Thomson Engineering Design

Innovative global solutions and equipment for railway maintenance and repair projects.

Specialised machines, attachments and tools for railway maintenance, designed and manufactured to ensure quality, reliability and safety.

UNIPART RAIL

THOMSON ENGINEERING DESIGN

Durable, Reliable and Safe

SERVING THE WORLD'S RAILWAYS

Thomson Engineering Design

Thomson Engineering Design has been manufacturing specialised equipment for rail renewals and repairs since 1999, and in that time has become the premier supplier of attachments for Road Rail Vehicles.

The range of products have been designed and developed by their own engineers, manufactured in their own factory and tested on their own calibrated test rigs and facilities.

All products are CE marked and the design and manufacturing systems are certificated to ISO 9001:2015.

The company has also been verified under the Rail Industry Supplier Qualification Scheme (RISQS).

Innovative solutions for global railway maintenance

Unipart Rail and Thomson Engineering Design are working in partnership to deliver a range of innovative solutions and equipment for global railway maintenance and repair projects.

The product range covers all parts of the rail infrastructure including handling equipment for rails, sleepers (ties), track panels and electrification equipment.

We can also provide a range of clipping and de-clipping machines and a variety of equipment designed to make rail maintenance sites much safer.

The full range of products includes solutions for:

- Rail Handling
- Sleeper Handling
- Panel Handling
- Ballast and Trackbed
- Clipping and De-Clipping
- Signals and Crossings
- Cable and Electrification
- Barriers and Access
- Adaptor Heads
- Road Haulage

Together we can add value with:

Increased Safety

Increased Performance

Delivered Innovation

Optimised Costs

Reduced Risk

Product Directory

For more information on the complete range of solutions from Thomson Engineering Design, contact us at **railplant@unipartrail.com**

Threader Dragger

The TD15-01 Threader Dragger is designed to improve safety, output and efficiency in long welded rail installation operations by combining rail dragging and threading attachments into one compact unit.

Traditionally, when installing long welded rail using a Road Rail Machine (RRV) or excavator, a Drag Clamp is used to position the rail string ready for threading then a Rail Thimble is used to thread the rail into position. Changing from one attachment to the other takes time and usually involves the RRV travelling back and forth between the work location and an equipment stabling point.

Combining the two functions into one unit allows the operator to switch immediately between dragging and threading, and vice-versa, without releasing the rail. The unique design of this device also allows it to be used on both running rails and conductor rails and no adjustment is needed between rail types.

The TD15-01 Threader Dragger can be used for dragging, threading and lifting long welded rail, as well as pick-and-placing and fine positioning of repair rails up to 20m in length.

Two hydraulic services are required to power the TD15 Threader Dragger, one to open and close the dragger jaws and one to deploy and release the threading rollers. The device is suspended from the host machine by the pivoting arch frame and, for short pulls, rail can be dragged by pulling on this point.

For long pulls a chain can be attached between the host machine subframe and a tow point on the device, which allows better control of the rail and removes shock loads from the machine boom.

Features and Benefits

- Enhanced Safety - when in position on the rail, there is no requirement for anyone to enter the work zone throughout the rest of the rail handling sequence.
- Increased efficiency - the Threader Dragger improves efficiency by allowing the instant changeover of threading and dragging functions without the need to swap attachments.
- Improved Precision - precision handling of long welded rails is assured through the rigid, heavy-duty construction.
- Designed to last - constructed entirely of steel with all wearing parts case hardened, the TD15-01 Threader Dragger is designed and built for a long, hard working life with minimal maintenance.

Technical Specifications

Overall Transport Dimensions (L x W x H)	1214mm x 984mm x 1400mm
Tare Weight	735kg
Transport Weight (inc stilllage)	895kg
Minimum Hydraulic Pressure	110 Bar
Maximum Hydraulic Pressure (Dragger Circuit)	250 Bar
Maximum Hydraulic Pressure (Threader Circuit)	210 Bar
Maximum Working Load	2,500kg
Maximum Tow Load	10,000kg
Rail Compatibility	Vignole Running Rails Conductor Rails

Universal Rail Thimble

The RT10 Universal Rail Thimble is a rail handling device suitable for the removal and installation of long welded running rails.

Attached to an excavator or loader, the RT10 Thimble supports and controls the rail with four rollers running beneath the rail head. Long welded rail can be threaded into position as the host machine travels along the rail.

The design of the RT10 Thimble means that it can be fitted to the rail without having to first lift the rail onto blocks, reducing the time taken for threading operations and removing the need for personnel to be in the vicinity of the rail. A pilot operated check valve mounted on the large bore hydraulic cylinder locks the cylinder in the event of a hose failure, making this the safest device of its kind.

The RT10 Thimble was first introduced in 2003 and has been the most popular device of its kind in the UK ever since, due to its robust construction, smooth operation and hydraulic control. The butterfly action gives a wide jaw opening which makes it easy for the operator to fit the device to the rail and eliminates the need for manual assistance.

RT10 Thimbles come pre-fitted with 1500mm long connecting hoses and a 12 tonne capacity attachment shackle, so they are ready to fit to almost any machine.

Features and Benefits

- The RT10 Universal Rail Thimble is easily attached to the host machine by hooking to the 12 tonne safety bow shackle.
- The device is supplied with 1500mm long connecting hoses terminated in 3/8" BSPP hose ends, ready to fit your own choice of connectors.
- A twin pilot-operated check valve locks the cylinder in the event of a hose failure or host machine hydraulic failure.
- To minimise the risk of hose failure the supply hoses are protected by a thick steel hose guard where they emerge from the device.
- The rail is supported by specially shaped rollers which run under the top corner of the rail web. This ensures that the RT10 Thimble can be used on almost all types of running rail and eliminates the need for the rail to be lifted to attach the thimble.
- Rollers are case hardened high strength steel for long life without risk of cracking.
- All rollers and joints are fitted with grease nipples. The rollers and the main hinge have bronze bushes and thrust washers.
- Wide opening jaws make it easy for the operator to fit the RT10 to the rail.

Technical Specifications

Tare Weight	285kg
Safe Working Load (WLL)	1,250kg
Design Working Load	5,000kg
Maximum Threading Speed	5,000 m/hr
Application	All Standard Running Rails
Maximum Hydraulic Pressure	210 Bar
Minimum Hydraulic Pressure	90 Bar
Shackle Type	12 tonne Safety Bow
Cylinder Bore	60mm
Safety Valve	Dual Action Pilot Operated Check Valve
Roller Diameter	80mm

Rail Foot Thimble

The RFT22-02 Rail Foot Thimble is the most versatile rail threading device currently available, being able to cope with both running rails and conductor rails without any need for adjustment.

By gripping the edges of the rail foot between grooved rollers, the rail is fully restrained against twisting and can be threaded into position. The ability to thread running and conductor rails provides owners with greater utilisation and faster return on investment, whilst its robust construction ensures a low whole-life cost of ownership.

The RFT22-02 is the only device of its kind fitted with a pressure reducing valve, factory set to ensure that the system pressure is correct regardless of the settings of the host machine. Two hydraulic cylinders are used to grip and release the rail, each of which is fitted with a pilot operated check valve to lock the cylinder in the event of a hose failure. Together, these two features make this the safest device of its type.

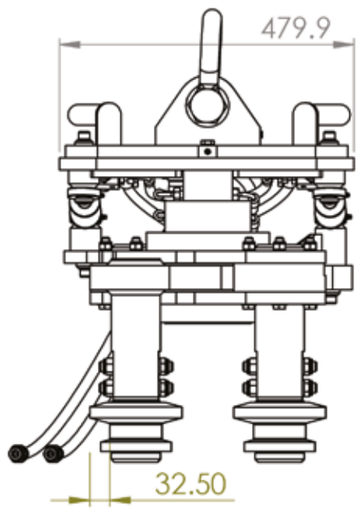
All the joints in the mechanism and the threader rollers themselves are fitted with replaceable bushes and grease nipples allow lubrication of all moving elements. Two grab handles are provided allowing an assistant to align and guide the device onto the rail if necessary. A large safety bow shackle fitted to the top of the device makes it easy to hitch to the host machine lifting hook.

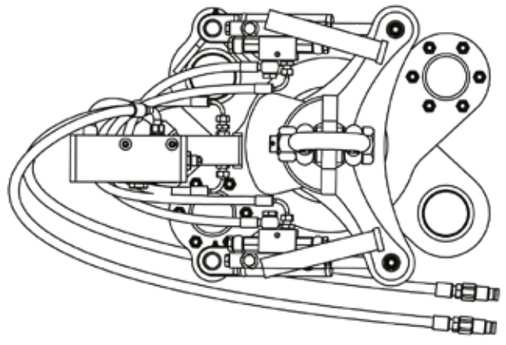
Features and Benefits

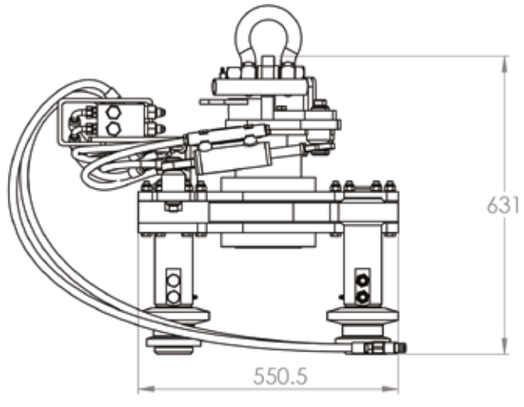
- Grooved rollers on the bottom of the four legs are used to grip the edges of the rail foot. This unique design allows the device to be fitted to both running and conductor rails without any adjustments.
- The rail foot rollers are opened and closed onto the foot of the rail by two hydraulic cylinders. Each cylinder is fitted with a pilot operated check valve to lock the cylinder in the event of a burst hose or host machine hydraulic system failure.
- There is no need to adjust the pressure output of the host machine to use this device; a pressure reducing valve fitted to the frame controls the system pressure ensuring that the device cannot be damaged.
- The whole device is very compact, weighing approximately 210kg.
- A special transport stillage can be supplied to fully protect the device during transport.
- The result of many years' experience in the design and construction of rail threading devices, the RFT22-02 smoothly and accurately handles rails of all types for fast, efficient operation.
- To fit to the rail section, the RFT22-02 is lowered until the wider flanges of the upper part of the rollers are resting on the rail head. The hydraulic system is then actuated to close the bottom of the roller grooves onto the sides of the rail foot.
- Once the rollers have been closed the device is lifted to raise the rail and begin the operation.
- An automatic mechanism opens the jaws by 2mm allowing clearance between the rail foot edges and the rollers, resulting in a smoother threading operation and lowering the friction.

Technical Specifications

Tare Weight	210kg
Working Load Limit	2,000kg
Application	Running Rails (Vignole Rail) Conductor Rails
Maximum Rail Foot Thickness	23mm
Maximum Rail Foot Width	165mm
Maximum Hydraulic Pressure	210 Bar
Minimum Hydraulic Pressure	90 Bar
Pressure Control	Pressure Reducing Valves
System Pressure	100 Bar
Construction	All-Steel Fully Welded







Low Headroom Panel Beam

The Low Headroom Panel Beam is the ideal solution for tandem handling of track panels under overhead electrification equipment and structures.

Powerful hydraulic jaws grip the rails allowing track panels to be lifted out of the ballast and loaded onto rail wagons or trucks. Each beam has a 10,000kg working load, giving plenty of strength when lifting panels from frozen or compacted ballast.

The centrally mounted attachment shackle is only a few millimetres above the rail head height, minimising the headroom required for the lifting operation and maximising the number of track panels which may be loaded onto wagons or trucks, especially when working under bridges, in tunnels or under overhead catenary electrification equipment.

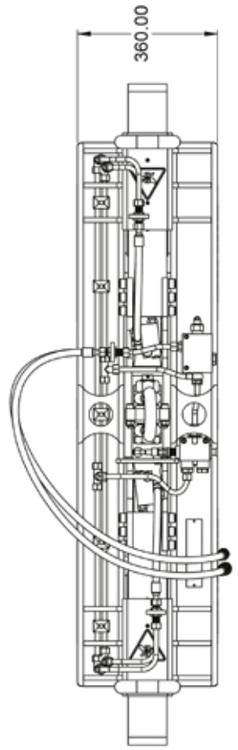
A full suite of safety features are incorporated into the design, including pilot operated check valves on the jaw cylinders, a parachute valve to lock the jaws during the lifting operation and built-in pressure control to protect the hydraulic circuit. All beams are proof load tested to 15,000kg and certificated prior to despatch from the factory. The design has been subjected to exhaustive testing and computer analysis.

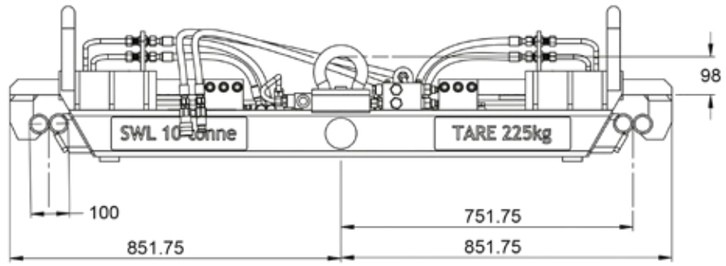
Features and Benefits

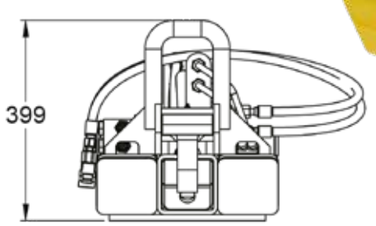
- The wide jaw opening and taper-ended design of the frame helps align the beam to the track panel as it is lowered into position. Handles on each end allow the machine controller to assist with alignment.
- The hydraulically actuated jaws grab below the rail heads for a safe and secure grip. Once attached to the track the centrally mounted attachment shackle is only a few millimetres above rail head height.
- Lifting the attachment point shackle actuates a spring loaded safety valve which shuts off the hydraulic connection to the jaw cylinders making it impossible for the operator to accidentally release the load during the lifting operation.
- A precision made pressure reducing valve controls the pressure within the hydraulic circuit, protecting the whole system and allowing these beams to be connected to any hydraulic service with a pressure of 90 to 325 Bar.
- The jaw cylinders are fitted with pilot operated check valves which automatically lock in the event of a burst hose or host machine failure.
- Attaching the LPB20-02 to the host machine via a short length of chain allows the operator to easily control the lift and helps ensure that the two lifting machines do not pull against each other.
- Tandem lifting of track panels (typically up to 25m long) is simple, safe and fast, requiring no working at height, and thanks to the low headroom design, the risk of damaging overhead structures is minimised.

Technical Specifications

Tare Weight	225kg
Working Load Limit	10,000kg
Proof Load	15,000kg
Application	Standard Gauge Track
Transport Dimensions (L x W x H)	1704 x 350 x 400 mm
Maximum Hydraulic Pressure	325 Bar
Minimum Hydraulic Pressure	90 Bar
Pressure Control	Pressure Reducing Valves
System Pressure	100 Bar
Jaw Grip Force	28kN
Options: A broad gauge version is also available	







Instant Barrier System

The Instant Barrier System is designed for the rapid demarcation of safe walking routes and safe working areas for permanent way maintenance.

The system consists of a rapid-action rail clamp supporting a tension barrier post which can be 'plugged' onto the head of a running rail section.

A number of accessories are also available including trolleys, stillages and offset base attachments for use where rail vehicles must also use the line.

This system is designed to provide a visual reminder of the limits of the safe working area and is particularly useful where adjacent lines are open to traffic.

Each post contains two 3.6m lengths of barrier tape wound onto a spring loaded reel, which can be simply withdrawn and clipped to the next post.

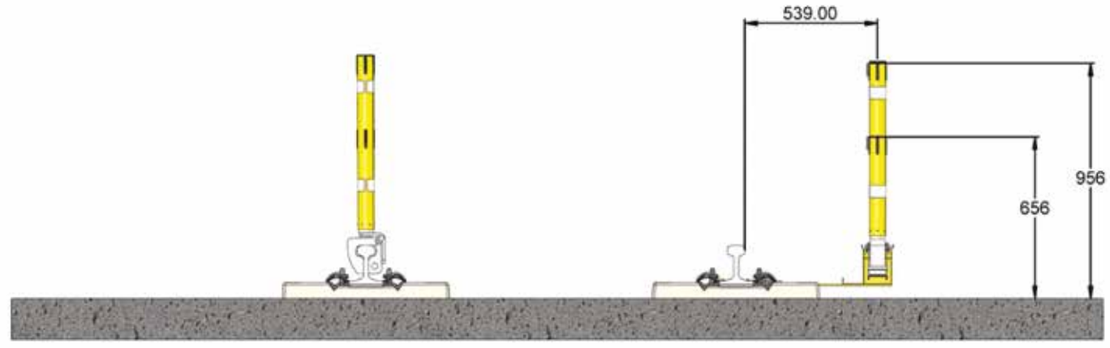
Stillages contain 28 posts - enough for 100m of barrier.

Features and Benefits

- Posts simply 'plug' onto the head of running rails and are removed by simply lifting them off.
- Once fitted the post is secure against wind from passing traffic on adjacent lines.
- Ballast trays are available which allow the posts to be fitted in any location.
- Offset bases allow the posts to be used where the line must remain open to engineering traffic.
- The special post trolley holds 60m of barrier in a road / rail trolley skate.
- Up to 200m of barrier can be carried using stillages on a standard rail trolley.
- Each post contains two high visibility tapes in a spring loaded cassette.

Technical Specifications

Post Weight	5.75kg
Barrier Tape Length	3.6m
Post Height above Rail Head	770mm
Offset Base Dimension (rail foot edge to post centre line)	500mm
Offset Base Weight	7kg



A solution for all requirements

The Thomson Engineering Design product portfolio includes over 100 innovative solutions for all rail maintenance sectors and activities - all designed and manufactured to ensure quality, reliability and safety.

This brochure covers a selection of the products available. For more information on the full range of solutions or to arrange a meeting to discuss your specific project requirements, please contact a member of our team at **railplant@unipartrail.com**.

Sleeper Handlers

Custom made sleeper handling grabs for any number and configuration of sleepers.

Hydraulic, self powered and fully mechanical mechanisms with sliding or hinged jaws.

Sleeper Changer

The SCI901 Sleeper Changer is an excavator attachment designed for replacing sleepers and long bearers.

This device incorporates a digging blade used to clear ballast and a sleeper manipulator which can be used to move, turn and handle the sleepers eliminating the need for heavy manual work.

Sleeper Spreader Beam

The UK7SB19-03 3 Sleeper Spreader is a strong and robust 7-sleeper spreader beam for handling all sleeper types.

The device may be used to handle sleepers and stacked-on timber dunnage, lifting the dunnage with the sleepers and eliminating the need for working at height.

Rail Handling System

The RHB16-02 Rail Handling Beam is a heavy-duty device designed for continuous use in rail delivery, haulage and handling operations.

The jaw design allows it to handle and stack rails in foot-to-foot stacks whilst still applying a heavy grip force for safety.

Multi Rail Handlers

Multiple Rail handlers for 2 to 12 rails including electric, pneumatic, hydraulic and manually operated devices with double-lock security.

All models can be fitted with detector switches and a host of monitoring options.

Clip Installation & Removal Machines

Robust, high-output attachments for inserting and releasing all types of Pandrol Fastclip and for removing all types of Pandrol E-Clip.

Heavy Duty Beam

The HDRB18 is a hydraulic lifting beam for handling rail in heavy-duty applications.

To make operation as simple and as safe as possible it includes automatic locking of the grab jaws when the beam is lifted.

About Unipart

The Unipart Group is a leading UK manufacturer, full service logistics provider and consultant in operational excellence. Operating across a range of market sectors, including automotive, manufacturing, mobile telecoms, rail, retail and technology, Unipart offers a breadth of services to a wide range of blue chip clients internationally.

About Thomson Engineering Design

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