

Distribution Solutions
WireSolutions



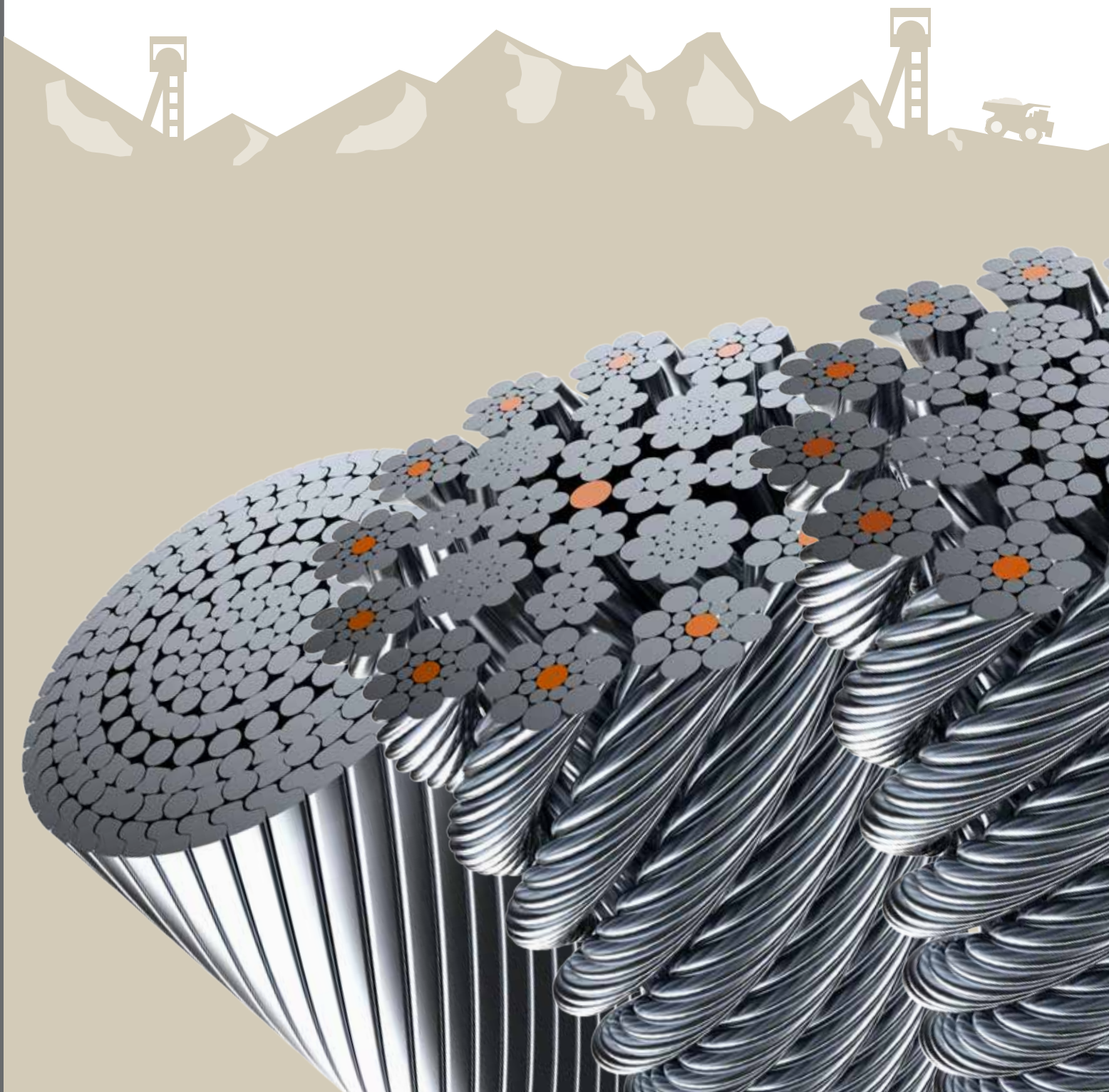
ArcelorMittal

High quality ropes
for mining applications



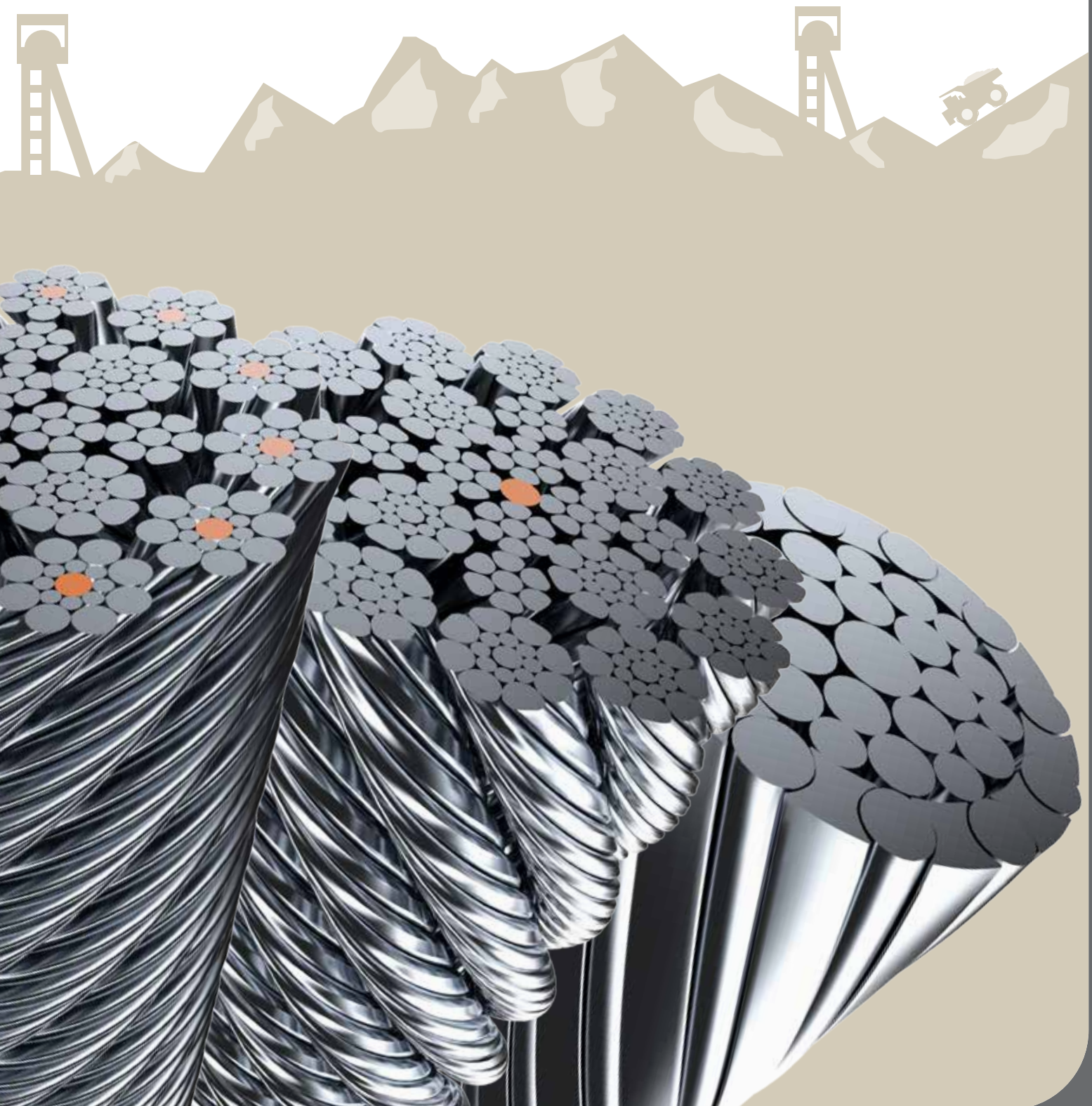
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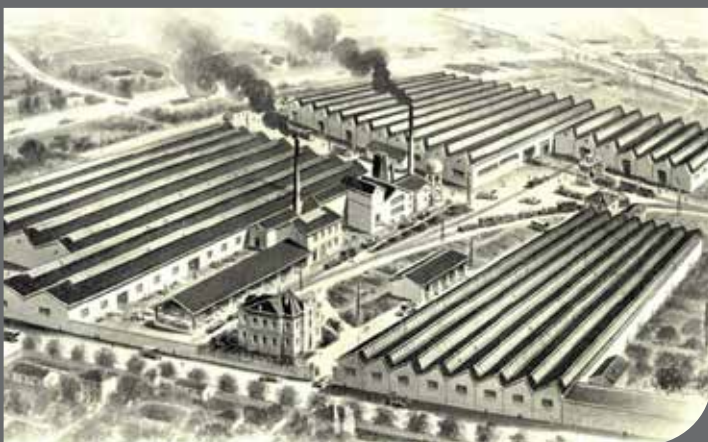


A long term commitment to rope making

Established in 1906 as “Câbleries de Bourg”, later known as Tréfileurope, ArcelorMittal Bourg-en-Bresse started its activity around mining ropes. Since, it has been a constant goal to improve performance and lifespan of our products for mines as well as other fields of use such as hoisting, cableways, offshore mooring systems and structures.

Over the past hundred years, ArcelorMittal Bourg-en-Bresse, located in France, has been building up an international reputation in the manufacturing of high technology steel wire ropes. With the implementation of a structured management policy including company organization, investments, Research & Development and its close cooperation with its customers, ArcelorMittal Bourg-en-Bresse is today a worldwide leader in speciality ropes.

For you, we can deliver the ropes with diameters fitting your sheaves and drums and equip them with end-fitting, safety cones and any type of rope connections as per your specifications.



Our commitment to quality



ArcelorMittal Bourg-en-Bresse runs a Quality Insurance System complying with the requirements of the ISO 9001. Our plant was certified, firstly, in 2008, as a result of its continuous improvement process.

In 2011, safety was integrated as one of our pillar for our growth and we acheived our goal which was rewarded by the certification OHSAS 18001.

Finally, the environmental aspect has been introduced in our management system to obtain the certification ISO 14001.

Thanks to this commitment and the involvement of all employees at every level, we optimize our world-class steel wire rope company.



Make your choice

Which rope for which application? ¹

		Notorplast®	Klondike®	NRHD	Half Lock Coil X-lock	Full Lock Coil Z-lock	NCR6
Head rope	Friction hoist, Koepe	Ø > 36mm	Ø > 36mm	Ø < 35mm		*	
	Drum hoist						
	Blair hoist						
Balance rope							
Guide rope							
Sinking rope							
Track rope	Aerial transportation						
Hauling rope	Aerial transportation						

Rope construction

	Notorplast®	Klondike®	NRHD	Half Lock Coil X-lock	Full Lock Coil Z-lock	NCR6
Carbon steel	✓	✓	✓	✓	✓	✓
Plastic insert	✓	✓				✓
Right Hand Lay	✓	✓	✓	✓	✓	✓
Left Hand Lay	✓	✓	✓	✓	✓	✓
Lang Lay	✓	✓	✓			✓
Regular Lay						✓
Pre-shape strands	✓	✓	✓			✓
Round wires	✓	✓	✓	✓	✓	✓
Shaped wires				✓	✓	
Non rotating	✓	✓	✓		✓	
Compacted strands		✓	✓			✓
Stretch resistant	✓	✓	✓	✓	✓	✓++

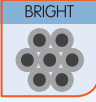





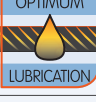



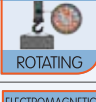
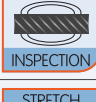
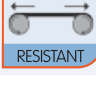
Custom made

	Environment condition	Notorplast®	Klondike®	NRHD	Half Lock Coil X-lock	Full Lock Coil Z-lock	NCR6
Bright wire	no corrosion	✓	✓	✓	✓	✓	✓
Galvanized wire		✓	✓	✓	✓	✓	✓
Corzal® wire	high corrosion	✓	✓	✓	✓	✓	✓

Quality control

		Notorplast®	Klondike®	NRHD	Half Lock Coil X-lock	Full Lock Coil Z-lock	NCR6
Internal lab report	Structural details, MBL, linear weight	✓	✓	✓	✓	✓	✓
Independent lab report	Bureau Veritas, DNV, Lloyds, etc.	*	*	*	*	*	*

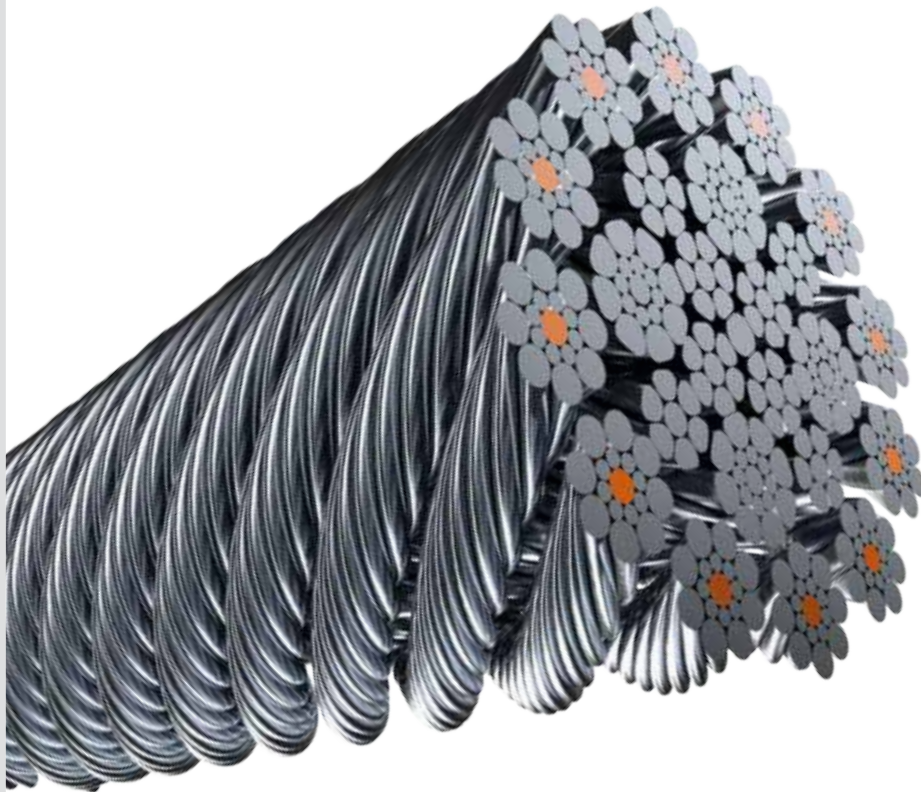
¹ Other applications to be studied by our technical department
 ++ very high stretch resistance * in option

Coating		<p>Bright wire</p> <p>Pickled, phosphated and drawn. This will be applied in a non corrosive environment.</p>
		<p>Galvanized wire</p> <p>Coated with a thin layer of zinc, this is suitable for corrosive applications.</p>
		<p>Corzal® wire</p> <p>Corzal® is an eutectic alloy of 95% Zn and 5% Al. Resistance against corrosion is two to three times more than a coating of pure zinc of the same thickness. The eutectic, with its lamellar structure, gives excellent formability and resistance to chlorides and sulfates. Thanks to formation of Aluminum oxydes at the surface of the coating, its efficiency is increasing with time. Furthermore, Aluminum is melted during manufacturing process with Zinc creating aluminum-iron-zinc layer between the steel and the coating. This layer will improve protection in case of coating damage compared to standard zinc coating.</p>
Compacted strands		<p>Our development and expertise in stranding and closing allow us to improve our process, resulting in increasing the metallic section and thus the performances in term of breaking load level and fatigue resistance. Compacted strands reduce pressure contact on sheaves, as well as internal friction and wear.</p>
Specific order		<p>Our engineers and technicians will be glad to offer you their expertise in design to reach performances and fulfill your expectations. It will be a tailor-made rope.</p>
Pre-shaped		<p>This manufacturing step reduce the opening of the strands when cut. This will help the handling and installation of the rope.</p>
Optimum lubrication		<p>Lubricant is a key element in the performances of the rope. This is why we focus our design and process on this element. Lubricant represents between 1% and 2% of the linear mass of the rope and is adapted according to final use.</p>
Lang Lay		<p>The wire is following the strand orientation. This design brings flexibility and a better resistance to wear between layers on drum hoist. The resistance to fatigue is also more important.</p>
Regular Lay		<p>The wire is parallel to the rope axis. This is an historical design but with development of the Lang lay design, there is no significant advantage to use it.</p>
Right/Left hand Lay		<p>Orientation of the strands.</p>
Non-rotating		<p>The specific design of the rope brings stability and will help you to handle your load easily and safely, even in deep shaft.</p>
Electromagnetic inspection		<p>An electromagnetic test is performed as the last step of rope production in order to set the reference for the future electromagnetic test controls during operations.</p>
Stretch resistant		<p>Under standard operation, it is normal to observe elongation of the rope, especially at the first cycles after installation. However, thanks to an optimum design and fabrication control, the elongation after stabilisation of our ropes is from 0,1% to 0,3%.</p>

For decades, ArcelorMittal Bourg-en-Bresse has been marketing innovative products, creating a leading wire rope manufacturer worldwide. In partnership with our customers, we have reached unequalled performances in the most difficult environments. Our teams design, produce and deliver the best-in-class wire ropes, according to your needs and specifications.

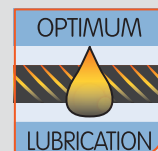
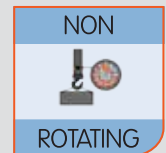
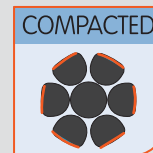
Thanks to our wide-ranging experience, we can adapt our technical offers to new projects, as well as supplying replacement ropes to most existing installations.

Klondike®



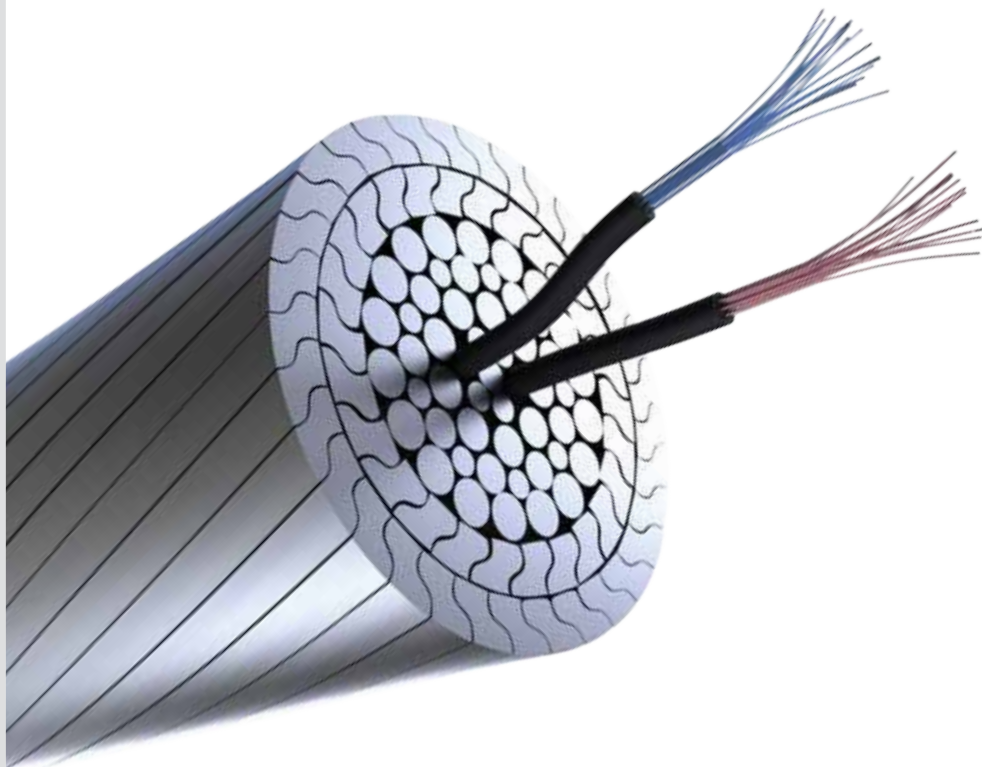
Maximize your performances

- In a world where performances are more and more critical, Klondike® is the perfect answer to your challenging conditions. Based on our know-how, we are able to offer a rope that can sustain up to 20% more minimum breaking load or increase its lifetime up to 40% with the same rope diameter.





The rope with optical fibres



For data transmission

- In a world where data transmission is critical, the optical fibres rope is the result of several years of R&D. Using the know-how acquired long ago on special projects, we offer you the possibility to connect the mechanical properties and the transfer of data through a unique element.

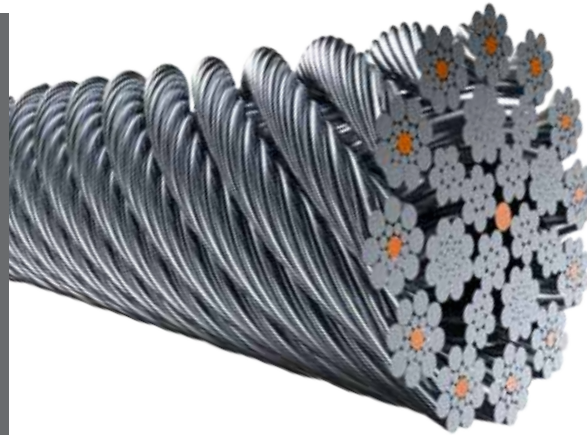
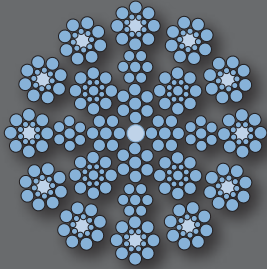
Whisper®



The silent rope

- Reducing noise and vibrations are the keys of Whisper® in order to optimise the reliability of rope transport system, thanks to its smooth interface, its low stretch solid core and its compacted strands.

A worldwide reference for mining applications



Properties



On demand



Applications

Notorplast is specially designed for friction sheaves. Its special outer strands provide a low and even tread pressure on linings.



Description

Notorplast® provides a very high service life, even in the case of very difficult hoists, notably with fleet angles or high dynamic effects. Hoisting is steady. No rotational stresses being transmitted to the guiding system, its maintenance cost is reduced. Notorplast® can be used on new installations as well as replacement product to Full Locked Coils or triangular strand ropes.

As fulfilling your needs is essential, our engineering team is able to adapt the Notorplast® design to meet your specifications. Each hoist being different, we adapt our product accordingly.

Advantages

- High fatigue performance**
 The specific construction of the rope associates with a special care given to steel quality and wire drawing ensure an exceptional resistance to fatigue.
- Installation**
 Non-rotating, Notorplast® is easy to handle and quick to install.
- Maintenance**
 Thanks to long service life and non-rotating properties, maintenance of Notorplast® is reduced compared to traditional ropes.
- Cost effective**
 Long service life, easiness of installation and maintenance give Notorplast® the lowest cost per extracted tons of materials.

References

Poland

Notorplast® Ø 52 mm

- Speed 20 m/s; 1,200 m deep
- Over 12,000,000 t extracted with the same set of ropes

Canada

Notorplast® Ø 45 mm

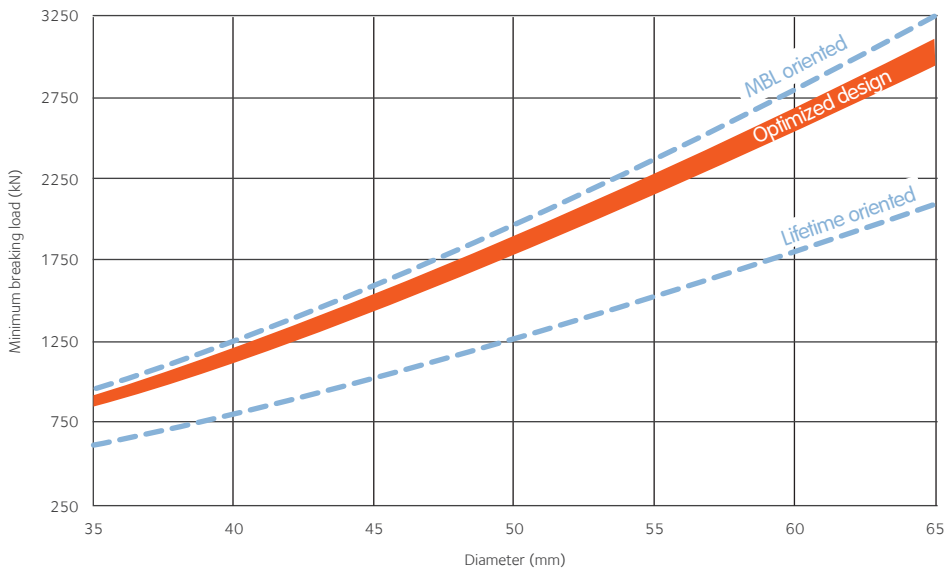
- Speed 16 m/s; 1,200 m deep
- 11,850,000 t (approx 425,000 skips)

Tips

- For an optimum lifespan, Notorplast® must be lubricated regularly. Please contact us for advice.

A worldwide reference for mining applications

A rope that suits your needs



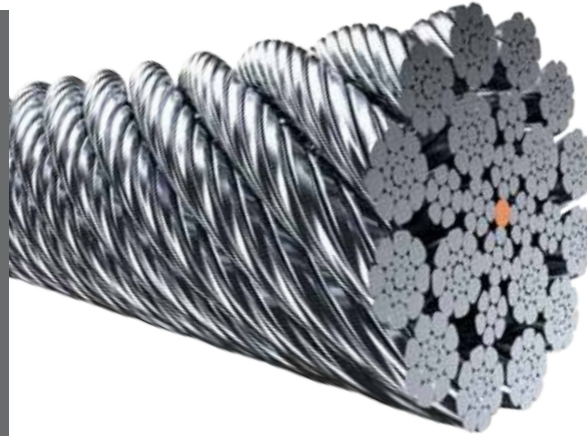
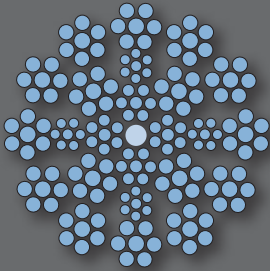
To give you a hint...

Diameter		Weight		1960 MPa		2060 MPa	
mm	in	kg/m	lbs/ft	kN	kN	kN	kN
36	-	4.94	3.32	914	960		
38	1" 1/2	5.51	3.71	1023	1075		
40	-	6.12	4.12	1138	1196		
42	1" 5/8	6.76	4.54	1259	1323		
44	-	7.43	4.99	1385	1456		
45	1" 3/4	7.77	5.22	1450	1525		
46	-	8.12	5.46	1517	1594		
48	1" 7/8	8.83	5.93	1653	1738		
50	-	9.57	6.43	1794	1886		
51	2"	9.94	6.68	1866	1962		
52	-	10.32	6.93	1939	2039		
54	2" 1/8	11.09	7.45	2089	2196		
56	-	11.88	7.98	2241	2357		
57	2" 1/4	12.28	8.25	2319	2439		
58	-	12.68	8.52	2397	2521		
60	-	13.49	9.06	2556	2689		
61	2" 3/8	13.90	9.34	2637	2773		
62	-	14.31	9.62	2718	2859		
64	2" 1/2	15.14	10.17	2882	3032		



These values are given for pre-engineering purpose. Depending on application, detailed design can be specifically adapted.

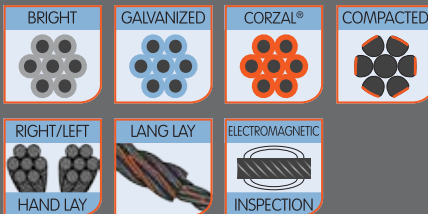
An evolutive design



Properties



On demand



Applications

NRHD24 can be used on new installations as well as a replacement product. The extrem modularity of the NRHD design makes that rope adapted for most applications, from sinking to extraction rope, on all types of installations. Please contact us to evaluate your needs and let us offer you the best solution.

Description

The NRHD family was developed to sustain the constrains associated with the mining activities. As the construction can be adapted, NRHD can be used in many different applications, such as balance rope or head rope, as well as sinking rope for a reasonable cost. The non rotating structure make it easy to install on Koepe or drum hoists and with extrem tight loops for balance applications.

Our design department is able to adjust and produce NRHD24 ropes on demand with a specific weight per meter or breaking load for your installation needs.

Advantages

- **Installation**
Quick and easy thanks to its non-rotating properties.
- **Maintenance**
Thanks to long service life and non-rotating properties, the lowest cost per extracted tons of materials
- **Cost effective**
Long service life, easiness of installation and smooth running make NRHD24 a cost effective rope in difficult conditions.

Reference

Finland

NRHD24 Balance Ø 49 mm

- Loop Ø 1490 mm

Operational experience

- Ø 70 mm; loop Ø 1,100 mm
- Loop ratio 15.7; speed 16 m/s (> 52'/s). No unstability, no buckling, no twisting

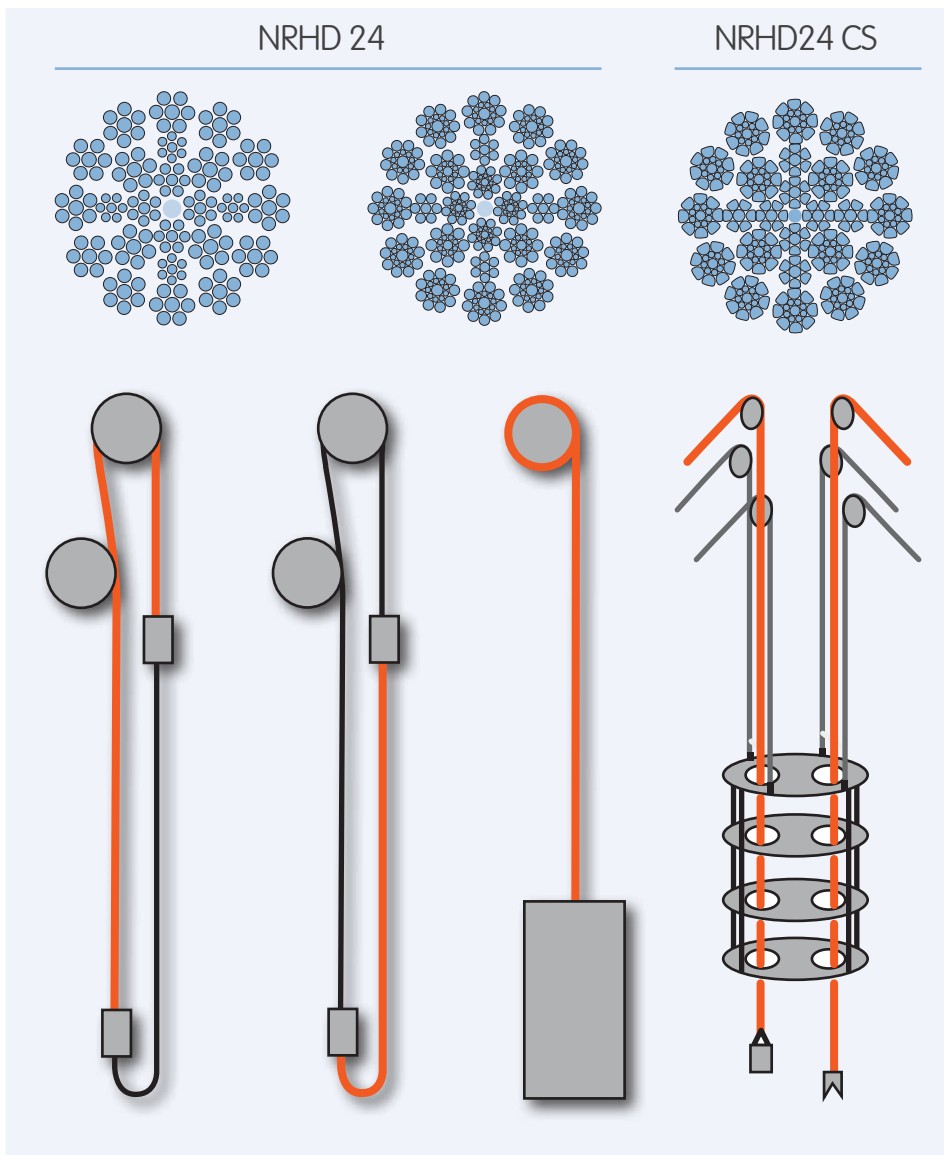
Tips

- The design can be ajusted for extrem conditions (deep shaft, sinking application)
- To improve non rotating properties in very deep shafts, contact us for NRHD29CS details

NRHD range

An evolutive design

Applications



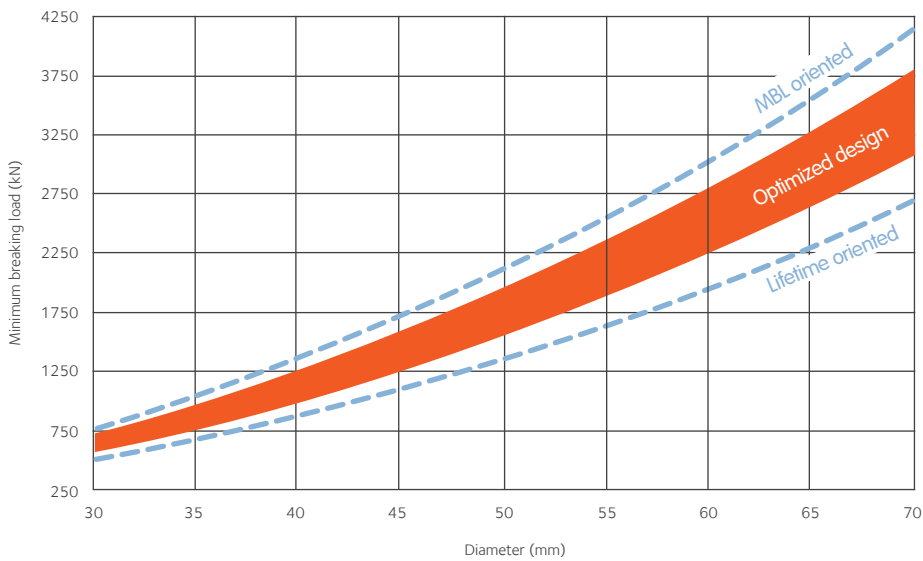
Based on your specific application, NRHD design is optimised

- **High stability performance**
High ductility wires and specific construction of this non-rotating rope allow to operate NRHD24 at high speed and extremely low loop ratio, with no kinking, a steady loop and a long service life.
- **High service life**
Specially designed for drum hoisting in mine shafts, NRHD24CS provides a high resistance to fatigue and perfectly fit for layer changes and crossovers. By increasing the contact surface, the failure by crushing is reduced.



Technical characteristics

A rope that suits your needs



To give you a hint...

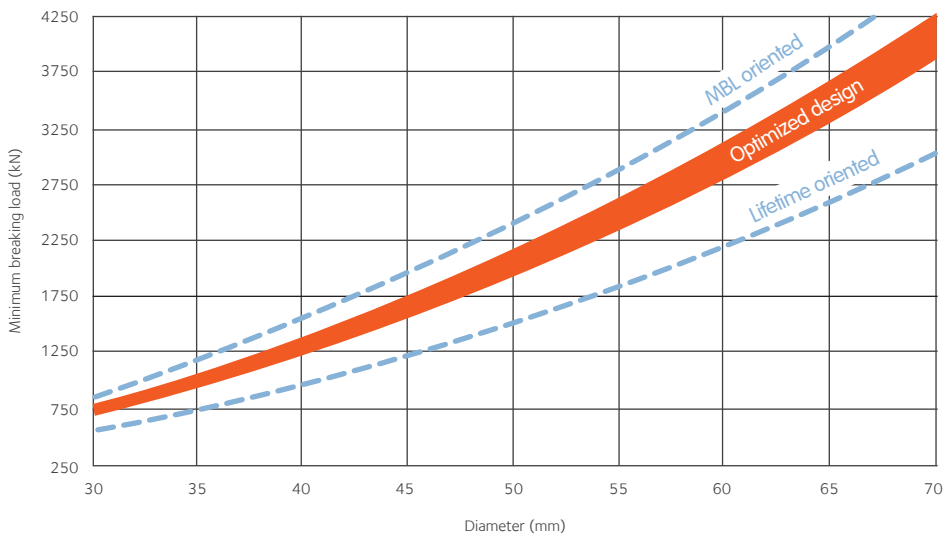
	Diameter		Weight		Minimum breaking load	
	mm	in	kg/m	lbs/ft	1570 MPa kN	1960 MPa kN
EXTRACTION	29	-	3.62	2.43	524	650
	31	-	4.13	2.78	598	742
	33	-	4.68	3.15	677	840
	35	1" 3/8	5.26	3.54	761	944
	36	-	5.56	3.74	804	999
BALANCE	38	1" 1/2	6.20	4.16	895	1112
	40	-	6.86	4.61	991	1231
	42	1" 5/8	7.56	5.08	1092	1356
	44	-	8.30	5.57	1198	1488
	46	-	9.07	6.09	1309	1626
	48	1" 7/8	9.87	6.63	1426	1770
	50	-	10.71	7.20	1547	1921
	51	2"	11.15	7.49	1610	1999
	52	-	11.59	7.79	1674	2079
	54	2" 1/8	12.50	8.40	1806	2243
	56	-	13.45	9.04	1943	2413
	58	-	14.44	9.70	2086	2591
	60	-	15.47	10.39	2235	2775
	64	2" 1/2	18.19	12.22	2389	3165
	66	-	18.76	12.61	2713	3370
70	2" 3/4	21.15	14.21	3061	3802	



These values are given for pre-engineering purpose. Depending on application, detailed design can be specifically adapted.

Technical characteristics

A rope that suits your needs



To give you a hint...

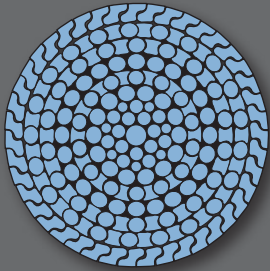
Diameter		Weight		Minimum breaking load	
mm	in	kg/m	lbs/ft	1770 MPa kN	1960 MPa kN
30	-	4,32	2,90	695	767
32	1" 1/4	4,91	3,30	791	872
34	-	5,55	3,73	893	984
36	-	6,22	4,18	1001	1104
38	1" 1/2	6,94	4,66	1116	1230
40	-	7,69	5,17	1237	1364
42	1" 5/8	8,49	5,70	1366	1506
44	-	9,33	6,27	1501	1654
46	-	10,21	6,86	1642	1810
48	1" 7/8	11,13	7,48	1791	1974
50	-	12,09	8,13	1946	2145
52	-	13,10	8,80	2108	2323
54	2" 1/8	14,16	9,51	2278	2510
56	-	15,25	10,25	2454	2704
58	-	16,39	11,01	2638	2906
60	-	17,58	11,81	2829	3116
62	-	18,81	12,64	3027	3334
64	2" 1/2	20,08	13,50	3232	3560
66	-	21,41	14,38	3445	3794
68	-	22,77	15,30	3665	4036
70	2" 3/4	24,19	16,25	3893	4287



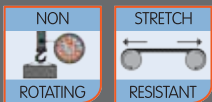
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Full Lock Coil, Z-lock

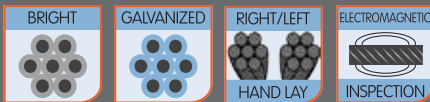
Premium quality product for mining applications



Properties

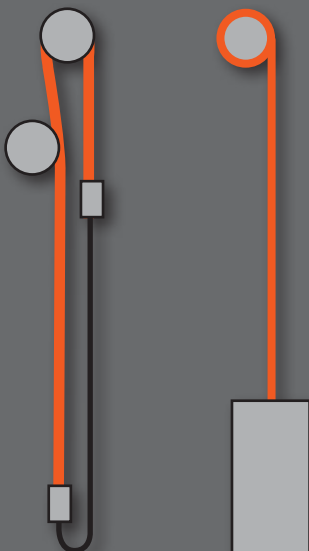


On demand



Applications

Z-lock smooth surface makes it adapted for sheave linings (drum and Koepe).



Description

Z-lock is a high strength, low stretch, non rotating rope. Our Z wires have been designed to avoid unlocking due to internal forces in the rope. Precision of drawing and assembly make this design actual.

As fulfilling your needs is essential, our engineering team is able to adapt the Z-lock design to meet your specifications. Each hoist being different, we produce Z-lock with sizes fitting the grooves of your drum.

Advantages

- **High strength performances**
Excellent ratio of breaking strength to diameter. Its compacity makes it very well adapted to changes of layers and crossovers.
- **Coating**
For the best adapted resistance to corrosion, we can supply Z-lock made from bright or galvanized wires.
- **Best precision**
Our manufacturing process, associated with our special inspection and test plan guarantee the smallest tolerance on round and shaped wires.

References

USA

- Z-lock Ø 35 mm
- 738 m, Koepe hoist, 6 ropes

South Africa

- Z-lock Ø 54 mm
- 1,970 m; tower Koepe hoist; 4 ropes

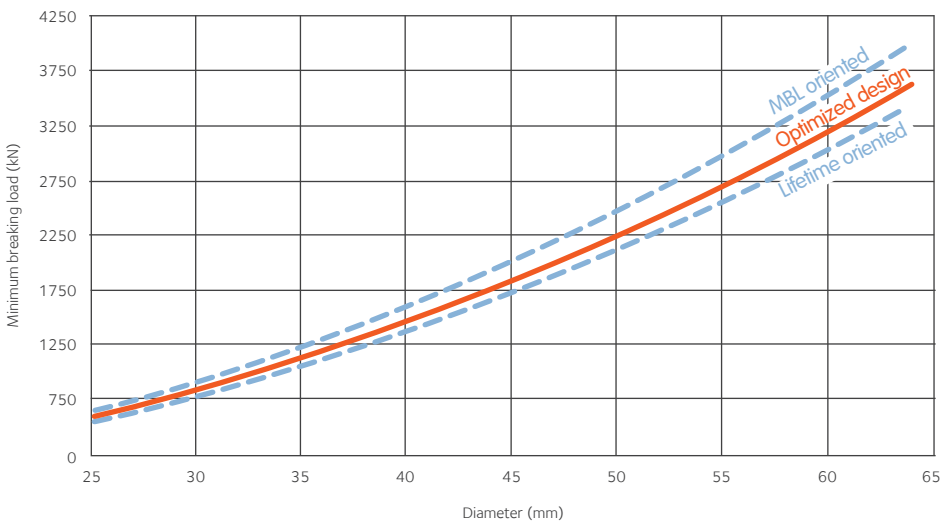
Tips

- To guarantee the best operation and service life, Z-lock need periodic cleaning and in case of a drum hoist, relubrication.

Full Lock Coil, Z-lock

Premium quality product for mining applications

A rope that suits your needs



To give you a hint...

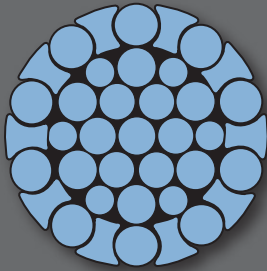
Diameter		Weight		Minimum breaking load	
mm	in	kg/m	lbs/ft	kN	lbs
24	-	3.48	2.34	534	119953
26	1	4.01	2.70	617	138784
28	-	4.61	3.10	710	159638
30	-	5.26	3.54	812	182459
32	1" 1/4	5.97	4.01	922	207190
34	-	6.74	4.53	1040	233772
36	-	7.56	5.08	1166	262150
38	1" 1/2	8.43	5.67	1300	292266
40	-	9.36	6.29	1442	324062
42	1" 5/8	10.33	6.94	1590	357481
44	-	11.35	7.63	1746	392467
46	-	12.42	8.35	1908	428963
48	1" 7/8	13.53	9.10	2077	466910
50	-	14.69	9.87	2252	506251
52	-	15.89	10.68	2433	546930
54	2" 1/8	17.13	11.51	2620	588890
56	-	18.41	12.37	2812	632073
58	-	19.73	13.26	3009	676421
60	-	21.09	14.17	3211	721879
62	-	22.48	15.10	3418	768388
64	2" 1/2	23.90	16.06	3629	815891



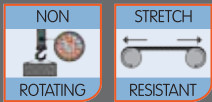
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Half Lock Coil, X-lock

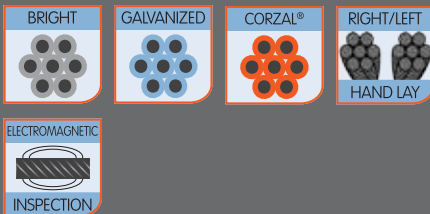
When you need guiding precision



Properties

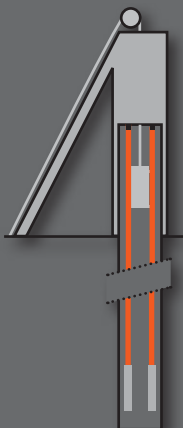


On demand



Applications

X-lock is suitable for guiding your skips and cages all the way up and down your shaft. This is also a highly performing rope, especially when you need it like in emergency stoppage.



Description

More than eight decades of design, production and follow-up of lock coil ropes has taught us that precision of wire section and rope assembly is essential to efficient operation and long service life of the installation.

Choice of steel grade and treatment conditions of the outer surface wear lead to high performances in lifespan of the rope.

Advantages

- **High service life**
Design, choice of steel grade and treatment condition lifespan of guide ropes. Our machines capability allows us to produce according to best design. X-wires bear the friction: to prevent any law in resistance, wear or corrosion, they are drawn from continuous and unwelded steel.
- **Installation**
Non- rotating, X-lock is easy to handle and quick to install.
- **Fine assembly**
High performance machines, as well as a trained and watchful staff, ensure a perfect closing of the rope.
- **Cost effective**
Thickness of outer wires, right choice of steel quality, treatment and coating ensure the best service life to X-lock.

References

- Brazil**
- X-lock Ø 40 mm; 510 m; 4 ropes
- Poland**
- X-lock Ø 45 mm; 1,160 m; 24 ropes

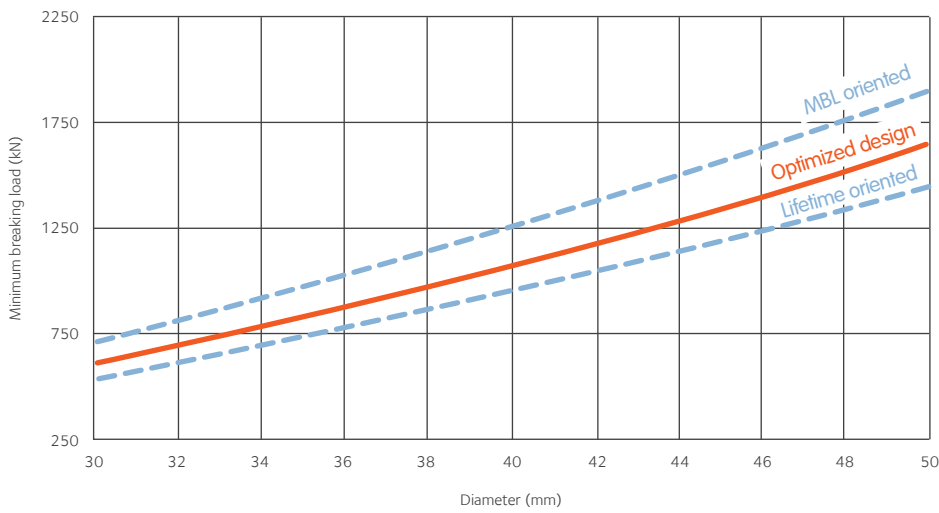
Tips

- To achieve maximum performances, X-lock requires cleaning and greasing on a regular basis.

Half Lock Coil, X-lock

When you need guiding precision

A rope that suits your needs



To give you a hint...

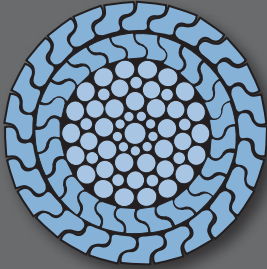
Diameter		Weight		Minimum breaking load	
mm	in	kg/m	lbs/ft	kN	lbs
29	1" 1/8	4.89	3.29	571	128349
32	1" 1/4	6.03	4.05	685	154066
35	1" 3/8	7.25	4.87	821	184601
38	1" 1/2	8.55	5.75	974	218866
41	1" 5/8	9.92	6.67	1138	255779
44	-	11.35	7.63	1309	294252
48	1" 7/8	13.34	8.97	1540	346103
51	2	14.89	10.01	1708	383998



These values are given for pre-engineering purpose. Depending on application, detailed design can be specifically adapted.

Full Lock Coil, Z-lock

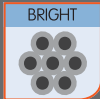
Track rope for aerial transport and open pit mining



Properties

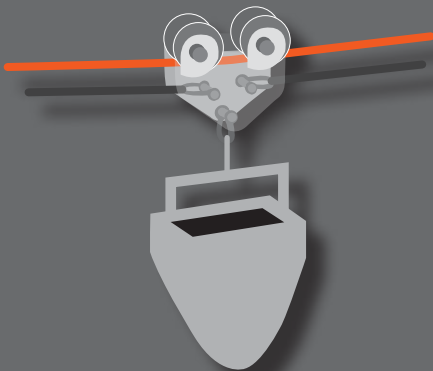


On demand



Applications

Z-lock for track ropes have at least two layers of shaped wires. High performance machines, trained and watchful staff, ensure a perfect closing of the rope for tracking applications.



Description

Balance between ductility and resistance of shaped wires ensure the best resistance to wear. The high fill factor of the core and accuracy of assembly guarantee that the rope remains round under load, prevents abnormal wear and internal abrasion and ensures smooth rolling of carriers.

Tips

- Slight periodical relubrication



These values are given for pre-engineering purpose. Depending on application, detailed design can be specifically adapted.

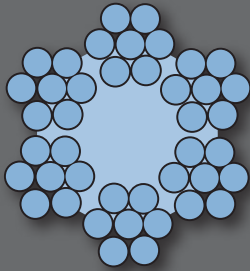
Advantages

- **Best precision**
Our manufacturing process, associated to our special inspection and test plan guarantee the smallest tolerance on round and shaped wires.
- **High fatigue performance**
The specific construction of the rope associates with a special care given to steel quality and wire drawing ensure an exceptional resistance to fatigue.
- **Installation**
We can deliver your ropes equipped with fittings, either standard or custom.
- **Cost effective**
Rope service life is optimized thanks to carefully designed and manufactured wires and high accuracy of assembly.

To give you a hint...

Diameter		Weight		Minimum breaking load	
mm	in	kg/m	lbs/ft	kN	lbs
30	-	5.27	3.54	790	177535
32	1.1/4	5.99	4.03	899	202031
34	-	6.76	4.54	1014	227875
35	1.3/8	7.17	4.82	1075	241583
36	-	7.58	5.10	1137	255516
38	1.1/2	8.45	5.68	1267	284731
40	-	9.36	6.29	1404	315519
42	1.5/8	10.32	6.94	1548	347880
44	-	11.33	7.61	1699	381814
45	1.3/4	11.85	7.96	1777	399342
46	-	12.38	8.32	1857	417321
48	1.7/8	13.48	9.06	2022	454401
50	-	14.63	9.83	2194	493054
52	2	15.82	10.63	2373	533280
54	2.1/8	17.06	11.46	2559	575080
56	-	18.35	12.33	2752	618453
58	2.1/4	19.68	13.23	2952	663398
60	2.3/8	21.06	14.15	3159	709917
62	-	22.49	15.11	3373	758009
64	2.1/2	23.96	16.10	3594	807674
66	-	25.48	17.13	3822	858912
68	-	27.05	18.18	4058	911948
70	2.3/4	28.67	19.26	4300	966332

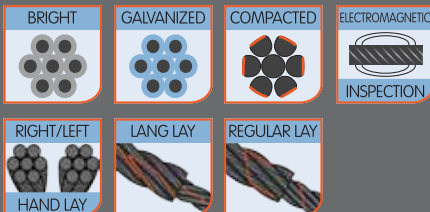
Hauling rope for aerial transport and open pit mining



Properties

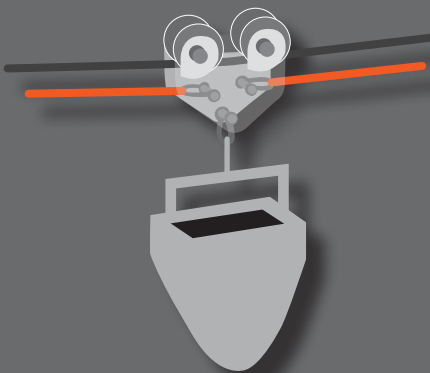


On demand



Applications

NCR6 will transport your skips from extraction site to facilities.



Description

NCR6 solid plastic core divides stretch by three. Tensioning, cutting and resplicing are reduced in the same ratio. Stretch stabilises very quickly.

References

Peru

- NCR6® Ø 40.5 mm; 3,400 m

France

- NCR6® Ø 41 mm; 5,650 m

Tips

- Splicing and installation can be done by our partner TEC Câbles Bourg

Advantages

- **High fatigue performance**
Care given to steel quality and wire drawing ensure an exceptional resistance to fatigue.
- **Very low stretch**
The solid plastic core does not crimp under load compared to a fibre core rope, stretching is divided by three and stabilised very quickly. Diameter and pitch variations are reduced and stability of the rope provides a better behavior and lower maintenance.
- **Cost effective**
Low maintenance reduces NCR6 operating cost thanks to quick stretch stabilisation.

To give you a hint...

Diameter		Weight		Minimum breaking load	
mm	in	kg/m	lbs/ft	kN	lbs
26	1	2.24	1.51	444	99779
28	-	2.60	1.75	515	115735
30	-	2.99	2.01	592	133039
32	1.1/4	3.40	2.28	673	151242
34	-	3.84	2.58	760	170794
36	-	4.30	2.89	852	191469



These values are given for pre-engineering purpose. Depending on application, detailed design can be specifically adapted.



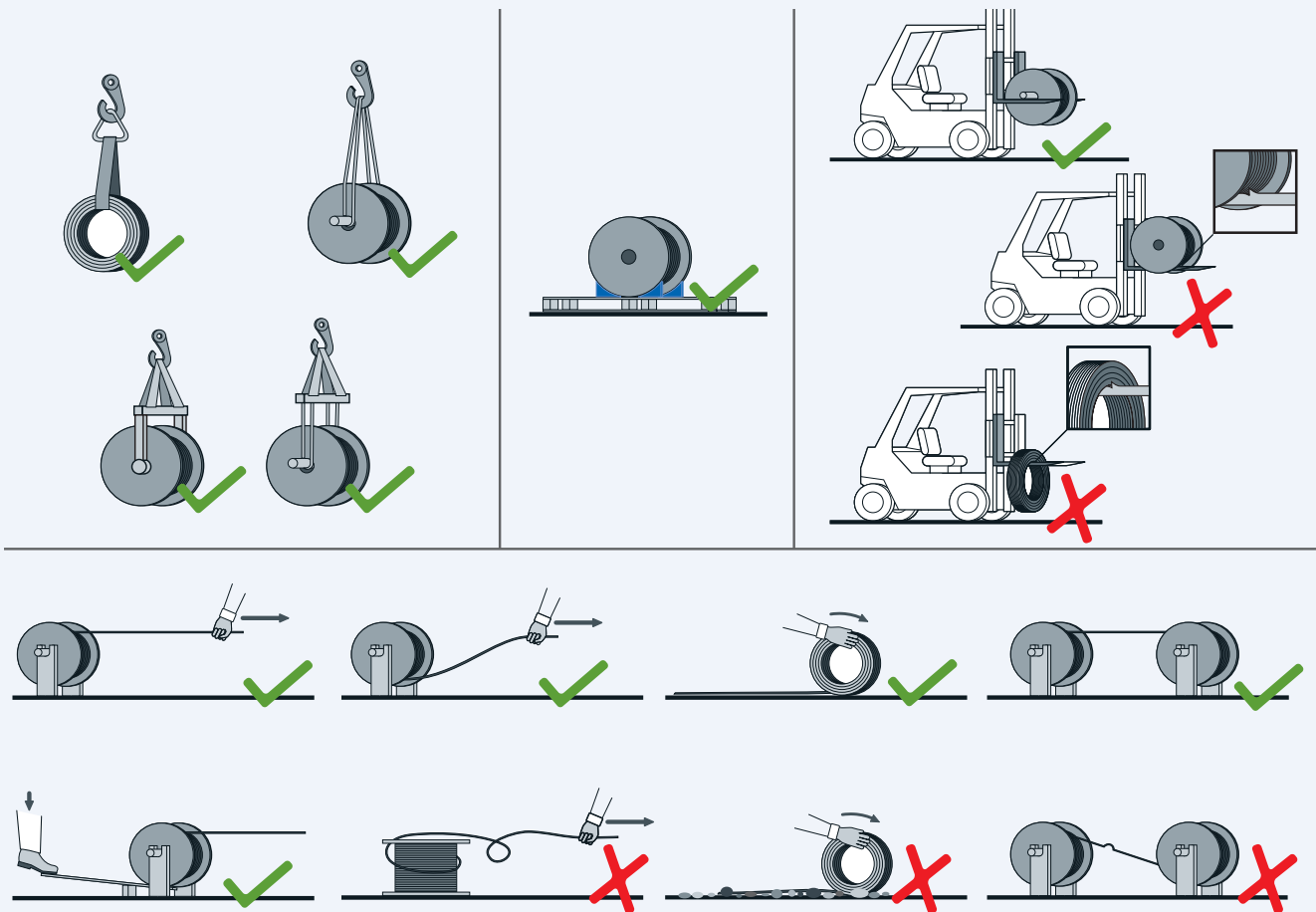
Storage, handling and maintenance

The rope must be adequately maintained and regularly lubricated, its surface should always be kept at least slightly greasy. In case of prolonged inactivity or particularly extreme working conditions, a lubricant compatible with the original one must be used and applied with a brush or spray, please contact us for references.

When stored, the rope should be kept in a dry and ventilated environment with no direct contact with the floor (air flow under the reel). At any time, any contact of the rope with any metallic pieces shall be avoided to prevent early damage. In order to increase the lifespan of your rope, please prevent it from shocks, rubbing and harmful contacts.



EWRIS recommendations



Any braking system for unwinding is welcome

According to local standard

A steel wire rope is a sensitive flexible safety element. It has to be followed up and regularly inspected by a competent person. Some examples of parameters to be monitored when inspecting the ropes:

- Broken wire
- Decreasing rope diameter (local/general) associated with rope elongation
- Corrosion
- Fracture of strands
- Wire rope deformation (e.g waviness, baskets, core or strand protrusion or distorsion, flattened section of the rope, kinks)
- Strech

Every local authorities follow their own norms, as for example:

- EN 12385 (-6 and -7 related to mining application) in Europe
- CSA G4 in Canada
- ASTM Standards in USA
- And many others...

Some ideas to evaluate the condition of a rope

- A visual inspection is necessary to help determine the global condition of the rope
- A local reduction is the result of a core break: the rope shall be discarded immediately
- Visual signs: local damages, basket or bird cage, deformations of one or several strands, wire protusion, kinks looped wires, etc.
- Severe corrosion is a cause for discard

It is important to discard the rope as soon as a discard criteria appears: from this moment the rope deterioration may increase quicker than expected.

Conversion table

Length	inch (in)	= 25,4	millimeter (mm)	= 0,03937 in
	foot (ft)	= 30,48	centimeter (cm)	= 0,03281 ft
	yard (yd)	= 0,9144	meter (m)	= 1,0936 yd
	statute mile	= 1,6093	kilometer (km)	= 0,6213 mile
Area	square inch (in ²)	= 645,16	square millimeter (mm ²)	= 0,00155 in ²
	square foot (ft ²)	= 0,0929	square meter (m ²)	= 10,76 ft ²
Weight	ounce (oz)	= 28,35	gramme (g)	= 0,03527 oz
	pound (lb)	= 0,4536	kilogramme (kg)	= 2,205 lbs
	ton (long)	= 1,016	metric ton (mto)	= 0,9842 long t
	ton (short)	= 0,9074	metric ton (mto)	= 1,102 short t
Weight/Length	pound/foot (lb)/ft)	= 1,488	kilogramme/meter (kg/m)	= 0,672 lb/ft
Volume	cubic inch (in ³)	= 16,39	cubic centimer (cm ³)	= 0,061 in ³
	cubic foot (ft ³)	= 0,02832	cubic meter (m ³)	= 35,311 ft ³
	US gallon (gal)	= 3,7855	cubic decimeter (dm ³)	= 0,2642 gal
Pressure	pound/sq.inch	= 0,00689	Newton/square millimeter (N/mm ²)	= 145,04 psi
	pound/sq.inch	= 0,06894	bar	= 14, 504 psi



Specific training about rope

Training courses on wire ropes are available in our Bourg-en-Bresse factory in France or can be organized at your site.

Your need is capital, help us to define it!

We need... Your operation conditions

- Payload (kg or lbs)
- Mass of skip (kg or lbs)
- Speed (m/s or feet/s)
- Accelerations (m/s² or feet/s²)
- Number of monthly cycles
- Number of working days per year
- Sheaves diameters (m or feet)

We need... Your existing rope details

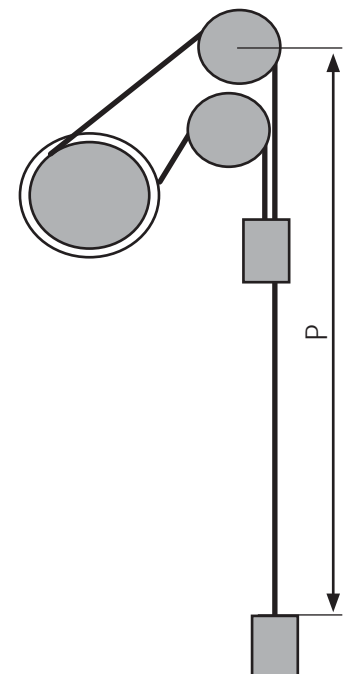
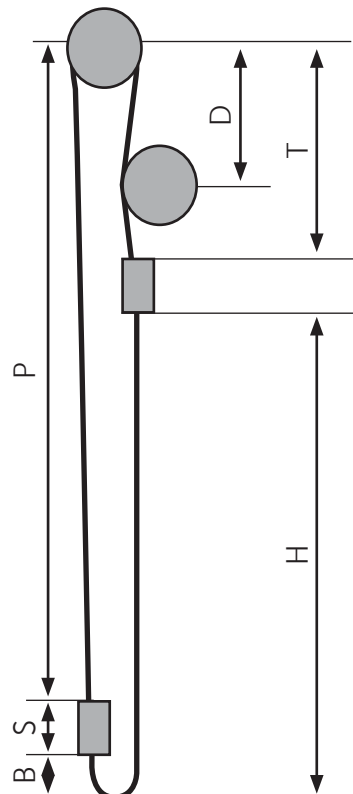
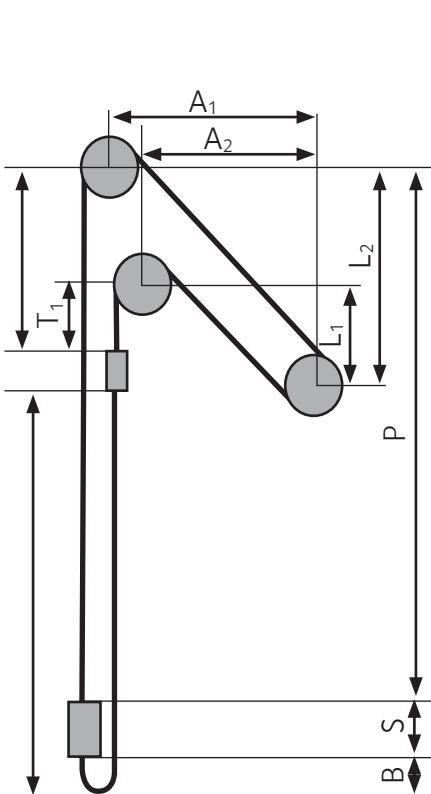
- Rope diameter (mm or inch)
- Rope length (m or feet)
- Minimum breaking load (kN or lbs)
- Linear mass (kg/m or lbs/foot)
- Coating (bright, galvanized or Corzal® – other: please specify)
- Number of ropes per set (friction hoist)
- Number of layer rope (drum)
- Rope lay (right or left)

The most important for us:

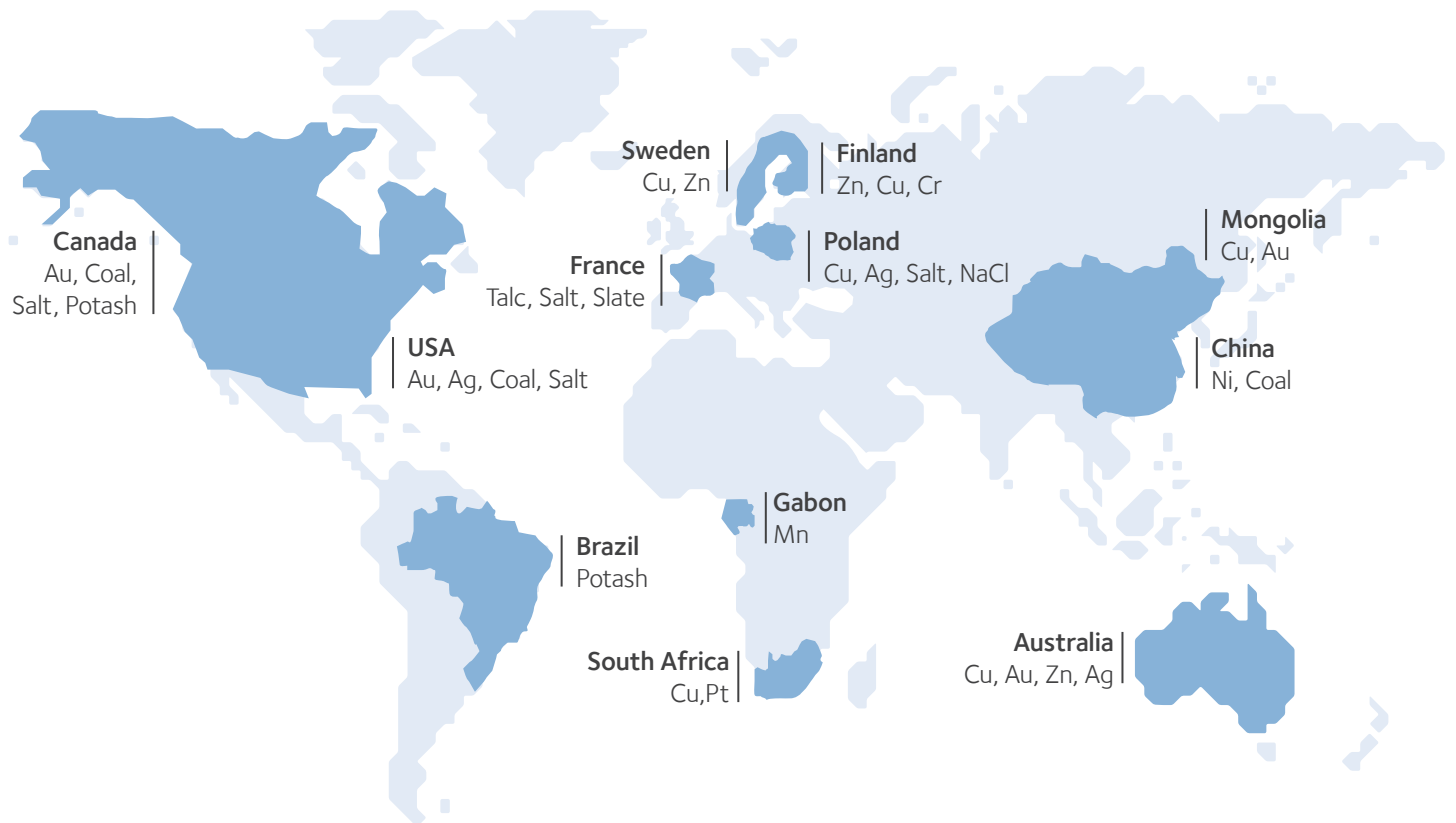
- B (m)
- P (m)
- S (m)
- T₁ (m)
- H (m)

Useful for us:

- D (m)
- A₁ (m)
- A₂ (m)
- L₁ (m)
- L₂ (m)
- T₂ (m)



Wherever you are, we can deliver ropes!

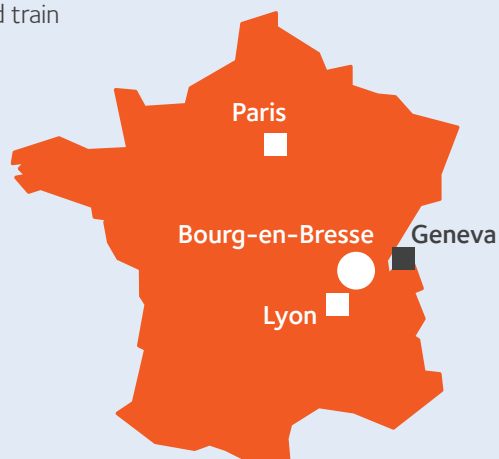


ArcelorMittal Bourg-en-Bresse, France

How to reach us?

- From Paris: 2 hours by high-speed train
- From Lyon: 45 minutes by car
- From Geneva: 90 minutes by car

Feel free to come and visit us!



Our full range of special ropes for other field applications

High-tech products

The present catalogue is dedicated to mining ropes. ArcelorMittal is also a worldwide leader for other high tech applications in other market segments:

- Cableway, gondolas and cable cars, aerial conveyers: 6 strands solid plastic core for hauling and hauling/carrying ropes and full lock coil track ropes
- Hoisting: from tower crane to heavy duty crane through products such as Notor HP, Complast 9 and plastic impregnated ropes
- Spiral strands for offshore mooring systems (sheathed spiral strand ropes up to 150 mm in diameter) with end fittings
- Spiral strands and full locked coil ropes for structures: ropes for suspension and cable-stayed bridge, stadium roofs.



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Notes





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