

SYNTHETIC SLINGS

AT A GLANCE

WHAT IS A SYNTHETIC SLING?

For highly finished parts or delicate equipment, nothing beats the flexibility, strength, and support that synthetic lifting slings can provide. Synthetic slings can be made from nylon or polyester materials and are lightweight, easy to rig, and extremely flexible.

There are four subtypes of synthetic slings:

- Web Slings
- Roundslings
- Twin-Path® Roundslings
- Rope Slings

APPLICATIONS

They're extremely popular in construction and other general industries because they're fairly inexpensive, come in a variety of standard sizes, and can be replaced easily.

CONFIGURATIONS

Synthetic slings are extremely versatile. They can be used in vertical, choker, and basket hitches and can be used in multi-leg bridle assemblies.

ADVANTAGES

- Being ultra-flexible and strong, high-performance synthetic slings will not experience crushing, bending fatigue, or kinking
- Inexpensive and lightweight design makes them attractive to almost any industry or lifting application
- Made of soft, flexible materials that grip and mold to the shape of irregular loads

DISADVANTAGES

- Some synthetic sling material may be susceptible to chemically active environments or exposure to sunlight or UV light
- Synthetic slings have a relatively low heat-resistance and are not recommended for use in high-heat applications
- Nylon and polyester slings have different resistance characteristics to acidic and alkaline environments. Considerations must be made when selecting a synthetic sling to be used in chemical applications
- Synthetic slings are not as durable as steel slings when it comes to abrasion and cut resistance. Corner protectors or edge guards should be used to protect against cuts and tears
- Additional edge or cutting protection can increase the cost of synthetic slings



*Flat
Web Slings*



*Synthetic
Rope Sling*



*High-Performance
Twin-Path®
Roundslings*



*Single-Path
Roundslings*



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FLAT WEB SLINGS

AT A GLANCE

WHAT IS A WEB SLING?

A web sling is a subtype of synthetic slings and is made up of flat belt straps of webbing material, feature fittings, and flat or twisted eyes on each end. Web slings are the most versatile and widely-used multi-purpose sling. They are made of either nylon or polyester.

Web slings are strong, easy to rig, and inexpensive. Compared to chain, they're more flexible and lighter and can be used to help reduce scratching and denting to loads. They can also be fabricated with wide load-bearing surfaces up to 48" to provide significant surface contact for heavy and large loads.

ENVIRONMENTAL FACTORS

Nylon web sling performance isn't affected by oil and grease, and they're resistant to alkaline-based chemicals. However, they should never be used in acidic atmospheres or near chemicals used as bleaching agents.

Polyester web slings can be used in acidic environments or near chemicals used as bleaching agents, but should never be used in alkaline environments.

They also have a relatively low heat-resistance and are not to be used in environments that exceed 194°F, or environments where temperatures are below -40°F.

If used outdoors, they should be stored away in a cool, dark, and dry environment to avoid prolonged exposure to sunlight and UV rays, which can damage and weaken the strength of the sling.



*Various Methods of
Cut and Tear Protection*



CUT AND TEAR PROTECTION

For loads with edges, corner protectors or edge guards should be used to protect the sling from cuts and tears. Because there is a difference between abrasion resistant protection and cut resistant protection, it is important to identify the type of resistance required for application.

WORKING LOAD LIMIT AND STRETCH

When a lift is made at the W.L.L., the user can expect approximately 8-10% stretch when using a nylon web sling and 3% stretch when using a polyester web sling at rated capacity.



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SINGLE-PATH ROUNDSLINGS

AT A GLANCE

WHAT IS A ROUNDSLING?

A roundsling is a subtype of synthetic slings. Endless roundslings have load-bearing fiber or core yarns that are protected by a woven outer jacket.

They are strong, soft and flexible, and protect smooth or polished surfaces from scratches, dents, and crushing. Roundslings can be used in vertical, basket, or choker hitches—which are especially useful for lifting tubes and pipes.

ENVIRONMENTAL FACTORS

The woven outer jacket is designed to protect the internal load-bearing fibers and core yarns against abrasion, dirt and grease, and UV degradation.

Polyester roundslings are suitable for acidic environments, or near chemicals used as bleaching agents, but should not be used in alkaline environments.

If used outdoors, they should be stored in a cool, dark, and dry environment to avoid prolonged exposure to sunlight and UV rays, which can damage and weaken the strength of the sling.

Roundslings are susceptible to heat damage and should not be used in environments that exceed 194°F or are below -40°F.



CUT AND TEAR PROTECTION

For loads with edges, corner protectors or edge guards should be used to protect the sling from cuts and tears.

WORKING LOAD LIMIT AND STRETCH

When a lift is made at the W.L.L., the user can expect approximately 3-5% stretch when using a polyester roundsling.



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TWIN-PATH® ROUNDSLINGS

AT A GLANCE

WHAT IS A TWIN-PATH® ROUNDSLING?

A Twin-Path® roundsling is a type of high-performance synthetic roundsling. Unlike standard roundslings, Twin-Path® roundslings utilize two paths of K-Spec® load-bearing fibers.

The Twin-Path® patented design provides the rigger with two connections between the hook and the load for redundant back-up protection. They also feature other technologies like a Check-Fast® inspection system and an External Warning Indicator (EWI) that can provide visual indications of overloading, UV damage and degradation, or damage to the internal core fibers.



CUT AND TEAR PROTECTION

Twin-Path® slings are susceptible to cuts and tears to the jacket when used to support loads with corners or edges.

CornerMax® Pads and CornerMax® sleeves are extremely cut resistant and can be used to protect the Twin-Path® slings in applications where cutting is a concern. If the outer jacket is cut or torn, and the load bearing fibers are not cut, Twin-Path® slings are repairable by applying a patch and proof-testing the sling after the repair is performed.

ENVIRONMENTAL FACTORS

The specially-designed Covermax® Cover provides the best ultraviolet (UV) protection and the best abrasion protection of any commercially available synthetic lifting sling.

Standard Twin-Path® slings are also susceptible to heat damage, and should not be used in high heat environments above 180°F. Specially-designed slings are available with high-temperature core yarns and a high temperature cover that is resistant to temperatures up to 300°F.



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SYNTHETIC ROPE SLINGS

AT A GLANCE

WHAT IS A SYNTHETIC ROPE SLING?

Synthetic rope slings are a subtype of synthetic slings. Although synthetic rope slings have been in use for over sixty years, the advancement of high-performance fibers has recently improved the perception of using rope slings for overhead lifting applications. These high-performance fibers are characterized by their light weight, strength, flexibility, and versatility.

Not only are they becoming more widely-accepted, but they are preferred in certain lifting applications in the construction, shipyard, and offshore and deepwater industries. Because there are various types of synthetic rope material, it's critical to know the specific fiber that a rope is made from to help understand its environmental characteristics.



ADVANTAGES

- The major benefit of using synthetic rope is the significant weight-savings it offers to the end-user versus metal slings
- Being ultra-flexible and strong, high-performance synthetic ropes will not experience crushing, bending fatigue, or kinking
- Depending on the type of fiber, some newer technology synthetic ropes can be used outdoors in harsh elements (UV exposure, rain, snow, freezing temperatures), in chemically-active environments, and are neutrally-buoyant so they can be used in either freshwater or saltwater environments

DISADVANTAGES

- Synthetic rope is not as durable as steel slings in that they will experience cutting, fraying, and abrasion if used to lift loads with edges
- Additional edge or cutting protection can increase the cost of individual rope slings
- Some synthetic rope sling material may be susceptible to chemically active environments or exposure to sunlight or UV light. Consult the sling manufacturer or a Qualified person to confirm how a specific sling material may react to sunlight, UV, or chemicals



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