

Marlow DATASHEET[®]

D12 PLUS 99

Marlow's D12 PLUS 99 is a premium and versatile "all-round" rope offering a lightweight, high strength and flexible alternative to steel wire and even polyester ropes.

D12 PLUS 99 has been designed to offer significantly improved strength, handling and service life and subsequently can provide a more cost effective solution compared to more



APPLICATIONS

Winch lines, Mooring lines (primary, temporary and transfer), lifting slings, strops and grommets, seismic arrays, escort and ocean towing lines

MATERIAL

MANUFACTURED FROM DYNEEMA SK99: HMPE (High-Modulus Polyethylene)
Very light weight - 8x lighter than steel wire for a given strength
High strength - 80% stronger than steel wire for a given diameter
Low Stretch - see graph below
Good resistance to chemicals and UV
Zero water shrinkage
Very low creep HMPE fibre

ADDITIONAL FEATURES OF DYNEEMA SK99: Exhibits approximately 20% of the creep experienced by SK75.
Further information available.

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

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

Diameters up to & including 44mm - 12 strand splice

SPliced EYE

Diameters 48mm and over - 12 strand tuck splice

TERMINATION:

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

GROMMET OR ENDLESS LOOP:

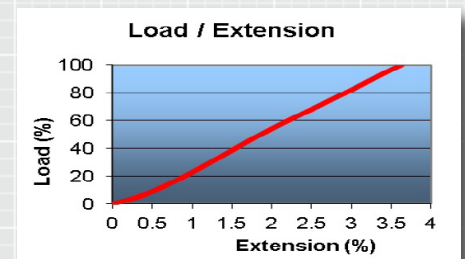
When calculating the strength of a grommet, a factor of 1.65 should be applied to the break load of the rope

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 3x rope diameter for optimum strength realisation
The minimum circumference should be a factor of the splice length and optimum distance

N.B. KNOTS WILL SIGNIFICANTLY REDUCE THE STRENGTH OF ANY ROPE. THIS PRODUCT WILL TYPICALLY RETAIN APPROXIMATELY 30% OF ITS STRENGTH IF TERMINATED WITH A KNOT. THE EXACT FIGURE WILL DEPEND ON THE TYPE OF KNOT USED AND OTHER FACTORS.

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		CIRC	MASS		AVERAGE STRENGTH			MINIMUM STRENGTH		
mm	inch	inch	g/m	lb/100 ft	kg	lb	kN	kg	lb	kN
18	23/32	2 1/4	195	13.1	40,600	89,400	398.0	37,300	82,300	366
20	25/32	2 1/2	239	16.0	48,800	108,000	479.0	44,900	99,000	440
22	7/8	2 3/4	289	19.4	57,400	127,000	564	52,800	117,000	518
24	15/16	3	318	21.3	63,000	139,000	618	58,000	128,000	569
26	1 1/32	3 1/4	391	26.2	76,600	169,000	752	70,500	155,000	691
28	1 3/32	3 1/2	434	29.1	83,000	183,000	814	76,300	168,000	749
30	1 3/16	3 3/4	521	34.9	99,100	218,000	972	91,100	201,000	894
32	1 1/4	4	579	38.8	109,000	241,000	1,070	101,000	222,000	988
34	1 11/32	4 1/4	636	42.7	118,000	260,000	1,160	108,000	239,000	1,060
36	1 13/32	4 1/2	694	46.6	126,000	279,000	1,240	116,000	256,000	1,140
38	1 1/2	4 3/4	781	52.4	142,000	313,000	1,390	131,000	288,000	1,280
40	1 9/16	5	868	58.2	155,000	342,000	1,520	143,000	315,000	1,400
44	1 23/32	5 1/2	1040	69.8	180,000	396,000	1,760	165,000	364,000	1,620
48	1 7/8	6	1220	81.5	207,000	457,000	2,040	191,000	421,000	1,870
52	2 1/16	6 1/2	1480	98.9	250,000	550,000	2,450	230,000	506,000	2,250
56	2 7/32	7	1650	111	276,000	609,000	2,710	254,000	560,000	2,490
60	2 3/8	7 1/2	1910	128	315,000	694,000	3,090	289,000	638,000	2,840
64	2 17/32	8	2170	145	352,000	776,000	3,450	324,000	714,000	3,180
68	2 11/16	8 1/2	2430	163	390,000	859,000	3,820	358,000	790,000	3,520
72	2 27/32	9	2780	186	442,000	974,000	4,330	406,000	896,000	3,990
76	3	9 1/2	3040	204	480,000	1,060,000	4,710	442,000	973,000	4,330
80	3 5/32	10	3390	227	533,000	1,170,000	5,230	490,000	1,080,000	4,810
88	3 15/32	11	4170	279	652,000	1,440,000	6,400	600,000	1,320,000	5,890

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