



SPECIAL WIRE ROPES

 **OLIVEIRA**

A WireCo® WorldGroup Brand

INTRODUCTION



Quality Products, Outstanding Service and Comprehensive Technical Support – It's what today's industries expect from their supplier partners. And that's what WireCo WorldGroup is all about.

WireCo WorldGroup is the global market, manufacturing and technical leader in wire and synthetic rope manufacturing, providing a consultative approach to offer customers a single, reliable source for performance matched solutions to fit their specific application and budget needs. But it doesn't stop there. WireCo WorldGroup offers clients the education and expertise needed to enhance product performance and value.

With our comprehensive range of trusted, global brands we deliver unmatched technical expertise and innovation as well as unparalleled quality assurance meeting and exceeding international quality certifications.

WireCo WorldGroup is on the ground everywhere you are - with manufacturing and distribution facilities all around the world and more than 4,000 global employees supporting these efforts. Our customers enjoy global availability for a consistent, responsive supply no matter where and when they need it.

OLIVEIRA

Already in the 6th generation Oliveira's goal is to provide valuable solutions to our customers. Our products meet the international standards and offer an excellent value to your application.



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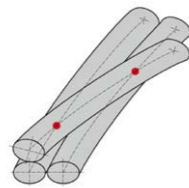
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GENERAL DEFINITIONS

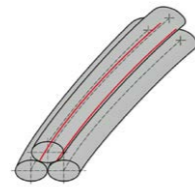
PARALLEL LAY ROPES



In a non parallel lay rope all wires and strands have different lay length. The high stress concentration at the crossover point leads to an early internal failure. In a parallel lay rope all wires and strands have the same lay length. The linear contact leads to an optimal stress distribution. Furthermore the compacted parallel design leads to a higher fill factor and breaking strength.



cross lay (non-parallel)
stress concentration



parallel lay
stress distribution

PPI - PLASTIC PROTECTED IMPREGNATION



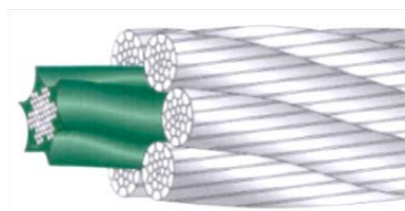
In consequence of being not only a steel wire rope producer but also a synthetic rope manufacturer, Oliveira has a strong and deep know-how of plastic and its applications. The PPI operation is applied during the Oliveira process in one continuous operation which guarantees a perfect impregnation and equal stress and tension of all the components. Resulting the plastic forms only small braces between the strands so they can keep their flexibility to give in to the relative movements within the rope.

Positive effects:

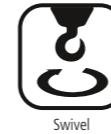
- Allows a homogeneous stress distribution in the rope
- Improves the structural stability
- Encapsulates the lubricant in the core
- Protects the core from corrosion

Resulting in:

- A longer service life
- Keeping its non rotational properties in the most severe conditions
- Internal rope protection against corrosive environment
- Favouring outer maintenance



SWIVEL USE



Rotation resistant ropes can be used with a swivel.
All other rope constructions may not be used with a swivel!



ISO 21669 – General guidance on swivel use (rotation-resistance)

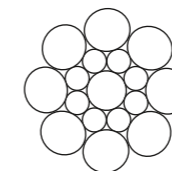
- Less than or equal to 1 turn/1000d lifting a load equivalent to 20%MBF, a swivel can be used
- Greater than 1 turn but no greater than 4 turns/1000d – a swivel may be used subject to the recommendations of the rope manufacturer and/or approval of a competent person
- Greater than 4 turns/1000d – a swivel should not be used

COMPACTING

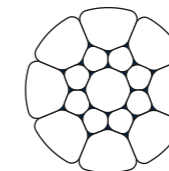


OLIVEIRA is using the most improved and updated technology in the world (multiroll system) for compacting the strands, resulting in:

- Perfect control of the calibration and of the cross section
- No outer surface wearing and injuring
- No peel-off of the zinc coating
- No damage of the inner wires, thanks to the gradual lamination
- All these properties lead the ropes to the highest performance and resistance to fatigue, when compared with the other usual compacting technologies.



conventional strand



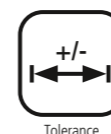
compacted strand

LUBRICATED



As a standard feature, Oliveira special wire ropes receive intensive lubrication during the production process. This in-process treatment will provide the rope with ample protection against corrosion and it is meant to reduce the friction between the elements which make up the rope as well as the friction between rope and sheaves or drums. This lubrication, however, only lasts for a limited time and should be reapplied periodically.

PRODUCTION TOLERANCE

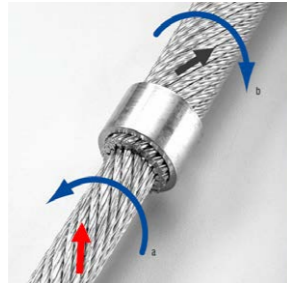


Oliveira special wire ropes are produced within a tolerance range between +0% and +5%. Generally the standard production tolerance is at the upper limit of the tolerance range, between +1% and +4%. For this reason Oliveira special wire ropes fulfill the requirements of the famous drum manufacturers.

GENERAL DEFINITIONS

ROTATION-RESISTANT ROPES

In a conventional rope, an external load creates a moment which tries to untwist the rope. A rotation resistant steel wire rope has a steel core which is an independent rope, closed in the opposite direction to the outer strands. Under load, the core tries to twist the rope in one direction, the outer strands try to twist it in the opposite direction. The geometrical design of a rotation resistant wire rope is such that the moments in the core and the outer strands compensate each other over a wide load spectrum, so that even with great lifting heights practically no rope twist occurs.



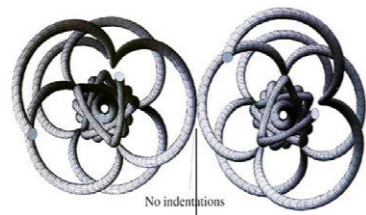
MULTIPLE LAYER SPOOLING

A drum coiling a rope in more than one layer is a multiple layer system with new demands to a wire rope.

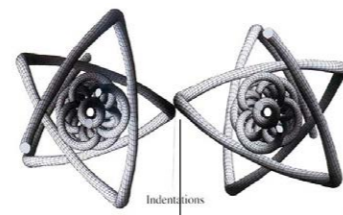
- Low diameter reduction under tension
- Crushing resistance in crossovers and layer crossovers
- Extreme smooth surface for less indentations or pressure in crossovers

The following rope properties are required for a long service life:

- Lang's lay to prevent indentations

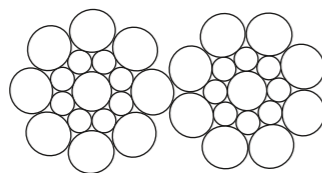


Lang's lay ropes: no indentations of outer wires

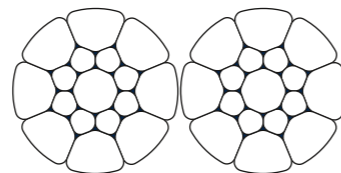


regular lay ropes: indentations of outer wires

- Compacted outer strands to prevent indentations



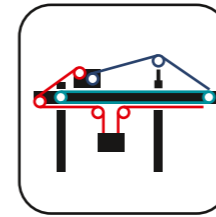
conventional strand



compacted strand

ROPE SELECTION BY APPLICATION

CONTAINER CRANE



HOIST ROPE

- OLIVEIRA HD 8 K (Option PPI)

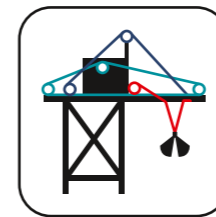
BOOM HOIST

- OLIVEIRA HD 8 K (Option PPI)

TROLLEY

- OLIVEIRA HD 8 K (Option PPI)

SHIP UNLOADER



HOIST ROPE

- OLIVEIRA HD 8 K (Option PPI)

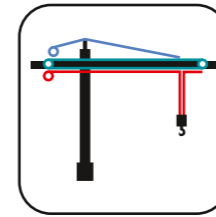
BOOM HOIST

- OLIVEIRA HD 8 K (Option PPI)

TROLLEY

- OLIVEIRA HD 8 K (Option PPI)

TOWER CRANE



HOIST ROPE

- OLIVEIRA TOWERLIFT 15
- OLIVEIRA LT 24 K

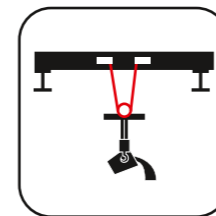
BOOM PENDANT

- OLIVEIRA HD 8 K (Option PPI)

TROLLEY

- OLIVEIRA SC 6 K

STEELWORKS LADLE

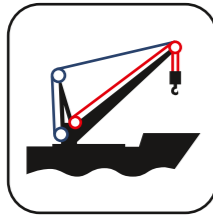


HOIST ROPE

- OLIVEIRA HD 8 K (Option PPI)
- OLIVEIRA SC 6 K

Please note: Option PPI if temperature is below 115 degrees C on the surface of the rope!

DECK CRANE



HOIST ROPE

- OLIVEIRA NR MAXIPACT (Option PPI)
- OLIVEIRA NR 15 MAXILIFT (Option PPI)
- OLIVEIRA DC 4 K

BOOM HOIST

- OLIVEIRA HD 8 K (Option PPI)

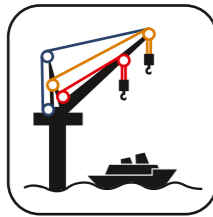
TELESCOPIC MOBILE CRANE



HOIST ROPE

- OLIVEIRA NR MAXIPACT (Option PPI)
- OLIVEIRA NR 15 MAXILIFT (Option PPI)

OFFSHORE PEDESTAL CRANE



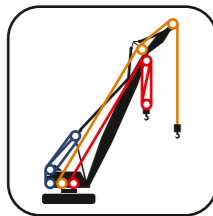
HOIST ROPE

- OLIVEIRA NR MAXIPACT (Option PPI)
- OLIVEIRA NR MAXIPACT (Option PPI)

BOOM HOIST

- OLIVEIRA HD 8 K (Option PPI)

LATTICE BOOM CRAWLER CRANE



HOIST ROPE

- OLIVEIRA NR MAXIPACT (Option PPI)
- OLIVEIRA NR 15 MAXILIFT (Option PPI)
- OLIVEIRA LT 24 K

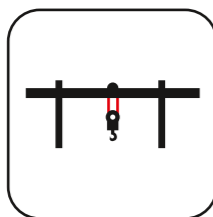
BOOM HOIST

- OLIVEIRA DP 8 K (Option PPI)
- OLIVEIRA HD 8 K (Option PPI)

AUXILIARY HOIST

- OLIVEIRA NR MAXIPACT (Option PPI)
- OLIVEIRA NR 15 MAXILIFT (Option PPI)

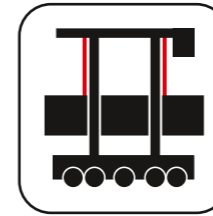
RUBBER TIRED GANTRY / RAIL MOUNTED GANTRY



HOIST ROPE

- OLIVEIRA HD 8 K (Option PPI)
- OLIVEIRA DP 8 K (Option PPI)

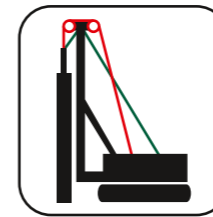
STRADDLE CARRIERS



HOIST ROPE

- OLIVEIRA HD 8 K (Option PPI)
- OLIVEIRA DP 8 K (Option PPI)

DRILLING / PILING



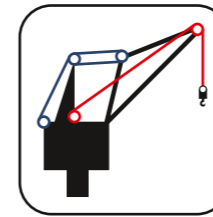
HOIST ROPE

- OLIVEIRA NR 15 MAXILIFT (Option PPI)

FEED ROPE

- OLIVEIRA HD 8 K (Option PPI)

HARBOR MOBILE CRANE



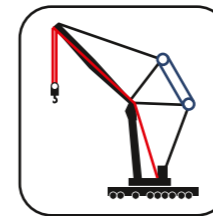
HOIST ROPE

- OLIVEIRA HD 8 K (Option PPI)

BOOM HOIST

- OLIVEIRA HD 8 K (Option PPI)

LATTICE BOOM MOBILE CRANE



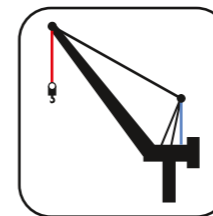
HOIST ROPE

- OLIVEIRA NR MAXIPACT (Option PPI)
- OLIVEIRA NR 15 MAXILIFT (Option PPI)
- OLIVEIRA LT 24 K

BOOM HOIST

- OLIVEIRA DP 8 K (Option PPI)
- OLIVEIRA HD 8 K (Option PPI)

LUFFING-JIB TOWER CRANE



HOIST ROPE

- OLIVEIRA NR MAXIPACT (Option PPI)
- OLIVEIRA NR 15 MAXILIFT (Option PPI)

BOOM PENDANT

- OLIVEIRA HD 8 K (Option PPI)
- OLIVEIRA DP 8 K (Option PPI)



ROTATION-RESISTANT ROPES

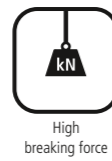
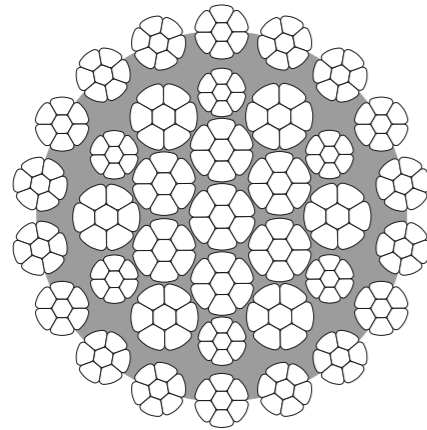
- Designed to generate reduced levels of torque and rotation when loaded.
- Designed with at least two layers of strands laid helically around a center.
- The direction of lay of the outer strands being opposite to that of the underlying layer.

// ROTATION-RESISTANT
NR Maxipact (Option PPI)
 NR15 Maxilift (Option PPI)
 Towerlift 15
 LT 24 K

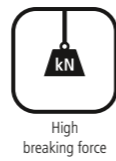
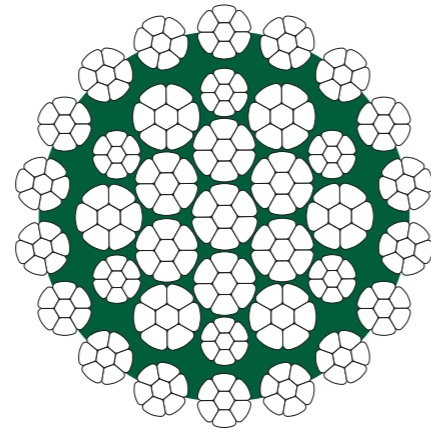
// SEMI-ROTATION-RESISTANT

// NON-ROTATION-RESISTANT

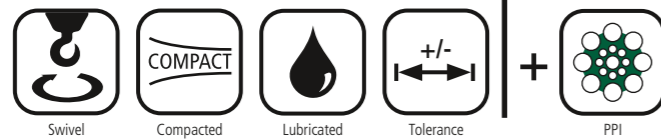
OLIVEIRA NR MAXIPACT



OLIVEIRA NR MAXIPACT PPI



PROPERTIES



APPLICATIONS

All cranes and performant lifting devices where non-rotating and high MBL ropes are required.

Recommended for offshore, deck cranes and marine environment.

OVERVIEW

RCN	Diameter range [mm]	Construction	Number of outer strands	Number of wires	Number of outer load bearing wires	Average fill factor	Average spin factor
23-3	12,70 – 52	37xK7	18	259	126	0,716	0,85 (1960*) 0,81 (2160*)
30	54 – 64	37xK19	18	710	342	0,726	0,83 (1960*) 0,79 (2160*)
>31	66 – 70	37xK26	18	1092	468	0,714	0,81 (1960*) 0,78 (2160*)

- Temperature range of use: -50°C to +100°C
- Temperature range of use for option PPI: -50°C to +80°C
- Option PPI – only available for diameter ≥ 13mm
- Please add 1.0% on the weight for ropes with PPI
- Available in ordinary lay and Lang's lay
- Available in right hand and left hand

minimum breaking force

nominal diameter		weight		1960 N/mm ²				2160 N/mm ²			
mm	inch	kg/m	lb/ft	kN	t [metric]	lbs	t [2000 lbs]	kN	t [metric]	lbs	t [2000 lbs]
12,70	1/2	0,77	0,52	148,0	15,09	33.272	16,64	155,9	15,90	35.048	17,52
13		0,82	0,55	157,8	16,09	35.468	17,73	165,7	16,90	37.248	18,62
14		0,95	0,64	183,3	18,69	41.198	20,60	192,5	19,63	43.266	21,63
15		1,09	0,73	209,6	21,37	47.116	23,56	220,6	22,50	49.603	24,80
15,88	5/8	1,20	0,81	230,0	23,45	51.706	25,85	241,0	24,58	54.179	27,09
16		1,25	0,84	239,4	24,41	53.820	26,91	251,4	25,64	56.521	28,26
17		1,40	0,94	269,7	27,50	60.637	30,32	283,4	28,90	63.719	31,86
18		1,57	1,06	302,5	30,85	68.015	34,01	317,7	32,40	71.428	35,71
19	3/4	1,76	1,18	338,9	34,55	76.180	38,09	355,9	36,29	80.002	40,00
20		1,94	1,30	374,2	38,16	84.120	42,06	393,0	40,07	88.341	44,17
21		2,13	1,43	412,2	42,03	92.659	46,33	432,9	44,14	97.309	48,65
22		2,34	1,57	452,0	46,09	101.610	50,81	474,7	48,40	106.709	53,35
22,23	7/8	2,37	1,59	458,0	46,70	102.962	51,48	481,0	49,05	108.133	54,07
23		2,56	1,72	494,8	50,46	111.236	55,62	519,6	52,99	116.818	58,41
24		2,79	1,87	540,3	55,09	121.461	60,73	567,4	57,86	127.556	63,78
25		3,04	2,04	587,1	59,87	131.985	65,99	616,6	62,87	138.608	69,30
25,40	1	3,08	2,07	595,4	60,71	133.851	66,93	625,3	63,76	140.573	70,29
26		3,27	2,20	634,2	64,68	142.584	71,29	666,1	67,92	149.739	74,87
27		3,54	2,38	683,6	69,70	153.670	76,84	717,9	73,20	161.382	80,69
28		3,80	2,55	734,0	74,85	165.019	82,51	770,9	78,61	173.299	86,65
28,58	1 1/8	3,98	2,67	768,3	78,34	172.721	86,36	806,8	82,27	181.376	90,69
29		4,07	2,73	790,0	80,56	177.599	88,80	824,4	84,07	185.335	92,67
30		4,39	2,95	846,3	86,30	190.262	95,13	888,8	90,63	199.809	99,90
31,75	1 1/4	4,84	3,25	930,0	94,83	209.072	104,54	975,0	99,42	219.189	109,59
32		4,98	3,34	959,6	97,85	215.730	107,87	1.007,8	102,76	226.556	113,28
34		5,59	3,75	1.079,3	110,06	242.645	121,32	1.133,0	115,53	254.710	127,35
34,93	1 3/8	5,94	3,99	1.146,8	116,94	257.811	128,91	1.202,0	122,57	270.220	135,11
36		6,31	4,24	1.221,5	124,56	274.607	137,30	1.282,8	130,81	288.386	144,19
38	1 1/2	7,01	4,71	1.352,4	137,90	304.026	152,01	1.418,4	144,64	318.869	159,43
40		7,74	5,20	1.495,0	152,45	336.094	168,05	1.569,0	159,99	352.724	176,36
41,28	1 5/8	8,30	5,58	1.602,1	163,37	360.166	180,08	1.682,5	171,57	378.241	189,12
42		8,52	5,72	1.645,2	167,76	369.850	184,92	1.730,0	176,41	388.913	194,46
44		9,37	6,30	1.818,6	185,45	408.839	204,42	1.909,9	194,75	429.354	214,68
44,45	1 3/4	9,51	6,39	1.838,6	187,49	413.334	206,67	1.928,2	196,62	433.477	216,74
46		10,33	6,94	1.995,7	203,50	448.651	224,33	2.095,8	213,72	471.165	235,58
47,63	1 7/8	10,86	7,29	2.095,0	213,63	470.975	235,49	2.190,0	223,32	492.331	246,17
48		11,32	7,61	2.184,3	222,74	491.048	245,52	2.293,9	233,91	515.689	257,84
50		12,03	8,09	2.331,7	237,77	524.194	262,10	2.451,2	249,95	551.042	275,52
50,80	2	12,42	8,34	2.400,1	244,74	539.564	269,78	2.517,1	256,67	565.866	282,93
52		13,17	8,85	2.548,8	259,90	572.988	286,49	2.676,4	272,91	601.670	300,84
54	2 1/8	14,34	9,63	2.731,2	278,51	614.007	307,00	2.868,3	292,48	644.818	322,41
56		15,33	10,30	2.854,0	291,03	641.605	320,80	3.049,0	310,91	685.442	342,72
57,15	2 1/4	16,07	10,80	3.017,0	307,65	678.248	339,12	3.180,0	324,27	714.892	357,45
58		16,49	11,08	3.071,0	313,15	690.388	345,19	3.261,0	332,53	733.102	366,55
60		17,78	11,95	3.293,0	335,79	740.296	370,15	3.500,0	356,90	786.831	393,42
60,33	2 3/8	17,78	11,94	3.335,0	340,08	749.738	374,87	3.520,0	358,94	791.327	395,66
62		18,74	12,59	3.500,0	356,90	786.831	393,42	3.705,0	377,80	832.917	416,46
63,50	2 1/2	19,66	13,21	3.655,0	372,71	821.677	410,84	3.870,0	394,63	870.010	435,01
64		20,20	13,57	3.894,0	397,08	875.406	437,70	4.018,0	409,72	903.282	451,64
66		21,19	14,24	3.900,0	397,69	876.755	438,38	4.135,0	421,65	929.585	464,79
66,68	2 5/8	21,34	14,34	3.910,0	398,71	879.003	439,50	4.150,0	423,18	932.957	466,48
68		22,26	14,96	4.100,0	418,08	921.716	460,86	4.354,0	443,98	978.818	489,41
70	2 3/4	23,78	15,98	4.322,0	440,72	971.624	485,81	4.646,0	473,76	1.044.462	522,23

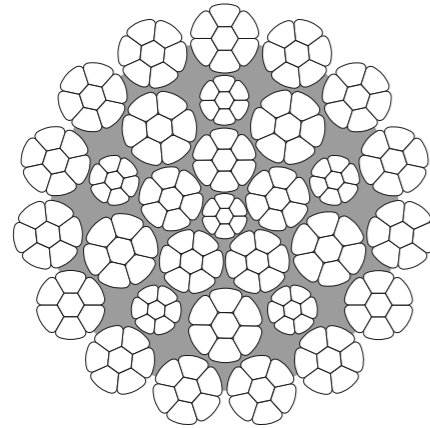
NAVIGATION

// ROTATION-RESISTANT
 NR Maxipact (Option PPI)
NR15 Maxilift (Option PPI)
 Towerlift 15
 LT 24 K

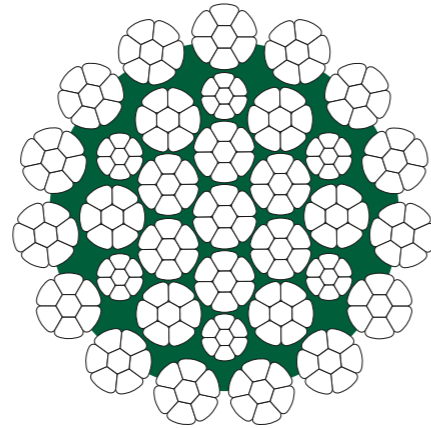
// SEMI-ROTATION-RESISTANT

// NON-ROTATION-RESISTANT

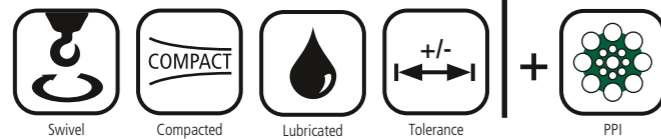
OLIVEIRA
NR15 MAXILIFT



OLIVEIRA
NR15 MAXILIFT PPI



PROPERTIES



APPLICATIONS

For all the most severe hoist applications, intensive use, corrosive environment... Traditional applications like mobile cranes, tower cranes, crawler cranes.

Offshore cranes, deck cranes, cargo cranes, foundation cranes (Kelly cranes), harbor cranes.

OVERVIEW

RCN	Diameter range [mm]	Construction	Number of outer strands	Number of wires	Number of outer load bearing wires	Average fill factor	Average spin factor
23-2	10 – 28,58	31xK7	15	217	105	0,701	0,85 (1960*)
23-2	30 – 50,80	34xK7	15	238	105	0,705	0,81 (2160*)

- Temperature range of use: -50°C to +100°C
- Temperature range of use for option PPI: -50°C to +80°C
- Option PPI – only available for diameter ≥ 13mm
- Please add 1.0% on the weight for ropes with PPI
- Available in ordinary lay and Lang’s lay
- Available in right hand and left hand

minimum breaking force

nominal diameter		weight		1960 N/mm ²				2160 N/mm ²			
mm	inch	kg/m	lb/ft	kN	t [metric]	lbs	t [2000 lbs]	kN	t [metric]	lbs	t [2000 lbs]
10		0,48	0,32	92,2	9,40	20.727	10,36	96,9	9,88	21.784	10,89
11	7/16	0,56	0,38	108,4	11,05	24.365	12,18	113,9	11,61	25.604	12,80
12		0,68	0,46	130,8	13,34	29.401	14,70	137,3	14,01	30.876	15,44
12,70	1/2	0,76	0,51	145,3	14,82	32.665	16,33	152,6	15,56	34.306	17,15
13		0,79	0,53	152,4	15,54	34.257	17,13	160,0	16,32	35.976	17,99
14		0,93	0,62	178,8	18,23	40.187	20,09	187,7	19,14	42.204	21,10
15		1,08	0,72	206,3	21,03	46.367	23,18	216,6	22,09	48.694	24,35
15,88	5/8	1,19	0,80	229,0	23,35	51.481	25,74	240,0	24,47	53.954	26,98
16		1,22	0,82	234,1	23,87	52.622	26,31	245,8	25,07	55.262	27,63
17		1,38	0,93	265,4	27,06	59.663	29,83	278,7	28,42	62.657	31,33
18		1,55	1,04	298,4	30,43	67.079	33,54	313,4	31,95	70.445	35,22
19	3/4	1,72	1,15	329,5	33,60	74.082	37,04	346,1	35,29	77.800	38,90
20		1,92	1,29	370,0	37,73	83.183	41,59	388,6	39,62	87.358	43,68
21		2,11	1,42	406,3	41,43	91.348	45,67	426,7	43,51	95.932	47,97
22		2,31	1,55	446,3	45,51	100.337	50,17	468,7	47,80	105.372	52,69
22,23	7/8	2,35	1,58	454,7	46,37	102.221	51,11	477,5	48,69	107.346	53,67
23		2,53	1,70	487,0	49,66	109.476	54,74	511,4	52,15	114.969	57,48
24		2,76	1,85	531,5	54,19	119.476	59,74	558,1	56,91	125.471	62,74
25		2,99	2,01	576,3	58,76	129.550	64,78	605,2	61,71	136.051	68,03
25,40	1	3,08	2,07	594,9	60,66	133.739	66,87	624,8	63,71	140.461	70,23
26		3,22	2,17	624,1	63,64	140.300	70,15	655,4	66,83	147.340	73,67
27		3,47	2,33	669,1	68,23	150.412	75,21	702,6	71,65	157.960	78,98
28		3,73	2,50	721,0	73,53	162.097	81,05	757,2	77,22	170.231	85,12
28,58	1 1/8	3,92	2,63	756,2	77,11	170.000	85,00	794,1	80,98	178.521	89,26
30		4,30	2,89	828,8	84,52	186.329	93,16	870,4	88,76	195.680	97,84
31,75	1 1/4	4,79	3,22	920,0	93,81	206.824	103,41	965,0	98,40	216.941	108,47
32		4,84	3,25	935,5	95,39	210.300	105,15	982,4	100,18	220.852	110,43
34		5,51	3,70	1.063,9	108,49	239.176	119,59	1.117,3	113,93	251.178	125,59
34,93	1 3/8	5,80	3,90	1.119,4	114,15	251.651	125,83	1.175,6	119,88	264.285	132,14
36		6,24	4,19	1.202,5	122,62	270.337	135,17	1.262,9	128,78	283.902	141,95
38	1 1/2	6,91	4,64	1.330,8	135,70	299.176	149,59	1.397,6	142,51	314.189	157,09
40		7,66	5,15	1.477,9	150,70	332.247	166,12	1.552,1	158,27	348.919	174,46
41,28	1 5/8	8,23	5,53	1.586,9	161,82	356.749	178,37	1.666,5	169,94	374.644	187,32
42		8,49	5,71	1.644,2	167,66	369.625	184,81	1.726,7	176,07	388.173	194,09
44		9,20	6,18	1.780,5	181,56	400.273	200,14	1.868,7	190,56	420.111	210,06
44,45	1 3/4	9,69	6,51	1.868,3	190,51	420.010	210,01	1.962,0	200,07	441.075	220,54
46		10,13	6,81	1.949,4	198,78	438.239	219,12	2.047,2	208,76	460.230	230,12
47,63	1 7/8	10,78	7,24	2.078,0	211,90	467.153	233,58	2.180,0	222,30	490.083	245,04
48		10,90	7,33	2.106,3	214,79	473.520	236,76	2.212,0	225,56	497.282	248,64
50		12,02	8,08	2.314,9	236,05	520.412	260,21	2.431,1	247,90	546.526	273,26
50,80	2	12,29	8,26	2.372,2	241,90	533.292	266,65	2.491,3	254,04	560.066	280,03

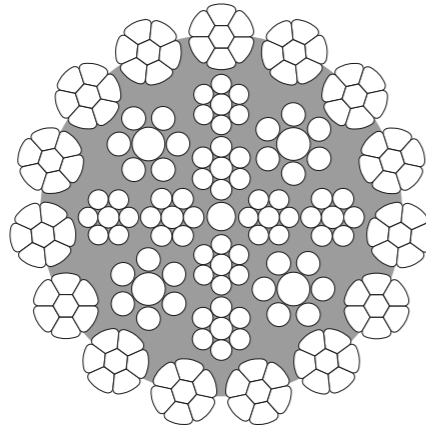
Special constructions and diameters available - please contact us directly.

// ROTATION-RESISTANT
 NR Maxipact (Option PPI)
 NR15 Maxilift (Option PPI)
Towerlift 15
 LT 24 K

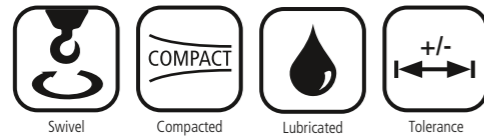
// SEMI-ROTATION-RESISTANT

// NON-ROTATION-RESISTANT

OLIVEIRA TOWERLIFT 15



PROPERTIES



APPLICATIONS

The Towerlift 15 can be used for all cranes and hoisting systems where non-rotating properties are required: Tower cranes, mobile cranes, crawler cranes, offshore cranes, cargo cranes...

OVERVIEW

RCN	Diameter range [mm]	Construction	Number of outer strands	Number of wires	Number of outer load bearing wires	Average fill factor	Average spin factor
23-2	8 – 21	27x7	15	190	105	0,648	0,85 (1960*)
23-2	22 – 50,80	31x7	15	217	105	0,660	0,81 (2160*)

- Temperature range of use: -50°C to +100°C
- Available in ordinary lay and Lang's lay
- Available in right hand and left hand

nominal diameter		weight		minimum breaking force							
				1960 N/mm ²				2160 N/mm ²			
mm	inch	kg/m	lb/ft	kN	t [metric]	lbs	t [2000 lbs]	kN	t [metric]	lbs	t [2000 lbs]
8	5/16	0,27	0,18	51,6	5,26	11.600	5,80	53,5	5,46	12.027	6,01
9		0,35	0,24	64,3	6,56	14.455	7,23	67,5	6,88	15.175	7,59
9,53	3/8	0,40	0,27	76,3	7,78	17.153	8,58	80,0	8,16	17.985	8,99
10		0,43	0,29	83,7	8,54	18.817	9,41	87,8	8,95	19.738	9,87
11	7/16	0,53	0,36	101,5	10,35	22.818	11,41	106,4	10,85	23.920	11,96
12		0,62	0,42	120,8	12,32	27.157	13,58	126,6	12,91	28.461	14,23
12,70	1/2	0,73	0,49	137,0	13,97	30.799	15,40	144,0	14,68	32.372	16,19
13		0,75	0,50	142,4	14,52	32.013	16,01	149,3	15,22	33.564	16,78
14		0,85	0,57	164,7	16,79	37.026	18,51	172,7	17,61	38.824	19,41
15		1,01	0,68	193,4	19,72	43.478	21,74	202,8	20,68	45.591	22,80
15,88	5/8	1,13	0,76	213,0	21,72	47.884	23,94	222,0	22,64	49.908	24,95
16		1,14	0,77	218,9	22,32	49.211	24,61	229,6	23,41	51.616	25,81
17		1,28	0,86	247,7	25,26	55.685	27,84	259,8	26,49	58.405	29,20
18		1,44	0,97	277,4	28,29	62.362	31,18	290,9	29,66	65.397	32,70
19	3/4	1,61	1,08	310,2	31,63	69.736	34,87	325,4	33,18	73.153	36,58
20		1,80	1,21	339,6	34,63	76.345	38,17	356,2	36,32	80.077	40,04
21		1,96	1,31	377,2	38,46	84.798	42,40	395,6	40,34	88.934	44,47
22		2,19	1,47	421,4	42,97	94.734	47,37	441,9	45,06	99.343	49,67
22,23	7/8	2,26	1,52	435,0	44,36	97.792	48,90	455,0	46,40	102.288	51,14
23		2,38	1,60	459,8	46,89	103.367	51,68	482,2	49,17	108.403	54,20
24		2,58	1,74	496,9	50,67	111.708	55,85	521,2	53,15	117.170	58,59
25		2,80	1,88	540,9	55,16	121.599	60,80	567,2	57,84	127.512	63,76
25,40	1	2,92	1,96	560,0	57,10	125.893	62,95	590,0	60,16	132.637	66,32
26		2,99	2,01	578,0	58,94	129.940	64,97	606,2	61,82	136.279	68,14
27		3,29	2,21	634,6	64,71	142.664	71,33	665,5	67,86	149.610	74,81
28		3,54	2,38	684,6	69,81	153.904	76,95	717,9	73,21	161.390	80,70
28,58	1 1/8	3,69	2,48	710,0	72,40	159.614	79,81	744,0	75,87	167.258	83,63
30		4,05	2,72	782,1	79,75	175.823	87,91	820,3	83,65	184.411	92,21
31,75	1 1/4	4,53	3,04	870,0	88,72	195.584	97,79	913,0	93,10	205.251	102,63
32		4,54	3,05	877,8	89,51	197.337	98,67	920,6	93,88	206.959	103,48
34		5,21	3,50	1.009,3	102,92	226.900	113,45	1.058,5	107,94	237.960	118,98
34,93	1 3/8	5,54	3,73	1.060,0	108,09	238.297	119,15	1.112,0	113,39	249.987	124,99
36		5,82	3,91	1.124,9	114,71	252.888	126,44	1.179,8	120,31	265.230	132,61
38	1 1/2	6,40	4,30	1.240,9	126,54	278.965	139,48	1.301,4	132,71	292.566	146,28
40		7,14	4,80	1.371,3	139,83	308.280	154,14	1.438,2	146,66	323.320	161,66
41,28	1 5/8	7,70	5,17	1.483,0	151,22	333.392	166,70	1.555,0	158,57	349.578	174,79
42		7,83	5,26	1.503,9	153,36	338.090	169,05	1.577,2	160,83	354.569	177,28
43		8,29	5,57	1.611,8	164,36	362.347	181,17	1.690,3	172,36	379.994	190,00
44		8,64	5,80	1.678,0	171,11	377.229	188,61	1.759,8	179,45	395.619	197,81
44,45	1 3/4	8,92	5,99	1.719,0	175,29	386.446	193,22	1.802,0	183,75	405.106	202,55
45		9,09	6,11	1.749,4	178,39	393.281	196,64	1.834,6	187,08	412.434	206,22
46		9,47	6,36	1.820,3	185,62	409.220	204,61	1.909,0	194,66	429.160	214,58
47,63	1 7/8	10,18	6,84	1.964,0	200,27	441.525	220,76	2.060,0	210,06	463.106	231,55
48		10,28	6,91	1.985,4	202,45	446.336	223,17	2.082,2	212,33	468.097	234,05
50		11,22	7,54	2.176,9	221,98	489.386	244,69	2.283,0	232,80	513.239	256,62
50,80	2	11,65	7,83	2.230,0	227,40	501.324	250,66	2.300,0	234,53	517.060	258,53

Special constructions and diameters available - please contact us directly.

NAVIGATION

// ROTATION-RESISTANT

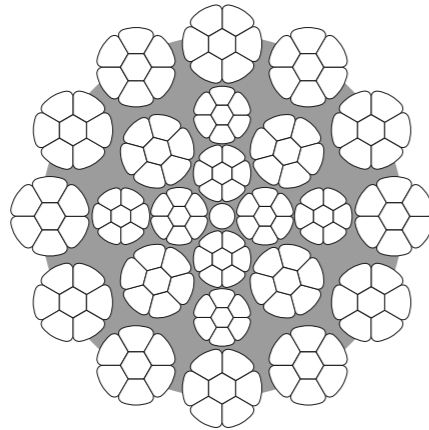
NR Maxipact (Option PPI)
NR15 Maxilift (Option PPI)
Towerlift 15

LT 24 K

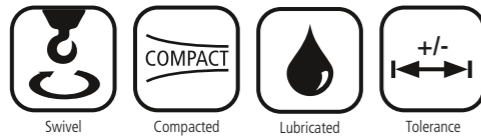
// SEMI-ROTATION-RESISTANT

// NON-ROTATION-RESISTANT

OLIVEIRA LT 24 K



PROPERTIES



APPLICATIONS

Recommended for intensive use and severe hoist applications where rotation resistance property is required like e.g. tower cranes. For lifting applications with not less than 2 falls.

OVERVIEW

RCN	Diameter range [mm]	Construction	Number of outer strands	Number of wires	Number of outer load bearing wires	Average fill factor	Average spin factor
23-1	7,20 – 20	24xK7	12	169	84	0,683	*N/mm ²
25	21 – 48	24xK17	12	289	204	0,694	0,84 (1960*)

- Temperature range of use: -50°C to +100°C
- Available in Lang's lay
- Available in right hand and left hand

nominal diameter		weight		minimum breaking force			
				1960 N/mm ²			
mm	inch	kg/m	lb/ft	kN	t [metric]	lbs	t [2000 lbs]
7,20		0,23	0,15	43,7	4,46	9.824	4,91
8	5/16	0,28	0,19	55,1	5,62	12.387	6,19
9		0,36	0,24	69,6	7,10	15.647	7,82
9,53	3/8	0,40	0,27	77,3	7,88	17.378	8,69
10		0,46	0,31	88,2	8,99	19.828	9,91
11	7/16	0,56	0,38	107,6	10,97	24.189	12,09
12		0,67	0,45	128,0	13,05	28.776	14,39
12,70	1/2	0,75	0,50	142,3	14,51	31.990	16,00
13		0,78	0,52	149,1	15,20	33.519	16,76
14		0,91	0,61	174,1	17,75	39.139	19,57
15		1,05	0,71	198,0	20,19	44.512	22,26
15,88	5/8	1,17	0,78	222,5	22,69	50.020	25,01
16		1,20	0,81	229,6	23,41	51.616	25,81
17		1,34	0,90	255,5	26,05	57.439	28,72
18		1,51	1,01	294,1	29,99	66.116	33,06
19	3/4	1,69	1,14	323,5	32,99	72.726	36,36
20		1,88	1,27	353,7	36,07	79.515	39,76
21		2,10	1,41	401,9	40,99	90.360	45,18
22		2,28	1,53	432,7	44,12	97.275	48,64
22,23	7/8	2,29	1,54	436,0	44,46	98.017	49,01
24		2,75	1,85	526,2	53,66	118.294	59,15
25,40	1	3,08	2,07	575,0	58,63	129.265	64,63
26		3,20	2,15	610,0	62,20	137.133	68,57
28		3,71	2,50	705,7	71,96	158.648	79,32
28,58	1 1/8	3,89	2,61	743,8	75,85	167.213	83,61
30		4,24	2,85	807,8	82,37	181.601	90,80
31,75	1 1/4	4,70	3,16	910,0	92,79	204.576	102,29
32		4,80	3,23	934,6	95,30	210.106	105,05
34		5,48	3,68	1.047,0	106,76	235.375	117,69
34,93	1 3/8	5,77	3,87	1.090,0	111,15	245.042	122,52
35		5,78	3,89	1.108,9	113,08	249.291	124,65
36		6,13	4,12	1.165,3	118,83	261.970	130,98
38	1 1/2	6,78	4,55	1.295,0	132,05	291.128	145,56
40		7,64	5,14	1.429,2	145,74	321.308	160,65
41		8,04	5,40	1.498,0	152,76	336.770	168,38
41,28	1 5/8	8,08	5,43	1.503,0	153,26	337.888	168,94
42		8,37	5,62	1.572,6	160,37	353.544	176,77
44		9,17	6,16	1.713,6	174,74	385.241	192,62
44,45	1 3/4	9,40	6,32	1.765,6	180,04	396.923	198,46
46		9,95	6,69	1.861,7	189,84	418.527	209,26
47,63	1 7/8	10,61	7,13	1.990,0	202,92	447.370	223,68
48		10,94	7,35	2.054,6	209,51	461.895	230,95

A large, complex offshore oil rig stands in the middle of a deep blue ocean under a clear sky. The rig is a multi-level structure with a dense network of steel beams, pipes, and platforms. Several tall cranes are visible, extending upwards. The rig is supported by a yellow-painted steel jacket structure. The overall scene is industrial and maritime.

SEMI-ROTATION-RESISTANT ROPES

- Designed to generate only small levels of torque and rotation when loaded.
- Designed without any rope core.
- The outer strands have an extremely long lay length and therefore almost no tendency to start to rotate under load.

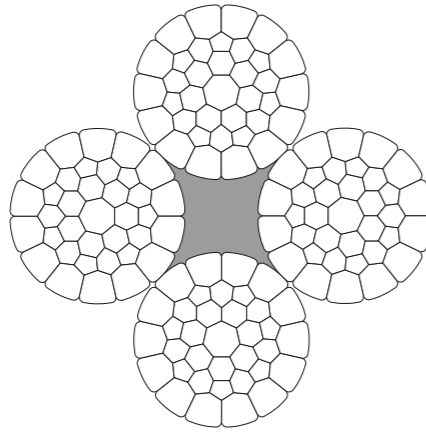
NAVIGATION

// ROTATION-RESISTANT

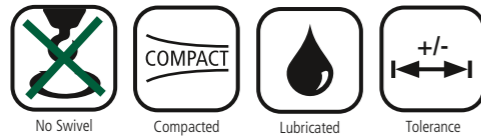
// SEMI-ROTATION-RESISTANT
DC 4 K

// NON-ROTATION-RESISTANT

OLIVEIRA DC 4 K



PROPERTIES



APPLICATIONS

Semi-rotation resistant hoist rope for deck crane applications and for electrical hoists with twin-hoist system and greater lifting height.

OVERVIEW

RCN	Diameter range [mm]	Construction	Number of outer strands	Number of wires	Number of outer load bearing wires	Average fill factor	Average spin factor
22	30 – 36	4xK36-CF	4	144	56	0,669	0,811 (1960 N/mm ²)

- Temperature range of use: -50°C to +100°C
- Tensile strength: 1960 N/mm²
- Available in ordinary lay
- Available in right hand

minimum breaking force

nominal diameter		weight		1960 N/mm ²				2160 N/mm ²			
mm	inch	kg/m	lb/ft	kN	t [metric]	lbs	t [2000 lbs]	kN	t [metric]	lbs	t [2000 lbs]
14		0,88	0,59	178,0	18,15	40.010	20,01	187,1	19,07	42.051	21,03
15		1,01	0,68	204,2	20,83	45.914	22,96	214,7	21,89	48.257	24,13
16	5/8"	1,14	0,77	230,0	23,46	51.713	25,86	241,8	24,65	54.352	27,18
17		1,33	0,90	269,0	27,43	60.465	30,23	282,7	28,83	63.550	31,78
18		1,43	0,96	288,3	29,40	64.819	32,41	303,0	30,90	68.126	34,06
19	3/4"	1,64	1,10	331,5	33,81	74.529	37,26	348,4	35,53	78.331	39,17
20		1,82	1,22	367,1	37,44	82.531	41,27	385,8	39,35	86.742	43,37
21		1,97	1,32	397,1	40,49	89.276	44,64	417,4	42,56	93.830	46,92
22	7/8"	2,17	1,46	438,9	44,76	98.669	49,33	461,3	47,04	103.703	51,85
23		2,38	1,60	479,7	48,92	107.840	53,92	504,2	51,41	113.342	56,67
24		2,60	1,75	513,5	52,36	115.439	57,72	539,7	55,03	121.328	60,66
25		2,82	1,89	555,1	56,60	124.784	62,39	583,4	59,49	131.151	65,58
25,40	1"	2,82	1,89	555,1	56,60	124.784	62,39	583,4	59,49	131.151	65,58
26		3,00	2,02	592,4	60,41	133.185	66,59	622,7	63,49	139.980	69,99
27		3,31	2,23	653,5	66,64	146.919	73,46	686,9	70,04	154.415	77,21
28		3,55	2,39	699,5	71,33	157.265	78,63	735,2	74,97	165.289	82,64
29		3,79	2,55	747,0	76,18	167.943	83,97	785,2	80,06	176.511	88,26
30		4,00	2,69	791,4	80,70	177.918	88,96	831,8	84,82	186.995	93,50
31,75	1 1/4"	4,48	3,01	884,5	90,19	198.843	99,42	923,7	94,19	207.656	103,83
32		4,55	3,06	896,6	91,43	201.568	100,78	942,4	96,09	211.852	105,93
33,50		4,70	3,16	940,9	95,95	211.534	105,77	989,0	100,85	222.326	111,16
34		4,98	3,34	998,6	101,83	224.494	112,25	1.050	107,02	235.948	117,97
34,93	1 3/8"	5,39	3,62	1.063	108,41	238.999	119,50	1.117	113,94	251.193	125,60
35		5,39	3,62	1.063	108,41	238.999	119,50	1.117	113,94	251.193	125,60
36		5,73	3,85	1.130	115,20	253.981	126,99	1.187	121,08	266.939	133,47
38	1 1/2"	6,30	4,23	1.244	126,85	279.649	139,82	1.307	133,32	293.916	146,96

Special constructions and diameters available - please contact us directly.

NON-ROTATION-RESISTANT ROPES

- Generate high levels of torque and rotation when loaded. Due to that the non-rotation-resistant ropes (Rotational) must not be used with a swivel.
- Designed with at least two layers of strands laid helically around a center.
- The direction of lay of the outer strands being same to that of the underlying layer.



NAVIGATION

// ROTATION-RESISTANT

// SEMI-ROTATION-RESISTANT

// NON-ROTATION-RESISTANT

HD 8 K (Option PPI)

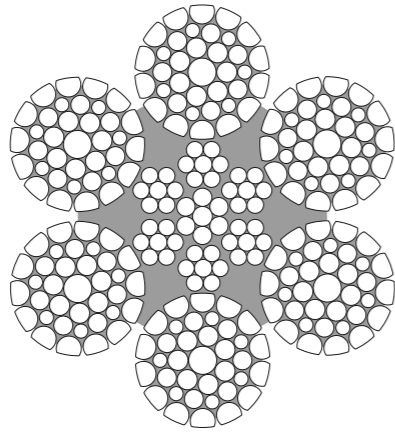
SC 6 K

DP 8 K (Option PPI)

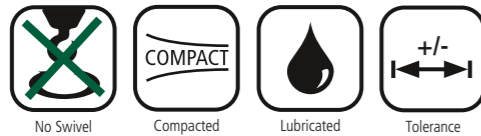
DP 10 K

LP 5

OLIVEIRA SC 6 K



PROPERTIES



APPLICATIONS

Can be used for all hoist and pulling applications when a higher MBL instead of 6 strands conventional ropes is required. Manufacturing of slings with a high MBL. Mainly used for logging (forest industry).

OVERVIEW

RCN	Diameter range [mm]	Construction	Number of outer strands	Number of wires	Number of outer load bearing wires	Average fill factor	Average spin factor
02	10 – 13	6xK19	6	163	114	0,666	0,86 (1960*)
06	14 – 19	6xK26	6	205	156	0,663	
08	20 – 29	6xK31	6	235	186	0,675	0,84 (1960*)
09	30 – 60	6xK36	6	265	216	0,675	

- Temperature range of use: -50°C to +100°C
- Available in ordinary lay and Lang's lay
- Available in right hand and left hand

nominal diameter		weight		minimum breaking force			
				1960 N/mm ²			
mm	inch	kg/m	lb/ft	kN	t [metric]	lbs	t [2000 lbs]
10		0,44	0,30	87,7	8,94	19.716	9,86
11	7/16	0,54	0,37	107,0	10,91	24.055	12,03
12		0,64	0,43	125,8	12,83	28.292	14,15
12,70	1/2	0,73	0,49	138,0	14,07	31.024	15,51
13		0,77	0,52	150,1	15,31	33.744	16,87
14		0,89	0,60	169,3	17,26	38.052	19,03
15		1,00	0,67	190,9	19,47	42.916	21,46
15,88	5/8	1,11	0,74	209,0	21,31	46.985	23,49
16		1,15	0,77	218,8	22,31	49.190	24,59
17		1,31	0,88	250,5	25,54	56.315	28,16
18		1,45	0,97	276,7	28,21	62.196	31,10
19	3/4	1,62	1,09	311,1	31,72	69.940	34,97
20		1,78	1,20	344,8	35,16	77.509	38,75
22		2,16	1,45	419,0	42,73	94.195	47,10
22,23	7/8	2,24	1,50	420,0	42,83	94.420	47,21
24		2,61	1,76	504,3	51,42	113.371	56,69
25		2,80	1,88	542,5	55,32	121.959	60,98
25,40	1	2,91	1,96	565,2	57,63	127.062	63,53
26		3,09	2,07	598,2	61,00	134.481	67,24
28		3,53	2,37	681,6	69,50	153.228	76,61
28,58	1 1/8	3,65	2,45	687,0	70,05	154.444	77,22
29		3,81	2,56	737,7	75,22	165.842	82,92
30		4,05	2,72	786,6	80,21	176.826	88,41
31,75	1 1/4	4,58	3,07	850,0	86,68	191.088	95,54
32		4,61	3,09	890,9	90,84	200.276	100,14
34		5,22	3,51	1.011,9	103,19	227.487	113,74
34,93	1 3/8	5,56	3,74	1.030,0	105,03	231.553	115,78
35		5,56	3,74	1.076,4	109,76	241.984	120,99
36		5,85	3,93	1.131,7	115,40	254.412	127,21
38	1 1/2	6,51	4,38	1.261,1	128,59	283.496	141,75
40		7,23	4,86	1.401,7	142,94	315.118	157,56
41,28	1 5/8	7,77	5,22	1.450,0	147,86	325.973	162,99
42		7,91	5,32	1.530,1	156,03	343.990	172,00
44		8,80	5,91	1.701,5	173,50	382.512	191,26
44,45	1 3/4	8,96	6,02	1.710,0	174,37	384.423	192,21
46		9,55	6,41	1.847,3	188,37	415.289	207,64
47,63	1 7/8	10,34	6,95	1.940,0	197,82	436.129	218,06
48		10,40	6,99	2.012,2	205,18	452.350	226,17
50		11,27	7,57	2.178,6	222,16	489.777	244,89
50,80	2	11,54	7,75	2.182,0	222,50	490.533	245,27
52		12,24	8,23	2.364,1	241,07	531.466	265,73
54	2 1/8	12,97	8,71	2.460,0	250,85	553.030	276,51
56		14,01	9,41	2.649,0	270,12	595.519	297,76
57,15	2 1/4	14,64	9,84	2.758,0	281,24	620.023	310,01
58		15,01	10,09	2.840,0	289,60	638.457	319,23
60		16,06	10,79	3.040,0	309,99	683.419	341,71

NAVIGATION

// ROTATION-RESISTANT

// SEMI-ROTATION-RESISTANT

// NON-ROTATION-RESISTANT

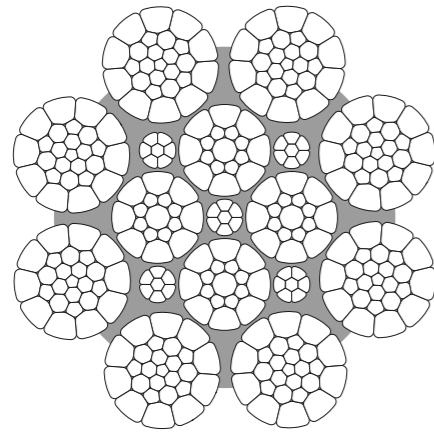
HD 8 K (Option PPI)
SC 6 K

DP 8 K (Option PPI)

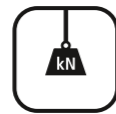
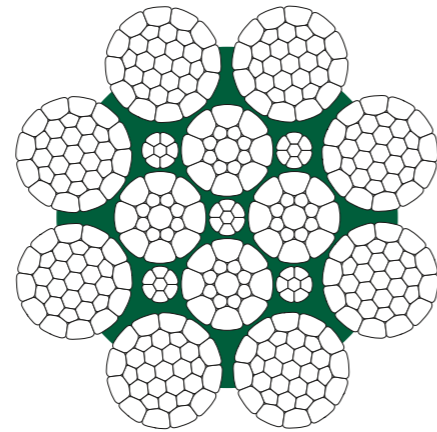
DP 10 K

LP 5

OLIVEIRA DP 8 K

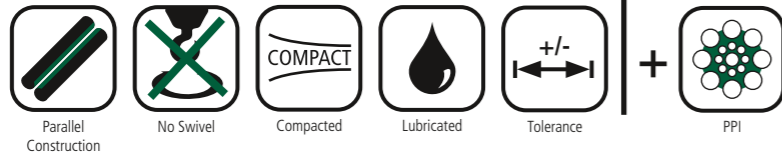


OLIVEIRA DP 8 K PPI



High
breaking force

PROPERTIES



APPLICATIONS

When an extremely high MBL is required for a multipart reeving hoist system: electric hoists, twin hoists systems, boom hoist and pendant rope for mobile cranes, tower cranes and all marine equipments.

OVERVIEW

RCN	Diameter range [mm]	Construction	Number of outer strands	Number of wires	Number of outer load bearing wires	Average fill factor	Average spin factor
03	6,40 – 7,20	8xK12	8	105	96	0,701	0,86 (2160*)
03	8 – 17	8xK17	8	239	136	0,710	
09	18 – 28,58	8xK26	8	311	208	0,712	
11	30 – 38	8xK31	8	351	248	0,721	

- Temperature range of use: -50°C to +100°C
- Temperature range of use for option PPI: -50°C to +80°C
- Option PPI – only available for diameter ≥ 13mm
- Please add 1.5% on the weight for ropes with PPI
- Available in ordinary lay and Lang's lay
- Available in right hand and left hand
- Fleet angle must be < 1° 30'

minimum breaking force

nominal diameter		weight		2160 N/mm ²			
mm	inch	kg/m	lb/ft	kN	t [metric]	lbs	t [2000 lbs]
6,40		0,19	0,13	41,4	4,22	9.307	4,65
7		0,23	0,16	50,5	5,15	11.353	5,68
7,20		0,25	0,16	53,2	5,42	11.960	5,98
8	5/16	0,30	0,20	64,1	6,54	14.410	7,21
8,50		0,34	0,23	73,3	7,47	16.478	8,24
9		0,39	0,26	82,3	8,39	18.502	9,25
9,53	3/8	0,43	0,29	92,2	9,40	20.727	10,36
10		0,48	0,32	102,4	10,44	23.020	11,51
11	7/16	0,57	0,38	123,1	12,55	27.674	13,84
12		0,68	0,46	147,3	15,02	33.114	16,56
12,70	1/2	0,76	0,51	159,0	16,21	35.745	17,87
13		0,82	0,55	176,3	17,98	39.634	19,82
14		0,93	0,63	202,6	20,66	45.546	22,77
15		1,09	0,73	236,9	24,16	53.262	26,63
15,88	5/8	1,21	0,82	254,4	25,94	57.191	28,60
16		1,22	0,82	263,9	26,91	59.325	29,66
17		1,40	0,94	302,8	30,88	68.072	34,04
18		1,54	1,04	335,3	34,19	75.374	37,69
19	3/4	1,73	1,16	375,8	38,32	84.491	42,25
20		1,90	1,27	410,9	41,90	92.364	46,18
22		2,31	1,55	500,8	51,07	112.584	56,29
22,23	7/8	2,35	1,58	503,0	51,29	113.079	56,54
24		2,81	1,89	605,7	61,76	136.167	68,08
25,40	1	3,06	2,05	649,0	66,18	145.901	72,95
26		3,23	2,17	701,1	71,49	157.618	78,81
28		3,74	2,51	809,5	82,55	181.983	90,99
28,58	1 1/8	3,89	2,61	820,0	83,62	184.343	92,17
30		4,34	2,92	942,1	96,06	211.782	105,89
31,75	1 1/4	4,85	3,26	1.023,0	104,32	229.980	114,99
32		4,90	3,29	1.066,2	108,72	239.691	119,85
34		5,62	3,77	1.220,3	124,44	274.334	137,17
34,93	1 3/8	5,84	3,93	1.231,0	125,53	276.740	138,37
36		6,25	4,20	1.357,6	138,44	305.201	152,60
38	1 1/2	7,00	4,71	1.523,6	155,36	342.519	171,26

NAVIGATION

// ROTATION-RESISTANT

// SEMI-ROTATION-RESISTANT

// NON-ROTATION-RESISTANT

HD 8 K (Option PPI)

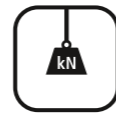
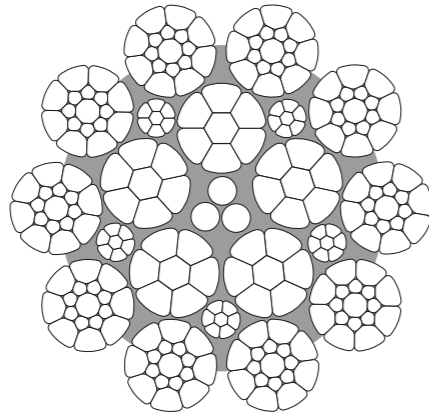
SC 6 K

DP 8 K (Option PPI)

DP 10 K

LP 5

OLIVEIRA DP 10 K



High breaking force

PROPERTIES



Parallel Construction

No Swivel

Compacted

Lubricated

Tolerance

APPLICATIONS

When an extremely high MBL is required for a multipart reeving hoist system: electric hoists, twin hoist systems, boom hoist and pendant rope for mobile cranes, tower cranes and all marine equipment.

OVERVIEW

RCN	Diameter range [mm]	Construction	Number of outer strands	Number of wires	Number of outer load bearing wires	Average fill factor	Average spin factor
05	14 – 18	10xK17	10	243	170	0,750	0,85 (2160*)

- Temperature range of use: -50°C to +100°C
- Available in ordinary lay and Lang's lay
- Available in right hand and left hand

nominal diameter		weight		minimum breaking force			
				2160 N/mm ²			
mm	inch	kg/m	lb/ft	kN	t [metric]	lbs	t[2000 lbs]
14		0,99	0,66	214,5	21,88	48.226	24,11
16		1,29	0,87	279,9	28,54	62.919	31,46
18		1,60	1,07	338,0	34,47	75.985	37,99

NAVIGATION

// ROTATION-RESISTANT

// SEMI-ROTATION-RESISTANT

// NON-ROTATION-RESISTANT

HD 8 K (Option PPI)

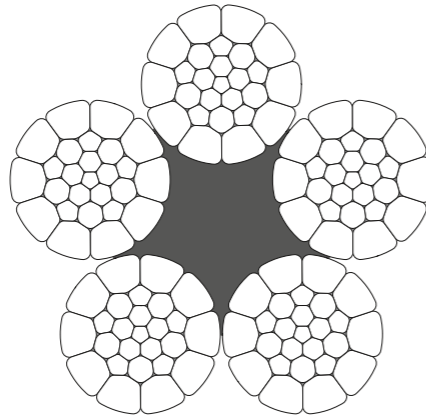
SC 6 K

DP 8 K (Option PPI)

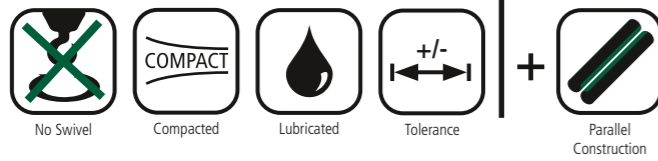
DP 10 K

LP 5

OLIVEIRA LP 5



PROPERTIES



APPLICATIONS

Suspended gondolas and platforms.

Jaw pulling device.

Overhead cranes and electric hoists.

Wind mill hoists and forest winches.

OVERVIEW

RCN	Diameter range [mm]	Construction	Number of outer strands	Number of wires	Number of outer load bearing wires	Average fill factor	Average spin factor
02	6	5x K12-CWP*	5	78	60	0,633	*N/mm ²
03	8,30 – 10,30	5x K19-CF	5	95	95	0,544	0,86 (1960*)
05	11,50 – 14	5x K26-CF	5	130	130	0,550	0,84 (2160*)
06	16,3	5x K31-CF	5	155	155	0,533	

- Temperature range of use: -50°C to +100°C
- Available in ordinary lay and Lang's lay
- Available in right hand and left hand

* core with 6x3 = 18 wires

nominal diameter	weight		minimum breaking force										
			1960 N/mm ²				2160 N/mm ²						
			mm	inch	kg/m	lb/ft	kN	t [metric]	lbs	t [2000 lbs]	kN	t [metric]	lbs
6		0,15	0,10	30,2	3,08	6.791	3,40	31,7	3,23	7.124	3,56		
8,30		0,26	0,18					54,3	5,53	12.198	6,10		
9		0,32	0,22					66,9	6,82	15.040	7,52		
9,50		0,34	0,23					69,1	7,05	15.544	7,77		
10,30		0,40	0,27					82,0	8,36	18.433	9,22		
11,50		0,49	0,33	93,9	9,58	21.110	10,55						
11,60		0,50	0,34	95,2	9,71	21.410	10,71						
14		0,77	0,52					157,9	16,11	35.507	17,75		
16,30		0,98	0,66	187,8	19,15	42.229	21,11						

Special constructions and diameters available - please contact us directly.

DISCARD CRITERIA

DISCARD CRITERIA ACCORDING TO ISO 4309:2010

Wire ropes should be visually inspected at frequent intervals by a competent person to make sure that the rope is in a safe condition and has not reached one of the following criteria:

- 1) Visible broken wires (see the following tables)
- 2) Reduction in rope diameter
- 3) Fracture of strands
- 4) Corrosion
- 5) Deformation and damage

SINGLE-LAYER AND PARALLEL-CLOSED ROPES

Number of visible broken wires for ropes working in steel sheaves.

NOTE: Ropes having outer strands of Seale construction where the number of wires in each strand is 19 or less (e.g. 6 × 19 Seale) are placed in this table two rows above that row in which the construction would normally be placed based on the number of load bearing wires in the outer layer of strands.

		Number of visible broken outer wires ²⁾					
		Rope working (single-layer drum)				Rope spooling (multi-layer drum) ³⁾	
		Sections of rop working in steel sheaves and/or spooling on a single-layer drum				Sections of rope spooling on a multi-layer drum	
		Classes M1 to M4 or class unknown ⁴⁾				All classes	
		Ordinary lay (sZ, zS)		Lang lay (sS, zZ)		Ordinary and Lang lay	
RCN	Number of load-bearing wires in the outer strands of the rope ¹⁾ n	Over a length of 6d ⁵⁾	Over a length of 30d ⁵⁾	Over a length of 6d ⁵⁾	Over a length of 30d ⁵⁾	Over a length of 6d ⁵⁾	Over a length of 30d ⁵⁾
01	n ≤ 50	2	4	1	2	4	8
02	51 ≤ n ≤ 75	3	6	2	3	6	12
03	76 ≤ n ≤ 100	4	8	2	4	8	16
04	101 ≤ n ≤ 120	5	10	2	5	10	20
05	121 ≤ n ≤ 140	6	11	3	6	12	22
06	141 ≤ n ≤ 160	6	13	3	6	12	26
07	161 ≤ n ≤ 180	7	14	4	7	14	28
08	181 ≤ n ≤ 200	8	16	4	8	16	32
09	201 ≤ n ≤ 220	9	18	4	9	18	36
10	221 ≤ n ≤ 240	10	19	5	10	20	38
11	241 ≤ n ≤ 260	10	21	5	10	20	42
12	261 ≤ n ≤ 280	11	22	6	11	22	44
13	281 ≤ n ≤ 300	12	24	6	12	24	48
	n > 300	0,04 × n	0,08 × n	0,02 × n	0,04 × n	0,08 × n	0,16 × n

- 1) For the purposes of this International Standard, Filler wires are not regarded as load-bearing wires and are not included in the values of n.
- 2) A broken wire has two ends (counted as one wire).
- 3) The values apply to deterioration that occurs at the cross-over zones and interference between wraps due to fleet angle effects (and not to those sections of rope which only work in sheaves and do not spool on the drum).
- 4) Twice the number of broken wires listed may be applied to ropes on mechanisms whose classification is known to be M5 to M8.
- 5) d = nominal diameter of rope.

Classes M1 to M4 equates to mechanism group 1E_m to 1A_m | Classes M5 to M8 equates to mechanism group 2_m to 5_m
Please pay attention to the country- / application-specific standards.

ROTATION-RESISTANT ROPES

Number of visible broken wires for ropes working in steel sheaves.

NOTE: Ropes having outer strands of Seale construction where the number of wires in each strand is 19 or less (e.g. 18 × 19 Seale–WSC) are placed in this table two rows above that row in which the construction would normally be placed based on the number of wires in the outer layer of strands.

		Number of visible broken outer wires ²⁾			
		Rope working on a single-layer drum		Rope spooling on a multi-layer drum ³⁾	
		Sections of rop working in steel sheaves and/or spooling on a single-layer drum		Sections of rope spooling on a multi-layer drum	
RCN	Number of outer strands or number of load-bearing wires in the outer strands of the rope ¹⁾ n	Over a length of 6d ⁴⁾	Over a length of 30d ⁴⁾	Over a length of 6d ⁴⁾	Over a length of 30d ⁴⁾
21	4 strands n ≤ 100	2	4	2	4
22	3 or 4 strands n ≥ 100	2	4	4	8
11 or more outer strands					
23–1	71 ≤ n ≤ 100	2	4	4	8
23–2	101 ≤ n ≤ 120	3	5	5	10
23–3	121 ≤ n ≤ 140	3	5	6	11
24	141 ≤ n ≤ 160	3	6	6	13
25	161 ≤ n ≤ 180	4	7	7	14
26	181 ≤ n ≤ 200	4	8	8	16
27	201 ≤ n ≤ 220	4	9	9	18
28	221 ≤ n ≤ 240	5	10	10	19
29	241 ≤ n ≤ 260	5	10	10	21
30	261 ≤ n ≤ 280	6	11	11	22
31	281 ≤ n ≤ 300	6	12	12	24
	n > 300	6	12	12	24

- 1) For the purposes of this International Standard, Filler wires are not regarded as load-bearing wires and are not included in the values of n.
- 2) A broken wire has two ends.
- 3) The values apply to deterioration that occurs at the cross-over zones and interference between wraps due to fleet angle effects (and not to those sections of rope that only work in sheaves and do not spool on the drum).
- 4) d = nominal diameter of rope.

Please pay attention to the country- / application-specific standards.

CONVERSION TABLE

LENGTH

1m	3,28083	ft
1m	39,36997	inch
1 km	0,621371	miles
1 ft	0,3048	m
1 mile	1,609344	km
1 inch	0,0254	m

TENSILE

1 N/mm ²	0,101972	kp/mm ²
1 N/mm ²	145,037719	psi
1 N/mm ²	10	bar
1 N/mm ²	1	Mpa

FORCE

1 kN	101,9716	kp
1 kN	0,1019716	metric tnf
1 kN	224,8089	lbf

AREA

1 mm ²	0,001550	in ²
1 m ²	10,76391	ft ²
1 ft ²	0,092903	m ²
1 in ²	645,16	mm ²
1 m ²	1,19599	yard ²
1 yard ²	0,836128	m ²

MASS

1 metric t	1000	kg
1 metric t	1,102311	short t
1 metric t	0,984207	long t
1 metric t	2204,623	lbs
1 lbs	0,453529	kg
1 long t	1,016047	metric t
1 short t	0,907185	metric t

LENGTH MASS

1 kg/m	0,671970	lbs/ft
1 lbs/ft	1,488164	kg/m

FORMER OLIVEIRA STEEL WIRE ROPES

Rotation-resistant:

- LT 24 C
- LT 17
- LT 18

Non-rotation-resistant:

- HD9K + PPI
- SC8C + PPI
- 6x19S + IWRC / 6 x 36 WS + IWRC
- Ennelift
- 8x19 S+ FC (Sisal core)
- 6x19 S + FC (Polypropylene core)

Product specifications are subject to change without notice or obligation. The shown photographs, drawings or cross sections are only for illustrative purposes, the images can vary depending on requested diameter and current status of technical development.

The information supplied in this brochure is only a guideline for rope selection. Please contact us for any information or advice on the use of our ropes or if you have any doubt in selecting a rope for a specific application.

Any warranty, expressed or implied as to quality, performance or fitness for use of WireCo WorldGroup products is always premised on the condition that the published strengths apply only to new, unused products, that the mechanical equipment on which such products are used is properly designed and maintained, that such products are properly stored, handled, used and maintained, and properly inspected on a regular basis during the period of use.

Seller shall not be liable under any circumstances for consequential or incidental damages or secondary charges including but not limited to personal injury, labor costs, a loss of profits resulting from the use of said products or from said products being incorporated in or becoming a component of any other product.

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