Marlow®

DATASHEET

D12 MAX 99

Manufactured using Dyneema's latest SK99 fibre, D12 Max 99 exhibits ultra high strength for all applications where the highest possible strength is required. D12 Max 99 utilising Dyneema SK99 delivers industry leading strength, stiffness, durability and longevity. Dyneema SK99 adds approximately 20% to the breakload of the equivalent SK78 rope.

APPLICATIONS

Sailing, Halyards, Sheets, Guys, Tacklines, Lashings, Strops, Highload Lines

MATERIAL

Manufactured from Dyneema SK99
HMPE (High-Modulus Polyethylene)
Very light weight - 8x lighter than steel wire for a given strength
High strength - 70% stronger than steel wire for a given diameter
Low Stretch - see graph below
Good resistance to chemicals and UV
Zero water shrinkage
Low creep HMPE fibre

CONSTRUCTION

TWISTED FIBRE CONSTRUCTION:	Improved abrasion resistance
12 STRAND BRAIDED CONSTRUCTION:	Optimised pitch to yarn twist - improves strength & longevity
	Firmer rounder rope, aids handling
	Easy to splice
	Flexible product and easily handled
	Torque balanced
HEAT SET AND PRE-STRETCHED:	Maximises strength / diameter ratio
	Minimises elongation

COATING OPTIONS

MARLOW ARMOURCOAT (STANDARD FINISH):	Specially formulated polyurethane coating
	Improves abrasion resistance and durability
	Increases friction, aids handling & splicing
	Provides colour coding (black as standard, other colour options available on request)
MARLOW GRIPCOAT:	Synthetic Polymer Anionic Coating
	Prevents ingress of dirt and abrasive particles
	Provides "self healing" properties
	Increases coefficient of friction
	Significantly improves core/cover adhesion
MARLOW COOLCOAT:	Enhances bending performance
	Reduces yarn on yarn abrasion and heat generation by a factor of 2
	Applied at rope manufacture stage

PROPERTIES

RELATIVE DENSITY:	0.97 (floats)
CHEMICAL RESISTANCE:	Excellent resistance to most chemicals (additional information available on request)
UV RESISTANCE:	Very good
MELTING POINT:	140°C
CRITICAL TEMPERATURE:	80°C (exposure to temperatures over this will result in permanent strength loss)

TERMINATIONS

SPLICED EYE TERMINATION:

12 strand splice
An allowance of 60x rope diameter should be made for the overall length of the splice.
To optimise the efficiency of a soft eye splice (without a thimble), the angle formed at the neck of the splice should be 30° or less, meaning that when flat, the length of the eye must be 2.7x the diameter of the object over which the splice will be used.
In a sling configuration, attention must be paid to the distance between the two splices. For optimum strength realisation, Marlow recommend the minimum distance between splices of 35x rope diameter
A splice will normally increase the diameter of the rope between 1.5x and 1.75x

GROMMET OR ENDLESS LOOP:

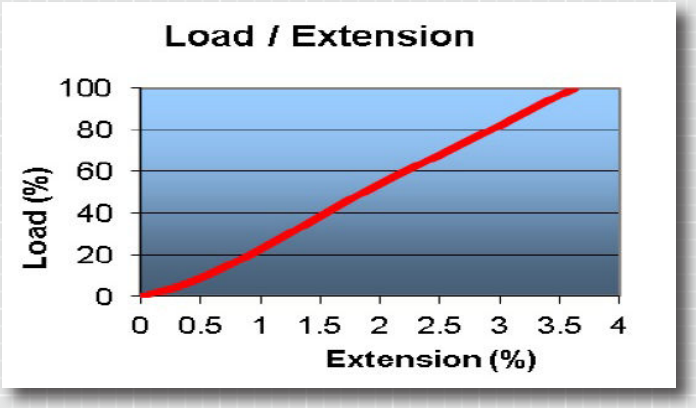
When calculating the strength of a grommet, a factor of 1.65 should be applied to the break load of the rope
It is important to recognise the D/d ratio of the fittings when specifying a grommet or endless loop. Marlow recommends a D/d ratio of 5x rope diameter for optimum strength realisation
The minimum circumference should be a factor of the splice length and optimum distance between splices and calculated as:
C = 2(d x 60) + (d x 35). Divide C by 2 for the finished length

ELONGATION

Permanent elongation on first loading: Up to 5%

Typical working elongation (for a bedded in rope):

@ 10% of break load: 0.51%
@ 20% of break load: 0.89%
To break: 3.60%



PERFORMANCE

DIAMETER	CIRCUMFERENCE	MASS		AVERAGE STRENGTH			MIN STRENGTH		
mm	Inch	g/m	lb/100 ft	kg	lb	kN	kg	lb	kN
2.5	3/32	4.5	0.30	1196	2631	11.7	1100	2421	10.8
3	1/8	6.8	0.46	1793	3945	17.6	1650	3630	16.2
4	5/32	11.1	0.74	2948	6485	28.9	2712	5966	26.6
5	3/16	15.6	1.05	3808	8378	37.4	3503	7707	34.4
6	7/32	22.3	1.50	5443	11975	53.4	5008	11017	49.1
7	1/4	35.6	2.39	8937	19661	87.7	8222	18088	80.7
8	5/16	44.5	2.98	11171	24575	110	10277	22609	101
9	3/8	54.0	3.62	12522	27549	123	11520	25345	113
10	13/32	63.0	4.22	14609	32140	143	13440	29569	132
11	7/16	75.5	5.06	17526	38558	172	16124	35474	158
12	15/32	90.0	6.04	20871	45916	205	19201	42242	188
13	1/2	107	7.18	24529	53965	241	22567	49647	221
15	9/16	134	8.99	30661	67454	301	28208	62058	277
17	11/16	184	12.34	38106	83833	374	35058	77127	344

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