Rope Characteristics

Twisted Rope:

- Nylon Twisted Rope
- Composite Rope (Poly/Dac)
- Polyester Twisted
- Polypropylene Twisted Rope
- Manila
- Sisal, Cotton

Braided Rope:

- Double Braid Polyester
- Double Braid Nylon
- Euro-Braid Polyester
- Hollow Braid Polypropylene
- Multifilament Polypropylene
- Braided Cotton

TWISTED ROPE

Nylon Twisted Rope				
(Professional Duty)				
SIZE Dia.	SIZE Cir.	Linear Density lbs./100'	New Rope Tensile Strength* (Lbs.)	Working Load Limit** (Lbs.)
3/16"	5/8"	1.00	900	75
1/4"	3/4"	1.50	1,490	124
5/16"	1"	2.50	2,300	192
3/8"	1 1/8"	3.50	3,340	278
7/16"	1 1/4"	5.00	4,500	410
1/2"	1 1/2"	6.50	5,750	525
9/16"	1 3/4"	8.15	7,200	720
5/8"	2 "	10.50	9,350	935
3/4"	2 1/4"	14.50	12,800	1,420
13/16"	2 1/2	17.00	15,300	1,700
7/8"	2 3/4"	20.00	18,000	2,000
1"	3"	26.40	22,600	2,520

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*New Rope Tensile Strengths are based on tests of new and unused rope of standard construction in accordance with Cordage Institute Standard Test Methods.

**In accordance with Cordage Institute Standard Test Methods, Working Load Limits (WLL) are for rope in good condition, with appropriate splices, in non critical applications, and under normal service conditions. As a general rule, Working Loads Limits are 10%-15% of new rope tensile

strengths.

Working Load / Working Load Limit

The **Working Load** (WL) is the weight or force applied to rope or cordage in a given application.

The **Working Load Limit** (WLL) is a guideline for the maximum allowable capacity of a rope product and **should not be exceeded**.

Applied loads higher than a specified WLL can overstress and damage fibers, resulting in premature rope failure. The Working Load of an application should not exceed the WLL of the rope for optimalproduct performance and the safety of personnel and property.

Minimum Breaking Strength

The Minimum Breaking Strength (MBS) is the force that a given rope is required to meet or exceed in a laboratory test when it is new and unused. MBS values are given in Cordage Institute Standards and individual manufacturers' specifications.

There are inherent risks in the use of rope and cordage because such products are subject to highly variable conditions that change over time. Therefore, Design Factor (the ratio between the MBS and WL) selections and Working Load Limits must be calculated with consideration of exposure to risk and actual conditions of use for each application. If in doubt, consult the manufacturer, an experienced engineer or other qualified individual regarding the design, application and selection of a rope product.

This weight, strength, size and working load chart supersedes all data and specifications sheets published prior to January 1, 2010.

Composite Rope (Poly/Dac)				
(Professional Duty)				
SIZE Dia.	SIZE Cir.	Linear Density lbs./100'	New Rope Tensile Strength* (Lbs.)	Working Load Limit** (Lbs.)
3/8"	1 1/8"	3.60	2,400	240
1/2"	1 1/2"	6.50	3,700	420
5/8"	2 "	9.50	5,500	675
3/4"	2 1/4"	12.50	7,500	1,000
7/8"	2 3/4"	18.00	10,000	300
1"	3"	21.80	12,000	1,600

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**In accordance with Cordage Institute Standard Test Methods, Working Load Limits (WLL) are for rope in good condition, with appropriate splices, in non critical applications, and under normal service conditions. As a general rule, Working Loads Limits are 10%-15% of new rope tensile strengths.

Working Load / Working Load Limit

The **Working Load** (WL) is the weight or force applied to rope or cordage in a given application.

The **Working Load Limit** (WLL) is a guideline for the maximum allowable capacity of a rope product and **should not be exceeded**.

Applied loads higher than a specified WLL can overstress and damage fibers, resulting in premature rope failure. The Working Load of an application should not exceed the WLL of the rope for optimalproduct performance and the safety of personnel and property.

Minimum Breaking Strength

The Minimum Breaking Strength (MBS) is the force that a given rope is required to meet or exceed in a laboratory test when it is new and unused. MBS values are given in Cordage Institute Standards and individual manufacturers' specifications.

There are inherent risks in the use of rope and cordage because such products are subject to highly variable conditions that change over time. Therefore, Design Factor (the ratio between the MBS and WL) selections and Working Load Limits must be calculated with consideration of exposure to risk and actual conditions of use for each application. If in doubt, consult the manufacturer, an experienced engineer or other qualified individual regarding the design, application and selection of a rope product.

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Polyester Twisted				
(Heavy Duty)				
SIZE Dia.	SIZE Cir.	Linear Density lbs./100'	New Rope Tensile Strength* (Lbs.)	Working Load Limit** (Lbs.)
3/16"	5/8"	1.20	900	90
1/4"	3/4"	2.00	1,490	149
5/16"	1"	3.10	2,300	230
3/8"	1 1/8"	4.50	3,340	334
7/16"	1 1/4"	6.20	4,500	500
1/2"	1 1/2"	8.00	5,750	640
9/16"	1 3/4	10.20	7,200	900
5/8"	2 "	13.00	9,000	1,130
3/4"	2 1/4"	17.50	11,300	1,610
13/16"	2 1/2	21.00	14,000	2,000
7/8"	2 3/4"	25.00	16,200	2,320
1"	3"	30.40	19,800	2,820

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**In accordance with Cordage Institute Standard Test Methods, Working Load Limits (WLL) are for rope in good condition, with appropriate splices, in non critical applications, and under normal service conditions. As a general rule, Working Loads Limits are 10%-15% of new rope tensile strengths.

Working Load / Working Load Limit

The **Working Load** (WL) is the weight or force applied to rope or cordage in a given application.

The **Working Load Limit** (WLL) is a guideline for the maximum allowable capacity of a rope product and **should not be exceeded**.

Applied loads higher than a specified WLL can overstress and damage fibers, resulting in premature rope failure. The Working Load of an application should not exceed the WLL of the rope for optimalproduct performance and the safety of personnel and property.

Minimum Breaking Strength

The Minimum Breaking Strength (MBS) is the force that a given rope is required to meet or exceed in a laboratory test when it is new and unused. MBS values are given in Cordage Institute Standards and individual manufacturers' specifications.

There are inherent risks in the use of rope and cordage because such products are subject to

highly variable conditions that change over time. Therefore, Design Factor (the ratio between the MBS and WL) selections and Working Load Limits must be calculated with consideration of exposure to risk and actual conditions of use for each application. If in doubt, consult the manufacturer, an experienced engineer or other qualified individual regarding the design, application and selection of a rope product.

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Polypropylene Twisted Rope				
		(Medium Duty)		
SIZE Dia.	SIZE Cir.	Linear Density lbs./100'	New Rope Tensile Strength* (Lbs.)	Working Load Limit** (Lbs.)
3/16"	5/8"	0.70	720	95
1/4"	3/4"	1.20	1,130	165
5/16"	1"	1.80	1,710	250
3/8"	1 1/8"	2.80	2,440	340
7/16"	1 1/4"	3.80	3,160	400
1/2"	1 1/2"	4.70	3,780	535
9/16"	1 3/4"	6.10	4,600	675
5/8"	2 "	7.50	5,600	800
3/4"	2 1/4"	10.70	7,650	1,100
13/16"	2 1/2	12.70	8,900	1,270
7/8"	2 3/4"	15.00	10,400	1,490
1"	3"	18.00	12,600	1,800

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**In accordance with Cordage Institute Standard Test Methods, Working Load Limits (WLL) are for rope in good condition, with appropriate splices, in non critical applications, and under normal service conditions. As a general rule, Working Loads Limits are 10%-15% of new rope tensile strengths.

Working Load / Working Load Limit

The **Working Load** (WL) is the weight or force applied to rope or cordage in a given application.

The **Working Load Limit** (WLL) is a guideline for the maximum allowable capacity of a rope product and **should not be exceeded**.

Applied loads higher than a specified WLL can overstress and damage fibers, resulting in premature rope failure. The Working Load of an application should not exceed the WLL of the rope for optimalproduct performance and the safety of personnel and property.

Minimum Breaking Strength

The Minimum Breaking Strength (MBS) is the force that a given rope is required to meet or exceed in a laboratory test when it is new and unused. MBS values are given in Cordage Institute Standards and individual manufacturers' specifications.

There are inherent risks in the use of rope and cordage because such products are subject to highly variable conditions that change over time. Therefore, Design Factor (the ratio between the MBS and WL) selections and Working Load Limits must be calculated with consideration of exposure to risk and actual conditions of use for each application. If in doubt, consult the manufacturer, an experienced engineer or other qualified individual regarding the design, application and selection of a rope product.

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Manila				
(Lite Duty)				
SIZE Dia.	SIZE Cir.	Linear Density lbs./100'	New Rope Tensile Strength* (Lbs.)	Working Load Limit** (Lbs.)
3/16"	5/8"	1.50	406	41
1/4"	3/4"	2.00	540	54
5/16"	1"	2.90	900	90
3/8"	1 1/8"	4.10	1,220	122
7/16"	1 1/4"	5.25	1,580	176
1/2"	1 1/2"	7.50	2,380	264
9/16"	1 3/4	10.40	3,100	388
5/8"	2 "	13.30	3,960	496
3/4"	2 1/4"	16.70	4,860	695
13/16"	2 1/2	19.50	5,850	835
7/8"	2 3/4"	22.40	6,950	995
1"	3"	27.00	8,100	1,160

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**In accordance with Cordage Institute Standard Test Methods, Working Load Limits (WLL) are for rope in good condition, with appropriate splices, in non critical applications, and under normal service conditions. As a general rule, Working Loads Limits are 10%-15% of new rope tensile strengths.

Working Load / Working Load Limit

The **Working Load** (WL) is the weight or force applied to rope or cordage in a given application.

The **Working Load Limit** (WLL) is a guideline for the maximum allowable capacity of a rope product and **should not be exceeded**.

Applied loads higher than a specified WLL can overstress and damage fibers, resulting in premature rope failure. The Working Load of an application should not exceed the WLL of the rope for optimalproduct performance and the safety of personnel and property.

Minimum Breaking Strength

The Minimum Breaking Strength (MBS) is the force that a given rope is required to meet or exceed in a laboratory test when it is new and unused. MBS values are given in Cordage Institute Standards and individual manufacturers' specifications.

There are inherent risks in the use of rope and cordage because such products are subject to highly variable conditions that change over time. Therefore, Design Factor (the ratio between the MBS and WL) selections and Working Load Limits must be calculated with consideration of exposure to risk and actual conditions of use for each application. If in doubt, consult the manufacturer, an experienced engineer or other qualified individual regarding the design, application and selection of a rope product.

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Sisal, Cotton				
(Lite Duty)				
SIZE Dia.	SIZE Cir.	Linear Density lbs./100'	New Rope Tensile Strength* (Lbs.)	Working Load Limit** (Lbs.)
3/16"	5/8"	1.50	360	36
1/4"	3/4"	2.00	480	48
5/16"	1"	2.90	800	80
3/8"	1 1/8"	4.10	1,080	108
7/16"	1 1/4"	5.26	1,400	156
1/2"	1 1/2"	7.52	2,120	236
9/16"	1 3/4	10.40	2,760	345
5/8"	2 "	13.30	3,520	440
3/4"	2 1/4"	16.70	4,320	617
13/16"	2 1/2	19.50	5,200	743
7/8"	2 3/4"	22.50	6,160	880
1"	3"	27.00	7,200	1,030

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**In accordance with Cordage Institute Standard Test Methods, Working Load Limits (WLL) are for rope in good condition, with appropriate splices, in non critical applications, and under normal service conditions. As a general rule, Working Loads Limits are 10%-15% of new rope tensile strengths.

Working Load / Working Load Limit

The **Working Load** (WL) is the weight or force applied to rope or cordage in a given application.

The **Working Load Limit** (WLL) is a guideline for the maximum allowable capacity of a rope product and **should not be exceeded**.

Applied loads higher than a specified WLL can overstress and damage fibers, resulting in premature rope failure. The Working Load of an application should not exceed the WLL of the rope for optimalproduct performance and the safety of personnel and property.

Minimum Breaking Strength

The Minimum Breaking Strength (MBS) is the force that a given rope is required to meet or exceed in a laboratory test when it is new and unused. MBS values are given in Cordage Institute Standards and individual manufacturers' specifications.

There are inherent risks in the use of rope and cordage because such products are subject to highly variable conditions that change over time. Therefore, Design Factor (the ratio between the MBS and WL) selections and Working Load Limits must be calculated with consideration of exposure to risk and actual conditions of use for each application. If in doubt, consult the manufacturer, an experienced engineer or other qualified individual regarding the design, application and selection of a rope product.

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BRAIDED ROPE

Double Braid Polyester

(Professional Duty)				
SIZE Dia.	SIZE Cir.	Linear Density lbs./100'	New Rope Tensile Strength* (Lbs.)	Working Load Limit** (Lbs.)
1/4"	3/4"	2.0	2,100	420
5/16"	1"	3.1	3,000	600
3/8"	1 1/8"	2.18	4,200	840
1/2"	1 1/2"	3.33	7,500	1500
5/8"	2"	13.0	13,800	2,760
3/4"	2 1/4"	18.0	18,000	3,600
7/8"	2 3/4"	25.0	20,600	4,120
1"	3"	30.0	26,800	5,360

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Working Load / Working Load Limit

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Applied loads higher than a specified WLL can overstress and damage fibers, resulting in premature rope failure. The Working Load of an application should not exceed the WLL of the rope for optimalproduct performance and the safety of personnel and property.

Minimum Breaking Strength

The Minimum Breaking Strength (MBS) is the force that a given rope is required to meet or exceed in a laboratory test when it is new and unused. MBS values are given in Cordage Institute Standards and individual manufacturers' specifications.

There are inherent risks in the use of rope and cordage because such products are subject to highly variable conditions that change over time. Therefore, Design Factor (the ratio between the MBS and WL) selections and Working Load Limits must be calculated with consideration of exposure to risk and actual conditions of use for each application. If in doubt, consult the manufacturer, an experienced engineer or other qualified individual regarding the design, application and selection of a rope product.

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Double Braid Nylon				
(Professional Duty)				
SIZE Dia.	SIZE Cir.	Linear Density lbs./100'	New Rope Tensile Strength* (Lbs.)	Working Load Limit** (Lbs.)
1/4"	3/4"	1.6	2,200	440

5/16"	1"	2.5	3,400	680
3/8"	1 1/8"	3.6	4,900	980
1/2"	1 1/2"	6.3	8,500	1,700
5/8"	2"	10.0	15,200	3,040
3/4"	2 1/4"	14.3	18,000	3,600
1"	3"	25.5	29,000	5,800

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Working Load / Working Load Limit

The **Working Load** (WL) is the weight or force applied to rope or cordage in a given application.

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Applied loads higher than a specified WLL can overstress and damage fibers, resulting in premature rope failure. The Working Load of an application should not exceed the WLL of the rope for optimalproduct performance and the safety of personnel and property.

Minimum Breaking Strength

The Minimum Breaking Strength (MBS) is the force that a given rope is required to meet or exceed in a laboratory test when it is new and unused. MBS values are given in Cordage Institute Standards and individual manufacturers' specifications.

There are inherent risks in the use of rope and cordage because such products are subject to highly variable conditions that change over time. Therefore, Design Factor (the ratio between the MBS and WL) selections and Working Load Limits must be calculated with consideration of exposure to risk and actual conditions of use for each application. If in doubt, consult the manufacturer, an experienced engineer or other qualified individual regarding the design, application and selection of a rope product.

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Euro-Braid Polyester				
(Heavy Duty)				
SIZE Dia.	SIZE Cir.	Linear Density lbs./100'	New Rope Tensile Strength* (Lbs.)	Working Load Limit** (Lbs.)
1/8"	3/8"	0.48	350	60
3/16"	5/8"	0.89	690	110
1/4"	3/4"	2.24	900	160
5/16"	1"	2.91	1,440	245
3/8"	1 1/8"	3.23	2,160	390
1/2"	1 1/2"	5.13	3,800	630

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Working Load / Working Load Limit

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Applied loads higher than a specified WLL can overstress and damage fibers, resulting in premature rope failure. The Working Load of an application should not exceed the WLL of the rope for optimalproduct performance and the safety of personnel and property.

Minimum Breaking Strength

The Minimum Breaking Strength (MBS) is the force that a given rope is required to meet or exceed in a laboratory test when it is new and unused. MBS values are given in Cordage Institute Standards and individual manufacturers' specifications.

There are inherent risks in the use of rope and cordage because such products are subject to highly variable conditions that change over time. Therefore, Design Factor (the ratio between the MBS and WL) selections and Working Load Limits must be calculated with consideration of exposure to risk and actual conditions of use for each application. If in doubt, consult the manufacturer, an experienced engineer or other qualified individual regarding the design, application and selection of a rope product.

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Hollow Braid Polypropylene				
(Medium Duty)				
SIZE Dia.	SIZE Cir.	Linear Density lbs./100'	New Rope Tensile Strength* (Lbs.)	Working Load Limit** (Lbs.)
1/8"	3/8"	NA	NA	NA
3/16"	5/8"	NA	NA	NA
1/4"	3/4"	0.88	750	150
5/16"	1"	1.19	900	180
3/8"	1 1/8"	1.35	1,250	250
1/2"	1 1/2"	2.03	2,000	400

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Working Load / Working Load Limit

The **Working Load** (WL) is the weight or force applied to rope or cordage in a given application.

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Applied loads higher than a specified WLL can overstress and damage fibers, resulting in premature rope failure. The Working Load of an application should not exceed the WLL of the rope for optimalproduct performance and the safety of personnel and property.

Minimum Breaking Strength

The Minimum Breaking Strength (MBS) is the force that a given rope is required to meet or exceed in a laboratory test when it is new and unused. MBS values are given in Cordage Institute Standards and individual manufacturers' specifications.

There are inherent risks in the use of rope and cordage because such products are subject to highly variable conditions that change over time. Therefore, Design Factor (the ratio between the MBS and WL) selections and Working Load Limits must be calculated with consideration of exposure to risk and actual conditions of use for each application. If in doubt, consult the manufacturer, an experienced engineer or other qualified individual regarding the design, application and selection of a rope product.

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Multifilament Polypropylene				
(Lite Duty)				
SIZE Dia.	SIZE Cir.	Linear Density lbs./100'	New Rope Tensile Strength* (Lbs.)	Working Load Limit** (Lbs.)
1/8"	3/8"	0.38	250	38
3/16"	5/8"	0.63	400	68
1/4"	3/4"	1.43	750	127
5/16"	1"	NA	NA	NA
3/8"	1 1/8"	2.18	1,370	233
1/2"	1 1/2"	3.33	2,400	450

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**In accordance with Cordage Institute Standard Test Methods, Working Load Limits (WLL) are for rope in good condition, with appropriate splices, in non critical applications, and under normal service conditions. As a general rule, Working Loads Limits are 10%-15% of new rope tensile strengths.

Working Load / Working Load Limit

The **Working Load** (WL) is the weight or force applied to rope or cordage in a given application.

The **Working Load Limit** (WLL) is a guideline for the maximum allowable capacity of a rope product and **should not be exceeded**.

Applied loads higher than a specified WLL can overstress and damage fibers, resulting in premature rope failure. The Working Load of an application should not exceed the WLL of the rope for optimalproduct performance and the safety of personnel and property.

Minimum Breaking Strength

The Minimum Breaking Strength (MBS) is the force that a given rope is required to meet or exceed in a laboratory test when it is new and unused. MBS values are given in Cordage Institute Standards and individual manufacturers' specifications.

There are inherent risks in the use of rope and cordage because such products are subject to highly variable conditions that change over time. Therefore, Design Factor (the ratio between the MBS and WL) selections and Working Load Limits must be calculated with consideration of

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Braided Cotton				
(Lite Duty)				
SIZE Dia.	SIZE Cir.	Linear Density lbs./100'	New Rope Tensile Strength* (Lbs.)	Working Load Limit** (Lbs.)
1/8"	3/8"	0.30	300	30
3/16"	5/8"	0.62	450	50
7/32"	11/16"	.79	500	60
1/4"	3/4"	1.04	600	75

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Working Load / Working Load Limit

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Applied loads higher than a specified WLL can overstress and damage fibers, resulting in premature rope failure. The Working Load of an application should not exceed the WLL of the rope for optimalproduct performance and the safety of personnel and property.

Minimum Breaking Strength

The Minimum Breaking Strength (MBS) is the force that a given rope is required to meet or exceed in a laboratory test when it is new and unused. MBS values are given in Cordage Institute Standards and individual manufacturers' specifications.

There are inherent risks in the use of rope and cordage because such products are subject to highly variable conditions that change over time. Therefore, Design Factor (the ratio between the MBS and WL) selections and Working Load Limits must be calculated with consideration of exposure to risk and actual conditions of use for each application. If in doubt, consult the manufacturer, an experienced engineer or other qualified individual regarding the design, application and selection of a rope product.

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