WIRECO

# SPECIAL WIRE ROPES

OLIVEIRA

# INTRODUCTION

## WIRECO

**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.

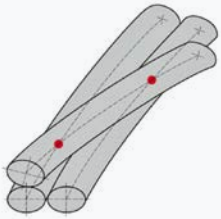
# CONTENTS

# GENERAL DEFINITIONS

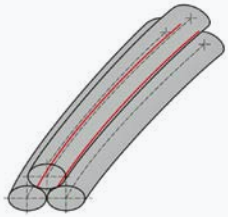
## PARALLEL LAY ROPES

Parallel Construction

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.

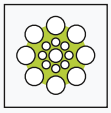


cross lay (non-parallel)
stress concentration



parallel lay
stress distribution

## PPI - PLASTIC PROTECTED IMPREGNATION



PPI

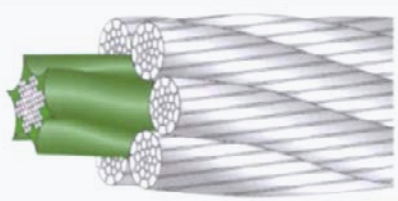
In consequence of being not only a steel wire rope producer but also a synthetic rope manufacturer, Oliveira has a strong and deep know-how of plastic and its applications. The PPI operation is applied during the Oliveira process in one continuous operation which guarantees a perfect impregnation and 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


Swivel


No Swivel

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)

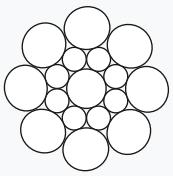
- Less than or equal to 1 turn/1000d lifting a load equivalent to 20% MBF, a swivel can be used
- Greater than 1 turn but no greater than 4 turns/1000d – a swivel may be used subject to the recommendations of the rope manufacturer and/or approval of a competent person
- Greater than 4 turns/1000d – a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

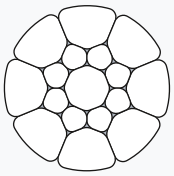
## COMPACTING

Compacted

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


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.

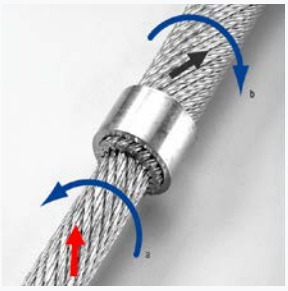
## PRODUCTION TOLERANCE

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 un-twist 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.

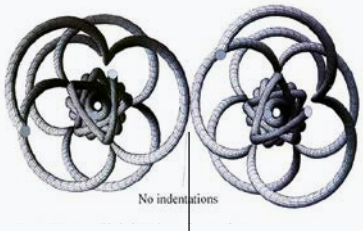
## MULTIPLE LAYER SPOOLING

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:

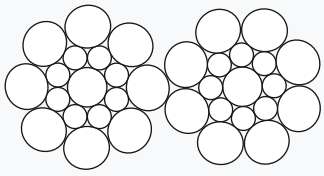
- Lang's lay to prevent indentations



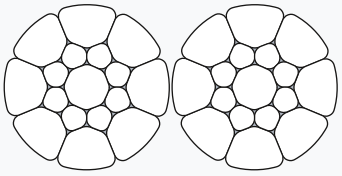

Lang's lay ropes: no indentations of outer wires


regular lay ropes: indentations of outer wires

- Compacted outer strands to prevent indentations



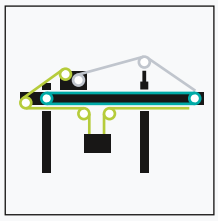
conventional strand



compacted strand

# ROPE SELECTION BY APPLICATION

## CONTAINER CRANE

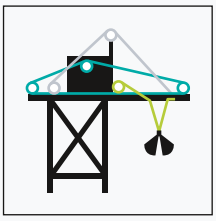


**HOIST ROPE**
OLIVEIRA **HD 8 K (Option PPI)**

**BOOM HOIST**
OLIVEIRA **HD 8 K (Option PPI)**

**TROLLEY**
OLIVEIRA **HD 8 K (Option PPI)**

## SHIP UNLOADER

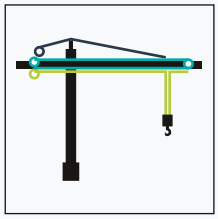


**HOIST ROPE**
OLIVEIRA **HD 8 K (Option PPI)**

**BOOM HOIST**
OLIVEIRA **HD 8 K (Option PPI)**

**TROLLEY**
OLIVEIRA **HD 8 K (Option PPI)**

## TOWER CRANE

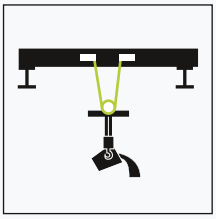


**HOIST ROPE**
OLIVEIRA **TOWERLIFT15**
OLIVEIRA **LT 24 K**

**BOOM PENDANT**
OLIVEIRA **HD 8 K (Option PPI)**

**TROLLEY**
OLIVEIRA **SC 6 K**

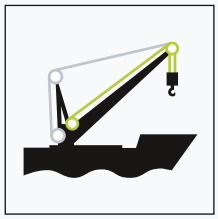
## OVERHEAD CRANE



**HOIST ROPE**
OLIVEIRA **HD 8 K (Option PPI)**
OLIVEIRA **SC 6 K**

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

## DECK CRANE



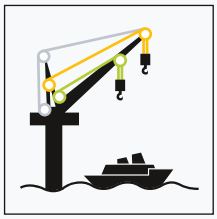
**HOIST ROPE**
OLIVEIRA **NR MAXIPACT (Option PPI)**
OLIVEIRA **NR 15 MAXILIFT (Option PPI)**
OLIVEIRA **DC 4 K**

**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)**

**BOOM HOIST**
OLIVEIRA **HD 8 K (Option PPI)**

**AUXILIARY HOIST**
OLIVEIRA **NR MAXIPACT (Option PPI)**

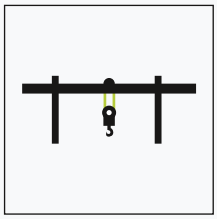
## LATTICE BOOM CRAWLER CRANE

**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)**

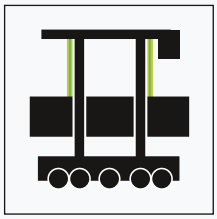
**AUXILIARY HOIST**
OLIVEIRA **NR MAXIPACT (Option PPI)**
OLIVEIRA **NR 15 MAXILIFT (Option PPI)**

## RUBBER TIRED GANTRY / RAIL MOUNTED GANTRY



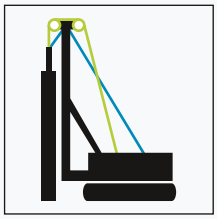
**HOIST ROPE**
OLIVEIRA **HD 8 K (Option PPI)**
OLIVEIRA **DP 8 K (Option PPI)**

## STRADDLE CARRIERS



**HOIST ROPE**
OLIVEIRA **HD 8 K (Option PPI)**
OLIVEIRA **DP 8 K (Option PPI)**

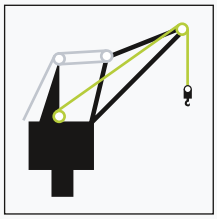
## DRILLING / PILING



**HOIST ROPE**
OLIVEIRA **NR 15 MAXILIFT (Option PPI)**

**FEED ROPE**
OLIVEIRA **HD 8 K (Option PPI)**

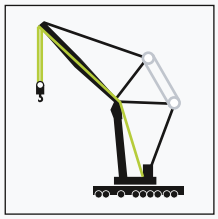
## HARBOR MOBILE CRANE



**HOIST ROPE**
OLIVEIRA **HD 8 K (Option PPI)**

**BOOM HOIST**
OLIVEIRA **HD 8 K (Option PPI)**

## LATTICE BOOM MOBILE CRANE



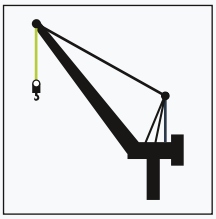
### HOIST ROPE

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)**

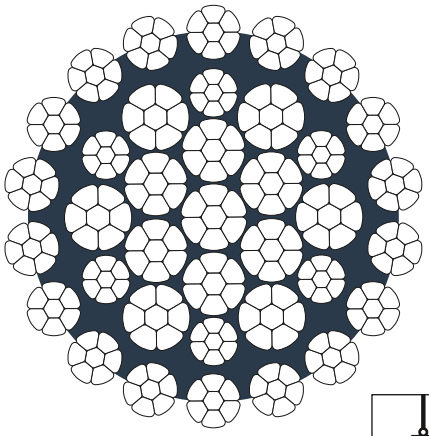
### BOOM PENDANT

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

# ROTATION-RESISTANT ROPES

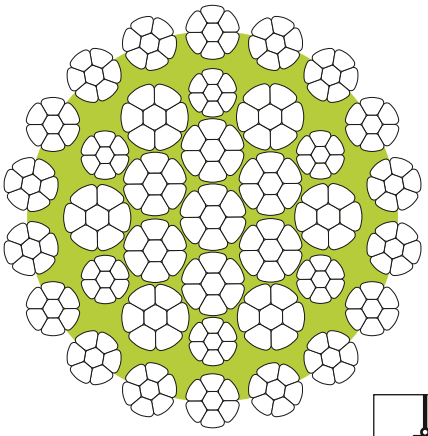
- Designed to generate reduced levels of torque and rotation when loaded.
- Designed with at least two layers of strands laid helically around a center.
- The direction of lay of the outer strands being opposite to that of the underlying layer.

# OLIVEIRA
# NR MAXIPACT




High
breaking force

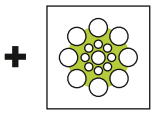
# OLIVEIRA
# NR MAXIPACT PPI




High
breaking force

## PROPERTIES


Swivel | Compacted | Lubricated | Tolerance



PPI

## 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

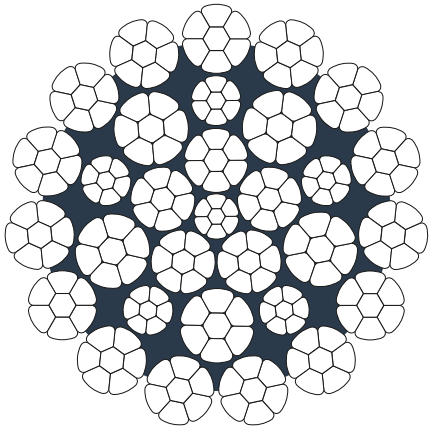
| RCN | Diameter range [mm] | Construction | Number of outer strands | Number of wires | Number of outer load bearing wires | Average fill factor | Average spin factor *N/mm² |
|---|---|---|---|---|---|---|---|
| 23–3 | 12,70 – 52 | 37xK7 | 18 | 259 | 126 | 0,716 | 0,85 (1960*)<br>0,81 (2160*) |
| 30 | 54 – 64 | 37xK19 | 18 | 710 | 342 | 0,726 | 0,83 (1960*)<br>0,79 (2160*) |
| >31 | 66 – 70 | 37xK26 | 18 | 1092 | 468 | 0,714 | 0,81 (1960*)<br>0,78 (2160*) |

- Temperature range of use: -50°C to +75°C
- 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

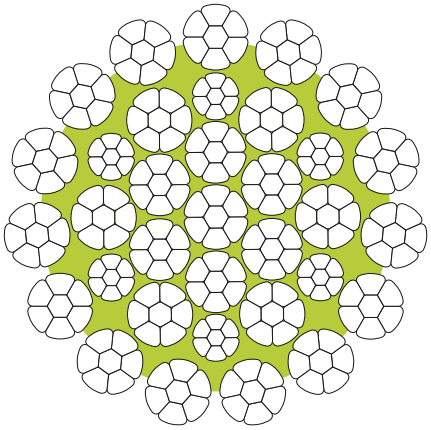
| nominal diameter | | weight | | minimum breaking force | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1960 N/mm² | | | | 2160 N/mm² | | | |
| mm | inch | kg/m | lb/ft | kN | t [metric] | lbs | t[2000lbs] | kN | t [metric] | lbs | t[2000lbs] |
| 12,70 | 1/2 | 0,77 | 0,52 | **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 | | 0,97 | 0,65 | **209,6** | 21,37 | 47.116 | 23,56 | **220,6** | 22,50 | 49.603 | 24,80 |
| 15,88 | 5/8 | 1,09 | 0,73 | **230,0** | 23,45 | 51.706 | 25,85 | **241,0** | 24,58 | 54.179 | 27,09 |
| 16 | | 1,24 | 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 | 1,05 | **302,5** | 30,85 | 68.015 | 34,01 | **317,7** | 32,40 | 71.428 | 35,71 |
| 19 | 3/4 | 1,75 | 1,18 | **338,9** | 34,55 | 76.180 | 38,09 | **355,9** | 36,29 | 80.002 | 40,00 |
| 20 | | 1,93 | 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 | | 2,33 | 1,57 | **452,0** | 46,09 | 101.610 | 50,81 | **474,7** | 48,40 | 106.709 | 53,35 |
| 22,23 | 7/8 | 2,36 | 1,59 | **458,0** | 46,70 | 102.962 | 51,48 | **481,0** | 49,05 | 108.133 | 54,07 |
| 23 | | 2,55 | 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 | | 3,03 | 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 | | 3,25 | 2,18 | **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 | | 3,79 | 2,55 | **734,0** | 74,85 | 165.019 | 82,51 | **770,9** | 78,61 | 173.299 | 86,65 |
| 28,58 | 1 1/8 | 3,97 | 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 | | 4,37 | 2,94 | **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 | | 4,95 | 3,32 | **959,6** | 97,85 | 215.730 | 107,87 | **1.007** | 102,69 | 226.383 | 113,19 |
| 34 | | 5,58 | 3,75 | **1.079** | 110,03 | 242.569 | 121,28 | **1.133** | 115,53 | 254.710 | 127,35 |
| 34,93 | 1 3/8 | 5,93 | 3,98 | **1.146** | 116,86 | 257.631 | 128,82 | **1.202** | 122,57 | 270.220 | 135,11 |
| 36 | | 6,30 | 4,23 | **1.221** | 124,51 | 274.492 | 137,25 | **1.282** | 130,73 | 288.205 | 144,10 |
| 38 | 1 1/2 | 6,96 | 4,68 | **1.352** | 137,87 | 303.942 | 151,97 | **1.418** | 144,60 | 318.779 | 159,39 |
| 40 | | 7,69 | 5,17 | **1.495** | 152,45 | 336.094 | 168,05 | **1.568** | 159,89 | 352.500 | 176,25 |
| 41,28 | 1 5/8 | 8,29 | 5,57 | **1.602** | 163,36 | 360.144 | 180,07 | **1.682** | 171,52 | 378.129 | 189,06 |
| 42 | | 8,48 | 5,70 | **1.645** | 167,74 | 369.811 | 184,91 | **1.730** | 176,41 | 388.913 | 194,46 |
| 44 | | 9,37 | 6,30 | **1.818** | 185,38 | 408.703 | 204,35 | **1.909** | 194,66 | 429.160 | 214,58 |
| 44,45 | 1 3/4 | 9,51 | 6,39 | **1.838** | 187,42 | 413.199 | 206,60 | **1.928** | 196,60 | 433.432 | 216,72 |
| 46 | | 10,33 | 6,94 | **1.995** | 203,43 | 448.494 | 224,25 | **2.095** | 213,63 | 470.975 | 235,49 |
| 47,63 | 1 7/8 | 10,86 | 7,29 | **2.095** | 213,63 | 470.975 | 235,49 | **2.190** | 223,32 | 492.331 | 246,17 |
| 48 | | 11,32 | 7,61 | **2.184** | 222,71 | 490.983 | 245,49 | **2.293** | 233,82 | 515.487 | 257,74 |
| 50 | | 12,03 | 8,09 | **2.331** | 237,70 | 524.030 | 262,01 | **2.451** | 249,93 | 551.007 | 275,50 |
| 50,80 | 2 | 12,42 | 8,34 | **2.400** | 244,73 | 539.541 | 269,77 | **2.517** | 256,66 | 565.844 | 282,92 |
| 52 | | 13,17 | 8,85 | **2.548** | 259,82 | 572.813 | 286,41 | **2.676** | 272,88 | 601.589 | 300,79 |
| 54 | 2 1/8 | 14,34 | 9,63 | **2.731** | 278,48 | 613.953 | 306,98 | **2.868** | 292,45 | 644.752 | 322,38 |
| 56 | | 15,33 | 10,30 | **2.854** | 291,03 | 641.605 | 320,80 | **3.049** | 310,91 | 685.442 | 342,72 |
| 57,15 | 2 1/4 | 16,07 | 10,80 | **2.981** | 303,98 | 670.155 | 335,08 | **3.180** | 324,27 | 714.892 | 357,45 |
| 58 | | 16,49 | 11,08 | **3.063** | 312,34 | 688.590 | 344,29 | **3.261** | 332,53 | 733.102 | 366,55 |
| 60 | | 17,78 | 11,95 | **3.293** | 335,79 | 740.296 | 370,15 | **3.500** | 356,90 | 786.831 | 393,42 |
| 60,33 | 2 3/8 | 17,78 | 11,94 | **3.335** | 340,08 | 749.738 | 374,87 | **3.520** | 358,94 | 791.327 | 395,66 |
| 62 | | 18,74 | 12,59 | **3.477** | 354,56 | 781.661 | 390,83 | **3.705** | 377,80 | 832.917 | 416,46 |
| 63,50 | 2 1/2 | 19,66 | 13,21 | **3.652** | 372,40 | 821.002 | 410,50 | **3.870** | 394,63 | 870.010 | 435,01 |
| 64 | | 20,20 | 13,57 | **3.750** | 382,39 | 843.033 | 421,52 | **4.018** | 409,72 | 903.282 | 451,64 |
| 66 | | 21,19 | 14,24 | **3.900** | 397,69 | 876.755 | 438,38 | **4.135** | 421,65 | 929.585 | 464,79 |
| 66,68 | 2 5/8 | 21,34 | 14,34 | **3.910** | 398,71 | 879.003 | 439,50 | **4.150** | 423,18 | 932.957 | 466,48 |
| 68 | | 22,26 | 14,96 | **4.100** | 418,08 | 921.716 | 460,86 | **4.354** | 443,98 | 978.818 | 489,41 |
| 70 | 2 3/4 | 23,78 | 15,98 | **4.322** | 440,72 | 971.624 | 485,81 | **4.646** | 473,76 | 1.044.462 | 522,23 |

Special constructions and diameters available – please contact us directly.

# OLIVEIRA
# NR15 MAXILIFT



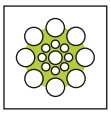
# OLIVEIRA
# NR15 MAXILIFT PPI



## PROPERTIES


Swivel | Compacted | Lubricated | Tolerance

\+



PPI

## 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

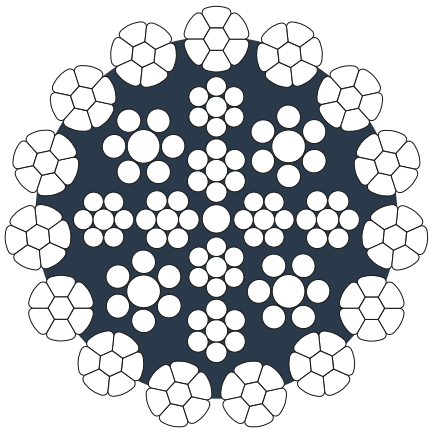
| RCN | Diameter range [mm] | Construction | Number of outer strands | Number of wires | Number of outer load bearing wires | Average fill factor | Average spin factor *N/mm² |
|---|---|---|---|---|---|---|---|
| 23–2 | 10 – 28,58 | 31xK7 | 15 | 217 | 105 | 0,701 | 0,85 (1960*) |
| 23–2 | 30 – 50,80 | 34xK7 | 15 | 238 | 105 | 0,705 | 0,81 (2160*) |

- Temperature range of use: -50°C to +75°C
- 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

| nominal diameter | | weight | | minimum breaking force 1960 N/mm² | | | | 2160 N/mm² | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | inch | kg/m | lb/ft | kN | t [metric] | lbs | t[2000lbs] | kN | t [metric] | lbs | t[2000lbs] |
| 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 |
| 14,30 | 9/16'' | 0,96 | 0,65 | **185,3** | 18,89 | 41.648 | 20,82 | **194,6** | 19,84 | 43.739 | 21,87 |
| 15 | | 1,07 | 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 | | 1,37 | 0,92 | **265,4** | 27,06 | 59.664 | 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 | 1,71 | 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 | 1,41 | **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 | 2,36 | 1,59 | **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 | 3,09 | 2,07 | **594,9** | 60,66 | 133.739 | 66,87 | **624,8** | 63,71 | 140.461 | 70,23 |
| 26 | | 3,23 | 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 | | 3,72 | 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 | | 4,83 | 3,24 | **935,5** | 95,39 | 210.300 | 105,15 | **982,4** | 100,18 | 220.852 | 110,43 |
| 34 | | 5,51 | 3,71 | **1.063** | 108,40 | 238.972 | 119,49 | **1.117** | 113,90 | 251.112 | 125,56 |
| 34,93 | 1 3/8 | 5,80 | 3,90 | **1.119** | 114,11 | 251.561 | 125,78 | **1.175** | 119,82 | 264.150 | 132,08 |
| 36 | | 6,23 | 4,19 | **1.202** | 122,57 | 270.220 | 135,11 | **1.262** | 128,69 | 283.709 | 141,85 |
| 38 | 1 1/2 | 6,90 | 4,63 | **1.330** | 135,62 | 298.996 | 149,50 | **1.397** | 142,45 | 314.058 | 157,03 |
| 40 | | 7,64 | 5,14 | **1.477** | 150,61 | 332.043 | 166,02 | **1.552** | 158,26 | 348.903 | 174,45 |
| 41,28 | 1 5/8 | 8,23 | 5,53 | **1.586** | 161,73 | 356.547 | 178,27 | **1.666** | 169,88 | 374.532 | 187,27 |
| 42 | | 8,38 | 5,63 | **1.644** | 167,64 | 369.586 | 184,79 | **1.726** | 176,00 | 388.020 | 194,01 |
| 44 | | 9,34 | 6,27 | **1.780** | 181,51 | 400.160 | 200,08 | **1.868** | 190,48 | 419.943 | 209,97 |
| 44,45 | 1 3/4 | 9,59 | 6,45 | **1.868** | 190,48 | 419.943 | 209,97 | **1.962** | 200,07 | 441.075 | 220,54 |
| 46 | | 10,13 | 6,81 | **1.949** | 198,74 | 438.153 | 219,08 | **2.047** | 208,74 | 460.184 | 230,09 |
| 47,63 | 1 7/8 | 10,78 | 7,24 | **2.078** | 211,90 | 467.153 | 233,58 | **2.180** | 222,30 | 490.083 | 245,04 |
| 48 | | 10,91 | 7,33 | **2.106** | 214,75 | 473.448 | 236,72 | **2.212** | 225,56 | 497.277 | 248,64 |
| 50 | | 11,97 | 8,04 | **2.314** | 235,96 | 520.208 | 260,10 | **2.431** | 247,89 | 546.510 | 273,26 |
| 50,80 | 2 | 12,24 | 8,22 | **2.372** | 241,88 | 533.247 | 266,62 | **2.491** | 254,01 | 559.999 | 280,00 |

Special constructions and diameters available – please contact us directly.

# OLIVEIRA
# TOWERLIFT 15



## PROPERTIES


Swivel | Compacted | Lubricated | Tolerance

## 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

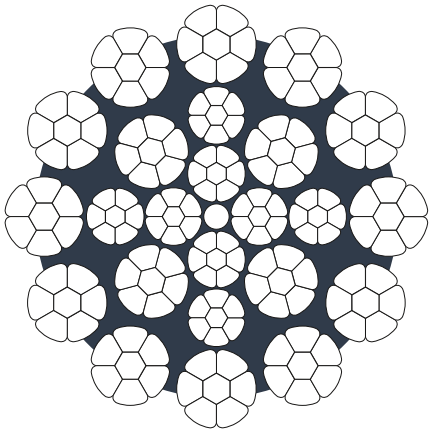
| RCN | Diameter range [mm] | Construction | Number of outer strands | Number of wires | Number of outer load bearing wires | Average fill factor | Average spin factor *N/mm² |
|---|---|---|---|---|---|---|---|
| 23–2 | 8 – 21 | 27x7 | 15 | 190 | 105 | 0,648 | 0,85 (1960*)<br>0,81 (2160*) |
| 23–2 | 22 – 50,80 | 31x7 | 15 | 217 | 105 | 0,660 | |

- Temperature range of use: -50°C to +75°C
- Available in ordinary lay and Lang's lay
- Available in right hand and left hand

| nominal diameter | | weight | | minimum breaking force 1960 N/mm² | | | | 2160 N/mm² | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| mm | inch | kg/m | lb/ft | kN | t [metric] | lbs | t[2000lbs] | kN | t [metric] | lbs | t[2000lbs] |
| 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 | | 2,40 | 1,61 | **459,8** | 46,89 | 103.367 | 51,68 | **482,2** | 49,17 | 108.403 | 54,20 |
| 24 | | 2,60 | 1,74 | **496,9** | 50,67 | 111.708 | 55,85 | **521,2** | 53,15 | 117.170 | 58,59 |
| 25 | | 2,84 | 1,91 | **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 | | 3,00 | 2,02 | **578,0** | 58,94 | 129.940 | 64,97 | **606,2** | 61,82 | 136.279 | 68,14 |
| 27 | | 3,30 | 2,22 | **634,6** | 64,71 | 142.664 | 71,33 | **665,5** | 67,86 | 149.610 | 74,81 |
| 28 | | 3,60 | 2,42 | **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 | | 4,06 | 2,73 | **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 | | 4,59 | 3,08 | **877,8** | 89,51 | 197.337 | 98,67 | **920,6** | 93,88 | 206.959 | 103,48 |
| 34 | | 5,28 | 3,55 | **1.009** | 102,89 | 226.832 | 113,42 | **1.058** | 107,89 | 237.848 | 118,92 |
| 34,93 | 1 3/8 | 5,54 | 3,73 | **1.060** | 108,09 | 238.297 | 119,15 | **1.112** | 113,39 | 249.987 | 124,99 |
| 36 | | 5,90 | 3,97 | **1.124** | 114,62 | 252.685 | 126,34 | **1.179** | 120,22 | 265.050 | 132,52 |
| 38 | 1 1/2 | 6,40 | 4,30 | **1.240** | 126,44 | 278.763 | 139,38 | **1.301** | 132,67 | 292.476 | 146,24 |
| 40 | | 7,13 | 4,79 | **1.371** | 139,80 | 308.213 | 154,11 | **1.438** | 146,64 | 323.275 | 161,64 |
| 41,28 | 1 5/8 | 7,70 | 5,17 | **1.483** | 151,22 | 333.392 | 166,70 | **1.555** | 158,57 | 349.578 | 174,79 |
| 42 | | 7,83 | 5,26 | **1.503** | 153,26 | 337.888 | 168,94 | **1.577** | 160,81 | 354.524 | 177,26 |
| 43 | | 8,29 | 5,57 | **1.611** | 164,28 | 362.167 | 181,08 | **1.690** | 172,33 | 379.927 | 189,96 |
| 44 | | 8,64 | 5,80 | **1.678** | 171,11 | 377.229 | 188,61 | **1.759** | 179,37 | 395.439 | 197,72 |
| 44,45 | 1 3/4 | 8,92 | 5,99 | **1.719** | 175,29 | 386.446 | 193,22 | **1.802** | 183,75 | 405.106 | 202,55 |
| 45 | | 9,09 | 6,11 | **1.749** | 178,35 | 393.191 | 196,60 | **1.834** | 187,02 | 412.300 | 206,15 |
| 46 | | 9,47 | 6,36 | **1.820** | 185,59 | 409.152 | 204,58 | **1.909** | 194,66 | 429.160 | 214,58 |
| 47,63 | 1 7/8 | 10,18 | 6,84 | **1.964** | 200,27 | 441.525 | 220,76 | **2.060** | 210,06 | 463.106 | 231,55 |
| 48 | | 10,28 | 6,91 | **1.985** | 202,41 | 446.246 | 223,12 | **2.082** | 212,30 | 468.052 | 234,03 |
| 50 | | 11,22 | 7,54 | **2.176** | 221,89 | 489.184 | 244,59 | **2.283** | 232,80 | 513.239 | 256,62 |
| 50,80 | 2 | 11,65 | 7,83 | **2.230** | 227,40 | 501.324 | 250,66 | **2.300** | 234,53 | 517.060 | 258,53 |

Special constructions and diameters available – please contact us directly.

# OLIVEIRA
# LT 24 K



## PROPERTIES


Compacted | Lubricated | Tolerance

## APPLICATIONS

Recommended for intensive use and severe hoist applications where rotation resistance property is required like e.g. tower cranes. If you intend to use a swivel please check first with the manufacturer.

## 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 *N/mm² |
|---|---|---|---|---|---|---|---|
| 23–1 | 7,20 – 20 | 24xK7 | 12 | 169 | 84 | 0,683 | 0,84 (1960*) |
| 25 | 21 – 48 | 24xK17 | 12 | 289 | 204 | 0,694 | |

- Temperature range of use: -50°C to +75°C
- Available in Lang's lay
- Available in right hand and left hand

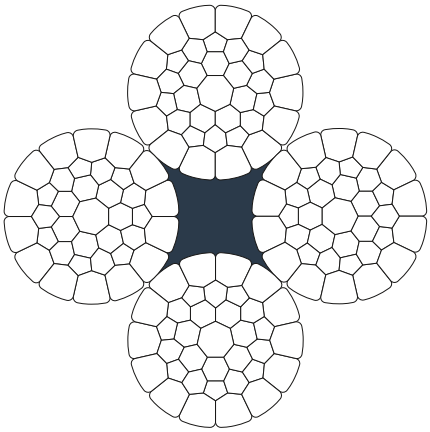
| nominal diameter | | weight | | minimum breaking force 1960 N/mm² | | | |
|---|---|---|---|---|---|---|---|
| **mm** | **inch** | **kg/m** | **lb/ft** | **kN** | **t [metric]** | **lbs** | **t[2000lbs]** |
| 7,20 | | 0,23 | 0,15 | **43,7** | 4,46 | 9.824 | 4,91 |
| 8 | 5/16 | 0,28 | 0,19 | **55,1** | 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 | **175,0** | 17,85 | 39.342 | 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** | 106,76 | 235.375 | 117,69 |
| 34,93 | 1 3/8 | 5,77 | 3,87 | **1.090** | 111,15 | 245.042 | 122,52 |
| 35 | | 5,78 | 3,89 | **1.108** | 112,98 | 249.088 | 124,54 |
| 36 | | 6,13 | 4,12 | **1.165** | 118,80 | 261.902 | 130,95 |
| 38 | 1 1/2 | 6,78 | 4,55 | **1.295** | 132,05 | 291.128 | 145,56 |
| 40 | | 7,64 | 5,14 | **1.429** | 145,72 | 321.252 | 160,63 |
| 41 | | 8,04 | 5,40 | **1.498** | 152,75 | 336.764 | 168,38 |
| 41,28 | 1 5/8 | 8,08 | 5,43 | **1.503** | 153,26 | 337.888 | 168,94 |
| 42 | | 8,37 | 5,62 | **1.572** | 160,30 | 353.400 | 176,70 |
| 44 | | 9,17 | 6,16 | **1.713** | 174,68 | 385.098 | 192,55 |
| 44,45 | 1 3/4 | 9,40 | 6,32 | **1.765** | 179,98 | 396.788 | 198,39 |
| 46 | | 9,95 | 6,69 | **1.861** | 189,77 | 418.369 | 209,18 |
| 47,63 | 1 7/8 | 10,61 | 7,13 | **1.990** | 202,92 | 447.370 | 223,68 |
| 48 | | 10,94 | 7,35 | **2.054** | 209,45 | 461.757 | 230,88 |

Special constructions and diameters available – please contact us directly.

# 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.

# OLIVEIRA
# DC 4 K



## PROPERTIES


No Swivel | Compacted | Lubricated | Tolerance

## 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 *N/mm² |
|---|---|---|---|---|---|---|---|
| 22 | 30 – 36 | 4xK36-CF | 4 | 144 | 56 | 0,669 | 0,811 (1960 *) |

- Temperature range of use: -50°C to +75°C
- Tensile strength: 1960 N/mm²
- Available in ordinary lay
- Available in right hand

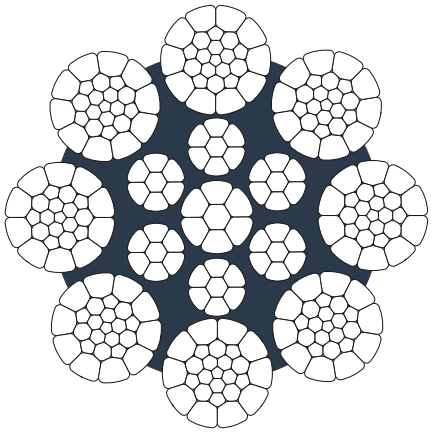
| nominal diameter | | weight | | minimum breaking force | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1960 N/mm² | | | | 2160 N/mm² | | | |
| mm | inch | kg/m | lb/ft | kN | t [metric] | lbs | t[2000lbs] | kN | t [metric] | lbs | t[2000lbs] |
| 14 | | 0,88 | 0,59 | **178,0** | 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.

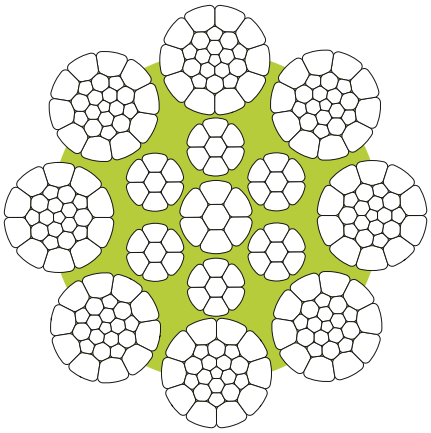
# NON-ROTATION-RESISTANT ROPES

- 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.

# OLIVEIRA
# HD 8 K



# OLIVEIRA
# HD 8 K PPI



## PROPERTIES


No Swivel | Compacted | Lubricated | Tolerance

\+ PPI

## APPLICATIONS

When rotation resistant ropes are not required (twin hoist systems with right and left ropes, small heights). Hoist for steel mill cranes, container cranes, floating cranes and boom hoist for deck cranes, luffing and mobile cranes, grab cranes.

## OVERVIEW

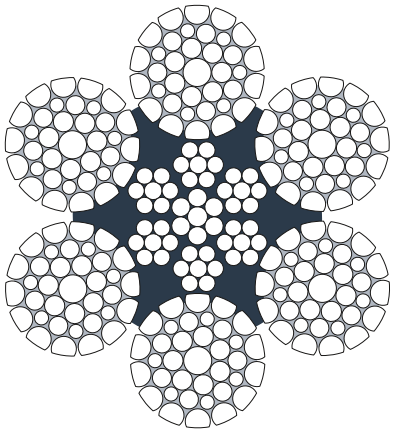
| RCN | Diameter range [mm] | Construction | Number of outer strands | Number of wires | Number of outer load bearing wires | Average fill factor | Average spin factor *N/mm² |
|---|---|---|---|---|---|---|---|
| 03 | 8 – 11 | 8xK12 | 8 | 145 | 96 | 0,672 | |
| 03 | 12 – 14 | 8xK17 | 8 | 185 | 136 | 0,675 | 0,85 (1770*) |
| 09 | 15 – 28,58 | 8xK26 | 8 | 257 | 208 | 0,677 | 0,85 (1960*) |
| 11 | 30 – 42 | 8xK31 | 8 | 297 | 248 | 0,673 | 0,82 (2160*) |
| 13 | 44 – 60 | 8xK36 | 8 | 407 | 288 | 0,683 | |
| 13 | 62 – 64 | 8xK36 | 8 | 475 | 288 | 0,671 | 0,84 (1770*) |
| >13 | 66 – 72 | 8xK41 | 8 | 515 | 328 | 0,666 | 0,83 (1960*) 0,81 (2160*) |

- Temperature range of use: -50°C to +75°C
- 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

| nominal diameter | | weight | | minimum breaking force | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 1770 N/mm² | | | | 1960 N/mm² | | | | 2160 N/mm² | | | |
| mm | inch | kg/m | lb/ft | kN | t [metric] | lbs | t[2000lbs] | kN | t [metric] | lbs | t[2000lbs] | kN | t [metric] | lbs | t[2000lbs] |
| 8 | 5/16 | 0,30 | 0,20 | **50,4** | 5,14 | 11.328 | 5,66 | **55,8** | 5,69 | 12.544 | 6,27 | **57,7** | 5,88 | 12.971 | 6,49 |
| 9 | | 0,37 | 0,25 | **63,3** | 6,46 | 14.235 | 7,12 | **70,1** | 7,15 | 15.763 | 7,88 | **73,6** | 7,50 | 16.535 | 8,27 |
| 9,53 | 3/8 | 0,39 | 0,26 | **66,8** | 6,81 | 15.016 | 7,51 | **74,0** | 7,54 | 16.627 | 8,31 | **79,6** | 8,12 | 17.899 | 8,95 |
| 10 | | 0,45 | 0,30 | **78,3** | 7,98 | 17.600 | 8,80 | **86,7** | 8,84 | 19.489 | 9,74 | **92,4** | 9,42 | 20.772 | 10,39 |
| 11 | 7/16 | 0,57 | 0,38 | **96,7** | 9,86 | 21.732 | 10,87 | **107,0** | 10,92 | 24.064 | 12,03 | **112,0** | 11,42 | 25.179 | 12,59 |
| 12 | | 0,65 | 0,44 | **115,1** | 11,74 | 25.876 | 12,94 | **126,4** | 12,89 | 28.415 | 14,21 | **132,6** | 13,52 | 29.800 | 14,90 |
| 12,70 | 1/2 | 0,71 | 0,48 | **124,4** | 12,69 | 27.966 | 13,98 | **138,0** | 14,07 | 31.015 | 15,51 | **144,7** | 14,76 | 32.530 | 16,26 |
| 13 | | 0,77 | 0,52 | **136,6** | 13,93 | 30.709 | 15,35 | **149,0** | 15,19 | 33.491 | 16,75 | **156,2** | 15,93 | 35.123 | 17,56 |
| 14 | | 0,90 | 0,61 | **157,9** | 16,10 | 35.497 | 17,75 | **174,8** | 17,82 | 39.297 | 19,65 | **187,0** | 19,07 | 42.039 | 21,02 |
| 15 | | 1,03 | 0,69 | **180,0** | 18,35 | 40.466 | 20,23 | **202,7** | 20,67 | 45.569 | 22,78 | **214,0** | 21,82 | 48.109 | 24,05 |
| 15,88 | 5/8 | 1,15 | 0,77 | **200,0** | 20,39 | 44.962 | 22,48 | **220,0** | 22,43 | 49.458 | 24,73 | **235,0** | 23,96 | 52.830 | 26,42 |
| 16 | | 1,16 | 0,78 | **204,0** | 20,80 | 45.861 | 22,93 | **229,4** | 23,39 | 51.571 | 25,79 | **242,4** | 24,72 | 54.494 | 27,25 |
| 17 | | 1,30 | 0,87 | **227,0** | 23,15 | 51.032 | 25,52 | **250,0** | 25,49 | 56.202 | 28,10 | **267,0** | 27,23 | 60.024 | 30,01 |
| 18 | | 1,49 | 1,00 | **260,2** | 26,53 | 58.495 | 29,25 | **288,2** | 29,39 | 64.790 | 32,39 | **307,0** | 31,31 | 69.016 | 34,51 |
| 19 | 3/4 | 1,64 | 1,10 | **292,1** | 29,79 | 65.667 | 32,83 | **323,5** | 32,99 | 72.726 | 36,36 | **342,0** | 34,87 | 76.885 | 38,44 |
| 20 | | 1,84 | 1,23 | **321,0** | 32,73 | 72.164 | 36,08 | **355,5** | 36,25 | 79.920 | 39,96 | **379,0** | 38,65 | 85.203 | 42,60 |
| 22 | | 2,21 | 1,49 | **391,7** | 39,94 | 88.058 | 44,03 | **433,7** | 44,23 | 97.500 | 48,75 | **458,5** | 46,75 | 103.075 | 51,54 |
| 22,23 | 7/8 | 2,26 | 1,52 | **394,9** | 40,27 | 88.784 | 44,39 | **435,0** | 44,36 | 97.792 | 48,90 | **462,0** | 47,11 | 103.862 | 51,93 |
| 24 | | 2,63 | 1,77 | **464,5** | 47,37 | 104.424 | 52,21 | **514,3** | 52,44 | 115.619 | 57,81 | **556,0** | 56,70 | 124.994 | 62,50 |
| 25 | | 2,86 | 1,92 | **504,2** | 51,41 | 113.349 | 56,67 | **558,2** | 56,92 | 125.488 | 62,74 | **602,0** | 61,39 | 135.335 | 67,67 |
| 25,40 | 1 | 2,94 | 1,98 | **519,0** | 52,92 | 116.676 | 58,34 | **572,0** | 58,33 | 128.591 | 64,30 | **611,0** | 62,30 | 137.358 | 68,68 |
| 26 | | 3,13 | 2,10 | **548,9** | 55,97 | 123.398 | 61,70 | **607,8** | 61,98 | 136.639 | 68,32 | **655,0** | 66,79 | 147.250 | 73,62 |
| 28 | | 3,60 | 2,42 | **629,6** | 64,20 | 141.540 | 70,77 | **697,3** | 71,10 | 156.759 | 78,38 | **748,0** | 76,27 | 168.157 | 84,08 |
| 28,58 | 1 1/8 | 3,67 | 2,46 | **638,0** | 65,06 | 143.428 | 71,71 | **707,0** | 72,09 | 158.940 | 79,47 | **751,0** | 76,58 | 168.831 | 84,42 |
| 30 | | 4,12 | 2,77 | **727,1** | 74,14 | 163.459 | 81,73 | **803,0** | 81,88 | 180.522 | 90,26 | **864,0** | 88,10 | 194.235 | 97,12 |
| 31,75 | 1 1/4 | 4,59 | 3,09 | **812,0** | 82,80 | 182.545 | 91,27 | **895,0** | 91,26 | 201.204 | 100,60 | **951,0** | 96,98 | 213.793 | 106,90 |
| 32 | | 4,67 | 3,14 | **828,0** | 84,43 | 186.142 | 93,07 | **911,0** | 92,90 | 204.801 | 102,40 | **968,0** | 98,71 | 217.615 | 108,81 |
| 34 | | 5,29 | 3,56 | **936,4** | 95,49 | 210.511 | 105,26 | **1.025** | 104,52 | 230.429 | 115,21 | **1.091** | 111,25 | 245.267 | 122,63 |
| 34,93 | 1 3/8 | 5,51 | 3,70 | **954,0** | 97,28 | 214.468 | 107,23 | **1.057** | 107,78 | 237.623 | 118,81 | **1.109** | 113,09 | 249.313 | 124,66 |
| 36 | | 5,84 | 3,93 | **1.040** | 106,05 | 233.801 | 116,90 | **1.150** | 117,27 | 258.530 | 129,27 | **1.217** | 124,10 | 273.592 | 136,80 |
| 38 | 1 1/2 | 6,58 | 4,42 | **1.159** | 118,19 | 260.554 | 130,28 | **1.271** | 129,61 | 285.732 | 142,87 | **1.332** | 135,83 | 299.445 | 149,72 |
| 40 | | 7,30 | 4,90 | **1.285** | 131,03 | 288.879 | 144,44 | **1.410** | 143,78 | 316.981 | 158,49 | **1.478** | 150,71 | 332.268 | 166,13 |
| 41,28 | 1 5/8 | 7,47 | 5,02 | **1.305** | 133,07 | 293.376 | 146,69 | **1.464** | 149,29 | 329.120 | 164,56 | **1.535** | 156,53 | 345.082 | 172,54 |
| 42 | | 7,98 | 5,36 | **1.403** | 143,07 | 315.407 | 157,70 | **1.538** | 156,83 | 345.756 | 172,88 | **1.613** | 164,48 | 362.617 | 181,31 |
| 44 | | 9,00 | 6,05 | **1.554** | 158,46 | 349.353 | 174,68 | **1.736** | 177,02 | 390.268 | 195,13 | **1.820** | 185,59 | 409.152 | 204,58 |
| 44,45 | 1 3/4 | 9,04 | 6,08 | **1.572** | 160,30 | 353.400 | 176,70 | **1.743** | 177,74 | 391.842 | 195,92 | **1.828** | 186,40 | 410.951 | 205,48 |
| 46 | | 9,78 | 6,57 | **1.713** | 174,68 | 385.098 | 192,55 | **1.883** | 192,01 | 423.315 | 211,66 | **1.975** | 201,39 | 443.998 | 222,00 |
| 47,63 | 1 7/8 | 10,40 | 6,99 | **1.774** | 180,90 | 398.811 | 199,41 | **1.964** | 200,27 | 441.525 | 220,76 | **2.112** | 215,36 | 474.796 | 237,40 |
| 48 | | 10,61 | 7,13 | **1.858** | 189,46 | 417.695 | 208,85 | **2.055** | 209,55 | 461.982 | 230,99 | **2.155** | 219,75 | 484.463 | 242,23 |
| 50 | | 11,62 | 7,81 | **1.986** | 202,52 | 446.470 | 223,24 | **2.253** | 229,74 | 506.494 | 253,25 | **2.362** | 240,86 | 530.999 | 265,50 |
| 50,80 | 2 | 11,87 | 7,98 | **2.044** | 208,43 | 459.509 | 229,75 | **2.283** | 232,80 | 513.239 | 256,62 | **2.394** | 244,12 | 538.193 | 269,10 |
| 52 | | 12,51 | 8,41 | **2.147** | 218,93 | 482.665 | 241,33 | **2.427** | 247,49 | 545.611 | 272,81 | **2.545** | 259,52 | 572.139 | 286,07 |
| 54 | 2 1/8 | 13,49 | 9,07 | **2.316** | 236,17 | 520.657 | 260,33 | **2.607** | 265,84 | 586.077 | 293,04 | **2.734** | 278,79 | 614.628 | 307,31 |
| 56 | | 14,59 | 9,80 | **2.480** | 252,89 | 557.526 | 278,76 | **2.800** | 285,52 | 629.465 | 314,73 | **2.925** | 298,27 | 657.566 | 328,78 |
| 57,15 | 2 1/4 | 14,92 | 10,03 | **2.572** | 262,27 | 578.208 | 289,10 | **2.849** | 290,52 | 640.481 | 320,24 | **3.010** | 306,93 | 676.675 | 338,34 |
| 58 | | 15,67 | 10,53 | **2.649** | 270,12 | 595.519 | 297,76 | **2.957** | 301,53 | 664.760 | 332,38 | **3.102** | 316,32 | 697.357 | 348,68 |
| 60 | | 16,71 | 11,23 | **2.842** | 289,80 | 638.907 | 319,45 | **3.143** | 320,50 | 706.574 | 353,29 | **3.297** | 336,20 | 741.195 | 370,60 |
| 60,33 | 2 3/8 | 16,71 | 11,23 | **2.844** | 290,01 | 639.357 | 319,68 | **3.147** | 320,90 | 707.474 | 353,74 | **3.301** | 336,61 | 742.094 | 371,05 |
| 62 | | 17,45 | 11,73 | **2.969** | 302,75 | 667.458 | 333,73 | **3.277** | 334,16 | 736.699 | 368,35 | **3.448** | 351,60 | 775.141 | 387,57 |
| 63,50 | 2 1/2 | 18,15 | 12,20 | **3.092** | 315,30 | 695.109 | 347,55 | **3.424** | 349,15 | 769.746 | 384,87 | **3.591** | 366,18 | 807.289 | 403,64 |
| 64 | | 18,66 | 12,54 | **3.200** | 326,31 | 719.388 | 359,69 | **3.509** | 357,82 | 788.854 | 394,43 | **3.680** | 375,26 | 827.297 | 413,65 |
| 66 | | 19,67 | 13,22 | **3.389** | 345,58 | 761.877 | 380,94 | **3.708** | 378,11 | 833.591 | 416,80 | **3.896** | 397,28 | 875.855 | 437,93 |
| 66,68 | 2 5/8 | 19,94 | 13,40 | **3.405** | 347,21 | 765.474 | 382,74 | **3.760** | 383,41 | 845.281 | 422,64 | **3.954** | 403,20 | 888.894 | 444,45 |
| 68 | | 20,81 | 13,98 | **3.565** | 363,53 | 801.444 | 400,72 | **3.924** | 400,14 | 882.150 | 441,08 | **4.117** | 419,82 | 925.538 | 462,77 |
| 70 | 2 3/4 | 21,69 | 14,57 | **3.733** | 380,66 | 839.212 | 419,61 | **4.026** | 410,54 | 905.081 | 452,54 | **4.330** | 441,54 | 973.423 | 486,71 |
| 72 | | 23,26 | 15,63 | **3.965** | 404,32 | 891.367 | 445,68 | **4.250** | 433,38 | 955.438 | 477,72 | **4.570** | 466,01 | 1.027.377 | 513,69 |

Special constructions and diameters available – please contact us directly.

# OLIVEIRA
# SC 6 K



## PROPERTIES


No Swivel | Compacted | Lubricated | Tolerance

## 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

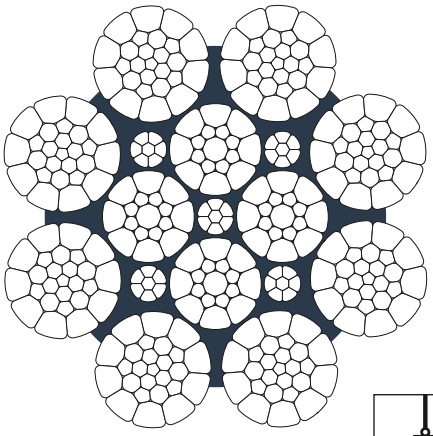
| RCN | Diameter range [mm] | Construction | Number of outer strands | Number of wires | Number of outer load bearing wires | Average fill factor | Average spin factor *N/mm² |
|---|---|---|---|---|---|---|---|
| 02 | 10 – 13 | 6xK19 | 6 | 163 | 114 | 0,666 | 0,86 (1960*) |
| 06 | 14 – 19 | 6xK26 | 6 | 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 +75°C
- Available in ordinary lay and Lang's lay
- Available in right hand and left hand

| nominal diameter | | weight | | minimum breaking force 1960 N/mm² | | | |
|---|---|---|---|---|---|---|---|
| mm | inch | kg/m | lb/ft | kN | t [metric] | lbs | t[2000lbs] |
| 10 | | 0,45 | 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 | | 3,54 | 2,38 | **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 | | 4,11 | 2,76 | **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** | 103,09 | 227.282 | 113,64 |
| 34,93 | 1 3/8 | 5,56 | 3,74 | **1.030** | 105,03 | 231.553 | 115,78 |
| 35 | | 5,56 | 3,74 | **1.050** | 107,07 | 236.049 | 118,02 |
| 36 | | 5,85 | 3,93 | **1.131** | 115,33 | 254.259 | 127,13 |
| 38 | 1 1/2 | 6,51 | 4,38 | **1.261** | 128,59 | 283.484 | 141,74 |
| 40 | | 7,23 | 4,86 | **1.401** | 142,86 | 314.957 | 157,48 |
| 41,28 | 1 5/8 | 7,77 | 5,22 | **1.450** | 147,86 | 325.973 | 162,99 |
| 42 | | 7,91 | 5,32 | **1.530** | 156,02 | 343.958 | 171,98 |
| 44 | | 8,80 | 5,91 | **1.701** | 173,45 | 382.400 | 191,20 |
| 44,45 | 1 3/4 | 8,96 | 6,02 | **1.710** | 174,37 | 384.423 | 192,21 |
| 46 | | 9,55 | 6,41 | **1.847** | 188,34 | 415.222 | 207,61 |
| 47,63 | 1 7/8 | 10,34 | 6,95 | **1.940** | 197,82 | 436.129 | 218,06 |
| 48 | | 10,40 | 6,99 | **2.012** | 205,17 | 452.316 | 226,16 |
| 50 | | 11,32 | 7,61 | **2.178** | 222,09 | 489.634 | 244,82 |
| 50,80 | 2 | 11,54 | 7,75 | **2.182** | 222,50 | 490.533 | 245,27 |
| 52 | | 12,18 | 8,19 | **2.340** | 238,61 | 526.053 | 263,03 |
| 54 | 2 1/8 | 12,97 | 8,71 | **2.460** | 250,85 | 553.030 | 276,51 |
| 56 | | 14,01 | 9,41 | **2.649** | 270,12 | 595.519 | 297,76 |
| 57,15 | 2 1/4 | 14,64 | 9,84 | **2.758** | 281,24 | 620.023 | 310,01 |
| 58 | | 15,01 | 10,09 | **2.840** | 289,60 | 638.457 | 319,23 |
| 60 | | 16,06 | 10,79 | **3.040** | 309,99 | 683.419 | 341,71 |

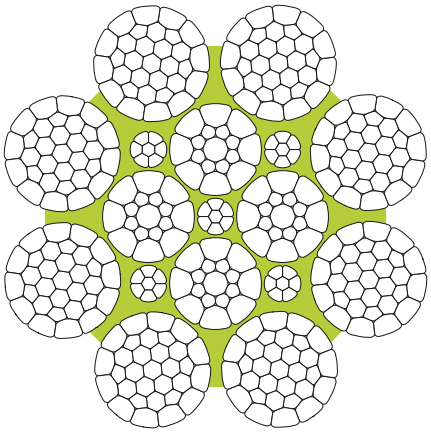
Special constructions and diameters available – please contact us directly.

# OLIVEIRA
# DP 8 K




High
breaking force

# OLIVEIRA
# DP 8 K PPI



## PROPERTIES

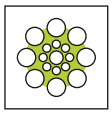
Parallel
Construction

No Swivel


Compacted

Lubricated


Tolerance



PPI

## 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

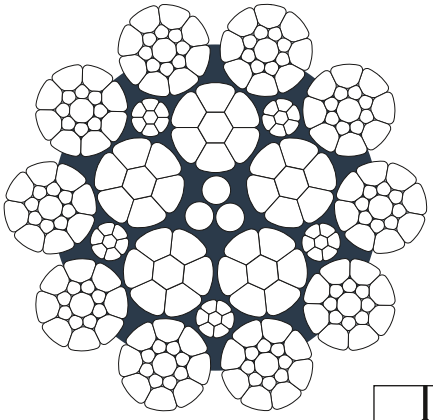
| RCN | Diameter range [mm] | Construction | Number of outer strands | Number of wires | Number of outer load bearing wires | Average fill factor | Average spin factor *N/mm² |
|---|---|---|---|---|---|---|---|
| 03 | 6,40 – 7,20 | 8xK12 | 8 | 105 | 96 | 0,701 | 0,86 (2160*) |
| 03 | 8 – 17 | 8xK17 | 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 +75°C
- 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

| nominal diameter | | weight | | minimum breaking force 2160 N/mm² | | | |
|---|---|---|---|---|---|---|---|
| **mm** | **inch** | **kg/m** | **lb/ft** | **kN** | **t [metric]** | **lbs** | **t[2000lbs]** |
| 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 | **607,0** | 61,90 | 136.459 | 68,23 |
| 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** | 104,32 | 229.980 | 114,99 |
| 32 | | 4,90 | 3,29 | **1.066** | 108,70 | 239.646 | 119,82 |
| 34 | | 5,62 | 3,77 | **1.220** | 124,41 | 274.267 | 137,13 |
| 34,93 | 1 3/8 | 5,84 | 3,93 | **1.231** | 125,53 | 276.740 | 138,37 |
| 36 | | 6,25 | 4,20 | **1.357** | 138,38 | 305.066 | 152,53 |
| 38 | 1 1/2 | 7,00 | 4,71 | **1.523** | 155,30 | 342.384 | 171,19 |

Special constructions and diameters available – please contact us directly.

# 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

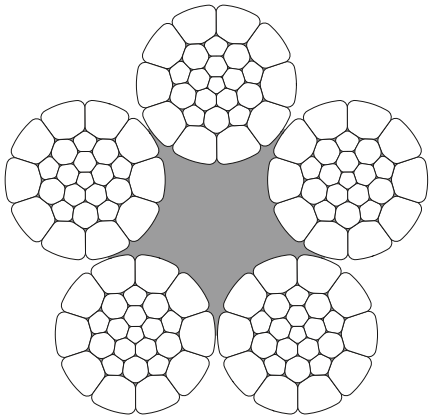
| RCN | Diameter range [mm] | Construction | Number of outer strands | Number of wires | Number of outer load bearing wires | Average fill factor | Average spin factor *N/mm² |
|---|---|---|---|---|---|---|---|
| 05 | 14 – 18 | 10xK17 | 10 | 243 | 170 | 0,750 | 0,85 (2160*) |

- Temperature range of use: -50°C to +75°C
- Available in ordinary lay and Lang's lay
- Available in right hand and left hand

| nominal diameter | | weight | | minimum breaking force 2160 N/mm² | | | |
|---|---|---|---|---|---|---|---|
| **mm** | **inch** | **kg/m** | **lb/ft** | **kN** | **t [metric]** | **lbs** | **t[2000lbs]** |
| 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 |

Special constructions and diameters available – please contact us directly.

# OLIVEIRA
# LP 5



## PROPERTIES


No Swivel | Compacted | Lubricated | Tolerance

\+

Parallel Construction

## 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 *N/mm² |
|---|---|---|---|---|---|---|---|
| 02 | 6 | 5x K12-CWP* | 5 | 78 | 60 | 0,633 | 0,86 (1960*)<br>0,84 (2160*) |
| 03 | 8,30–10,30 | 5x K19-CF | 5 | 95 | 95 | 0,544 | |
| 05 | 11,50–14 | 5x K26-CF | 5 | 130 | 130 | 0,550 | |
| 06 | 16,3 | 5x K31-CF | 5 | 155 | 155 | 0,533 | |

- Temperature range of use: -50°C to +75°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/mm² | | | | 2160 N/mm² | | | |
| mm | inch | kg/m | lb/ft | kN | t [metric] | lbs | t[2000lbs] | kN | t [metric] | lbs | t[2000lbs] |
| 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-layerdrum)[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 | $n \leq 50$ | 2 | 4 | 1 | 2 | 4 | 8 |
| 02 | $51 \leq n \leq 75$ | 3 | 6 | 2 | 3 | 6 | 12 |
| 03 | $76 \leq n \leq 100$ | 4 | 8 | 2 | 4 | 8 | 16 |
| 04 | $101 \leq n \leq 120$ | 5 | 10 | 2 | 5 | 10 | 20 |
| 05 | $121 \leq n \leq 140$ | 6 | 11 | 3 | 6 | 12 | 22 |
| 06 | $141 \leq n \leq 160$ | 6 | 13 | 3 | 6 | 12 | 26 |
| 07 | $161 \leq n \leq 180$ | 7 | 14 | 4 | 7 | 14 | 28 |
| 08 | $181 \leq n \leq 200$ | 8 | 16 | 4 | 8 | 16 | 32 |
| 09 | $201 \leq n \leq 220$ | 9 | 18 | 4 | 9 | 18 | 36 |
| 10 | $221 \leq n \leq 240$ | 10 | 19 | 5 | 10 | 20 | 38 |
| 11 | $241 \leq n \leq 260$ | 10 | 21 | 5 | 10 | 20 | 42 |
| 12 | $261 \leq n \leq 280$ | 11 | 22 | 6 | 11 | 22 | 44 |
| 13 | $281 \leq n \leq 300$ | 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 $n \leq 100$ | 2 | 4 | 2 | 4 |
| 22 | 3 or 4 strands $n \geq 100$ | 2 | 4 | 4 | 8 |
| | | 11 or more outer strands | | | |
| 23–1 | $71 \leq n \leq 100$ | 2 | 4 | 4 | 8 |
| 23–2 | $101 \leq n \leq 120$ | 3 | 5 | 5 | 10 |
| 23–3 | $121 \leq n \leq 140$ | 3 | 5 | 6 | 11 |
| 24 | $141 \leq n \leq 160$ | 3 | 6 | 6 | 13 |
| 25 | $161 \leq n \leq 180$ | 4 | 7 | 7 | 14 |
| 26 | $181 \leq n \leq 200$ | 4 | 8 | 8 | 16 |
| 27 | $201 \leq n \leq 220$ | 4 | 9 | 9 | 18 |
| 28 | $221 \leq n \leq 240$ | 5 | 10 | 10 | 19 |
| 29 | $241 \leq n \leq 260$ | 5 | 10 | 10 | 21 |
| 30 | $261 \leq n \leq 280$ | 6 | 11 | 11 | 22 |
| 31 | $281 \leq n \leq 300$ | 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
- C8C + 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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