

Inspections of Twin-Path[®] Products

1. Check-Fast[®] External Warning Indicator (EWI) and Tell-Tail indicators shall extend past the tag area of each sling. If your sling is equipped with Check-Fast[®] and the EWI is not visible or both Tell-Tails are not visible, remove the sling from service. Send to manufacturer for repair evaluation.
2. If Fiber Optic Inspection is installed in the sling, inspect by allowing light to enter the fiber optic cable. If the fiber optic cable does not transmit light from end to end, remove the sling from service and contact the manufacturer for repair evaluation.
3. Slings shall be inspected for evidence of cutting or tearing of the outer cover. Slings with cuts shall be removed from service and sent back to the manufacturer for repair evaluation. Damage to the cover may indicate core damage.
4. Inspect slings for evidence of heat damage. Sparkeater[®] slings shall not be exposed to temperatures over 300°F/150°C. Slings made with K-Spec[®] core yarn or polyester shall not be exposed to temperatures above 180°F/82°C. Cold temperature exposure down to -40°F/-40°C does not affect the strength of the products.
5. If any part of the sling shows evidence of chemical degradation or damage, remove the sling from service. Return the sling to the manufacturer for repair evaluation.
6. Slings using aluminum fittings shall not be used where fumes, vapors, sprays, or mists of alkalis or acids are present.
7. Twin-Path[®] slings and any fittings attached shall be subjected to frequent and regular inspections. In addition to the initial inspection by a competent person and frequent written inspections, the slings shall be visually inspected before each use.
8. Written inspections shall be performed as required and documents of such inspection by a competent person shall be kept on file in the safety department of the plant or site where used. Inspections may be done more often based on frequency of use, severity of conditions, and experience of past service life.
9. Slings shall be examined throughout their length for abrasion, cuts, heat damage, fitting distortion or damage, and tag legibility. If the inspector has any doubts, the sling shall be removed from service. If deterioration is found, the sling must be removed from service.
10. Slings removed from service that are not repairable shall be destroyed and rendered completely unfit for future use.
11. Abrasion, heat damage, or cuts to the cover may indicate a loss of strength to the core yarns, and these slings shall not be used until evaluated by the manufacturer.

Test Procedures for Twin-Path[®] Sling Products

1. Proof tests shall consist of pulling the slings to twice their rated capacity.
2. Testing of Twin-Path[®] sling products and core yarn shall be performed on a testing machine that meets or exceeds the standards as described in ASTM E-4.
3. Break testing of slings shall be as above with results documented. Pin size for break testing should be of a diameter equal to half the nominal sling width or larger.
4. Repaired fittings or slings shall be proof-tested before they are returned to service. Certifications may be provided to the fitting or sling owner.

Mechanical Considerations

1. Load both paths of Twin-Path® slings equally. Do not side load. Do not load the edge of the sling.
2. Determine the weight of the load. The weight of the load shall be within the rated capacity of the sling.
3. Select a sling having suitable characteristics for the type of load, hitch, and environment.
4. Slings shall not be loaded in excess of the rated capacity. Consideration shall be given to the angle of the lift, which may affect the lifting capacity. Diameters of pins and edges also may affect the capacity of the lifting sling.
5. Slings used in a choker shall not be forced to tighten around the load by pounding with hammers or other objects. Choker hitches are the least effective way to use a sling based on capacity. Two chokers should be used to balance the load. One choker in the center of the load may create an unbalanced situation, which could lead to an accident.
6. Slings used in a basket hitch must have the load balanced to prevent slippage and accidents.
7. Slings used with fittings shall be compatible with the fittings used. The lifting capacity shall be rated at the lower of the fitting or sling. Fitting openings shall be of the proper shape and size to assure that the sling will seat properly.
8. Slings in contact with edges, corners, protrusions, or abrasive surfaces shall be protected with a material of sufficient strength, thickness, and construction to prevent damage. The pin area of a shackle can cause synthetic slings to cut or tear.
9. Slings shall not be dragged on the floor or drawn across other surfaces that may damage the sling.
10. Slings shall not be twisted or tied in knots to shorten.
11. Slings can be damaged by resting loads on them or by pulling slings from under a load.
12. Do not drop objects on slings or run over them with vehicles.
13. Damaged slings shall not be used.
14. Sling hitches must provide control of the load.
15. Portions of the human body shall be kept from between the sling and the load, and from between the sling and any attachment to lifting devices such as hooks.
16. Personnel shall stand clear of suspended loads.
17. Personnel shall not ride on the sling or suspended loads.
18. Avoid shock loading.
19. Twisting and kinking the legs of the sling shall be avoided.
20. Load applied to the hook should be centered in the bowl of the hooks. Do not point-load the hook.
21. During lifting with or without the load, all personnel shall be alert for possible snagging.
22. The slings shall contain or support the load from the sides above the center of gravity so the load will not tilt when the load is lifted.
23. Synthetic roundsling users shall be trained in the selection, inspection, cautions to personnel, environmental effects, and rigging practices.
24. Only legibly-marked or -labeled slings must be used. If the tag is not legible or missing, the sling must not be used.
25. Keep labels or tags away from the load, the hook, and the angle of choke.
26. Synthetic slings shall be inspected before each lift.



Environmental Considerations

K-Spec® core yarn strength retention is based on test results of components at 150°F/65°C (or less) for 6 months. K-Spec® has the following strength retentions:

- 100% when exposed to age, 10% detergent solution, rot and mildew, sunlight or toluene
- 99% when exposed to acetic acid, gasoline, hydrochloric acid 1M, hydraulic fluid, kerosene, or sea water
- 98% when exposed to 25% ammonium hydroxide, 10% hypophosphite solution, or 40% phosphoric acid
- 97% when exposed to 5M sodium hydroxide
- 95% when exposed to Portland cement or sulfuric acid
- 88% when exposed to Clorox® bleach or nitric acid

	K-Spec® Core Yarn	Aramid	HMPE	Polyarylate	Polyester	Nylon
Mechanical Properties						
Tenacity (grams / denier)	31.5	20 – 29	25 – 41	23 – 29	7 – 10	7.5 – 10
Elongation at break %	3.6	1.5 – 4.6	2.5 – 3.9	3.3 – 3.6	12 – 18	15 – 28
Moisture Regain %	0.1	1.5 – 6.5	0.0	0.1	0.5	4.0 – 6.0
Specific Gravity	1.11	1.39 – 1.47	0.97	1.40	1.38	1.14
Creep Resistance	Excellent	Very Good	Fair	Excellent	Good	Fair
Chemical Resistance						
Solvents	Excellent	Excellent	Excellent	Excellent	Good	Good
Acids						
Weak	Excellent	Good	Excellent	Excellent	Good	Fair
Strong	Excellent	Fair	Excellent	Excellent	Fair	Poor
Bases						
Weak	Excellent	Excellent	Excellent	Excellent	Fair	Excellent
Strong	Excellent	Fair	Excellent	Fair	Poor	Excellent
Thermal Properties						
Maximum Temperature	180°F 82°C	300°F 150°C	158°F 70°C	180°F 82°C	194°F 90°C	194°F 90°C