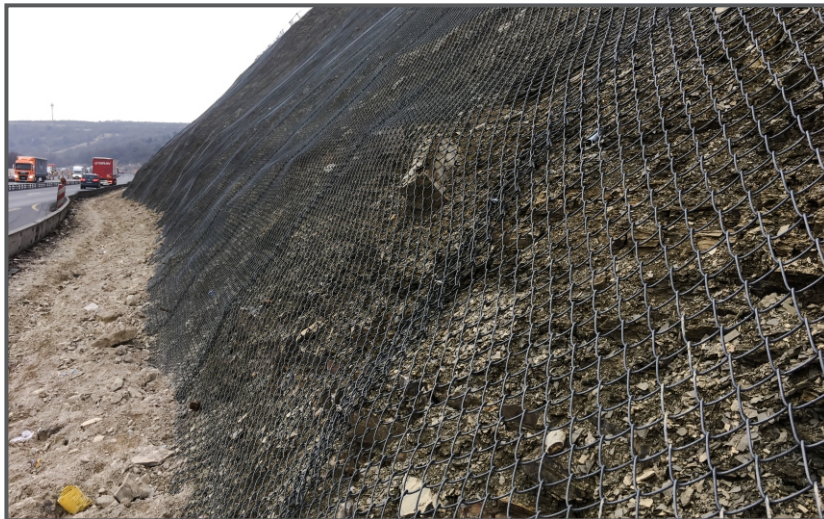


Slope

retention system



HPN+ 60/60/4.6



Area of Application:

TRUMER HPN+ 60/60/4.6 products are developed for high tensile strength applications. It can be used for stabilizing slopes by pinning them with a combination of mesh and rock or soil anchors, as well as installed as a drape to control erosion. Thus, the frequency and magnitude of events such as rockfall and shallow slumps can be reduced.

Material:

TRUMER rolled rectangular netting products consist of galvanized high grade corrosion prevention using Zinc-Aluminium coating. They are manufactured in accordance with the European Standard EN 10223-6.

Installation:

The panels are unrolled from the top to the bottom in the hazard zones. The different mesh layers are then connected by overlapping and inserting high-tensile connection clips or sewing them together with high-tensile sewing ropes in the vertical direction. Horizontal connections are made with an original wire strand yielding a seamless connection. Additionally, mesh can be secured by spike plates at anchor positions.

Advantages:

Under most conditions, HPN+ can be easily and quickly installed, thereby considerably reducing mitigation costs. Furthermore, corrosion protection is assured by a high-quality of metallic coating that increases the life and durability of the netting.

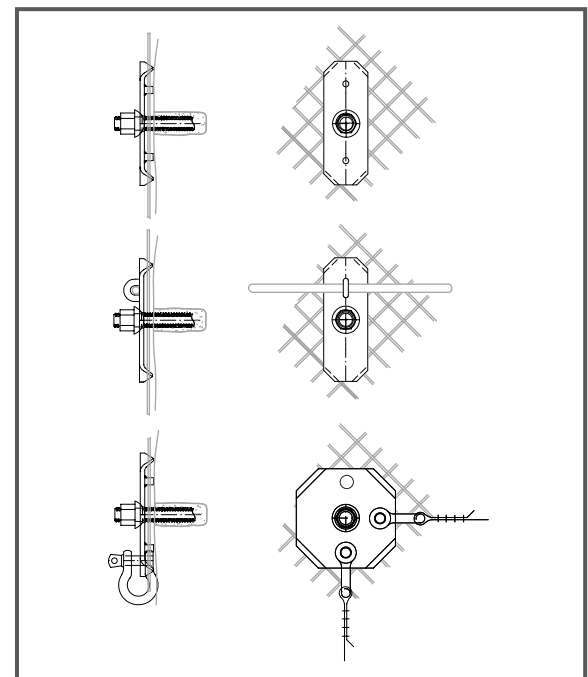
European Technical Assessment

ETA Number	ETA-20/0512
Issuing Body	Building Testing and Research Institute (TSUS)
Date of Issue	01. Juli 2020

Certificate of Constancy of Performance

Certificate Number	1301-CPR-1563
Issuing Body	Building Testing and Research Institute (TSUS)
Date of Issue	07. September 2020

Anchor Connection Plate*



* Anchor plates with two rope guidances, i.e. in vertical and horizontal directions are also available



Mesh Characteristics

Mesh Type*	Rectangular netting
Mesh Size [a x a] mm (in.)	60 x 60 (2.36 x 2.36)
Opening angle [α]	90°
Number of mesh openings, length per m (per ft)	11 (3.4)
Number of mesh openings, width per m (per ft)	11 (3.4)

* in accordance with European Standard EN 10223-6

Wire Properties

Wire Diameter mm (in.)	4.6 (0.18)
Tensile Strength N/mm ² (ksi)	840 - 990 (121.8 to 143.6)
Corrosion Protection*	Zn95Al5 galvanized
Mass of Coating* g/m ² (oz/ft ²)	≥ 280 (0.92)
Hours of Salt Spray Test**	1000

* in accordance with European Standard EN 10244-2, class A

** in accordance with European Standard EN ISO 9227 (NSS-Test)

Strength Properties

Test Description	Result
Tensile Strength, lengthwise kN/m (lbf/ft)	≥ 150 (10.278)
Tensile Strength, crosswise kN/m (lbf/ft)	≥ 150 (10.278)
Resistance of Puncture, unsupported* kN (lbf)	102.1 (22.953)
Resistance of Puncture, supported** kN (lbf)	392.6 (88.260)
Resistance of Puncture, ASTM*** kN (lbf)	150.7 (33.879)
Shear resistance**** kN (lbf)	196.3 (44.130)
Shear-puncture resistance***** kN (lbf)	35.9 (8.071)

* tested without a deformable layer beneath mesh (in open air), in accordance with test report B4/435/16-19 of BVFS

** tested with a deformable layer beneath mesh, in accordance with test report B4/435/16-21 of BVFS

*** tested with circular plate according to ASTM A975-11, in accordance with test report B4/435/16-20 of BVFS

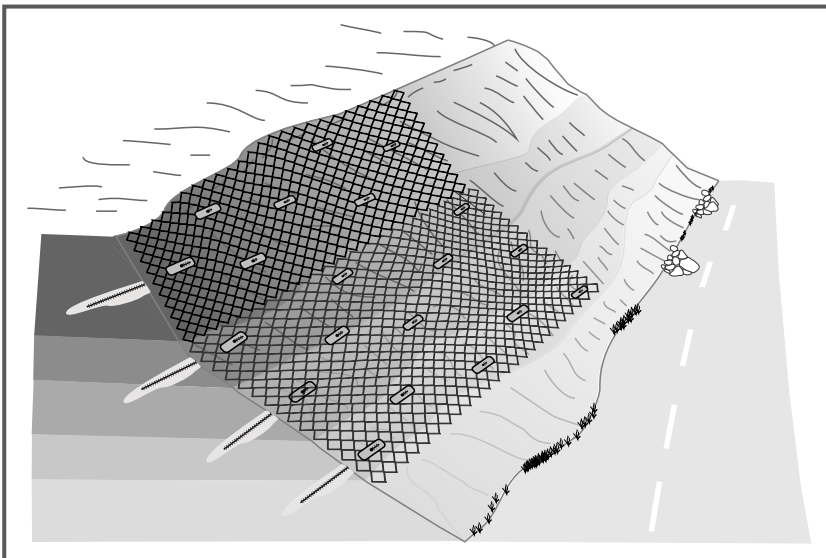
**** shear resistance on upper edge of TRUMER spike plate (1/2 value of resistance of puncture, supported)

***** slope parallel tensile stress tested with TRUMER spike plate, in accordance with test report B4/587/18-8 of BVFS

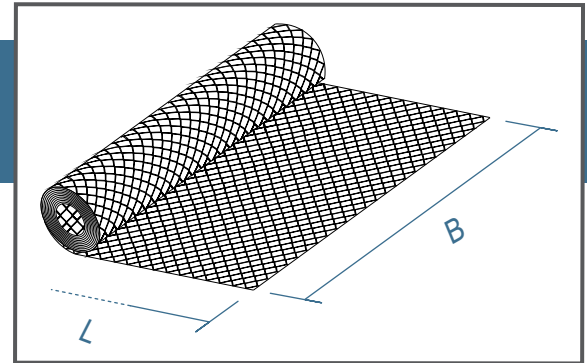
Roll Sizing Options

Width [W] m (ft)	3.00 (9.84)*	3.50 (11.48)*
Length [L] m (ft)	15.00 (49.21) Standard*	
Weight kg/m ² (lb/ft ²)	4.56 (0.93)	

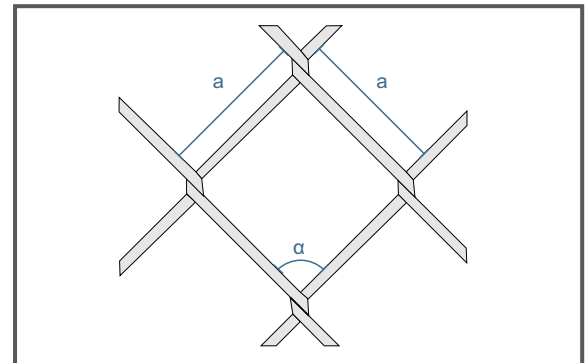
* Other dimensions are possible in accordance with project specific design requirements



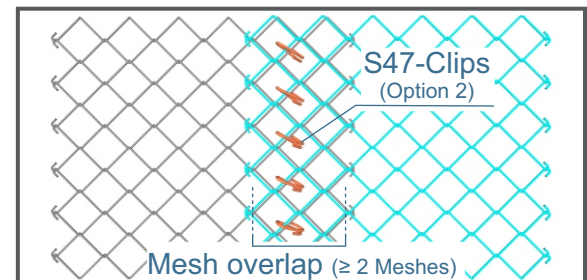
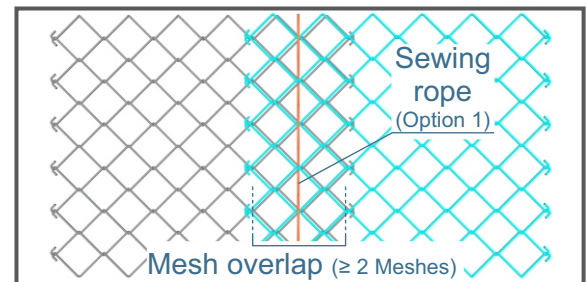
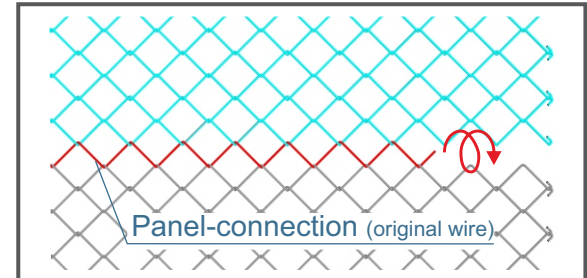
Roll Dimensions



Mesh Dimensions



Panel-connections*



* Characteristics of mesh overlaps, sewing ropes (≥ 4 mm) and number of S47-Clips depend on the load requirements and must be carried out in accordance to lokal standards and regulations.