



**THOMSON  
ENGINEERING  
DESIGN**

Durable, Reliable and Safe

# Panel Handling

Product Application Guide - Issue 3

# INTRODUCTION

Thomson Engineering Design Ltd has been designing and building rail handling equipment since 1999. We now offer an unrivalled range of standard products and are frequently called upon to construct custom solutions for individual clients around the world.

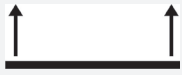
Today, our range of standard rail handling products includes devices for most applications. This short guide offers advice on selecting the best product for your specific requirements and we hope you will find it informative.

## QUALITY & SAFETY BUILT-IN

Thomson Engineering Design Ltd has an unrivalled reputation for the quality and reliability of its products.

Thomson Engineering Design Ltd is accredited to ISO9001:2015 for design, manufacture, testing and documentation of machinery and equipment and holds a number of other rail industry supplier qualifications.

## APPLICATIONS



**DESIGNED FOR TANDEM LIFTING OF TRACK PANELS USING TWO CRANES**



**DESIGNED FOR SINGLE POINT LIFTING OF TRACK PANELS WITH A SINGLE CRANE**



**SUITABLE FOR USE WITH HYDRAULIC EXCAVATORS OR HYDRAULIC CRANES OF SUITABLE CAPACITY**



**SUITABLE FOR USE WITH HEAVY HYDRAULIC EXCAVATORS OR HEAVY CONSTRUCTION MACHINES**



**SUITABLE FOR USE WITH GENERAL PURPOSE CRANES**










**SUITABLE FOR USE WITH GANTRY / YARD CRANES**



**SUITABLE FOR USE WITH HEAVY TELE-HANDLERS AND LOADING SHOVELS**

# APPLICATION MATRIX

PRODUCT	PAGE No.	S+C PANELS	PLAIN LINE PANELS	<10m PANEL	>10m PANEL							
HOOK LIFT BEAM	6		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
HOOK PANEL HANDLER	8		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
CPB20-01 PANEL HANDLER	10		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
CPB20-02 PANEL HANDLER	10		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
SPH18-02 PANEL HANDLER	12		<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
PH16-02 PANEL HANDLER	14		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>			
PH16-03 PANEL HANDLER	16		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>			
MEGABEAM	18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>			
UB15-01 UNIVERSAL BEAM	20		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>				
LOW HEADROOM BEAM	22		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>				
RCB12 R/C PANEL BEAM	24		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>			
S+C CROSS BEAMS	26	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	
PH21-04 PANEL HANDLER	28		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>					<input type="checkbox"/>
PDB23-03 PANEL DISMANTLER	30		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>			



All our attachments can be supplied with custom built adapter systems to suit any host machine.

Download our Adapter Head Selection Guide for full details of fixed, rotating, quick change and all other types.

The guide includes details of what measurements we will need from your machine in order to ensure a perfect 'plug-and-play' fit.

**Email [railplant@unipartrail.com](mailto:railplant@unipartrail.com) for more details.**



# KEY FEATURES & OPERATION

Our range of products includes models for use with a wide variety of host machines. All our products are designed to withstand much more than normal use can throw at them but some items also include extra safety features as described below and listed in the table on page 5.

All excavator and crane attachments are operated using the hydraulic systems of the host machine but some of our rail handling products can also be specified to be manually operated or to be powered by pneumatic systems or even with a built in electro-hydraulic power pack.

## FEATURES



**FITTED WITH 'PARACHUTE VALVE PROTECTION'. LOAD CANNOT BE RELEASED WHEN LIFTED. ON SOME DEVICES THIS CAN BE OVERRIDDEN IN SPECIAL CIRCUMSTANCES BY OPERATING A VALVE ON THE DEVICE (USUALLY SECURED IN THE SAFE POSITION WITH A PADLOCK).**



**FITTED WITH A PRESSURE CONTROL VALVE TO LIMIT THE HYDRAULIC PRESSURE WITHIN THE DEVICE SYSTEM REGARDLESS OF THE PRESSURE FROM THE HOST MACHINE. ATTACHMENTS FITTED WITH THIS SYSTEM HAVE A WORKING PRESSURE RANGE OF 90 TO 275 BAR INLET PRESSURE.**



**MAXIMUM RATED LOAD TO BE LIFTED BY THE DEVICE**

## OPERATION



**HYDRAULICALLY OPERATED FROM AUXILIARY SERVICE(S) ON THE HOST MACHINE**








**MANUAL OPERATION FOR GRIP**



**SELF POWERED - RADIO REMOTE CONTROLLED**

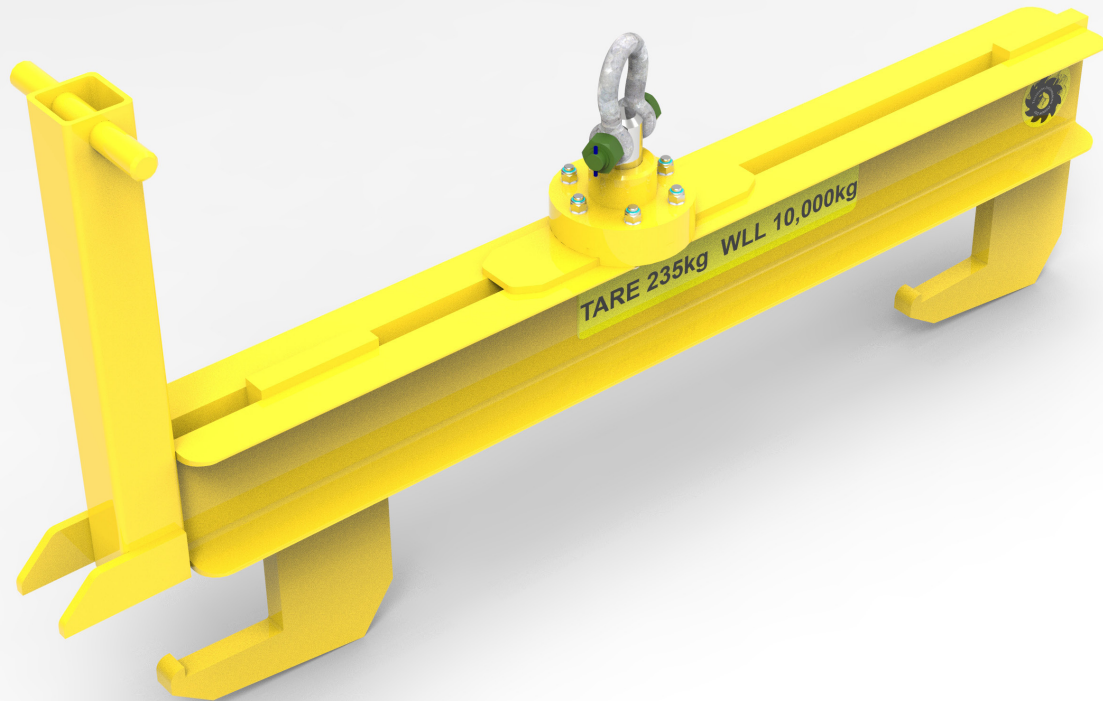


# FEATURES & OPERATION MATRIX

PRODUCT	PAGE No.			WORKING LOAD LIMIT			
HOOK LIFT BEAM	6			10,000kg (22,000lbs)		<input type="checkbox"/>	
HOOK PANEL HANDLER	8			12,000kg (26,400)		<input type="checkbox"/>	
CPB20-01 PANEL HANDLER	10			12,000kg - 24,000kg (26,400lbs - 52,800lbs)		<input type="checkbox"/>	
CPB20-02 PANEL HANDLER	10			12,000kg - 24,000kg (26,400lbs - 52,800lbs)		<input type="checkbox"/>	
SPH18-02 PANEL HANDLER	12	<input type="checkbox"/>	<input type="checkbox"/>	7,250kg / 8,000kg (15,950lbs / 17,600lbs)	<input type="checkbox"/>		
PH16-02 PANEL HANDLER	14	<input type="checkbox"/>	<input type="checkbox"/>	Up to 12,500kg (27,500lbs)	<input type="checkbox"/>		
PH16-03 PANEL HANDLER	16	<input type="checkbox"/>	<input type="checkbox"/>	Up to 12,500kg (27,500lbs)	<input type="checkbox"/>		
MEGABEAM	18	<input type="checkbox"/>	<input type="checkbox"/>	Up to 24,000kg (52,800lbs)	<input type="checkbox"/>		
UB15-01 UNIVERSAL BEAM	20	<input type="checkbox"/>	<input type="checkbox"/>	10,000kg (22,000lbs)	<input type="checkbox"/>		
LOW HEADROOM BEAM	22			10,000kg (22,000lbs)			
RCB12 R/C PANEL BEAM	24	<input type="checkbox"/>	<input type="checkbox"/>	10,000kg (22,000lbs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
S+C CROSS BEAMS	26			4,000kg (8,800lbs)		<input type="checkbox"/>	
PH21-04 PANEL HANDLER	28	<input type="checkbox"/>	<input type="checkbox"/>	Up to 24,000kg (52,800lbs)	<input type="checkbox"/>		
PDB23-03 PANEL DISMANTLER	30	<input type="checkbox"/>	<input type="checkbox"/>	1,250kg (2,750lbs)	<input type="checkbox"/>		



# HOOK LIFT BEAM





## KEY FACTS

HOOK LIFTING BEAMS are designed for tandem lifting of track panels using any crane type.

Beams include a conveniently placed handle to assist with drawing the hooks under the rail foot where panels are being lifted from the ballast.

HOOK LIFTING BEAMS are used with twin-jib rail cranes, with excavators and with gantry cranes in handling yards. The key feature is the very low tare weight.

## ALTERNATIVE PRODUCTS

For single lift panel handling with crawler and gantry cranes see our Hook Panel Handler on Page 8.



# HOOK PANEL HANDLER







## KEY FACTS

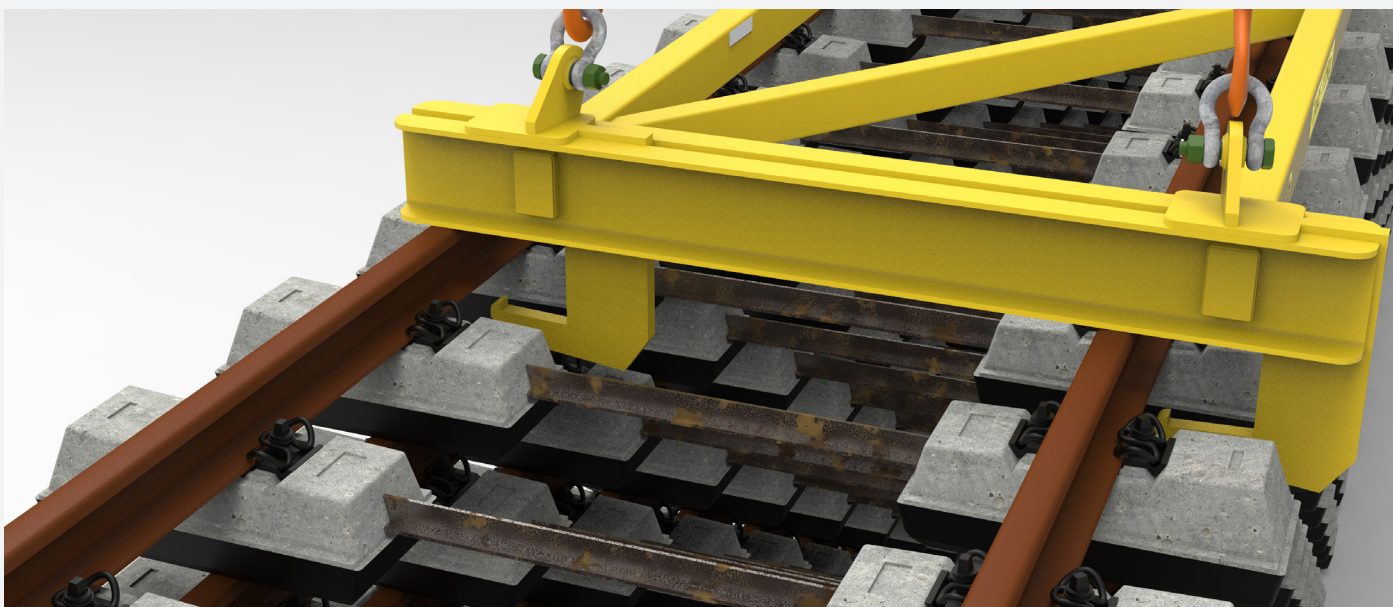
HOOK PANEL HANDLERS are designed for single-point lifting of track panels. A key feature of this product is that, like the Hook Lift Beams shown on page 6, these do not require a hydraulic or other power source.

Attached to the crane by a four-leg chain set, this handler is a cost effective means of safely handling track panels up to 24m in length.

Sleeper spacing affects the required length of the beam and, for this reason, each beam is made to order.

## ALTERNATIVE PRODUCTS

Where headroom is an issue, the CPB20 Panel Handler is an alternative.



# CPB20-01 & CPB20-02 PANEL HANDLER





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## KEY FACTS

The CPB20-01 PANEL HANDLER combines the simplicity of our HOOK LIFT BEAMS with a rigid central beam, significantly reducing the headroom requirement when lifting track panels with cranes.

When loading panels onto wagons, tag line attachment points at each end of the main beam allow the beam to be easily detached from a panel without climbing onto the wagon.

Sleeper spacing affects the required length of the beam and, for this reason, each beam is made to order.

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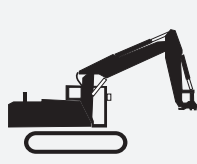
## OPTIONS

The CPB20 PANEL HANDLER is available in 6m, 9m and 12m lengths and can be specified with a working load limit of 12,000kg, 18,000kg or 24,000kg

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## ALTERNATIVE PRODUCTS

THE CPB20-02 PANEL HANDLER is adjustable to suit all sleeper spacings.



# SPH18-02 PANEL HANDLER







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## KEY FACTS

The SP18-02 is designed for handling short track panels, typically up to 10m, weighing up to 7,250kg (an 8,000kg version is available to special order).

Fitted with a heavy-duty hydraulic rotator and four hydraulically operated rail head grabs this device makes quick work of panel handling.

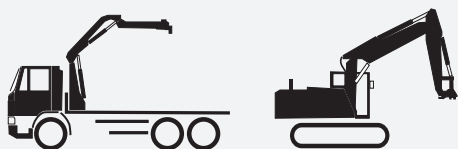
A full range of adapter heads is available to allow the device to be used on all types of excavator and also with truck-mounted cranes.

Typical tare weight of 800kg makes this product particularly popular on underground and metro systems where it can be used with the smaller road-rail machines.

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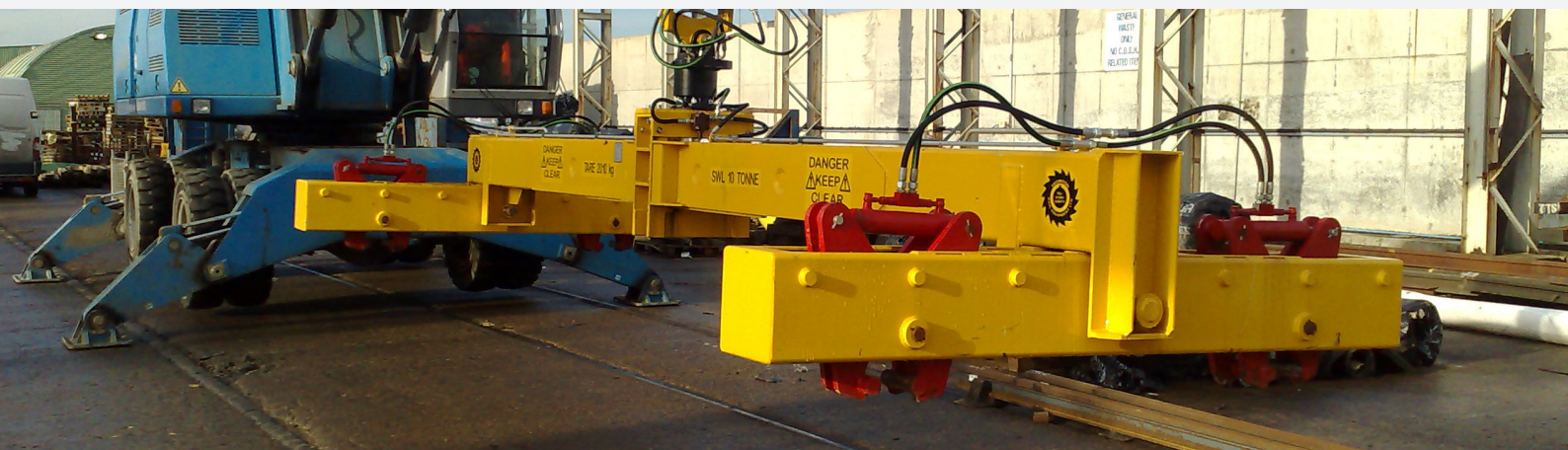
## OPTIONS

For heavier duty work, long track panels and bigger machines the PH16 Panel Handlers are recommended.



# PH16-02 PANEL HANDLER





## KEY FACTS

The PH16-02 PANEL HANDLER is a heavy-duty single lift panel beam designed for full-time usage in rail handling yards.

With a tare weight of around 2,450kg (depending on adapter head configuration), a working load limit of up to 12,500kg - depending on specification - and a 30 tonne capacity rotator this beam is built to take all the punishment it gets.

Parachute valves prevent release of the load whilst in mid air and pressure control systems ensure that swapping from machine to machine does not require re-setting of the hydraulics.

The grab jaws grasp under the head of the rail so that the jaws avoid the rail clips wherever the beam is placed on the panel.

## OPTIONS

This device is available with adapter heads to suit all machine types.

## ALTERNATIVE PRODUCTS

The PH16-03 PANEL HANDLER has an arched centre beam for greater stability when lifting long panels.



# PH16-03 PANEL HANDLER







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## KEY FACTS

The PH16-03 uses the same grab system as the PH16-02 but features an arched centre beam making it more stable when lifting long panels.

This version is ideally suited to use with large hydraulic materials handlers in full-time panel handling operations.

Tare weight is typically 3,000kg and the device has a working load limit of 12,500kg

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## OPTIONS

Adapter systems are available for all machine types.

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## ALTERNATIVE PRODUCTS

The MEGABEAM is an alternative where panels up to 24,000kg or S+C panels are to be handled.



# MEGABEAM





## KEY FACTS

The MEGABEAM SYSTEM is a suite of products designed for loading and unloading rail components onto works trains. The system comprises the Megabeam, a custom designed rotator / adapter system and various other attachments for handling rails, rail bundles, sleepers and general goods.

The device incorporates load levelling systems and is designed to handle both plain line and S+C panels.

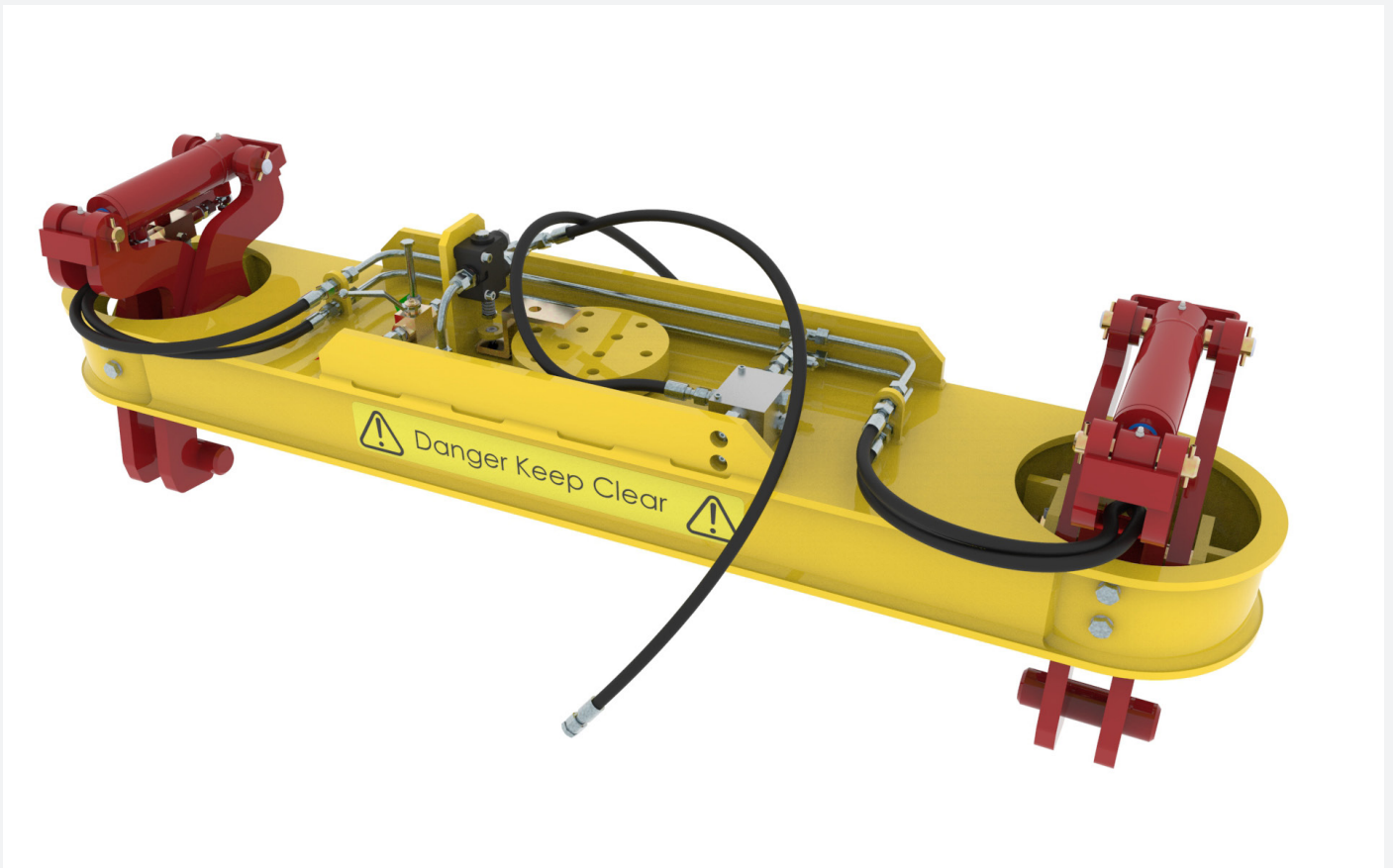
To get the full advantage of this system and to benefit from the 24,000kg maximum working load the system should be paired with a 90 tonne class excavator or materials handler.

## ALTERNATIVE PRODUCTS

The lighter MB15-01 MEGABEAM shown above has a 16,000kg working load limit and is suitable for use with 50 tonne class machines.



# UB15-05 UNIVERSAL LIFTING BEAM







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## KEY FACTS

THOMSON UNIVERSAL LIFTING BEAMS are the most popular tandem-lift panel handling solution in the Rail Industry.

With a 10,000kg working load limit and a wide range of adapter systems, these beams are extremely robust and reliable, delivering safety and performance year-in year-out.

When not being used for handling track panels the jaws may be rotated and the beam used for handling rail lengths. They can also be used to handle a number of S+C parts.

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## OPTIONS

UNIVERSAL LIFTING BEAMS are available to suit all track gauges, with swivel and rotator adapter systems and with roller jaws for use with crawler gantries.

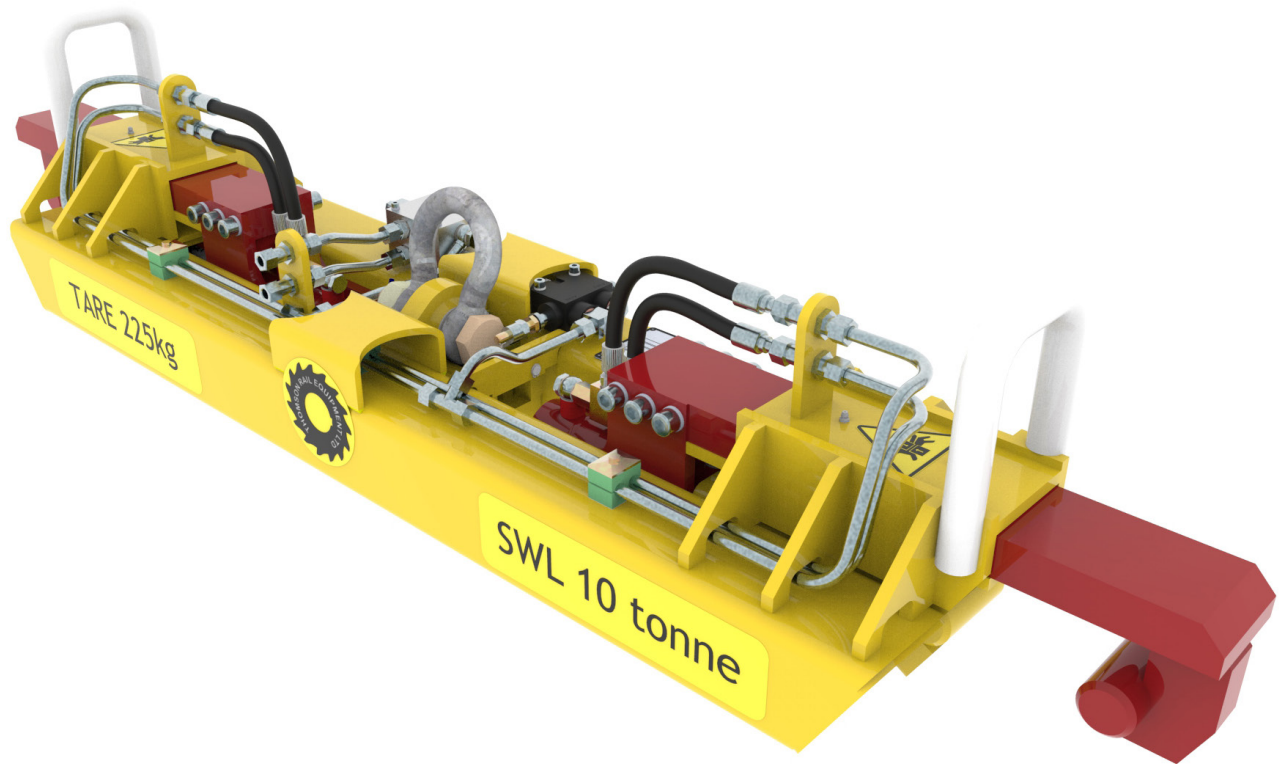
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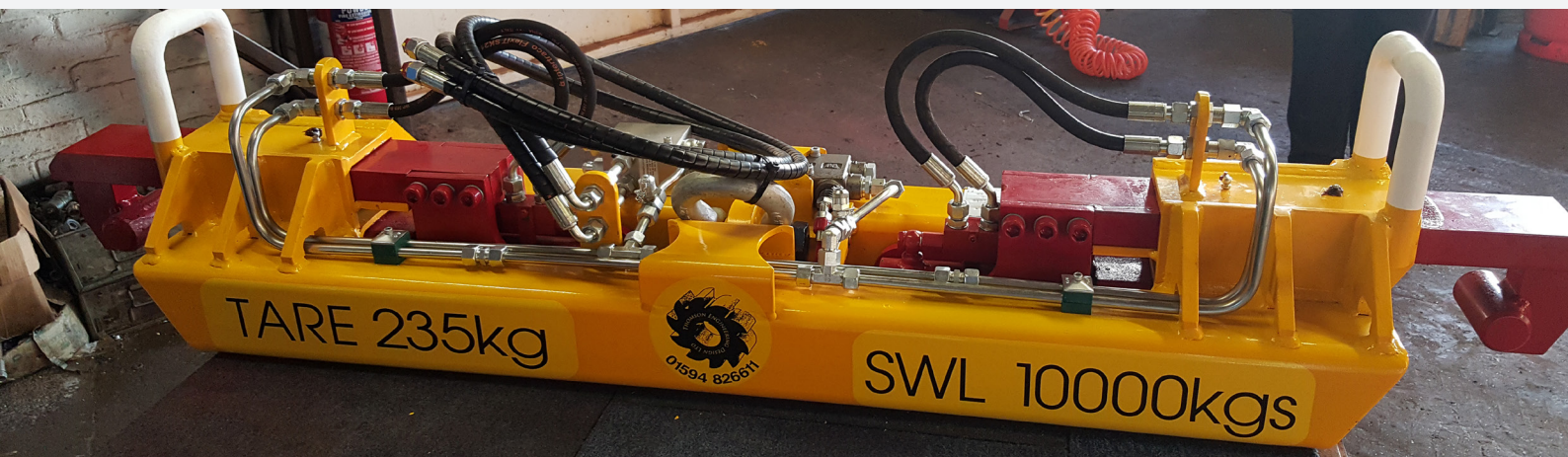
## ALTERNATIVE PRODUCTS

The LOW HEADROOM BEAM allows more space when working under overhead live equipment.



# LOW HEADROOM BEAM





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## KEY FACTS

Our LOW HEADROOM BEAM places the suspension point just above the rail head height allowing more panels to be stacked on wagons when working under overhead electrical installations

As with all our hydraulic panel handling products, the LOW HEADROOM BEAM still incorporates pressure control and parachute valve systems for the safest possible operation.

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## OPTIONS

LOW HEADROOM BEAMS can be supplied fitted to a purpose designed spreader beam for single point lifting.

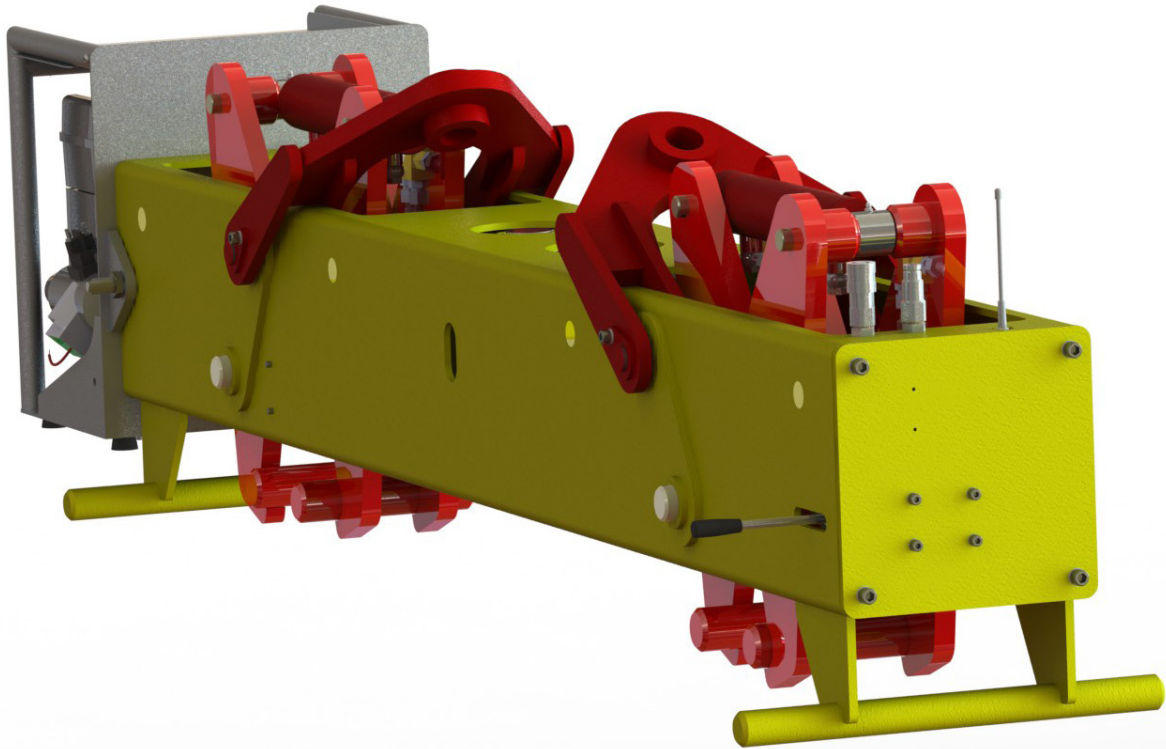
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## ALTERNATIVE PRODUCTS

The UNIVERSAL LIFTING BEAM is the most popular product of this type.



# RCB12 RADIO CONTROLLED PANEL BEAM







## KEY FACTS

The RCB12 BEAM is a self contained tandem lift solution designed for use with large rail and yard cranes.

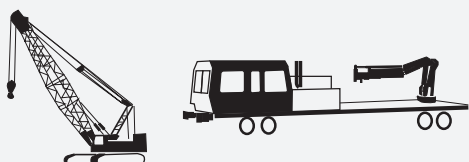
Each beam is fitted with a small petrol or diesel power pack and is controlled by a radio control pendant carried by the crane operator or controller.

Parachute valves ensure that the load cannot be released until it is resting on a firm surface.

Manual valves are included allowing the beam to be operated should the radio remote control's battery fail and to overcome engine failure a hand pump can also be attached to the beam.

## ALTERNATIVE PRODUCTS

HOOK LIFT BEAMS provide a low cost alternative.



# S+C CROSS BEAMS







## KEY FACTS

Our S+C CROSS BEAMS are designed to be pre-fitted to S+C panels prior to shipment. Once on site they can be swiftly attached to a spreader beam ready to lift the panel into place with the minimum of wasted site time.

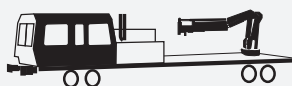
The beam can be adjusted to fit on any part of an S+C panel and safely transported on the panel itself.

## OPTIONS

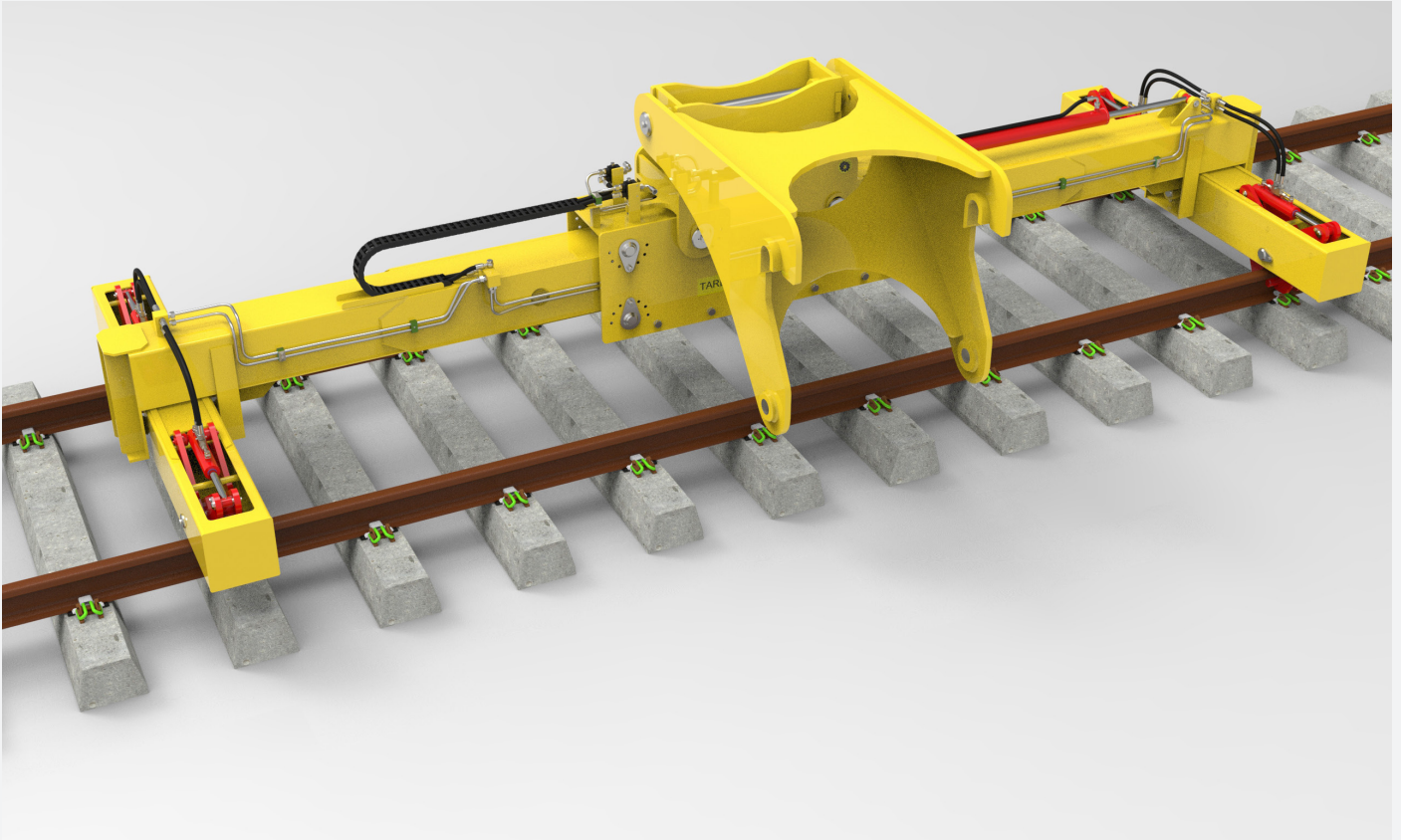
S+C BEAMS can be provided with a painted or hot-dip galvanised finish.

## ALTERNATIVE PRODUCTS

The MEGABEAM is a hydraulic beam also designed for handling S+C panels.



# PH21-04 PANEL HANDLER







## KEY FACTS

The PH21-04 PANEL HANDLER has been designed specifically for use with loading shovels and heavy tele-handlers. It incorporates built-in pressure control parachute valve protections and a load-levelling function yet requires only one hydraulic service.

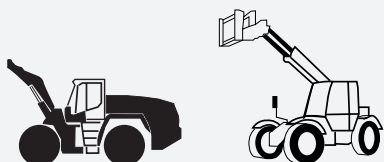
Capable of handling plain line track panels up to 12,500kg this product is ideal for use in track recycling operations and is built for continuous heavy-duty use.

## OPTIONS

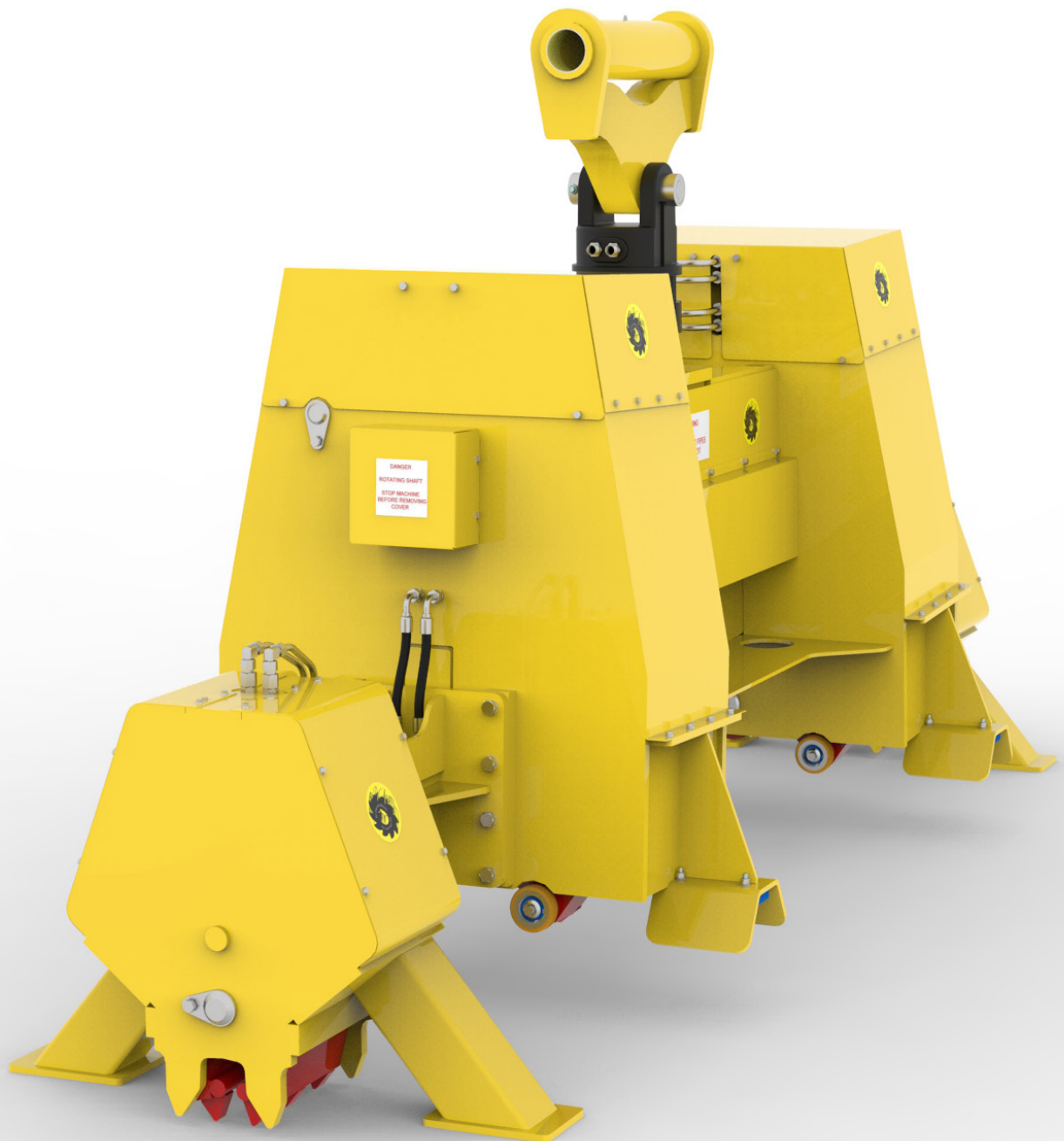
A heavier capacity version of this product is available for panels up to 24,000kg.

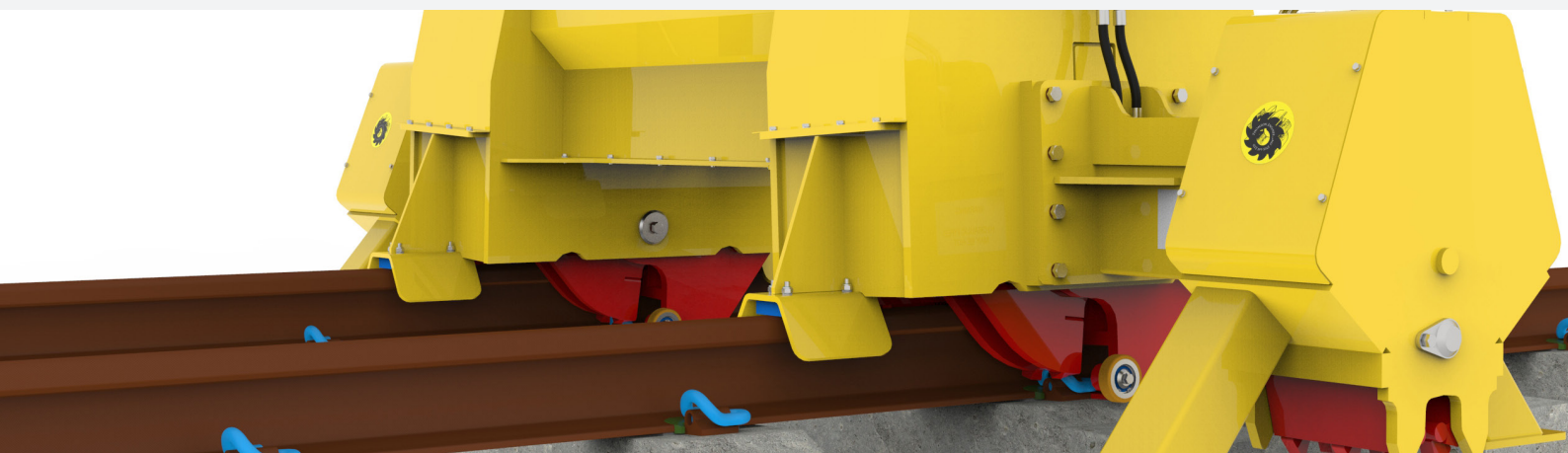
## ALTERNATIVE PRODUCTS

The MEGABEAM is a hydraulic beam also designed for handling S+C panels as well as plain line panels.



# PDB23-03 PANEL DISMANTLER





## KEY FACTS

Although the PDB23-03 is not a panel handling device it is included here as a complementary product.

This device is designed to remove Pandrol® E-Clips and PR clips from redundant track panels as part of the dismantling and recycling operation.

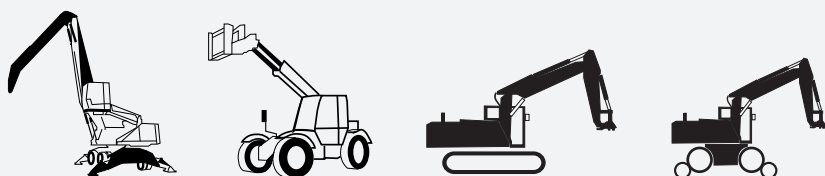
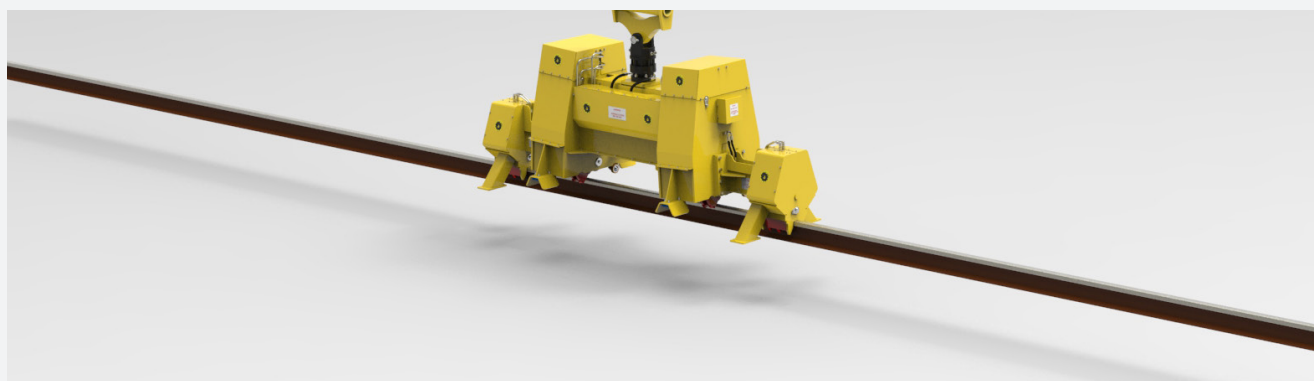
Two powerful jaws act on each clip, one presses against the housing and the other drives out the clip. Where clips are completely rusted into the housings an automatic vibration system switches in and shakes the clips free.

Once the clips have been removed the rail jaws at each end of the device can then lift the rails off the sleepers and stack them ready for further processing.

The PDB23-03 Panel Dismantling Beam is most commonly used with long reach telehandlers or with materials handlers and provides a safe, quick, efficient solution to panel dismantling.

## ALTERNATIVE PRODUCTS

This device is also available as a wheeled attachment for use in track.



Contact us today to  
learn how we are  
revolutionising global  
rail operations with  
innovative solutions.



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to contact us

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