Technical Data

# EASYGrid

## Put to the test

### Click-together ground reinforcement for parking, walkways, shed bases and more.

- Easy interlocking base to prevent erosion and provide a strong base.
- Ideal for high-traffic or standing areas.
- Can be filled with gravel, grass, soil or sand.
- Supports up to 397 tonnes per square metre (filled).
- Slip resistant, long lasting and frost/UV resistant.
- Recyclable and maintenance free.
- Available in Black, White and Green.

***EASY*Grid is ideal for:**

- Grass or gravel driveways.
- Parking areas.
- Pathways.
- Camping and caravan sites.
- Horses and livestock.
- Lawn and bank reinforcement.
- Emergency routes and access roads.
- Sheds, greenhouse and cabin bases.

Azpects

azpects.co.uk

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**Azpects has commissioned an independent test on our EASYGrid and are pleased to present the findings.**

### 1.0 Introduction
Azpects Limited commissioned an independent testing facility to undertake compression tests to assess the load bearing capacity of their EasyGrid product. The EasyGrid product comprise an interlocking plastic grid system, dimensions 330mm x 330mm x 40mm, which are laid on a suitable substrate and filled with 10mm pea shingle to form a free draining load bearing surface. Photographs of the EasyGrids are presented at Plates 1 and 2.

### 2.0 Methodology
The EasyGrid units were tested in compression with the bottom face fully supported and the load applied through a sub platen of plan dimensions 250mm x 140mm.
Load was applied at a rate of 1.0 MPa/s until a drop of 50kN after peak load was recorded.
The loading cycle was repeated ten times.
The EasyGrid units were loaded:

a) with the cells unfilled to simulate the condition after placing but before filling with pea shingle

b) with the cells filled with pea shingle to simulate the fully installed condition.

### 3.0 Results
The unfilled EasyGrid supported a maximum peak load of 85.7kN, which over the loading area is a contact stress of 2.4MPa. The unfilled grids deformed under the compressive load, the cylindrical cells bulged and became slightly barrel shape. The maximum deflection recorded at peak load was 5mm. Instantaneous recovery on unloading was 2mm. After ten loading cycles the EasyGrid units were removed from the compression machine. No cracking, fretting or other distress was observed, the deformation appearing to be entirely plastic in nature. The permanent deformation was measured 24 hours later and found to be 0.5mm, therefore recovery was 90%.

The peak load on the specimens with the cells filled with pea shingle increased during the first five load cycles from 90kN to 117kN, due to the aggregate compacting under load . It was noted that by the fifth load cycle, the aggregate was shattering. The aggregate continued to shatter during the subsequent five loading cycles. A maximum peak load of 139kN was attained after the seventh loading cycle and remained constant for the remaining three loading cycles. The maximum peak load of 139kN, over the loading area is a contact stress of 4.0MPa. The maximum deflection recorded at peak load was 2mm. Instantaneous recovery on unloading was 1mm. After ten loading cycles the EasyGrid units were removed from the compression machine. No cracking, fretting or other distress was observed, the deformation appearing to be entirely plastic in nature. The permanent deformation was measured 24 hours later and found to be 0.3mm.

The results of the compression tests on the EasyGrid with unfilled cells are presented at Table 1 and those for the EasyGrid filled with 10 mm pea shingle at Table 2. Photographs of the EasyGrids after 10 loading cycles are presented at Plates 3 and 4.

### 4.0 Discussion
The peak loads measured on the EasyGrids converted to tonnes, are equivalent to loads under a single tyre of 8.5 tonnes and 14 tonnes for the unfilled and filled EasyGrids respectively, equating to axle loads of 17 tonnes and 28 tonnes respectively. The Easy Grids did not deform to any appreciable extent in either the filled or unfilled condition.

These loads greatly exceed those applied by a domestic vehicle and are more those expected under the wheels of commercial vehicles, which would have a somewhat larger contact area.

The peak loads converted to tonnes per metre square, were 240 tonnes/m$^2$ for the unfilled EasyGrids and 390 tonnes/m$^2$ for the filled EasyGrids. The peak load of the filled unit was limited by the crushing strength of the aggregate infill. Aggregate crushing is unlikely to occur in use and the load bearing capacity is more likely to be limited by that of the substrate.

**Table 1 - Peak loads with Cells Unfilled**

| Loading Cycle | Peak Load kN | Equivalent Load Tonnes | Equivalent Load Tonnes per m$^2$ |
|---|---|---|---|
| 1 | 77.6 | 7.8 | 221.7 |
| 2 | 83.2 | 8.3 | 237.7 |
| 3 | 85.3 | 8.5 | 243.7 |
| 4 | 85.7 | 8.6 | 244.9 |
| 5 | 85.6 | 8.6 | 244.6 |
| 6 | 85.3 | 8.5 | 243.7 |
| 7 | 85.7 | 8.6 | 244.9 |
| 8 | 85.3 | 8.5 | 243.7 |
| 9 | 85.7 | 8.6 | 244.9 |
| 10 | 85.6 | 8.6 | 244.6 |

**Table 2 - Peak loads with Cells Filled with 10mm Pea Shingle**

| Loading Cycle | Peak Load kN | Equivalent Load Tonnes | Equivalent Load Tonnes per m$^2$ |
|---|---|---|---|
| 1 | 87.2 | 8.7 | 249.1 |
| 2 | 90.0 | 9.0 | 257.1 |
| 3 | 105.1 | 10.5 | 300.3 |
| 4 | 108.8 | 10.9 | 310.9 |
| 5 | 117.0 | 11.7 | 334.3 |
| 6 | 123.0 | 12.3 | 351.4 |
| 7 | 139.0 | 13.9 | 397.1 |
| 8 | 138.0 | 13.8 | 394.3 |
| 9 | 139.0 | 13.9 | 397.1 |
| 10 | 133.0 | 13.3 | 380.0 |

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Plate 1:
Single EasyGrid unit.

Plate 2:
Interlocked EasyGrid Units.

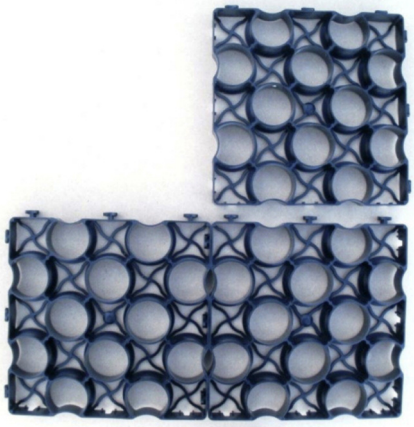

Plate 3:
EasyGrid after 10 loading cycles, loaded unfilled Loading area demarked red.

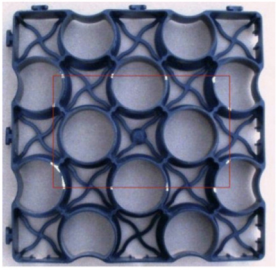

Plate 4:
EasyGrid after 10 loading cycles, loaded filled. Effect of aggregate crushing can be seen inside loading area, demarked red.

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