

PROVEN, RELIABLE PRODUCTS FROM A TRUSTED PARTNER

Samson Heavy-Lift Slings



samson

THE STRONGEST NAME IN ROPE



SAMSON HEAVY-LIFT SLINGS

TESTED AND PROVEN TECHNICALLY SOUND

Samson's R&D department has performed comprehensive testing of sling samples in different configurations, studying efficiencies for required lifting capacities:

- > Working load limits (WLLs)
- > D/d ratios
- > Optimal configurations
- > Splicing

152 mm AmSteel®-Blue sling being proof loaded for the Greater Gabbard Wind Farm Project.



HOW DO SAMSON SLINGS COMPARE?

Samson Slings vs. Wire Rope Slings

- > Safer operations
- > More efficient rigging—saves time and reduces rigging personnel
- > Positive buoyancy
- > Increased lifting capacity
- > No contact damage to the payload

Samson Slings vs. Cable-Laid Steel Wire Rope Slings

Same as wire rope slings PLUS:

- > Reduced fabrication costs
- > Dramatic weight savings
- > No strength loss
- > Easier handling
- > No additional equipment required

Samson Slings vs. Round Slings

- > More robust construction
- > Smaller contact diameter
- > Adjustable lengths possible
- > Easily inspected
- > Easily repaired
- > Long lengths available



Samson's proprietary software tool quickly analyzes lift requirements and offers multiple configuration options.

SLING CONFIGURATOR: BRINGING IT TOGETHER

This knowledge base is incorporated into our custom-designed software tool, the Sling Configurator, which takes into consideration the critical requirements of your project and determines the optimum sling design to meet your objectives.

Developed by Samson's engineers, the proprietary Sling Configurator quickly analyzes the lifting requirements and design options available by considering:

- > Pin sizes
- > Working load limit (WLL)
- > Length requirements
- > D/d ratios
- > Splice locations

This unique software tool is available to our Master Fabricating Distributors worldwide, which means

- > More efficient design
- > More efficient fabrication
- > Assistance with certification
- > Fast delivery

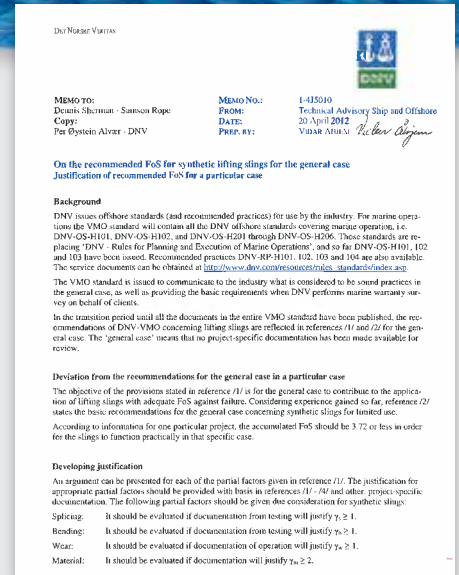
SAMSON HEAVY-LIFT SLINGS

DNV-OS-H101 lays out a methodology for establishing factors of safety to be used in offshore lifts based on a number of parameters describing the lift and the lifting equipment.

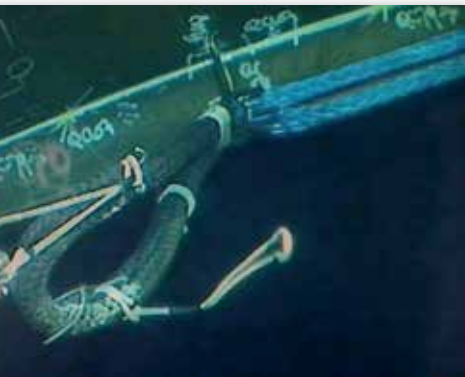
DNV-OS-H101 states that the safety factor, γ_{sf} , used in offshore lifts is calculated as a product of a number of factors based on the lift: $\gamma_{sf} = \gamma_f \gamma_c \gamma_r \gamma_w \gamma_m$

WHERE: γ_{sf} = safety factor
 γ_f = load factor
 γ_c = consequence factor
 γ_r = splice factor
 γ_w = bending factor
 γ_m = material factor

Over the past several years, Samson has conducted an ongoing testing and development program to model the behavior of synthetic rope in a number of lifting sling configurations. The testing and subsequent design methodology allows for more accurate determination of splice and bending factors. Samson presented the data and experience gathered during this testing to DNV, achieving derogation from the DNV-OS-H101 and eliminating the splice and bending factors as they are more accurately accounted for in the Samson model. DNV derogation can be sought on a project-by-project basis.



Samson presented test data to DNV to receive a derogation of safety factor on the CLOV and Gorgon projects.



ABOVE: ROV "handling grommets" used by the ROV to maneuver and position the AmSteel®Blue heavy lift grommets.



BELOW: The Perdido Spar winch design includes a storage reel with capacity for 9,200 feet of 2-1/2" diameter Quantum-12™ high-performance rope. Quantum-12's superior bend fatigue properties allowed a significantly smaller diameter traction head, reducing weight.

THE SAMSON OFFSHORE ADVANTAGE: SECOND TO NONE

Samson's unparalleled service package to the offshore oil and gas industry includes application knowledge, technical support, and product training and service. Offshore companies worldwide know that they can count on Samson.

TECHNOLOGY

- > Accurate and reliable product specifications based on rigorous testing
- > Certifications with DNV, ABS, NK, Lloyd's, and others
- > Extensive technical resources available

PRODUCTS

- > Specialty products designed for the offshore oil and gas exploration and production industry

SERVICE

- > Sales and engineering staff with application knowledge for technical support
- > Qualified service technicians with TWIC credentials and training in HUET and survival
- > On-site training in installation, usage, inspection, repair, and retirement
- > A worldwide network of master fabricating distributors

The information presented here is for use with Samson AmSteel®Blue lifting slings only. This information does not apply for slings made with any other rope product.

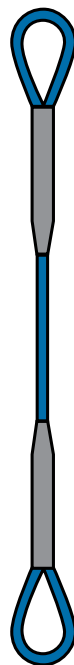
- > Use only Samson approved splices for the fabrication of AmSteel®Blue slings.
- > All WLLs listed are based on a 5:1 factor of safety and ISO strength rating.
- > Strengths are for new slings only. Refer to Samson's Inspection and Retirement criteria to evaluate used slings.
- > Developed to be consistent with ASME B30.9.



D/d Reductions Samson understands, through extensive testing, that D/d reductions can effect strength efficiencies in grommet and basket configurations. Please contact Samson for more information on these reductions and access to the Sling Configurator.

Length Tolerances Samson's network of master fabricating distributors have the engineering and fabricating expertise to meet precise length tolerances.

Single-Leg Sling Working Load Limits (WLL)



BULK ROPE				SLINGS	
Diameter INCHES	Diameter MILLIMETERS	Samson Min. Strength* METRIC TONS	ISO Strength METRIC TONS	VERTICAL WLL METRIC TONS	MINIMUM LENGTH METERS
1-5/8"	40 mm	116 mt	128 mt	25.7 mt	4.6 m
1-3/4"	44 mm	137 mt	152 mt	30.4 mt	4.9 m
2"	48 mm	156 mt	173 mt	34.6 mt	5.3 m
2-1/4"	56 mm	219 mt	244 mt	48.7 mt	5.8 m
2-1/2"	60 mm	240 mt	267 mt	53.3 mt	6.3 m
2-3/4"	68 mm	300 mt	333 mt	66.7 mt	6.8 m
3"	72 mm	340 mt	377 mt	75.5 mt	7.2 m
3-1/4"	80 mm	411 mt	457 mt	91.4 mt	7.7 m
3-3/4"	92 mm	664 mt	738 mt	148 mt	8.7 m
4"	96 mm	743 mt	825 mt	165 mt	9.1 m
4-1/4"	104 mm	828 mt	920 mt	184 mt	9.6 m
4-1/2"	110 mm	917 mt	1,019 mt	204 mt	10.1 m
5"	120 mm	1,098 mt	1,220 mt	244 mt	11.0 m

*Spliced strength. LARGER SIZES AVAILABLE, CONTACT YOUR SAMSON REPRESENTATIVE FOR DETAILS.

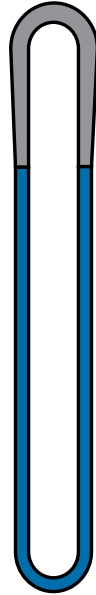
Riggers work offshore without assistance of cranes to rig AmSteel®Blue slings on the Cascade & Chinook field.



Dyneema® is a registered trademark of Royal DSM N.V.
Dyneema is DSM's high-performance polyethylene product.

WORKING LOAD LIMITS

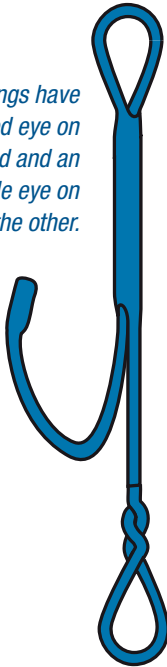
AMSTEEL®-BLUE HEAVY-LIFT SLING CONFIGURATIONS



Grommet Sling Working Load Limits (WLL)

BULK ROPE				SLINGS	
Diameter INCHES	Diameter MILLIMETERS	Samson Min. Strength* METRIC TONS	ISO Strength METRIC TONS	VERTICAL WLL** METRIC TONS	MINIMUM LENGTH METERS
1-5/8"	40 mm	116 mt	128 mt	41.1 mt	2.8 m
1-3/4"	44 mm	137 mt	152 mt	48.6 mt	2.9 m
2"	48 mm	156 mt	173 mt	55.3 mt	3.1 m
2-1/4"	56 mm	219 mt	244 mt	77.9 mt	3.3 m
2-1/2"	60 mm	240 mt	267 mt	85.3 mt	3.5 m
2-3/4"	68 mm	300 mt	333 mt	107 mt	3.7 m
3"	72 mm	340 mt	377 mt	121 mt	3.9 m
3-1/4"	80 mm	411 mt	457 mt	146 mt	4.1 m
3-3/4"	92 mm	664 mt	738 mt	236 mt	4.5 m
4"	96 mm	743 mt	825 mt	264 mt	4.7 m
4-1/4"	104 mm	828 mt	920 mt	295 mt	4.9 m
4-1/2"	110 mm	917 mt	1,019 mt	326 mt	5.1 m
5"	120 mm	1,098 mt	1,220 mt	390 mt	5.5 m

These slings have
a fixed eye on
one end and an
adjustable eye on
the other.



Adjustable Sling Working Load Limits (WLL)

BULK ROPE				SLINGS	
Diameter INCHES	Diameter MILLIMETERS	Samson Min. Strength* METRIC TONS	ISO Strength METRIC TONS	VERTICAL WLL METRIC TONS	MINIMUM LENGTH METERS
1-5/8"	40 mm	116 mt	128 mt	18.0 mt	6.8 m
1-3/4"	44 mm	137 mt	152 mt	21.3 mt	7.2 m
2"	48 mm	156 mt	173 mt	24.2 mt	8.0 m
2-1/4"	56 mm	219 mt	244 mt	34.1 mt	8.8 m
2-1/2"	60 mm	240 mt	267 mt	37.3 mt	9.6 m
2-3/4"	68 mm	300 mt	333 mt	46.7 mt	10.4 m
3"	72 mm	340 mt	377 mt	52.8 mt	11.2 m
3-1/4"	80 mm	411 mt	457 mt	63.9 mt	12.0 m
3-3/4"	92 mm	664 mt	738 mt	103 mt	13.7 m
4"	96 mm	743 mt	825 mt	116 mt	14.5 m
4-1/4"	104 mm	828 mt	920 mt	129 mt	15.3 m
4-1/2"	110 mm	917 mt	1,019 mt	143 mt	16.1 m
5"	120 mm	1,098 mt	1,220 mt	171 mt	17.7 m

*Spliced strength. LARGER SIZES AVAILABLE, CONTACT YOUR SAMSON REPRESENTATIVE FOR DETAILS.



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THE STRONGEST NAME IN ROPE

A SAMPLING OF OUR SLING PROJECTS

Samson has extensive experience in supplying synthetic-rope solutions for critical offshore applications



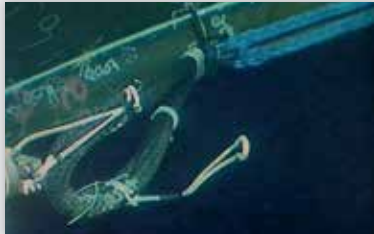
PROJECT: Liwan 3-1
YEAR: 2012
CONTRACTOR: COOEC
PRODUCT: AmSteel®Blue
DISTRIBUTOR: Gaylin

168 mm diameter AmSteel®Blue used in basket configuration to perform upright lifting operation for Liwan 3-1 jacket installation



PROJECT: PanYu 30-1
YEAR: 2008
CONTRACTOR: CNOOC
PRODUCT: Quantum-8™
DISTRIBUTOR: Gaylin

Quantum-8 high-performance synthetic slings lift 16,213 metric tons.



PROJECT: Cascade Chinook
YEAR: 2010
CONTRACTOR: Technip
PRODUCT: AmSteel®Blue
DISTRIBUTOR: SWOS

ROV handling grommets are used by the ROV to maneuver and position the AmSteel®Blue slings.



PROJECT: Stybarrow
YEAR: 2008
CONTRACTOR: Technip
PRODUCT: AmSteel®Blue
DISTRIBUTOR: Gaylin

AmSteel®Blue slings used to perform all riser pull-in and connection processes.



PROJECT: Greater Gabbard Wind Farm
YEAR: 2009
CONTRACTOR: Seaway
PRODUCT: AmSteel®Blue
DISTRIBUTOR: Endenburg

All 140 turbine foundation monopiles were installed using the first set of lifting slings. After completion, Lloyd's proof loaded the slings and recertified them for continued use.



PROJECT: Jubilee
YEAR: 2010
CONTRACTOR: SOFEC
PRODUCT: AmSteel®Blue
DISTRIBUTOR: SWOS

88mm AmSteel®Blue used in 738' segments to tension mooring chains.

For full case studies on these and other sling projects, visit SamsonRope.com

GLOBAL DISTRIBUTION NETWORK

Samson's master fabricating distributors are strategically located around the globe to provide technical expertise and support when and where you need them. Each has extensive experience in high-performance synthetic fabrication, heavy-lift engineering, and outstanding customer service.

Master fabrication distributors offer:

- > Custom fabrication
- > Proof loading
- > Re-certification
- > Tagging
- > On-site inspection and service



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