



## LOOP FENCE

High-performance protection barriers for Rockfall, Shallow landslide, Debris flow, Avalanche



### Hazard

Earthquake Land Slide Flood Avalanche

### Solution Purpose

Prevention & Mitigation Recovery

### Solution Theme

Disaster Prevention Plan Infrastructure Technology Building Technology

### Technology Subject

Mitigation Plan River & Basin Dam & Reservoir Coast Sabo Road Railways Airport Essential Utilities



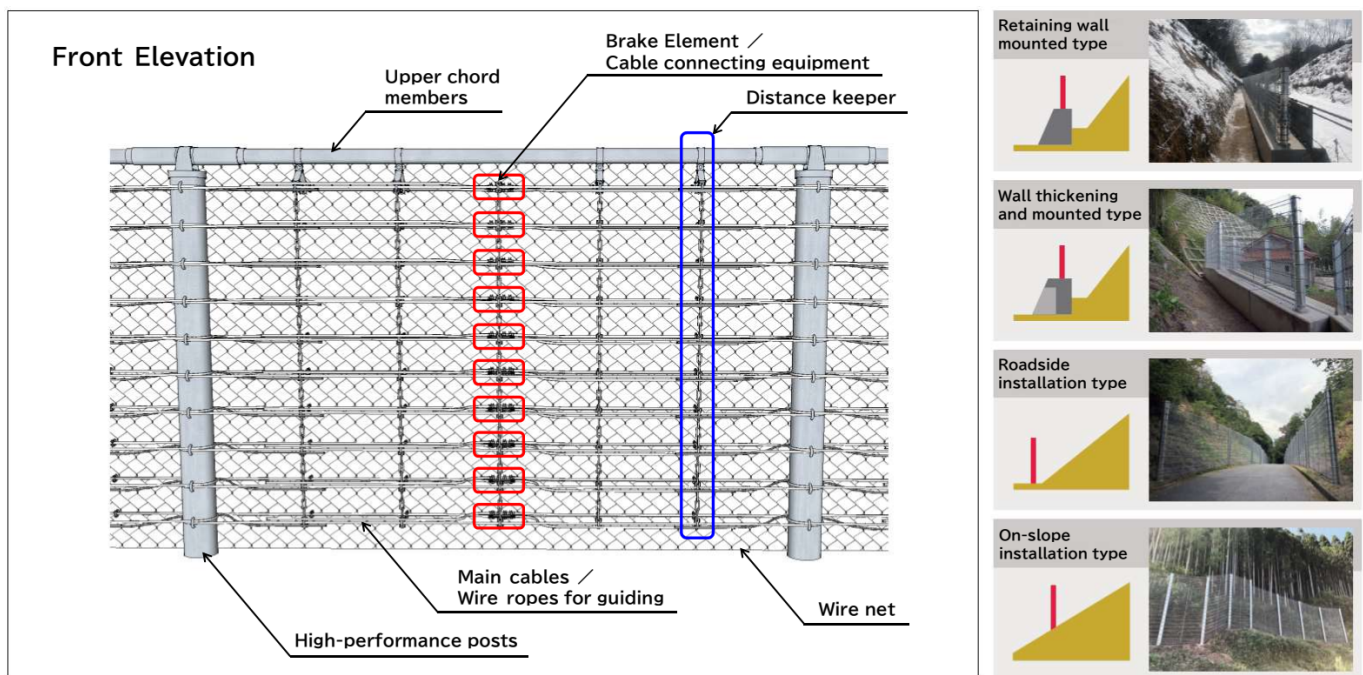
## Advantages

LOOP FENCE is a high-performance protection barrier for rockfalls, shallow landslides, debris flow, and avalanches. It consists of internally filled high-strength and high-toughness composite structural steel pipe posts, wire ropes, mounting fixtures, and nets.

By combining components, LOOP FENCE can be used for a variety of purposes.

In addition, the high-performance posts eliminates the need for additional anchors and minimizes the footprint for installation.

## Solution Illustrated



### High-performance posts

High-performance posts which are composite members with steel placed inside and filled with special filler material, demonstrate excellent performance, combining high strength and high toughness. Compared to general steel pipes with equivalent flexural rigidity, the required rigidity can be secured with thinner posts, making it possible to accommodate a variety of construction forms according to site conditions.

### Cable connecting equipment, Main cables

Equipments to mitigate the impact of rockfalls and connection equipments that are easy to install and remove can be attached to the main cable to demonstrate each function according to the type of disaster.

### Distance keeper, Wire net

Distance keepers maintain even spacing between main cables and use Wire net depending on the size of the disaster; these measures can prevent penetration in the event of disaster.

## Background

In Japan, where 73% of the land is mountainous and hilly and where various natural disasters frequently occur due to earthquakes, heavy snowfall, and torrential rains due to global warming.

It is important to realize a world where they can live with peace of mind by protecting people's lives and property.

Conventionally, countermeasures against relatively large natural disasters such as rockfalls, landslides, debris flows, and avalanches had to be implemented, such as detouring, tunnel construction, or rock sheds construction. However, the current higher performance of protection barriers have made it possible to implement protective measures without these large-scale construction.

## Exposition of the Solution

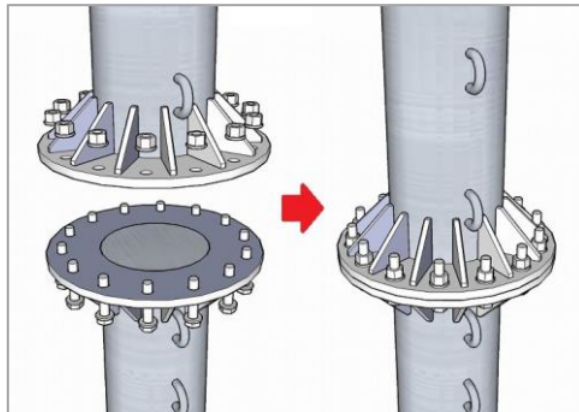
Protection barriers for natural disasters require various performances depending on the type of disaster. Required performance of each component and protection barrier differs depending on the type of disaster, therefore, it's important to make a best-suited barrier according to each different condition.

LOOP FENCE can be customized to optimal specifications for each type of disaster, backed by experiments on each component to use, full-scale tests on the assembled protection barrier, and various types of structural analysis.

【Performance Tests : Posts】



【Posts with split specifications】



【Full-scale Test : Rockfall 4.8tons at Velocity of 25m/s】



【Full-scale Test : Shallow landslide 100 tons】



## Achievements of Examples

Cumulative results in Japan : 1,660 cases (90,480 meters)

Cumulative results outside Japan : 4 cases (1,368 meters)

【Example : Rockfall protection】



【Example : Shallow Landslide protection, with Finished Paint】





## 【Example : Debris flow protection】



## 【Example : Avalanche protection】



## Corporate Profile

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