

# TENAX MS

## Type: **220** Multilayer Bi-axial Geogrids

TENAX **MS 220** is composed of two layers of high strength extruded biaxially oriented polypropylene geogrids. The layers are rolled and stitched together without superimposing the grids, creating a geogrid with random sized apertures designed to accommodate a variety of fill materials. The random aperture geometry, many tensile elements, and multiple layers of the geogrid enhance soil/geogrid interaction. TENAX **MS 220** geogrid interlocking capacity distributes applied loads, and prevents localized shear failure.

### Typical applications

Soft soil stabilization, base reinforcement, embankments over soft soils, working platforms, haul roads

| MATERIAL CHARACTERISTICS              | TEST METHOD | DATA                              |                           |             |       |
|---------------------------------------|-------------|-----------------------------------|---------------------------|-------------|-------|
| POLYMER TYPE                          |             | POLYPROPYLENE                     |                           |             |       |
| UV STABILIZER                         | ASTM D 4218 | CARBON BLACK                      |                           |             |       |
| DIMENSIONAL CHARACTERISTICS           | TEST METHOD | UNIT                              |                           |             | NOTES |
| THICKNESS : RIB – MD/TD               | ASTM D 1777 | in (mm) / in (mm)                 | 0.05 (1.27) / 0.05 (1.27) |             | b,d,e |
| APERTURE SIZE – MD/TD                 |             | in (mm) x in (mm)                 | 1.65 (42) / 1.96 (50)     |             | b,d,e |
| OPEN AREA                             | CW 02215    | %                                 | 75                        |             | b     |
| ROLL DIMENSION                        |             | ft x ft (m x m)                   | 13.1 x 328 (4.0 x 100)    |             | b     |
| ROLL AREA                             |             | yd <sup>2</sup> (m <sup>2</sup> ) | 478 (400)                 |             | b     |
| GROSS ROLL WEIGHT                     |             | lb (kg)                           | 211 (96)                  |             | b     |
| TECHNICAL CHARACTERISTICS             | TEST METHOD | UNIT                              |                           |             | NOTES |
| <b>STRENGTHS &amp; LOAD CAPACITY:</b> |             |                                   | <b>MD</b>                 | <b>TD</b>   |       |
| PEAK TENSILE STRENGTH                 | ASTM D 6637 | lb/ft (kN/m)                      | 925 (13.5)                | 1400 (20.5) | a,c,e |
| TENSILE STRENGTH AT 2% STRAIN         | ASTM D 6637 | lb/ft (kN/m)                      | 301 (4.4)                 | 450 (6.6)   | a,c,e |
| TENSILE STRENGTH AT 5% STRAIN         | ASTM D 6637 | lb/ft (kN/m)                      | 616 (9.0)                 | 920 (13.4)  | a,c,e |
| INITIAL MODULUS                       | ASTM D 6637 | lb/ft (kN/m)                      | 17140 (250)               | 27420 (400) | a,c,e |
| TENSILE MODULUS AT 2% STRAIN          | ASTM D 6637 | lb/ft (kN/m)                      | 15050 (220)               | 22500 (328) | a,c,e |
| TENSILE MODULUS AT 5% STRAIN          | ASTM D 6637 | lb/ft (kN/m)                      | 12320 (180)               | 18400 (269) | a,c,e |
| <b>STRUCTURAL INTEGRITY:</b>          |             |                                   |                           |             |       |
| JUNCTION: STRENGTH, PER JUNCTION      | GRI-GG2     | lbs                               | 75                        |             | a,e   |
| JUNCTION: STRENGTH                    | GRI-GG2     | lb/ft (kN/m)                      | 860 (12.5)                | 1315 (19.2) | a,e   |
| JUNCTION: EFFICIENCY                  | GRI-GG2     | %                                 | 93                        |             | a,e   |
| FLEXURAL RIGIDITY                     | ASTM D 1388 | mg-cm                             | 250000                    | 250000      | b     |
| <b>DURABILITY:</b>                    |             |                                   |                           |             |       |
| RESISTANCE TO INSTALLATION DAMAGE     | ASTM D 5818 | %SC/%SW/%GP                       | >90/>90/90                |             |       |
| RESISTANCE TO UV DEGRADATION          | ASTM D 4355 | %                                 | 100                       |             |       |

### NOTES:

- a) Minimum average roll values determined in accordance with ASTM D 4759 b) Typical values c) Test performed using extensometers  
d) Single layer value e) MD: machine direction (longitudinal to the roll), TD: transverse direction (across roll width)



The TENAX Laboratory has been operational since 1980 and has been continuously improved with the purpose of assuring unequalled technical development of the products and accurate Quality Control. The TENAX Laboratory can perform mechanical, hydraulic and durability tests, according to the most important international standards like ISO, CEN, ASTM, DIN, BSI, UNI.

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