

GEOPOR® GEOCELL - PERFORMANCE & MATERIAL SPECIFICATION

Raw Material Specification & Physical Properties

Property	Requirement / Value	Test Method
Raw material	High-Density Polyethylene (HDPE)	—
Density	0.935 – 0.965 g/cm ³	ASTM D1505 / ASTM D792
Carbon black content	Minimum 2.0 %	ASTM D1603 / ASTM D4218
Colour	Black (carbon black stabilized), desert sand, earth tones and other heavy-metal-free colours	—
UV stabilizer	HALS (Hindered Amine Light Stabilizer)	—
Environmental stress crack resistance (ESCR)	3500 hours (minimum)	ASTM D1693
Sheet / wall thickness	1.50 – 2.00 mm (±10%)	ASTM D5199
Texture	Surface texturing consists of a multiple of rhomboidal indentations over the entire strip area on both sides of the strip.	—
Material perforation	The polyethylene strip is perforated with horizontal rows of maximum 10 mm diameter holes. Cell perforation area does not exceed 12% of cell surface area.	—
Cell depth (±5%)	50 – 70 – 75 – 100 – 125 – 150 – 200 mm	—
Welding distance (±3%)	330 – 356 – 445 – 500 – 550 – 600 – 660 – 712 mm	—
Certification	CE certified	—
Product traceability	Available upon request	—
Packaging	Intact waterproof PE film wrap	—

Cell Configuration

Nominal dimensions, ultrasonically welded

Welding Distance (±3%)	Expanded Cell Size (±3%)	Bale Area (m ²)	Cell Depth (±5%)
330 mm	245 × 210 mm	12.98	50 – 70 – 75 – 100 – 125 – 150 – 200 mm
356 mm	260 × 224 mm	14.31	50 – 70 – 75 – 100 – 125 – 150 – 200 mm
445 mm	340 × 290 mm	17.90	50 – 70 – 75 – 100 – 125 – 150 – 200 mm
500 mm	365 × 340 mm	23.34	50 – 70 – 75 – 100 – 125 – 150 – 200 mm
550 mm	390 × 360 mm	24.00	50 – 70 – 75 – 100 – 125 – 150 – 200 mm
600 mm	420 × 390 mm	25.74	50 – 70 – 75 – 100 – 125 – 150 – 200 mm
660 mm	490 × 420 mm	29.30	50 – 70 – 75 – 100 – 125 – 150 – 200 mm
712 mm	520 × 448 mm	32.00	50 – 70 – 75 – 100 – 125 – 150 – 200 mm

Weld spacing and cell geometry are the primary parameters controlling confinement efficiency and load distribution performance of the geocell system. Optimized cell geometry ensures effective load distribution and confinement.

Seam Properties – Strip / Cell Seam Strength (Internal Test)

Cell Depth	50 mm	70 mm	75 mm	100 mm	125 mm	150 mm	200 mm
Short-Term Seam Peel Strength (minimum)	710 N	994 N	1060 N	1420 N	1775 N	2130 N	2840 N

Values represent internal strip-based seam testing and are not directly comparable with EN ISO 13426-1 results. Seam strength directly influences confinement efficiency and load distribution performance. Seam strength increases with cell depth due to the larger weld engagement area.

Tensile Properties

Test Property	Unit	Test Method	Value
Tensile Strength	MPa	TS EN ISO 527-1/2-5A	16.61
Tensile Elongation	%	TS EN ISO 527-1/2-5A	438.61
Tensile Stress at 2% Strain	MPa	TS EN ISO 527-1/2-5A	8.37
Tensile Stress at 4% Strain	MPa	TS EN ISO 527-1/2-5A	11.13
Tensile Stress at 8% Strain	MPa	TS EN ISO 527-1/2-5A	12.90
Tensile Stress at 12% Strain	MPa	TS EN ISO 527-1/2-5A	13.24

Mechanical Properties

Property	Test Method	Value	Tolerance
Tensile Strength (MD)	EN ISO 10319	22.8 kN/m	–0.2 kN/m
Elongation at Maximum Load	EN ISO 10319	15.3%	±6%
Seam Strength	EN ISO 13426-1, Method B	16.8 kN/m	–1.8 kN/m

Values are based on laboratory testing, production control and typical manufacturing results. Seam strength is the primary parameter governing the structural integrity of the geocell system.

Technical values are based on laboratory testing performed in accordance with international standards and verified through field applications.

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