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(SRT) Restraint Tether

Specification Report

Part Number: 467-SRT



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PROPRIETARY & CONFINDENTIAL

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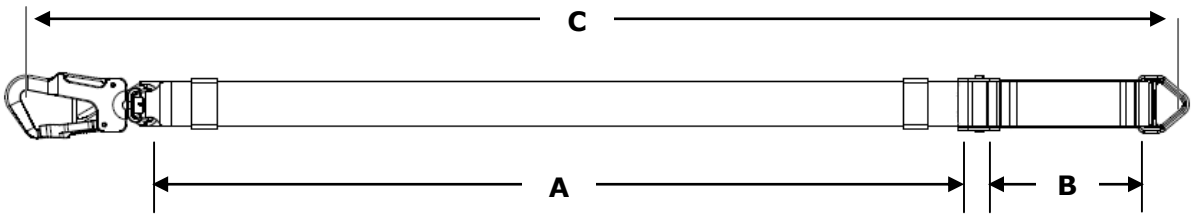
1.0 DESCRIPTION:

The Shock Reduction Tether (SRT) is designed to reduce or mitigate the forces experienced by personnel during a fall or other high acceleration event such as vehicular direction change (momentum). The Shock Reduction Tether system is constructed primarily of MIL-SPEC webbing and stainless steel hardware for strength and corrosion resistance in the marine environment.

At the core of the SRT system is a patented sacrificial strap that is folded and secured within a protective sleeve forming the shock reduction element. The strap is woven in a special manner such that the fibers will begin to separate and break once a force of approximately 700-800lbs is experienced. It is the separation and breaking of the fibers that permits the tether system to dissipate and absorb the energy of the moving mass/body that is in free fall. The shock-reducing element will expand in length, as the fibers are broken. The maximum extension will not exceed 18 inches.

Note, this extended length is in addition to the original length. During this extension or energy-absorbing phase, the force experienced by the personnel being restrained is limited to approximately 800lbs. Once the maximum extension of 18 inches has been let out, no further energy will be absorbed by the shock reduction element, and the unit will serve as a standard nylon-webbing tether up to the rated breaking limit of 3300lbs. The design of the tether is self-indicating and a warning label will be exposed if the system has been subjected to an over limit force of approx. 800lbs or greater.

2.0 DIMENSIONS:



A: 60” (152.4cm) Safety Hook to Adjuster, Extended Working Length.
B: 5.5” (13.97cm) Adjuster to V-Ring, Loaded Shock Restraint Length.
C: 74” (193.04cm) Hook to V-Ring, Maximum Working Length.

*Shock-Reducing Webbing will add 18” (45.72cm) when let out.

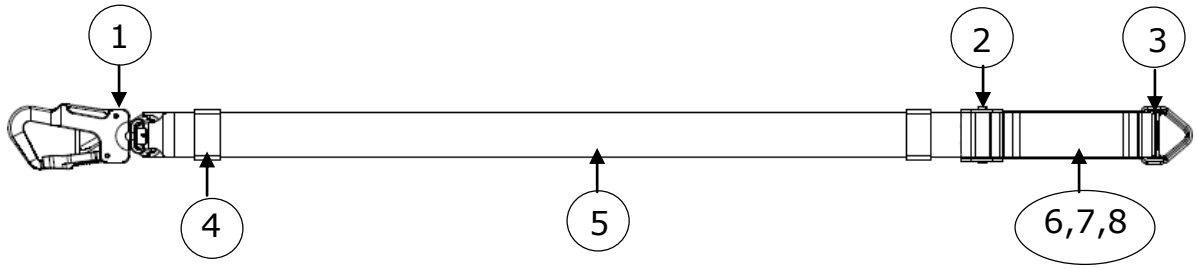
3.0 DROP TEST DATA:

Drop tests performed by LSC show the shock reduction element will arrest a 220lb body mass from a 3-foot free fall within 14 inches of elongation and subject to a maximum impact of 820lbf. This provides an approximate 54% reduction in impact force when compared to the same test performed without the use of the shock reduction element resulting in an impact of 1810lbf.

Tests were performed using a 220lb wooden body form wearing a full body harness and dropped a distance of 3 feet. It is important to note that the percent reduction for this test is specific to the given parameters. Changes in drop distance (resulting in higher or lower speed of the restrained mass at impact), additional acceleration factors, and weight of the body form will provide different results. The above test data is provided for reference only. An increase in any parameter (body mass, fall distance, acceleration or initial velocity) will increase the maximum impact force experienced by restrained personnel. Additionally, the type of harness or other personal protective gear worn will affect the results.

4.0 DESIGN AND CONSTRUCTION:

4.1 PART LIST



Item No:	Part Number	Part Description:	QTY:
1	513	Talon II w/Swivel	1
2	452	High Strength Slide Bar Adjuster	1
3	384-1	V-Ring, 1-3/4”-5/16”	1
4	NF003	1” Black Elastic	2
5	NFW017	Black Nylon MIL-Spec T-13	n/a
6	M050	Heat Shrink Tubing	n/a
7	NFW016	Black Nylon MIL-Spec T-8	n/a
8	NFW051	NAT Poly Tear Webbing	n/a

4.2 HARDWARE



Part Number: 513

Description: Talon IIS Safety Hook

Material:

- Body: Stainless Steel 17-4 PH
- Latch: Stainless Steel 17-4 PH
- Gate: Stainless Steel 17-7 PH
- Swivel: Stainless Steel 17-4 PH

Load Strength:

- Major Axis: 5,000lbf (22.2kN)
- Minor Axis: 3,600lbf (16kN)



Part Number: 452

Description: Slide Bar Adjuster

Material:

- Frame: Stainless Steel 17-7 PH
- Bar: Knurled Stainless Steel 304



Part Number: 384-1

Description: V-Ring

Material: Stainless Steel 17-4 PH

Load Limit: 6,500lbf (28.9kN)

4.3 WEBBING

- Type 13 Mil-Spec Nylon Webbing (Breaking Limit 7000lbf, 31.1kN)
- Type 8 Mil-Spec Nylon Webbing (Breaking Limit 4000lbf, 17.7kN)

with TEX 210 Bonded Nylon Thread (Stitch Pattern Breaking Limit 5000lbf)

4.4 STITCHING

Talon Hook Attachment:

- Material: Bonded Nylon Thread
- TEX 210
- Color: Silver
- Construction: 630dx3
- Pattern: 6-Point Parallel Zig-Zag 1-3/4” x 4”

5.0 WORKING LOAD LIMIT (WLL):

Working Load Limit (WLL) not to exceed one (1) person or 600lbf (2.6kN). Breaking Limit is 3300lbf (14.6kN).