

D-Lite[®] Hybrid Shackle

High Performance
Lightweight
Safer



PATENT PENDING

RELIABLE AND SAFE

D-LITE SHACKLE + SUPERIOR STROPS

High-strength, lightweight
alternative.

Agile lifting system built on
proven performance.

Offshore, heavy lifting, mining,
the perfect rigging solution.

**SUPER-12®
STROPS SPLICED**



D-LITE SHACKLE



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D-Lite® Shackle At A Glance

High Performance, Light Weight Hybrid D-Shackle Heat Treated High Tensile Steel Alloy Pins & Thimbles with Heat-Treated, Abrasion-Resistant Synthetic Crown

FEATURES

- Extreme strength-to-weight ratio, more than 50% lighter than conventional steel shackles.
- 5:1 Safety Factor.
- Safer than conventional shackles (low risk of explosive disintegration).
- Hydrophobic fiber crown (no water absorption).
- Synthetic fiber crown maintains high strength around tight radius bends.
- Integrated locking end cap with 10° off-center safe working loading limit.
- High tensile steel alloy pins to suit most OEM recovery points.
- Longer lengths available on request
- Can be supplied with reconnect eye-bolt
- Tested & Certified (Recertification on replacement parts)
- Abrasion resistance - Excellent
- UV Resistance - Excellent
- Chemical Resistance - Good

SYNTHETIC CROWN TECHNICAL

- Ultra-high molecular weight Polyethylene
- 3.5% elongation at break

STEEL ALLOY PINS & THIMBLES TECHNICAL

- Heat treated high tensile steel alloy
- 1200 MPa tensile strength / 1100 MPa yield strength
- 35 Rockwell C
- 10% minimum elongation (ductility)
- 2-Part epoxy coated

APPLICATIONS

- Conventional shackle replacement
- Salvage
- Heavy vehicle towing and recovery
- Heavy Lifting

COLOUR

- 125t MBL Green Pin & Thimbles w/Blue Crown
- 175t MBL Orange Pin & Thimbles w/Blue Crown
- 275t MBL Yellow Pin & Thimbles w/Blue Crown
- 350t MBL Blue Pin & Thimbles w/Blue Crown
- 500t MBL Red Pin & thimbles w/Blue Crown

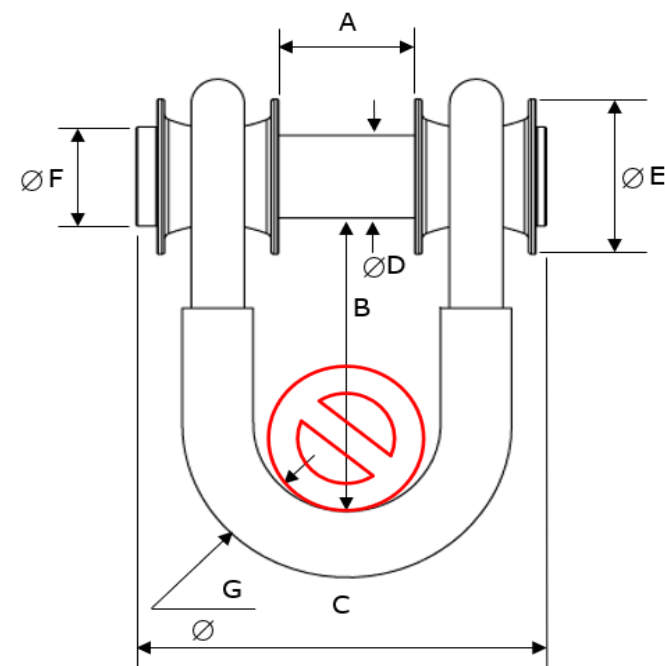
MBL (t)	SWL (t)	Weight
62.5	12.5	2.2Kg
125	25	7.40Kg
175	35	11.00Kg
275	55	18.60Kg
350	70	28.00Kg
400	80	32.00Kg
500	100	47.00Kg

- Pin Guarantee = 3 Years
- This guarantee is subject to proper usage of the equipment.



Technical Specifications

MBL (T)	SWL (T)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	PIN □ (mm)	WEIGHT (Kg)
62.5	12.5	33	300	121	35	65	42	25	42	2.2
125	25	77	330	237	50	94	60	42	58	7.4
175	35	88	330	265	58	110	70	46	68	11.0
275	55	108	630	330	70	133	84	70	82	18.6
350	70	122	630	380	80	157	95	80	93	28.0
400	80	122	630	380	80	157	95	80	93	32.0
500	100	145	630	420	95	186	114	90	111	47.0



DO NOT assemble, install, operate, maintain, or attempt to repair this equipment without first reading and understanding the information provided in this document.

DO NOT use if there are any signs of damage or deformation. Installation and service must be accomplished by qualified personnel. Failure to follow safety precautions and procedures may result in property being damaged, serious personal injury, or death.

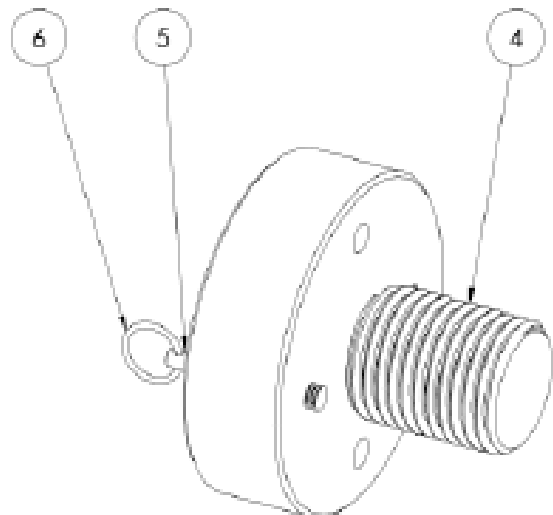
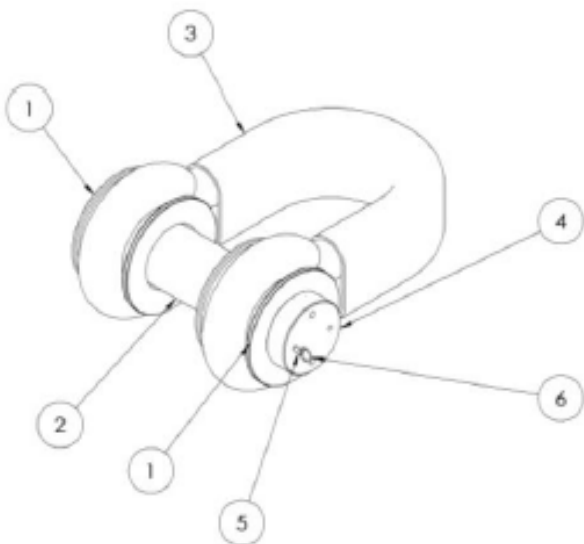
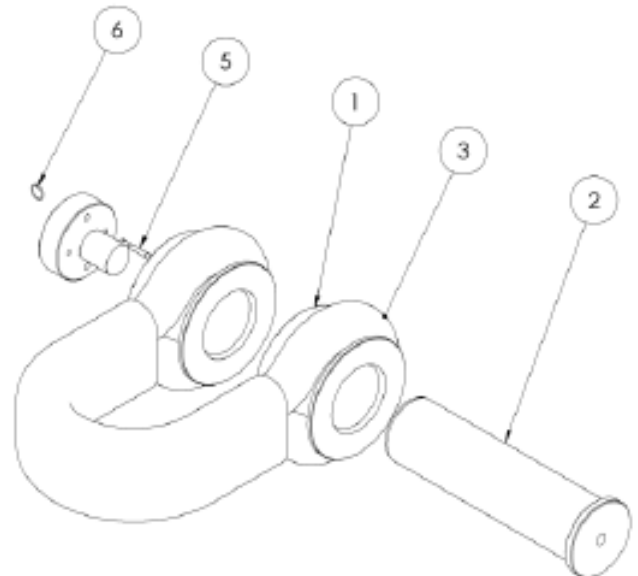
DO NOT apply side loads to the padeye where the side load of angle exceeds 10%.

Pin Diameter refers to minimum bending moment at the point of connection between shackle and crown and connecting facet.

Operating Procedure

1. Unscrew the locking pin counter clockwise until it disengages the shackle shaft. Note, the red groove will be visible.
2. Unscrew the Locking Bolt off the shackle shaft in a counterclockwise direction. The spanner can be used to assist with loosening.
3. Slide one of the thimbles off the threaded hole side of the shackle.
4. Pass the free end through the sling set being used for pulling.
5. Slide the shaft through the lifting lug or attachment point.
6. Slide the free-end thimble back onto the shaft.
7. Screw the bolt clockwise back onto the shaft and fasten finger tight.
8. Verify that the bolt's pinhole aligns with the shaft pinhole by examining the second unused pinhole.
9. Screw the locking pin clockwise until it engages with the shackle shaft and the red groove is no longer visible.

Item	QTY	Description
6	1	Keyring
5	1	D-Lite Locking Pin
4	1	D-Lite Locking Bolt
3	1	12-Strand Single Braid UHMwPE
2	1	D-Lite Pin
1	2	D-Lite Thimble



Safety Considerations



- Do not exceed the SWL rating of the shackle!
- Do not use the shackle below 0°C / 32°F!
- Any damage to the grommet or steel components can cause its SWL to be reduced!
- When using the shackle with padeyes, the padeye thickness including cheek-plates at the hole shall not be less than 80% the inside width of a shackle suitable for the RSF of the padeye!
- The spacer must always be placed on the outside.
- Do not apply side loads to the padeye where the load off-lead angle exceeds 10°!
- Ensure no sharp edges on mating padeye!
- Ensure no sharp edges on the grommet side that may damage the grommet!
- Ensure locking pin is engaged before using D-Lite Shackle.
- D-type shackles are to be used on lugs which may cause wear to a soft sling, such as standard lifting lugs. Equipment with a circular or round attachment point will require the use of a bone type shackle.



STORAGE

After use, clean off any surface dirt and ensure that the pin and corresponding steel components are clean and free of particles and debris.

Store the shackle set with all its components assembled to ensure no component becomes misplaced.

Store in a clean and dry environment away from direct sunlight.

LIST OF ABBREVIATIONS

- MBL - Minimum Breaking Load
- RSF - Resultant Sling Force
- SWL - Safe Working Load

**PLEASE REMEMBER TO INSPECT YOUR
D-LITE® SHACKLE BEFORE AND AFTER
EACH USE!**



Rope Care & Handling

PURPOSE

This guideline is provided to help in the selection and safer use of synthetic rope products.

OVERVIEW

There are inherent risks in the use of synthetic rope because such products are subject to highly variable conditions that change over time. Design Factor selections and Working Load Limits must be calculated with consideration of exposure to risk and actual conditions of use for each application. If in doubt, consult an experienced or qualified individual regarding the design, application, and selection of a rope product.

HANDLING

- Never stand in line with rope / rigging under tension.
- If a rope on any part of the assembly fails it can recoil with lethal force.
- Some synthetic ropes have higher recoil tendencies than natural fibre ropes.
- Always make sure you are familiar with the type of rope and its recoil characteristics in use.
- Be aware of any attachments such as thimbles, padeyes, and connected fittings that can become projectiles in the event of a failure and should recoil occur.

ABRASION

- The number one killer of synthetic rope or synthetic rope components is abrasion.
- Rubbing the independent fibre strands down weakens the rope.
- There are many ways that we expose rope to abrasion, some of the ways are not always obvious.
- Wherever possible, abrasive conditions should be avoided.
- All rope will be severely damaged if subject to rough surfaces or sharp edges.
- Chocks, bits, winches, drums, and other surfaces must be kept in good condition and free of burrs and rust.
- Pulleys must be free to rotate and should be of proper size to avoid excessive wear.
- Clamps and similar devices will damage and weaken the rope and should be used with extreme caution.
- Do not drag rope over rough ground.
- Dirt and grit picked up by the rope can work into the strands, cutting the inside fibres.

CHEMICALS

- Most synthetic fibres will withstand small doses of common chemicals.
- If you have any doubt, please contact us for clarification.
- It is generally advisable to avoid exposure to chemicals where possible.
- If contamination is suspected, wash the rope in cold running water.
- Refer to the General Care section on how to bath your rope.

TEMPERATURE

- Temperature influences tensile strength.
- The tensile strength charts apply to ropes tested at normal room temperature.
- Ropes have lower tensile strengths at higher temperatures.
- Continued exposure at elevated temperatures can melt and part synthetic ropes and cause permanent damage.

CHAFFING

- Rope under constant tension is easily damaged by chafe.
- The effects of chafe from normal friction surfaces such as sheaves, fairleads, and cleats are considerably reduced if the bearing surfaces are large.

STORAGE & CARE

- All rope should be stored clean, dry, and out of direct sunlight, and away from extreme heat.
- Some synthetic rope (particularly Polypropylene, Polyethylene, and Aramid) may be severely weakened by prolonged exposure to ultraviolet (UV) rays unless specifically stabilised and / or pigmented to increase its UV resistance.
- UV degradation is indicated by discolouration and the presence of splinter and slivers on the surface of the rope.

INSPECTION

- Avoid using rope that shows signs of aging and wear (request a copy of our Visual Inspection Guide).
- If in doubt, destroy the used rope.
- No type of visual inspection can be guaranteed to determine actual residual strength accurately and precisely.

Rope Care & Handling

- When the fibres show wear in any given area, the rope should be re-spliced, eliminating the damaged area.
- Check the line regularly for frayed strands and broken yarns.
- Pulled strands should be rethreaded into the rope if possible.
- A pulled strand can snag during operation.
- Both outer and inner rope fibres contribute to the strength of the rope.
- When either is worn, or the rope is compacted, or hard, this indicates reduced strength.

GENERAL CARE

- Ropes can be damaged in many ways, the main causes are UV rays, chemicals, oil, sharp objects, and abuse.
- Don't store your rope in direct sunlight.
- Avoid excessive exposure to oil, chemicals, and chemical fumes.
- Using a rope bag will prolong the life of your rope.
- Never step on your rope. This grinds particles of dirt into the rope's core causing abrasion.
- Give your rope a bath on occasion.
 - While running the rope through the water, push together on the rope, and open the braid.
 - This will loosen dirt and grit from the fibres.
 - Continue running the rope through the water until the entire length of the line has been cleaned.
 - A soft nylon bristle brush can be used if required.



Visual & Touch Inspection Guide

WHAT TO CHECK	PASS / FAIL	NOTES
Fibre, cuts, or nicks		Any obvious damage that can be seen.
Broken Fibres		
Fuzzy or worn fibres		
Overall deterioration		
Modifications by user		Discard immediately, no modifications should be made without the consent of Southern Ropes (Pty) Ltd.
Fraying / Abrasions		
Hard or shiny spots		Indicates heat damage
Fused Fibres or strands		Indicates heat damage
Change in original diameter		Indicates possible fall or crushing
Burnt, charred, or melted fibres		Indicates heat damage
Material marked with permanent marker		Check with manufacturer
Kinks, hockling, or knots		
Discolouration of rope and brittle fibres (such as splinters / slivers)		Dependant on cause of discolouration, but may indicate chemical attack or UV degradation.
Missing pins / thimbles / safety lock		
Loose thimbles		
Damaged thimbles		White stress marks, thimble collapsing over itself
Eye damage due to cuts, nicks, abrasions, fraying, fused areas		Look for same indicators as you would for the rope body itself.
Eyes with metal thimbles		Look for rust in or around the eye.
Splices not secured properly from unraveling		Look for tape, shrink wrap tube, stiffening agent (most common methods used).
Splices starting to unravel		
Splices showing damage or deterioration		Look for same indicators as you would for the rope itself.
Check for pulled cover strands		More than 4 consecutive pulled cover strands which cannot be reincorporated into cover braid. Remove from service.
Cover damage		Core visible
Wear or cracks in fittings		
Corrosion or pitting on fittings		
Deformation / bends on fittings		
Mismatched parts or modifications		