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20 YEARS
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TECHNICAL DATA SHEET
INNOVATIVE THREE-DIMENSIONAL POLYMER CELL **GEOCORD®**
TECHNICAL SPECIFICATION

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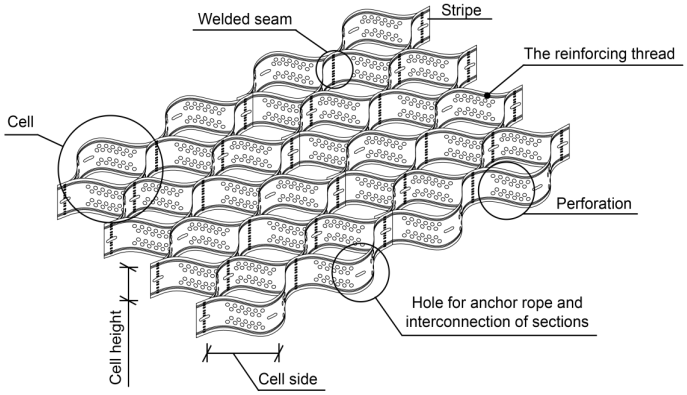
GEOCORD®
SPECIFICATIONS Nº PR-INT-GCD-1

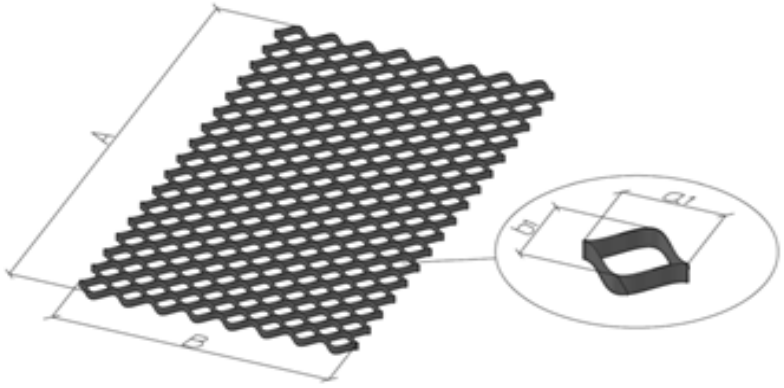
GEOCORD® is a reinforced three-dimensional polymer cell, produced in accordance with the technical specification STO 17996082-001-2013.

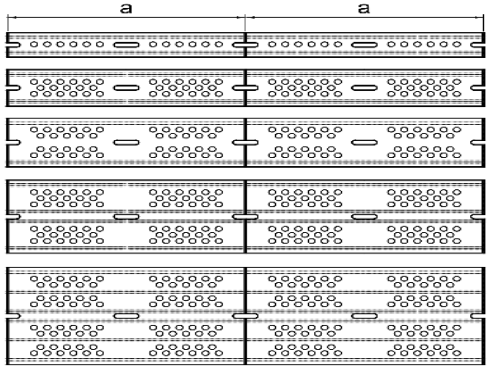
GEOCORD® is made of polymer stripes arranged in several rows and interconnected with each other in a staggered order along stripes with the possibility – when stretched in a direction normal to their surface – of a cellular structure formation. GEOCORD® differs from the analogues in the fact that its stripes are strengthened with extra high reinforcing fibers longitudinally.



CELL & SECTION SIZE REQUIREMENTS (STANDARD SIZE)							
Properties	**Value**						
Cell height (h) (mm), ±10% (1)	50/75/100/150/200						
Welding distance (a) (mm), ±5% (1)	330	344	356	445	660	688	712
Diagonal cell size (a1) (mm) ±5%	244	254	263	325	488	508	526
Diagonal cell size (b1) (mm) ±5%	205	214	221	275	410	428	442
Cells by section width (B), units (2)	10	10	10	8	5	5	5
Cells by section length (A), units (3)	30						
Cell density (units/sq. m)	40	39	35	22	10	10	8
Section stretched (B*A) (m), ±10%	2,44*6,15	2,54*6,42	2,63*6,63	2,60*8,25	2,44*12,30	2,54*12,84	2,63*13,26
Section area stretched (m2), ±10%	15,00	16,30	17,44	21,45	30,00	32,60	34,87

(1) Upon request and by agreement with the manufacturer, it is also possible to produce height 50 - 300mm and welding distance 300 - 1000mm.
(2) Number of cells in a section by width can't be changed.
(3) Upon request and by agreement with the manufacturer, it is possible to change number of cells in a section by length from 3 to 60 units.





MATERIAL CHARACTERISTICS

Properties	Value	Test standard
Material composition	Polyethylene with density 0,935 – 0,965 g/cm^3	ASTM D 1505
Texturing	Texturing is performed over the entire area with rhomboidal indentations, surface density 15-32/cm2, depth 0,01-0,7mm	Visual
Perforation	Not more than 19% of the total area	Visual
Color	Black, sandy, green, yellow or other by using carbon or coloring	
Light stabilizer	Carbon black content up to 2% by weight or Hindered amine light stabilizer (HALS) up to 2% by weight of carrier with coloring	GOST 7885 ASTM D 1603

TYPES OF GEOCORD® AND THEIR USE

Type	Application	Construction sites
A	Construction of roads and (transport) infrastructure.	Footpaths, slopes, channels, etc.
C		Roads, railroads, forest roads, parking areas, slopes, retaining walls, riverbeds, water reservoirs, pipeline pits, air passages, etc.
E	Use in constructions with high level of responsibility and with special requirements for strength and durability properties.	Highways, retaining walls of great height, nuclear/ oil and gas/ airspace facilities, etc.

QUALITY REQUIREMENTS

Properties	Value			Test standard
	Type A	Type C	Type E	
Cell Dimensional Stability by Coefficient of Thermal Expansion (CTE), ppm/1°C, ± 10%	135	120		ASTM E 831
Seam Weld Strength (Tensile Strength of Internal Structural Junctions), kN/m, not less, perforated / non-perforated	12 / 18	17 / 23	20 / 26	ISO 13426-1 Method A
	7 / 7	9 / 9	11 / 11	ISO 13426-1 Method B
	10 / 10	19 / 21	21 / 23	ISO 13426-1 Method C
Material Strength at Yield, MPa, ± 7%, non-perforated	18	27	30	ISO 527-3
Strength at Yield (Wide-width), kN/m, ± 7%, perforated / non-perforated	12 / 18	18 / 27	21 / 30	ISO 10319
Measured Plastic Deformation by Accelerated Method, % deformation, ≤ 6% (at load of 6,6 kN/m) - step 1 at 44°C - step 2 at 51°C - step 3 at 58°C - step 4 at 65°C	0,5 0,6 0,9 1,0			ASTM D 6992
Flexural Storage Modulus at sample elevated temperature, MPa - +30°C - +45°C - +60°C	> 725 > 625 > 475	> 775 > 675 > 525	> 800 > 700 > 650	ASTM E 2254
Brittle Temperature, °C	≤ - 70			
Resistance to repeated freezing and defrosting (cold-resistance), not less	98%			GOST R 55032
Resistance to ultraviolet radiation, not less	90%			GOST R 55031
Biostability (funginertness)	98%			ODM 218.2.047

Resistance to chemically aggressive soil ground - to alkali, not less - to acids, not less	 90% 98%	GOST R 55035
Damage Index under cyclic load, %, not less	98%	GOST R 56336
Stress cracking resistance, hours, not less	300	GOST 13518
Flexibility at low temperature (- 60 °C)	Fault free	GOST R 55033 ODM 218.5.006 ODM 218.3.032

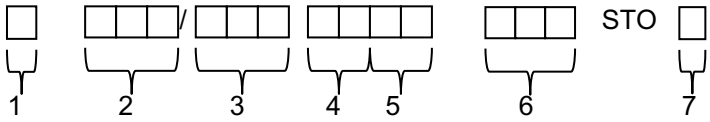
LOGISTICS INFORMATION (STANDARD SIZE) (4)

Product	Cell height, mm	N of cells by section length, units	1 pallet, sections	1 pallet, kg	1 pallet, m2	40-ft., pallets	40-ft., kg	40-ft., m2
GEOCORD 50/330 1030	50	30	60	609,50	900,36	34	20 723,00	30 612,24
GEOCORD 75/330 1030	75		39	403,18	585,23	40	16 127,20	23 409,36
GEOCORD 100/330 1030	100		30	609,50	450,18	34	20 723,00	15 306,12
GEOCORD 150/330 1030	150		19,5	403,18	292,62	40	16 127,20	11 704,68
GEOCORD 200/330 1030	200		15	609,50	225,09	34	20 723,00	7 653,06
GEOCORD 50/344 1030	50	30	60	642,80	978,60	32	20 569,60	31 315,20
GEOCORD 75/344 1030	75		39	627,23	636,09	33	20 698,59	20 990,97
GEOCORD 100/344 1030	100		30	642,80	489,30	32	20 569,60	15 657,60
GEOCORD 150/344 1030	150		19,5	627,23	318,05	33	20 698,59	10 495,49
GEOCORD 200/344 1030	200		15	642,80	244,65	32	20 569,60	7 828,80
GEOCORD 50/356 1030	50	30	60	659,90	1 046,40	31	20 456,90	32 438,40
GEOCORD 75/356 1030	75		39	644,20	680,16	32	20 614,40	21 765,12
GEOCORD 100/356 1030	100		30	659,90	523,20	31	20 456,90	16 219,20
GEOCORD 150/356 1030	150		19,5	644,20	340,08	32	20 614,40	10 882,56
GEOCORD 200/356 1030	200		15	659,90	261,60	31	20 456,90	8 109,60
GEOCORD 50/445 0830	50	30	60	657,20	1 287,00	32	21 030,40	41 184,00
GEOCORD 75/445 0830	75		39	641,27	836,55	32	20 520,64	26 769,60
GEOCORD 100/445 0830	100		30	657,20	643,50	32	21 030,40	20 592,00
GEOCORD 150/445 0830	150		19,5	641,27	418,28	32	20 520,64	13 384,80
GEOCORD 200/445 0830	200		15	657,20	321,75	32	21 030,40	10 296,00
GEOCORD 50/660 0530	50	30	60	609,50	1 800,72	34	20 723,00	61 224,48
GEOCORD 75/660 0530	75		39	594,47	1 170,47	35	20 806,45	40 966,38
GEOCORD 100/660 0530	100		30	609,50	900,36	34	20 723,00	30 612,24
GEOCORD 150/660 0530	150		19,5	594,47	585,23	35	20 806,45	20 483,19
GEOCORD 200/660 0530	200		15	609,50	450,18	34	20 723,00	15 306,12
GEOCORD 50/688 0530	50	30	60	642,80	1 956,60	32	20 569,60	62 611,20
GEOCORD 75/688 0530	75		39	627,23	1 271,79	33	20 698,59	41 969,07
GEOCORD 100/688 0530	100		30	642,80	978,30	32	20 569,60	31 305,60
GEOCORD 150/688 0530	150		19,5	627,23	635,90	33	20 698,59	20 984,54
GEOCORD 200/688 0530	200		15	642,80	489,15	32	20 569,60	15 652,80
GEOCORD 50/712 0530	50	30	60	659,90	2 092,20	31	20 456,90	64 858,20
GEOCORD 75/712 0530	75		39	644,20	1 359,93	32	20 614,40	43 517,76
GEOCORD 100/712 0530	100		30	659,90	1 046,10	31	20 456,90	32 429,10
GEOCORD 150/712 0530	150		19,5	644,20	679,97	32	20 614,40	21 758,88
GEOCORD 200/712 0530	200		15	659,90	523,05	31	20 456,90	16 214,55

(4) Information provided in the table is subject to tolerance and the actual figures depend on the GEOCORD® type, section sizes, etc., for reference only, other loading capacity upon request.

PRODUCT RECORDING

Clarification: GEOCORD



1 – type: A, C, E;
2 – cell height, mm;
3 – welding distance, mm;
4 – number of cells in a section by width;
5 – number of cells in a section by length;
6 – modification (5);
7 – number of the standard.

(5) Modification:
- perforation: with (P), without (X; X1 – one stripe (face side) is non-perforated, others – perforated);
- color: black (K), sandy (S; S1 – one stripe (face side) is sandy, others – black), green (Gr; Gr1 – one stripe (face side) is green, others – black), yellow (Y; Y1 – one stripe (face side) is yellow, others – black); * it is possible to manufacture GEOCORD of other colors upon request, types A and Type C are only made with black color or by agreement with the manufacturer.*
- R – with holes for cords, L – with holes for FAST-LOCK.

Recording: GEOCORD Type E 200/344 1030 PSR STO 17996082-001-2013, where
- type is E;
- cell height is 200 mm;
- welding distance is 344 mm;
- section size is 10 cells by width and 30 cells by length;
- P means perforated;
- Y means yellow color;
- L means with holes for FAST-LOCK;
- manufactured in accordance with technical specification STO 17996082-001-2013.

CERTIFICATIONS AND ACCREDITATIONS

- ISO 9001:2015
- CE mark
- Certificate of conformity of the factory production control ROSS RU.AB69.H00319
- Certificate of assessment of the longevity of the geosynthetic material GEOCORD №2103167
- Expert opinion of the Federal Healthcare Budget Center for Hygiene and Epidemiology №77.16.16.P.000535.02.17

ADDITIONAL INFORMATION ON REQUEST

- album of typical designs
- design calculation
- installation manuals
- product presentation
- product price according to the customer's project
- calculation of delivery

SCAN THIS CODE TO VISIT OUR **GEOCORD** PAGE:

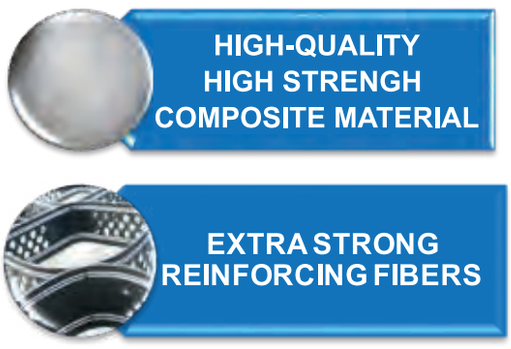
Reinforced Geocell GEOCORD®

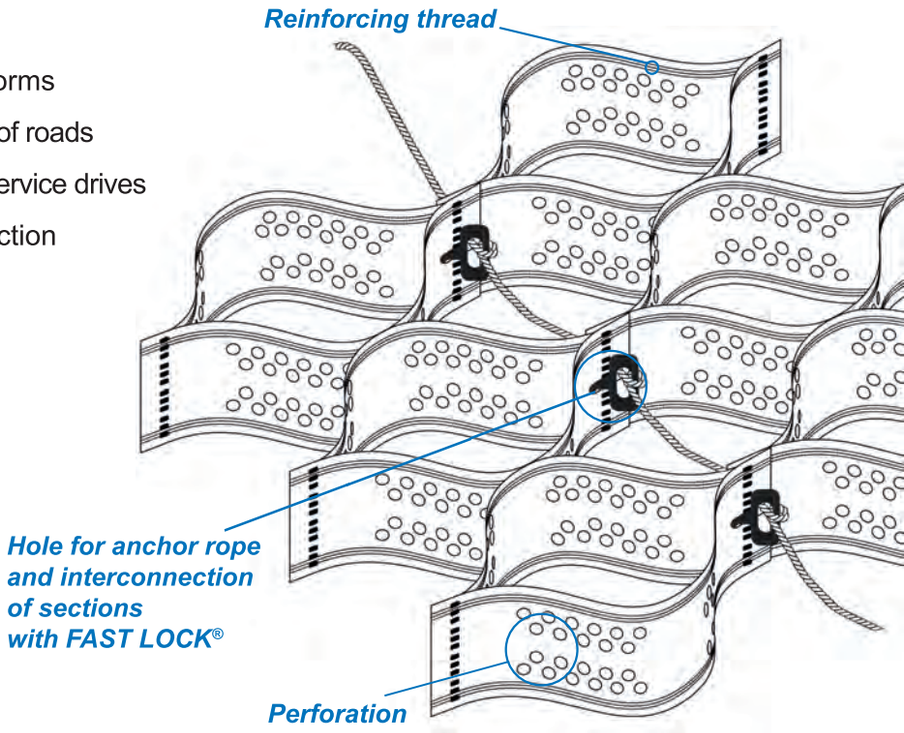
A NEW SOLUTION FOR ROAD CONSTRUCTION

produced in accordance with the technical specification STO 17996082-001-2013

APPLICATION:

- reinforcement of roadbeds, embankments, platforms
- reinforcement of weak bases and structural layers of roads
- arrangement of durable technological driveways, service drives
- arrangement of parking lots for massive construction equipment
- protection of embankments, dams



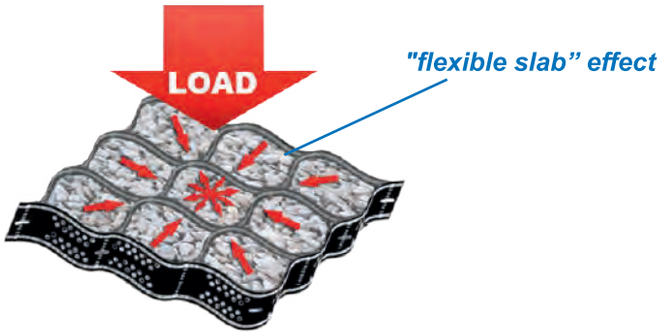


FUNCTIONAL PRINCIPLE IN A CONSTRUCTION:

without GEOCORD®

with GEOCORD®

VERTICAL LOADS REDISTRIBUTION - load redistributes onto the neighboring cells, reducing stress on the underlying basement and creating the “flexible slab” effect



RESULTS:

- reduction of pavement layers thickness
- reduction of road surface top layer deformation
- ability to replace expensive imported road-building materials
- with available cheaper local ones without quality loss
- increase of turnaround time
- lower construction costs

GEOCORD® vs. standard geocell:

ECONOMIC BENEFITS:

- up to 15% savings by reducing tape thickness with no damage to physical and mechanical properties
- up to 20% savings by replacing crushed stone on sand infill

TECHNICAL BENEFITS:

- tested in 34 indicators
- up to 50% increase of strength properties
- up to 75 years increased product life cycle
- increased resistance to long-term dynamic and static loads
- resistance to deformation under multiple temperature changes
- resistance to chemical substances and environment

FUNCTIONAL BENEFITS:

- reduction of vertical stress on subgrade layer by 67%
- reduction of road surface thickness by 22%
- increase of load-bearing capacity by 10%
- increase of resistance to loads by 35%
- reduction of plastic deformation by 35%
- increase of service life of constructions by 55%

OTHER APPLICATIONS:

- seismically resistant retaining walls
- erosion control of complex slopes
- protection embankments, dams
- surface water disposal structures

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