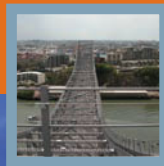


# Bridges



**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 extensive, from wind turbines to solar panel mounting, or such diverse projects as decommissioning nuclear power stations. With Lindapter as a partner, Power Generation projects will be completed with no fuss and peace of mind.



## Oil & Gas

The Lindapter product range is perfectly suited to the harsh environment that comes with offshore rigs. Whether it be fixing a helideck or securing a blastwall with no need to weld or drill it is the safest and easiest way of connecting steelwork. With certifications such as TÜV and DNV, Lindapter offer an innovative alternative solution to traditional fixing methods.



## Building Services

Whether fixing to structural sections, hollow sections, composite decking, purlins or light steel framing, Lindapter has the support fixing to suit. The range is fully tested and has been designed to offer savings on installation time & consequently cost. Applications in M & E include installations of sprinklers for fire protection & cabling for detection, ductwork in HVAC systems, tray, basket & ladder for electrical cabling and suspended ceilings.



## Rail

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.



## Telecommunications

With ever increasing demands for information there is a constant requirement for new and upgraded aerials, masts and towers. With Lindapter's range of fixings and clamps it has never been easier to connect to or strengthen your steelwork projects.



# Lindapter®

in the Bridge markets

## Lindapter in the Bridge Market

The Lindapter range of products is ideally suited to use in the construction of new bridges or the strengthening of existing structures.

Lindapter's first product was introduced in the 1930's and in order to provide ready made solutions for today's applications it is continually being improved and expanded.

These innovative products offer a wide range of load capacities in tensile and frictional or a combination of the two and are suitable for all types of bridge including road and rail.

Lindapter's eliminate the need to drill or weld on existing rolled or fabricated steelwork thus protecting coatings, allowing flexibility to re-position or re-align on temporary or permanent structures, enabling the steelwork to be used multiple times thus facilitating easy re-cycling and sustainable construction and refurbishment.

## The Lindapter Team

Lindapter's specialist departmental teams have been structured for your convenience. Our technical support staff 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 also have regional sales engineers and distributors in many countries who are available for onsite visits to discuss your individual requirements.

## New Products

It is Lindapter's policy to constantly develop new, innovative and cost reducing methods of steelwork fixing and as such our latest products may not be featured in our brochures or on our website - so for the latest fixing technology please contact us directly.

Securing steelwork in  
the Bridge Industry for  
over 70 years



# Contents

## 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
- Hot Dip Spun Galvanised
- Sheradized
- Continuously Hot Dip Zinc Coated
- Mechanical Galvanised
- Delta Seal

## 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.

Type AF&GF <b>Story Bridge</b>	4:5
Type GC <b>Newcastle High Level Bridge</b>	6:7
Type RC <b>Camley Road Bridge</b>	8:9
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Type A <b>Millau Viaduct</b>	12:13
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## British Standards Institution

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

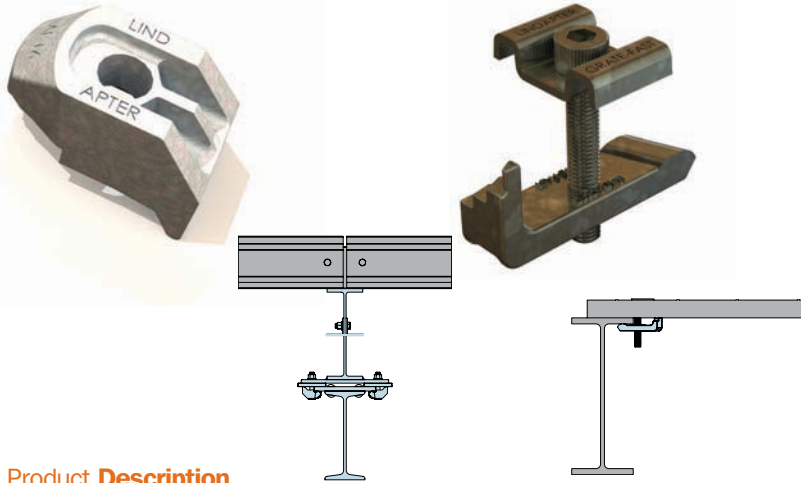


**DISCLAIMER.** Lindapter International supplies components in good faith, on the assumption that customers fully understand the loadings, safety factors and physical parameters of the products involved. Customers or users who are unaware or unsure of any details should refer to Lindapter International 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 AF High Friction Clamp

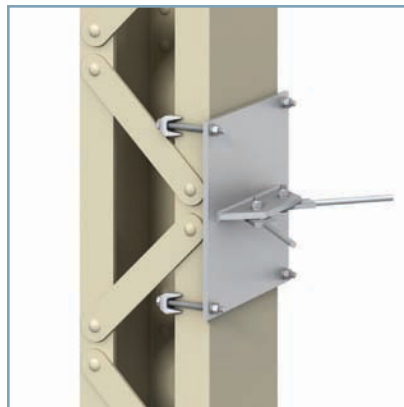
## Type GF Gratefast



### Product Description

Optimising the high strength of the Type AF Lindapter makes it possible to design connections where tensile, friction or combined loadings are prevalent. As with all Lindapter products they can be used on a wide variety of steelwork types and sizes as well as being used without compromising the integrity of the structure itself. As steelwork is increasingly being delivered to site pre coated this means much less remedial work being necessary.

The Type GF was developed as a quick & convenient method of securing open bar grating; the design incorporates a cast body assembled with a top hat shaped clip & socket head capscrew. The GF design ensures a good grip on the beam flange and having been tested against shock and vibration as part of a Lloyds Type Approval programme it can be trusted to secured large areas of grating without movement.







# AF&GF



## Case Study

Name:	Story Bridge Adventure Climb
Location:	Brisbane Australia
Product:	Types AF & GF
Application:	Lindapter steelwork fixings were used for attaching much of the flooring and walkway structures required to create the 'Story Bridge Adventure Climb'. The climb takes tourists to the top of the 80m high Story Bridge over the Brisbane River. The clamps were used to minimise any weakening effect on the primary steelwork and damage to the protective coatings that drilling and welding would otherwise cause.

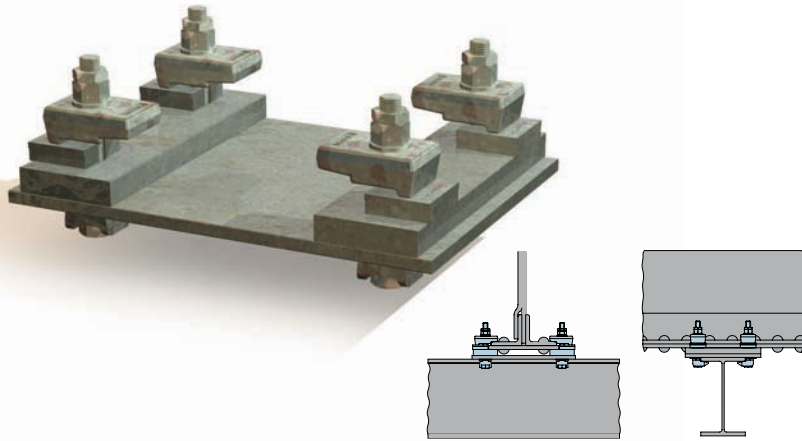
For a full case study and more information on the above application please visit

[www.lindapter.com/casestudies](http://www.lindapter.com/casestudies)

4:5



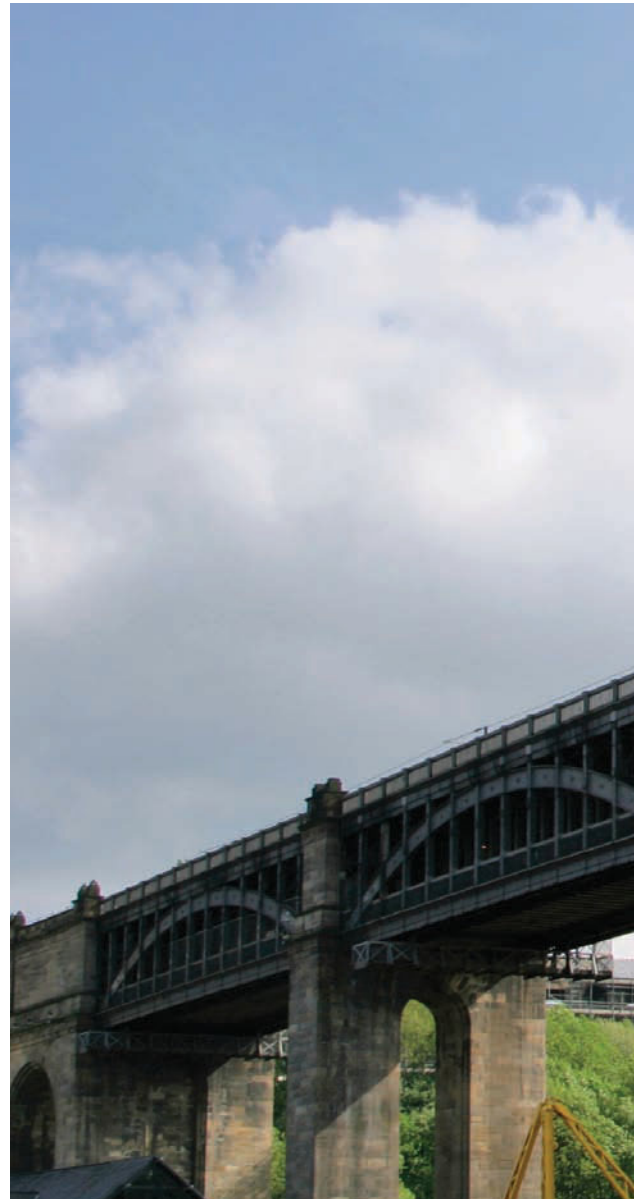
# Type GC Special Lindapter Girder Clamp



## Product Description

The Lindapter Girder Clamp can be designed and produced to suit a wide range of connections, including inclined profiles, various angular crossovers or variances in the beam height. They can be used on all common rolled steel sections of various vintages as well as specially fabricated plate beams and 19th century Cast Iron & Wrought Iron structural sections. They are the most versatile method of connecting steelwork available.

As there is no need for drilling or welding to the section, installation time and cost are greatly reduced.



# TYPE GC



## Case Study

Name: Newcastle High Level Bridge

Location: Newcastle upon Tyne UK

Product: Special Lindapter Girder Clamps

Application: The installation of runways to transport materials required during the refurbishment of the historic Newcastle High Level Bridge was simplified by Lindapter Girder Clamps which need no drilling or welding ensuring no damage to the 160 year old structure. The bridge, built by Robert Stephenson between 1847 & 1849, spans the River Tyne between Newcastle and Gateshead and is unusual in being a twin-level rail and road construction. The runways within the structure are being used during the refurbishment of the lower road deck.

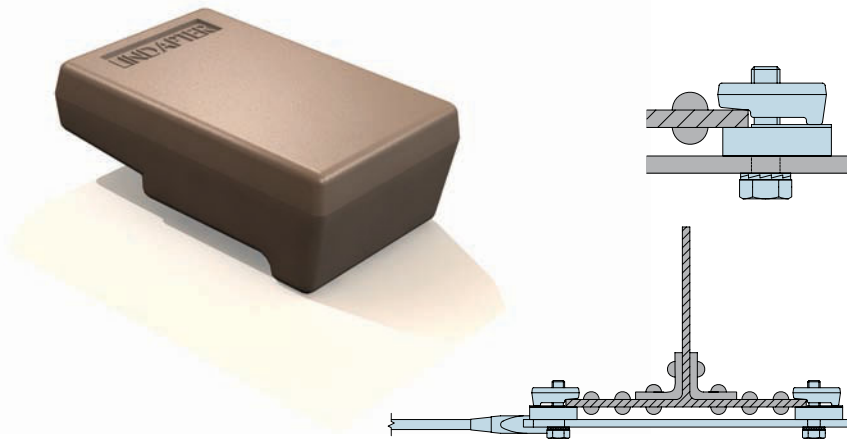
For a full case study and more information on the above application please visit

[www.lindapter.com/casestudies](http://www.lindapter.com/casestudies)

6:7



# Type RC Forged Steel Rail Clip



## Product Description

Initially designated as a Rail Clip this product is also used as a special Lindapter for applications where a standard product is not suitable. It is possible to drill the Rail Clip in a number of positions or diameters allowing connections to be made to riveted compound sections with extended flange plates. When used with Type AF packings the Rail Clip can suit beams with a wide variety of flange thicknesses.





# PERC



## Case Study

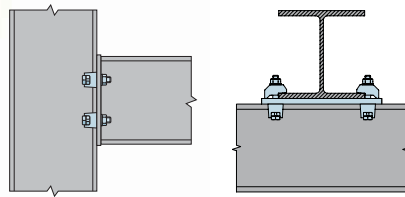
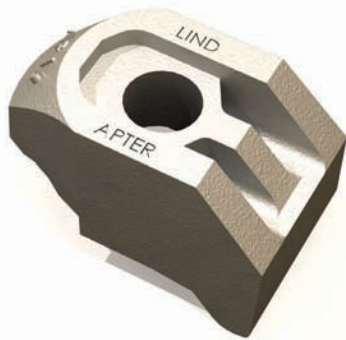
Name:	HS1 (High Speed 1) Camley Road Bridge
Location:	London UK
Product:	Type RC - Forged Steel Rail Clip
Application:	As part of the upgrade for HS1 (formerly the Channel Tunnel Rail Link) it was necessary to strengthen this old jack arch bridge. The minimal room available due to the brick infill required the use of the Type RC Rail Clip. Supplied as a blank forging enabling holes of various diameters to be machined, in this case a threaded hole. These clamps allowed a pair of pre-drilled plates to be secured to the bottom flanges of the support beams with minimal damage to the brickwork; the plates were then connected together by a tendon assembly.

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

[www.lindapter.com/casestudies](http://www.lindapter.com/casestudies)

8:9

# Type AF High Friction Clamp



## Product Description

Designed to be used with 8.8 & 10.9 bolt grades the Type AF Lindapter is best suited for applications where high tensile and friction loads or a combination of the two, are present. Having a specially faceted nose it can be used on a large variety of structural steel sections with tapered flanges up to 10°. A range of packings have also been designed to be used with the Type AF to allow it to be used on a large number of flange thicknesses.







# TYPE AF



## Case Study

Name: North South Bypass Tunnel

Location: Brisbane Australia

Product: Type AF High Friction Clamp

Application: High strength steelwork fixing Type AF was used to ease the construction of a steel frame as support for the concrete shuttering being used on this project. The frame was required to be regularly moved as work progressed on the construction of the support piers for the tunnel access ramps. Using a clamp system gave the flexibility for any realignment which was necessary at each new location.

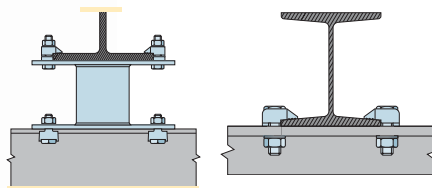
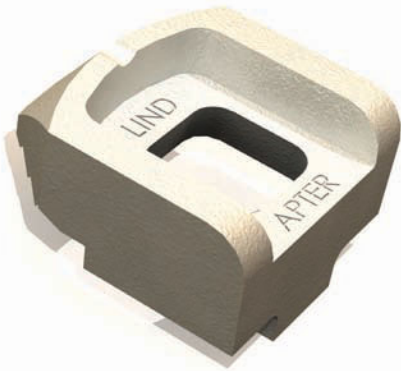
For a full case study and more information on the above application please visit

[www.lindapter.com/casestudies](http://www.lindapter.com/casestudies)

10:11

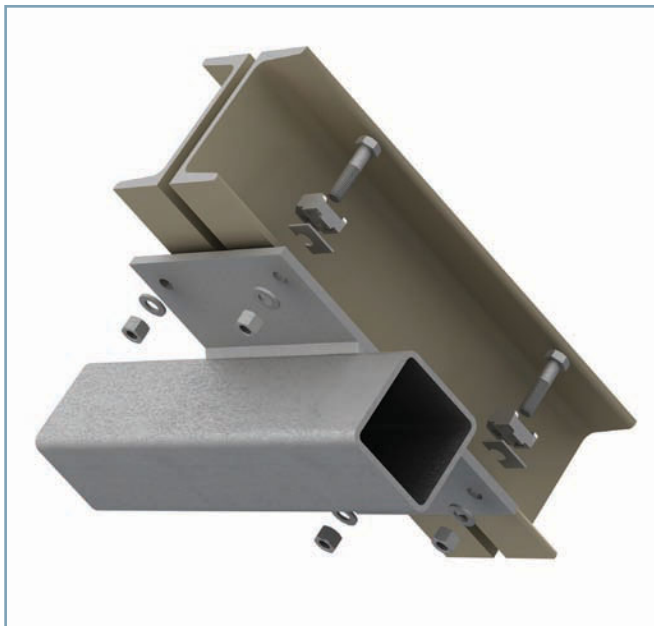


# Type A Recessed Fixing



## Product Description

The Type A was the original Lindapter or, as it was called in the 1930's, Lindsay Bolt Adapter or Hook Bolt Head. Through the years its uses have moved beyond a simple lightweight connection for pipe work etc. into the main structural engineering market. An extensive range of sizes mean the Lindapter Type A can be used on a wide variety of connection, in both tensile or friction, and almost any type and size of steelwork.







# TYPE A



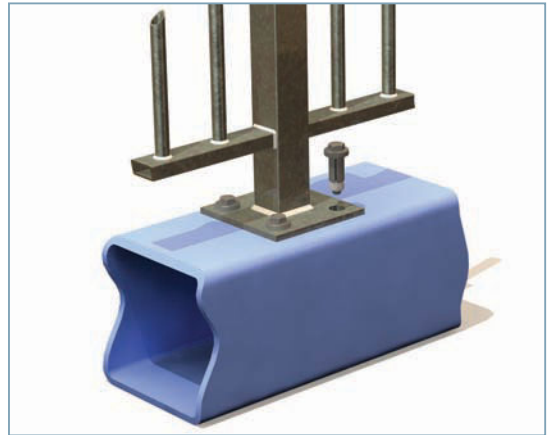
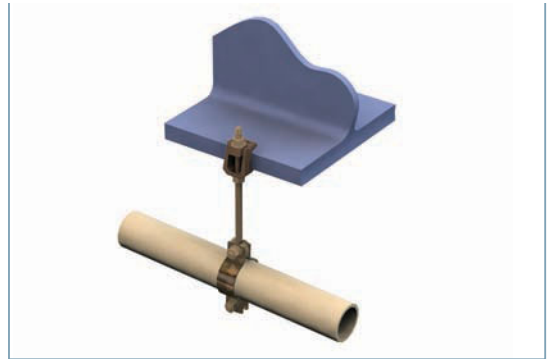
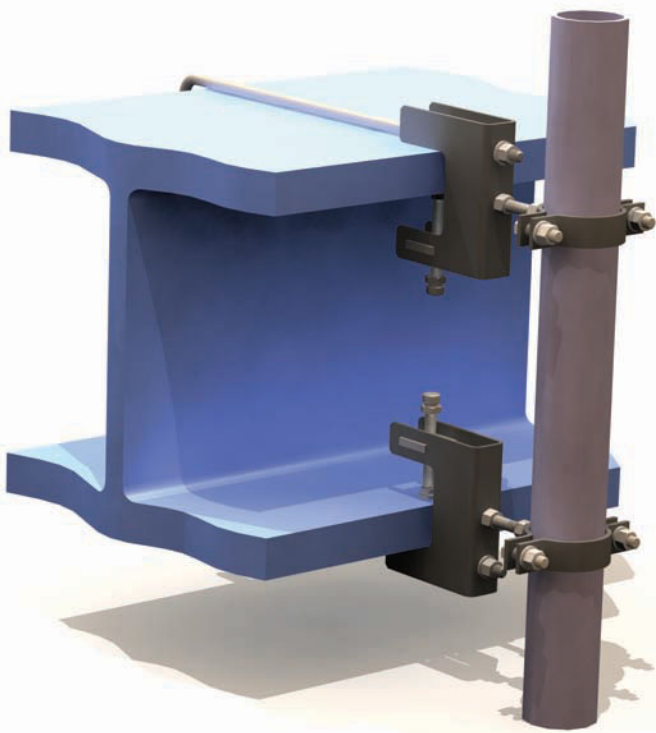
## Case Study

Name:	Le Viaduc de Millau
Location:	Millau, Aveyron, France
Product:	Type A Recessed Fixing
Application:	This iconic structure is at the forefront of bridge engineering being 2.5km in length and 270m above the River Tarn. Electrical services inside the aerodynamically shaped and pre fabricated steel deck sections are supported on a steel frame which in turn is clamped using Type A Lindapters to inclined steel sections within the deck which gives the necessary flexibility to ensure correct alignment of the cabling.

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

[www.lindapter.com/casestudies](http://www.lindapter.com/casestudies)

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# Bridges

## Project Successes

Project Name	Country	Lindapter's Used
RIC/ARTC/OR Rail Bridges	Australia	GC
Iron Cove Bridge, Sydney	Australia	GC (Special)
RTA/VIC Roads/QLD Transport Bridges	Australia	A, B, AF, F9, CF, HB, GF, LR, F3 & D2
Story Bridge Adventure Climb, Brisbane	Australia	AF & GF
Tom Ugly's Bridge, Sydney	Australia	AF & GF
Kap Shun Mun Bridge - Lantau Fixed Crossing, HK	China	GF
Tsing Ma Bridge - Lantau Fixed Crossing, HK	China	GC, GF
Great Belt Fixed Road & Rail Link	Denmark/Sweden	B, FF
A19 Tees Bridge Refurbishment - Enclosure System	England	B, P, F3
A19 Tees Bridge Refurbishment - Pier Strengthening	England	Special M36 B
Avonmouth Bridge, Bristol	England	GC, F3
Bedminster Bridge, Bristol	England	F9
Camley Road Bridge (High Speed 1) London	England	Special Tensioning System
Cement Mills Viaduct, Newport, Isle of Wight	England	GC
Grovehill Bridge Re decking, Beverley	England	A, B (Plastic Coated)
High Level Bridge, Newcastle upon Tyne	England	GC
Humber Bridge, East Yorkshire	England	GC
M65 Footbridge, Blackburn	England	HB
Mortons Leam Bridge, Peterborough	England	GC (AF)
QE2 Bridge - Dartford River Crossing	England	Special Assemblies
Runcorn Bridge - Fibre Optic Cable Ducting	England	GC (Special), A, B, LR
Salamanca Rail Bridge, London	England	GC
Second Severn Bridge Crossing	England/Wales	F3, F9, GC
Le Viaduc de Millau	France	GC, A
Brandenburgerbrücke, Leipzig	Germany	F3
Pfeilerbahn, Gelsenkirchen	Germany	GC
Rheinbrücke, Mainz	Germany	A, B
Fussgängerbrücke, Garching, München	Germany	GC
Radice Bridge ALFA, Genova	Italy	GF
Forth Bridge - Centenary Lighting, Edinburgh	Scotland	FL
Forth Road Bridge, Edinburgh	Scotland	A, P1, CW
Manhattan Bridge, New York	USA	F3, PR
Walt Whitman Bridge, Pennsylvania	USA	GC



# Products

## Steelwork Fixings

Lindapter steelwork fixings securely grip the flanges 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 Type HD 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.



## Engineered Products/ Bespoke Applications

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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