

High performance
Ropeway Ropes for the most
demanding environments

ROPEWAY
ROPES 

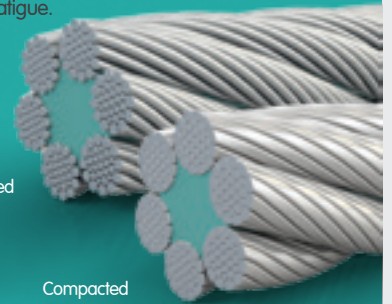


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6 Strands

6 strand ropes from ArcelorMittal ROPES offer superior strength, stretch resistance and resistance to bending fatigue.



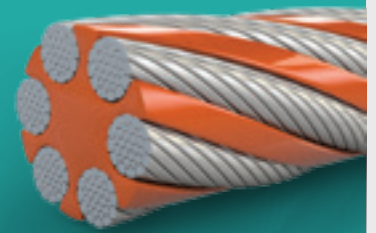
Non compacted

p14

Compacted

Whisper®

A new breed of ropeway rope that reduces vibration and noise levels, optimising passenger comfort.

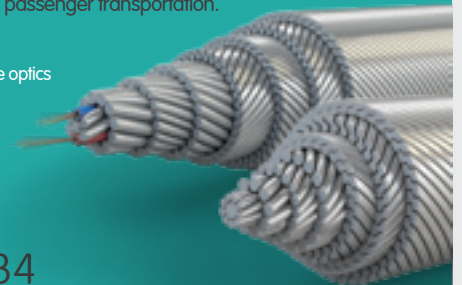


p30

Full Lock Coil

Full Lock Coil track rope is precision engineered for the highly demanding applications of aerial and passenger transportation.

Fibre optics



p34

HP8P

High performance 8 strand ropes for slope groomers featuring plastic impregnation with flexibility and high breaking loads.

p38

Productivity depends on efficiencies

ArcelorMittal ROPES is part of the ArcelorMittal Group – one of the largest steel producers in the world and the manufacturer of premium quality steel wire ropes for the ropeway, mining, hoisting and mooring sectors.

Recognised worldwide for the quality of its corrosion resistant products, ArcelorMittal manufactures and supplies some of the most technologically advanced steel wire ropes in the world.

Designed, developed and manufactured for strength, flexibility and endurance, ArcelorMittal ROPES delivers lasting value and safety for the most demanding environments.



ArcelorMittal ROPES will be recognised as the steel wire ropes service provider of choice across the ropeway, mining, hoisting and mooring markets.

Our 4 core markets are:

ROPEWAY ROPES 

MINING ROPES 

HOISTING ROPES 

MOORING ROPES 



“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”

Morten Breddam
Business Line Manager, ArcelorMittal ROPES

Vertical integration. Unparalleled value.

Our mining, steel production, wire rod handling, wire drawing and rope manufacture is all undertaken by ArcelorMittal.

Our fully integrated business model gives us complete control over the quality of our raw materials and the highest levels of confidence in our production methods and processes, saving us time and resources.

This, combined with our world-class technical expertise, provides our customers with unparalleled value.


New levels of performance

Operating for all ArcelorMittal Group units, ArcelorMittal ROPES benefits from the Group’s worldwide research and development resources.

Research and development are the cornerstone of sustainable development and innovation and this ensures the continuous renewal of our product offer. Worldwide we have 1400 full time researchers and 13 research centres.

Working together with customers to optimise solutions

With increased focus on new product development, innovation and optimisation, our production and quality control teams work with our customers to deliver high performance solutions that meet their requirements. ArcelorMittal ROPES is your strategic partner. We offer much more than high quality, competitively priced steel wire ropes. Our purpose is to work with our customers to fulfil their technical requirements, quickly, safely and efficiently. Your success is our success.



*“At ArcelorMittal ROPES,
our entire design and
production process is part
of our continuous quality
control system. Because
of our rigorous monitoring
processes we can say,
with confidence, that we
are creating innovative
products that anticipate
and respond to the
changing global market.”*

Benjamin Coutaz
Head of Development and Design
ArcelorMittal ROPES

Unrivalled technical 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.

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.

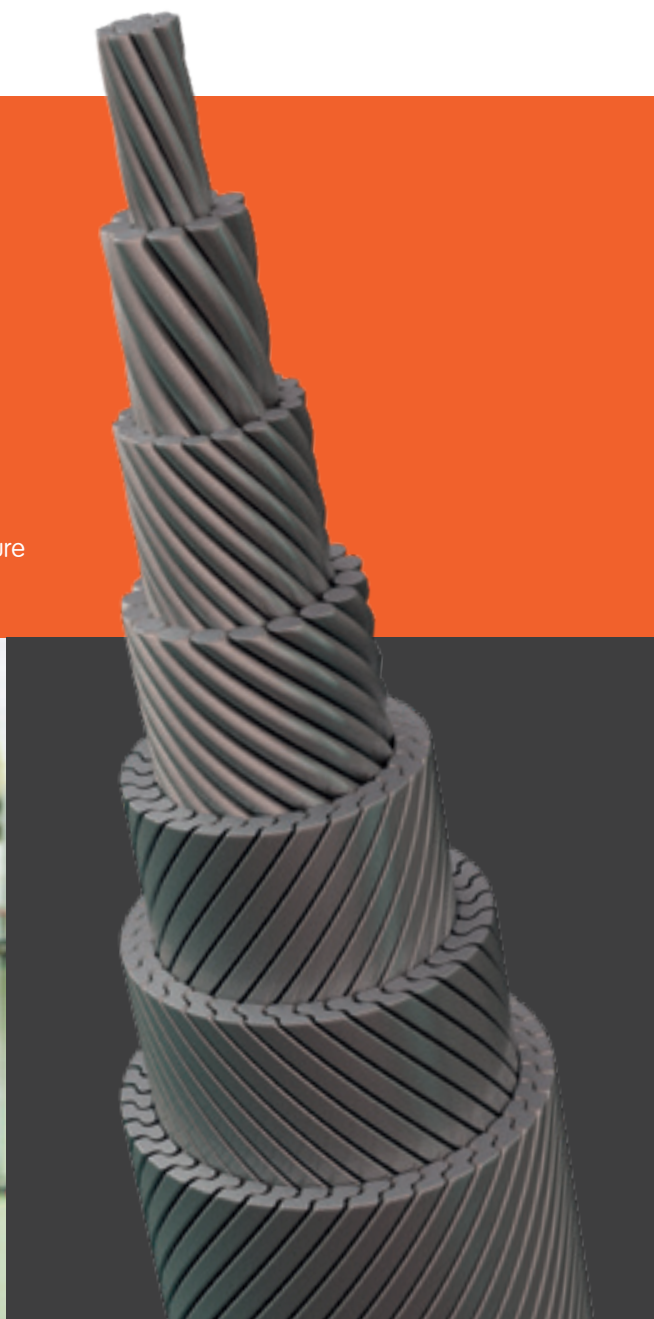
Our continuous improvement process means that we are certified ISO 45001 for safety management. Thanks to this commitment, our production plant can implement an optimised process control environment, creating world-class steel wire rope products.

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.



Helping our customers to exceed

Located in Bourg-en-Bresse, France, our specialist teams, comprising of more than 300 people, continue to build on our international reputation for engineering the highest quality wire ropes.

More than just a steel wire ropes company, our purpose is to help our customers deliver their projects quickly, safely and efficiently. We achieve this by working with our customers to identify, develop and deliver optimum solutions.



Why choose ArcelorMittal ROPES?



Engineering
Excellence



Innovation



Continuous
investment in product
innovation and
development



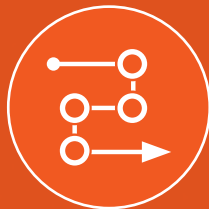
Comprehensive
solutions



Established
for more than
100 years



Delivering all
around the world



Vertically
integrated
business model



Full materials
traceability



Your expert
strategic partner

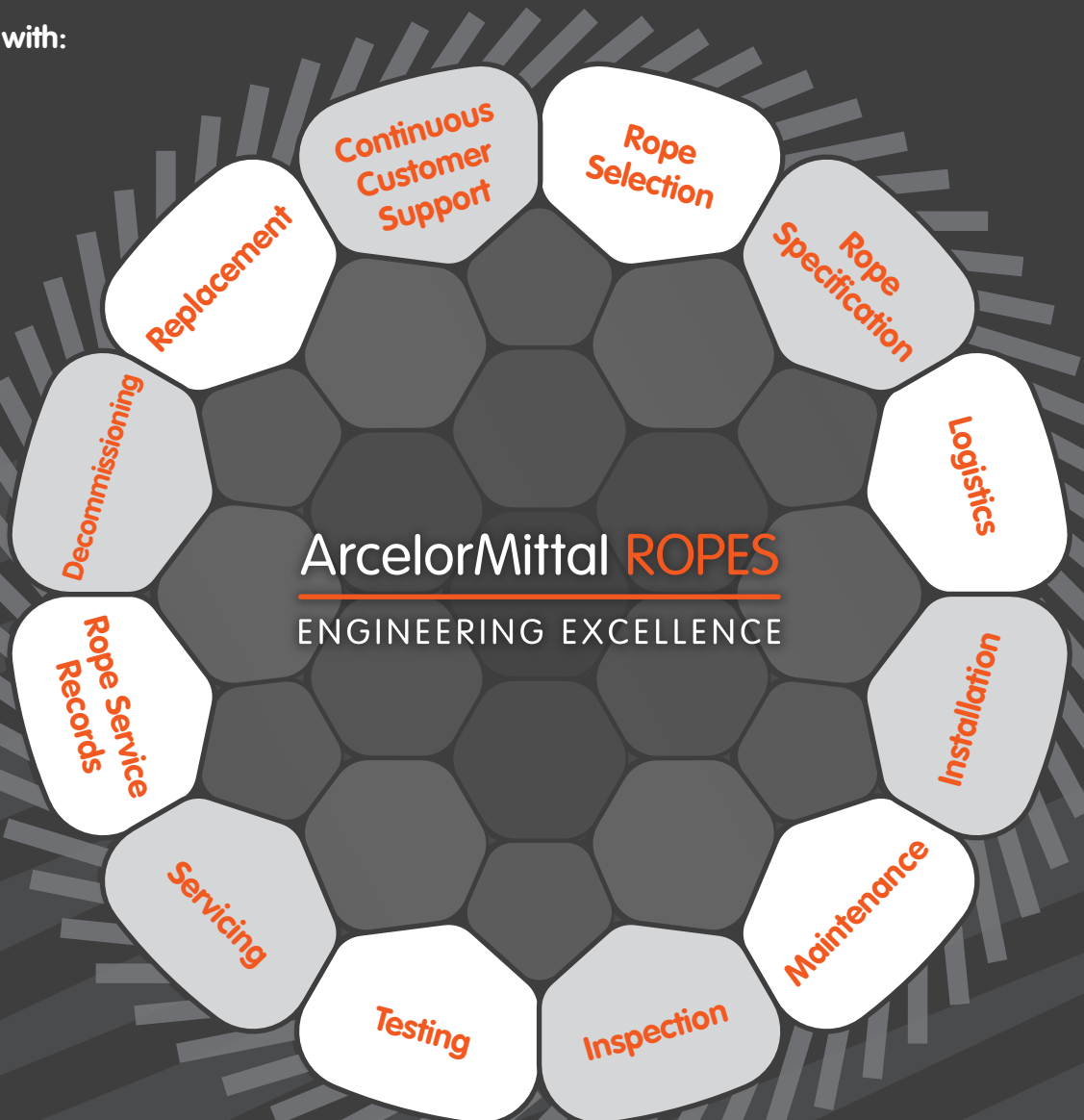


Ongoing
customer support

Technical expertise and support for the long term

ArcelorMittal ROPES provides a comprehensive support network for new and existing customers.

We can help you with:



Improving the effects of our activities on the environment

We recognise the importance for sustainable development and we continually aim to improve the environmental effect of our activities.

To help achieve our aims we:

- Meet, and wherever possible, improve upon relevant legislative, regulatory and environmental codes of practice.
- Develop objectives that target environmental improvements.
- Consider environmental issues in our decision-making processes.
- Develop our relationships with suppliers and contractors so that we all understand and recognise our environmental responsibilities.
- Educate employees so that they can carry out their activities in an environmentally responsible manner.
- Promote our environmental performance and achievements amongst customers, employees, suppliers, contractors and the public.

We make sure that we use resources efficiently by:

- Advising staff on how best to use energy and other utilities.
- Promoting waste minimisation, recycling and the creation of by-products.
- Promoting the efficient use of resources, energy and fuel throughout our manufacturing, processing, sales and distribution operations.

We are active participants who co-operate with:

- The communities in which we operate.
- The government, regulatory bodies and other interested parties who share our vision of being a responsible and trusted neighbour.

Our commitment to health, safety and wellbeing

*“Everyone has the right to good health and safety. Equally, everyone has the responsibility to make this happen at home and at work. Leaders, machinery operators, office workers, contractors – we all need to believe that **Journey to Zero** is achievable and to feel responsible for health and safety”.*

Lakshmi Mittal
Chairman and CEO, ArcelorMittal

The health, safety and wellbeing of all our employees and contractors is at the core of our commitment to produce high performance ropes.

Journey to Zero is the name of ArcelorMittal's ongoing campaign to work vigorously towards a sustainable goal of zero accidents and injuries.

We work every day in dangerous conditions, where accidents are always possible. With our **Journey to Zero** campaign to reduce workplace accidents, injuries and occupational health problems to zero, we have set ourselves the challenge of becoming the safest steel wire ropes manufacturer in the world.

Wire Rope Properties

Every demanding situation requires a rope with particular performance characteristics. These requirements are determined by the physical environment and the level and type of usage.



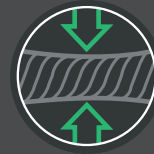
Lubrication

Extends the life and increases rope performance.



Compaction

Smoother outer surface with increased strength and reduced wear.



Resistance to Crushing

Ropes designed to withstand or resist external forces.



High Breaking Resistance

Ropes featuring a high breaking force.



Stretch Resistant

Due to our optimum design and manufacturing process, rope elongation after stabilisation is between 0.1% and 0.3%.



Bending Fatigue Resistance

Ropes designed to cope with bending repeatedly under stress.



Bright Wire

Drawn steel, pickled and phosphated and suitable for non corrosive environments.



Galvanised Wire Coating

Zinc coating suitable for corrosive environments.



Corzal® Wire Coating

Corzal® is an eutectic alloy of 95% zinc and 5% aluminium that resists corrosion up to 3 times longer than a pure zinc coating.

Rope Application Guide

Which rope, which application?

Different ropeway applications require a rope that will meet the exceptionally demanding requirements for safety, reliability, passenger comfort, longevity and, of course, value for money.



















	6 Strand Ropes	6 Strand Compacted Ropes	Whisper®	Full Lock Coil Ropes	Full Lock Coil Ropes with Optic Fibre
 Teleski	●	●			
 Chairlift	●	✗	✗		
 Detachable Chairlift	●	●	●		
 Gondola	●	●	●		
 Funitel	✗	●	●		
 Gondola 25/35	●	●	●	●	●
 Cable Car	●	●	●	●	●
 Material Cable Car	●	●		●	●
 Funicular	●	●	●	✗	✗

KEY: ● HAULING ROPE ● TRACK ROPE ✗ HAULING OPTION

The ArcelorMittal Ropeway Ropes team are experts in their field, producing many thousands of kilometres of premium quality steel rope each year and providing technical advice to their worldwide customer base.

Use our 'at a glance' guide to select the correct ropes for your applications and ensure that you maximise safety and operational performance.

mm
10 12 14 16 18 **20** 22 24 26 28 **30** 32 34 36 38 **40** 42 44 46 48 **50** 52 54 56 58 **60** 62 64 66 68 **70** 72 74

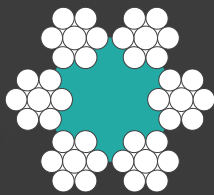
 TM7	 TMR7								
	 SL17	 SLR17							
		 SL19	 SLR19						
		 WS26	 WSR26						
			 FW25	 FWR25					
		 WS31		 WSR31					
				 WS36	 WSR36				
				 Whisper®					
		  	Full Lock Coil						

6 Strand Ropes

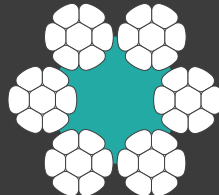
6 strand ropes from ArcelorMittal ROPES offer superior strength, stretch resistance and resistance to bending fatigue.

Compacted strands around a central solid plastic core deliver outstanding levels of resistance against crushing and abrasion.

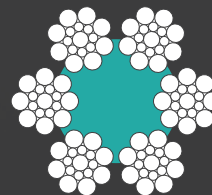
 Compacted Rope



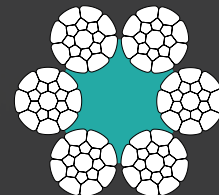
TM7
6x7-SFC
p.16



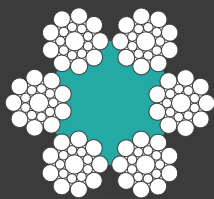
TMR7
6xK7-SFC
p.17



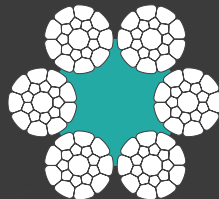
SL17
6x17S-SPC
p.18



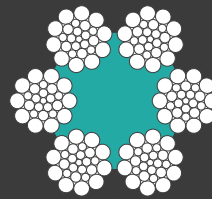
SLR17
6xK17S-SPC
p.19



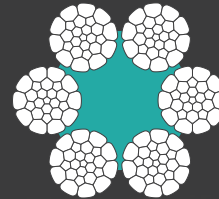
SL19
6x19S-SPC
p.20



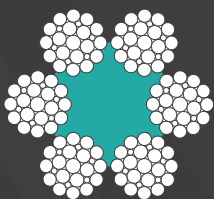
SLR19
6xK19S-SPC
p.21



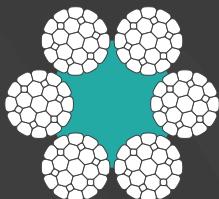
WS26
6x26WS-SPC
p.22



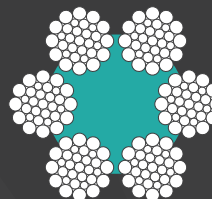
WSR26
6xK26WS-SPC
p.23



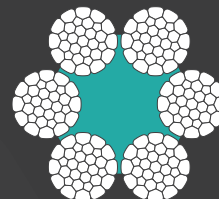
FW25
6x25F-SPC
p.24



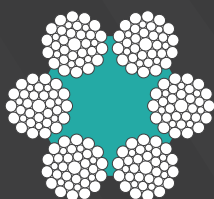
FWR25
6xK25-SPC
p.25



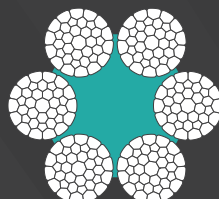
WS31
6x31WS-SPC
p.26



WSR31
6xK31WS-SPC
p.27



WS36
6x36WS-SPC
p.28



WSR36
6xK36WS-SPC
p.29



ArcelorMittal

6 strand ropes for Whistler, British Columbia.

Located in the spectacular Coast Mountains of British Columbia just north of Vancouver, Whistler is Canada's favourite year-round ski resort. There are two majestic mountains, epic skiing and snowboarding as well as many other recreational opportunities that are centred around the vibrant village of Whistler.

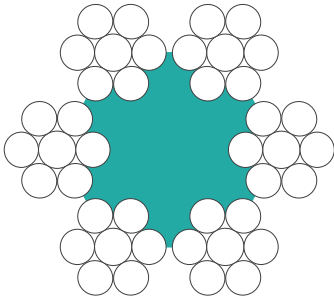
Skiing and snowboarding are an integral part of life in British Columbia with holidays and weekends spent on the mountains enjoying favourite runs. Thirteen world-class resorts, boundless backcountry, and incredible snowfalls combine to make British Columbia one of North America's most popular ski and snowboard hubs.

2,500m of 45mm, 3,750m of 47mm and 8,500m of 56mm WS36 ropes are used as hauling ropes in the Whistler resort. WS36 delivers an exceptionally high breaking load that is engineered for high resistance to stretching, bending and crushing.



TM7

6x7-SFC is a 6 strand rope with a high breaking load that is designed for teleskis and chairlifts and engineered for high resistance to stretching and bending.



Diameter	Section	Mass	Minimum breaking load							
			1570 MPa		1770 MPa		1960 MPa		Max MPa	
			Total	MBL	Total	MBL	Total	MBL	Total	MBL
12	56	0.506	91	80	102	90	115	100	120	105
13	66	0.595	107	94	120	105	135	118	141	123
14	77	0.690	124	109	140	122	156	137	163	143
15	88	0.793	143	125	160	140	180	157	187	164
16	100	0.903	163	142	183	160	204	179	213	187
17	113	1.020	184	161	206	180	231	202	241	211
18	127	1.144	206	180	231	202	259	227	270	236
19	142	1.275	229	201	258	226	289	252	301	263
20	157	1.413	254	223	286	250	320	280	334	292
21	173	1.558	280	245	315	276	353	309	368	322
22	190	1.710	308	269	346	303	387	339	404	354
23	208	1.869	337	294	378	331	423	370	442	386
24	226	2.036	366	321	412	360	461	403	481	421
25	245	2.209	398	348	447	391	500	438	522	457
26	266	2.390	430	376	483	423	541	473	565	494
27	286	2.577	464	406	521	456	583	510	609	533
28	308	2.772	499	437	561	491	627	549	655	573
29	330	2.974	535	468	601	526	673	589	703	615
30	354	3.183	573	501	644	563	720	630	752	658
31	378	3.399	612	535	687	601	769	673	803	703
32	402	3.622	652	570	732	641	820	717	856	749

Approximate values

Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

QUALITY
ArcelorMittal ROPES operates an internal DNV-Certified Quality Assurance System which complies with the requirements of ISO 9001.

Our production plant in Bourg-en-Bresse is certified OHSAS 18001 for safety management.

You can see a full list of our international standards on page 43.

Applications

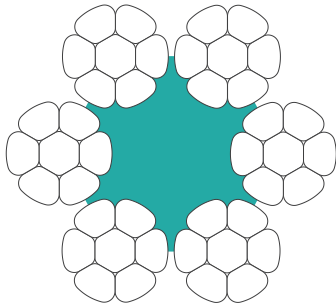


Properties



TMR7[®]

6xK7-SFC is a 6 strand compacted rope with an exceptionally high breaking load that is designed for teleskis, chairlifts, passenger and material cable cars and tramways. TMR7 Compacted is a lang lay rope engineered for high resistance to abrasion, stretching, bending and crushing.



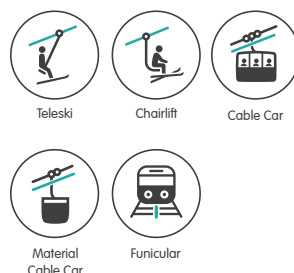
Diameter	Section	Mass	Minimum breaking load							
			1570 MPa		1770 MPa		1960 MPa		Max MPa	
			Total	MBL	Total	MBL	Total	MBL	Total	MBL
17	135	1.156	219	188	246	212	275	237	287	247
18	151	1.293	245	211	275	237	308	265	321	276
19	168	1.437	272	234	306	263	342	294	357	307
19.5	177	1.512	286	246	322	277	360	310	376	323
20	186	1.589	301	259	338	291	378	325	395	340
21	204	1.749	331	285	372	320	417	358	435	374
22	224	1.917	363	312	408	351	456	393	476	410
23	245	2.092	396	341	445	383	498	429	520	447
24	266	2.275	431	371	484	416	542	466	566	486
25	288	2.466	467	402	525	451	587	505	613	527
26	312	2.665	505	434	567	488	635	546	663	570
27	336	2.872	544	468	611	526	684	588	714	614
28	361	3.087	585	503	657	565	735	632	767	660
29	387	3.309	627	539	704	606	788	678	823	707
30	414	3.539	670	577	753	648	843	725	880	757
31	442	3.777	716	615	804	691	900	774	939	808
32	470	4.023	762	655	856	736	958	824	1000	860
33	500	4.276	810	697	910	783	1019	876	1063	914
34	531	4.537	860	739	966	831	1081	930	1128	970

Approximate values

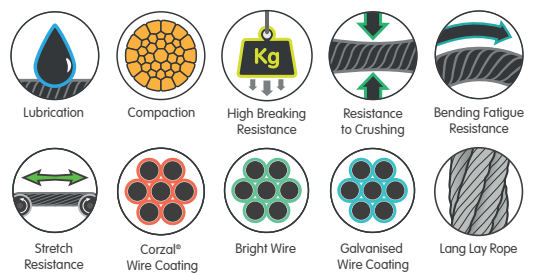
Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

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Applications

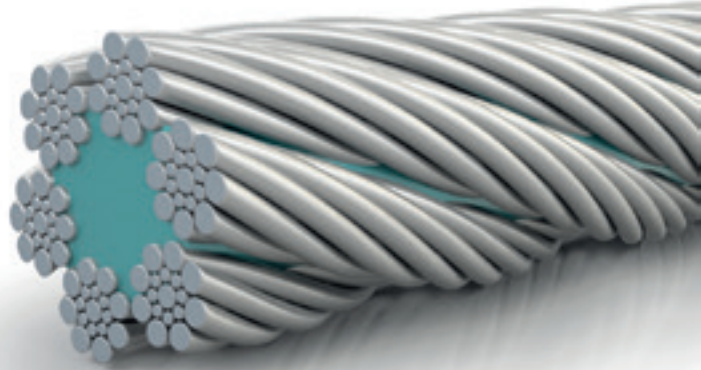
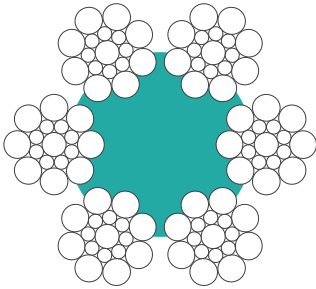


Properties



SL17

6x17S-SPC is a 6 strand rope with a high breaking load that is designed for chairlifts, gondolas, passenger and material cable cars and tramways. SL17 is a lang lay rope engineered for high resistance to stretching and bending.



Diameter	Section	Mass	Minimum breaking load							
			1570 MPa		1770 MPa		1960 MPa		Max MPa	
			Total	MBL	Total	MBL	Total	MBL	Total	MBL
23	217	1.931	352	308	395	346	442	387	464	406
24	236	2.103	383	335	430	376	481	421	505	442
25	256	2.282	415	363	466	408	522	457	547	479
26	277	2.469	449	393	504	441	564	494	592	518
27	299	2.663	484	423	543	476	608	532	638	558
28	321	2.865	520	455	584	511	654	572	686	600
29	344	3.073	558	488	627	548	701	614	736	644
30	368	3.289	597	522	670	587	750	657	787	689
31	393	3.513	637	557	716	626	801	701	841	735
31.5	406	3.627	658	576	739	647	827	724	868	759
32	419	3.743	679	594	762	667	853	747	895	784
33	445	3.981	722	631	811	709	907	794	952	833
33.5	459	4.103	744	651	835	731	935	818	981	859
34	473	4.226	766	670	861	753	963	843	1011	884
35	501	4.479	812	710	912	798	1020	893	1071	937
36	530	4.739	858	751	964	844	1079	945	1133	991
36.5	545	4.872	882	772	991	867	1110	971	1164	1019
37	560	5.006	907	793	1019	891	1140	998	1196	1047
38	590	5.281	956	837	1074	940	1202	1052	1262	1104
39	622	5.563	1007	881	1132	990	1266	1108	1329	1163
40	654	5.852	1059	927	1190	1041	1332	1166	1398	1223
40.5	670	5.999	1086	950	1220	1068	1366	1195	1433	1254

Approximate values

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You can see a full list of our international standards on page 43.

Applications

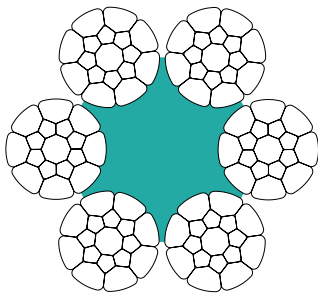


Properties



SLR17[®]

6xK17S-SPC is a 6 strand compacted rope with an exceptionally high breaking load that is designed for chairlifts, gondolas, passenger and material cable cars and tramways. SLR17 Compacted is a lang lay rope engineered for high resistance to abrasion, stretching, bending and crushing.



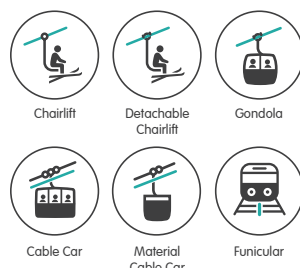
Diameter	Section	Mass	Minimum breaking load							
			1570 MPa		1770 MPa		1960 MPa		Max MPa	
			Total	MBL	Total	MBL	Total	MBL	Total	MBL
21	206	1.782	334	287	375	323	420	361	441	379
22	227	1.960	367	316	413	355	462	397	485	417
23	248	2.146	402	346	452	389	506	435	531	456
24	271	2.341	439	377	493	424	552	474	579	498
25	294	2.544	477	410	536	461	600	516	629	541
26	319	2.755	516	444	580	499	649	558	681	586
27	344	2.974	558	480	626	539	701	603	736	633
28	371	3.202	600	516	674	580	755	649	792	681
29	398	3.438	645	554	724	623	810	697	850	731
30	426	3.682	690	594	776	667	868	747	911	783
31	455	3.935	738	634	829	713	928	798	973	837
32	486	4.195	787	677	884	760	989	851	1038	892
33	517	4.465	837	720	940	809	1053	905	1104	950
34	549	4.742	889	765	999	859	1118	961	1173	1009
35	582	5.028	943	811	1059	911	1185	1019	1244	1069
36	616	5.322	998	858	1121	964	1255	1079	1316	1132
37	651	5.624	1055	907	1185	1019	1326	1140	1391	1196
38	687	5.934	1113	957	1250	1075	1399	1203	1468	1262
39	724	6.253	1173	1008	1317	1133	1474	1268	1547	1330
40	762	6.580	1234	1061	1386	1192	1551	1334	1628	1400

Approximate values

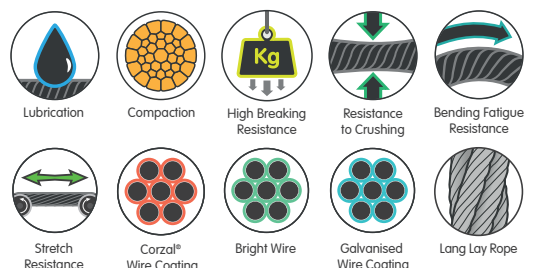
Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

QUALITY
ArcelorMittal ROPES operates an internal DNV-Certified Quality Assurance System which complies with the requirements of ISO 9001.
Our production plant in Bourg-en-Bresse is certified OHSAS 18001 for safety management.
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Applications

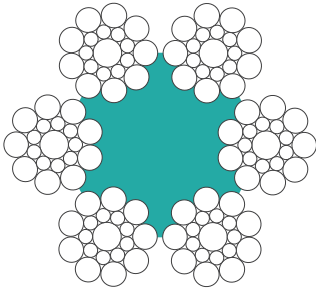


Properties



SL19

6x19S-SPC is a 6 strand rope with a high breaking load that is designed for chairlifts, gondolas, passenger and material cable cars and tramways. SL19 is a lang lay rope engineered for high resistance to stretching and bending.



Diameter	Section	Mass	Minimum breaking load							
			1570 MPa		1770 MPa		1960 MPa		Max MPa	
			Total	MBL	Total	MBL	Total	MBL	Total	MBL
25	260	2.312	421	368	473	414	529	463	555	486
26	281	2.499	455	398	511	447	572	501	600	525
27	303	2.694	490	429	551	482	617	540	647	566
28	325	2.896	527	461	592	518	663	580	696	609
29	349	3.106	565	495	635	556	711	622	747	653
30	373	3.323	605	529	679	594	760	665	799	699
31	398	3.547	645	565	725	635	812	710	853	747
31.5	411	3.662	666	583	749	655	838	733	881	771
32	424	3.779	688	602	772	676	865	756	909	796
33	451	4.018	731	640	821	719	919	804	967	846
33.5	465	4.140	753	659	846	740	947	829	997	872
34	479	4.264	776	679	872	763	975	853	1027	898
35	507	4.518	822	719	923	808	1033	904	1088	952
36	537	4.779	869	761	977	855	1093	956	1151	1007
36.5	552	4.912	893	782	1004	878	1123	983	1183	1035
37	567	5.048	918	803	1031	902	1154	1010	1216	1064
38	598	5.323	968	847	1088	952	1217	1065	1282	1122
39	629	5.606	1020	892	1145	1002	1282	1122	1351	1182
40	662	5.897	1072	938	1205	1054	1348	1180	1421	1243
40.5	679	6.045	1099	962	1235	1081	1382	1209	1457	1274
41	695	6.195	1126	986	1266	1107	1416	1239	1493	1306
42	730	6.500	1182	1034	1328	1162	1486	1300	1566	1371
42.5	747	6.655	1210	1059	1360	1190	1522	1331	1604	1403

Approximate values

Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

QUALITY
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Our production plant in Bourg-en-Bresse is certified OHSAS 18001 for safety management.
You can see a full list of our international standards on page 43.

Applications

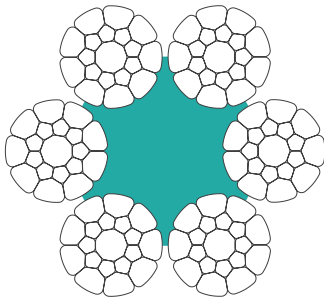


Properties



SLR19^o

6xK19S-SPC is a 6 strand compacted rope with an exceptionally high breaking load that is designed for chairlifts, gondolas, passenger and material cable cars and tramways. SLR19 Compacted is a lang lay rope engineered for high resistance to abrasion, stretching, bending and crushing.



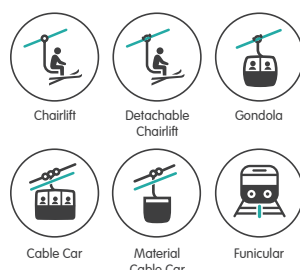
Diameter	Section	Mass	Minimum breaking load							
			1570 MPa		1770 MPa		1960 MPa		Max MPa	
			Total	MBL	Total	MBL	Total	MBL	Total	MBL
26	330	2.849	535	460	601	517	673	579	707	608
27	355	3.061	575	495	646	556	723	622	760	654
28	381	3.282	616	530	693	596	775	667	815	701
29	407	3.510	659	567	741	637	829	713	872	750
30	435	3.747	704	605	791	680	885	761	931	800
31	463	3.992	750	645	842	724	943	811	991	853
32	492	4.244	797	686	896	770	1003	862	1054	907
33	522	4.505	846	728	951	818	1064	915	1119	962
34	554	4.774	897	771	1008	866	1128	970	1186	1020
35	586	5.050	949	816	1066	917	1193	1026	1254	1079
36	619	5.335	1002	862	1126	968	1260	1084	1325	1140
37	653	5.628	1057	909	1188	1022	1329	1143	1398	1202
38	688	5.928	1114	958	1251	1076	1400	1204	1473	1266
39	723	6.237	1172	1008	1316	1132	1473	1267	1549	1332
40	760	6.554	1231	1059	1383	1190	1548	1332	1628	1400
41	798	6.879	1292	1111	1452	1249	1625	1398	1709	1469
42	836	7.212	1355	1165	1522	1309	1704	1465	1791	1541
43	876	7.552	1419	1220	1594	1371	1784	1534	1876	1613
44	916	7.901	1484	1277	1668	1434	1867	1605	1963	1688
45	958	8.258	1552	1334	1743	1499	1951	1678	2051	1764

Approximate values

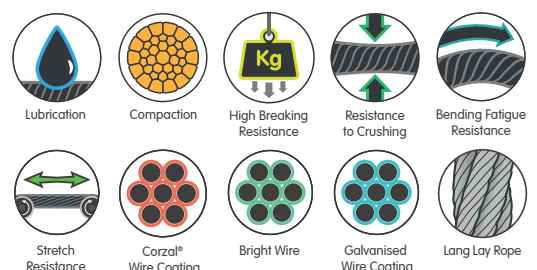
Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

QUALITY
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Applications

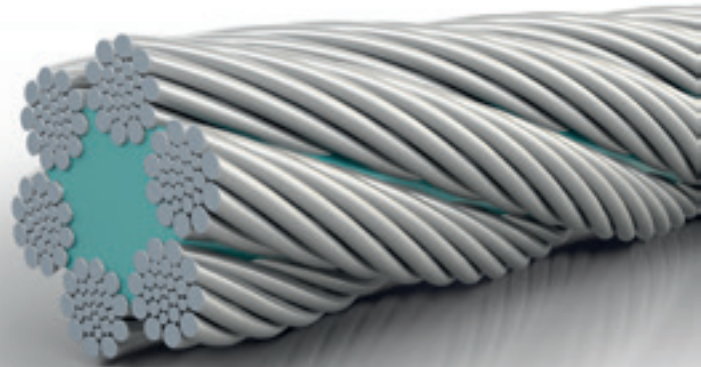
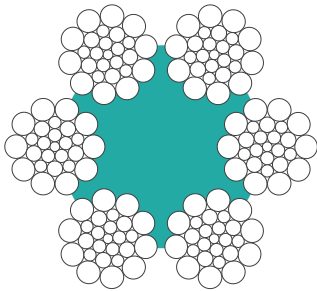


Properties



WS26

6x26WS-SPC is a 6 strand rope with a high breaking load that is designed for fixed and detachable chairlifts, funitels, gondolas, passenger and material cable cars and tramways. **WS26** is a lang lay rope engineered for high resistance to stretching, bending and crushing.



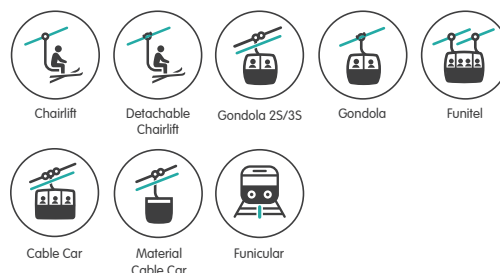
Diameter	Section	Mass	Minimum breaking load							
			1570 MPa		1770 MPa		1960 MPa		Max MPa	
			Total	MBL	Total	MBL	Total	MBL	Total	MBL
27	303	2.701	490	429	551	482	617	540	649	568
28	326	2.906	528	462	593	519	664	581	699	611
29	350	3.118	566	496	636	557	712	623	750	656
30	374	3.338	606	530	681	596	762	667	803	702
31	400	3.565	648	567	727	637	814	712	858	750
32	426	3.800	690	604	775	678	868	759	914	800
33	453	4.042	734	642	825	722	923	808	972	851
34	481	4.292	780	682	876	766	980	858	1032	903
35	510	4.549	826	723	928	812	1039	909	1094	958
36	540	4.813	874	765	982	859	1099	962	1158	1013
37	570	5.085	924	808	1038	908	1162	1016	1224	1071
38	602	5.364	975	853	1095	958	1225	1072	1291	1129
39	634	5.651	1027	898	1153	1009	1291	1130	1360	1190
40	667	5.946	1080	945	1213	1062	1358	1188	1431	1252
40.5	684	6.096	1107	969	1244	1089	1392	1218	1467	1283
41	701	6.247	1135	993	1275	1116	1427	1249	1503	1315
42	735	6.557	1191	1042	1338	1171	1498	1311	1578	1381
42.5	753	6.714	1220	1067	1370	1199	1534	1342	1616	1414
43	771	6.873	1249	1093	1403	1228	1570	1374	1654	1447
44	807	7.197	1308	1144	1469	1285	1644	1439	1732	1516
45	844	7.529	1368	1197	1537	1345	1720	1505	1812	1585
46	882	7.868	1429	1251	1606	1405	1797	1573	1894	1657
47	921	8.214	1492	1306	1677	1467	1877	1642	1977	1730
48	961	8.568	1557	1362	1749	1530	1957	1713	2062	1804
49	1001	8.929	1622	1420	1823	1595	2040	1785	2149	1881
50	1043	9.298	1689	1478	1898	1661	2124	1859	2238	1958

Approximate values

Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

QUALITY
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Applications

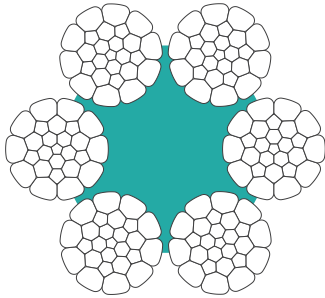


Properties



WSR26[®]

6xK26WS-SPC is a 6 strand compacted rope with an exceptionally high breaking load that is designed for chairlifts, funitels, gondolas, passenger and material cable cars and tramways. WSR26 Compacted is a lang lay rope engineered for high resistance to abrasion, stretching, bending and crushing.



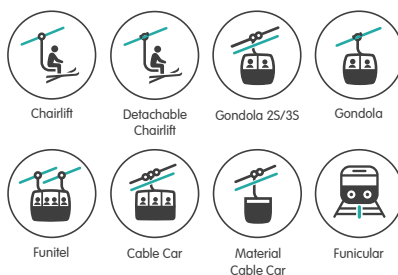
Diameter	Section	Mass	Minimum breaking load							
			1570 MPa		1770 MPa		1960 MPa		Max MPa	
			Total	MBL	Total	MBL	Total	MBL	Total	MBL
26	316	2.742	512	440	575	494	643	553	678	583
27	340	2.954	551	474	619	533	693	596	730	628
28	366	3.175	592	510	666	572	745	641	785	675
29	392	3.403	635	546	714	614	799	687	841	724
30	419	3.640	679	584	763	656	854	735	900	774
31	447	3.884	725	623	814	700	912	784	960	826
32	477	4.137	772	664	867	746	971	835	1023	880
33	507	4.398	821	706	922	793	1032	888	1087	935
34	538	4.666	871	749	978	841	1095	942	1154	992
35	569	4.943	922	793	1036	891	1160	998	1222	1051
36	602	5.228	976	839	1096	943	1227	1055	1292	1111
37	636	5.520	1030	886	1157	995	1295	1114	1365	1174
38	671	5.821	1086	934	1220	1050	1366	1175	1439	1238
39	706	6.130	1144	984	1285	1105	1438	1237	1515	1303
40	743	6.447	1203	1035	1352	1162	1513	1301	1594	1371
40.5	761	6.608	1233	1061	1385	1191	1551	1334	1634	1405
41	780	6.772	1264	1087	1420	1221	1589	1367	1674	1440
42	818	7.104	1326	1140	1489	1281	1667	1434	1756	1510
42.5	838	7.274	1357	1167	1525	1312	1707	1468	1798	1546
43	858	7.445	1389	1195	1561	1342	1747	1502	1841	1583
44	898	7.794	1455	1251	1634	1405	1829	1573	1927	1657
45	939	8.151	1521	1308	1709	1470	1913	1645	2015	1733
46	981	8.516	1589	1367	1785	1535	1998	1719	2105	1811
47	1024	8.889	1659	1427	1864	1603	2086	1794	2197	1890
48	1068	9.270	1730	1488	1943	1671	2175	1871	2292	1971

Approximate values

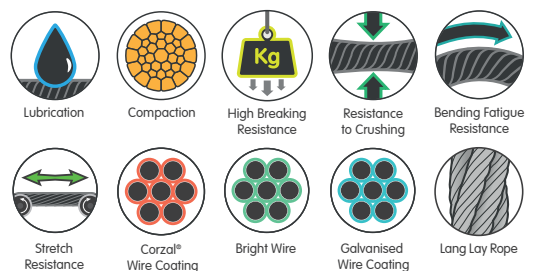
Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

QUALITY
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Applications

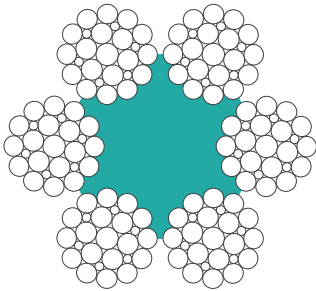


Properties



FW25

6x25F-SPC is a 6 strand rope with a high breaking load that is designed for chairlifts, funitels, gondolas, passenger and material cable cars and tramways. FW25 is a lang lay rope engineered for high resistance to stretching and bending.



Diameter	Section	Mass	Minimum breaking load							
			1570 MPa		1770 MPa		1960 MPa		Max MPa	
			Total	MBL	Total	MBL	Total	MBL	Total	MBL
30	378	3.369	612	536	688	602	770	674	814	712
31	404	3.600	654	572	735	643	823	720	870	761
32	431	3.839	698	610	784	686	877	768	927	812
33	458	4.086	742	650	834	730	933	817	987	864
34	487	4.340	789	690	886	775	991	868	1048	917
35	516	4.601	836	732	939	822	1051	920	1112	973
36	546	4.871	885	774	994	870	1113	974	1177	1029
37	577	5.147	935	818	1051	919	1176	1029	1243	1088
38	609	5.432	987	864	1109	970	1241	1086	1312	1148
39	642	5.724	1040	910	1168	1022	1308	1144	1383	1210
40	676	6.023	1094	958	1229	1076	1376	1204	1455	1273
40.5	693	6.176	1122	982	1261	1103	1411	1235	1492	1305
41	710	6.330	1150	1006	1292	1131	1446	1265	1529	1338
42	745	6.645	1207	1056	1356	1187	1518	1328	1605	1405
42.5	763	6.805	1236	1082	1389	1215	1555	1360	1644	1438
43	781	6.967	1266	1108	1422	1244	1592	1393	1683	1473
44	818	7.297	1326	1160	1489	1303	1667	1459	1763	1542
45	856	7.635	1387	1214	1558	1364	1744	1526	1844	1614
46	895	7.980	1450	1269	1629	1425	1823	1595	1928	1687
47	934	8.332	1514	1325	1701	1488	1904	1666	2013	1761
48	975	8.692	1579	1382	1774	1552	1986	1738	2100	1837
49	1016	9.060	1646	1440	1849	1618	2070	1811	2189	1915
50	1058	9.436	1714	1500	1926	1685	2156	1886	2279	1994
50.5	1080	9.626	1749	1530	1965	1719	2199	1924	2325	2035
51	1101	9.818	1784	1561	2004	1754	2243	1963	2372	2075
52	1145	10.209	1855	1623	2084	1823	2332	2041	2466	2158
53	1190	10.607	1927	1686	2165	1894	2423	2120	2562	2242
54	1235	11.013	2001	1751	2248	1967	2516	2201	2660	2328
55	1281	11.426	2076	1816	2332	2041	2610	2284	2760	2415
56	1329	11.847	2152	1883	2418	2116	2706	2368	2862	2504
57	1377	12.275	2230	1951	2506	2192	2804	2454	2965	2595
58	1426	12.711	2309	2021	2595	2270	2904	2541	3071	2687

Approximate values

Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

QUALITY
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Applications

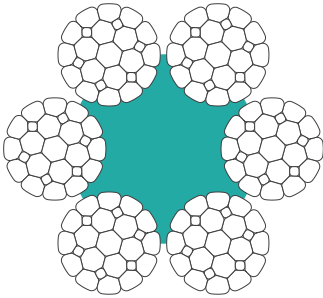


Properties



FWR25^o

6xK25F-SPC is a 6 strand compacted rope with an exceptionally high breaking load that is designed for chairlifts, funitels, gondolas, passenger and material cable cars and tramways. FWR25 Compacted is a lang lay rope that is engineered for high resistance to abrasion, stretching, bending and crushing.



Diameter	Section	Mass	Minimum breaking load							
			1570 MPa		1770 MPa		1960 MPa		Max MPa	
			Total	MBL	Total	MBL	Total	MBL	Total	MBL
30	427	3.737	692	595	777	668	870	748	920	791
31	456	3.986	738	635	829	713	928	798	981	844
32	485	4.243	786	676	883	759	988	850	1045	898
33	515	4.508	835	718	938	807	1050	903	1110	955
34	547	4.781	886	762	995	856	1114	958	1177	1013
35	579	5.063	938	806	1054	906	1179	1014	1247	1072
36	612	5.353	991	853	1114	958	1247	1072	1318	1134
37	646	5.651	1047	900	1176	1011	1316	1132	1392	1197
38	681	5.957	1103	949	1240	1066	1387	1193	1467	1262
39	717	6.271	1162	999	1305	1122	1461	1256	1545	1328
40	754	6.593	1221	1050	1372	1180	1536	1321	1624	1397
40.5	773	6.758	1252	1077	1406	1210	1574	1354	1664	1431
41	792	6.924	1283	1103	1441	1239	1613	1387	1705	1467
42	831	7.263	1346	1157	1512	1300	1692	1455	1789	1538
42.5	850	7.435	1378	1185	1548	1331	1732	1490	1831	1575
43	870	7.609	1410	1212	1584	1362	1773	1525	1874	1612
44	911	7.965	1476	1269	1658	1426	1856	1596	1962	1687
45	952	8.328	1543	1327	1733	1491	1940	1669	2051	1764
46	995	8.699	1612	1386	1811	1557	2027	1743	2143	1843
47	1038	9.079	1682	1447	1890	1625	2115	1819	2236	1923
48	1083	9.466	1754	1508	1971	1695	2206	1897	2332	2005
49	1128	9.862	1827	1572	2053	1766	2298	1976	2429	2089
50	1174	10.266	1902	1636	2137	1838	2392	2057	2529	2175
50.5	1198	10.471	1940	1669	2180	1875	2440	2098	2580	2218
51	1221	10.678	1979	1702	2223	1912	2488	2140	2631	2262
52	1270	11.099	2057	1769	2311	1987	2586	2224	2734	2351
53	1319	11.527	2136	1837	2400	2064	2686	2310	2840	2442
54	1369	11.964	2217	1907	2491	2142	2788	2397	2947	2535
55	1419	12.409	2300	1978	2583	2222	2891	2487	3057	2629
56	1471	12.862	2384	2050	2678	2303	2997	2577	3169	2725
57	1524	13.323	2469	2123	2774	2385	3105	2670	3282	2823
58	1578	13.792	2556	2198	2872	2470	3214	2764	3398	2922

Approximate values

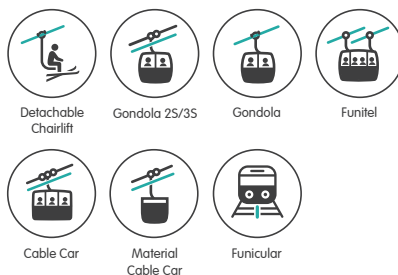
Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

QUALITY
ArcelorMittal ROPES operates an internal DNV-Certified Quality Assurance System which complies with the requirements of ISO 9001.

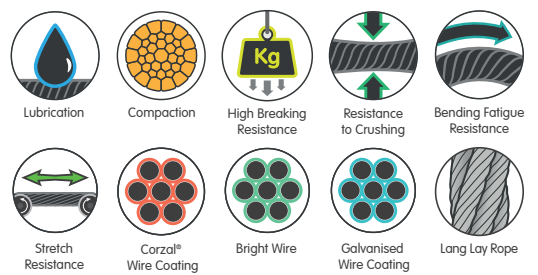
Our production plant in Bourg-en-Bresse is certified OHSAS 18001 for safety management.

You can see a full list of our international standards on page 43.

Applications

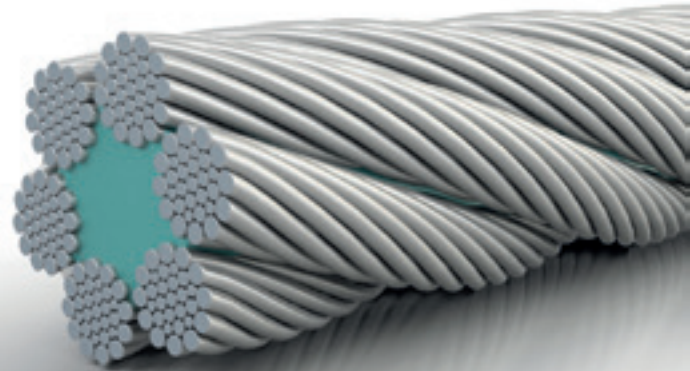
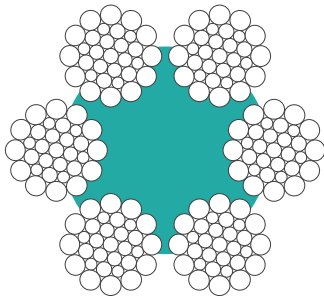


Properties



WS31

6x31WS-SPC is a 6 strand rope with a high breaking load that is designed for chairlifts, funitels, gondolas, passenger and material cable cars and tramways. WS31 is a lang lay rope engineered for high resistance to stretching and bending.



Diameter	Section	Mass	Minimum breaking load							
			1570 MPa		1770 MPa		1960 MPa		Max MPa	
			Total	MBL	Total	MBL	Total	MBL	Total	MBL
30	387	3.436	626	548	704	616	788	689	832	728
31	412	3.662	668	584	750	656	839	734	887	776
32	438	3.895	710	621	798	698	893	781	944	826
33	465	4.136	754	660	847	741	948	830	1002	877
34	493	4.384	799	699	898	786	1005	879	1062	929
35	522	4.640	846	740	950	832	1064	931	1124	984
36	552	4.903	894	782	1004	879	1124	983	1188	1039
37	582	5.174	943	825	1060	927	1186	1038	1253	1097
38	614	5.452	994	870	1117	977	1250	1093	1321	1156
39	646	5.737	1046	915	1175	1028	1315	1151	1390	1216
40	679	6.030	1099	962	1235	1081	1382	1209	1461	1278
40.5	695	6.179	1126	986	1266	1107	1416	1239	1497	1310
41	712	6.330	1154	1010	1296	1134	1451	1270	1534	1342
42	747	6.638	1210	1059	1359	1190	1522	1331	1608	1407
42.5	765	6.794	1239	1084	1392	1218	1557	1363	1646	1440
43	782	6.953	1267	1109	1424	1246	1594	1395	1684	1474
44	819	7.275	1326	1160	1490	1304	1668	1459	1762	1542
45	856	7.605	1386	1213	1558	1363	1743	1525	1842	1612
46	894	7.942	1448	1267	1627	1423	1821	1593	1924	1684
47	933	8.287	1511	1322	1697	1485	1900	1662	2008	1757
48	972	8.639	1575	1378	1769	1548	1980	1733	2093	1831
49	1013	8.998	1640	1435	1843	1613	2063	1805	2180	1908
50	1054	9.365	1707	1494	1918	1678	2147	1878	2269	1985
50.5	1075	9.551	1741	1524	1956	1712	2189	1916	2314	2025
51	1096	9.739	1776	1554	1995	1745	2233	1954	2360	2065
52	1139	10.121	1845	1615	2073	1814	2320	2030	2452	2146
53	1183	10.510	1916	1677	2153	1884	2409	2108	2546	2228
54	1227	10.907	1988	1740	2234	1955	2500	2188	2642	2312
55	1273	11.311	2062	1804	2317	2027	2593	2269	2740	2398
56	1319	11.722	2137	1870	2401	2101	2687	2351	2840	2485
57	1366	12.141	2213	1937	2487	2176	2783	2435	2941	2574
58	1414	12.567	2291	2005	2574	2252	2881	2521	3045	2664

Approximate values

Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

QUALITY
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You can see a full list of our international standards on page 43.

Applications

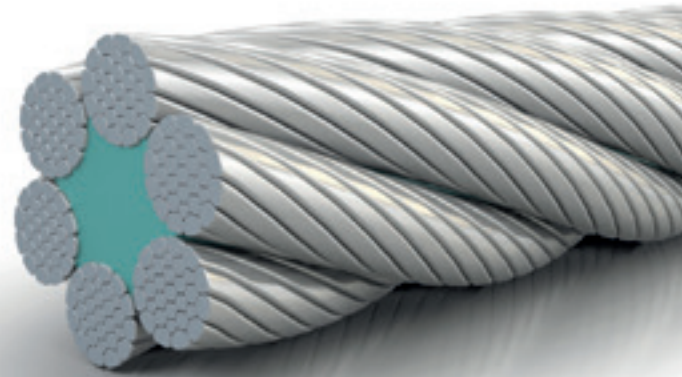
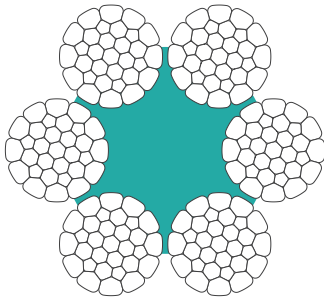


Properties



WSR31[®]

6xK31WS-SPC is a 6 strand compacted rope with an exceptionally high breaking load that is designed for fixed and detachable chairlifts, funitels, gondolas, passenger and material cable cars and tramways. WSR31 Compacted is a lang lay rope engineered for high resistance to abrasion, stretching, bending and crushing.



Diameter	Section	Mass	Minimum breaking load							
			1570 MPa		1770 MPa		1960 MPa		Max MPa	
			Total	MBL	Total	MBL	Total	MBL	Total	MBL
30	420	3.659	680	585	764	657	855	735	903	777
31	448	3.910	726	625	816	702	913	785	965	830
32	478	4.169	774	666	870	748	974	838	1029	885
33	509	4.437	824	709	926	796	1036	891	1095	942
34	540	4.713	875	753	983	846	1101	947	1163	1000
35	573	4.997	928	798	1043	897	1167	1004	1233	1061
36	606	5.289	982	845	1104	949	1235	1062	1306	1123
37	641	5.589	1038	893	1166	1003	1306	1123	1380	1187
38	676	5.898	1096	942	1231	1059	1378	1185	1456	1252
39	713	6.215	1155	993	1297	1115	1452	1248	1534	1319
40	750	6.540	1215	1045	1365	1174	1528	1314	1614	1388
40.5	769	6.706	1246	1071	1399	1204	1566	1347	1655	1424
41	788	6.873	1277	1098	1434	1234	1606	1381	1697	1459
42	827	7.215	1340	1153	1506	1295	1685	1449	1781	1532
42.5	847	7.389	1373	1180	1542	1326	1726	1484	1824	1569
43	867	7.565	1405	1209	1579	1358	1767	1520	1867	1606
44	909	7.923	1472	1266	1654	1422	1851	1592	1956	1682
45	951	8.289	1540	1324	1730	1488	1936	1665	2046	1760
46	994	8.664	1609	1384	1808	1555	2024	1740	2139	1839
47	1037	9.047	1681	1445	1888	1624	2113	1817	2233	1921
48	1082	9.438	1753	1508	1970	1694	2205	1896	2330	2004
49	1128	9.837	1827	1572	2053	1766	2298	1976	2428	2088
50	1175	10.245	1903	1637	2138	1839	2393	2058	2529	2175
50.5	1198	10.451	1942	1670	2181	1876	2441	2100	2580	2219
51	1222	10.660	1980	1703	2225	1913	2490	2141	2632	2263
52	1271	11.084	2059	1771	2313	1989	2589	2227	2736	2353
53	1321	11.516	2139	1840	2403	2067	2690	2313	2843	2445
54	1371	11.957	2221	1910	2495	2146	2793	2402	2952	2538
55	1423	12.405	2305	1982	2589	2227	2898	2492	3062	2634
56	1475	12.862	2389	2055	2684	2309	3004	2584	3175	2731
57	1528	13.327	2476	2129	2781	2392	3113	2677	3290	2829
58	1583	13.801	2564	2205	2880	2477	3224	2772	3407	2930

Approximate values

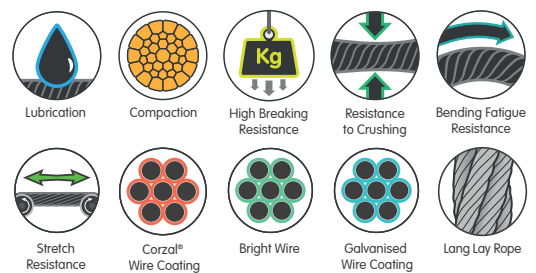
Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

QUALITY
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Applications

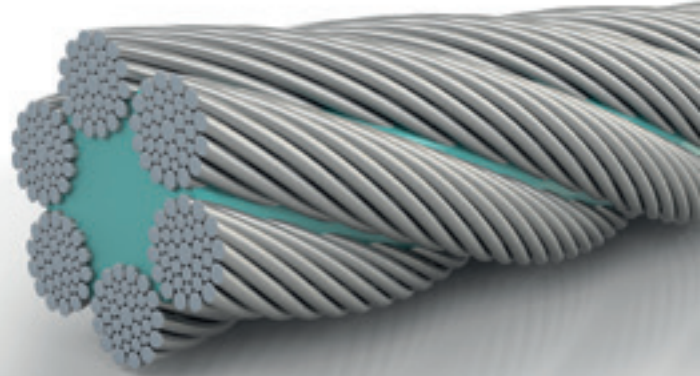
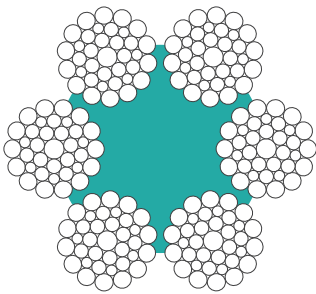


Properties



WS36

6x36WS-SPC is a 6 strand rope with a high breaking load that is designed for fixed and detachable chairlifts, funitels, gondolas, passenger and material cable cars and tramways. WS36 is a lang lay rope engineered for high resistance to stretching, bending and crushing.



Diameter	Section	Mass	Minimum breaking load							
			1570 MPa		1770 MPa		1960 MPa		Max MPa	
			Total	MBL	Total	MBL	Total	MBL	Total	MBL
40	678	6.055	1099	961	1234	1080	1382	1209	1464	1281
40.5	695	6.207	1126	986	1265	1107	1416	1239	1501	1313
41	713	6.361	1154	1010	1297	1135	1451	1270	1538	1346
42	748	6.674	1211	1060	1361	1191	1523	1333	1614	1412
42.5	766	6.834	1240	1085	1393	1219	1559	1365	1653	1446
43	784	6.996	1270	1111	1426	1248	1596	1397	1692	1480
44	821	7.324	1329	1163	1493	1307	1671	1462	1771	1550
45	858	7.661	1390	1217	1562	1367	1748	1530	1853	1621
46	897	8.005	1453	1271	1632	1428	1827	1598	1936	1694
47	936	8.356	1517	1327	1704	1491	1907	1669	2021	1768
48	976	8.715	1582	1384	1777	1555	1989	1740	2108	1844
49	1017	9.082	1648	1442	1852	1620	2073	1814	2197	1922
50	1059	9.456	1716	1502	1928	1687	2158	1888	2287	2001
50.5	1081	9.646	1751	1532	1967	1721	2201	1926	2333	2042
51	1102	9.838	1786	1562	2006	1755	2245	1965	2380	2082
52	1146	10.227	1856	1624	2085	1825	2334	2042	2474	2165
53	1190	10.624	1928	1687	2166	1896	2425	2122	2570	2249
54	1236	11.029	2002	1751	2249	1968	2517	2202	2668	2334
55	1282	11.441	2076	1817	2333	2041	2611	2285	2767	2421
56	1329	11.860	2153	1884	2418	2116	2707	2368	2869	2510
57	1377	12.287	2230	1951	2506	2192	2804	2454	2972	2601
58	1425	12.722	2309	2020	2594	2270	2903	2541	3077	2693
59	1475	13.164	2389	2091	2684	2349	3004	2629	3184	2786
60	1525	13.614	2471	2162	2776	2429	3107	2719	3293	2882
61	1577	14.071	2554	2235	2869	2511	3211	2810	3404	2978
62	1629	14.536	2638	2309	2964	2594	3318	2903	3516	3077
63	1682	15.009	2724	2384	3061	2678	3425	2997	3631	3177
64	1735	15.489	2811	2460	3158	2764	3535	3093	3747	3278
65	1790	15.976	2900	2537	3258	2851	3646	3191	3865	3382
66	1846	16.471	2990	2616	3359	2939	3759	3289	3985	3486

Approximate values

Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

QUALITY
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Applications

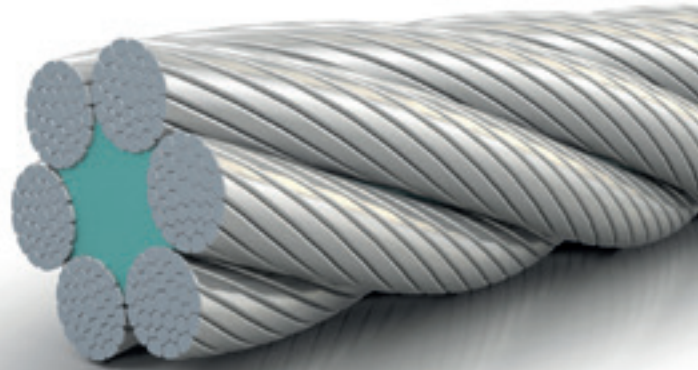
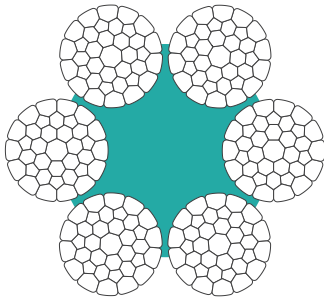


Properties



WSR36[®]

6xK36WS-SPC is a 6 strand compacted rope with an exceptionally high breaking load that is designed for fixed and detachable chairlifts, funitels, gondolas, passenger and material cable cars and tramways. WSR36 Compacted is a lang lay rope engineered for high resistance to stretching, bending and crushing.



Diameter	Section	Mass	Minimum breaking load							
			1570 MPa		1770 MPa		1960 MPa		Max MPa	
			Total	MBL	Total	MBL	Total	MBL	Total	MBL
38	668	5.853	1083	931	1217	1046	1362	1171	1443	1241
39	705	6.175	1143	983	1284	1104	1437	1235	1523	1310
40	743	6.505	1204	1035	1352	1163	1513	1302	1604	1380
40.5	762	6.673	1235	1062	1387	1193	1553	1335	1646	1415
41	782	6.844	1266	1089	1423	1223	1592	1369	1688	1451
42	821	7.191	1330	1144	1495	1285	1673	1439	1773	1525
43	862	7.546	1396	1201	1569	1349	1756	1510	1861	1600
44	903	7.909	1464	1259	1644	1414	1840	1583	1950	1677
45	946	8.282	1532	1318	1722	1481	1927	1657	2042	1756
46	989	8.662	1603	1378	1801	1549	2015	1733	2136	1837
47	1034	9.051	1675	1440	1881	1618	2106	1811	2232	1919
48	1079	9.448	1748	1503	1964	1689	2198	1890	2330	2004
49	1125	9.853	1823	1568	2048	1762	2293	1972	2430	2090
50	1173	10.267	1900	1634	2134	1836	2389	2054	2532	2177
50.5	1197	10.477	1939	1667	2178	1873	2438	2096	2584	2222
51	1221	10.689	1978	1701	2222	1911	2487	2139	2636	2267
52	1270	11.120	2058	1770	2312	1988	2587	2225	2742	2358
53	1320	11.559	2139	1839	2403	2067	2689	2313	2850	2451
54	1371	12.006	2222	1911	2496	2146	2793	2402	2960	2546
55	1423	12.462	2306	1983	2591	2228	2900	2494	3073	2643
56	1476	12.925	2392	2057	2687	2311	3007	2586	3187	2741
57	1530	13.398	2479	2132	2785	2395	3117	2681	3304	2841
58	1585	13.879	2568	2209	2885	2481	3229	2777	3422	2943
59	1641	14.368	2659	2286	2987	2569	3343	2875	3543	3047
60	1698	14.865	2751	2366	3090	2658	3459	2975	3665	3152
61	1756	15.371	2844	2446	3195	2748	3576	3076	3790	3259
62	1814	15.885	2939	2528	3302	2840	3696	3179	3917	3368
63	1874	16.407	3036	2611	3411	2933	3818	3283	4046	3479
64	1935	16.938	3134	2696	3521	3028	3941	3389	4177	3592

Approximate values

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QUALITY
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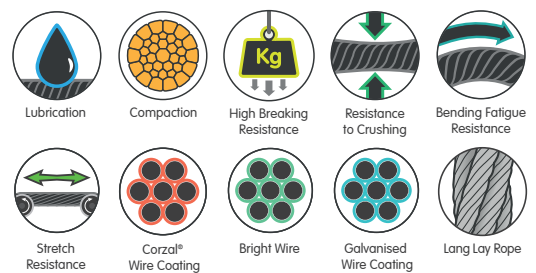
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You can see a full list of our international standards on page 43.

Applications



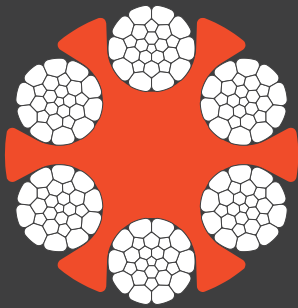
Properties



Whisper[®]

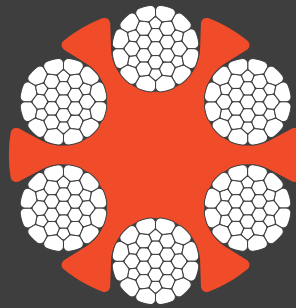
Highly reliable, Whisper[®] is a new breed of ropeway rope that reduces vibration and noise levels, optimising passenger comfort.

The outer circumference of Whisper[®] offers a smooth interface between the rope and sheaves, clamps and rollers.



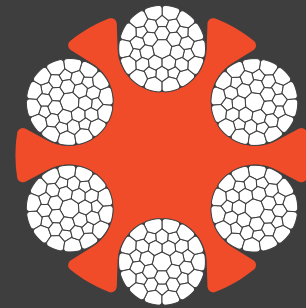
Whisper[®] 6x26WSR

p.32



Whisper[®] 6x31WSR

p.32



Whisper[®] 6x36WSR

p.32



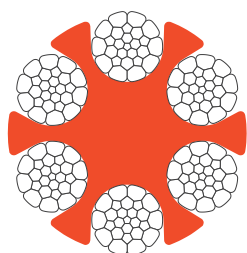
ArcelorMittal



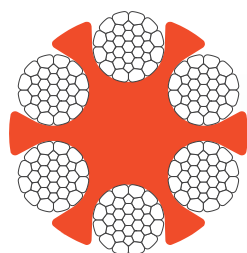
Whisper[®]

A new breed of ropeway rope that reduces vibration and noise levels

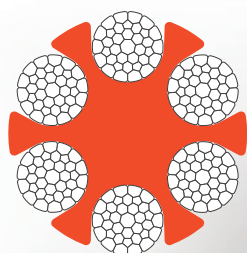
The outer circumference of **Whisper[®]** offers a smooth interface between the rope and sheaves, clamps and rollers.



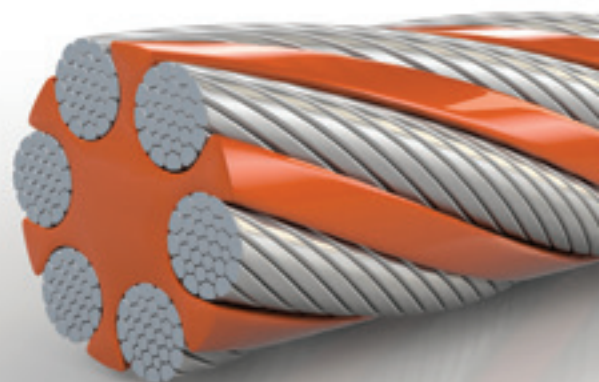
Whisper[®]
6x26WSR



Whisper[®]
6x31WSR



Whisper[®]
6x36WSR



Features
<ul style="list-style-type: none"> Compacted strand.
<ul style="list-style-type: none"> Wire class compositions from 1770 to 2160 MPa.
<ul style="list-style-type: none"> Splice.
<ul style="list-style-type: none"> Pitch length remains unchanged.
<ul style="list-style-type: none"> With CE certification, the Whisper[®] splice is specially developed to optimise its lifespan.
<ul style="list-style-type: none"> The double-butt strands provide a lifespan that extends far beyond a standard splice.
<ul style="list-style-type: none"> Controlling the inner-strand space reduces the contact forces between wires.

Composition	Diameter	Section	Mass	Minimum breaking load
	mm	mm ²	kg/m	(kN)
6x26WSR	40.5	654	5.80	1175
6x26WSR	42	715	6.34	1283
6x31WSR	45	801	7.27	1456
6x31WSR	46	837	7.56	1521
6x31WSR	48	922	8.29	1673
6x36WSR	50	993	8.96	1814
6x36WSR	52	1074	9.70	1962

Approximate values

Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

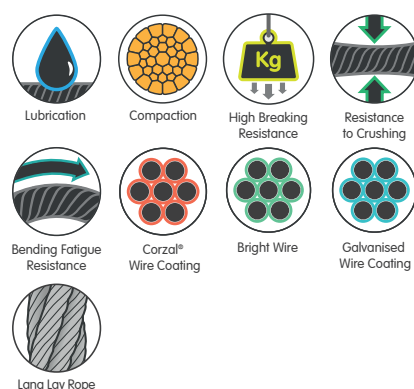
Benefits

- Suitable for track/hauling ropes.
- The core fins fill the inter strand spaces to improve comfort of use and operation.
- Enhanced resistance and lifespan due to compacted strand (lifetime of spliced loop 30% longer than a standard cable).
- Adapts to your existing systems.
- Significant reduction in maintenance costs.
- Bandage wear less on a conventional cable.
- Whisper[®] is recommended for use on intensive use equipment that operates 24/7, especially for urban or mountain region rope transport systems.
- Significant reduction of noise.

Applications



Properties



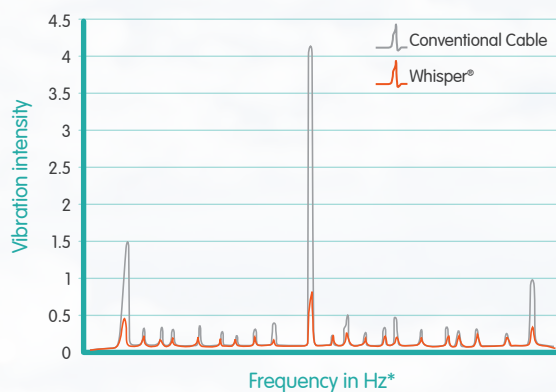


Silent Rope for Vallandry

Whisper® is installed at La Plagne and Les Arcs ski resort stations and has been in operation since 2016. The internationally renowned French ski resort consists of two alpine skiing villages attracting many thousands of visitors each year. The Vallandry area is served by a network of ski lifts, chairlifts and various passenger ropeways.

Structured around a solid monofilament core with fins, Whisper® delivers reduced vibration and reduced noise levels. Whisper® improves passenger comfort and long term efficiencies and is recommended for urban and mountain use on intensive use equipment that operates 24/7.

In-situ measurements

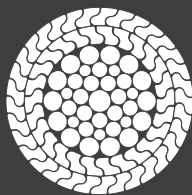


*according to speed of cable movement

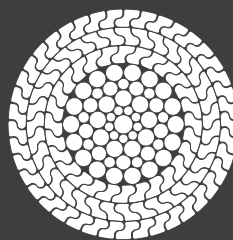
Full Lock Coil

ArcelorMittal ROPES has developed a Full Lock Coil (FLC) track rope specifically for the highly demanding applications of aerial and passenger transportation.

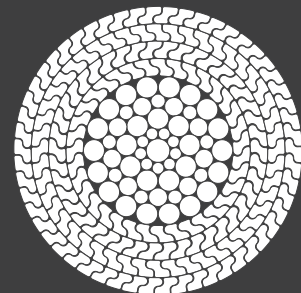
The compacted and densely concentrated metallic structure of the FLC track rope guarantees a higher breaking load. The outer interlocking "Z" shaped layers give the rope a smoother profile, reducing fatigue caused by the interface between rope and sheaves, rollers and clamps.



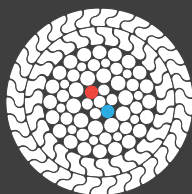
FLC 2Z
p.36



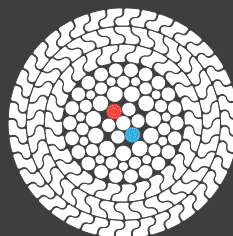
FLC 3Z
p.36



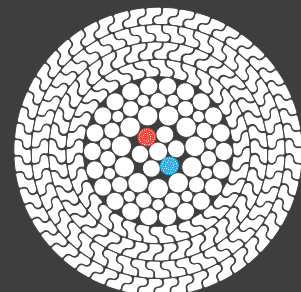
FLC 4Z
p.36



FLC 2Z-FO
p.37



FLC 3Z-FO
p.37



FLC 4Z-FO
p.37



Connecting two sides of the River Penfeld in Brest, France.

The transport system that was once regarded as belonging only to the ski slopes is increasingly becoming part of the urban landscape.

The Brest Urban Cable Car is the first cable propelled transit technology to be used in France and it is helping the city to:

- Develop more cohesion between the two banks
- Make the right bank more accessible and attractive
- Balance the economic and residential activity
- Expand the city centre

Fulfilling a unique role, cable cars provide a high quality transport experience and they are particularly well suited for challenging terrains.

What ArcelorMittal ROPES delivered:

Track Ropes

Diameter: Ø50 mm Full Lock Coil ropes

Composition: Galvanised wires, 3 layers of Z-wire with 12 optical fibres core

Length: 2510m, installed in 4 sections

Volume: 35 tons

Hauling Ropes

Diameter: Ø25 mm haul ropes

Composition: Corzal®, 6 compacted strands rope

Length: 1960m, installed in 2 spliced loops

Volume: 5 tons

Services

Project consultancy

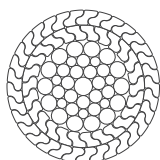
Specification recommendations

Local team training

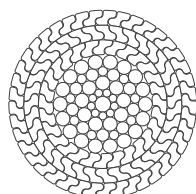
Full Lock Coil

Precision engineered for highly demanding applications

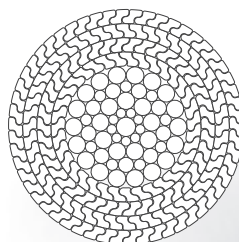
The compacted and densely concentrated metallic cross section of the FLC track rope guarantees a higher breaking load whilst the outer interlocking "Z"-shaped layers give the rope a smoother profile, reducing fatigue caused by the interface between rope and sheaves and rollers.



FLC 2Z



FLC 3Z



FLC 4Z



Features	
▶	Bespoke design available on request.
▶	Parallel core available on request.
▶	Sacrificial coating for corrosion resistance.

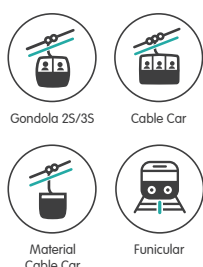


Diameter mm	Section mm ²	Mass kg/m	Minimum breaking load (kN)			
			1570 MPa		1770 MPa	
			Total	MBL	Total	MBL
30	601.6	5.028	975	853	1095	958
32	687.1	5.747	1113	974	1251	1094
34	778.3	6.514	1261	1103	1417	1239
36	875.2	7.330	1418	1241	1593	1394
38	977.7	8.193	1584	1386	1779	1557
40	1086.0	9.104	1759	1539	1976	1729
42	1199.9	10.063	1944	1701	2184	1911
44	1319.5	11.070	2138	1870	2401	2101
46	1444.7	12.126	2340	2048	2629	2301
48	1575.7	13.229	2553	2234	2868	2509
50	1712.3	14.380	2774	2427	3116	2727
52	1854.6	15.579	3004	2629	3375	2953
54	2002.6	16.826	3244	2839	3645	3189
56	2156.3	18.122	3493	3056	3924	3434
58	2315.6	19.465	3751	3282	4214	3688
60	2480.6	20.856	4019	3516	4515	3950
62	2651.3	22.295	4295	3758	4825	4222
64	2827.7	23.782	4581	4008	5146	4503
66	3009.7	25.318	4876	4266	5478	4793
68	3197.4	26.901	5180	4532	5819	5092
70	3390.8	28.532	5493	4806	6171	5400
72	3589.9	30.211	5816	5089	6534	5717
74	3794.7	31.938	6147	5379	6906	6043

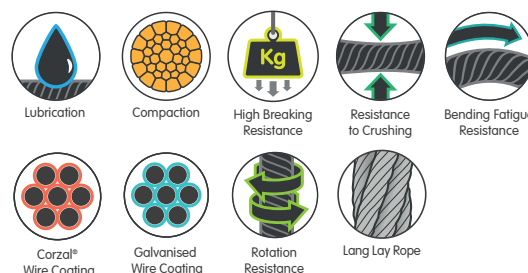
Approximate values

Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

Applications

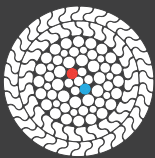


Properties

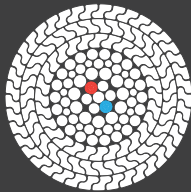


Precision engineering with integrated fibre optics

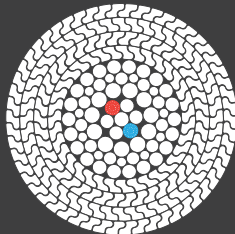
The fibre optic version of this advanced innovation combines all the benefits of the FLC track rope with integrated fibre optics.



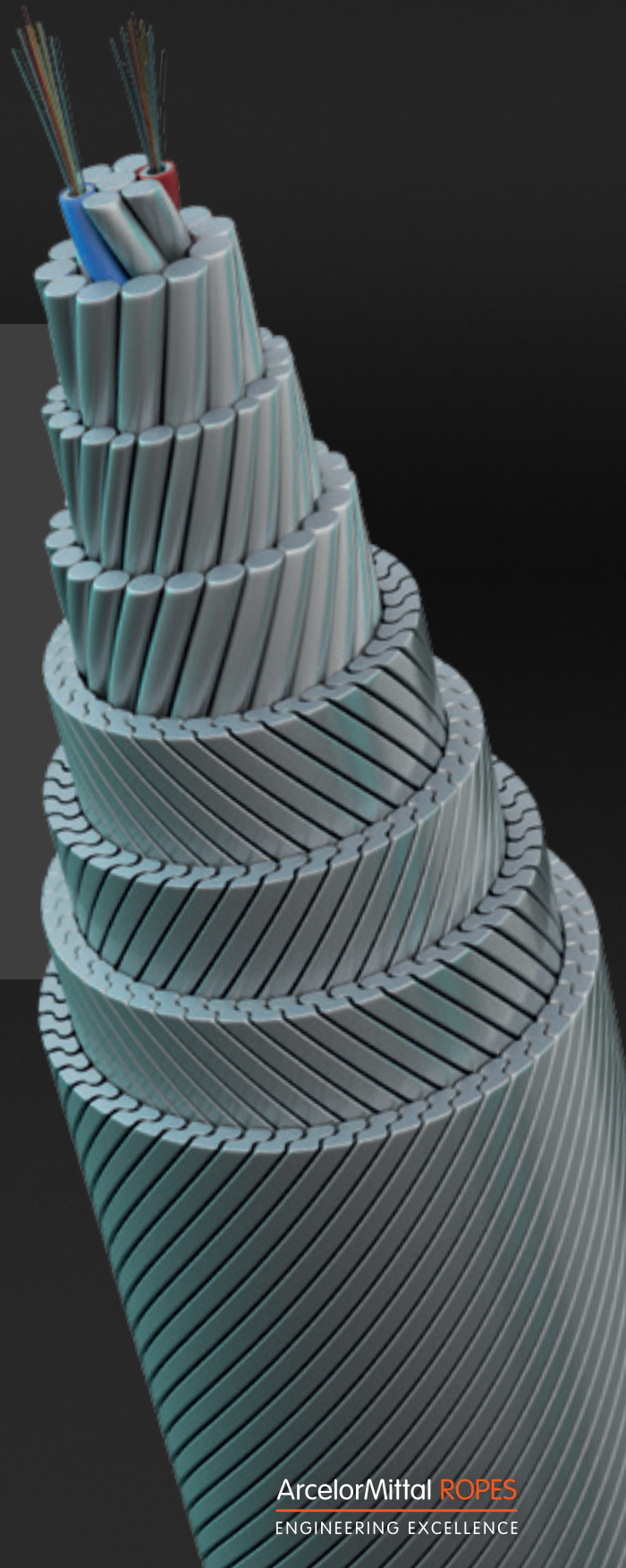
FLC 2Z-FO



FLC 3Z-FO



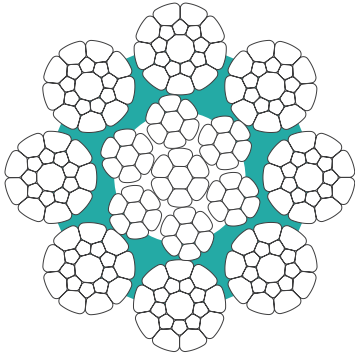
FLC 4Z-FO



HP8P/8xK19S

8 outer strands, plastic impregnation

Our ropes for slope groomers offer high flexibility and performance. HP8P ropes have a high breaking load and their construction allows them to resist the highest pressures on the winch, perfect for intensive use and long life performance.



HP8P/8xK19S/2018/v1.0

Features

- Plastic impregnation of the core between outer strands improving the rope behaviour incase of heavy duty applications (fleet angles, repetitive lifting cycles).
- Independent plastic impregnated steel core.

Diameter		Section	Mass	Minimum breaking load
mm	inch	mm ²	kg/m	kN
10	-	56.51	0.50	103
11	7/16	67.84	0.60	124

Please note: Other diameters with other tolerances than those illustrated can be manufactured on request.

Approximate values

Benefits

- The plastification maintains lubrication inside the core.
- Improvement of the non-rotation capacity.
- Excellent multi layer winch winding behaviour and capston system.
- The plastic impregnation combined with the compacted strands leads to a very high resistance to contact pressures.

QUALITY

ArcelorMittal ROPES operates an internal DNV-Certified Quality Assurance System which complies with the requirements of ISO 9001.

Our production plant in Bourg-en-Bresse is certified OHSAS 18001 for safety management.

You can see a full list of our international standards on page 43.

Properties

Installation and repair services

ArcelorMittal Bourg-en-Bresse has a deep cooperation with TEC Câbles Bourg. They ensure all implementation work, repair and maintenance of wire ropes all over the world.

TEC Câbles Bourg aims to develop specialised services for all customers based on its high reactivity, quality of service and ability to adapt to the market and all technological new developments.

TEC Câbles Bourg uses its know-how for:

- Splicing and shortening cables.
- Stringing and changing cables.
- Cable rigging: sliding, raising carrying cables, taking up slack, etc.
- Socketing.
- All other cable operations: strands and/or sections replacement, repairs, etc.

Splicing

Our partner TEC Câbles maintains a team of highly qualified engineers and splicers dedicated to installing ropes, enabling us to provide a total solution.

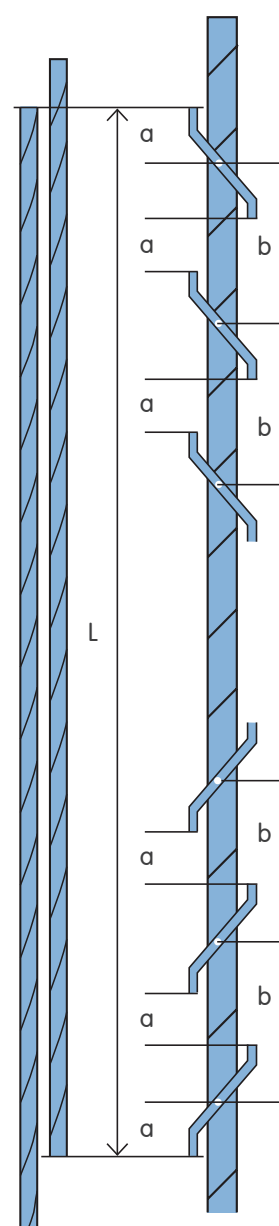
Please contact us for further information on section replacements, repairs, etc.



Splicing recommendations

Recommendations CEN

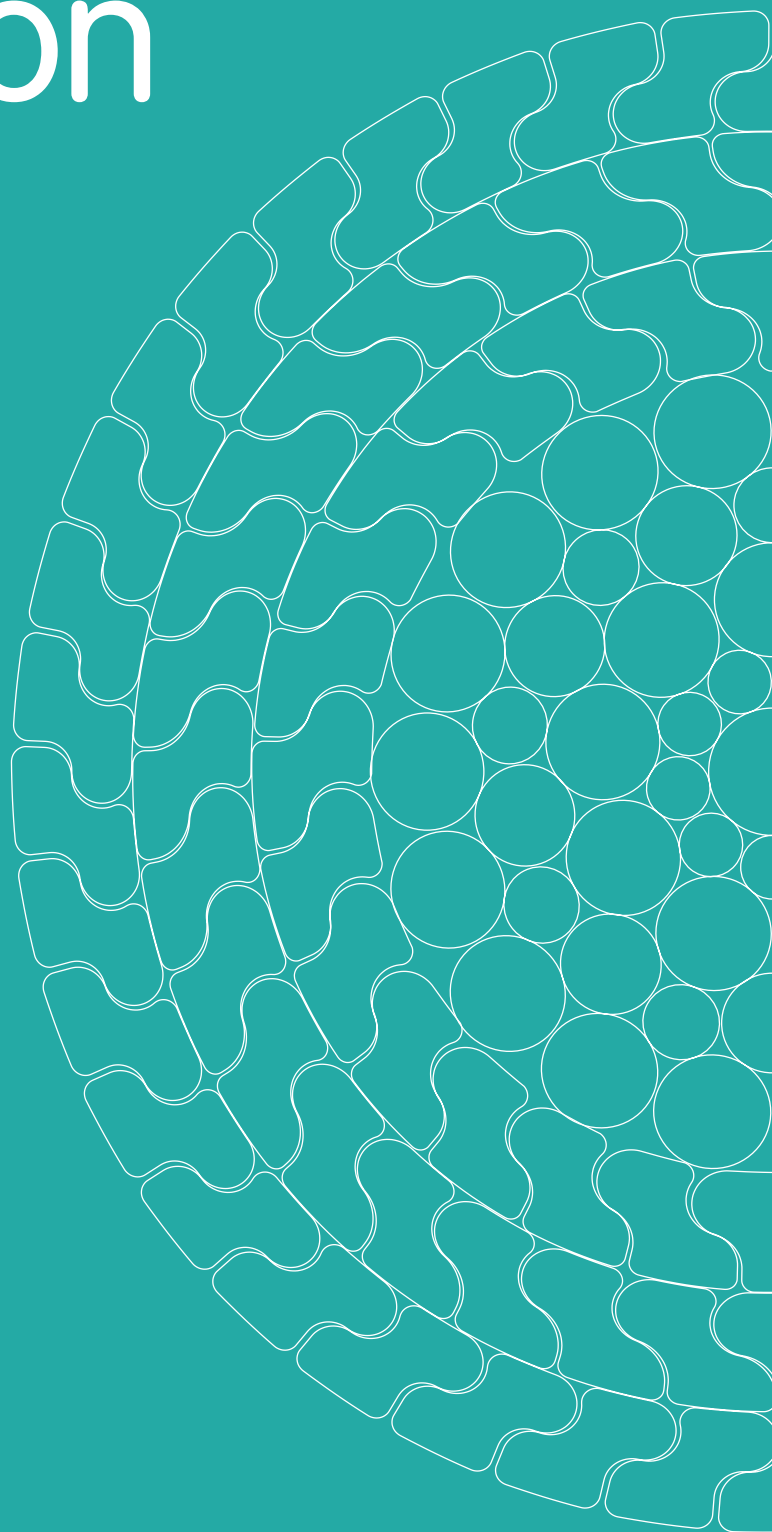
Diameter (D)	L=1200 D	a=60 D	b=180D
mm	m	m	m
9	10.8	0.54	1.62
12	14.4	0.72	2.16
14	16.8	0.84	2.52
16	19.2	0.96	2.88
18	21.6	1.08	3.24
20	24.0	1.20	3.60
22	26.4	1.32	3.96
24	28.8	1.44	4.32
26	31.2	1.56	4.68
28	33.6	1.68	5.04
30	36.0	1.80	5.40
32	38.4	1.92	5.76
33	39.6	1.98	5.94
34	40.8	2.04	6.12
35	42.0	2.10	6.30
36	43.2	2.16	6.48
37	44.4	2.22	6.66
38	45.6	2.28	6.84
39	46.8	2.34	7.02
40	48.0	2.40	7.20
41	49.2	2.46	7.38
42	50.4	2.52	7.56
43	51.6	2.58	7.74
44	52.8	2.64	7.92
45	54.0	2.70	8.10
46	55.2	2.76	8.28
47	56.4	2.82	8.46
48	57.6	2.88	8.64
49	58.8	2.94	8.82
50	60.0	3.00	9.00
51	61.2	3.06	9.18
52	62.4	3.12	9.36
53	63.6	3.18	9.54
54	64.8	3.24	9.72
55	66.0	3.30	9.90
56	67.2	3.36	10.08





ArcelorMittal

Technical Information



Technical Information

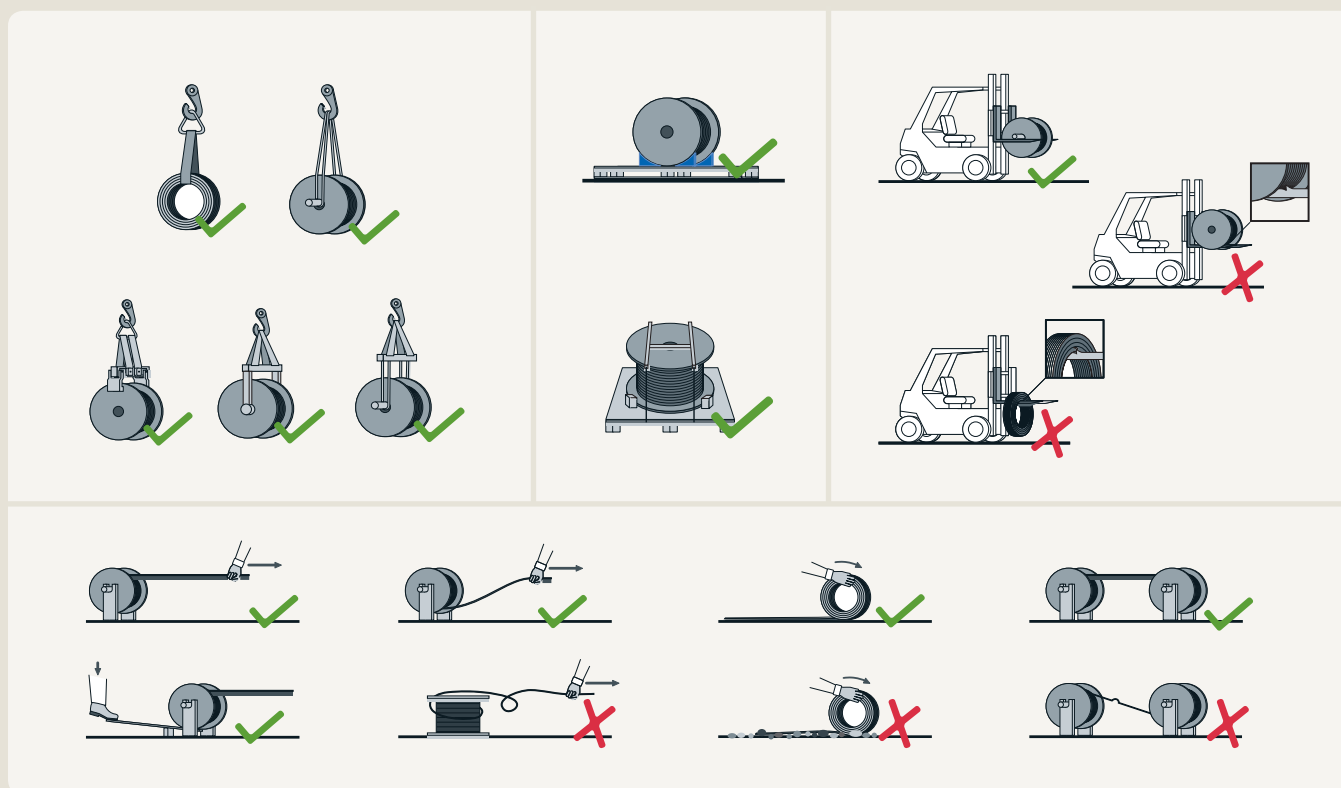
Recommendations

Storage and maintenance

The rope must be adequately maintained and regularly lubricated, as often as it is necessary, but at least when the rope works in extreme conditions and before/after prolonged inactivity. The lubricant must be compatible with the original grease. Before re-lubrication, the wire rope must be dry and cleaned by scraping or using a cryogenic spray. Cleaning by cloth, high pressure cleaner or solvents is forbidden.

When stored, the rope should be kept in a dry and ventilated environment with no direct contact with the floor and an air flow under the reel. Visual inspection is necessary before the use of a stored wire rope. In case of doubt of the quality of the wire rope, we can help you to find and make additional inspection analysis.

EWRIS handling recommendations



At all times, contact of the rope with any metallic pieces should be avoided to prevent early damage.



EWRIS
European Federation of Steel Wire Rope Industries

Our commitment

ArcelorMittal Bourg-en-Bresse controls all the essential parameters for the correct production of special high performance ropes used in the aerial transport of people and materials: suitable specific equipment, an approved production process, a systematic check on raw material, an inspection system and traceability at each stage of production, trained and experienced specialists.

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

As a result of its continuous improvement process, the plant is also certified OHSAS 18001 for safety management.

International specifications

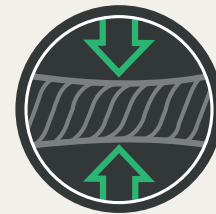
USA	ANSI B77 1
CANADA	CAN/CSA Z98-01
FRANCE	EU EN 12385-8 EU EN 12385-9 EN 12927
SWITZERLAND	Ordonnances Fédérales
ITALY	DM 1175 - DD 144 EU EN 12385-8 EU EN 12385-9
SPAIN	B.O.E 293 EU EN 12385-8 EU EN 12385-9
AUSTRIA	DSB 80 – Örnorm 9500
GERMANY	BO-Seil und BO-Schlepp
EUROPE	CEN/ EN 12385-8 EN 12385-9 EN 12927-3



Technical Information

Crush resistance

Crushing is the effect of external pressure on a rope which damages the rope by distorting the cross-sectional shape of the rope, its strands, core or all three. Crush resistant ropes withstand or resist external forces.

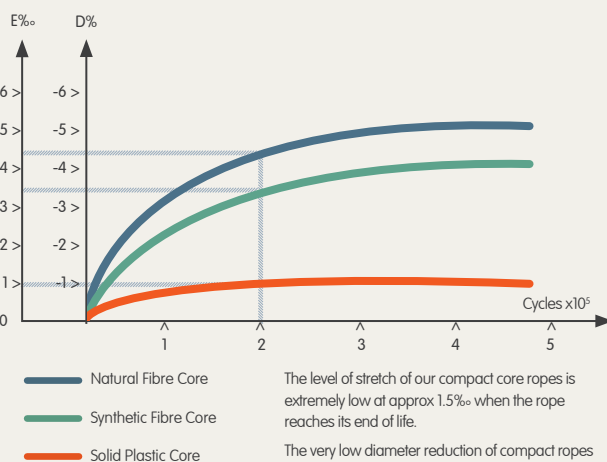


Solid core technology

Acknowledged as an innovation in its field, ArcelorMittal's Solid Core Technology is both a technical and a commercial triumph. Thousands of ropes in use in all parts of the world testify to the technology's unrivalled performance:

- Extreme accuracy of geometric characteristics
- Meticulous elaboration of high-resistance wires
- Know-how of our rope experts

The best guarantee of stability and smooth operation is ensured by the perfect assembly of the rope's components on our compact core.



Extreme safety

In contrast to ropes assembled on multiwire cores, the use of the compact monowire core provides optimum stability concerning the contact of the rope with such organs as vehicle attachments, rollers and transmission sheaves and pulleys.

Maximum comfort

The compact monowire core, plus a unique roping manufacturing technique (the only one of its kind in the world) guarantees perfect control and regularity of the rope and straightness.

Exceptional stability

The assembly technique and the choice of material for the monowire core provide the best possible guarantee that the original rope geometry is kept during the whole rope life; smallest variations in rope diameter and length in service.

Longer life span

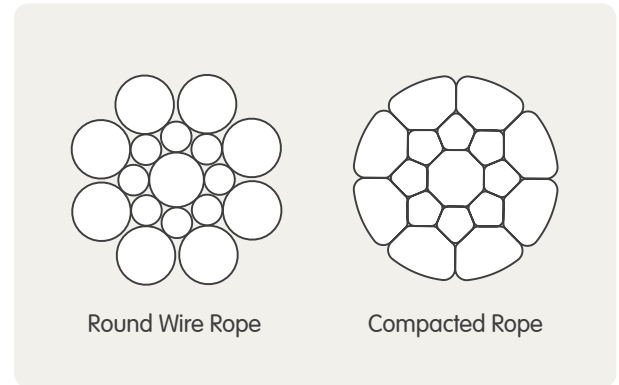
The exceptional qualities of the compact core technology provide an extremely long service life; no contact between adjacent strands, even at the end of the service life, this allows to take profit of the maximum fatigue life potential of the individual steel wires.

Reduced maintenance

- Shortening operations eliminated or reduced.
- Consistent efficiency of attachments.

Compaction

Thanks to the rope compaction, the metallic section is increased, which leads to a higher breaking load than a non compacted wire rope of the same diameter. The outside strand area is also increased and smoother, which decreases the contact pressure between the rope and the drum/sheaves, and thus increases the fatigue properties.



Lubrication for hauling ropes

Type of Lubrication	Lubrication Method		% mass	Note	Illustration
Dry	Closing	No grease slight oil only	0.0	For stainless wire ropes and specific demands (oil is applied to avoid trouble in the die during assembly)	
	Core				
	Stranding				
A-1	Closing	No grease, oil only	0.5	For ropeway ropes, mining ropes on Koepe sheave and plastified wire ropes	
	Core	No lubrication			
	Stranding	Lubrication + tight wipe			
A-2	Closing	No grease, oil only	0.75	Specific demands on plastified ropes	
	Core	Lubrication + tight wipe			
	Stranding	Lubrication + tight wipe			
A-3	Closing	Lubrication + wipe	1.5	Hoisting applications	
	Core	Lubrication + wipe	-		
	Stranding	Lubrication + wipe	1.75		
A-4	Closing	Lubrication + no wipe	2.0	Not available direct from the mill. (Can be performed by our distributors on specific demand)	
	Core	Lubrication + no wipe	-		
	Stranding	Lubrication + no wipe	2.5		

Please note that the lubricant must be compatible with the rubber used on the pulleys

Technical Information

Lubrication for Full Lock Coil ropes

Type of Lubrication	Lubrication Method		% mass	Note	Illustration
Dry	Core	No grease Slight oil	0%	Stainless wire ropes and specific demands	
	Z Layer				
	Outer Shape				
A-1	Core	+	0.30%	Specific demands for indoor applications	
	Z Layer	-			
	Outer Shape	-			
A-2	Core	+	1%	Ropeway ropes	
	Z Layer	+			
	Outer Shape	-			
A-3	Core	+	1.15%	Ropeway ropes in aggressive environments	
	Z Layer	+			
	Outer Shape	+			

Groove characteristics for sheaves, saddle and grooved drums

Grooves in sheaves and drums should be circular and smooth.

Sheaves

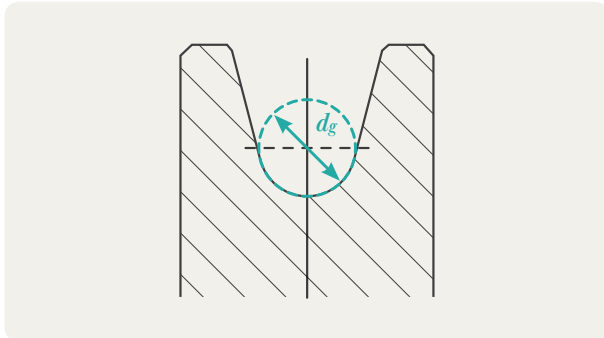
To ensure good support, the rope must contact the groove for approx 130-140° of arc, which leads to the following recommendation for the groove diameter:

$$1.05d < d_g < 1.1d$$

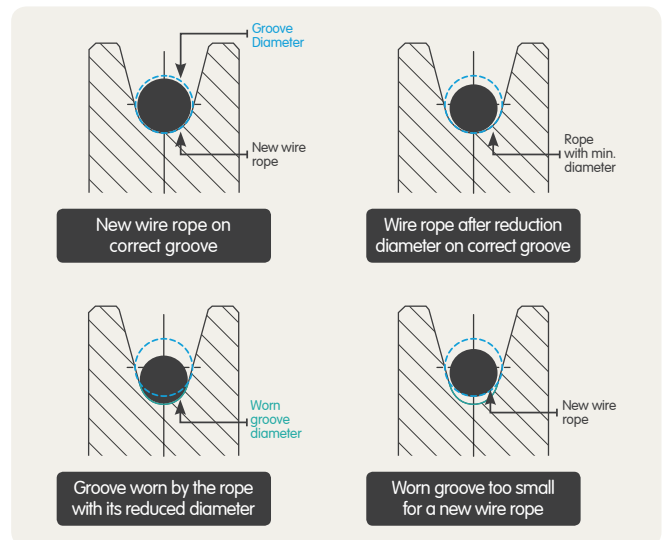
Optimal value = 1.075

With:

- d = nominal rope diameter with 0/+4% tolerances;
- d_g = groove diameter.



During a wire rope's lifetime, the rope diameter will decrease. This is due first to the elongation of the rope, and then the wear on the rope wires. This diameter variation begins quickly but then slows down. The wire rope will create a new groove in the sheave which corresponds to the reduced diameter. If a new wire rope is installed in a worn sheave, without resurfacing, the new rope will wear more quickly. The lifetime can be divided by 10.



Grooved drums

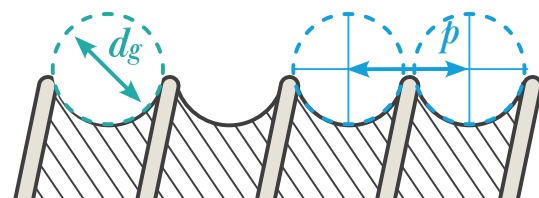
The groove diameter d_g and the pitch diameter p must comply with the following criteria:

$$d_g = 1.0173d$$
$$1.035d_g < p < 1.09d_g$$

Optimal value = 1.06

With:

- d = rope diameter under tension of 5%MBL
- d_g = groove diameter
- p = pitch between 2 grooves



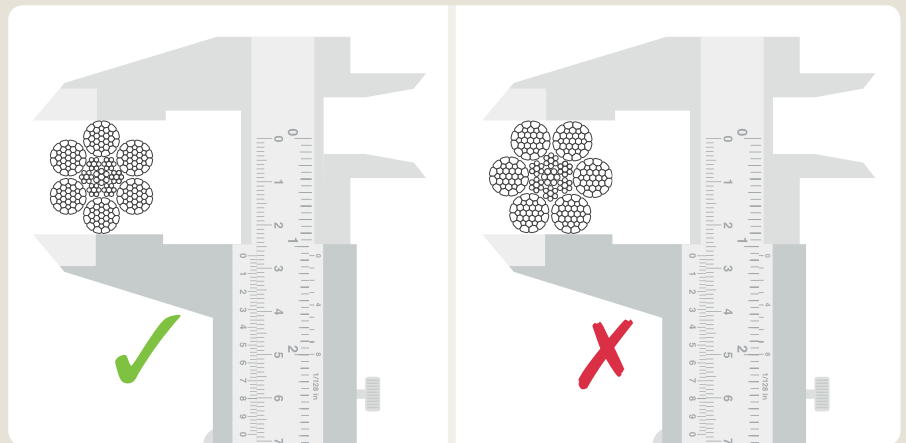
Technical Information

Dimensional control

Diameter (NF EN 12385-1)

The diameter must be measured with an appropriate measuring instrument covering at least 2 strands.

Measurements must be made at two positions spaced at least one metre apart and for each position, 2 measurements must be taken at right angles.



Lay Length

The lay length must be ideally measured on 5 lay lengths minimum.

Stick a paper strip on the rope, draw a straight line on it and pass a chalk stick to reveal the track. Then make the measurement directly on the paper strip.



Test resources

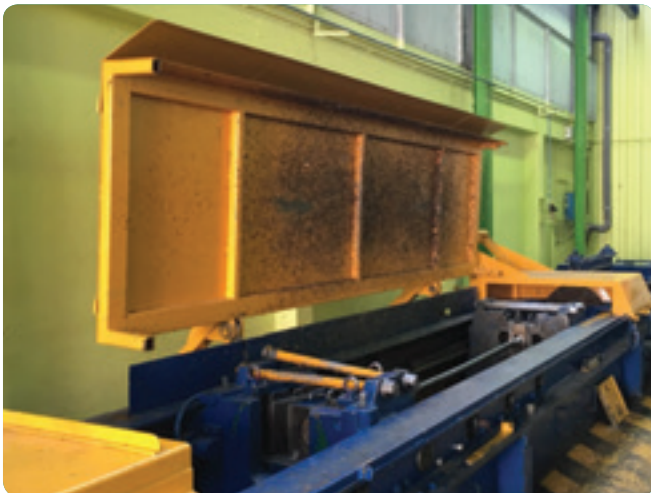
Wire

Prior to the manufacture of our ropes, a sample is taken from each wire spool and tested according to the international standards:

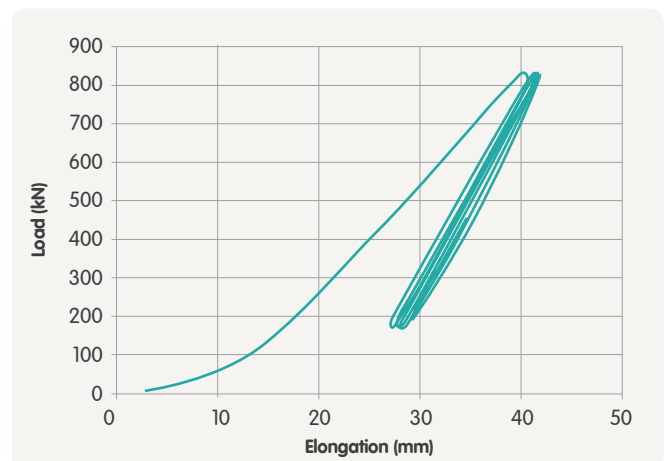
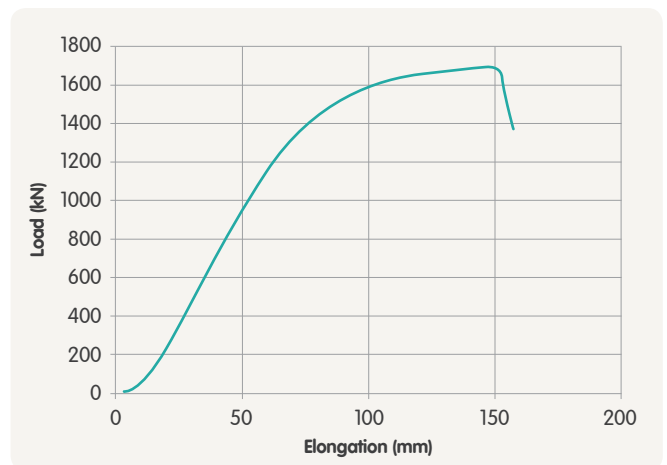
- Tensile test
- Torsion test
- Bending test

Wire rope

For each manufactured wire rope, the breaking load is checked with a test. During this test, the stress/strain curve is recorded and a modulus measurement can be made on request.



The Bourg-en-Bresse site has 3 test benches: 200 tons, 350 tons and 1500 tons.



Technical Information

Fatigue Testing: Lutèce

In association with our partners, Mécamont and TEC Câbles, we have developed and invested in a 120m test bench, capable of simulating speeds of up to 20 metres per second on cables from 30-60mm in diameter. This test simulates a cable lifespan of 25 years in just 2 months.

Our whole production process is part of a continuous control system which includes breaking strength testing, radial deformation and diameter reduction measuring.

It is out of these rigorous monitoring processes that the "Lutèce Project" was born to fulfil the need to create products at the forefront of technology, able to respond to important changing market requirements.

Together, we are setting the performance benchmarks for the future.

Operational since the beginning of 2019, our latest product innovations have been tested on the Lutèce bench to ensure we are providing our customers with reliable solutions.



Installation and maintenance

Choosing the right rope

The characteristics listed in the tables featured in this catalogue correspond to usual levels of performances. They are given for information purposes only and have no contractual value. We recommend you contact our team and check that the rope characteristics comply with regulatory and technical requirements, as these may vary according to national codes or the particular specifications of constructors.

We pay careful attention to what our clients have to say and are, as far as possible, ready to adapt our product design to fit your exact project requirements or to upgrade rope performances compared to existing products. Parameters such as breaking strength, length of lay, rope diameters adequately adjusted to attachment geometries and choice have to be assessed during a contract review and be part of written agreements related to this contract.

Rope assembly and maintenance

a) Packing and storing

The ropes are wound in the factory on metal or wooden reels designed for handling in the horizontal axis position with appropriate means.

Care should be taken:

- To avoid the inversion of the reel.
- To prevent the rope coming into contact with parts liable to damage it through shock, friction or chemical pollution corrosion risks. The rope must not come into contact with the ground.
- To prevent any risk of fire exposure (blow torch) or electric contact (no earth clamp on the rope when using a welding post).

The rope may be stored for a long period provided that its qualities and protection system are maintained.

b) Installing the rope

These operations must be carried out by experienced, competent persons who have received professional training in rope work. Safety and risk prevention will be carefully studied and integrated into the written procedure for rope installation.

Procedure must take into account the characteristics and design requirements of the lift.

It must also be approved by the manufacturer of the lift or the client who will specify the initial setting conditions in writing (e.g. rope sag).

Elementary caution should be exercised in unwinding the rope, i.e. contacts and stress liable to cause irreversible damage. The following type of means should be used: support placed on the ground, deviation sheaves (diameter must be above 25 times the dia. of the rope), devices presenting the rope extremities from rotating and untwisting during the rope installation.

c) Tensioning and positioning the rope

Particular attention should be paid to respect rope tension settings and to the position of the tension appliances which must allow them to operate according to the constructor's specifications.

d) Splices, shortening and fastening of end attachments

These are the final operations to be performed on the ropes once installed, and include; final rope length adjustments, splices, shorter wings, socketing with molten metal or resin. These operations must be carried out by specialists. Depending on national codes currently in force, approval from an official body may be required with regard to the qualifications of these specialists and the working procedures.

Requirements concerning the geometry of the splices or the selection of approved products for socketing may vary according to the national codes or the technical criteria drawn up by the manufacturers.

The customer shall take steps to find out what requirements and obligations are to be respected and bring them to the attention of the specialist in writing at the time of ordering rope fixing work.

Technical Information

At the written request of the customer, ArcelorMittal will send a team:

- Either responsible for all the assembly work.
- Or only the wire rope work: splice, shortening, socketing. In this case, the company in charge of the rope installation work must carry out the supervision and take full responsibility of the following operations.

Prior to splicing:

- The adjustment of the appliance tensioning device according to the cableway manufacturer's or operator's requirements.
- The tensioning of the rope using the appropriate pulling devices (clamps jaws and winches) in compliance with safety and risk prevention procedures.
- The positioning of the two rope ends in the working area for splicing in accordance with cableway manufacturer's or operation's requirements to help the splicing specialist.
- The mobilisation of the necessary number of operators to help the splicing specialist.

After the splice has been made:

- The traceability form should be drawn up, mentioning the positioning of its tensioning carriage device: a) After the splice has been made and before rope operation. b) After 100 hours of rope running in.
- The positioning of the tensioning carriage on the guide should be indelibly marked. a) After the splice has been made and before rope operation. b) After 100 hours of rope running in.

The specialist in charge of the wire rope works (splice, shortening, socketing) will draw up a work report, mentioning the dimensions measured and compliance with contractual requirements.

Surveillance, inspection of ropes

The requirements regarding rope surveillance and discard criteria are detailed in the corresponding national and international standards and recommendations. However, we recommend that the frequency of rope inspection should constantly be adapted to real life working and environment conditions.

Cable maintenance

Lubricants

The products incorporated in the ropes when manufacturing are selected by the rope maker in compliance with operating requirements and the applicable standards to be specified in the order.

Not using adequate products could dangerously modify the friction ratio of the rope on the sheaves or damage the liners.

In any circumstances, the ropeway manufacturer's recommendations should always be followed when applying maintenance and cleaning products. You are advised not to use chemical solvents or products liable to cause corrosion on the cable itself or on the organs coming into contact with it.

We recommend consulting the ropeway manufacturer before using any rope maintenance lubricants, solvents, or any other chemical products. These should not be applied on the rope surface as they will wash the rope internal lubrication out. This might also, sooner or later, initiate some corrosion process.

Means of preventing localised damage

The cables are submitted to particular stress in such zones as:

- For carrying-hauling ropes: rope sections previously positioned inside fix grips (e.g. attachments for fixed seats).
- For track ropes: deviations on pylon shoes and tension devices, sockets.

By displacing the attachments on the ropes or the ropes on the ropeway, the risk of stress concentration on such areas can be significantly decreased. It is therefore essential to follow the manufacturer's ropeway recommendations and to respect the instructions given by applicable national regulations and standards, especially concerning the amplitude and frequency of such planned displacements.

Rope repairs

When the prescriptive criteria are reached, repair work can most of the time be carried out in order to be able to safely continue to operate once the rope is repaired. It is essential that these operations are carried out by skilled and trained specialists. Depending on national codes, approval from an official body may be required with their regard to the qualification of specialists and working procedures.

Repairing Lock Coil carrying ropes

The possibility of rupture of the external wires on this kind of rope must be carefully monitored. This should be accompanied by a more thorough inspection in the case it occurs on a particular zone such as deviation or an anchoring.

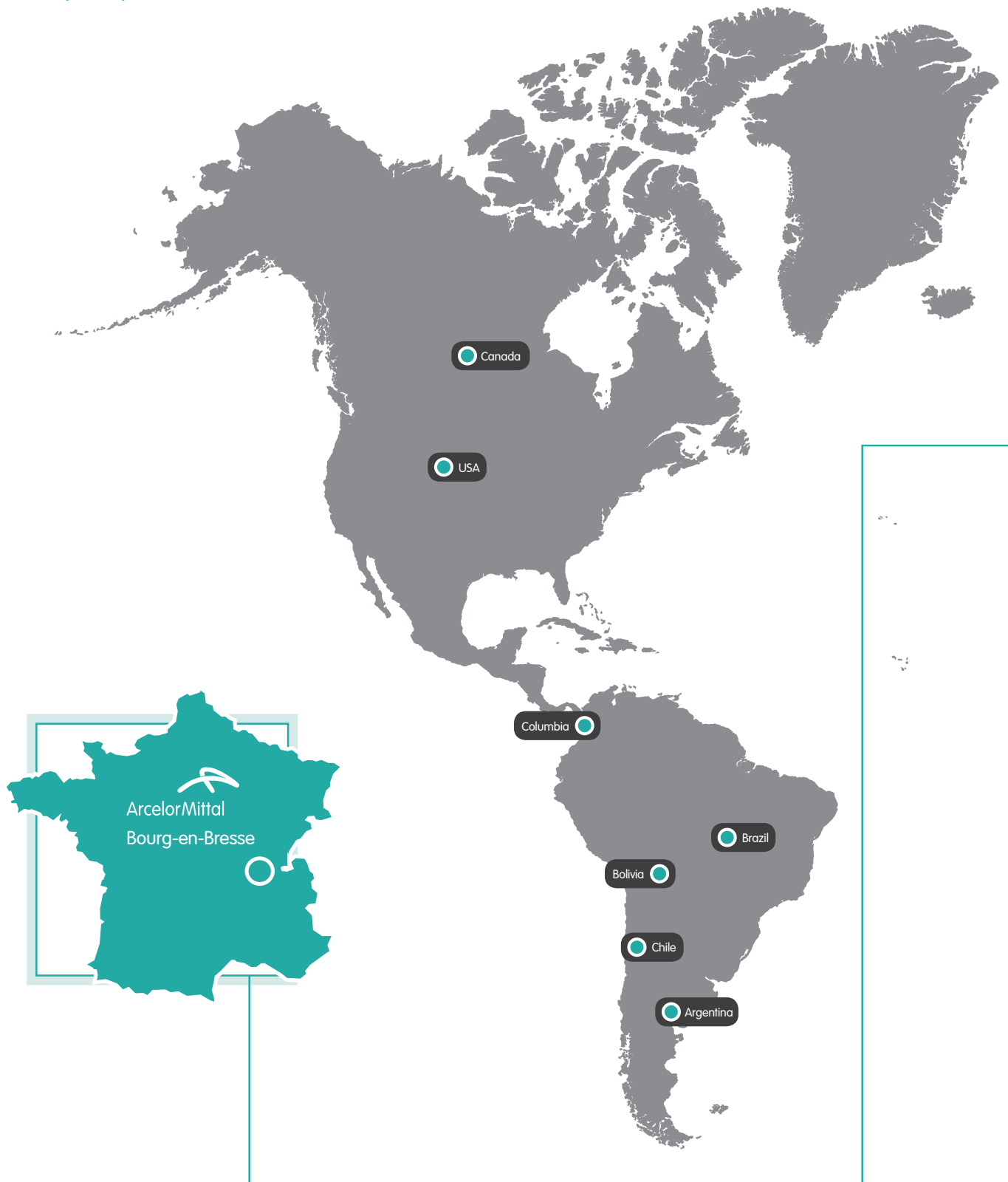
- 1 wire broken: check that the distance between the two extremities is not more than 25mm and that the two wire extremities are not raised out of their place as they have a tendency to do. Apply a sealing joint in the gap.
- 2 wires broken in the same rope lay length: repair is necessary. In case of such a repair, it is mandatory to observe the various corresponding requirements stated in applicable national regulations and applicable standards, in order to make sure that the results of the planned repair will totally comply with them.

Repairing stranded

In the case of localised or accidental damage, and provided that the prescriptive requirements are respected, a rope may be repaired by substituting one or two strands, adopting the same requirements and process as that used for making a splice. A standard rope can generally be repaired, taking into account the requirements stated in applicable national regulations and applicable standards by locally changing one or two strands, using a process divided from one used for complete splices.

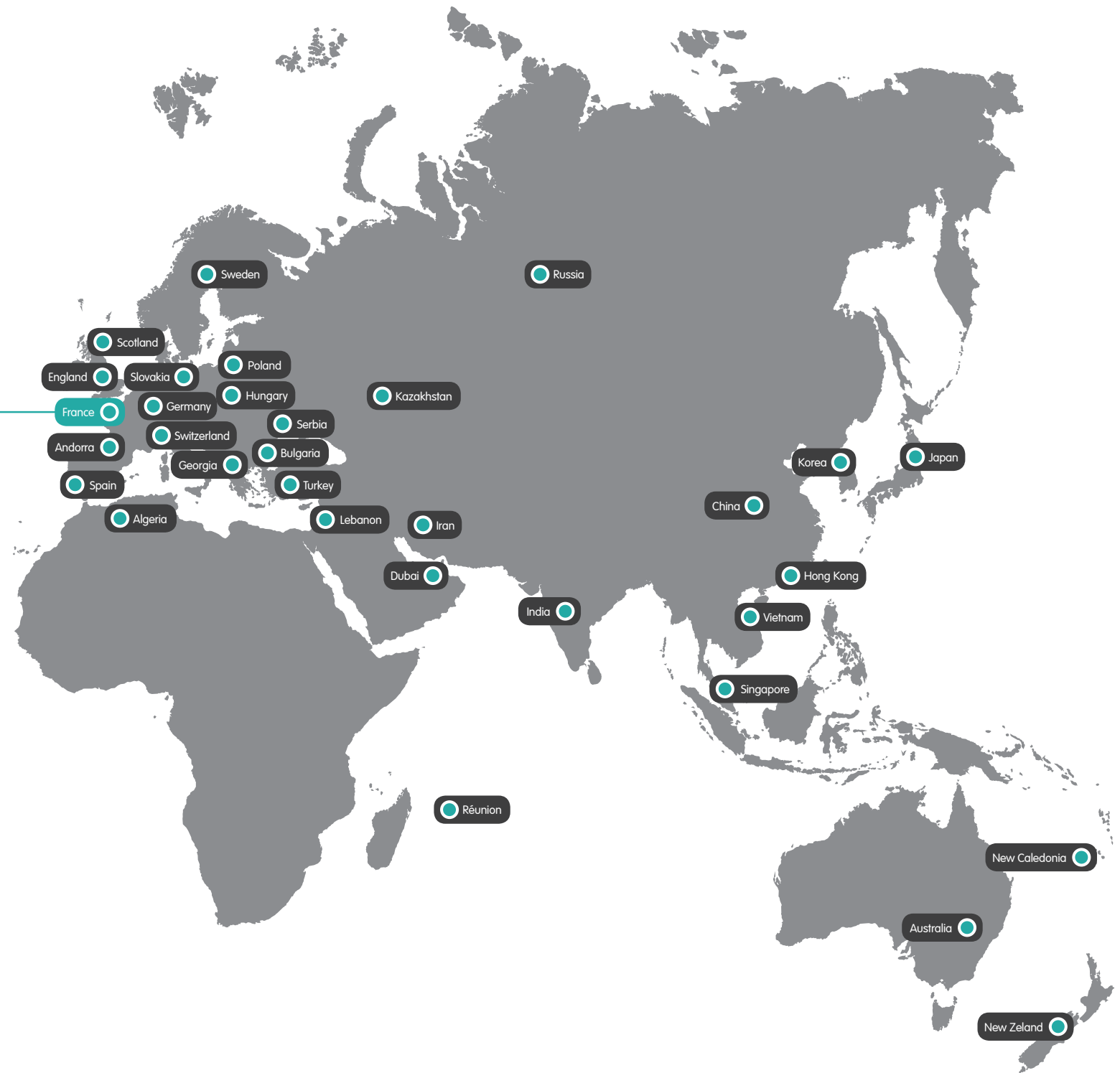
Worldwide Market

From our manufacturing base in Bourg-en-Bresse, France, ArcelorMittal ROPES distributes its premium quality **Ropeway Ropes** around the world.





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