GEOBARRIER

NATURE UNDER LOCK

ENGINEERING PROTECTION

MATERIALS & STRUCTURES

2026

www.geobarrier.ru

MAXIMUM PROTECTION OF PEOPLE AND INFRASTRUCTURE, DELICATELY INTEGRATED INTO THE LANDSCAPE

About Geobarrier

PRODUCTION OF MATERIALS AND STRUCTURES FOR ENGINEERING PROTECTION SINCE THE EARLY 2000S

Geobarrier - is a Russian company engaged in the development and production of engineering protection structures. The core element of our structures is high-tensile steel wire mesh, designed to operate under heavy loads. Geo-Barrier is a pioneer and a leading company in its segment (engineering protection) of the construction industry in Russia.

The company's main production facilities are located in Moscow, the Moscow Region, and the Vladimir Region. Cooperative ties cover a number of other regions of Russia and foreign countries. Our specialists are ready to provide consultations on calculations and design issues, even for the most unconventional projects.

All Geo-Barrier products undergo rigorous testing at specialized proving grounds and test benches. The lightness and flexibility of our systems make them the only viable solution, especially where the construction of heavy permanent structures is impossible or economically impractical.

GEOGRAPHY OF PROJECTS ACROSS RUSSIA

The geography of project implementation covers the entire territory of Russia from Kaliningrad to the Far East, including regions with complex mountainous terrain, and extreme climatic and geological conditions. The company provides comprehensive supplies of materials and structures for the engineering protection of transport infrastructure facilities: federal highways, railways, seaports, and extended linear facilities. Our solutions are successfully implemented in national-scale infrastructure construction projects:

-Construction program for the Sochi 2014 Olympic facilities

-Development program for approaches to the seaports of the Far East

-Development program for the Republic of Crimea and Sevastopol

-Development program for the Kaliningrad Region

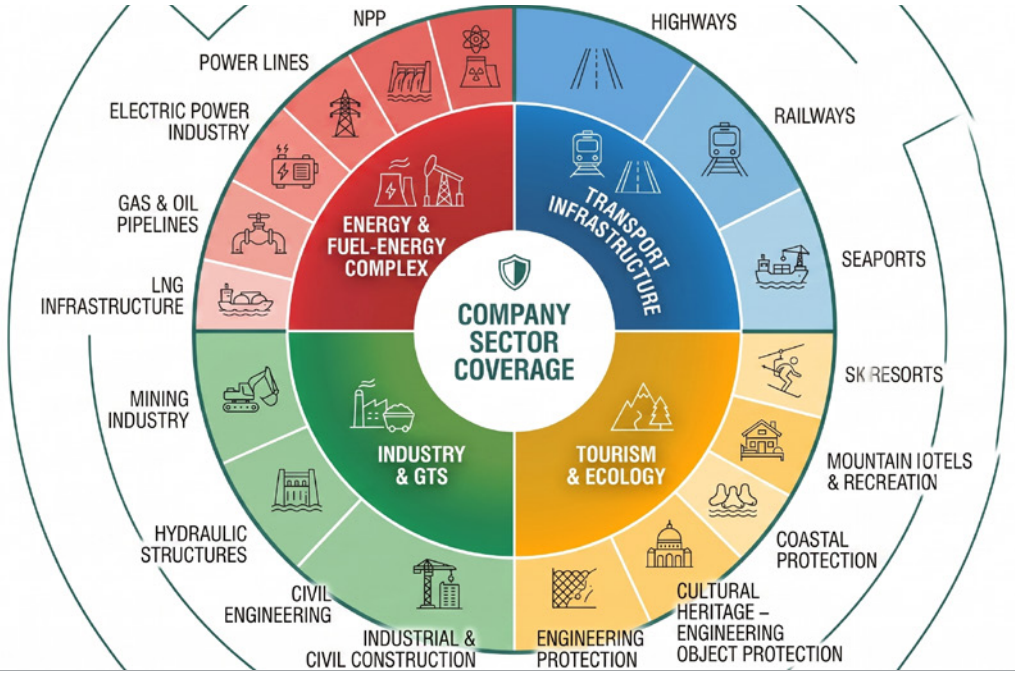
-"Russia" High-Speed Route

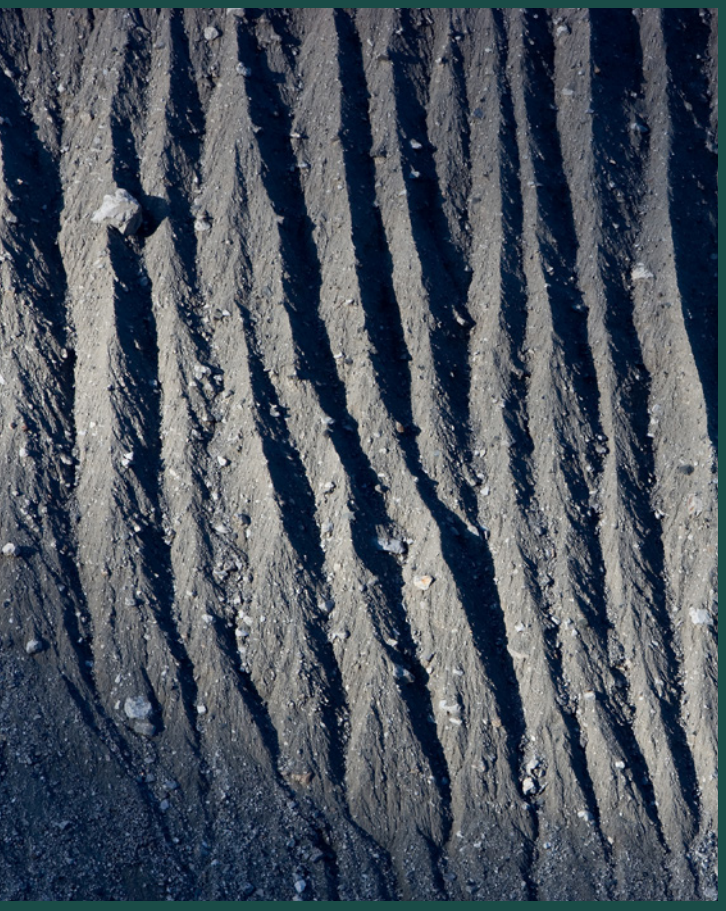
-"West-East" International Transport Corridor

-"North-South" International Transport Corridor

-Southern Cluster.

SCALE OF PRESENCE BY ECONOMIC SECTORS





ENGINEERING PROTECTION OF TERRITORIES FROM A TO Z

THE KEY TO THE SUCCESS OF YOUR PROJECT AT ALL STAGES OF INVESTMENT

PROTECTION AGAINST:

- SNOW AVALANCHES
- MOUNTAIN MUDFLOWS
- ROCKFALLS
- SOIL LANDSLIDES
- DYNAMIC PENETRATION

DESIGN

Consultations on a wide range of design and survey issues.

SURVEYS

Support at the survey stage. Audit of engineering survey materials.

PRODUCTION

>1,000 tons of ring net production capacity per year.
>100,000 sq.m. available in stock.

PRE-DESIGN

Consultations at the initial stage. Database of ready-made standard solutions. Concept development.

INSTALLATION

Consultations on the selection and installation of structures. Field visits.

MAINTENANCE

We manufacture and deliver spare parts to the site strictly on time.

Pictured: aftermath of a landslide in Taiwan

01

RING NET

- Unique technology of wire rope weaving of rings from high-tensile steel wire
- Steel net with ring meshes of wire rope weave, TU-1275-001-75212412-04
- Tensile strength >1500 kN/lin.m!
- Manual quality control during the manufacturing of each ring.

UNIQUE RING WEAVING TECHNOLOGY!

VARIETIES OF RING NETS

Six-point weaving: each ring is interwoven into six adjacent rings.

Four-point weaving: each ring is interwoven into four adjacent rings.

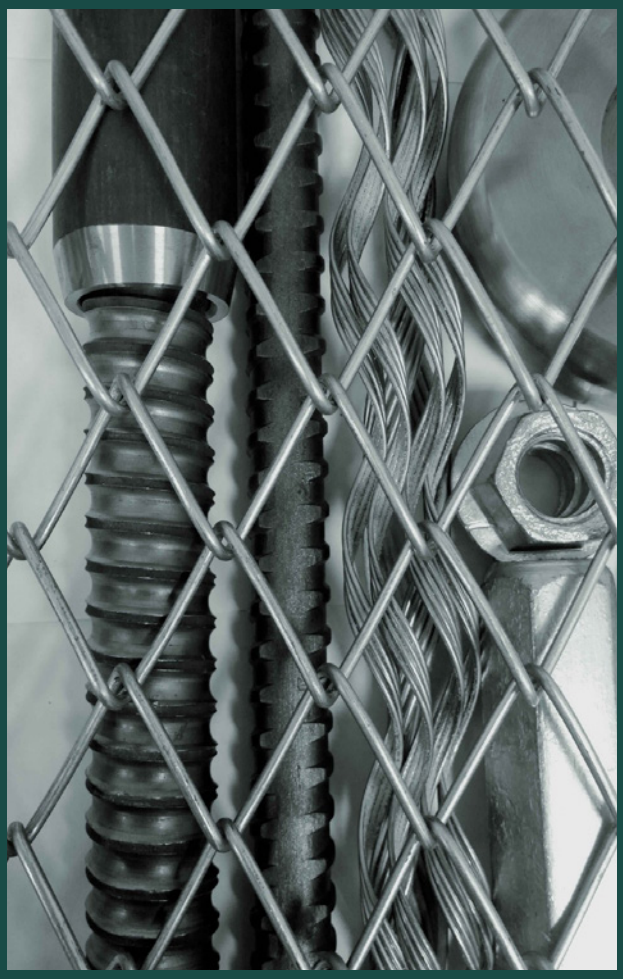
7 wire strands in a ring strand.

12 wire strands in a ring strand.

19 wire strands in a ring strand!

02

2D-GEO MESH



HIGH-TENSILE STEEL WIRE MESH WITH RHOMBOIDAL SHAPE

TU 1275-005-752-12412-15

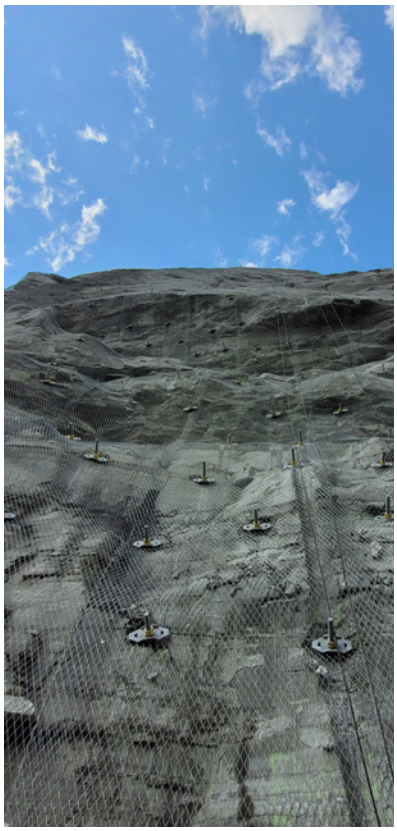
Used as part of anti-landslide and rockfall protection.

2D-GEO SYSTEM: ROCK SLOPE STABILIZATION

Stabilization of slopes in open-pit mines

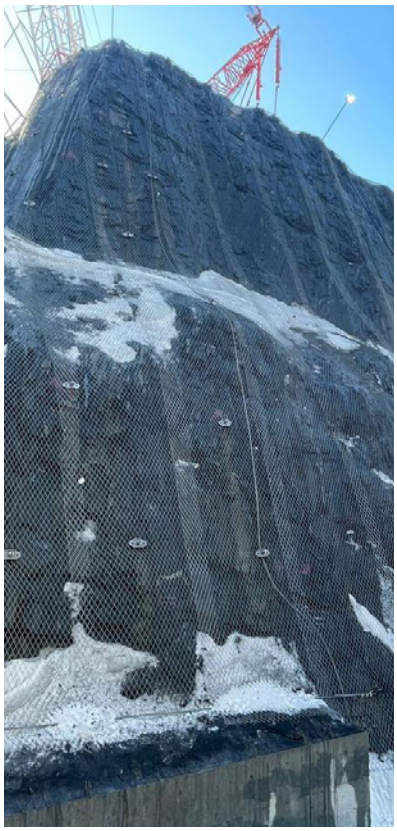
Resistance to shear loads

Mesh made of high-tensile wire up to 4 mm in diameter and an ultimate tensile strength >800 N/sq.mm.



Resistance to aggressive environments

Zinc coating density > 150 grams per sq.m.



Resistance to heavy loads

Four varieties of 2D-Geo mesh with a strength of up to 150 kN/linear m for any type of slope.

PRESERVATION OF NATURAL LANDSCAPE

SLOPE STABILIZATION

The system is individually selected for the specific geotechnical slope conditions. A wide choice of 2D-Geo meshes allows for a highly cost-effective configuration with maximum performance. The 2D-Geo landslide protection system preserves the natural aesthetic appearance of the landscape in its natural beauty, making it highly relevant for installations in recreational complexes and nature parks.

2D-GEO SYSTEM: STABILIZATION OF DISPERSED SOILS

Distinctive features of the system

- Applicable on most slopes and embankments composed of dispersed soils.
- Ability to increase the distance between adjacent anchors up to 3.5 m and save up to 40% on the final project cost.
- All elements of the system are individually selected for the specific slope.
- Hydroseeding and preservation of woody vegetation on the slope are possible.
- All materials and components are manufactured in Russia from domestic raw materials.

Trans-Siberian Railway, Shamary-Vogulka section

Murmansk Transport Hub, Tuloma River Crossing

03

ROCKFALL DRAPERY

DISTINCTIVE FEATURES OF THE ROCKFALL DRAPERY:

1. Applicable on rocky slopes of any steepness regardless of the physical and mechanical properties of the soil.

2. Convenient and fast installation: does not require long-term closure of adjacent highways or railways.

3. The drapery design is maintenance-free.

4. Tangible savings: a wide selection of meshes allows for a highly cost-effective configuration.

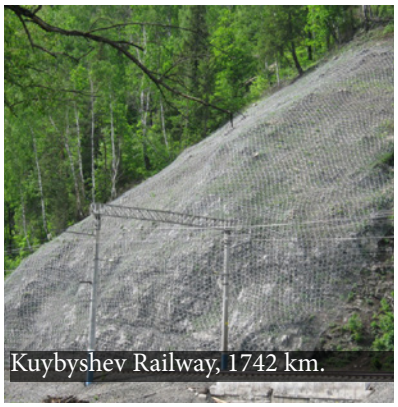
5. Possibility of structure calculation and design, factoring in additional loads and external variables.

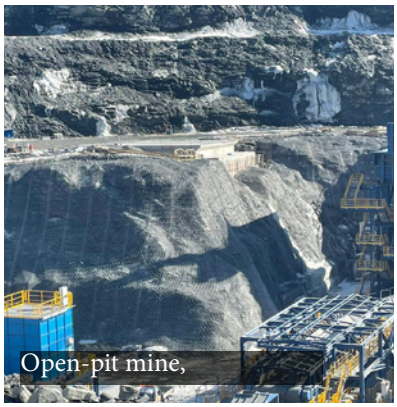
6. No weak points in the structure.

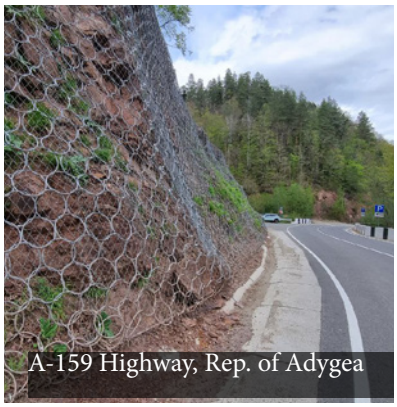
7. All materials are made in Russia.

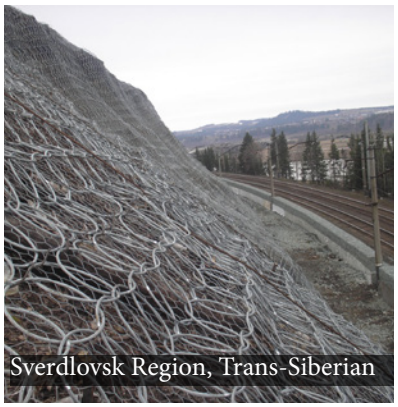
Maximum protection using ring net

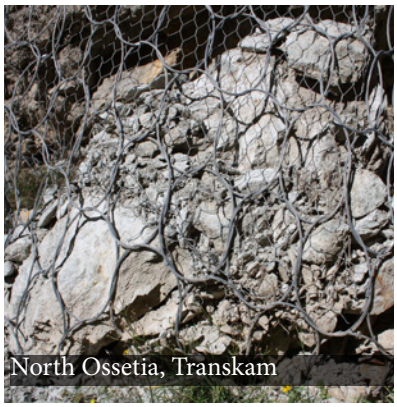

Sochi, Krasnodar Region


Kuybyshev Railway, 1742 km.


Open-pit mine,


A-159 Highway, Rep. of Adygea


Sverdlovsk Region, Trans-Siberian


North Ossetia, Transkam


India, residential area Mumbai

On railways

Maximum 100% protection.
Large database of standard analog projects.

On mining excavations

Safe installation: mounted from top to bottom, keeping installers in a safe zone from falling rocks.

On highways

The debris accumulation zone at the bottom of the slope is easy to clean mechanically.

ROCKFALL DRAPERY USING 2D-GEO MESH

Kostomuksha Mine

Republic of Karelia

Rockfall protection for crushing complex.

Protection against fine-fraction stones

Protection against spillage

2D-Geo mesh with mesh sizes of 56 mm and 80 mm provides excellent protection against fine falling stones on slopes of any steepness.

Olenegorsky Mine

Murmansk Region

Rockfall protection for pit wall.

Sports Shooting Complex

Gelendzhik

Rockfall protection of shooting galleries in open-pit mine area.

1000 kJ Barrier, Kostomuksha Mine, conveyor

04

ROCKFALL PROTECTION BARRIER

DESIGN FEATURES:

1. A perfectly balanced combination of structural strength, flexibility, and weight. Phenomenal resistance to impact loads up to 8,000 kJ.

2. Considerably lower cost—by several orders of magnitude—compared to reinforced concrete protective structures.

3. Does not spoil the aesthetic appearance of the natural landscape.

4. Can be installed on sheer walls.

5. Interchangeability of individual structural elements.

6. Fast and straightforward installation.

7. Rockfall barriers undergo rigorous testing at independent proving grounds and test sites.

BARRIERS FOR ROCK IMPACTS UP TO 8000 KJ!

1000 kJ Barrier, 3 m. Shooting Club, Gelendzhik

150 kJ Barrier, M-5 Ural Highway

Based on high-tensile steel nets!

Rockfall barriers absorb debris energy through structural deformation and crumple elements, withstanding rock block impacts equivalent in energy to a large 2-ton SUV crashing into a solid wall at a speed of 322 km/h.

Barriers without retaining ropes

For confined spaces, a lightweight rockfall barrier without retaining ropes based on 2D-Geo mesh was developed for impact energies up to 150 kJ at 2.5 m height.

Pictured right: 1000 kJ Rockfall Barrier, 3.5 m high. Turkey.

Top view

Lambda posts of the barrier

05

DEBRISFLOW BARRIER

KEY FEATURES:

1. The primary purpose of the structure is to intercept debris flows and retain their solid component in the upstream pool.

2. Can be installed across the channel either individually or as a cascade of successive barriers.

3. The main element of GeoBarrier debris flow barriers is a ring net with a tensile strength of up to 1,500 kN/m.

4. Flexible structure and fast installation compared to similar reinforced concrete structures.

5. Custom-made to match project specifications. Structural elements are engineered and calculated by GeoBarrier specialists.

6. You can order a single debris flow barrier or a series of barriers for anything from small erosional gullies to wide mountain valleys.

PROJECT CASE STUDY

DEBRIS FLOW BARRIER: 10 M HIGH 282 M LONG


Each post weighs 5.5 tons

Protection of the R-297 "Amur" highway, Zabaykalsky Krai

1. Designed for a flow pressure at the lower point of the barrier of Pmax=>145 kPa.
2. Engineered for installation within a narrow road right-of-way.
3. The debris flow barrier is mounted on a massive reinforced concrete base built on a bored pile foundation (piles with D=820 mm, 3–7.5 m long, spaced at 2.0 m intervals).

Ring net with 250 mm ring diameter.

06

SNOW-RETAINING BARRIER

DESIGN FEATURES:

1. Among all types of avalanche protection structures, snow retention barriers are the most cost-effective method of defense.

2. Installed directly in the avalanche starting zone. The ring net panel forms a barrier plane perpendicular to the sliding direction of the snowpack on the slope. This retains the entire snow mass within the starting zone, preventing the avalanche from initiating.

3. By utilizing ring nets instead of classic wire rope mesh panels, the barrier remains fully functional under additional loads from rockfalls originating from the rocky ridges around avalanche paths.

4. Modular design. Light and straightforward installation of the ring net panels.

5. Available in several structural sizes to accommodate snowpack depths of 2.5 m, 3.5 m, and 4.5 m.

6. The barriers do not mar the natural aesthetic of the landscape.

PROJECT CASE STUDY

Snow-retaining barriers, Dk=3.5 m height. Altai Republic, Manzherok.

Universal post base

- Can be installed on both rocky and loose soils.
- Adapted for areas prone to cryogenic creep.

Reinforced edge sections

Edge sections of barrier lines are made of reinforced 19-strand ring nets.

Barrier post spacing is 3.5 m

No triangles. The intermediate net panels are rectangular, while the side panels are trapezoidal.

07

PROTECTIVE NETS AGAINST HIGH KINETIC ENERGY OBJECTS:

- UAVs
- TORPEDOES
- DRONES
- UNMANNED
- SURFACE VEHICLES

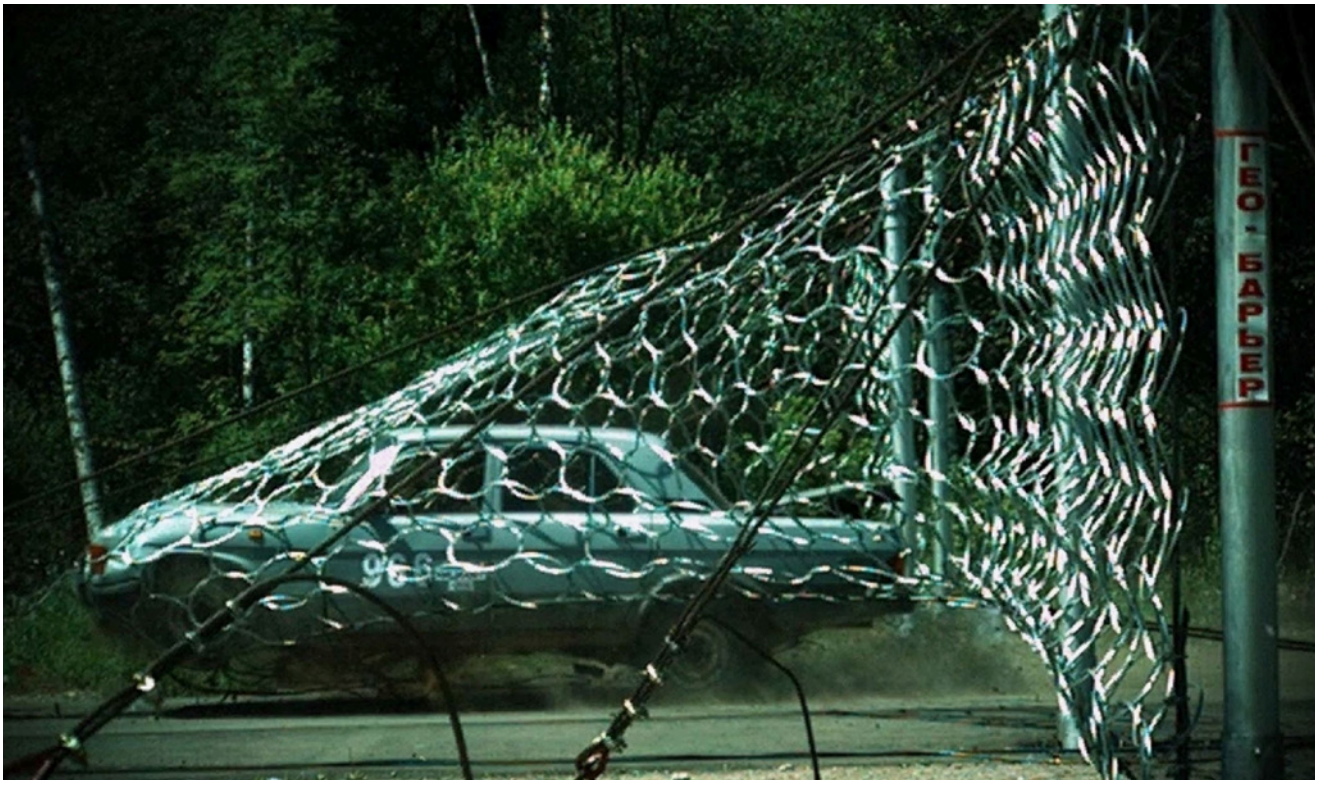
Each ring is a woven steel wire rope made of 3.0 / 4.0 / 5.0 mm diameter wire.

ON WATER, IN THE AIR, UNDERWATER, ON LAND.

CONTACT US, AND WE WILL ADVISE YOU ON ALL MATTERS.

We develop and produce flexible high-tensile protective barriers.

Thanks to their outstanding strength characteristics, ring nets are the ideal solution for perimeter protection against objects moving with HIGH kinetic energy. Our technologies are applied in securing the perimeters of high-security facilities. Geo-Barrier technologies have long been successfully utilized in the defense and nuclear sectors across all climate zones.



GEOBARRIER

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THE WORLD OF OUR SOLUTIONS

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