

# Plasma® HiCo 12x12

Plasma® HiCo 12x12 retains all the features and benefits of standard Plasma 12x12 ropes with the added characteristic of an increased coefficient of friction coating to allow for better gripping in applications such as H-Bitt or capstan rendering, and traction winch systems.

Plasma® HiCo 12x12 is a 12-strand braided rope in which each of the 12 strands is, in turn, a 12-strand rope, or braided primary strand. This construction addresses the most critical properties of the fibers to provide very high strength translation efficiency for larger ropes. This design provides superior snag resistance compared to other 12x12 strand designs which is important when dragging the rope.

Cortland's Plasma® 12x12 ropes are the culmination of 25+ years of engineering expertise in the HMPE industry. Our dedication to providing customers with industry-leading synthetic line is and always has been the goal. Our continued innovation and unwavering desire are to provide the strongest and most reliable product available.

## Features & Benefits

- World's strongest rope for its weight
- Long lengths available
- High flex fatigue and abrasion resistance
- Easy to splice, inspect, and repair
- Neutrally buoyant in water
- Select sizes are ABS & DNV type approved

## Applications

- Replacement for wire rope
- Tug vessel assist lines
- Vessel mooring lines
- Offshore working ropes
- Lashings
- For use on H-bitts, capstans and traction winch systems

## Type approved product



| Nominal Diameter   |     | Size (circ in.) | Approximate Weight |         | Minimum Tensile Strength Spliced Rope |             | Minimum Tensile Strength ISO Unspliced Rope |             |
|--|-----|-----------------|--------------------|---------|---------------------------------------|-------------|---|-------------|
| inch   | mm  |                 | lbs/100ft          | kg/100m | lbs                                   | MT (tonnes) | lbs   | MT (tonnes) |
| <b>ABS and DNV type approved sizes—up to 4" diameter (96 mm)</b> |     |                 |                    |         |                                       |             |   |             |
| 1-5/8  | 40  | 5               | 66                 | 98      | 291,000                               | 132         | 323,300                                     | 147         |
| 1-3/4  | 44  | 5-1/2           | 78                 | 117     | 314,000                               | 142         | 348,900                                     | 158         |
| 2  | 48  | 6               | 91                 | 136     | 355,000                               | 161         | 392,450                                     | 178         |
| 2-1/8  | 52  | 6-1/2           | 109                | 162     | 428,000                               | 194         | 475,600                                     | 216         |
| 2-1/4  | 56  | 7               | 122                | 182     | 481,000                               | 218         | 534,400                                     | 242         |
| 2-1/2  | 60  | 7-1/2           | 148                | 220     | 530,000                               | 240         | 588,900                                     | 267         |
| 2-5/8  | 64  | 8               | 167                | 249     | 596,000                               | 270         | 662,200                                     | 300         |
| 2-3/4  | 68  | 8-1/2           | 187                | 278     | 660,000                               | 299         | 733,300                                     | 333         |
| 3  | 72  | 9               | 214                | 319     | 780,000                               | 354         | 866,700                                     | 393         |
| 3-1/8  | 76  | 9-1/2           | 235                | 350     | 850,000                               | 386         | 944,400                                     | 428         |
| 3-1/4  | 80  | 10              | 261                | 388     | 940,000                               | 426         | 1,045,400                                   | 474         |
| 3-1/2  | 84  | 10-1/2          | 298                | 443     | 1,108,000                             | 503         | 1,231,000                                   | 559         |
| 3-5/8  | 88  | 11              | 324                | 482     | 1,250,000                             | 567         | 1,388,900                                   | 630         |
| 3-3/4  | 92  | 11-1/2          | 343                | 510     | 1,317,000                             | 598         | 1,463,000                                   | 664         |
| 4  | 96  | 12              | 394                | 586     | 1,520,000                             | 690         | 1,689,000                                   | 766         |
| 4-1/8  | 100 | 12-1/2          | 457                | 679     | 1,622,000                             | 736         | 1,802,000                                   | 818         |
| 4-1/4  | 104 | 13              | 514                | 765     | 1,697,000                             | 770         | 1,886,000                                   | 856         |
| 4-1/2  | 108 | 13-1/2          | 530                | 789     | 1,827,000                             | 829         | 2,030,000                                   | 921         |
| 4-5/8  | 112 | 14              | 546                | 812     | 1,880,000                             | 853         | 2,089,000                                   | 948         |
| 4-3/4  | 116 | 14-1/2          | 587                | 873     | 1,927,000                             | 874         | 2,141,000                                   | 971         |
| 5  | 120 | 15              | 606                | 902     | 2,069,500                             | 939         | 2,299,000                                   | 1043        |
| 5-1/8  | 124 | 15-1/2          | 657                | 978     | 2,212,000                             | 1004        | 2,458,000                                   | 1115        |
| 5-1/4  | 128 | 16              | 703                | 1046    | 2,355,000                             | 1069        | 2,617,000                                   | 1187        |
| 5-1/2  | 132 | 16-1/2          | 749                | 1114    | 2,497,500                             | 1133        | 2,775,000                                   | 1259        |
| 5-5/8  | 136 | 17              | 813                | 1210    | 2,640,000                             | 1198        | 2,933,000                                   | 1331        |
| 5-3/4  | 140 | 17-1/2          | 871                | 1296    | 2,782,500                             | 1262        | 3,092,000                                   | 1403        |
| 6  | 144 | 18              | 932                | 1386    | 2,925,000                             | 1327        | 3,250,000                                   | 1475        |
| 6-1/8  | 148 | 18-1/2          | 985                | 1465    | 3,068,000                             | 1392        | 3,409,000                                   | 1547        |
| 6-1/4  | 152 | 19              | 1038               | 1545    | 3,210,500                             | 1457        | 3,567,000                                   | 1618        |
| 6-1/2  | 156 | 19-1/2          | 1103               | 1642    | 3,353,000                             | 1521        | 3,726,000                                   | 1691        |
| 6-5/8  | 160 | 20              | 1159               | 1725    | 3,496,000                             | 1586        | 3,884,000                                   | 1762        |
| 6-3/4  | 164 | 20-1/2          | 1227               | 1827    | 3,638,500                             | 1651        | 4,043,000                                   | 1834        |
| 7  | 168 | 21              | 1284               | 1911    | 3,781,000                             | 1716        | 4,201,000                                   | 1906        |
| 7-1/8  | 172 | 21-1/2          | 1334               | 1986    | 3,963,500                             | 1798        | 4,404,000                                   | 1998        |
| 7-1/4  | 176 | 22              | 1392               | 2072    | 4,066,000                             | 1845        | 4,518,000                                   | 2050        |
| 7-1/2  | 180 | 22-1/2          | 1452               | 2161    | 4,209,000                             | 1910        | 4,677,000                                   | 2122        |
| 7-5/8  | 184 | 23              | 1527               | 2272    | 4,351,500                             | 1974        | 4,835,000                                   | 2194        |
| 7-3/4  | 188 | 23-1/2          | 1589               | 2365    | 4,494,000                             | 2039        | 4,993,000                                   | 2265        |
| 8  | 192 | 24              | 1653               | 2459    | 4,637,000                             | 2104        | 5,152,000                                   | 2338        |
| 8-1/8  | 196 | 24-1/2          | 1732               | 2578    | 4,779,000                             | 2168        | 5,310,000                                   | 2409        |
| 8-1/4  | 200 | 25              | 1798               | 2677    | 4,922,000                             | 2233        | 5,469,000                                   | 2481        |

**Size:** Diameter and circumference are nominal. A new unused rope in relaxed state will measure larger; loading and use compacts ropes, sets splices and lessens rope size. This is especially prevalent in sizes above 4" diameter. Published nominal sizes from 4-1/8" and larger represent stabilized or preloaded size. **Weights:** Published weights of sizes 1-5/8"—4" diameter are calculated at linear density under stated preload (200d<sup>2</sup>) plus 4%. For this chart, sizes 4-1/8"—8-1/4" diameter represent un-cycled, (non-stabilized) weights.

**Tensile Strengths:** Tensile Strength determined in accordance with Cordage Institute 1500 Test Methods for Fiber Ropes and ISO 2307.

# Plasma® HiCo 12x12

## Technical Information

|                         |               |
|-------------------------|---------------|
| Specific gravity        | 0.98*         |
| Melting point           | 284°F (140°C) |
| Critical temp.          | 150°F (65°C)  |
| Coefficient of friction | 0.12–0.15*    |
| Elongation at break     | 3%–4%         |
| Fiber water absorption  | 0%            |
| UV resistance           | good          |
| Wet abrasion            | superior      |
| Dry abrasion            | superior      |

\* value based on data supplied by the fiber manufacturer for new, dry fiber

## Rope Specifications

**Minimum Tensile Strength** Minimum Tensile Strengths shown are for new (unused) rope and will decrease after use. All tests are performed in accordance with Cordage Institute Standard CI 1500-2. The rope strength will be reduced after use due to heat, abrasion, ultraviolet or chemical exposure. The tensile strengths may be further reduced by up to 50% as a result of knots or kinks. Minimum Tensile Strengths are defined as two standard deviations (typical about 10%) below the average.

**Maximum Working Loads** Maximum Working Loads are determined by dividing the tensile strength by the safety factor. The safety factor is a function of the physical properties of the rope, the age and history of the rope, the type of service it will be subjected to and the risks involved if failure occurs. For a rope manufacturer to give blanket working load recommendations would be like a car manufacturer giving the “safe driving speed” of their cars. Obviously the conditions of use far outweigh the design characteristics of the rope. Typically safety factors vary from 3:1 (for new rope used in applications with uniform loading and where failure would cause little or no risk to equipment or personnel) to 20:1 (for conditions involving moderate shock loading, possibility of snags or kinks or where failure could cause severe risk to equipment or personnel).

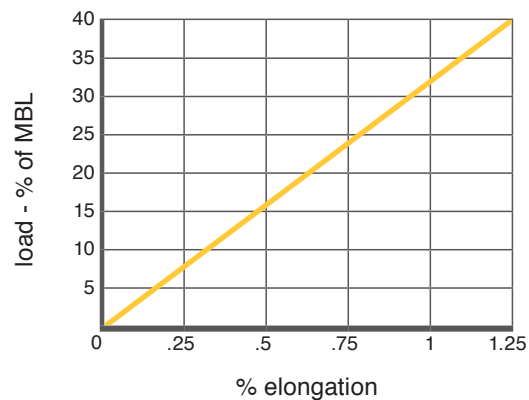
**Rope Weights** Rope Weights shown are average and may vary plus or minus 5%.

**Working Elongation** Working Elongation is shown from a preload tension of 200 times the diameter squared per the Cordage Institute Standard.

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Plasma® HiCo 12x12 Elongation (%)



## Special Requirements

**Factory Splicing** Various types are available for all of our ropes. Splices can be provided with various types of chafe protection or coatings.

**Custom Lengths** Special constructions are available on request.

**Rope Terminations** Cortland can provide custom terminations such as thimbles, links, rings and custom hardware. Terminations are available in plastic, bronze, stainless steel and galvanized steel. Please call, or email your requirements to [cortland@cortlandcompany.com](mailto:cortland@cortlandcompany.com) for a quotation.

**Special Coatings** Coatings such as polyurethane, polyethylene and vinyl esters may be applied to any of the synthetic ropes to improve snag resistance, sunlight resistance or for color coding. Cortland can provide ropes with a variety of finishes to meet your needs.

**Commercial and Military Specifications** Certificates of compliance are supplied at no charge if requested when placing the order. Certified test reports can be provided at an additional charge when requested at the time of the order.

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