

Debris flow protection system



Debris Catcher - Data Sheet



Classification

Model	Debris Catcher
Style	Lambda Frame
Typ. Impact Pressure* <i>kN/m² (lbf/ft²)</i>	up to 150 (3130)
Typical Height Range* <i>m (ft)</i>	4.0 - 7.5 (13.1 - 24.6)
Typical Width Range* <i>m (ft)</i>	unlimited**
Typical Post Spacing* <i>m (ft)</i>	4 - 12 (13.1 - 39.4)

* Values are project related and have to be customized to the site and loading conditions.

** internal anchorage up to every 60 m (196 ft)

Design Parameters

Site	<input checked="" type="checkbox"/> Cross-section
	<input checked="" type="checkbox"/> Boundary Conditions
	<input checked="" type="checkbox"/> Distance to element of risk <i>m (ft)</i>

Load Scenario	Dynamic Distributed Load
	<input checked="" type="checkbox"/> Impact Pressure <i>kN/m² (lbf/ft²)</i>
	<input checked="" type="checkbox"/> Flow Height <i>m (ft)</i>
	<input checked="" type="checkbox"/> Number of Pulses
	<input checked="" type="checkbox"/> Type of Load (e.g. triangular, trapezoidal)
	Dynamic Puncture Load
	<input checked="" type="checkbox"/> Block Mass <i>kg (lb)</i>
	<input checked="" type="checkbox"/> Block Geometry <i>m (ft)</i>
	<input checked="" type="checkbox"/> Velocity <i>m/s (ft/s)</i>
	Filled Barrier
	<input checked="" type="checkbox"/> Earth Pressure <i>kN/m² (lbf/ft²)</i>
	<input checked="" type="checkbox"/> Fill Height <i>m (ft)</i>
	<input checked="" type="checkbox"/> Overlapping Load Scenario

Area of Application:

TRUMER debris flow barriers are designed on a site-to-site basis to protect infrastructure, utilities, buildings and lives from debris flows and debris floods. Typical barriers are installed in run-out or deposition zones, close to the elements at risk that they protect. The Debris Catcher has a unique design without retaining ropes and therefore no components in the upstream path of the flow that can fail or compromise the functionality of the system also after smaller events.

Material:

TRUMER uses steel components and steel wire rope made from high quality materials, following a stringent quality assurance program. TRUMER is ISO 9001 certified.

Installation:

Structures by TRUMER are designed with as few components as possible to simplify installation and reduce maintenance. Foundation design and construction is dependant on site conditions and are the responsibility of the project engineer.

Advantages:

The lack of retaining ropes on the upstream side of the Debris Catcher combined with multiple points for de-installation and brake elements found only at anchors located at the extremity of the system makes it the most reliable and maintenance friendly system on the market.

Primary Net*

Omega-Net Model	7.5/135	9.0/185	10.5/180
Type	Steel Wire Cable		
Rope Diameter <i>mm (in.)</i>	7.5 (0.295)	9.0 (0.354)	10.5 (0.413)
Spiral Rope Strand Type	1 x 7		1 x 19
Single Wire Diameter <i>mm (in.)</i>	2.5 (0.098)	3.0 (0.118)	2.1 (0.083)
Corrosion Protection**	Zn, ZnAl		ZnAl
Approx. Mesh Size <i>mm (in.)</i>	135 x 135 (5.3 x 5.3)	185 x 185 (7.3 x 7.3)	180 x 180 (7.1 x 7.1)
Unit Weight <i>kg/m² (lb/ft²)</i>	~ 5.6 (1.15)	~ 6.8 (1.39)	~ 10.5 (2.15)
Mesh Tensile Strength calculated <i>kN/m (lb/ft)</i>	386 (26449)	465 (31862)	756 (51802)
Connection to Main Ropes	Threaded		
Connection to Adjacent Panel	3/8" Shackle	7/16" Shackle	1/2" Shackle

Other rope diameters from 4.5 mm (0.18 in.) to 10.5 mm (0.41 in.) and mesh sizes from 100 mm (3.94 in) to 250 mm (9.84 in) are possible on request!
* in accordance with European Standard EN 10244-2, class A

Bearing and Middle Ropes*

Max. Rope Diameter <i>mm (in.)</i>	24 (0.945)
Corrosion Protection	Zn or ZnAl (Class A or B)
Brake Element Model	AVT phx

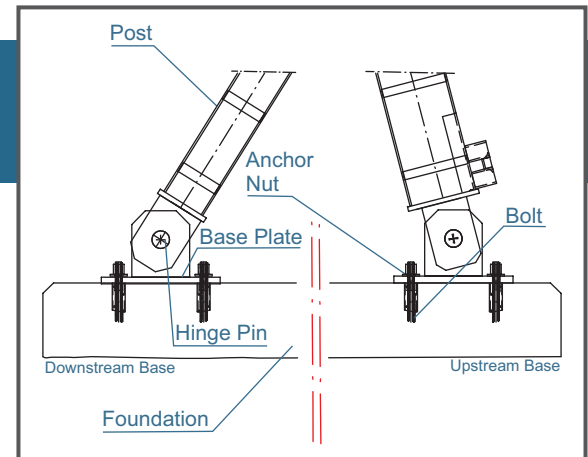
Support Structure*

Post Type	Lambda Frame
Integrated Ladder	Rungs every 0.5 m
Rope Guides	Integrated
Base Plate Connection	Tongue and Pin
Anchors per base plate	4

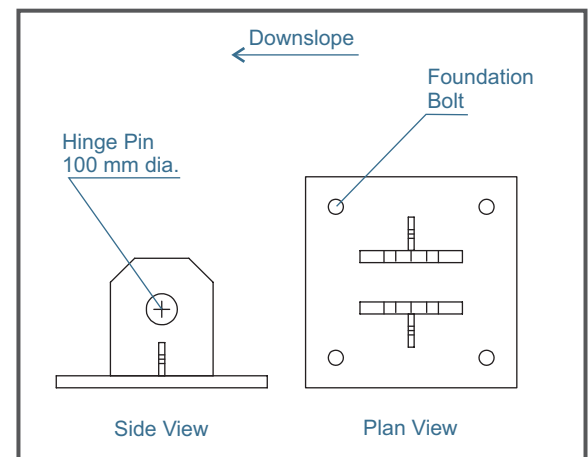
*Bolts design and required items:

Data is taken from an existing project. Every debris flow structure is customized to the site and loading conditions, thus stated items and values can change.

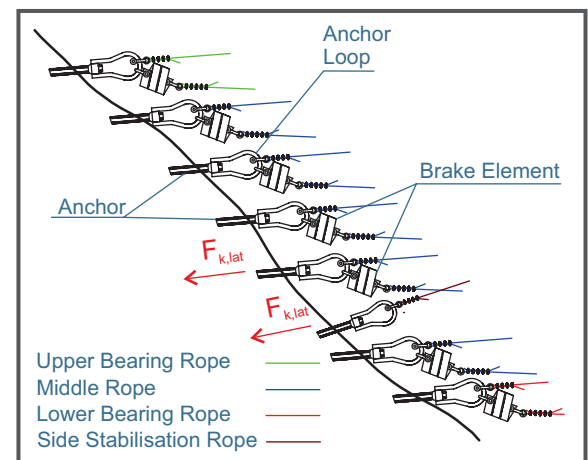
Base Plate/Foundation*



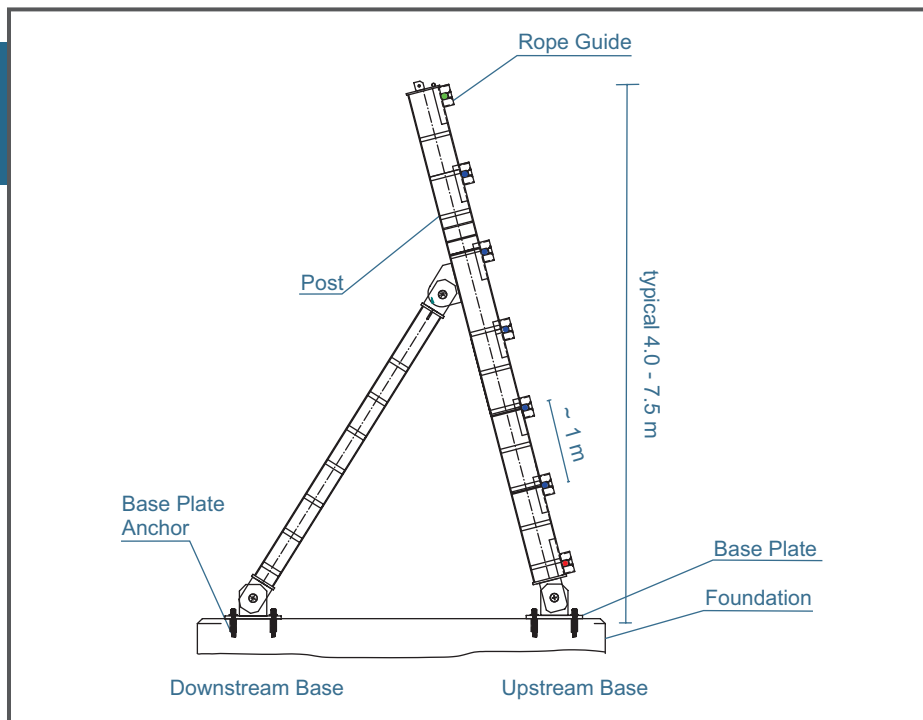
Base Plate Layout*



Lateral Anchorage*



Typical Cross Section

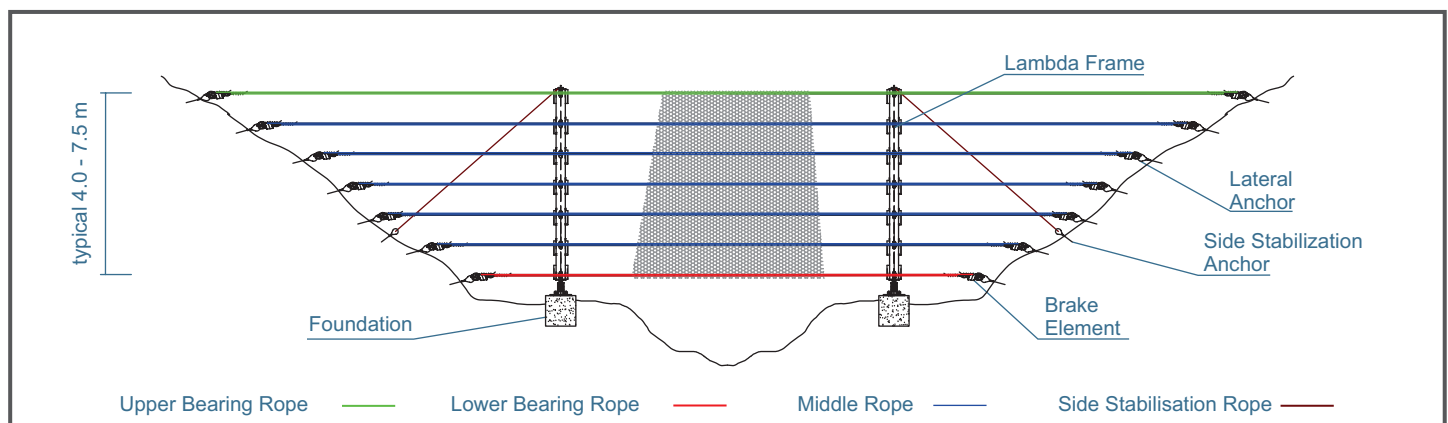


General Layout and Anchorage:

The given layout for the debris catcher is an example of an existing project. Every debris flow catcher project is customized to the site and loading conditions, thus stated values can change. In general, typical post spacing is kept between 4 - 12 m. An approximate distance of 1 m between bearing ropes is utilized.

Anchor layout should follow the geometry provided in the installation manual with the anchor oriented as close as possible to the direction of the anticipated rope forces. It is acknowledged that due to site characteristics deviations from the ideal are unavoidable. In this case, the project engineer should use their best judgement to find a suitable location and orientation.

Typical Layout (Front View)



Typical Layout (Plan View)

