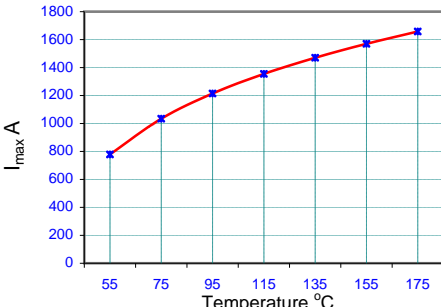
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : WARSAW

| | | |
|---|---|--|
| Conductor Type & Code ACCC - Warsaw (ACCC 530 mm ²) | | |
| Nominal equivalent Aluminum Area | 529,05 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 | 1417 kg/km | |
| Mass per Unit length - Core | 113 kg/km | |
| Mass per unit length - Conductor | 1530 kg/km | |
| Rated Strength of the Conductor * | 158,83 kN* | |
| Maximum DC Resistance at 20°C | 0,0559 Ω/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 | |
| Prefered Lay of outer layer 305 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 2900 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 8,76 mm | |
| No. of Aluminum Layers | 3 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 8 x 4,21 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 11 x 4,44 mm | |
| No. & equivalent Dia. of Trapezoidal wires in third layer | 14 x 4,57 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 3,16 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 13,9 sqmm | |
| Composite Core | Layer-2 15,47 sqmm | |
| Conductivity Nil | Layer-3 16,37 sqmm | |
| Rated Breaking Load 130,1 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 19,35 x10 ⁻⁶ /°C | below thermal knee point 73,3 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 1658 Amp. | | |
| AC Resistance at max. operating temp. 0,09135 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 1386 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 50Hz 0,2099 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,17702 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =142 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |



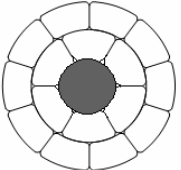
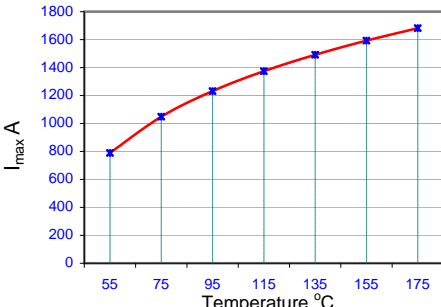
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : DUBLIN

| | |
|---|---|
| Conductor Type & Code ACCC - Dublin (ACCC 540 mm ²) | |
| Nominal equivalent Aluminum Area | 534,3 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 | 1431 kg/km |
| Mass per Unit length - Core | 132 kg/km |
| Mass per unit length - Conductor | 1563 kg/km |
| Rated Strength of the Conductor * | 182,94 kN* |
| Maximum DC Resistance at 20°C | 0,0548 Ω/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 |
| Prefered Lay of outer layer 310 mm | Surface finish Standard or Non Specular |
| | Max. single length /Drum 1940 m |
| Stranding configuration | |
| No. & Diameter of CTC Core | 1 x 9,53 mm |
| No. of Aluminum Layers | 2 N ^o |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 8 x 5,57 mm |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 14 x 5,42 mm |
| Individual Aluminum wires | Trapezoidal Wires |
| Minimum conductivity 63 %IACS | height 4,66 mm |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 24,37 sqmm |
| Composite Core | Layer-2 23,07 sqmm |
| Conductivity Nil | |
| Rated Breaking Load 153,8 kN | |
| |  |
| Coefficient of thermal expansion | Modulus of elasticity |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa |
| below thermal knee point 18,86 x10 ⁻⁶ /°C | below thermal knee point 74,1 GPa |
| Max. allowable continuous operating temp. (surface) 175°C | |
| Rated current at max. temperature ^ 1682 Amp. | |
| AC Resistance at max. operating temp. 0,08965 Ω/ km | |
| Calculated max. current at 120 Deg.C ^ 1405 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 50Hz 0,20893 Ω/km | |
| Capacitive Reactance @0,3m radius at 50Hz 0,17613 MΩ.km | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | |
| * Extreme Load Safety Strength of Conductor =165 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | |
| |  |



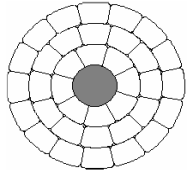
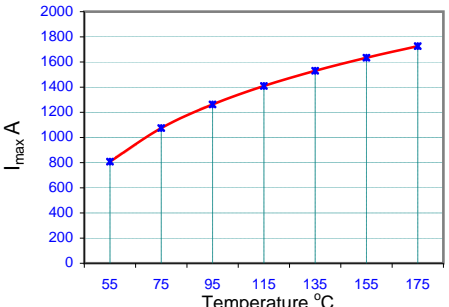
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : HAMBURG

| | | |
|--|---|--|
| Conductor Type & Code ACCC - Hamburg (ACCC 570 mm ²) | | |
| Nominal equivalent Aluminum Area | 561,79 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 | 1505 kg/km | |
| Mass per Unit length - Core | 113 kg/km | |
| Mass per unit length - Conductor | 1618 kg/km | |
| Rated Strength of the Conductor * | 160,6 kN* | |
| Maximum DC Resistance at 20°C | 0,0526 Ω/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 | |
| Prefered Lay of outer layer 315 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 2710 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 8,76 mm | |
| No. of Aluminum Layers | 3 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 8 x 4,31 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 4,38 mm | |
| No. & equivalent Dia. of Trapezoidal wires in third layer | 14 x 4,72 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 3,31 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 14,59 sqmm | |
| Composite Core | Layer-2 15,06 sqmm | |
| Conductivity Nil | Layer-3 17,48 sqmm | |
| Rated Breaking Load 130,1 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 19,53 x10 ⁻⁶ /°C | below thermal knee point 73,1 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 1726 Amp. | | |
| AC Resistance at max. operating temp. 0,08611 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 1441 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 50Hz 0,20789 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,17519 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =142 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |



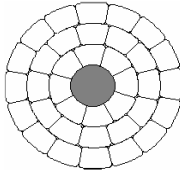
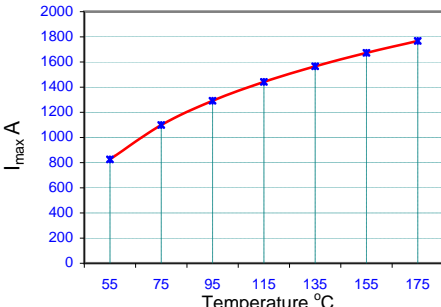
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : MILAN

| | | |
|---|---|--|
| Conductor Type & Code ACCC - Milan (ACCC 590 mm ²) | | |
| Nominal equivalent Aluminum Area | 582,76 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 | 1561 kg/km | |
| Mass per Unit length - Core | 113 kg/km | |
| Mass per unit length - Conductor | 1674 kg/km | |
| Rated Strength of the Conductor * | 161,74 kN* | |
| Maximum DC Resistance at 20°C | 0,0507 Ω/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 Surface finish Standard or Non Specular | |
| Prefered Lay of outer layer 320 mm | Max. single length /Drum 2980 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 8,76 mm | |
| No. of Aluminum Layers | 3 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 8 x 4,38 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 4,46 mm | |
| No. & equivalent Dia. of Trapezoidal wires in third layer | 16 x 4,5 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 3,39 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 15,04 sqmm | |
| Composite Core | Layer-2 15,62 sqmm | |
| Conductivity Nil | Layer-3 15,92 sqmm | |
| Rated Breaking Load 130,1 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 19,63 x10 ⁻⁶ /°C | below thermal knee point 72,9 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 1767 Amp. | | |
| AC Resistance at max. operating temp. 0,08307 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 1475 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 50Hz 0,20685 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,17423 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =143 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |



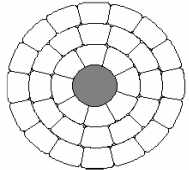
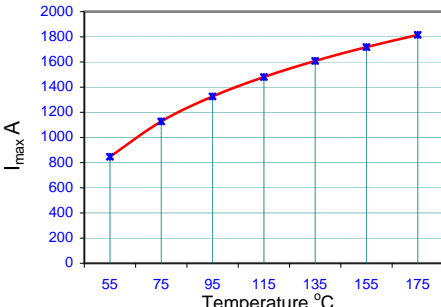
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : ROME

| | | |
|---|---|--|
| Conductor Type & Code ACCC - Rome (ACCC 610 mm ²) | | |
| Nominal equivalent Aluminum Area | 605,11 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 | 1621 kg/km | |
| Mass per Unit length - Core | 132 kg/km | |
| Mass per unit length - Conductor | 1753 kg/km | |
| Rated Strength of the Conductor * | 186,66 kN* | |
| Maximum DC Resistance at 20°C | 0,0489 Ω/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 | |
| Prefered Lay of outer layer 328 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 2900 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 9,53 mm | |
| No. of Aluminum Layers | 3 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 9 x 4,25 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 4,54 mm | |
| No. & equivalent Dia. of Trapezoidal wires in third layer | 16 x 4,56 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 3,39 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 14,19 sqmm | |
| Composite Core | Layer-2 16,22 sqmm | |
| Conductivity Nil | Layer-3 16,35 sqmm | |
| Rated Breaking Load 153,8 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 19,24 x10 ⁻⁶ /°C | below thermal knee point 73,5 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 1816 Amp. | | |
| AC Resistance at max. operating temp. 0,08002 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 1514 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 50Hz 0,20527 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,1728 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =167 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |



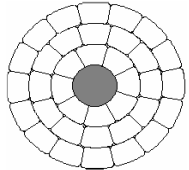
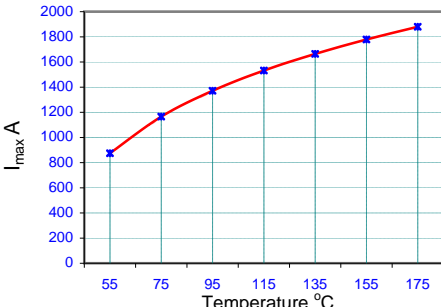
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

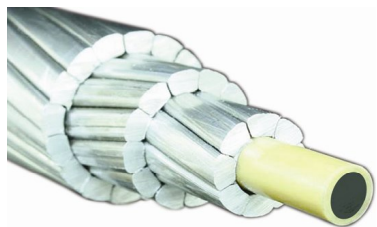
TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : VIENNA

| | | |
|---|---|--|
| Conductor Type & Code ACCC - Vienna (ACCC 650 mm ²) | | |
| Nominal equivalent Aluminum Area | 641,75 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 | 1719 kg/km | |
| Mass per Unit length - Core | 113 kg/km | |
| Mass per unit length - Conductor | 1832 kg/km | |
| Rated Strength of the Conductor * | 164,95 kN* | |
| Maximum DC Resistance at 20°C | 0,0461 Ω/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 | |
| Prefered Lay of outer layer 335 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 2680 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 8,76 mm | |
| No. of Aluminum Layers | 3 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 8 x 4,56 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 4,68 mm | |
| No. & equivalent Dia. of Trapezoidal wires in third layer | 16 x 4,74 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 3,61 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 16,3 sqmm | |
| Composite Core | Layer-2 17,21 sqmm | |
| Conductivity Nil | Layer-3 17,66 sqmm | |
| Rated Breaking Load 130,1 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 19,90 x10 ⁻⁶ /°C | below thermal knee point 72,5 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 1880 Amp. | | |
| AC Resistance at max. operating temp. 0,07558 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 1567 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 50Hz 0,20408 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,17171 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =144 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |

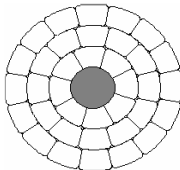
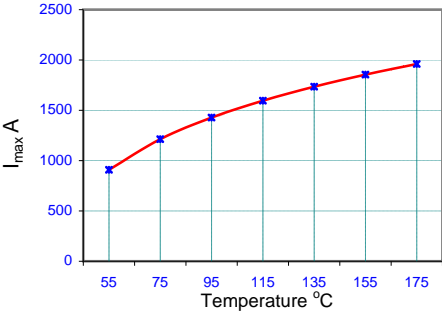


ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET

Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : BUDAPEST

| | | |
|---|---|--|
| Conductor Type & Code ACDC - Budapest (ACDC 690 mm ²) | | |
| Nominal equivalent Aluminum Area | 682,16 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 | 1827 kg/km | |
| Mass per Unit length - Core | 132 kg/km | |
| Mass per unit length - Conductor | 1959 kg/km | |
| Rated Strength of the Conductor * | 190,84 kN* | |
| Maximum DC Resistance at 20°C | 0,0433 Ω/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 m | |
| 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 No. & equivalent Dia. of Trapezoidal wires in third layer | | 1 x 9,53 mm 3 N ^o 8 x 4,74 mm 12 x 4,83 mm 16 x 4,87 mm |
| Individual Aluminum wires Minimum conductivity 63 %IACS ASTM minimum Tensile Strength 58,6 MPa Composite Core Conductivity Nil Rated Breaking Load 153,8 kN | |  Trapezoidal Wires height 3,66 mm Area : Layer-1 17,64 sqmm Layer-2 18,29 sqmm Layer-3 18,61 sqmm |
| Coefficient of thermal expansion above thermal knee point 1,61 x10 ⁻⁶ /°C below thermal knee point 19,60 x10 ⁻⁶ /°C | | Modulus of elasticity above thermal knee point 118,6 GPa below thermal knee point 72,9 GPa |
| Max. allowable continuous operating temp. (surface) 175°C Rated current at max. temperature ^ 1960 Amp. AC Resistance at max. operating temp. 0,07116 Ω/ km Calculated max. current at 120 Deg.C ^ 1633 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 50Hz 0,20187 Ω/km Capacitive Reactance @0,3m radius at 50Hz 0,16969 MΩ.km <small>^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5</small> | |  |
| * Extreme Load Safety Strength of Conductor =169 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACDC Technical note TN-750-001.) | | |



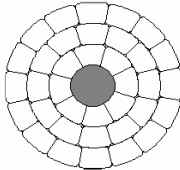
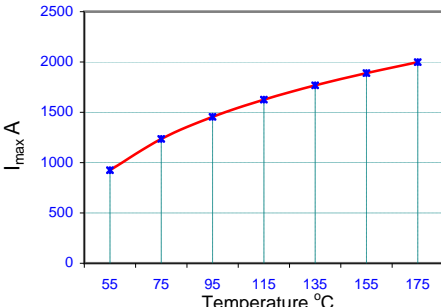
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : PRAGUE

| | | |
|---|---|--|
| Conductor Type & Code ACCC - Prague (ACCC 710 mm ²) | | |
| Nominal equivalent Aluminum Area | 705,75 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 | 1891 kg/km | |
| Mass per Unit length - Core | 113 kg/km | |
| Mass per unit length - Conductor | 2004 kg/km | |
| Rated Strength of the Conductor * | 168,42 kN* | |
| Maximum DC Resistance at 20°C | 0,0419 Ω/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 | |
| Prefered Lay of outer layer 349 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 2420 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 8,76 mm | |
| No. of Aluminum Layers | 3 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 8 x 4,74 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 4,91 mm | |
| No. & equivalent Dia. of Trapezoidal wires in third layer | 16 x 4,99 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 3,84 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 17,64 sqmm | |
| Composite Core | Layer-2 18,92 sqmm | |
| Conductivity Nil | Layer-3 19,56 sqmm | |
| Rated Breaking Load 130,1 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 20,14 x10 ⁻⁶ /°C | below thermal knee point 72,1 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 1998 Amp. | | |
| AC Resistance at max. operating temp. 0,06889 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 1664 Amp. | | |
| Calculated AC Resistance at 120 Deg.C 0,05974 Ω/km | | |
| Geometric Mean Radius(GMR) 12,37 mm | | |
| Inductive Reactance @0,3m radius at 50Hz 0,20133 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,16921 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =145 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |



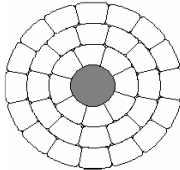
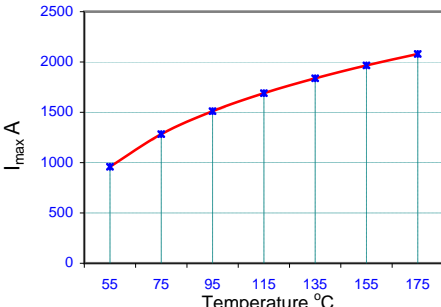
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : MUNICH

| | | |
|---|---|--|
| Conductor Type & Code ACCC - Munich (ACCC 760 mm ²) | | |
| Nominal equivalent Aluminum Area | 747,91 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 | 2003 kg/km | |
| Mass per Unit length - Core | 132 kg/km | |
| Mass per unit length - Conductor | 2135 kg/km | |
| Rated Strength of the Conductor * | 194,41 kN* | |
| Maximum DC Resistance at 20°C | 0,0395 Ω/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 | |
| Prefered Lay of outer layer 361 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 2310 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 9,53 mm | |
| No. of Aluminum Layers | 3 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 8 x 4,92 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 5,05 mm | |
| No. & equivalent Dia. of Trapezoidal wires in third layer | 16 x 5,12 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 3,89 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 19,04 sqmm | |
| Composite Core | Layer-2 20,05 sqmm | |
| Conductivity Nil | Layer-3 20,56 sqmm | |
| Rated Breaking Load 153,8 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 19,86 x10 ⁻⁶ /°C | below thermal knee point 72,6 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 2079 Amp. | | |
| AC Resistance at max. operating temp. 0,06508 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 1729 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 50Hz 0,19923 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,16729 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =170 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |



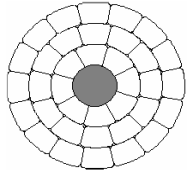
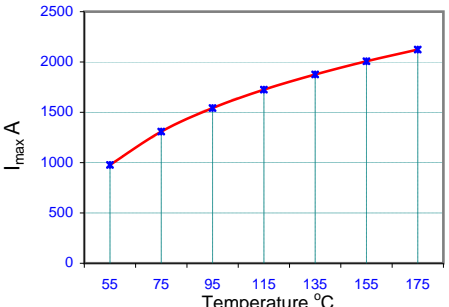
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : LONDON

| | | |
|---|---|--|
| Conductor Type & Code ACCC - London (ACCC 780 mm ²) | | |
| Nominal equivalent Aluminum Area | 771,83 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 | 2068 kg/km | |
| Mass per Unit length - Core | 142 kg/km | |
| Mass per unit length - Conductor | 2210 kg/km | |
| Rated Strength of the Conductor * | 204,01 kN* | |
| Maximum DC Resistance at 20°C | 0,0383 Ω/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 | |
| Prefered Lay of outer layer 367 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 2240 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 9,78 mm | |
| No. of Aluminum Layers | 3 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 8 x 5,01 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 5,13 mm | |
| No. & equivalent Dia. of Trapezoidal wires in third layer | 16 x 5,19 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 3,94 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 19,72 sqmm | |
| Composite Core | Layer-2 20,69 sqmm | |
| Conductivity Nil | Layer-3 21,18 sqmm | |
| Rated Breaking Load 162,1 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 19,80 x10 ⁻⁶ /°C | below thermal knee point 72,6 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 2123 Amp. | | |
| AC Resistance at max. operating temp. 0,06311 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 1765 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 50Hz 0,19819 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,16634 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =179 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |



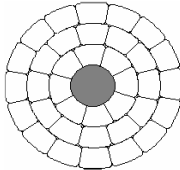
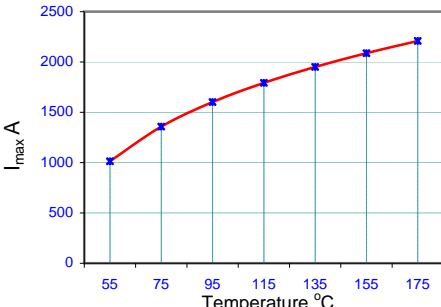
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : PARIS

| | | |
|---|---|--|
| Conductor Type & Code ACCC - Paris (ACCC 840 mm ²) | | |
| Nominal equivalent Aluminum Area | 825,51 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 | 2211 kg/km | |
| Mass per Unit length - Core | 113 kg/km | |
| Mass per unit length - Conductor | 2324 kg/km | |
| Rated Strength of the Conductor * | 174,92 kN* | |
| Maximum DC Resistance at 20°C | 0,0358 Ω/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 | |
| Prefered Lay of outer layer 376 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 2140 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 8,76 mm | |
| No. of Aluminum Layers | 3 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 8 x 5,06 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 5,31 mm | |
| No. & equivalent Dia. of Trapezoidal wires in third layer | 18 x 5,12 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 4,24 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 20,1 sqmm | |
| Composite Core | Layer-2 22,13 sqmm | |
| Conductivity Nil | Layer-3 20,58 sqmm | |
| Rated Breaking Load 130,1 kN | | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 20,51 x10 ⁻⁶ /°C | below thermal knee point 71,6 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 2209 Amp. | | |
| AC Resistance at max. operating temp. 0,0592 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 1835 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 50Hz 0,19676 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,16503 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =148 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |



ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : ANTWERP

| Conductor Type & Code ACCC - Antwerp (ACCC 970 mm ²) | | | | | | | | | | | | | | | | | |
|---|---|----------------------|----------------------|----|------|----|------|----|------|-----|------|-----|------|-----|------|-----|------|
| Nominal equivalent Aluminum Area | 960,82 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 | 2574 kg/km | | | | | | | | | | | | | | | | |
| Mass per Unit length - Core | 142 kg/km | | | | | | | | | | | | | | | | |
| Mass per unit length - Conductor | 2716 kg/km | | | | | | | | | | | | | | | | |
| Rated Strength of the Conductor * | 213,97 kN* | | | | | | | | | | | | | | | | |
| Maximum DC Resistance at 20°C | 0,0311 Ω/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 Surface finish Standard or Non Specular | | | | | | | | | | | | | | | | |
| Prefered Lay of outer layer 405 mm | Max. single length /Drum 2870 m | | | | | | | | | | | | | | | | |
| Stranding configuration | | | | | | | | | | | | | | | | | |
| No. & Diameter of CTC Core | 1 x 9,78 mm | | | | | | | | | | | | | | | | |
| No. of Aluminum Layers | 4 N ^o | | | | | | | | | | | | | | | | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 9 x 4,29 mm | | | | | | | | | | | | | | | | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 4,57 mm | | | | | | | | | | | | | | | | |
| No. & equivalent Dia. of Trapezoidal wires in third layer | 16 x 4,58 mm | | | | | | | | | | | | | | | | |
| No. & equivalent Dia. of Trapezoidal wires in fourth layer | 20 x 4,59 mm | | | | | | | | | | | | | | | | |
| Individual Aluminum wires | Trapezoidal Wires | | | | | | | | | | | | | | | | |
| Minimum conductivity 63 %IACS | height 3,38 mm | | | | | | | | | | | | | | | | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 14,46 sqmm | | | | | | | | | | | | | | | | |
| Composite Core | Layer-2 16,42 sqmm | | | | | | | | | | | | | | | | |
| Conductivity Nil | Layer-3 16,5 sqmm | | | | | | | | | | | | | | | | |
| Rated Breaking Load 162,1 kN | Layer-4 16,54 sqmm | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| Coefficient of thermal expansion | Modulus of elasticity | | | | | | | | | | | | | | | | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | | | | | | | | | | | | | | | | |
| below thermal knee point 20,34 x10 ⁻⁶ /°C | below thermal knee point 71,8 GPa | | | | | | | | | | | | | | | | |
| Max. allowable continuous operating temp. (surface) 175°C | <table border="1"> <caption>Graph Data: I_{max} vs Temperature</caption> <thead> <tr> <th>Temperature (°C)</th> <th>I_{max} (A)</th> </tr> </thead> <tbody> <tr><td>55</td><td>1100</td></tr> <tr><td>75</td><td>1450</td></tr> <tr><td>95</td><td>1750</td></tr> <tr><td>115</td><td>1950</td></tr> <tr><td>135</td><td>2150</td></tr> <tr><td>155</td><td>2300</td></tr> <tr><td>175</td><td>2400</td></tr> </tbody> </table> | Temperature (°C) | I _{max} (A) | 55 | 1100 | 75 | 1450 | 95 | 1750 | 115 | 1950 | 135 | 2150 | 155 | 2300 | 175 | 2400 |
| Temperature (°C) | | I _{max} (A) | | | | | | | | | | | | | | | |
| 55 | | 1100 | | | | | | | | | | | | | | | |
| 75 | | 1450 | | | | | | | | | | | | | | | |
| 95 | | 1750 | | | | | | | | | | | | | | | |
| 115 | | 1950 | | | | | | | | | | | | | | | |
| 135 | | 2150 | | | | | | | | | | | | | | | |
| 155 | | 2300 | | | | | | | | | | | | | | | |
| 175 | | 2400 | | | | | | | | | | | | | | | |
| Rated current at max. temperature ^ 2425 Amp. | | | | | | | | | | | | | | | | | |
| AC Resistance at max. operating temp. 0,05173 Ω/ km | | | | | | | | | | | | | | | | | |
| Calculated max. current at 120 Deg.C ^ 2009 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 50Hz 0,19201 Ω/km | | | | | | | | | | | | | | | | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,16071 MΩ.km | | | | | | | | | | | | | | | | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | | | | | | | | | | | | | | | | |
| * Extreme Load Safety Strength of Conductor =183 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | | | | | | | | | | | | | | | | |



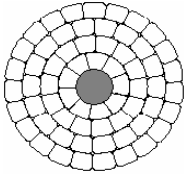
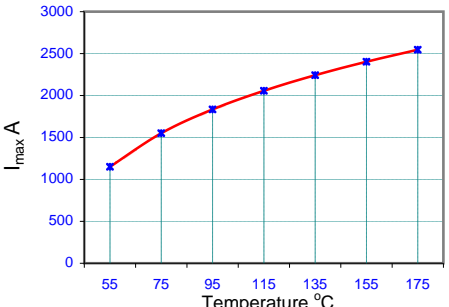
ENERGY EFFICIENT HIGH CURRENT OH CONDUCTORS

TECHNICAL DATA SHEET



Midal Cables Ltd

Concentric Lay Stranded Trapezoidal Conductor : MADRID

| | | |
|--|---|--|
| Conductor Type & Code ACCC - Madrid (ACCC 1050 mm ²) | | |
| Nominal equivalent Aluminum Area | 1037,94 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 | 2780 kg/km | |
| Mass per Unit length - Core | 142 kg/km | |
| Mass per unit length - Conductor | 2922 kg/km | |
| Rated Strength of the Conductor * | 218,13 kN* | |
| Maximum DC Resistance at 20°C | 0,0288 Ω/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 | |
| Prefered Lay of outer layer 420 mm | Surface finish Standard or Non Specular | |
| | Max. single length /Drum 2640 m | |
| Stranding configuration | | |
| No. & Diameter of CTC Core | 1 x 9,78 mm | |
| No. of Aluminum Layers | 4 N ^o | |
| No. & equivalent Dia. of Trapezoidal wires in first layer | 8 x 4,69 mm | |
| No. & equivalent Dia. of Trapezoidal wires in second layer | 12 x 4,74 mm | |
| No. & equivalent Dia. of Trapezoidal wires in third layer | 16 x 4,77 mm | |
| No. & equivalent Dia. of Trapezoidal wires in fourth layer | 20 x 4,78 mm | |
| Individual Aluminum wires | Trapezoidal Wires | |
| Minimum conductivity 63 %IACS | height 3,55 mm | |
| ASTM minimum Tensile Strength 58,6 MPa | Area : Layer-1 17,3 sqmm | |
| Composite Core | Layer-2 17,68 sqmm | |
| Conductivity Nil | Layer-3 17,87 sqmm | |
| Rated Breaking Load 162,1 kN | Layer-4 17,98 sqmm | |
| |  | |
| Coefficient of thermal expansion | Modulus of elasticity | |
| above thermal knee point 1,61 x10 ⁻⁶ /°C | above thermal knee point 118,6 GPa | |
| below thermal knee point 20,51 x10 ⁻⁶ /°C | below thermal knee point 71,5 GPa | |
| Max. allowable continuous operating temp. (surface) 175°C |  | |
| Rated current at max. temperature ^ 2546 Amp. | | |
| AC Resistance at max. operating temp. 0,04808 Ω/ km | | |
| Calculated max. current at 120 Deg.C ^ 2106 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 50Hz 0,18975 Ω/km | | |
| Capacitive Reactance @0,3m radius at 50Hz 0,15865 MΩ.km | | |
| ^ Current calculated at 25 Deg.C ambient, wind velocity 0,6m/s solar radiation: 1000W/sq.m emissivity coefficient: 0,5 & absorptivity: 0,5 | | |
| * Extreme Load Safety Strength of Conductor =185 kN (Applicable if sustained load over 80% RTS expected for prolonged periods. For further information please refer to ACCC Technical note TN-750-001.) | | |