

# PRODUCT USER GUIDE

## TuffTrack - EuroMat



### Introduction

This user guide is intended to provide basic information for users of Mabey TuffTrak Heavy Duty Road Mats & EuroMat.

Mabey TuffTrak Heavy Duty Road Mats are intended to provide temporary roadways and work areas for heavy plant, machinery and multiple vehicles. It can be used to create single-track or double track roadways measuring 2.5m, 3m, 5m, or 6m in width or alternatively they can be used to form large working areas, pads or provide for onsite parking.

EuroMat is ideal for both short- and long-term projects, reduces damage to heritage and Eco sensitive areas avoiding the need of reinstatement once the project is complete.

EuroMat is a perfect solution for: Pedestrian walkways, Emergency access routes and Utilities and infrastructure maintenance, and temporary roadways and car parks, Sports and leisure events

### IMPORTANT NOTES

All excavation work must be thoroughly planned before work commences on site to identify hazards and assess risk.

These instructions form guidance for the typical installation of Heavy-duty Mats. Non-standard applications should be approved by a suitably qualified engineer.

Ensure all personnel engaged in installation operations are properly briefed and adequately supervised by a competent person,

All hire for this equipment will usually accompanied by a general arrangement or scheme specific drawing. This must be read in conjunction with these instructions.

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## General Guidance

### Surface Debris

Care should be taken to ensure that the surface of the mats is kept clear of any debris that could damage them. No specialist equipment is required to clean surface debris from TuffTrak mats. Where necessary mats can be cleaned using cold water and a pressure washer.

### Speed Limit

TuffTrak mats are designed to give safe movement, ground access and protection for plant and vehicles moving over the mats at a MAXIMUM SPEED OF 5 MPH. This is a strict speed limit which should be observed at all times. Failure to adhere to this limit may result in damage to both the mats and / or the mat connectors.

### Vehicle Useage

EuroMats are intended mainly for light vehicle and pedestrian use, but may be used for vehicles upto 80 Tonnes dependant on the combination of vehicle type and ground conditions.

### Tracked vehicles

To avoid damage to the surface of the TuffTrak mats, it is recommended that steel tracked vehicles with aggressive tracks (such as on excavators) should not be driven over them. Smooth steel tracks (such as on crawler cranes) can be used. Rubber tracked vehicles may be used.

### Pedestrian Use

Where the main function is pedestrian access, the less aggressive profile on the underside of the mats may be used.

### Sling Warning

If a sling is to be used on an excavator, be aware of the following:

- To safely lift a mat, first connect the lifting attachments to the four legs of the lifting chains.

Make sure to use all four lifting points / legs of the chain sling. Never lift a mat without using all four lifting points.

- All lifting accessories attached to the excavator lifting point must hang freely and be free to move always.

### Small Plant, Tools, and Lifting Chains

Lifting Chains of suitable length and capacity complete with current certification. Typically for Steel Plates a set of 4 legs 10mm chains with 4m leg length.

### Personnel

The Management of Health and Safety at Work Regulations require that personnel deployed are suitably trained, experienced, and supervised by a competent person.

### Access, Hard standing Areas and Site Storage

Suitable firm, level, dry areas should be made available on-site for storage and pre-assembly work.

Suitable lifting equipment of adequate capacity should be provided for off-loading and installation.

Slinging should always be carried out by suitably experienced and competent personnel.

The weights of components and assemblies are given in this guide.

Large components should be stacked, nested with suitable timber dunnage, max 10no panels per stack.

### General

TuffTrak is a registered trademark of Checkers Safety Group UK Limited.

EuroMat is a registered trademark of Zigma Ground Solutions Limited.

Since our policy is one of continual improvement, components may vary in detail from the descriptions given in this publication.

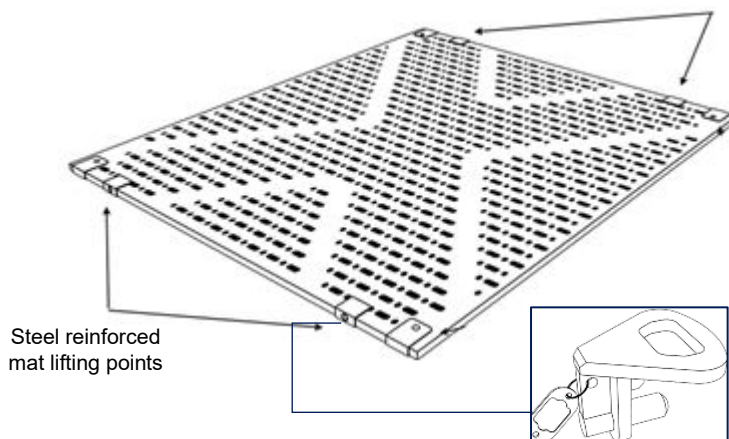
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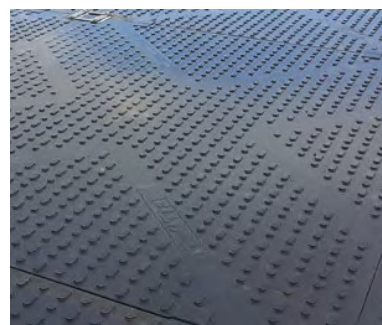
### TUFFTRAK

- ▶ Avoid significant ground repair or rehabilitation costs to eco-sensitive or heritage sites around your project or event by hiring from Mabey's range of safe, durable temporary ground protection systems.
- ▶ Designed for improved access for anything from pedestrian traffic to heavy vehicle movements Mabey has a ground protection system to do the job.



Mat Lifting Attachment- Steel  
Size : 123mm x 110mm x 110mm  
Weight: 1.44 kg

	<b>Mabey TuffTrak</b>
<b>Thickness</b>	40mm
<b>Dimensions</b>	3000mm x 2500mm
<b>Weight</b>	290 kg
<b>Capacity</b>	150 T
<b>Material</b>	Premium recycled or virgin high-density polyethylene (HDPE)
<b>Connectivity</b>	Drop in bolt system – metal connectors for heavy and tracked equipment



**TuffTrak® High Profile Chevron Traction® Surface**  
Traction nub height 6.5mm

### Compression Testing

TuffTrak® has been subjected to a compressive force test at the National Physical Laboratory (NPL), UK using a circular steel platen (surface area 535 sq cm). The platen test equates to a point load test as required by BS EN 124: 1994. Samples were compressed in the NPL 12 MN hydraulic test machine. Tests were carried out under laboratory conditions with the temperature controlled to 20°C +\_ 1°C and relative humidity controlled to 50% +\_ 5%.

Please note that testing is undertaken carried out with mat samples placed on a solid substrate, therefore, data cannot be interpreted for non- solid or very soft ground conditions. During testing the TuffTrak® samples resisted breakage and splitting with progressive recovery of the materials to their original state.

<b>Force (kN)</b>	<b>Deflection(mm)</b>
100	0.57
200	0.95
300	1.52
400	2.27
600	5.05
800	8.05
1000	9.30
1200	10.10
1400	10.68
1600	11.20
1800	11.60
2000	12.07
2200	12.55
2400	12.85
2600	13.43
2800	14.55
3000	16.10
3050	16.65

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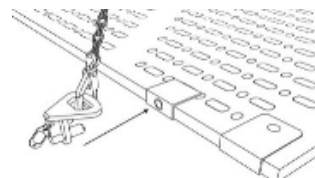


### Installation (Dismantling is Reverse Procedure)

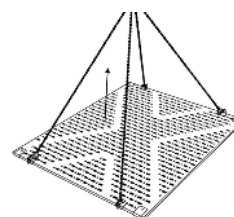
To safely lift a mat, first connect the lifting attachments to the four legs of the lifting chains.



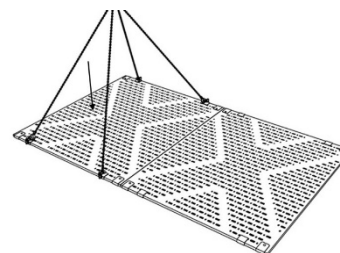
Insert the 4no lifting attachments into the mat lifting sockets as shown.



Make sure to use all four lifting points / legs of the chain sling. Never lift a mat without using all four lifting points.

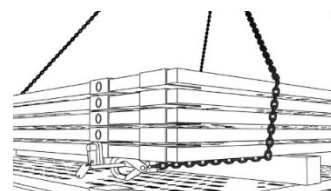


Place the mat onto the ground to provide the coverage required. No ground preparation is usually needed.

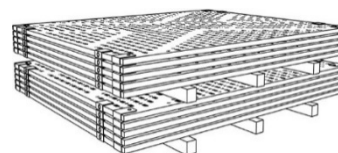


### Handling and Storage

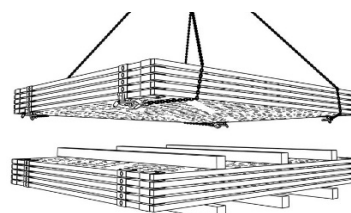
Mats should be stored in packs of five, stacked no more than seven packs high, separated by 100x100mm minimum sized timbers that span the full width of the mat (minimum 3no, timbers per stack, as shown).



To safely lift a pack of mats (maximum five high) first insert four number lifting attachments to the base mat, using the four corner lifting points, connected with the hook BENEATH the lower mat as shown.



Ensure that all four lifting points on the base mat are utilized. Never lift with less than the four points. As an alternative, nylon straps of a suitable capacity may be used to lift packs





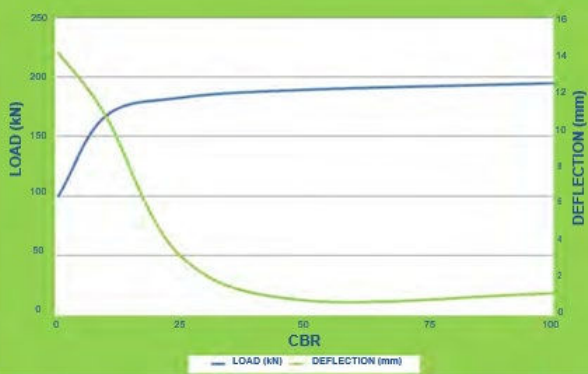
### Typical Soil Bearing Capacities

Type	CBR Range
Well-graded gravels and gravel-sand mixtures	40-30
Poorly graded gravels and gravel-sand mixtures	30-60
Silty gravels, gravel-sand- silt mixtures	20-60
Clayey gravels, gravel- sand-clay mixtures	20-40
Well graded sands and gravelly sands	20-40
Poorly graded sands and gravelly sands	10-40
Silty sands, sand-silt mixtures	10-40

Type	CBR Range
Clayey sands, sand-clay mixtures	5-20
Inorganic silts, very fine rock	15 or less
Inorganic clays of low to medium plasticity	15 or less
Organic silts and organic silty clays of low plasticity	5 or less
Inorganic silts, fine sand or silts, elastic silts	10 or less
Inorganic clays or high plasticity fat clays	15 or less
Organic clays of medium to high plasticity	5 or less

*Information obtained from various sources. Users are advised to obtain professional geotechnical advice on the utilisation of TuffTrak® on specific site ground conditions.*

### TuffTrak® Recycled UHMWPE FEA Results

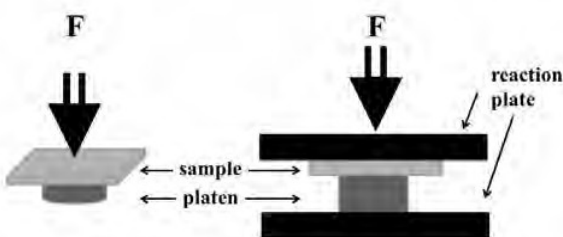


### Finite Elemental Analysis

FEA was undertaken to calculate deflection for different California Bearing Ratio (CBR) values at various loading conditions applied to a 508 x 254mm footprint area at the centre of the mat.

It should be noted that these results are from a computer simulation

Deflection depends on the various input parameters, mat material and material properties, mat thickness and width, operation ground conditions and environmental temperature.



### Compression with Circular Platen



### Material Properties

Chemical Resistance	HPDE	UHMWPE
Acids - concentrated	Good - Fair	Good - Fair
Acids - dilute	Good	Good
Alcohols	Good	Good
Alkalis	Good	Good
Aromatic hydrocarbons	Fair	Fair
Greases and Oils	Good - Fair	Good - Fair
Halogenated Hydrocarbons	Fair - Poor	Fair - Poor
Halogens	Fair - Poor	Fair - Poor
Ketones	Good - Fair	Good - Fair
Electrical Properties		
Dielectric constant @ 1Mhz	2.3 - 2.4	2.3
Dielectric strength (kN mm <sup>-1</sup> )	22	28
Dissipation factor @ 1Mhz	1-10x10 <sup>-4</sup>	1-10x10 <sup>-4</sup>
Surface resistivity (Ω*cm)	10 <sup>13</sup>	10 <sup>13</sup>
Volume resistivity (Ω*cm)	10 <sup>15</sup> – 10 <sup>18</sup>	10 <sup>18</sup>
Physical Properties		
Density (g cm <sup>3</sup> )	0.95	0.94
Charpy Notched Impact Strength (mJ/mm <sup>2</sup> )	no break	no break
Shore hardness D	62 - 68	64
Limiting oxygen index (%)	17	17
Radiation resistance	Fair	Fair
Refraction index	1.54	N/A
Resistance to Ultra-violet	Poor	Poor
Water absorption (%)	<0.01	<0.01
Colour		Black or similar
Odour		Odourless
Thermal Properties		
Flammability	HB	HB
Coefficient of thermal expansion (x10 <sup>6</sup> K <sup>-1</sup> )	100 - 200	130 - 200
Heat - deflection temperature - 0.45Pa (°C)	75	69
Heat - deflection temperature - 1.8Pa (°C)	46	42
Specific heat (J K <sup>-1</sup> kg <sup>-1</sup> )	1900	1900
Crystalline grain melting range	135 to 145	133 to 138
Thermal conductivity @23C (Wm <sup>-1</sup> K <sup>-1</sup> )	0.45 - 0.52	0.42 - 0.51
Upper working temperature (°C)	55 - 120	55 - 95

### Disposal Considerations

Recyclability  
European waste catalogue

TuffTrak<sup>®</sup> can be 100% recycled.  
Reference to the (European Waste Catalogue and Hazardous List)  
TuffTrak<sup>®</sup> is not classified as hazardous.  
Waste code: 07 02 13 Waste plastics  
12 01 05 Plastic shavings and turnings.

Transport

Non-hazardous material for transport regulations

Marking in accordance with  
EEC guidelines

Not required

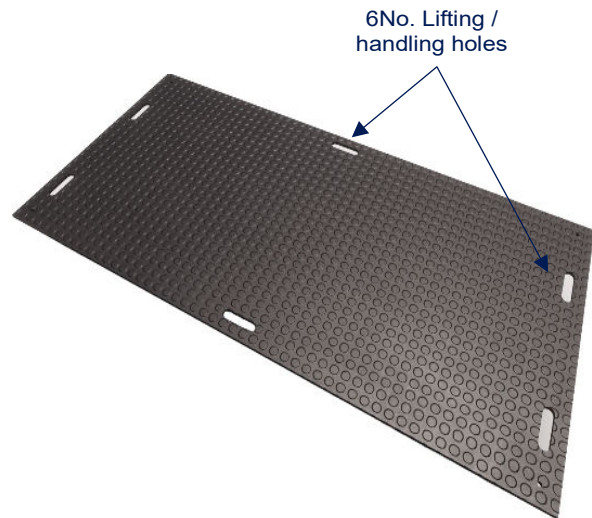
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### EUROMAT

- ▶ Fast and easy to install
- ▶ Unique chevron traction® surface
- ▶ Reversible low-profile surface (optional)
- ▶ Low transportation and handling costs
- ▶ Minimises property, heritage and environmental damage
- ▶ Supports health and safety objectives
- ▶ Connection options for different ground conditions and equipment
- ▶ Non-slip reflective markings and cat's eyes for night safety (optional)



	Mabey Euro Mat
<b>Thickness</b>	12mm
<b>Dimensions</b>	2410 x 1200
<b>Weight</b>	35 kg
<b>Capacity</b>	80 T
<b>Material</b>	Premium recycled or virgin high-density polyethylene (HDPE)
<b>Connectivity</b>	Standard connectors -2 way & 4 way

### Applications

- ▶ Construction, civil engineering, and groundwork
- ▶ Pedestrian walkways
- ▶ Emergency access routes
- ▶ Temporary roadways and car parks
- ▶ Utilities and infrastructure maintenance
- ▶ Landscaping and protection of heritage or eco-sensitive areas
- ▶ Golf course and sports field maintenance
- ▶ Sports and leisure events



### Installation (Removal is the opposite procedure)

#### Manual Handling

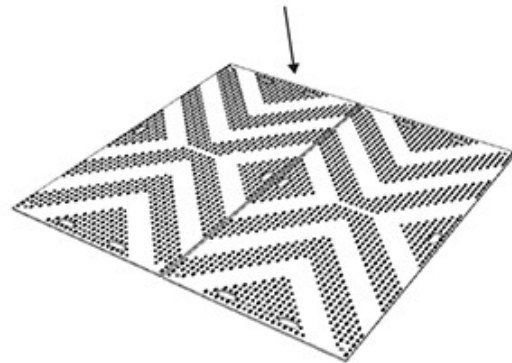
To remove from wagon bed manually, suitable edge protection will be required around the wagon bed. Removal of Mats is subject to the site manual handling assessment, the mat may be lifted by 2 or more people.

#### Handling

To lift a stack of 15 'Mats' from a wagon bed, use an appropriate forklift truck.

Place Mat onto the ground to provide the coverage required.

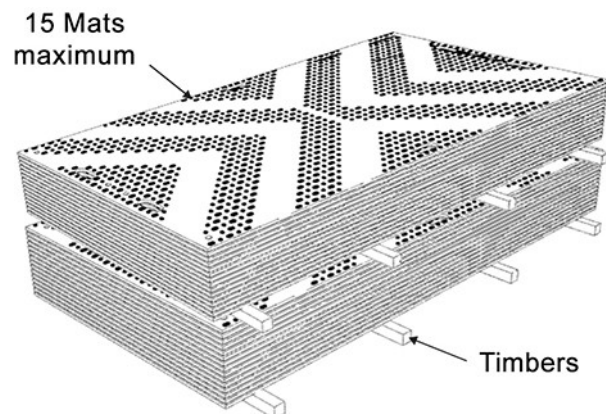
No ground preparation is usually needed.



### Storage and Maintenance

Mats should be stored in bundles of 15 maximum, separated by suitable timbers (4 recommended)

Suggested maximum No. of bundles = 5 high  
Where possible, Mats should be lifted in bundles using a forklift truck. If a forklift truck is unavailable, Mats should be lifted individually. Each Mat may be lifted by 2 (or more) people and is subject to site manual handling assessment.





### Technical Product Information

#### EuroMat<sup>®</sup> Heavy Duty Temporary Access Mat

<b>Mechanical Properties</b>	<b>Unit</b>	<b>HDPE</b>
Tensile strength	MPa	23 - 26
Flexural strength	MPa	25 - 28
Flexural modulus	MPa	1936 - 1967
Charpy Notched Impact Strength	kJ/m <sup>2</sup>	5 - 6
Poisson's ratio	(theoretical)	0.35 - 0.38
Compression testing (max value before test terminated)	Tonnes	250
<b>General Properties</b>		
Density	kg/m <sup>3</sup>	940 - 965
Shrinkage	%	2 - 4
Water absorption	%	0.01
Thermal expansion	e-6/K	110 - 130
Thermal conductivity	W/m.K	0.46 - 0.52
Specific heat	J/kg.K	1800 - 2700
Melting temperature	°C	108 - 134
Glass temperature	°C	-110- -110
Service temperature	°C	-30 - +85
Resistivity	Ohm.mm <sup>2</sup> /m	5e+17 - 1e+21
Breakdown potential	kV/mm	17.7 - 19.7
Dielectric loss factor		0.0005 - 0.0008
Friction coefficient		0.25 - 0.30
Refraction index		1.52 - 1.53

### Health and Safety Information

Critical hazards to man and environment	None
Environment	The disposal of the material presents no danger regarding toxicological or ecological considerations. Due to low water solubility, bio-availability unlikely.
Solubility in water	Insoluble
Regulatory Safety Properties	Not classified as hazardous under transport regulations.
Melting point	Crystalline Melt Temperature 108- 134°C
Ignition temperature	> 360°C
Thermal decomposition	> 390°C
Stability and reactivity	No possibility of degradation under normal circumstances. Degradation will only occur above the decomposition temperature.
Toxicology	Not harmful to health under normal conditions.

While information in this Guide is correct at time of printing, product specifications and product availability are subject to change without further notice. Please visit our website for the most up to date information. Job site photos are strictly intended for general product illustration only and may not comply with all applicable safety standards or site requirements. Specification data has been taken from manufacturers' serialised specific tabulated data.

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