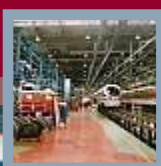


Rail



MARKET APPLICATIONS

Civil Engineering

The range of Lindapter Civil Engineering solutions has been specially developed to provide effective steelwork connections in the construction or repair of many civil engineering applications, like bridges and walkways. For road or rail purposes the flexibility and load bearing capabilities of the range has also led to extensive use in different engineering environments, including power stations, water treatment plants, tunnelling and other large scale Civil projects.

Process/Plant Engineering

The full range of Lindapter products are invaluable within the process environment, including petrochemicals, industrial or agrochemicals and the offshore oil and gas industry. They allow connections to be made without hot work permits and without damaging protective coatings. Applications include pipe and cable supports, walkway supports, sprinkler installations and secondary steelwork connections.

Materials Handling

Lindapter products have a range of applications within the materials handling industry, which include conveyor supports, monorail supports, header steelwork connections and lift installations. Because there is no need for drilling or welding, temporary or permanent connections can be made which enable conveyor installations to be re-routed or removed without difficulty.

Power Generation

Lindapter's capability within the power generation market is phenomenal, from wind turbines to solar panel mounting, or such diverse projects as decommissioning of nuclear power stations to name but a few. With Lindapter as a partner, Power Generation projects will be completed with no fuss and peace of mind.

Oil & Gas

The harsh environment that comes with offshore rigs is no match for Lindapters product range, whether it be fixing a helideck or securing a blastwall with no need to weld or drill it's the safest, easiest way of connecting steelwork together. With certifications such as TUV and DNV Lindapter's Oil & Gas solutions are an invaluable addition to your range.

Telecommunications

With today's information transmitters carrying the most information ever, the increase for new and upgraded aerials, masts and towers is at a peak. With Lindapter's range of fixings and clamps it's never been easier to connect to or strengthen your steelwork projects, with no special tools required there is no need to take any more chances working at heights.

Building Services

Whether fixing to I beams, purlins, hollow section, steel cavities or hollow concrete, Lindapter has the support fixing to suit. The range is fully tested and has been designed to offer savings on installation time and costs. Applications include the installation of pipework, HVAC systems, sprinkler systems, electrical equipment and cable trays, ladder racking and suspended ceilings.

lindapter®

in the Rail markets

Securing steelwork in the Rail Industry for over 70 years



Contents

Lindapter in the Rail Market

The Lindapter range has numerous applications within the rail industry. Fast and convenient fixings are available for overhead line equipment, trackwork cable troughs, electrification bracketry, station monitors, the holding down of low speed rail lines to name a few and not forgetting our bespoke product range that can be designed and engineered to meet any of your connection needs.

The Lindapter Team

With a specialist and dedicated team of over 60 staff, Lindapter's departmental teams have been structured for your convenience, with our Technical Support staff who are available to offer practical help and advice on everything from our standard product range through to non-standard applications, and even bespoke product design. We have regional sales engineers and territory distributors who are available for on-site visits to discuss your individual requirements in further detail.

New Products

Committing extensive resources to our research and development facility, it is Lindapter policy to continually investigate and develop new, innovative and cost reducing alternatives to traditional steelwork connection methods. The pace of progress can be furious, and as such, not all our ideas and products are always featured in brochures or on our website - so for the very latest up-to-date fixing technology it is always best to contact us directly.

Special Finishes

When any of our applications are required to operate in particularly aggressive or unusual environments we are able to produce the full range in a number of alternative surface finishes suited to their individual and specific use. These include:

- Electro Zinc Plated to BS EN 12329:2000 Grade Fe//Zn5//A (Clear), Hot Dip Spun Galvanised to BS EN ISO 1461:1999
- Sheradized to BS 4921: 1988 (1994) Class 1 plus additional secondary corrosion protection 500 Hours salt spray capability
- Continuously Hot Dip Zinc Coated
- Electro Zinc Plated to BS EN 12329: 2000 Grade Fe//Zn5//C (Yellow)
- Electro Zinc Plated to BS EN 12329: 2000 Grade Fe//Zn8//C plus JS 500 Leach and Seal
- Mechanical Galvanised to ASTM B695 Class 50
- Delta Seal - BS 7371:1991 Parts 1,2 & 11

Lindapter is committed to Customer Service

As a progressive and proactive organisation, we are always delighted to hear your comments, good or bad, on the services we offer. Please feel free to contact us directly with your thoughts and address your communications for the attention of the Marketing Department.

British Standards Institution

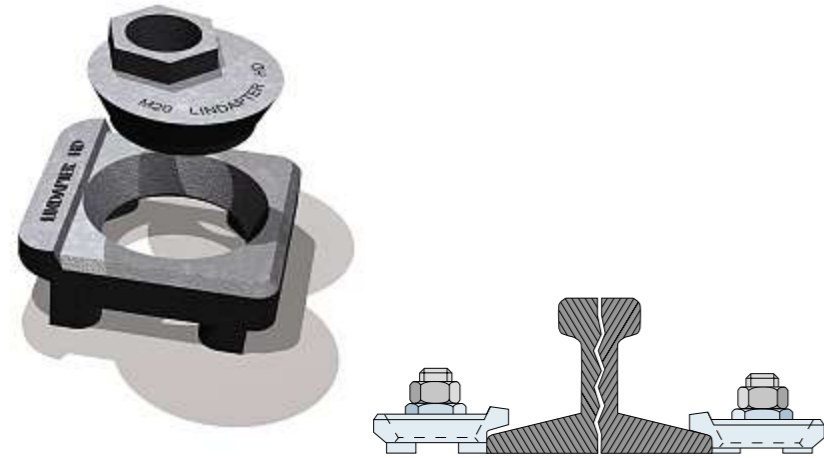
Lindapter is registered under BS EN ISO 9001:2000, as a company with a suitable system of quality management.



Type HD Ashford Depot	4:5
Type A&B ICE Deutschen Bahn	6:7
Type CF Australian Catenary	8:9
Type HB Piccadilly	10:11
Type AF St Pancras	12:13
Lindapter Projects	14
Overview	15

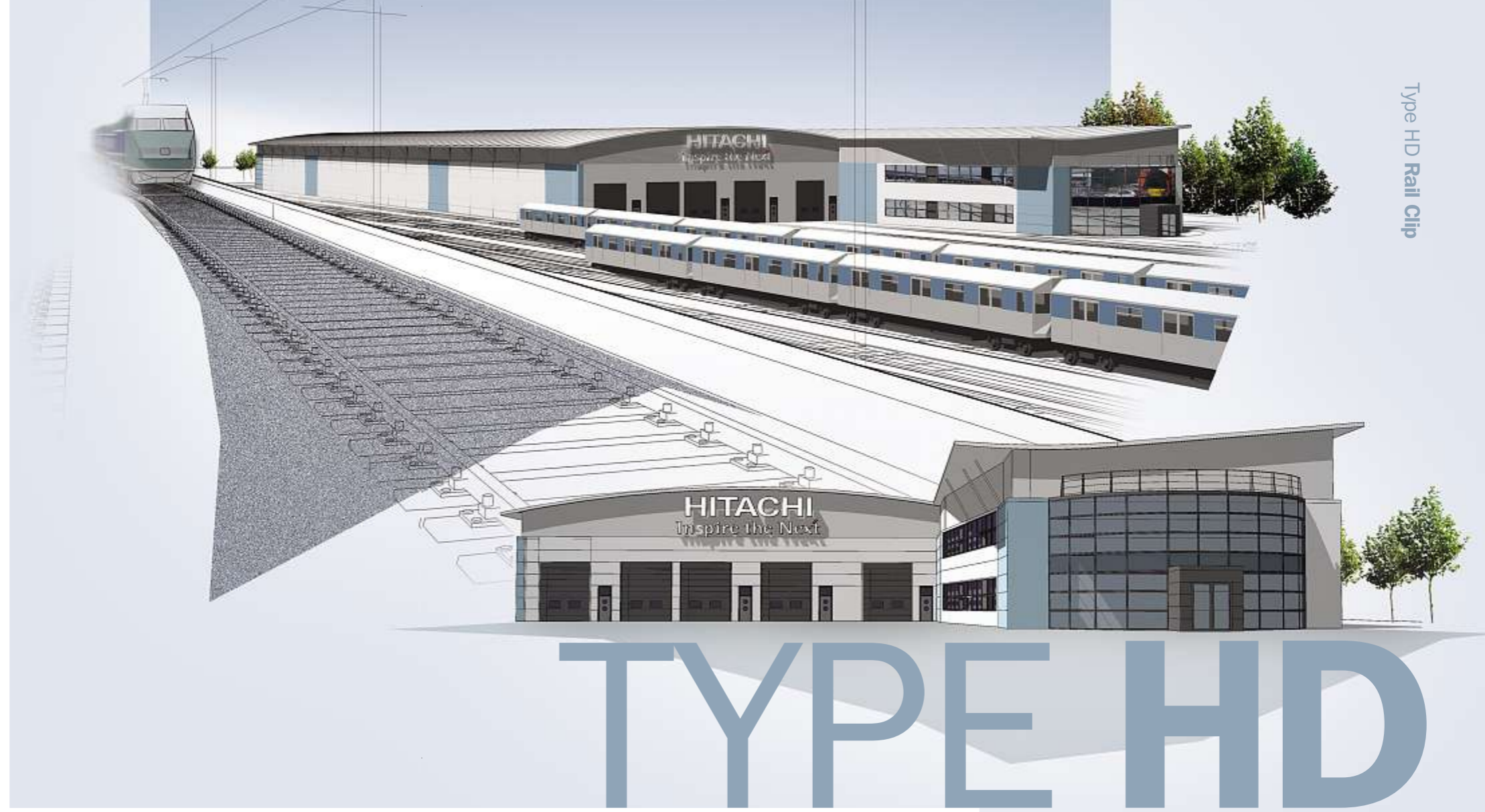
DISCLAIMER. Lindapter International supplies components in good faith, on the assumption that customers fully understand the loadings, safety factors and physical parameters of the products involved. Customers or users who are unaware or unsure of any details should refer to Lindapter International before use. Responsibility for loss, damage, or other consequences of mis-use cannot be accepted. Lindapter makes every effort to ensure that technical specification and other products descriptions are correct. "Specification" shall mean the specification (relating to the use of the materials) set out in the quotation given by the Seller to the Buyer. Responsibility for errors or omissions cannot be accepted. All dimensions stated are approximate - if in doubt please check with Lindapter.

Type HD Rail Clip



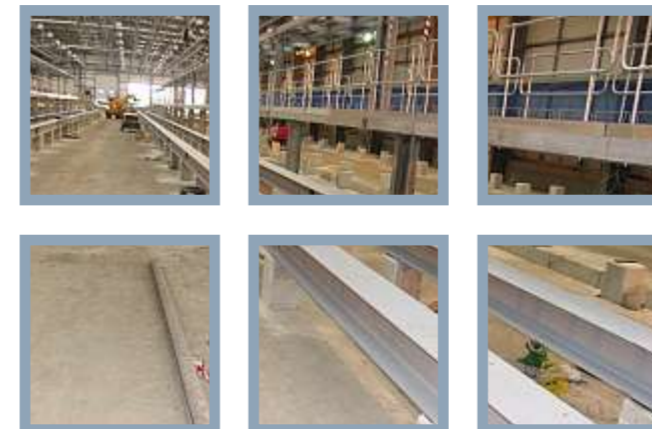
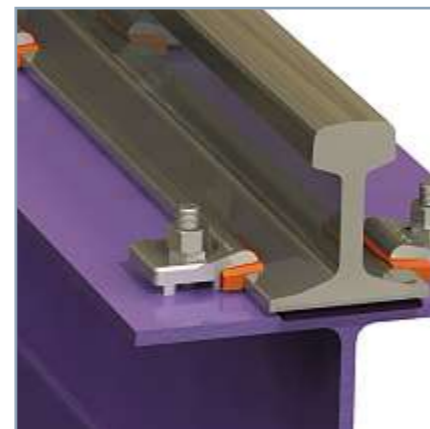
Product Description

Lindapters HD is a family of three rail clips - 'Spring', 'Hard' and 'Soft', all of which facilitate precise alignment of the rails by allowing a high degree of stepless lateral adjustability. HD is a user friendly innovation and will fit most rail types.



Type HD Rail Clip

TYPE HD



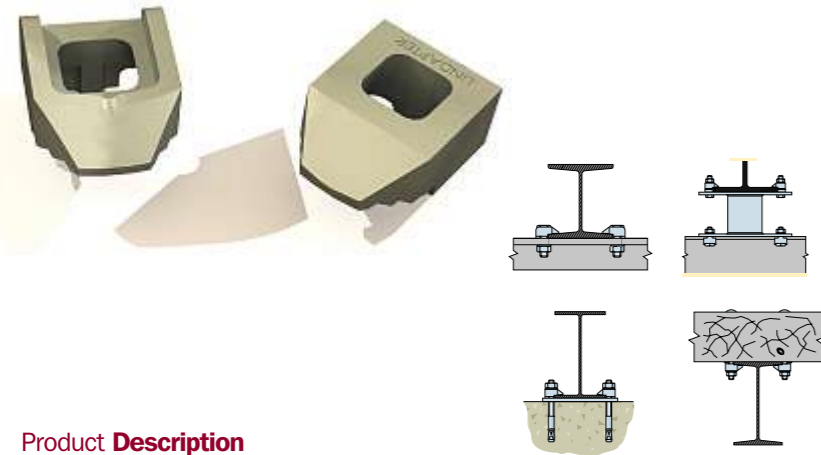
Case Study

Name: IKF Depot Ashford
 Location: Ashford Kent
 Product: Type HD Rail Clips
 Contractor: Grantrail
 Specifier: Corus Railway Infrastructure Services & Burks Green
 Application: The M20 type HD Lindapter Rail Clip is being used to secure a BS113A FB Rail central along the length of a UKBP way beam; this is in turn supported on individual reinforced concrete plinths. The rails run in pairs down the length of the new depot building giving access for any necessary repair and maintenance work on the trains.
 For a full case study and more information on the above application please visit www.lindapter.com/casestudies

Images courtesy of RPS Burks Green

4:5

Type A Recessed Fixing Type B Flat Top Fixing



Product Description

Type A&B steelwork fixings are designed to be used with a grade 8.8 bolt, the product features a tail, the length of which must be chosen to suit the thickness of the flange being gripped.

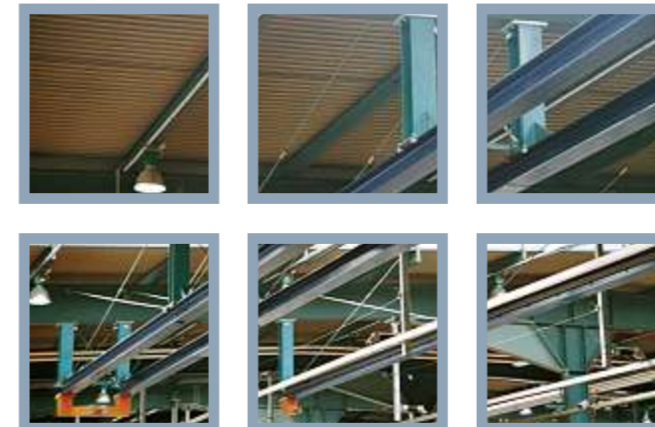
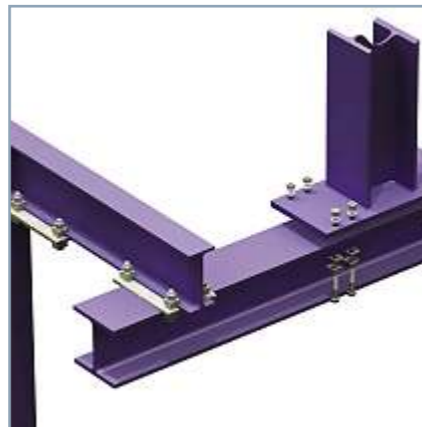
Type A has a recessed top to hold the bolt head captive whilst the nut is tightened.

Type B has a flat top which allows the bolt head or nut to be rotated and is suitable for use with all bolts, studs, tie rods etc.



Type A&B Steelwork Fixings

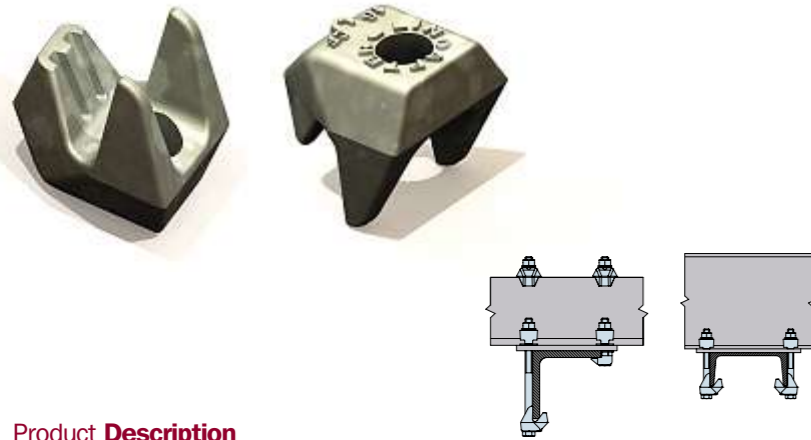
TYPE A & B



Case Study

Name: Inter City Express (ICE) Train Workshop
 Location: Frankfurt - Griesheim Germany
 Product: Types A & B Lindapter
 Contractor: Mesoba GmbH Obhausen Germany
 Specifier: Lambrecht, Burg Germany
 Application: The Lindapter assemblies were used as a means of permanent support within the workshop for both cranes and moveable access platforms. The suspended maintenance platforms can be traversed along the length of the trains allowing access for repair and maintenance work to be carried out.
 For a full case study and more information on the above application please visit www.lindapter.com/casestudies

Type CF High Friction Clamp

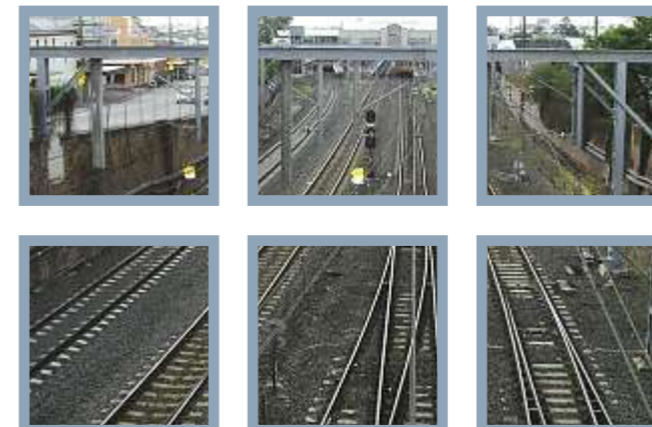


Product Description

The CF clamp is an addition to the high friction range. It allows connection to steel sections as other Lindapter products but is specifically designed for angles and channels as well as high friction or combined loadings.



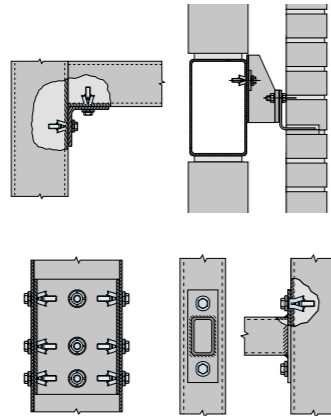
Type CF High Friction Clamp



Case Study

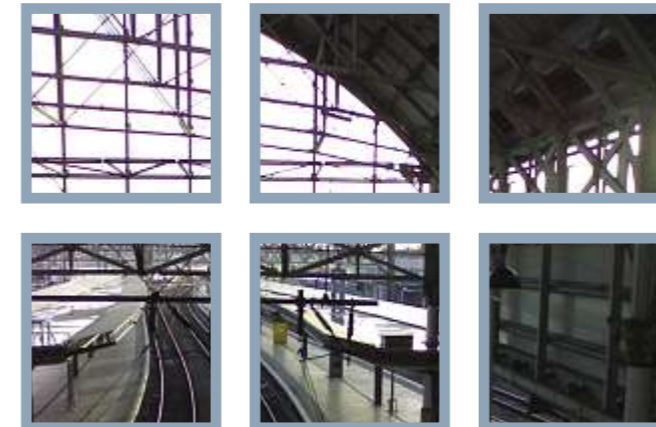
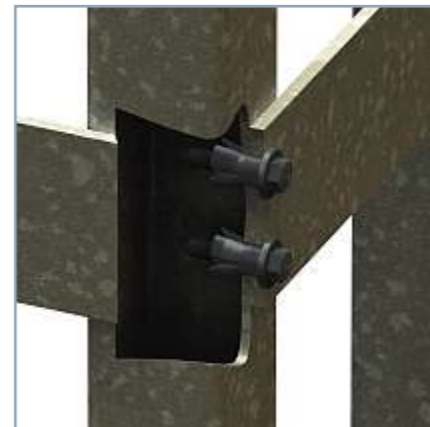
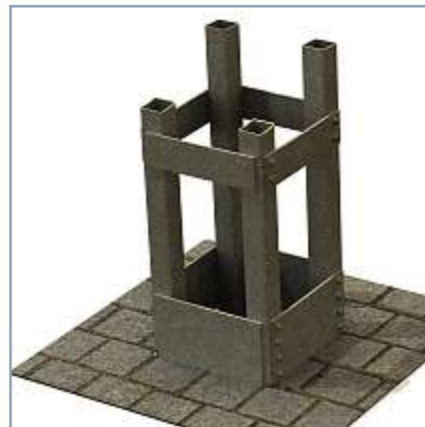
Name: Rail Infrastructure Corporation
 Location: New South Wales, Australia
 Product: Type CF
 Contractor: State Rail Authority (called Rail Infrastructure Corporation)
 Specifier: State Rail Authority (called Rail Infrastructure Corporation)
 Application: The type CF Lindapters are used on Overhead Line Equipment (OLE) as a means of connecting the various OLE brackets to the support masts along the route. Vertical adjustment of the brackets is made possible due to the lack of a need to either drill or weld the generally galvanised steelwork as well as utilising the adjustability and clamping action of the Lindapter.
 For a full case study and more information on the above application please visit www.lindapter.com/casestudies

Type HB Hollo-Bolt



Product Description

The Hollo-Bolt was invented by Lindapter over 10 years ago as a method of securing to square, rectangular or circular hollow section steel and conventional steelwork where access is available from one side only. Awarded the Design Council's Millennium Products status for innovation in connecting to hollow section, the Hollo-Bolt also has third party endorsements from Corus and the UK's Steel Construction Institute, and is heavily featured in the industry standard Green Book.



Case Study

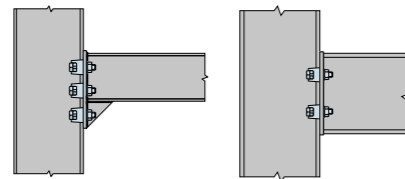
Name:	Piccadilly Railway Station
Location:	Manchester
Product:	Hollo-Bolt
Contractor:	Oldroyd Brothers
Specifier:	Thorburn Colquhoun
Application:	Opened in 1842 as the London Road station Manchester Piccadilly has been a major gateway to the North West of England. Between 1998 and 2000, over £27m was spent on modernization and the money was invested in many key areas. The Lindapter Hollo-Bolt was used in several locations as a means of assembling new overhead gantries on the platforms.

For a full case study and more information on the above application please visit

www.lindapter.com/casestudies

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Type AF High Friction Clamp



Product Description

The AF Clamp is designed to take significantly increased torque and can therefore be used for applications where high tensile and frictional loads are encountered. With the use of an AFW adapter washer the product can be adapted to suit many different conditions. The profile nose of Type AF enables various tapers of beam flange to be accommodated to a maximum of 10°.



Type AF High Friction Clamp



Case Study

Name: CTRL (Channel Tunnel Rail Link) contract 105
 Location: St Pancras Station - London
 Product: Type AF
 Contractor: CORBER (Costain O'Rourke Bachy Emcor Rail)
 T & P Lead Roofing
 Specifier: Rail Link Engineering
 Application: The Lindapter Type AF were used in sets of 4 to connect new roof support steelwork to the existing structure of the grade 1 listed William Barlow shed at St Pancras Station. The shed itself was one of the engineering wonders of the Victorian age. It was designed by William Henry Barlow and building work started in 1863. The station which has a single span roof of 243 feet across with a length of 689 ft and is 100 ft above ground at its highest point was opened to traffic in October 1868. As part of the regeneration the train shed, is to be restored as far as possible to its original condition. So the need to be able to attach to the arch without the need to damage the original structure by drilling or welding was of paramount importance.

For a full case study and more information on the above application please visit

www.lindapter.com/casestudies

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Rail Engineering Project Successes

Project Name	Country	Lindapter's Used
New South Wales Railway-Bridge Walkways	Australia	A, B, C1, LR, P1, P2, GF
New South Wales Railway-Electrification	Australia	A
KCRC Kowloon Terminal, Hong Kong	China	D3, FL, LC, F3
KCRC Tai Wo Station, Hong Kong	China	FL, LC, D3
Kowloon/Canton Railway Electrification, Hong Kong	China	A, P1, CW
MTRC Station Renovations, Hong Kong	China	HF, Z, LR, FL
Birmingham Centro	England	A, B, LB, FF
British Rail Slade Green Maintenance Facility	England	HD
Docklands Light Railway - Beckton Extension, London	England	FF
East Coast Electrification Project	England	A, B, C1, F3, P1, P2
London Underground (Jubilee Line Extension)	England	BR
Paddington Station Refurbishment	England	GC (Special)
Piccadilly Station Refurbishment, Manchester	England	A
St Pancras Channel Tunnel Rail Link Terminal	England	A
West Coast Electrification Project	England	A, B, C1, F3, P1, P2
T.G.V. Terminal, Brittany	France	A, B
Deutsche Bahn ICE (Inter City Express), Munich	Germany	GC
Deutsche Bahn, Berlin	Germany	GC
Athens Metro	Greece	GC
Metro Tramway, Rome	Italy	A, B, F3
Japan Rail (East) New Headquarters Building	Japan	B, CW, P1, P2
Star Light Railway Transport, Kuala Lumpur	Malaysia	A, B
Mass Rapid Transport (MRT) Depot, Taipei	Taiwan	F3, FL
Taipei - Kaohsiung Railway Electrification	Taiwan	A, P1, C1
Ankara Metro, Ankara	Turkey	HD
Amtrak - North East Corridor Electrification	USA	A

Products

Steelwork Fixings

Lindapter steelwork fixings securely grip the flange of most standard steel sections, without the need to drill or weld. Primarily for secondary steelwork, the fixings enable beam to beam connections to be made quickly and easily on site.



Cavity Fixings

Lindapter cavity fixings give a simple, cost-effective solution when fixing to hollow section steel, or to steelwork where access is available from one side only. They are ideal to use with any steel structures and eliminate the requirement for unsightly welding or strapping.



Rail Fixings

Lindapter offer a range of rail fixings to suit standard and bespoke low speed applications. The main family of rail clips are the Holdfast range, all of which facilitate precise alignment of rails by allowing a high degree of stepless lateral adjustability.



Floor Fixings

Lindapter floor fixings will connect steel flooring to supporting steelwork without the need for site drilling or welding. Access to the underside of the flooring is not required, which eliminates the need for expensive scaffolding or elevated floors and saves on installation time.



Support Fixings

The Lindapter support fixings range covers all aspects of fixing to or suspending from structural steelwork, providing ideal solutions for the suspension of building services equipment. The range also features products specifically designed to suit a range of composite steel floor decking.



Pressure Vessel Clamps

The range of Lindapter pressure vessel clamps and accessories have been produced for use on flanged connections of pressure vessel pipework and autoclaves.



Bespoke Fabrications

Lindapter realise that not every project is the same, many projects need to be individually assessed. Lindapter will carry out site visits or meet engineers to ascertain the precise requirement and advise on the best solution.



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