

Marlow[®]

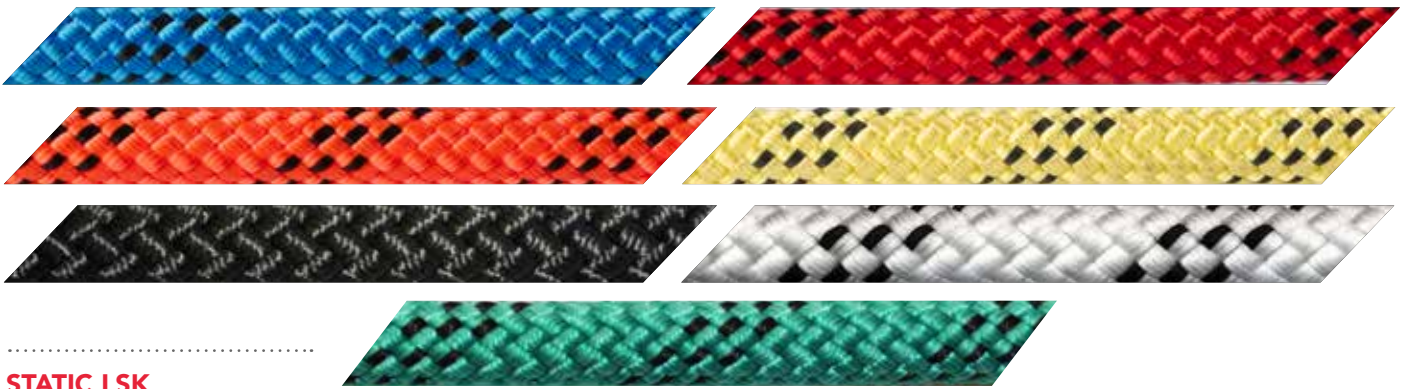
ROPE ACCESS & RESCUE



FOR LIFE ON THE EDGE

ISSUE 6

ACCESS ROPES



STATIC LSK

Marlow Static LSK is a low stretch kernmantle rope designed for rope access, work positioning, caving and abseiling. Static LSK ropes are manufactured using high quality high tenacity polyamide and significantly out perform the standard EN 1891 test standards with outstanding dynamic properties.

Compatible with all relevant diameter rope management, climbing and descending devices, Static LSK also comes in a range of flecked or solid colours and have a visible year of manufacture marker as standard.

Applications

Industrial access, work positioning, abseiling, caving.

Key attributes

High strength, high flex / soft handling, CE and UKCA certified.

Benefits

High strength, high energy absorption, good abrasion resistance, works well with ascenders and deszz10 for more details on our markers).

SPECIFICATIONS

TEST STANDARD	UKCA, CE EN 1891 TYPE A (EXCEPT 9MM CERTIFIED EN 1891 TYPE B)
CONSTRUCTION	MULTIPLE TWISTED NYLON CORES
COVER CONSTRUCTION	16 PLAIT
CORE MATERIAL	POLYAMIDE (NYLON)
COVER MATERIAL	POLYAMIDE (NYLON)
TERMINATION OPTIONS	SEWN EYE

See below table for more product specification.

SPECIFICATION

STATIC LSK ROPES

COLOURS: WHITE WITH BLACK OR RED FLECK, SOLID BLACK, SOLID RED, SOLID BLUE, SOLID GREEN, SOLID YELLOW, HI-VIS ORANGE

DIAMETER (mm)	9mm	10.5mm	11mm	12mm
WEIGHT (g/m)	53	67.2	73.8	90.3
LENGTHS (m)	50m, 60m, 100m, 200m	50m, 60m, 100m, 200m	50m, 60m, 100m, 200m	50m, 60m, 100m, 200m
AV. BREAKLOAD (kN)	25.4kN	33.4kN	35.3kN	42.8kN
AV. BREAKLOAD WITH FIG 8 LOOP (kN)	13.7kN	19.5kN	21.1kN	24.3kN

BLUE OCEAN® STATIC



This revolutionary 11mm rope is made from 100% GRS certified Blue Ocean® yarn. **Manufactured from recycled waste plastic** and compatible with all relevant diameter rope management climbing and descending devices, the Blue Ocean® Static provides a much lower elongation than conventional access ropes. Ropes constructed with polyester covers have a substantially better abrasion resistance than Nylon covered ropes.

Applications

Rope access, industrial access, work positioning, working at height.

Key attributes/benefits

UKCA, CE and NFPA certified, high strength, low elongation, abrasion resistance, made from 100% recycled polyester.

SPECIFICATIONS

TEST STANDARD	UKCA, NFPA CE MR1081
DIAMETER (mm)	11mm (7/16")
WEIGHT (g/m)	95.2
LENGTHS (m)	100 / 200m REELS
MATERIALS	BLUE OCEAN® YARN
CONSTRUCTION	MULTIPLE TWISTED RECYCLED POLYESTER CORES
COVER CONSTRUCTION	16 PLAIT
CORE MATERIAL	100% BLUE OCEAN® YARN (RECYCLED POLYESTER)
COVER MATERIAL	100% BLUE OCEAN® YARN (RECYCLED POLYESTER)
TERMINATION OPTIONS	SEWN EYE
AV. BREAKLOAD (kN)	36.4
AV. BREAKLOAD FIG.8 LOOP (kN)	22.0

UKCA, CE AND NFPA CERTIFIED

Suitable with NFPA and CE compliant devices and hardware.

NFPA CERTIFIED

Suitable with NFPA compliant devices and hardware.

VERTEX (ACCESS LSK)



Vertex (Access LSK) is a low stretch kernmantle rope designed for rope access, work positioning, caving and abseiling. Ropes are manufactured from 100% high tenacity polyester and offer excellent strength with slightly lower elongation and better abrasion than nylon static ropes.

Fully NFPA certified Vertex (Access LSK) is available in a range of high visibility solid colours for clear identification.

Benefits

High strength, high energy absorption, good abrasion resistance, NFPA certified.

Applications

Industrial access, work positioning, abseiling and caving.

SPECIFICATIONS

	11mm	12.5mm
DIAMETER (mm)	11mm	12.5mm
DIAMETER (inches)	7/16"	1/2"
COLOURS	RED, BLUE, BLACK, ORANGE, WHITE	RED, BLUE, BLACK, ORANGE, WHITE
MINIMUM BREAKING STRENGTH (kN)	32.1	37.8
MBS (lbf)	7213	8491
MATERIAL	POLYESTER	POLYESTER
% ELONGTION AT 1.35kN (300lbf)	1.7	1.8
% ELONGTION AT 2.7kN (600lbf)	2.5	2.6
% ELONGTION AT 4.4kN (1000lbf)	3.9	3.6
COUNTRY OF MANUFACTURE	UK	UK
ROPE MASS (g/m)	92.1	118.5
ROPE MASS (lb/100ft)	6.19	7.96
TEST STANDARD	NFPA	NFPA
TERMINATION OPTIONS	SEWN EYE	SEWN EYE

This product is not for sale in Europe.

BEFORE EXPOSURE

AFTER EXPOSURE

PH-I STATIC



pH-I Static has a unique colour change marker that will change from yellow to red when exposed to strong acids. Even a 20 seconds exposure to some acids can weaken a rope by 25%, compromising safety. Longer exposure will increase this strength loss. pH-I Static (Permanent Halochromic Indicating) offers a clearly defined permanent colour change, indicating when a rope has been compromised by strong acid chemicals and should be retired. pH-I Static is a UKCA and CE EN 1891 certified static rope with all the usual benefits of Marlow Static LSK.

Applications

Industrial access, cleaning with chemicals, paint stripping, lime scale stripping, weld preparation.

Key attributes

High strength, high flex / soft handling, UKCA and CE certified.

Benefits

High strength, high energy absorption, good abrasion resistance, works well with ascenders and descenders, visible year marker, chemical exposure alert.

Other info

Marlow's pH-I indicator is an aid to retirement and not a definitive indicator for every chemical, there are chemicals that will damage the rope and will not be indicated by the indicator e.g. Peroxide & Phenol. Care must always be taken to avoid exposing the rope to any chemical, whether potentially harmful or not. If in any doubt retire the rope.

SPECIFICATIONS

TEST STANDARD	UKCA, CE EN 1891 TYPE A (EXCEPT 9MM CERTIFIED EN1891 TYPE B)
CONSTRUCTION	MULTIPLE TWISTED NYLON CORES
COVER CONSTRUCTION	16 PLAIT
CORE MATERIAL	POLYAMIDE (NYLON)
COVER MATERIAL	POLYAMIDE (NYLON)
TERMINATION OPTIONS	SEWN EYE
COATING (OPTIONS)	HALOCHROMIC COATING (MARKERS ONLY)

REFLECTIVE STATIC



Reflective Static LSK is a low stretch kernmantle rope designed for rope access, work positioning, caving and abseiling at night or in dark or confined working conditions where visibility of the line is important.

Applications

Industrial access, work positioning, abseiling, caving, confined spaces, working at night.

Key attributes High strength, high flex, soft handling, high visibility, UKCA and CE certified.

Benefits

High strength, high energy absorption, good abrasion resistance, works well with ascenders and descenders, visible year marker, reflective marker yarns are easily visible. Good resistance to most chemicals and UV.

SPECIFICATIONS

TEST STANDARD	UKCA, CE EN1891 TYPE A (EXCEPT 9MM CERTIFIED EN1891 TYPE B)
CONSTRUCTION	MULTIPLE TWISTED NYLON CORES
COVER CONSTRUCTION	16 PLAIT
CORE MATERIAL	POLYAMIDE (NYLON)
COVER MATERIAL	POLYAMIDE (NYLON)
TERMINATION OPTIONS	SEWN EYE

For further data, see chart below.

SPECIFICATION

REFLECTIVE STATIC, PH-I STATIC

COLOURS: WHITE WITH BLACK OR RED FLECK, SOLID BLACK, SOLID RED, SOLID BLUE, SOLID GREEN, SOLID YELLOW, HI-VIS ORANGE

DIAMETER (mm)	9mm	10.5mm	11mm	12mm
WEIGHT (g/m)	53	67.2	73.8	90.3
LENGTHS	50m, 60m, 100m, 200m	50m, 60m, 100m, 200m	50m, 60m, 100m, 200m	50m, 60m, 100m, 200m
AV. BREAKLOAD (kN)	25.4kN	33.4kN	35.3kN	42.8kN
AV. BREAKLOAD WITH FIG 8 LOOP (kN)	13.7kN	19.5kN	21.1kN	24.3kN

PROTEC 250



Protec 250 is UKCA, CE and NFPA certified semi static rope is essential for rope access professionals who require a tough and durable work positioning rope.

Constructed with multiple twisted Nylon (polyamide) cores and a rugged 32 plait polyester cover.

Applications

Industrial access, work positioning.

Key attributes

High strength, low stretch, low water absorption, great abrasion resistance, UKCA, CE and NFPA certified.

Benefits

Works well with power ascenders, affordable durability.

SPECIFICATIONS

DIAMETER (mm)	11.3mm (7/16")
WEIGHT (g/m)	85
LENGTHS (m)	100m, 200m
AV. BREAKLOAD (kN)	44.3kN
AV. BREAKLOAD WITH FIG 8 (kN)	20.0
TEST STANDARD	UKCA, CE EN1891 TYPE A, NFPA
CONSTRUCTION	MULTIPLE TWISTED NYLON CORES
COVER CONSTRUCTION	32 PLAIT POLYESTER
CORE MATERIAL	POLYAMIDE (NYLON)
COVER MATERIAL	POLYESTER
TERMINATION OPTIONS	SEWN EYE

UKCA, CE AND NFPA CERTIFIED

Suitable with NFPA and CE compliant devices and hardware.



WORK POSITIONING LANYARDS



New for 2022, Marlow's Work Positioning Lanyards are CE certified to EN 354 and are compatible with most approved climbing devices. The colour-coded lengths are made from 11mm Marlow Static LSK rope.

Applications

Climbing, work positioning, industrial use

Key attributes/benefits

UKCA and CE certified, colour-coded lengths, compatible with most approved climbing devices.

SPECIFICATIONS

DIAMETER (mm)	11mm
WEIGHT (g)	188, 261, 355, 409, 517
LENGTHS (m)	2m, 3m, 4m, 5m
COLOURS	2m ORANGE, 3m RED, 4m YELLOW, 5m BLUE
AV. BREAKLOAD (kN)	30.9kN
MIN. BREAKLOAD (kN)	22kN
TEST STANDARD	UKCA, CE EN 354
CONSTRUCTION	MULTIPLE TWISTED CORES
COVER CONSTRUCTION	16 PLAIT
CORE MATERIAL	NYLON
COVER MATERIAL	NYLON
TERMINATION OPTIONS	SEWN EYE OR WITH SNAP HOOK (5m ONLY)

RONIN HP



Approved by Ronin Revolution, the Ronin HP is a new CE certified EN1891 Type A 11.5mm semi static rope. Available in natural and black Technora® with an inner red cover that gives clear damage indication.

Applications

Industrial use, work positioning, abseiling and with the Ronin Power Ascender.



Key attributes/benefits

Features a red, inner red cover that gives clear indication of outer cover damage, works well with Ronin Power Ascender.

SPECIFICATIONS

DIAMETER (mm)	11.5mm
WEIGHT (g/m)	89.6
COLOURS	GREY WITH RED INNER CORE
LENGTHS (m)	100m, 200m
AV. BREAKLOAD (kN)	51.3kN
AV. BREAKLOAD WITH FIG 8 (kN)	23.5kN
TEST STANDARD	UKCA, CE EN1891 TYPE A
CONSTRUCTION	MULTIPLE TWISTED NYLON
COVER CONSTRUCTION	16 PLAIT
CORE MATERIAL	NYLON
COVER MATERIAL	32 PLAIT TECHNORA WITH 48 PLAIT NYLON INNER COVER
TERMINATION OPTIONS	SEWN EYE

Technora

“THE UNIQUE SAFETY FEATURES AND PROVEN LONGEVITY OF THE RONIN HP MAKE IT THE MANUFACTURER'S PREFERRED CHOICE OF ROPE FOR THE RONIN LIFT POWER ASCENDER.”

Bryant Bertrand CEO of Ronin Revolution

HEAT RESISTANT ROPES



DIABLO

Marlow Diablo is a high quality, UKCA and CE certified Type A rope with a special heat resistant cover. Designed for military, police and emergency services, Diablo is essential for all rope access professionals who require a low stretch kernmantle type rope with added abrasion resistance.

When exposed to direct heat (for example from a blow torch or close proximity to halogen lamps), Diablo's survival time at temperatures exceeding 300°C, is 5 times that of regular static ropes. In instances of heat exposure up to 300°C, Diablo continues to maintain load bearing properties in excess of 10kN even after 15 minutes, whereas regular static ropes will catastrophically fail after 45 seconds. Available in black for military and police applications, and with high visibility fibre incorporated in the cover for emergency applications.

Applications

Abseiling, work positioning, industrial rope access, rapid descent, working near hot pipes.

Key attributes

High abrasion resistance, high flex / soft handling, UKCA and CE certified, heat resistant.

Benefits

Light weight, high strength, good energy absorption, excellent abrasion resistance, excellent heat resistance, improved insulation buffer zone, improved cut resistance, single cover easily inspected for damage, works well with ascenders and descenders.

SPECIFICATIONS

Technora

DIAMETER (mm)	11mm
WEIGHT (g/m)	82.5
COLOURS	BLACK OR ORANGE/BLACK
LENGTHS (m)	61m, 100m, 200m
AV. BREAKLOAD (kN)	35.5kN
AVERAGE BREAKLOAD WITH FIG 8 LOOP (kN)	18.3kN
TEST STANDARDS	UKCA, CE EN 1891 TYPE A
CONSTRUCTION	MULTIPLE TWISTED CORES
COVER CONSTRUCTION	24 PLAIT TECHNORA®/POLYAMIDE (NYLON)
CORE MATERIAL	POLYAMIDE (NYLON)
TERMINATION OPTIONS	SEWN EYE
NSN	4020 -99-154 -1423, 4020 -99-364 -1340

PROTEC 500



The ProTec 500 is a UKCA and CE EN1891 Type A certified 11mm rope with a 100% Technora® cover. Essential for all Rope Access professionals who require a work positioning rope with outstanding heat and abrasion resistant properties. Ideal for use around hot pipes and in welding operations. Available with a grey or lime fleck or a gold with red fleck option.

Applications

Hot work at height, grinding, welding, work positioning, work near hot pipes.

Key attributes

UKCA and CE certified, cut/abrasion resistance, heat resistant cover, high temperature polyester indicators that melt/fuse if exposed to elevated temperatures over 250°C.

Benefits

High resistant cover, cover decomposes at 500°C, provides additional safety when undertaking 'hot work' or when working in proximity to hot pipes, lighting etc. The hi-visibility markers melt/fuse if exposed to temperatures over 250°C (482°F) providing visual and tactile evidence of high temperature exposure.

SPECIFICATIONS

Technora

DIAMETER (mm)	11mm
WEIGHT (g/m)	83
COLOURS	GREY/GREY, GREY/LIME OR GOLD/RED
LENGTHS (m)	100m, 200m reels
AV. BREAKLOAD (kN)	49.1kN
AVERAGE BREAKLOAD WITH FIG 8 LOOP (kN)	24.4kN
TEST STANDARDS	UKCA, CE EN 1891 TYPE A
CONSTRUCTION	MULTIPLE TWISTED NYLON CORES
COVER CONSTRUCTION	32 PLAIT TECHNORA® + POLYESTER MARKERS
CORE MATERIAL	POLYAMIDE (NYLON)
COVER MATERIAL	TECHNORA® AND POLYESTER
TERMINATION OPTIONS	SEWN EYE

ESCAPE CORD

Single braid Technora® rope developed to work with emergency egress descender devices. The 100% Technora® construction gives the ideal balance of high strength, friction and heat resistance to ensure safe operation. The 22kN spliced strength is consistent with the requirements of safety certification requirements worldwide.

Applications

Working at height, rapid descent, rescue and emergency operations, wind turbine maintenance.

Key attributes and benefits

Heat and friction resistance, high strength, light weight, compact, 100% Technora®

SPECIFICATIONS

Technora

DIAMETER (mm)	8mm
WEIGHT (g/m)	35.0
COLOURS	NATURAL
AV. BREAKLOAD (kN)	24.6kN
MINIMUM BREAKLOAD WITH SPLICED EYE (kN)	22.0kN
TEST STANDARDS	N/A
CONSTRUCTION	12 STRAND SINGLE BRAID
TERMINATION OPTIONS	SPLICED
COVER MATERIAL	100% TECHNORA

This product is not CE/UKCA certified and is designed to be used as part of a certified system.

ACCESSORY CORDS

9mm ACCESSORY CORD



Marlow's low-stretch polyester rigging rope is ideal for any application where Nylon's elongation is undesirable.

Applications: Safety and rescue, rigging and general purpose

Key attributes: Low-stretch, UKCA and CE certified.

Benefits: High strength / low elongation rigging rope, ideal replacement for Nylon static ropes in rigging application where stretch must be kept to a minimum.

SPECIFICATIONS

DIAMETER (mm)	9mm
WEIGHT (g/m)	61.9
COLOURS	ORANGE/BLACK
LENGTHS (m)	100m, 200m REELS
AV. BREAKLOAD (kN)	25.51kN
TEST STANDARD	UKCA AND CE CERTIFIED
CORE CONSTRUCTION	MULTIPLE TWISTED POLYESTER CORES
COVER CONSTRUCTION	32 PLAIT POLYESTER
CORE MATERIAL	POLYESTER
COVER MATERIAL	POLYESTER

DYNEEMA® ACCESSORY CORD



This UKCA and CE certified, high strength Dyneema® accessory cord is ideal for technical rigging, where exceptional strength and light weight are essential. Very low elongation ensures accurate positioning to maintain efficient rigging.

Applications: Safety and rescue, rigging and general purpose

Key attributes: Low-stretch, UKCA and CE certified, exceptional strength, braided Dyneema® core

SPECIFICATIONS



DIAMETER (mm)	5mm
WEIGHT (g/m)	18.2
COLOURS	RED/BLACK
LENGTHS (m)	100m, 200m REELS
AV. BREAKLOAD (kN)	17.91kN
TEST STANDARD	UKCA AND CE EN 564
CORE CONSTRUCTION	BRAIDED DYNEEMA® CORE
COVER CONSTRUCTION	32 PLAIT POLYESTER
CORE MATERIAL	DYNEEMA®
COVER MATERIAL	POLYESTER

VIPER 2 ACCESSORY CORD



Viper 2 is UKCA and CE certified, high strength cord incorporating the proven Viper Vectran® and polyester cover technology, and Vectran® core.

Applications: Safety and rescue, rigging and general purpose

Key attributes: Low-stretch, UKCA and CE certified, high strength

Benefits: low weight, ideal for technical rigging, very low elongation, good abrasion resistance, good heat resistance

SPECIFICATIONS



DIAMETER (mm)	8mm
WEIGHT (g/m)	49.9
COLOURS	PURPLE/NATURAL
LENGTHS (m)	100m, 200m REELS
AV. BREAKLOAD (kN)	38.16kN
TEST STANDARD	UKCA, CE EN 564
CORE CONSTRUCTION	12 STRAND VECTRAN®
COVER CONSTRUCTION	POLYESTER AND VECTRAN®
CORE MATERIAL	VECTRAN®
COVER MATERIAL	POLYESTER AND VECTRAN®

GENERAL ACCESSORY CORD

Strong, light, polyamide (Nylon) accessory cord provides ideal performance for a variety of applications.

Applications General purpose, accessory cord.

Key attributes UKCA and CE certified (4mm, 5mm, 6mm and 8mm only).

Colours black and yellow as standard

SPECIFICATIONS

DIAMETER (mm)	3mm	4mm	5mm	6mm	7mm	8mm
WEIGHT(g/m)	5.6	9.9	16.6	22.5	30	37.6
COLOURS	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS	VARIOUS
LENGTHS (m)	100m, 200m	100m, 200m	100m, 200m	100m, 200m	100m, 200m	100m, 200m
AV. BREAKLOAD (kN)	2.00kN	3.65kN	8.38kN	11.17kN		16.09kN
TEST STANDARD		UKCA, CE EN 564	UKCA, CE EN 564	UKCA, CE EN 564		UKCA, CE EN 564
CONSTRUCTION	TWISTED CORE	TWISTED CORE	TWISTED CORE	TWISTED CORE	TWISTED CORE	TWISTED CORE
COVER CONSTRUCTION	16 PLAIT	16 PLAIT	16 PLAIT	16 PLAIT	16 PLAIT	16 PLAIT
CORE MATERIAL	POLYAMIDE (NYLON)	POLYAMIDE (NYLON)	POLYAMIDE (NYLON)	POLYAMIDE	POLYAMIDE (NYLON)	POLYAMIDE (NYLON)
COVER MATERIAL	POLYAMIDE (NYLON)	POLYAMIDE (NYLON)	POLYAMIDE (NYLON)	POLYAMIDE	POLYAMIDE (NYLON)	POLYAMIDE (NYLON)

DYNAMIC ROPES

DYNAMIC CLIMBING ROPES

A combination of good handling, abrasion resistance and outstanding dynamic and energy absorption performance make Marlow Dynamic Climbing Ropes ideal for climbing as well as safety and back up lines when abseiling or work positioning.

Applications Climbing, safety line, back up line, fall arrest.

Key attributes High elongation, UKCA and CE certified.

Benefits High elongation, outstanding energy absorption, good abrasion resistance, good strength.

SPECIFICATIONS

DIAMETER (mm)	10.5mm	11mm
WEIGHT (g/m)	70	78.0
COLOURS	RED OR BLACK	ORANGE, BLUE OR BLACK
LENGTHS	50m, 100m, 200m	50m, 100m, 200m
TEST STANDARD	UKCA, CE EN 892	UKCA, CE EN 892
CONSTRUCTION	MULTIPLE TWISTED CORES	MULTIPLE TWISTED CORES
COVER CONSTRUCTION	20 PLAIT	20 PLAIT
CORE MATERIAL	POLYAMIDE (NYLON)	POLYAMIDE (NYLON)
COVER MATERIAL	POLYAMIDE (NYLON)	POLYAMIDE (NYLON)
TERMINATION OPTIONS	SEWN EYE	SEWN EYE

TECHNICAL INFORMATION - PHYSICAL PROPERTIES

CHEMICAL RESISTANCE

This chart shows the residual strengths of synthetic fibres after chemical exposure under specific conditions.

CHEMICAL	CONC (W/W%)	TEMP. (°C)	TIME (HOURS)	NYLON	POLYESTER	POLYPROPYLENE	ARAMID	HMPE
ACIDS								
HYDROCHLORIC	34	20	100	0	90	100	95	100
NITRIC	66	20	100	0	70	100	95	95
SULPHURIC	96	20	100	0	100	100	40	90
FORMIC	90	20	100	0	95	100	90	100
ACETIC	100	20	10	85	95	100	100	100
ALKALIS								
CAUSTIC SODA	40	20	100	50	0	90	90	100
CAUSTIC SODA	20	70	150	100	0	100	85	90
CAUSTIC POTASH	40	20	100	90	0	90	90	100
SOLVENTS								
TRICHLOROETHYLENE	100	30	150	100	95	80	100	100
CARBON TETRACHLORIDE	100	20	150	100	100	100	98	100
BENZENE	100	70	150	100	100	100	98	95
METACRESOL	100	100	4	0	0	100	80	100
OXIDISING AGENTS								
HYDROGEN PEROXIDE	10	20	100	0	100	90	95	100

MARLOW STATIC LSK YEAR MARKER CHART

Look for the fine marker situated on static ropes between the bold black or red marks in the cover. This is to provide a visible recognition of the year of manufacture. A different colour is used each calendar year with the series being repeated every 5 years.

COLOUR	YEAR			
RED	2007	2012	2017	2022
YELLOW	2008	2013	2018	2023
BLUE	2009	2014	2019	2024
GREEN	2010	2015	2020	2025
BLACK	2011	2016	2021	2026

ROPE STRENGTHS AND WEIGHTS

Rope strengths are tested according to Marlow's QA25 and 26 quality procedures. Generally these procedures are in line with BS EN ISO 2307, however, a number of other internationally recognised test standards are used including EN 1891 and EN 564. Rope mass is determined by weighing a sample of rope whose length has been measured at a reference load. For most ropes this load is calculated as:

$$\text{REFERENCE LOAD (kg)} = D^2/8$$

Where D is the rope nominal diameter (mm)

Most rope strengths in this catalogue are given in kilograms (kg). However, the correct measure of force or breaking strength is kilonewtons (kN). Conversion factors from one to the other are:

$$\begin{aligned} \text{kg to kN} & \times 0.00981 \\ \text{kN to kg} & \times 101.972 \end{aligned}$$

WORKING LOADS

Marlow Ropes specify a minimum breaking load. It is the responsibility of the user to determine an appropriate factor of safety and safe working load. This factor of safety must be determined after considering all the risks, the strength reducing factors, and the expected life of the rope.

CARE IN USE:

STORAGE: Ropes should be stored in a suitable clean, dry place out of direct sunlight and away from extreme temperature. Do not store ropes on dirty floors or drag over rough ground – dirt and grit can work between the fibres and cause abrasion damage. Keep ropes away from chemicals and in cases of long term storage, hose down with fresh water to reduce dirt and salt that can affect the life and efficiency.

Braided ropes can have excessive twist imparted into them by incorrect handling. Ideally these ropes should be "hanked" in a figure of 8 fashion this avoids putting twist in and will ensure free running when deployed. If supplied on a reel, this must be allowed to rotate freely on a central pin so that the rope may be drawn off from the top layer. Never take the rope from a reel lying on its side unless placed onto a turntable.

SHEAVES, PULLEYS AND ROLLERS: When any rope is used around a sheave there will be a reduction in its strength and life. For most non-specialised applications a sheave diameter 8-10 times the rope diameter will suffice, however certain materials such as Aramids may require a sheave size of up to 20 times diameter.

The profile of the groove in a sheave should support the entire rope. Normally a semicircle of 10% greater diameter than that of the rope is appropriate. 'V' groove sheaves should be avoided since they compress the rope and have points of local friction reducing the life of the rope. Sheaves should be maintained so that they rotate freely in use.

TERMINATIONS:

SPICES: Most Marlow ropes can be spliced, this is normally the preferred method of termination. A good splice using the recommended method should not reduce the strength of a rope by more than 10%.

KNOTS: A knot will reduce the strength of the rope, sometimes very significantly. This loss is caused by the tight bends and compression found in any knot. The amount a rope will be weakened will depend on the knot, type of rope and the material from which it is made but can be up to 60%.

EYE SIZES: Wherever possible the angle formed at the throat of a splice when it is loaded should be 30 degrees or less. This means that the length of the eye when flat must be at least 2.7 times the diameter of the object over which the eye is to be used and the distance from the bearing point to the throat when in use should be at least 2.4 times the diameter. Some materials like Aramids and HMPEs (Dyneema®) will require a larger eye with an angle at the throat of 15 degrees or less.

INSPECTION & RETIREMENT:

INSPECTION: It is important that a rope is regularly inspected to ensure that it is undamaged and is still fit for service. The entire length of rope should be examined. The following are some of the points that should be checked. The degree to which any of the following may be allowed before the rope is retired will be dependant on the assumptions made when the rope and safety factors were determined.

EXTERNAL ABRASION: When a multifilament rope is subjected to abrasion the outer filaments will quickly become broken and a furry finish will develop. This furry layer will protect the yarns underneath preventing further abrasion. If this condition does not stabilise and continues to develop then there may be excessive abrasion that could lead to significant strength loss.

INTERNAL ABRASION: The rope should be opened up so that the condition of the internal yarns can be assessed. If they show signs of abrasion then there could be some exposure to abrasive particles or there may be inter yarn abrasion.

GLAZING: If a rope has been subjected to excessive heat then there may be glazed or glossy areas of rope. The glazing is caused when the yarns melt, if this has happened then the nearby yarns will also have been exposed to elevated temperatures and will have been affected. This type of damage is often seen if ropes slip on winch barrels or capstans.

DISCOLOURATION: This could indicate the presence of dirt that may cause internal abrasion or could be an indication of chemical damage. If chemical damage is suspected then the amount that the rope has been weakened is very difficult to assess and the rope should be retired.

INCONSISTENCIES: If any section of the rope is found to contain lumps, flat areas or thin bits then this could indicate that the rope has been damaged internally. This type of damage is often caused by overloading or shock loads.

No rope will last forever and it is important to ensure that if there are any risks if a rope fails then it should be retired after an appropriate period.





PHOTO CREDITS:
FRONT COVER AND INSIDE BACK: TRASK
BRADBURY, MASTER POINT ROPE ACCESS
BACK COVER: AVALON ABSEILING LTD,
WESTMINSTER ABBEY

Other brochures available:

- Arboriculture •
- Commercial Marine •
- Lifting and Renewables •
- Defence •
- Vehicle Recovery •
- Leisure Marine •
- Rope Access & Rescue •



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