The Technology

Built on the highly evolved foundation of aerospace derived carbon fibre hybrid composites, the ACCC® conductor utilizes a high strength, light weight and dimensionally stable single strand composite core that is stranded with trapezoidal shaped aluminium wire. ACCC® conductor offers superior performance and capacity compared to conventional conductors of the same diameter and weight.
ACCC® conductor, and associated hardware produced by CTC Cable Corporation and its authorized licensees are protected by patents and pending patent applications in over 70 countries throughout the world.

ACCC® Conductor Advantages

- **Increase line capacity**
  ACCC® conductor can carry up to twice the current of conventional steel-reinforced conductors due to its high temperature capability.
- **Mitigate thermal sag**
  ACCC® conductor's carbon composite core has a much lower coefficient of thermal expansion compared to steel, aluminium, or other core materials.
- **Reduce line losses**
  Under equivalent load conditions, ACCC® conductor reduces line losses by 30 to 40% compared to steel-reinforced conductors of the same diameter and weight.
- **Improve system efficiency**
  ACCC® conductor's additional annealed aluminium content improves conductivity and reduces line losses, which can improve overall system efficiency.
- **Decrease project costs**
  ACCC® conductor can reduce the cost of upgrading existing lines or new corridors due to its greater strength, reduced sag, and increased capacity.
- **Reduce generation requirements, conserve fuel & reduce emissions**
  ACCC® conductor's ability to reduce line losses can provide significant reductions in fuel consumption and their associated emissions for fossil fuel sources or improve the overall efficiency and economic performance of renewable resources. Increased power delivery can also reduce the demand for new sources of energy.
- **Reduce electro magnetic field level**
  ACCC® conductor's smaller thermal elongation coefficient may result in a reduction of the magnetic field under the line due to its maintaining greater clearance distance at the same current level.

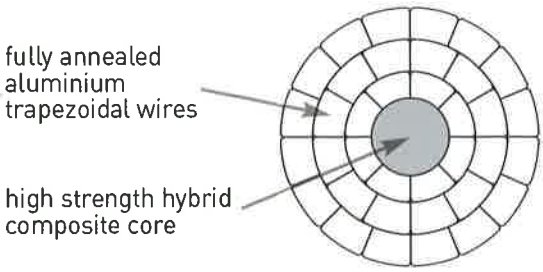
ACCC® Conductor Applications

- **Upgrade the capacity of existing lines**
  ACCC® conductors can be used to increase the throughput of existing lines with little or no modifications to the structures due to its greater capacity under similar tower loading conditions.
- **Improve the performance and economics of new lines**
  ACCC® conductor's greater strength, improved sag characteristics, and higher electrical capacity can improve the performance and reduce the costs of new transmission and distribution lines by delivering more power with less losses and reducing structural costs. ACCC® conductor can be installed without special equipment or tools and with minimal training.
- **Accommodate long spans and river crossings**
  ACCC® conductor can accommodate long spans and river crossings due to its higher strength, greater thermal stability, and improved self-damping characteristics.

ACCC® Conductors

■ **Connect renewable resources more efficiently**
ACCC® conductor can be used to connect renewable resources more efficiently by reducing structural costs through increased spans, while also delivering more power by reducing line losses, which can improve initial and overall project economics.

■ **Reduce maintenance costs and improve longevity**
ACCC® conductor's non-corrosive composite core resists environmental degradation and can also reduce costs associated with vegetation maintenance due to its reduced sag; and under severe weather conditions, such as ice and wind load events resists failure due to its greater strength.



Technical Summary

		ACCC® Fort Worth	ACCC® Dublin	ACCC® Lisbon	ACCC® Stockholm 2L	ACCC® Drake
(ACSR Equivalent)		*(Curlew)*	*(Zebra)*	*(Batang)*	*(Bison)*	*(Drake)*
Nominal aluminium equivalent area	mm^2	675	540	325	480	530
Nominal cross sectional area of aluminium	mm^2	658.9	524.5	315.5	463.3	519.7
Overall diameter of conductor	mm	31.5	28.14	21.79	26.40	28.14
Diameter of Core	mm	9.53	9.53	7.11	8.76	9.53
Rated tensile strength of conductor*[1]	kN	190.8	183.3	103.5	156.2	183.3
Rated tensile strength of core	kN	153.8	153.8	85.7	130.2	153.8
Extreme load of safety strength of conductor*	kN	168.6	165.6	92.8	140.6	165.6
Nominal mass per unit length - total	g/m	1952	1583	948	1394	1565
Nominal mass per unit length - aluminium	g/m	1820	1451	872	1281	1433
Nominal mass per unit length - core	g/m	132	132	76	113	132
Coefficient of Linear Expansion above thermal kneepoint	x 10^{-6}/°C	1.61	1.61	1.61	1.45	1.61
Coefficient of Linear Expansion below thermal kneepoint	x 10^{-6}/°C	19.1	18.6	18.8	18.6	18.3
Modulus of Elasticity above thermal kneepoint	GPa	112.3	112.3	112.3	116.0	112.3
Modulus of Elasticity below thermal kneepoint	GPa	59.9	64.3	64.1	64.7	61.2
Nominal DC resistance at 20°C	W/km	0.0425	0.0534	0.0887	0.0605	0.0536
Current Rating at 100°C*[2]	A	1250	1083	783	1032	1081
Current Rating at 180°C*[2]	A	2025	1740	1236	1662	1736

ACCC® conductor is produced with 1350 O-tempered aluminium.

Standards applied : BS EN 50540 or ASTM B 857

*[1] Based on 96% of the annealed aluminium minimum tensile strength given in BS EN 50540 or ASTM B 857.
*[2] Maximum continuous operating temperature of ACCC® is 180°C, maximum emergency temperature is 200°C.

Conditions: 0.5 m/s wind velocity, 35°C ambient tempertaure, 0.12 W/cm2 solar radiation, 0.9 emissivity constant.
* With 40% of the aluminium strength this safety strength is recommended where sustained load of over 80% of the RTS are expected for prolonged periods.