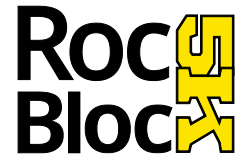




RocBloc 5K™



Vertical Debris Containment System Specifications / Installation

1. RocBloc 5K™ System Overview

The RocBloc 5K vertical debris containment nets are typically used as protective barrier netting. While primarily designed as a wrap to safely restrain concrete or stone debris, it may also be used as a debris barrier to protect adjacent work areas and public ways, thus preventing injury and property damage. RocBloc 5K meets conformity Standard ANSI A10.37 for Debris Nets.

Roc-Bloc 5K is a Type 2 rated barrier net as described in InCord Test Standard MPS-002 with a design load rating of 5000 lb.

The hardware described in Section 3 through 6 is not supplied with individual RocBloc panels, but must be ordered separately or as part of a system.

When used as a containment system in a horizontal configuration RocBloc panels may be closely wrapped to the structure and secured with anchors. In large systems, cables are run from side-to-side and perpendicular along the length of the structure forming a checkerboard- type grid. Cables are attached at each end in a variety of ways specific to local conditions and are tensioned using turnbuckles. “Hanger-cables” attached to the bridge and then to the intersection of the cable grid are often used to help support the wire grid and to limit the sag of the net system. Snap hooks are used to attach the network of panels to the cables.

RocBloc may be suspended or attached to concrete or stone as a skin, tight to the surface and fastened directly with bolt anchors.

Any debris, construction material or tools that may fall is contained within the two-ply netting panel. Individual hooked panels may be cleaned of debris or replaced without disturbing the entire system.

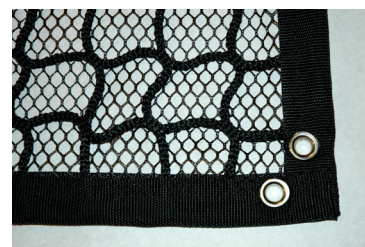
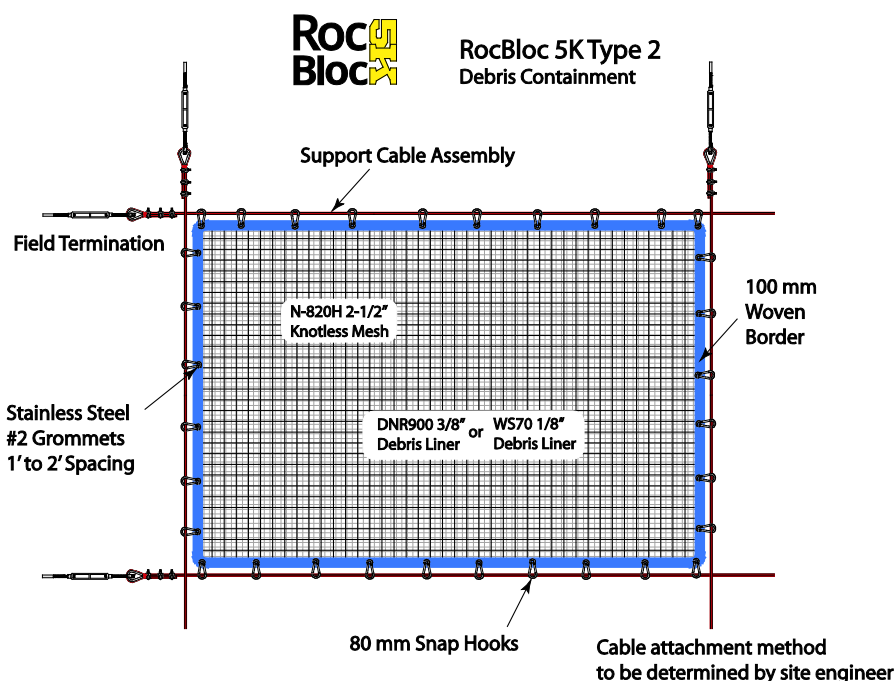


System installation must comply with local codes, and the debris containment system function must comply with applicable safety standards for overall system performance.

Components supplied by others for use within the system must comply with the overall system performance for strength as stated in the manufacturer’s specifications.



Note: RocBloc debris containment systems are designed for debris only and are not intended for personnel fall protection.



Break Point	5,850 lb
Design Load	5,000 lb
Test Load (60% of design load)	3500 lb
Test Duration (3500 lb static load)	24 hours

Testing methods and performance standards reference InCord Standard MPS-002 and Tech Spec PHST-202A Naval Sea Systems Command, Department of the Navy.

2. RocBloc 5K™ Net Panel

RocBloc 5K net panels are fabricated using a two-ply construction method to join a 2-1/2" structural net underlay to a 3/8" or 1/8" debris net liner. The two net panels are layered and joined together at the border with 3" woven High Tenacity Polypropylene webbing and then double-stitched with UV treated and lubricated #138 polyester sewing thread. #2 stainless steel grommets are installed two foot on-center along all sides. This is a maximum spacing; custom spacing may be closer.

The structural underlay used in RocBloc is InCord N-820H HTPP knotless netting. Knots are eliminated using a balanced knitted construction with filaments running continuously throughout the netting for strength and durability. HTPP fiber is, highly resistant to abrasion, light weight, and resistant to moisture and chemicals and has enhanced UV resistance.

The standard debris liner is InCord DNR900 3/8" knotless netting. The polyester woven fiber is highly resistant to abrasion, light weight, and is resistant to fabric tears. DNR900 is used in construction for large debris containment. It is the strongest, most durable debris liner offered. Its larger openings allow for better wind flow.

The optional debris liner is InCord WS70 1/8" knit polyethylene mesh. The Knit High Density Polypropylene monofilament fiber is light weight, and is resistant to fabric tears. WS70 is recommended for small particle containment.

3. Installation – General

The nets shall be installed as close to the work area as practical. For an installation at any distance below the work area, the maximum impact from falling debris must be calculated as a dynamic load. The maximum calculated impact must not exceed the net rating.

For bridge use, the net panels shall be hung with sufficient ground clearance to prevent contact with any surface below the safety net during full impact load, which is typically twice the shortest dimension of the net.

Mounting anchors for suspension cables must be secured to a suitable working surface approved in conjunction with the installer and construction engineers and subject to inspection by the site engineer. Anchoring hardware is 1/2 inch and cabling is 3/8 inch.

4. Anchor Installation

Install cable anchors according to the layout sheets supplied with the system. A typical system will use 1/2"x 6" Dropped Forge Eye Bolts, drilled and anchored into the concrete with epoxy adhesive.

Drilling Caution: Avoid contact with rebar and pre-stressed concrete cabling.

Anchor placement is typically at the four outer corners covering the work area with intermediate anchors placed every 20 feet along the sides of the bridge. A 20' x 20' grid is optimal but this spacing can vary depending on the local dimensions of bridge geometry.

Hanger-Cables should be used to support wire grid at intersecting points or at distances of greater than 30 to 40 feet depending on site requirements. An installed cable system should not sag more than two feet between two support points.

5. Cable Installation

Install 1/2" turnbuckles at one end of each cable run. Longer runs may require two turnbuckles chained together eye to jaw end.

Install the 3/8" suspension cable through the anchors of each cable run. Pull hand taught, and then secure each cable end with a thimble and three wire rope clips. Trim excess cable.

Use vertical hanger-cables at grid intersections to support long horizontal cable runs.

Tension the support cables by adjusting the turnbuckles for minimal sag in each cable. Do not over-tighten as the strength of the cable will be reduced.

6. Netting Installation

Install the net panels according to the layout sheets supplied with the system as designed by the manufacturer, installer or construction engineer. Be sure that the net panels are placed properly, and height and length are oriented correctly. A “Long Side” tag will be attached to the side with the longest dimension for easier installation.

The net panel is attached to the suspension cable at each grommet hole using 80 mm snap hooks (spacing 12” to 24” dependent on panel configuration). Attach the 4 corners of each net first then go back and fill in with the remaining hooks.

Note: The debris liner must be installed face up toward the bridge/hazard with the large mesh support net on the bottom.

7. System Inspection and Maintenance

Debris nets and hardware must be inspected by a competent person¹ after installation and not less than once each month thereafter. Additional inspections must be made after alterations, repair or following any significant impact loading. Inspection must include all netting, cables, snap hooks and anchors. Debris should be removed as it is found.

If any welding or cutting operations occur above the safety net, weld protection must be provided for that area, and more frequent inspections should be conducted in proportion to the level of dangers involved.

Nets or hardware that show deterioration from mildew, wear, tears or stress, that may affect their strength, must be immediately removed from service for further inspection, repair or disposal.

It is recommended that an up-to-date, on the job record be maintained for each debris net system. The record should include inspection dates and notes for each system installation, removal, repairs and component replacements.

¹ “...capable of identifying existing and predictable hazards in the surroundings or working conditions that are hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them”. ANSI® A10.11-1989

8. Debris Removal

During system inspections or as debris is found, it should be removed to reduce loading on the system. Gaining access inside the net is to unhook only the sides necessary for removal of the debris.

Replace or repair any damaged net panels following debris removal.

9. System Removal

Remove the net panels from all suspension cables, and then release cables. If anchors are removed, fill all holes with suitable sealant. Do not reuse cables or anchors.

Note: If delivered as a system the following hardware components may be supplied:

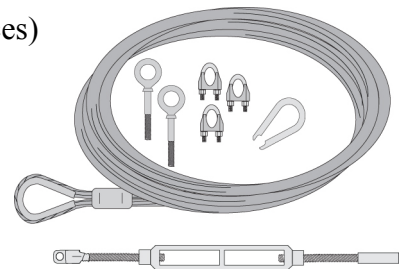
10. Component Specifications – Hardware as recommended by InCord

1/2" x 6" Eye Bolt Anchor

Construction.....Drop Forge Hot Galvanized Steel
Working Load2200 lb (1000 kg)
Net Weight.....63.0 lb/100 pieces (28.6 kg/100 pieces)
Specifications.....ASME B30.26

3/8" Galvanized Steel Cable

Construction.....7x19 Galvanized Steel Wire
Working Load7000 lb (3180 kg)
Net Weight.....24.3 lb/100 ft (36.2 kg/100 m)
SpecificationFederal Specification RR-W-410E



1/2" Turnbuckle, Jaw/Eye

Construction.....Dropped Forge Carbon Steel, Hot Galvanized Finish
Working Load2200 lb (1000 kg)
Net Weight.....1.68 lb (0.76 kg)
SpecificationFF-T791b, Type 1, Form 1 - Class 8, and ASTM F-1145

3/8" Malleable Wire Rope Clip (3 per assembly)

Construction.....Malleable Iron Saddle, Steel U-Bolt, Zinc Plate
Net Weight.....21.0 lb/100 pieces (9.5 kg/100 pieces)
Specification.....FF-C-450 TYPE 1 CLASS 1

3/8" Wire Rope Thimble

Construction.....Zinc Plated Rolled Steel
Net Weight.....6.2 lb/100 pieces (2.8 kg/100 pieces)



Snap Hook, 80 mm

Construction.....Zinc Plated Steel
Working Load500 lb (230 kg)
Net Weight.....3.18 lb/100 pieces (7.0 kg/100 pieces)

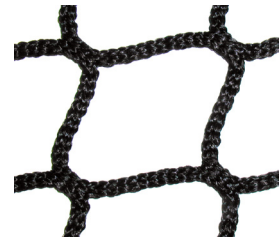
Concrete Adhesive Anchoring Kit

TypeTwo component epoxy
Strength.....ASTM D695: 10,300 psi minimum

11. Component Specifications – Netting as supplied by InCord

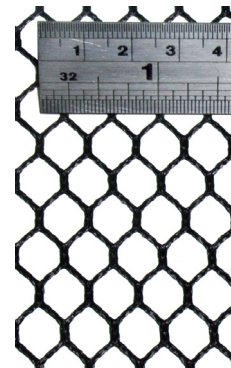
N-820H Raschel Knotless Netting (structural layer)

Fiber	High Tenacity Polypropylene (HTPP)
Cord Diameter	3/16 inch (5 mm)
Mesh Size	2-1/2 inch (60 mm) square opening
Mesh Break	719 lbf (3.2 kN)
Weight	0.0528 lb/ft ² (258 g/m ²)
Melting Point	320°F (160°C)
UV	Extra UV Stabilizers added
Color	Black, Gray, Sand



DNR900 Debris Netting

Fiber	Knit Polyester
Mesh Size	3/8 inch (9 mm) square opening
Burst Strength	100 psi (ASTM D3787)
Color	Black, Gray or Sand



WS70 Debris Netting

Fiber	Polyethylene
Mesh Size	1/8 inch (3 mm) square opening
Air Permeability	Exceeds 1490 CFM/sq ft ²
Burst Strength	160 lbf (ASTM D3786)
Color	Black

