Operations Manual
Health & Safety Briefing

TRENCHLINK road plates have been tested by TRL and approved by the Department for Transport and will overcome many of the costly delays and hazards encountered by utility contractors during expensive pipe and cable laying contracts in urban areas.

The system has been designed to cover gateway entrances, road crossings and linear runs and will support standard vehicle weights.

BENEFITS

- Reduced traffic disruption
- No temporary tar
- Direct savings in materials and labour
- Increased productivity
- Minimal use of traffic management systems
- Plates will follow curves and irregular shapes

Contents

1. 500MAX Plate

1.1 Upper Section

The upper section of the 500MAX Trenchlink road plate, showing the main features:

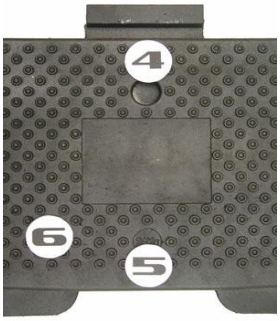
- Designed for use on a maximum trench width of 500mm
- Material: ductile iron
- Max. gross vehicle weight: 40tonnes

1.2 Upper Section Details

(1) Hand grip position

(2) Anchor hole point

(3) Max. trench width indicator



(4) Tongue element of coupling

(5) Grab element of coupling

(6) Anti-skid plate surface
Pendulum Test Value- Low
(low potential for slip)

1. 500MAX Plate (cont.)

1.3 Lower Section

The lower section of the 500MAX Trenchlink road plate, showing the main features

(1) Adjusters to prevent lateral movement

(2) Rear wings to cover gap between the plates

1.4 Lower Section Detail

(1) The linchpin adjuster, showing the numbered slots which match the trench width

(2) The underside of the tongue element

(3) The underside of the grab element

(4) The max. weight indicator: 26Kg

1. 500MAX Plate (cont.)

1.5 Adjusters Closed

- In this position the adjusters are closed to suit a minimum trench width of 300mm

1.6 Adjuster Setting

- In order to set the adjusters, release the spring tension on the linchpin and extract it from the pin hole

- Set both adjusters to the same width, to suit the trench, as per the numbered slots

- When both adjusters are set, replace the linchpin and secure the tensioning spring

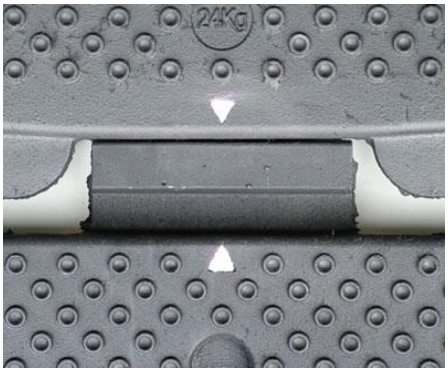
1. 500MAX Plate (cont.)

1.7 Adjusters Open

- In this position both adjusters are open to suit a maximum trench width of 500mm
- The trench width *must not exceed* 500mm

1.8 Coupling Detail

- The 500MAX plates can be joined in one direction only
- The angle of approach is demonstrated in the photograph at the top right
- Guide marks are cast into the upper surface, at the centre point of each plate, in order to assist in the coupling operation



1. 500MAX Plate (cont.)

1.9 Damages

- Although manufactured from high-grade ductile iron, the Trenchlink plates may be damaged through mis-use
- It is the operatives responsibility to ensure that all plates are inspected before and after use
- If any form of damage is observed, especially on the tongue/grab section, the leading/back edges of the plate, or the adjuster mechanisms- the plate must not be used and should be returned for recycling

2. Stillage

2.1 Design & Specification

The 500MAX plates should only be transported in this purpose-built stillage, which has been specifically designed for the task

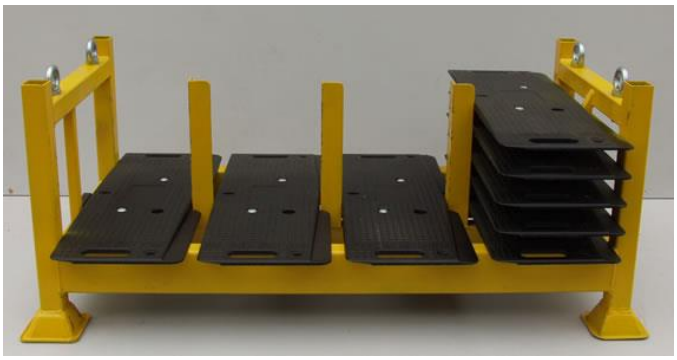
- Max. weight fully loaded: 550Kg
- Certified to max. weight: 2000Kg
- Lifting method: Forklift
- Dimensions (mm): 1300Lx750Wx580H

2. Stillage (cont.)

2.2 Capacity

The 500MAX stillage must not exceed the following limits:

- Max. capacity:
  20 plates (5 metres)
- Max. height of any column:
  5 plates
- Max. stack height on hard standing: 3 stillages



2.3 Storage

- The stillage should *always* be placed on a level surface
- It must be lifted by means of the four lifting points (where supplied) or handled by a forklift
- The design of the stillage will reduce the risk of slippage of plates in the event of mishandling

3. Trench Inspection

3.1 Road Surface

- Trenchlink plates should only be placed on road surfaces where edges have been cut by a diamond blade
- It is the operatives responsibility to ensure that the sides of the trench are stable and that undercutting has not taken place
- The road surface must be swept so that gravel is removed before plates are positioned

3.2 Plate Alignment

- Ensure that sufficient plates are on-site in order to complete full protection of the trench
- Do not start laying the plates from the centre of the road back towards the kerb
- The Trenchlink plates can only be laid in one direction - tongue to grab

4. On-site Unloading

4.1 Safe Handling

- PPE must be worn at all times, with particular regard to safety gloves and safety boots and in accordance with your company procedures and risk assessment

- The potential for finger traps is negligible as all plates overhang the main frame of the stillage, thus allowing the operatives to load and unload in comfort

4.2 Kinetic Lifting

- Lifting a plate is a 2 person process
- Kinetic lifting methods, as per your company's manual handling procedures, should be employed at all times

4. On-site Unloading (cont.)

4.3 Motion

- The operatives should locate the stillage close to the trench in order to avoid carrying the plates over an excessive distance
- A clear pathway, free from obstructions and debris, should be visible between stillage and trench in order to prevent slips, trips and falls

5. Plate Assembly

5.1 1st Plate

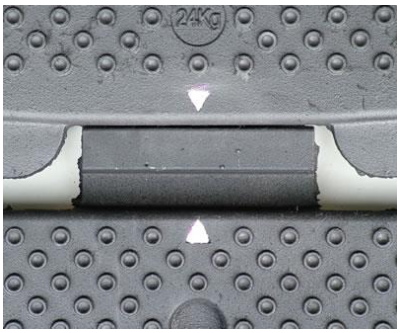
- In a road crossing, the first plate must be placed at the open section of the trench, which is nearest the kerb
- The tongue point of the plate must be as close as possible to the kerb

5. Plate Assembly (cont.)

5.2 2nd Plate

- Installation of each plate is a two person process, one on each side of the trench

- The second plate should be engaged with the first plate as shown



- A central alignment mark is cast into the leading and back edge of each plate in order to assist this operation

5.3 Safety

- As the tongue is engaged with the grab, lowering of the plate onto the road surface can be completed by one person in safety as shown

- In the process of laying each plate over the open trench, the operatives should avoid the risk of finger traps by gripping the rear of each plate with one hand

6. Plate Anchoring

6.1 Anchor Holes

- Two anchor holes, or fixing points, are cast into each 500MAX plate
- On a road crossing the first and last plate in any set must be anchored before the crew departs
- On a linear run, the crew *should avoid cambers* and one plate in every 16 plates must be anchored before the crew departs, in addition to the end plates

6.2 Anchor Bolts

- Before drilling a hole in the roadway - check for any plant and cables with suitable equipment
- The anchor bolt shown is of the type which is recommended for use with the 500MAX road plate
- It is necessary to drill a suitably-sized hole to match the diameter of the anchor bolt

7. Plate Removal

7.1 Removal

- Firstly, remove the anchor bolts, which are securing the plates
- Begin by removing the last plate first i.e. the plate that has the back edge or wings exposed
- Lift the plate by the centre, which is over the exposed portion of the trench
- Finally, 2 persons should lift the plate by the hand grip points

8. Transportation

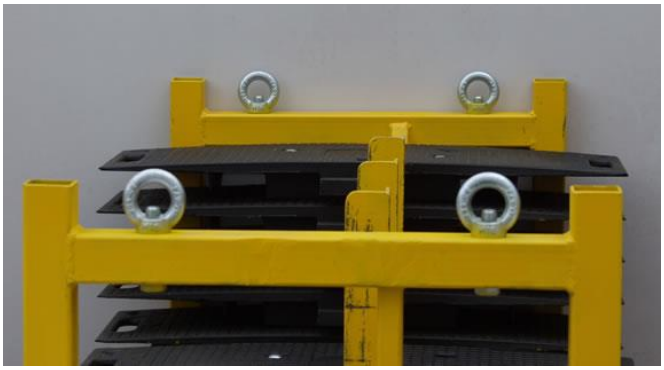
8.1 Packing Stillage

- The design of the stillage is based on a magazine system, in that each plate can simply be lowered into position and will lock into place between the posts
- The maximum number of plates must not exceed 5 plates high x 4 plates wide, a total of 20 plates

8. Transportation (cont.)

8.2 Lifting Stillage

- A lifting point is located beside each upright corner
- The stillage should be lifted by inserting a chain set into these lifting points and securing safely prior to lifting
- The stillage may also be lifted by a fork lift
- Maximum weight (loaded) is 550kgs



9. Technical Specifications

Specification Table - 500MAX

Material		Ductile iron
Weight		26kgs
Gross vehicle weight		40tonnes
Overall plate width		750mm
Overall plate length		250mm
Pendulum Test Value (PTV)		Low
Max. height from road surface		25mm
Leading edge impact profile		10mm
Trench width	- minimum	300mm
	- maximum	500mm
Plates per metre		4no.

Specification Table - Stillage

Stillage capacity	5metres (20units)
Weight (full)	550kgs
Colour code	Yellow
Handling method	forks

10. FAQ

1. *Q - Do I have to bolt down every plate in order to secure them over a trench?*
   A - No. It is only necessary to bolt down the first and last plate for a road crossing. On a linear run, the road must be level and without cambers- the first and last plate, plus one plate every 4 metres is sufficient.

2. *Q - What is the maximum vehicle weight guideline for each 500MAX plate?*
   A - 40tonnes.

3. *Q - What is the weight of each plate and can it be handled by one person?*
   A - 26kgs. H&S regulations state that items over 20kgs should be lifted by 2 persons.

4. *Q - What is the minimum and maximum trench width for the 500MAX plate?*
   A - Minimum: 300mm←---------→Maximum: 500mm

5. *Q - Can the plates move off the trench or fall into it?*
   A - The 500MAX cannot fit over a trench which is narrower than 300mm. The operative should be instructed by means of the Operations Manual and shown how to set the adjusters to suit the trench width (max. 500mm). This will centre the plate over the trench and prevent any movement.

6. *Q - Have the plates been tested for skid resistance?*
   A - Yes. The 500MAX has a surface with a certified Pendulum Test Value of- *Low* (Low potential for slip). A copy of the certificate is available upon request.

7. *Q - What is the minimum quantity I can hire or buy?*
   A - 1 stillage, containing 5metres or 20 plates

8. *Q - What type of anchor bolt should I use?*
   A - An M10 anchor bolt or M12 Screwbolt is recommended and there are a variety of fixings that would comply with this specification.

9. *Q - Will the 500MAX plates go around a corner?*
   A - Yes. A typical radius would be approx. 6metres and would depend on the accuracy of the trench.

10. *Q - What about if the trench is zig-zagging down a road?*
    A - As long as the trench does not veer off at odd angles (not usual) and does not exceed 500mm width, the plates will follow the line in the majority of cases. It is the operatives' responsibility to assess a site for the suitability of the Trenchlink road plate system.