

Structural Wire ropes

Strength meets sustainability



XCarb[®]

Recycled and renewably
produced

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The Low-CO₂ emission steel



What exactly are Low CO₂ emission steel for structural wire ropes **made in France?**

XCarb® recycled and renewably produced steel is manufactured with up to 100% recycled steel and 100% renewable electricity and represents a significant advancement in reducing CO₂ emissions in the steel industry.

This sustainable approach effectively combines industrial performance and environmental responsibility, paving the way for cleaner and more environmentally friendly steel production on our planet.

«We have embarked on a bold initiative by incorporating eco-friendly practices into our operations. Using XCarb(R) recycled and renewably produced wire rod, as well as 100% renewable electricity in our rope manufacturing process, significantly reduces the CO₂ emissions of our products.»

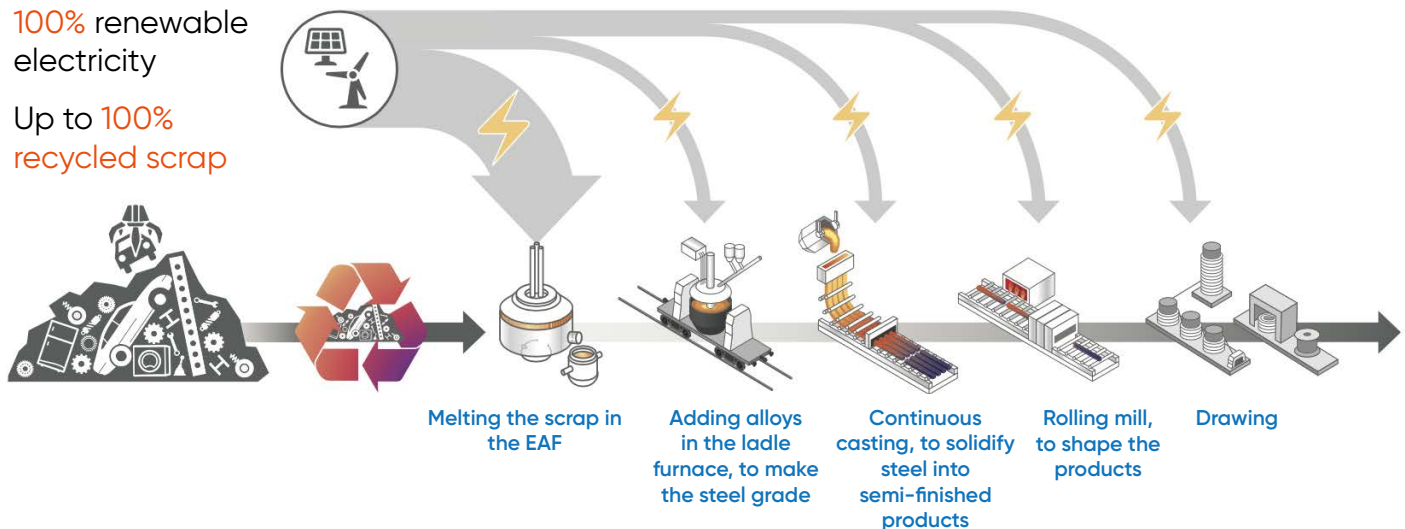
Frederic Benoit
Head of Method department.

What is XCarb® recycled and renewably produced process

EAF The production of EAF (Electric Arc Furnace) steel is a steel manufacturing process that utilises electric furnaces to melt and process scrap metal and other raw materials, providing an efficient and flexible method of steel production.

100% renewable electricity

Up to 100% recycled scrap

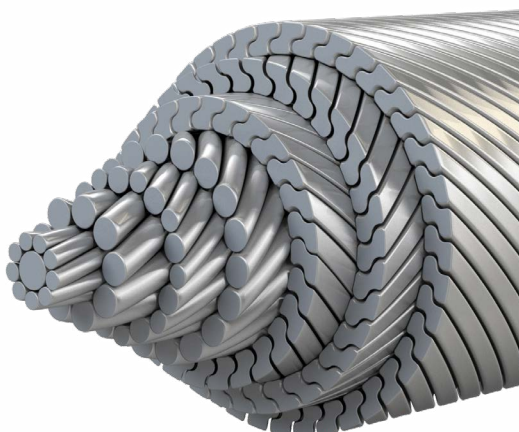


What guarantees do we offer to our customers?

Each tonne of XCarb® recycled and renewably produced steel is externally certified. The certificate guarantees that the electrical energy used to make the steel came from renewable sources, such as solar and wind power.

The certification process

- STEP 1:** Purchase of renewable electricity via "Guarantee of Origin" European System
- STEP 2:** Follow-up of the order system, audited by a third party
- STEP 3:** Delivery of material documentation and **certificate with XCarb® recycled and renewably produced**
- STEP 4:** Delivery of the final product to the customers




The certificate template includes the following fields:

- Certificate number**
- Certificate presented to**
- Order number (your reference)**
- CO2 emission intensity in g CO2/kg steel**
- Authorized by**
- Issue date**

The certificate also includes a section for **Independent Assessment** and **CO2 emission intensity**.

Structural wire ropes

Made in France



Why choose ArcelorMittal ROPES?



Engineering
Excellence



Innovation



Continuous
investment in
product innovation
and development



Comprehensive
solutions



Established
for more than
110 years



Worldwide
deliveries



Vertically
integrated
business model



Full materials
traceability



Your expert
strategic partner



Ongoing
customer support

More than 110 years of experience

Established in 1906, our manufacturing capability is backed up by over 100 years experience, providing our customers with a complete manufacturing solution that creates optimum value thanks to our 300 employees.

We exist to manufacture steel wire ropes that exceed the expectations of our worldwide customer base.

Engineering Excellence is what ArcelorMittal ROPES stands for. Our commitment to quality and the highest product performance standards is based on our process of continuous improvement.

ArcelorMittal ROPES runs an internal DNV-Certified Quality Assurance System complying with the requirements of ISO 9001.

Our continuous improvement process means that we are certified ISO 45001 for safety management. Thanks to this commitment, our production plant can implement an optimised process control environment, creating world-class steel wire rope products.

Full traceability every step of the way

Improving quality and adding value.

Our vertically integrated business model enables us to efficiently track and trace the origins of the materials we use, improving quality controls and reducing costs.

From the sourcing of raw materials to the manufacture of our wire rod, and from the drawing of our steel wire to the manufacture of our ropes, we guarantee full traceability every step of the way.



Olympic Games case study

Structural strands made in France holding the Olympics rings

The Spectaculars were hoisted by four cranes with 30 workers on site and stood proudly approximately 84 meters above the ground on the Eiffel Tower, thanks to 10 high-strength 25mm and 35mm diameter structural strands manufactured, measured and pre-tensioned in Bourg-en-Bresse, in the ArcelorMittal WireSolutions factory.

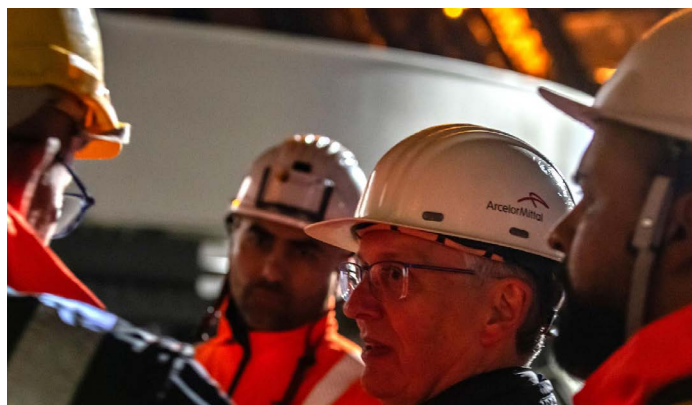
According to ArcelorMittal project manager Pierre Engel, two factors had to be considered by the engineers when designing the Spectaculars: «the weight and the resistance to the weather».

Paris can be windy, especially around the Eiffel Tower so we had to make sure the rings were able to respond dynamically under wind pressure. Safety was of paramount importance, no risks could be taken with a heavy structure elevated high above ground level in a busy tourist area. We had to ensure we could tame the elements in our structural ropes solution.

Pre-stretch the strand

For this operation, a pre-stretch process was necessary to avoid the creep effect, i.e. the permanent elongation that occurs during the first period of loading. To pre-stretch the strands, three load cycles from 10% up to 50% of the minimum breaking load of the strands were applied on the full length of spiral strands

This pre-stretching operation was carried out in the Bourg-en-Bresse plant, thanks to a 160m length bench able to load the product up to 400t.



Showtime for Bourg-en-Bresse!



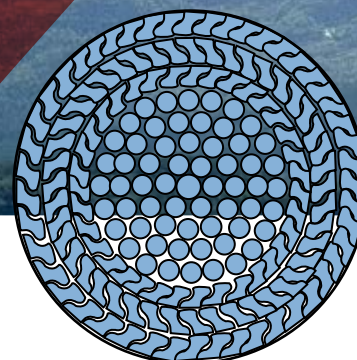
Stéphane Boul, COO of
WireSolutions Custer 2 and
CEO of ArcelorMittal
Bourg-en-Bresse

«ArcelorMittal Europe – Long Products is very proud to have contributed to the installation of the Olympic rings on the Eiffel Tower for the Paris 2024 Olympic Games.

The project has been possible thanks to 23 engineers from the Bourg-en-Bresse factory who were involved in the manufacturing of the 10 strands that support the rings, showing the whole world our know-how for exceptional projects.»



Full locked coil spiral strand



High strength

The full locked coil strand boasts exceptional tensile strength, making it capable of withstanding immense loads and stresses. This feature is particularly important for heavy structures, where material durability is a top priority. Our strands ensure safety and long-term stability under extreme conditions, providing peace of mind to engineers and constructors alike.

Galvanised option available

We also offer galvanised spiral strand specifically designed for secondary systems, providing excellent corrosion resistance and durability.

These strands are ideal for applications where longevity and reliability are crucial, ensuring enhanced performance in various environmental conditions.

Excellent torque balance

One of the standout features of our product is its excellent torque balance. This ensures that when the strand is subjected to tension, the internal forces are distributed evenly across the strand, reducing the risk of twisting or instability. As a result, it offers superior operational stability and extends the lifespan of the structure it supports.

Versatile diameter range

With diameters ranging **from 25 to 145 mm**, our full lock coil strand is highly versatile, allowing it to be tailored to a variety of structural requirements. Whether for lightweight applications or the heaviest of loads, this wide diameter range ensures that we can offer a customized solution for any project, making it a go-to choice for both architects and engineers.

Project references

Country	Project Name	Type
Belgium	Hermalle Bridge	
Finland	Digita TV Mast	
	Yleisradio TV Mast	
France	Olympic rings	
	Orleans Bridge	
	Saint Georges Footbridge	
	Bale/Mulhouse Roof	
	Elboeuf Bridge	
Germany	Schenkendorf Bridge	
	Ingolstat Bridge	
	Obere Argen Bridge	
	Ramsloh TV Mast	
	Munich Olympic Stadium Roof	
India	Dehli Stadium Roof	
Italy	Lodi Piazza Roof	
	Alba Bridge	
	Pomezia Stadium Roof	
Norway	Hardenger Bridge	
	Naeroesund Bridge	
Saudi Arabia	Haj Terminal Roof, Djeddah Airport	
South Africa	Captown Stadium Roof	
Sweden	Hoga Kusten Bridge	



«Our full lock coil strand is the result of over 110 years of experience and dedication from passionate professionals, delivering high strength, excellent torque balance, and tailored diameters for the most demanding heavy structures.»

Toufique Yacoub
Business Line Manager Wire ropes

Rope Ø	MBL	ABL	Total cross metal section	Total cross steel section	PAM	Inner round wire			Outer "Z" shaped wire		
mm	kN	kN	mm²	mm²	kg/m	Nr	Ø mm	Tensile grade inch	Nr	Height mm	Tensile grade N/mm²
25.00	535	594	400	387	3.37	12	2.65	1570	2	3.60	1570
26.00	621	690	434	420		17	2.50	1570	2	3.60	1570
30.00	858	983	606	564	5.00	17	3.40	1570	2	3.60	1570
31.00	916	1016	626	604	5.19	19	3.40	1570	2	3.60	1570
35.00	1170	1300	820	793	6.80	17	4.05	1670	2	4.10	1570
40.00	1520	1689	1058	1018	8.74	37	3.40	1570	2	4.10	1570
42.00	1740	1933	1161	1119	9.80	34	3.85	1720	2	4.10	1570
50.00	2380	2644	1634	1575	13.54	40	4.05	1670	2	5.10	1570
52.00	2700	3000	1836	1772	15.20	34	4.05	1670	3	4.60	1570
55.00	3020	3356	2032	1957	16.75	37	4.05	1670	3	4.60	1570
56.00	3120	3467	2120	2042	17.50	40	4.05	1670	3	4.60	1570
60.00	3590	3989	2407	2326	19.92	57	3.85	1720	3	5.10	1570
62.00	3840	4267	2587	2494	21.90	61	3.85	1720	3	5.10	1570
64.00	4090	4544	2808	2714	23.30	61	4.05	1670	3	5.10	1570
65.00	4220	4689	2846	2759	23.68	37	5.00	1720	3	5.10	1570
66.00	4350	4833	2994	2903	24.80	40	5.00	1720	3	5.10	1570
70.00	4890	5433	3275	3189	27.23	61	4.20	1720	3	6.10	1570
72.00	5180	5756	3480	3318	29.50	57	4.80	1720	3	5.10	1570
75.00	5620	6244	3785	3666	31.35	61	5.00	1720	3	5.10	1570
76.00	5770	6411	3904	3804	32.90	61	4.90	1720	3	6.10	1570
80.00	6390	7100	4288	4197	35.61	64	5.00	1720	3	6.10	1570
83.00	6880	7644	4620	4496	39.20	86	4.80	1720	3	6.10	1570
85.00	7210	8011	4846	4716	40.44	86	5.00	1720	3	6.10	1570
90.00	8090	8989	5375	5285	44.43	61	6.00	1720	3	6.10	1570
95.00	9110	10122	5948	5836	49.27	91	5.40	1720	3	6.10	1570
100.00	10100	11222	6656	6537	54.82	86	6.05	1720	3	6.10	1570
105.00	11100	12333	7353	7199	60.73	115	5.70	1720	3	6.00	1570
110.00	12200	13556	7885	7718	65.10	127	5.70	1720	3	6.00	1570
115.00	13400	14889	8695	8499	71.94	166	5.40	1770	3	6.00	1570
125.00	15800	17556	10436	10198	85.90	169	6.10	1720	3	6.00	1570
135.00	18600	20667	12160	11862	100.25	217	6.00	1720	3	6.00	1570
145.00	20100	22333	13388	13052	110.05	253	5.95	1720	3	6.00	1570

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