DURAROPE®

High Performance Multifilament Braided Ropes

Mountaineering and General Purpose Ropes

Syntech Fibres (Pvt) Ltd.

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High Performance Multifilament Braided Ropes

Durarope braided ropes are made from premium high tenacity polypropylene and nylon multifilament yarns. They are of braided construction giving a balanced non-rotating/non-kinking rope with excellent handling characteristics. All production steps such as core- and sheath-yarn twisting, plying, and braiding, and rope pre-tensioning and thermosetting are carefully monitored.

Ropes for Climbing and Mountaineering

All mountaineering and rappelling ropes are made of a polypropylene core with a nylon sheath, or 100% nylon. Nylon offers the closest combination of strength, resiliency, elasticity, and abrasion resistance that is ideal for mountaineering use.

Major Benefits

- High performance, well balanced properties
- Excellent abrasion resistance
- Kink free, no twist – can be easily coiled by left or right handed person
- Pliable – easy to handle and store
- Excellent knot retention
- Torque-free rope construction gives a non-rotating rope
- Stronger, more abrasion resistant and longer lasting than cotton, jute, manila or sisal ropes

Durarope climbing ropes are of a kernmantle construction consisting of a core (kern) covered by a sheath (mantle). The core is the main load-bearing element and largely determines a rope's characteristics, such as strength, static elongation, and maximum impact force. The sheath is braided tightly around the core and its primary purpose is to protect the core against abrasion. The relationship between the core and sheath also contribute to rope handling characteristics.

Dynamic Ropes

Ropes used for climbing are normally dynamic. These are designed to stretch upon loading, absorbing shock and dissipating the energy generated when arresting a fall. Dynamic ropes are of nylon, and where required the core is shrunk and stabilized by steam to increase the elongation under load and to reduce changes after becoming wet. Sizes range from 8 to 11 mm diameter.

Static Ropes

Static ropes have relatively less extensibility. When new, the elongation at 10% of breaking strength is approximately 5%. Static ropes are used for rescue work and other applications which do not require high energy absorption.

General Purpose Ropes

Durarope general purpose ropes are made from high tenacity multifilament polypropylene yarn of braided kernmantle construction, having the following advantages:

- Lightweight, floats on water
- Excellent wet/dry strength retention
- Kink free, no twist – can be easily coiled by left or right handed person
- Pliable – easy to handle and store
- Excellent knot retention
- Torque-free rope construction gives a non-rotating rope
- Stronger, more abrasion resistant and longer lasting than cotton, jute, manila or sisal ropes
- Colourfastness (with additional UV protection against sun light degradation)
- Unaffected by water – can be stored wet or dry
- Does not absorb water – dries faster
- Same strength and dimensional stability – wet or dry
- Resistant to fungus & mildew
- Stain resistant
- Unaffected by diesel fuel, petrol, battery acid grease, oil, etc.

Melt spinning of high tenacity filaments

Twisting & cabling

Applications Areas

- Tie downs
- Line bedding
- Loading vehicles
- Clothes lines
- Baggage tie downs
- Utility and scaffolding rope
- Material handling and general use
- Tents
- Agricultural
- Civil engineering works
- Ropes for boats and general marine use
- General purpose
- Tie downs for camouflage netting, etc.
- Target tow rope
- Barrier rope
- Electrical & communications wire stringing

And many more...

Rope Care

Every rope wears out during use. However, wear differs depending upon type of use. The rope wears least, if it isn't highly loaded, as with a classic ascent and descent without a fall. In this case only the sheath is chafed by friction on rock or ice, which after some time will become worn out. Heavy loading, due to awkward routing, jerky descents or hauling over edges, increases abrasion and causes wear. The lifespan of a rope is therefore difficult to define. It depends on the type and length of use, on shock loading and other influences that weaken the rope.

Assembly & twisting

Independent of frequency of use, a rope should be disposed of if:

- The sheath is damaged and the core is visible
- The sheath is extremely worn, or particularly fuzzy
- The sheath has slipped noticeably
- Strong deformations are present (stiffness, kinks, lumps sponginess)
- The rope was subjected to extreme loads (e.g heavy falls)
- The rope is extremely dirty (grease, oil, tar)
- Heat, abrasion, or friction burns have caused damage
- The rope came in contact with chemicals to which the rope material is not resistant

Braiding

Pre-tensioning of rope

Working Load

No blanket working load recommendation can be made because it depends on the application and conditions of use, especially potential danger to personnel. It is recommended that the user establish working loads and safety factors based on professional and experienced assessments of risks. The working load is a guideline for the use of a rope in good condition for non-critical applications and should be reduced where life, limb, or valuable property is involved, or exceptional service such as shock, sustained loading, severe vibration, etc. The Cordage Institute specifies that the safe working load of a rope shall be determined by dividing the minimum tensile strength by the safety factor. Safety factors range from 5 to 6 for non-critical uses, and up to 12 to 15 for life lines.

Syntech Fibres: Fibre Properties and Typical Values

Strength	Manila	Sisal	Cotton	Nylon	Polyester	Polypro-pylene	Poly-ethylene	Kevlar	Spectra
Breaking Tenacity (grams/denier)	5.0-6.0	4.0-5.0	2.0-3.0	6.0-9.0	6.0-9.0	6.0-7.0	6	18-26.5	30
Wet Strength v.s Dry Strength	Up to 120%	Up to 120%	Up to 120%	85-90%	100%	100%	100%	95%	100%
Shock- Absorption Ability	Poor	Poor	Very Poor	Excellent	Good	Very Good	Fair	Poor	Fair
Weight									
Specific Gravity	1.38	1.38	1.54	1.14	1.38	0.91	0.95	1.44	0.97
Floats	No	No	No	No	No	Yes	Yes	No	Yes
Elongation									
Percent at Break	10-12%	10-12%	5-12%	18-25%	12-15%	12-25%	15-25%	1.5-3.6%	3.50%
Creep (extension under load)	Very Low	Very Low	Very Low	Moderate	Low	High	High	Very Low	Moderate
Effects of Moisture									
Water Absop. of Individual Fibres	Up to 100%	Up to 100%	Up to 100%	2-8%	<1%	None	None	3.5-7.0%	None
Dielectric Properties	Very Poor	Very Poor	Very Poor	Poor	Good	Excellent	Excellent	Poor	Excellent
Degradation									
Resistance to UV in sunlight	Good	Good	Good	Good	Excellent	Good	Fair	Fair	Fair
Resistance to Rot and Mildew	Poor	Poor	Poor	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Storage Requirements	Dry only	Dry only	Dry only	Wet or dry	Wet or dry	Wet or dry	Wet or dry	Wet or dry	Wet or dry
Rope Abrasion Resistance									
Surface	Good	Fair	Poor	Very Good	Excellent	Good	Good	Fair	Very Good
Internal	Fair	Fair	Fair	Excellent	Excellent	Good	Good	Poor	Excellent
Thermal Properties									
Melts at (°C)	Does not melt, chars at 175°	Does not melt, chars at 175°	Does not melt, chars at 175°	218-260°	250-260°	165°	135°	425°Begins to de-compose	145°
Resistance									
Resistance to Acids	Poor	Poor	Poor	Fair	Good	Excellent	Excellent	Fair	Excellent
Resistance to Alkalis	Poor	Poor	Fair	Very Good	Fair	Excellent	Excellent	Fair	Excellent
Resistance to Oils and Gas	Poor	Fair	Poor	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good

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Specifications

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	Diameter	Code	Length Per KG (Approx.)		Coil Size (Approx.)			Coil Dimensions		Breaking Load (Kg)
			Meters	Feet	KG	Meters	Feet	Diameter	Height	
Knit Braided	**4 mm**	RAC-4	136	446	2.00	272	892	9.50 Inch	4.5 Inch	
	5 mm	RAC-5	102	335	2.00	204	669	9.50 Inch	4.5 Inch	
	6 mm	RAC-6	86	282	2.00	172	564	9.50 Inch	4.5 Inch	
	7 mm	RAC-7	47	154	3.50	165	540	11 Inch	5.5 Inch	
	8 mm	RAC-8	35	115	3.50	123	402	11 Inch	5.5 Inch	
	9 mm	RAC-9	35	115	3.50	123	402	11 Inch	5.5 Inch	
	12 mm	RAC-12	18	59	6.00	108	354	15 Inch	9 Inch	
Braided	**4mm**	RBC-04	131	429.88	2.00	262	860	9.5 Inch	4.5 Inch	200
	7 mm	RBC-07	43.29	141.99	5.50	238	781	11 Inch	6.5 inch	450
	9 mm	RBC-09	25.71	84.33	8.00	206	675	13 inch	8 inch	850
	11 mm	RBC-11	16.55	54.28	14.00	232	760	15 inch	9 inch	1300
	13 mm	RBC-13	11.25	36.90	21.00	236	775	16 inch	10 inch	1650
	16 mm	RBC-16	7.22	23.68	32.00	231	758	20 inch	13 inch	2450
	19 mm	RBC-19	5.73	18.79	40.00	229	752	23.5 inch	13 inch	2950

(Length per kg, Coil size, and Coil dimensions are approximate.)

- New generation, high performance, light weight, multifilament polypropylene rope.
- Soft-easy to handle and store.
- Excellent knot retention.
- Not damaged by diesel fuel, petrol, battery acid, grease, or oil.
- Unaffected by water-can be stored wet or dry.
- Long lasting-with UV protection against sunlight degradation.
- Resistant to fungus and mildew.

Note: When cutting into smaller lengths, melt ends with a lighter to prevent fraying

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The data stated in this document reflects our best knowledge at the time of publication.

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