

Ropes for Subsea Cable Laying

"SEAMASTER" CABLE LAID BUOY & GRAPNEL ROPES

[BUOY & GRAPNEL] Cable Laid combined (wire and natural fibre) ropes specially designed for Subsea Cable Laying duties



Designed to meet the special demands of the Cable Laying vessels and the marine environments in which they operate.

The "Seamaster" range of Buoy & Grapnel ropes offer the combined strength of steel with superior corrosion resistance through galvanised wires/ strands oversheathed with PVC and the handling benefits of natural fibre.

“Seamaster” Cable Laid Buoy & Grapnel Rope

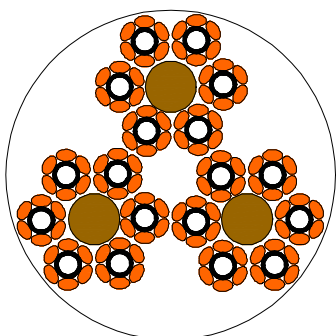
Material: PVC sheathed Galvanised Steel wire
& Manila fibre

Construction: Cable Laid

Application: Grapnel and Cable Laying - Subsea
environment

Construction	Diameter	Min. Breaking Load	Weight	
			Air	Sea Water
	mm	tonnesf	kg/m	kg/m
4x3	32	14.2	1,05	0,41
6x3	41	21.3	1,68	0,72
8x3	53	27.5	2,48	0,90
8x3 special	53	45.7	3,89	2,10

Ropes manufactured in accord with BT (Marine) specification MAR10 rev.3 - Feb 1989



Key Benefits:

- lower effective weight in water compared to steel rope
- 3unit rope construction offers superior torque stability compared with 6 strand constructions, aids recoiling
- manila fibre offers high frictional grip without the heat degradation of man-made fibre when operating with cable engines, winches, rollers & bollards etc
- strength members have extra corrosion protection of galvanising *and* PVC plastic sheathing
- supplied with *either* hand spliced Thimble & Link *or* purpose designed Socket by Grap-Lock resin (incorp. swivel optional)

“Seamaster” Cable Laid Buoy & Grapnel Rope

Material: PVC sheathed Galvanised Steel Strand
& Manila fibre

Construction: Cable Laid

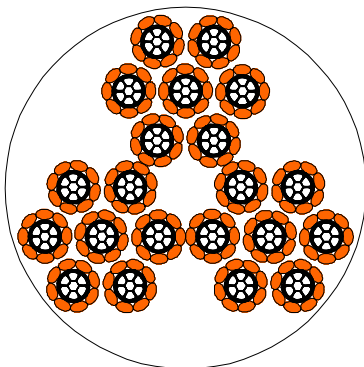
Application: Grapnel and Cable Laying - Subsea
environment

Construction	Diameter	Min. Breaking Load	Weight	
			Air	Sea Water
	mm	tonnesf	kg/m	kg/m
3 x 7 x 7 *	50	50	3.2	1.81

*Specially developed in association with vessel operators for Cable Laying duties

Key Benefits:

- high tensile compacted steel strands for added strength and flexibility
- high strength cable in compact overall rope diameter, effectively increases vessel's cable storage capacity
- lower effective weight in water compared to steel rope and other high strength grapnel ropes
- 3 unit rope construction offers superior torque stability compared with 6 strand constructions, aids recoiling
- manila fibre offers high frictional grip without the heat degradation of man-made fibre when operating with cable engines, winches, rollers & bollards etc
- strength members have extra corrosion protection of galvanising *and* PVC plastic sheathing
- supplied with *either* hand spliced Thimble & Link *or* purpose designed Socket by Grap-Lock resin (incorp. swivel optional)



“Seamaster” Cable Laid Buoy & Grapnel Rope

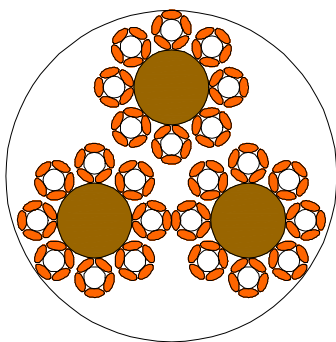
Material: Galvanised Steel Wire & Manila fibre

Construction: Cable Laid

Application: Grapnel and Cable Laying - Subsea environment

Construction	Diameter	Min. Breaking Load	Weight	
			Air	Sea Water
	mm	tonnesf	kg/m	kg/m
8x3	41	25,4	1,99	0,64

Rope specification complies with US Military specification



Key Benefits:

- lower effective weight in water compared to steel rope and other high strength grapnel ropes
- 3 unit rope construction offers superior torque stability compared with 6 strand constructions, aids recoiling
- manila fibre offers high frictional grip without the heat degradation of man-made fibre when operating with cable engines, winches, rollers & bollards etc
- strength members are galvanised to provide corrosion protection
- supplied with *either* hand spliced Thimble & Link *or* purpose designed Socket by Grap-Lock resin (incorp. swivel optional)

“Seamaster” Cable Laid Buoy & Grapnel Rope

Material: PVC sheathed Galvanised Steel Strand
& Manila fibre over sisal core

Construction: Cable Laid

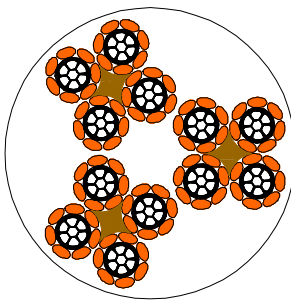
Application: Grapnel and Cable Laying - Subsea
environment

Construction	Diameter	Min. Breaking Load	Weight	
			Air	Sea Water
	mm	tonnesf	kg/m	kg/m
3 x 4 x 7*	41	28.44	1.99	1.06

*Specially developed in association with vessel operators for Cable Laying duties

Key Benefits:

- high tensile compacted steel strands for added strength and flexibility
- high strength cable in compact overall rope diameter, effectively increases vessel's cable storage capacity
- lower effective weight in water compared to steel rope and other high strength grapnel ropes
- 3 unit rope construction offers superior torque stability compared with 6 strand constructions, aids recoiling
- manila fibre offers high frictional grip without the heat degradation of man-made fibre when operating with cable engines, winches, rollers & bollards etc
- strength members have extra corrosion protection of galvanising *and* PVC plastic sheathing
- supplied with *either* hand spliced Thimble & Link *or* purpose designed Socket by Grap-Lock resin (incorp. swivel optional)



“Seamaster” Cable Laid Buoy & Grapnel Rope

Material: PVC sheathed Galvanised Steel Strand
& Manila fibre over PVC sheathed
wire core

Construction: Cable Laid

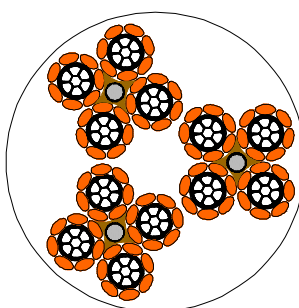
Application: Grapnel and Cable Laying - Subsea
environment

Construction	Diameter	Min. Breaking Load	Weight	
			Air	Sea Water
	mm	tonnesf	kg/m	kg/m
3 x 4 x 7 WC*	41	32.5	2.37	1.36

*Specially developed in association with vessel operators for Cable Laying duties

Key Benefits:

- high tensile compacted steel strands over single wire centre for added strength and flexibility
- high strength cable in compact overall rope diameter, effectively increases vessel's cable storage capacity
- lower effective weight in water compared to steel rope and other high strength grapnel ropes
- 3 unit rope construction offers superior torque stability compared with 6 strand constructions, aids recoiling
- manila fibre offers high frictional grip without the heat degradation of man-made fibre when operating with cable engines, winches, rollers & bollards etc
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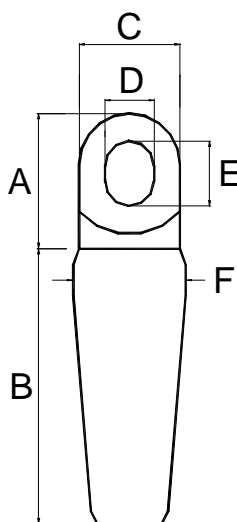
Socket Terminations

Cable Laid Buoy & Grapnel Rope

Material: Forged High Strength Carbon Steel
Application: Grapnel and Cable Laying - Subsea environment

Socket							Rope		
A mm	B mm	C mm	D mm	E mm	F mm	Proof Load	Dia	Constr.	MBL
125	225	94	46	60	105	18t	41mm	6x3	21.3t
125	225	94	46	60	105	22t	41mm	8x3	25.4t
125	225	94	46	60	105	25t	41mm	3x4x7	28.4t
125	255	110	46	60	115	24t	53mm	8x3	27.5t
125	255	110	46	60	115	40t	50mm	3x7x7	50.0t

Dimensions are for guidance purposes only and subject to change without notice



Key Benefits:

- Slim tapered Socket provides easier passage through linear cable engines and around winch drums
- Compact termination
- Proof tested and certified
- 100% terminal efficiency
- Approved for use with Grap-Lock Resin socketing kit
- Socket eye connects direct to 32mm and 26mm grade 80 chain connector
- Integrated swivel socket version available

“Seamaster”

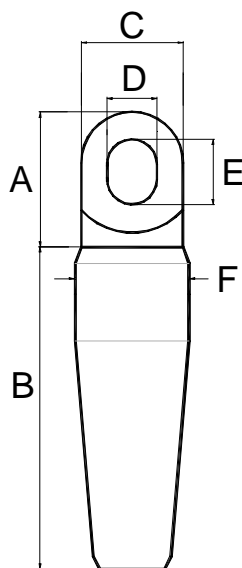
Swivel Socket Terminations

Cable Laid Buoy & Grapnel Rope

Material: Forged High Strength Carbon Steel
Application: Grapnel and Cable Laying - Subsea environment

Swivel Socket							Rope		
A mm	B mm	C mm	D mm	E mm	F mm	Proof Load	Dia	Constr.	MBL
125	312	94	46	60	105	18t	41mm	6x3	21.3t
125	312	94	46	60	105	22t	41mm	8x3	25.4t
125	312	94	46	60	105	25t	41mm	3x4x7	28.4t
125	312	110	46	60	115	24t	53mm	8x3	27.5t
125	312	110	46	60	115	40t	50mm	3x7x7	50.0t

Dimensions are for guidance purposes only and subject to change without notice



Key Benefits:

- Slim tapered Socket provides easier passage through linear cable engines and around winch drums
- Compact termination with integral swivel
- Proof tested and certified
- 100% terminal efficiency
- Ball thrust bearing ensures socket rotates under load (up to socket proof load)
- Approved for use with Grap-Lock Resin socketing kit
- Socket eye connects direct to 32mm and 26mm grade 80 chain connector
- Reduces number of components required when connecting ropes together
- Reduced assembly time and overall weight of components

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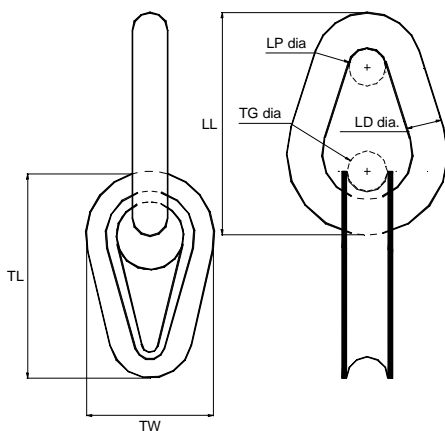
Thimble & Link Terminations

Cable Laid Buoy & Grapnel Rope

Material: Carbon Steel - Galvanised
Application: Grapnel and Cable Laying - Subsea environment

Thimble & Link							Rope		
TL mm	TW mm	TG mm	LL mm	LD mm	LP mm	Proof Load	Dia	Constr.	MBL
203	137	35	216	35	38	12t	32mm	4x3	14.2t
230	140	44	220	32	40	18t	41mm	6x3	21.3t
230	140	44	220	30	40	21t	41mm	8x3	25.4t
230	140	44	244	32	45	25t	41mm	3x4x7	28.4t
267	178	55	244	42	55	24t	53mm	8x3	27.5t
305	188	58	272	39	55	40t	50mm	3x7x7	50.0t

Dimensions are for guidance purposes only and subject to change without notice



Key Benefits:

- Traditional method of terminating cable laid grapnel rope
- Proof tested and certified
- Visibility of hand splice facilitates inspection of termination
- Hand spliced termination develops rated mbl. of rope
- Connects to chain, swivels, shackles etc.
- Gusset thimble
- Lightweight termination
- Supports and protects rope eye
- Meet Industry and Military Specifications

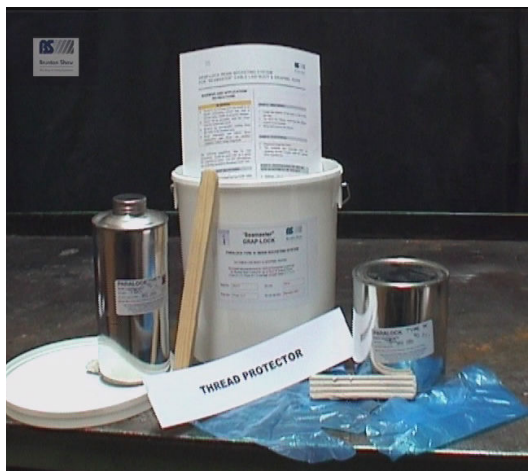
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Grap-Lock Resin kits

Cable Laid Buoy & Grapnel Rope

Material: Polyester Resin
Application: Socketing Buoy & Grapnel Rope

Grap-Lock Resin Socketing Kit Size	Rope		
	Dia	Constr.	MBL
750cc	41mm	6x3	21.3t
750cc	41mm	8x3	25.4t
750cc	41mm	3x4x7	28.4t
1000cc	53mm	8x3	27.5t
1000cc	50mm	3x7x7	50.0t



Key Benefits:

- Developed in association with Millfield Enterprises (manufacturers of Wirelock[®]) specifically for use on Buoy & Grapnel ropes
- Extensively tested and evaluated
- Develops full breaking load of rope when used in association with approved socket termination
- All components (resin, spatula, plasticine, gloves etc.) necessary to complete the socketing process contained in single package
- Full instructions included, and separate training video of socketing procedure is available on request
- Full traceability and use-by date stamped

“Seamaster” Use and Care – Buoy & Grapnel Ropes

Storage

Protect from the weather during storage



Store rope where possible under deck or under suitable cover, clean and dry, in a well ventilated area, and out of direct sunlight. [Ultraviolet in the sun's rays is detrimental to manila]. When not on reels, store rope on raised supports, never on concrete or dirty floors.

Avoid fumes & chemicals



Keep away from acids, chemicals of all types (caution: some ships' decks cleaning compounds are acidic) and noxious fumes. Never store near boilers, steam pipes or other sources of extreme heat. In the case of long term storage, used rope should be hosed down with fresh water to inhibit the formation of salt crystals that may affect the performance of the rope.

Handling

Correct handling is of the utmost importance if damage by kinking and/or twisting is to be avoided.

Avoid kinks

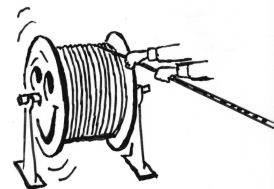


Handling cont'd

When coiling or uncoiling rope, care should be taken to avoid imparting twist which can lead to the formation of kinks.

Ropes on reels should be mounted on a spindle, preferably with horizontal axis, and the rope wound off by revolving the reel under control. Never take rope from a reel lying on its side unless it is placed on a turntable.

Unreel & uncoil rope carefully



Even when rope is unwound properly, loops or hockles may form in it, and these should be removed carefully. If the rope is unwound improperly, numerous hockles will form, which if not removed by turning the rope in the correct direction to restore lay, but instead is pulled out tightly, then severe damage (kinks) to the rope will result.

Normal service can never be depended upon after a rope has been kinked. Abrasion and fatigue usually develop rapidly, and owing to distortion, undetected damage can sometimes lead to dangerous situations.

Sharp Bends, Rollers and Sheaves

Avoid loading around sharp bends, which can create localised rope distortion and high stresses.

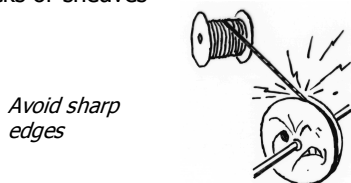
As a minimum, pulley diameters of 12 rope diameters are recommended.

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Use and Care – Buoy & Grapnel Ropes cont’d

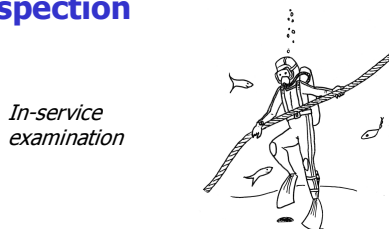
Sharp Bends, Rollers and Sheaves cont’d

When it is necessary to pull on the rope at an angle, care should be taken to avoid the rope coming into contact with the edges of blocks or sheaves



Rope should not be reeved through blocks where the width of the groove of the sheave is less than the diameter of the rope.
Sheave grooves and rollers should be free from roughness.

Inspection



In service examination should be conducted regularly for evidence of damage (surface abrasion [chafe] including major yarn or strand cuts); distortion (kinking [hockles] waviness, birdcaging, displaced strands) and evidence of chemical attack (discolouration other than operational soiling).

Check splices (tucks), & sockets for evidence of movement or misalignment. If in doubt, cut off and re-terminate.

[Note cone draw (up to 10mm) in sockets is necessary for proper functioning of the socket termination. Cone draw at greater levels indicates over-load or potential termination problems.]

Safety

Should there be any doubt as to whether or not a rope is fit to use, it should be replaced at once. Never risk danger to life or damage to property by ‘chancing it’.

Use correct safety factors (remember to include for any shock load effects).

Never stand in-line with a rope under tension. If a rope assembly fails the recoil can be sufficient to cause serious injury or even death.

Retirement

Planned retirement



As well as discarding your rope when obviously damaged, it is good practice to develop “working life’s” for your rope within the parameters of the application for which it was selected. This will allow you to retire your rope on a planned basis, provided of course that your application conditions do not change. Remember to re-establish your discard criteria if changing rope construction, or breaking load. Safety of life and property is the prime consideration. If in doubt ask Brunton Shaw UK Ltd for recommendations.

It is recommended that this publication be read in conjunction with British Standard BS 6570:1986 “Code of Practice” for the selection, care and maintenance of steel wire ropes. Special attention should be paid to Appendix B of the Standard which deals with the assessment of rope condition and discard criteria.