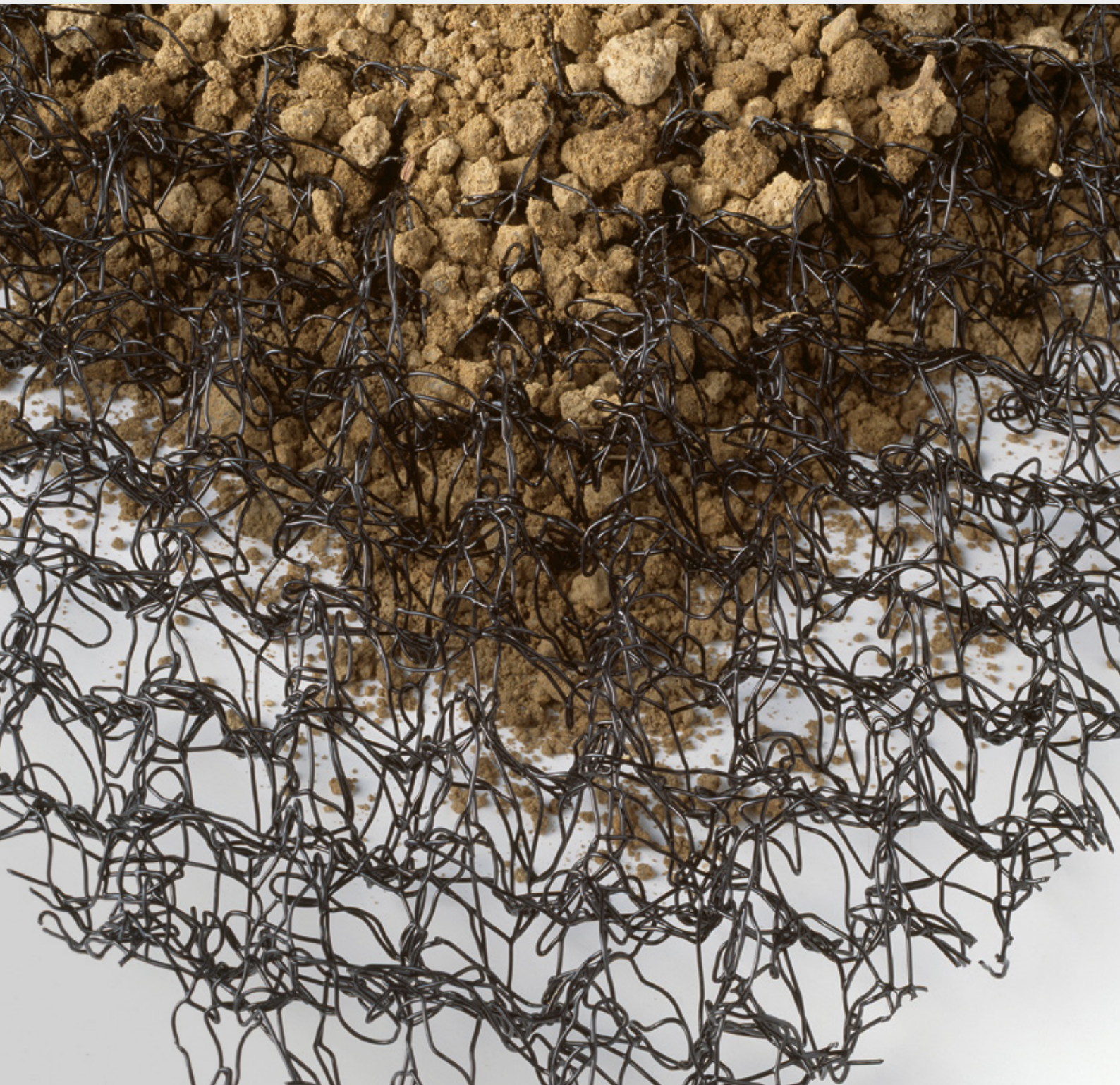


## EnkaMat<sup>®</sup>

High performance erosion control mats  
Product overview







# Engineering Nature

**Three fundamental values underpin Enka Solutions: expertise, reliability and responsibility.**

## Expertise

We began creating our knowledge and expertise base on our products and the industry way back in the 1950s, which means that today we have a multitude of project references worldwide. Coupled with extensive research conducted internally and externally with renowned universities and specialist organisations, our Research, Development and Innovation team is constantly working in conjunction with clients all over the world to develop new solutions to add to our range of products and applications. Our team of experienced engineers providing support across all market segments adds to this to make the numerous innovative solutions come into fruition. We see expertise both as the foundation of our business and as an ongoing process. Building on our already long-standing expertise is work that is never done.

## Reliability

It's our daily mission to be a reliable partner for our customers in order for them to grow their business in a sustainable way. Reliability covers a range of different areas and ensures peace of mind for our partners. As well as our wide, high quality product range, we offer technical and marketing support for all market segments. All our processes are ISO 9001 certified and every single product is tested by our highly qualified laboratory staff.

Furthermore, we hold specific product certifications in many different countries (e.g. Asqual, NorGeoSPec, Benor, HPQ, and BBA). Delivering what we promise is part of our nature.

## Responsibility

We take our responsibilities seriously. This is why you can also rely on our solutions being sustainable. We not only examine the full product lifecycle and its impact on the environment to make continual improvements in terms of environment, nature and soil, but also ensure we meet all legal requirements. We train and advise clients and stakeholders, and contribute to the establishment of new standards to help propel our entire industry forward into the future. It will therefore come as no surprise that safety is also a high priority for Enka Solutions. Safety is inherent to all our solutions and products, as part of our responsibility to care both for the people who use them on building sites, and our employees.

These values that are the core of Enka Solutions are reflected in our statement 'Engineering Nature', because not only is engineering in our nature, we also see ourselves as engineers delivering reliable solutions that respect nature.



## Three-dimensional mats

**When naturally growing vegetation alone cannot prevent erosion, a three-dimensional open structure mat like EnkaMat is the solution. The use of well-rooted grass for erosion control is a natural and attractive idea. But natural vegetation on its own has limited soil retention qualities. When there is a high risk of erosion, grass and other vegetation will be ruled out. With the help of EnkaMat, vegetation can withstand these risks. Green and permanent solutions are thus created for places where otherwise erosion would have its way.**

### **Solid erosion protection**

EnkaMat is a strong three-dimensional polyamide (PA) mat with an open structure. It functions as a protective, reinforcing and integrated intermediate layer between natural vegetation and soil, enabling root systems to grow and gain a secure hold on the ground beneath.

### **Always the right solution**

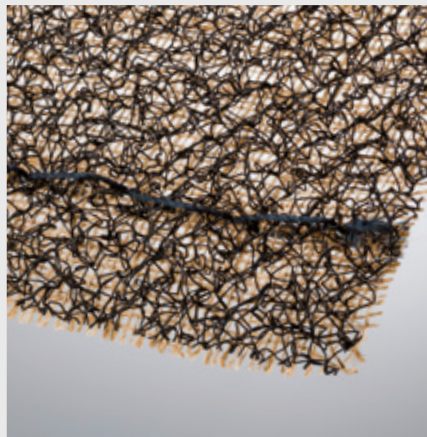
EnkaMat can be used effectively in many situations. Whether erosion control is required above, at, or below the water level or on dry slopes, a suitable EnkaMat variant is available for any condition. EnkaMat is also used as a grip layer to stabilize a thick top soil layer over soil slopes.

### **Why is EnkaMat such a good solution for erosion related problems?**

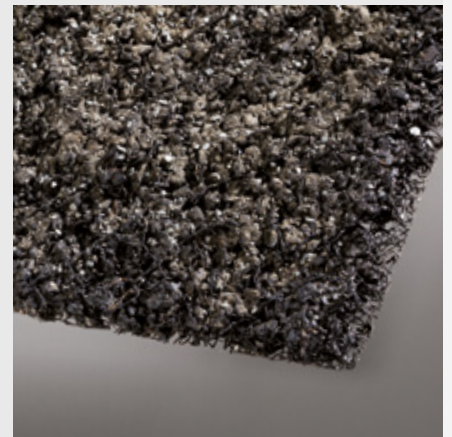
- Integrated and robust system
- Durable and environmentally friendly
- Immediate protection against erosion
- Fast growth of vegetation
- Easy to install
- Wide choice of thicknesses and structures
- No maintenance needed
- Economic in labor and material



EnkaMat®



EnkaMat® J



EnkaMat® A20

## EnkaMat product range

### EnkaMat

- Structure – open top and bottom
- Particularly suitable for dry slopes
- Prevents soil erosion by wind and rain
- Up to 20 mm thick
- Creates artificial root structure, up to 2,980 m filament/m<sup>2</sup>

### EnkaMat J

- Structure – open EnkaMat sewn to a biodegradable backing
- Suitable for dry slopes where severe hydraulic loadings are expected within 3 to 4 months
- Prevents soil erosion by wind and rain – offers immediate protection for early hydraulic loadings
- Up to 10 mm thick
- Creates artificial root structure up to 1,810 m filament/m<sup>2</sup>

### EnkaMat A20

- Structure – prefilled with a bitumen bound mineral filter of stone chippings
- Suitable for surfaces permanently subjected to water impact
- Offers immediate erosion protection from high velocities and small wave attack
- 22 mm thick, weight 20 kg/m<sup>2</sup>
- Water permeability of 30 mm/s at 100 mm head

### EnkaMat R

- Structure – open EnkaMat fully integrated with a flexible high modulus polyester geogrid.
- Suitable to be used as reinforced griplayer to fix a layer of soil on waterproof liners of waste disposals, stormwater storage reservoirs, etc.
- Stabilizes soil and vegetation cover, stops weathering of slopes

# EnkaMat®

## 3-dimensional mat for erosion control

**EnkaMat is a three-dimensional polyamide mat with an open structure. It prevents erosion on embankments, slopes and river banks, canals and reservoirs.**



EnkaMat functions as a protective reinforcing and integrated intermediate layer between natural vegetation and soil. It provides protection above and below the waterline thereby creating a permanent solution. Either seeded, filled with topsoil or mulched, EnkaMat keeps the fertile soil in place and prevents the fill from being washed out. Vegetation soon establishes itself with root systems that are reinforced by EnkaMat's special mat structure. EnkaMat can be used in many areas where erosion

takes place, such as watercourses, embankments, slopes and spillways.

EnkaMat is available as an open mat for dry slopes, or as a 'flatback' mat (with a flattened underside) for wet slopes and for use below the waterline.

### Technical details

EnkaMat is a strong, three-dimensional mat with an open structure, made from high quality polyamide (PA) monofilaments which are welded where they cross. It is

available in thicknesses up to 20 mm. EnkaMat is produced in rolls up to 4 m wide. It is also available with a 'flatback' for use with stone chip fill where it is permanently submerged below the water level. EnkaMat creates an artificial root structure by its high filament density – up to 2,980 m filaments per m<sup>2</sup>.

EnkaMat has been tested by many independent organisations.



### Functions

- Erosion control

### Application areas

- Lakes, river embankments, watercourses and secondary coastal applications
- Protection of new or repaired dry slope embankments
- Spillways

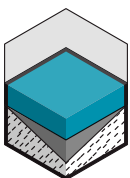
- A stabilisation grip layer on rocky slopes, smooth surfaces and geomembranes

### Features and benefits

- A permanent and green solution
- Open structure encourages swift vegetation growth
- Reinforces vegetation root systems
- Blends discretely into the landscape

- Remains locked to the ground by root systems
- Adapts easily to soil profiles
- Excellent bonding of individual filaments
- Over 90% voids
- Light, flexible and does not float in water
- High UV resistance
- Maintenance free

### Product functions



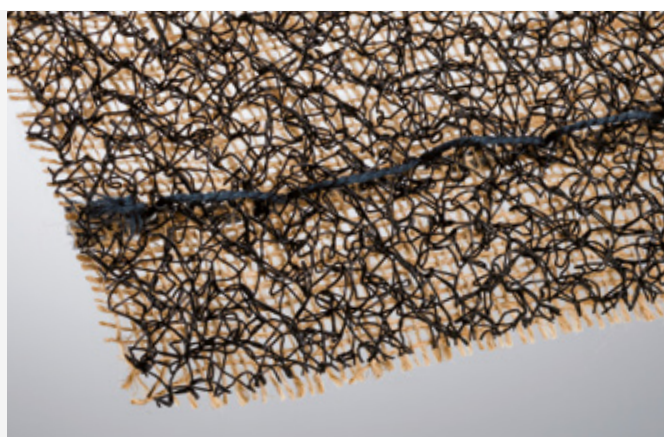
Erosion control



# EnkaMat<sup>®</sup> J

3-dimensional mat backed with biodegradable geotextile for immediate erosion control

**EnkaMat J is a three-dimensional polyamide mat with an open structure sewn to a biodegradable geotextile fabric. EnkaMat J is used to prevent erosion on embankments, slopes and river banks.**



EnkaMat J retains the fertile soil by preventing rills forming in the soil structure and therefore allowing the vegetation to establish quickly. In this way the product provides immediate protection while also permanently reinforcing the root systems of the vegetation. On dry slopes, it provides immediate protection against erosion caused by rainfall and protection against hydraulic flow after vegetation is established.

## Technical details

EnkaMat J is a three-dimensional mat made from high quality polyamide (PA) with an open structure. It is sewn to a biodegradable geotextile.

The three-dimensional mat of EnkaMat J is 10 mm thick, creating an artificial root structure up to 1,810 m filaments per m<sup>2</sup>.





### Functions

- Immediate erosion protection
- Permanent erosion control
- Stabilisation

### Application areas

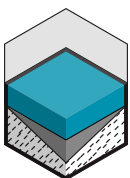
- Dry slopes
- Rocky slopes and surfaces
- Protection of new or repaired (river) embankments
- Road and railway embankments

### Features and benefits

- Permanent and green solution
- Immediate protection
- Prevents rills forming thus stopping erosion on slopes
- Prevents washout of soil allowing roots to establish
- Improves vegetation growth
- Flexibility allows close contact with the soil profile

- Product is locked to the ground by the root structure
- Blends unobtrusively into the landscape
- Lightweight, easy to install
- Maintenance free

### Product functions



Erosion control



# EnkaMat® A20

3-dimensional mat filled with stone chippings for areas exposed to water

**EnkaMat A20 is a three-dimensional polyamide mat with an open structure prefilled with a bitumen bound mineral filter of stone chippings.**



When laid on grass seeded soil slopes which are exposed to water, EnkaMat A20 provides a permanent solution to issues caused by hydraulic stress in areas where natural erosion would otherwise have prevailed. The product allows the area to become fully vegetated with the appearance of a grass channel. EnkaMat A20 offers immediate erosion protection from high water velocities and small wave attack.

## Technical details

EnkaMat A20 is a strong, three-dimensional mat made from high quality polyamide (PA) with an open structure consisting of looped filaments welded where they cross. It is filled with a bitumen bound mineral filter of stone chippings of 2-6 mm.

EnkaMat A20 is 22 mm thick, with a weight of 20 kg/m<sup>2</sup>. Water permeability is 30 mm/s at 100 mm head.



### Functions

- Erosion protection of water banks

### Application areas

- Riverbanks
- Lakes
- Canals
- Reservoirs
- Channels
- Dykes
- Overflow protection zones
- Culverts

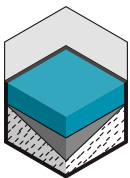
- Other surfaces permanently subjected to water impact

### Features and benefits

- A permanent solution
- Reinforces vegetation root systems
- Resists high water velocities
- Ensures no hydrostatic pressure build-up behind the protected slopes
- Faster to install than traditional protection systems
- An integrated and robust erosion solution

- Enables root systems to grow and green shoots to sprout through the mat
- Flexible, easily following the profile of the ground surface
- Ensures a natural aesthetic appearance
- No maintenance necessary
- Firmly locked to the ground by the root system

### Product functions



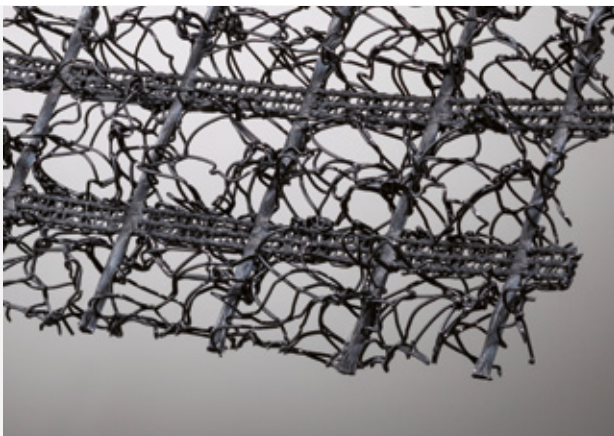
Erosion control



# EnkaMat<sup>®</sup> R

Grid reinforced 3-dimensional erosion control mat

**EnkaMat R is a unitized high-performance geosynthetic that incorporates a high tenacity polyester geogrid within the entangled filaments of the three-dimensional polyamide erosion control mat.**



EnkaMat R can be custom made to provide various levels of reinforcement to meet any design requirement but as standard is manufactured as R45 utilizing a 45 kN/m high tenacity polyester geogrid. EnkaMat R is appropriate in many areas that are subject to erosion, such as stormwater channels, watercourses, embankments, steep slopes and spillways.

## Technical details

EnkaMat is a strong, three-dimensional mat with an open

structure, made from high quality polyamide (PA) monofilaments which are thermally fused where they cross. Our breakthrough manufacturing process integrates the high-tenacity polyester geogrid within the thermally fused and entangled filaments to create a homogeneous three-dimensional structure – no loose fibers, threads or netting. EnkaMat R creates an artificial root structure by its high filament density, up to 2,980 m filaments per m<sup>2</sup>. When fully vegetated EnkaMat R has been tested to the extreme resulting in proven

performance, resisting shear stresses of 0.96 kN/m<sup>2</sup> and flow velocities exceeding 6.1 m/s.



### Functions

- Erosion control
- Grip layer
- Superior and extreme turf reinforcement

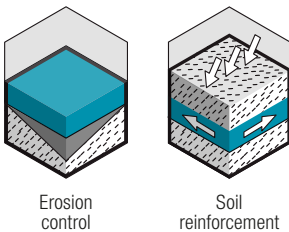
### Application areas

- Canal and shoreline protection
- Repair of slope failures
- Levee armoring
- Steep slope and channel stabilisation

### Features and benefits

- A permanent and green solution
- Remains anchored by reinforced root system
- Provides maximum reinforcement at low elongations
- Withstands wheel loading and resists burrowing animals
- Unparalleled resistance to hydraulic shear stresses
- Withstands high flow velocities
- Ideal for designs using percussive driven earth anchors
- Over 90% open volume
- Robust reinforcement of vegetative root system
- Open structure enhances vegetation emergence
- Blends discretely into the local environment
- Flexible to adapt to any soil profile
- Remains locked to the ground by root systems
- Specific gravity >1 means it will not float
- High UV resistance
- Maintenance free

### Product functions





Enka Solutions originated in the late 60s when we invented the unique 3D-structured polymeric mat which is typical of so many Enka products even today. Ever since its invention we've been pushing forward its possibilities in terms of varieties of product and applications, constantly expanding the Enka Solutions portfolio through proprietary technologies.

The scope of markets supported by Enka Solutions is wide-ranging – from Civil Engineering and Waste Management to Building and Sports – including solutions in such specializations as water and gas drainage, prevention of erosion, soil stabilization, soil consolidation, vibration control, shock absorption and ventilation. We serve industrial markets in areas such as Filtration and Composites. The Enka Solutions portfolio includes market-leading and certified products such as

EnkaMat®, EnkaDrain®, EnkaGrid®, EnkaVent®, EnkaSonic®, Enka®Flex, Enka®Spacer, Enka®Fusion, and Colbondrain®, each with proven track records around the world.

For global supply, we maintain production facilities and/or sales offices in Europe, North America and China. (Customer-specific) product developments and tests are conducted by our in-house R&D centers in Europe and North America and by independent external institutions. Our quality management system has been approved by Lloyd's Register Quality Assurance to the ISO 9001:2015 standard.

Provision of the best solutions demands a thorough understanding of the need, and much of our success is down to our close collaboration with our valued customers.

### Would you like to discover what Enka Solutions can do for you?

Simply contact the local team with your requirements and together we will find the best solution to your challenge.

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