TENAX 3D-GRIDS
AN ADVANCED APPROACH TO ROAD STABILIZATION

3D-Grids provide advanced gripping of soil by:

- LATERAL CONFINEMENT
- SOIL SPECIFIC APERTURE SIZE
- DIRECTIONAL BEHAVIOR

LEADING TO BETTER
SOIL INTERLOCKING AND GENERATING

IMPROVED PERFORMANCE

RISE FROM FLATNESS

REAL 3D, REAL BENEFITS

REDUCTION OF AGGREGATE THICKNESS UP TO 45%
REDUCTION IN THE TRANSMITTED STRESS UP TO 30%
TENAX 3D GRIDS are a significant advancement over traditional flat or planar base reinforcement: geogrids by adding height, creating a real third dimension. Higher profile ribs and junctions, when developed with TENAX technology, allows high levels of lateral confinement. When combined with the soil specific aperture sizes improves interlocking between geogrids and soil, resulting in unique products specifically designed to improve stress distribution, thereby reducing rutting and aggregate base layer thickness for roads and railways.

TENAX 3D GRIDS behavior was tested in collaboration with the Transport Science Department of the University of Tennessee.

**US PATENT N. US8,206,060 B2**

**EUROPEAN PATENT N.2236668**

**CHINA PATENT N. ZL201010157334,1**

**ITALIAN PATENT N. 1393817**

**RUSSIAN PATENT N. 2520597**
Wheel loads on a road are distributed along a channelized geometry (longitudinal direction) and can be analyzed considering plain strain conditions. The state of stress is directed mostly in vertical and transversal lateral direction, so traditional flat geogrids, characterized by a bi-directional behavior, are not optimized for road and railways applications. TENAX 3D GRIDS have been tested in cooperation with the Transport Science Department of the University of Tennessee: an extensive campaign was carried out using the APA (Asphalt Pavement Analyzer), a specific apparatus to assess the performance of road pavements. The test confirmed that TENAX 3D GRIDS have a better performance compared to the traditional flat or planar geogrids.

TENAX 3D-GRID S

Ideal for reinforcing medium-small sized granular soils, having an aperture of 30x30 mm.

These geogrids are characterized by significant dimensions in all three main directions. The particularly thick, concave longitudinal rib section, combined with the 60x55 mm aperture size of the geogrid, allows optimum interaction with coarse granular materials.

TENAX 3D-GRID XL

DESIGNED FOR EVERY TYPE OF SOIL

Wheel load

LOWER LATERAL STRESS/ MINOR PRINCIPAL AXIS
LOWER confining stress

WHEEL PATH/RUT

ROAD

WHEEL LOAD

HIGHER LATERAL STRESS/ MAJOR PRINCIPAL AXIS
HIGHER CONFINING STRESS

Subgrade CBR [%]

Subgrade consistency
- Soft
- Medium
- Stiff

Subgrade thickness [cm]

TENAX 3D-GRIDS

3.8 cm rut, 80 kPa, 1200 passes, subbase CBR 20%

UNREINFORCED

3D GRID S

7.5 cm rut, 80 kPa, 1200 passes, subbase CBR 20%

UNREINFORCED

3D GRID S