WORLD LEADER

in Mechanical Rebar Splices

Dextra

www.dextragroup.com

About us

Established in 1983, Dextra is a leading manufacturer and distributor of innovative, engineered products for the construction industry.

Well known for its mechanical splicing systems for reinforcing steel bars, Dextra has grown over the years into a worldwide supplier of technical solutions accredited by major independent regulatory bodies on all continents and used every day in high-rise buildings, civil and industrial structures.

The management of Dextra has always put quality first. This is shown not least by the fact that the company has been ISO-certified since 1996. Thanks to its dedicated team of professionals, Dextra has developed a wide range of products such as mechanical splices (also known as couplers), FRP bars, ground and rock anchors, marine tie bars, tension rods, and other accessories for large construction projects.

Content

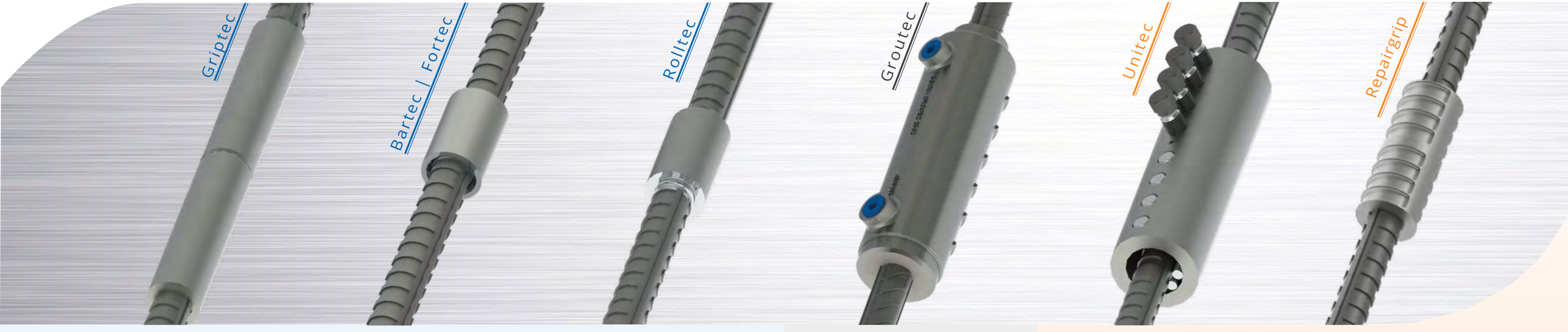
A complete range of mechanical rebar couplers

Couplers are devices used to connect steel bars in reinforced concrete construction. Compared to the conventional method of lap splicing, they not only save steel, but also provide a stronger, faster and safer connection.

Bartec®, Fortec®, Griptec® and Repairgrip are full-performance splice systems which means that under tensile loading the failure will occur in the reinforcement bar, away from the connection. In other words: The ductility of the reinforcement bar is not negatively affected by these systems, a feature which is particularly interesting in sensitive applications such as nuclear power plants or under seismic conditions.

The Groutec sleeve connects precast elements between each other or with in-situ concrete structures. It is a fast and efficient solution for wall-to-slab or column-to-foundation connections, among others.

Unitec and RepairGrip couplers allow rebar connections even if one bar is already in the concrete. They are therefore particularly suited for repair or retrofit applications.



Cast In Situ

Pre-cast

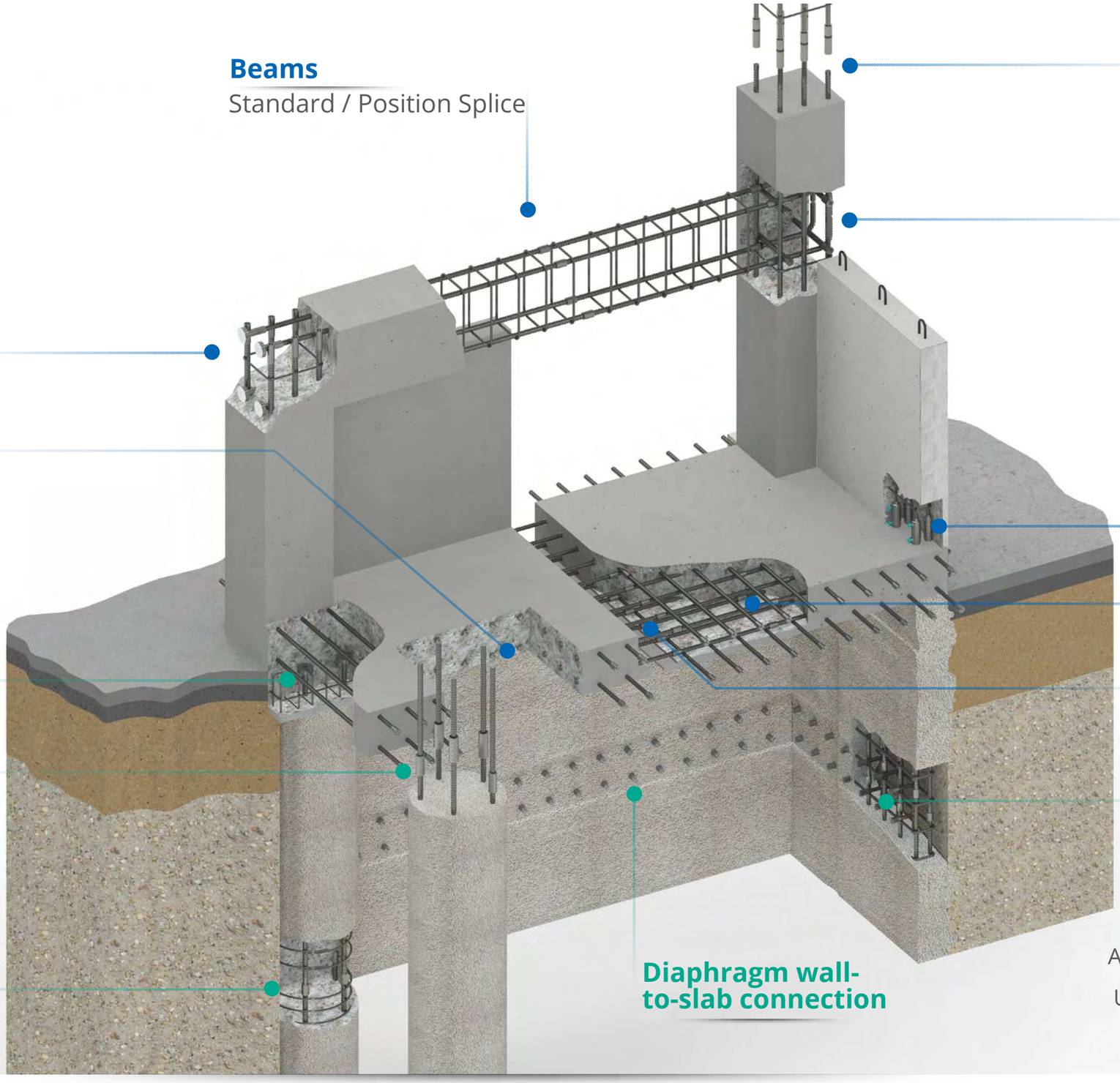
Repair & Retrofit

Splice selection chart

Range	Griptec	Bartec	Fortec	Rolltec	Groutec	Unitec	Repairgrip
Bar size (mm)	12 – 50	12 – 50	12 – 50	12 – 50	12 - 40	12 – 50	12 - 40
Bar size (imperial)	-	#4 – #18	-	#4 – #18	#4 – #12	#4 – #18	#4 – #12
Code compliance	BS 8110, EC2, ACI 318, ASME, AASHTO			BS 8110, EC2, ACI 318, AASHTO		BS 8110, EC2, ACI 318, AASHTO	
Main certifications (*)	DIBt, CARES, AFCAB, BMVIT	IAPMO, CARES, Caltrans, Dubai Municipality (**)	AFCAB	CARES, AFCAB, IAPMO, Dubai Municipality (**)	IAPMO	IAPMO, CARES, AFCAB, Dubai Municipality (**)	Dubai Municipality
Position – Transition – Caging – Headed Bars – Weldable	All	All	All	All	Transition	Transition	-
Bar end preparation	Required	Required	Required	Required	One side only	Not required	Not required
CAD/BIM support	Tekla, Revit and AutoCAD components available for download on www.dextragroup.com						

* Please consult us for our latest complete list of certifications.
** Up to 40 mm.

Applications



Beams
Standard / Position Splice

Column cages
Caging Splice

Beam to column
Standard Splice

End beams
Headed Bars

Temporary openings
Standard Splice

Precast elements connection
Groutec Couplers

Rafts & slabs
Standard / Position Splice

Construction joints
Standard / Position Splice

Pile caps
Headed Bars

Pile trimming repair
Unitec
Repairgrip

Vertical bars
Standard / Position Splice

Pile cages
Standard / Position Splice

Diaphragm wall-to-slab connection

Above ground applications

Underground applications

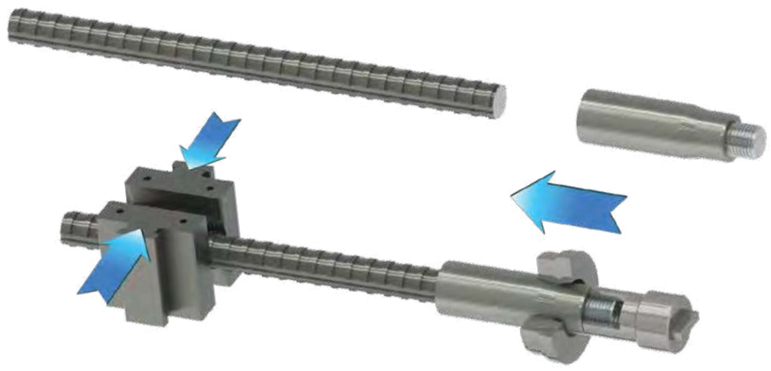
Benefits

- Each and every connection is proof-tested during the extrusion cycle and therefore 100% controlled!
- No reduction of the nominal cross section area of the bar.
- No torque wrench required.
- Visual inspection enough to check proper thread engagement.
- No cross threading thanks to parallel threads.
- Very good fatigue performance thanks to rolled threads.
- Compact design with small outer diameter.

Automatic two-step process

Extrusion

The sleeve is placed over the rebar end and pushed into the Griptec® machine by the operator.
The production process starts automatically.
The sleeve is extruded over the bar-end.



Performance testing

The proof-test is an integral part of the Griptec® bar-end preparation process.

After the sleeve is extruded over the bar-end, the connection is proof-tested automatically by the Griptec® machine. This confirms the performance above the prescribed design load.

Splicing methods

State of the art equipment

- High productivity:
  30 to 45 seconds per bar end.
- One man operation.
- Fully computerized process.
- Low operational cost.
- Quick tool changing.
- Pre-programmed setting of extrusion equipment and testing parameters for each bar size.
- Fits any reasonable shear cut.
- No dirty lubricant and machining chips.

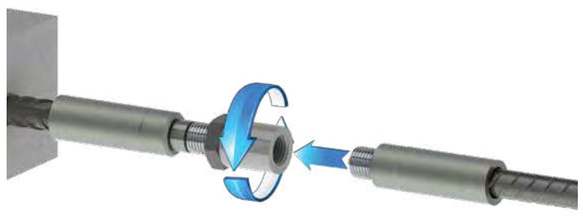
Standard splice

Standard Griptec® splices are created using a standard female coupler and a standard male coupler of the matching size.

Position splice

When both bars cannot be rotated, the Griptec® splice system uses a “Position set” in combination with standard male and female sleeves.

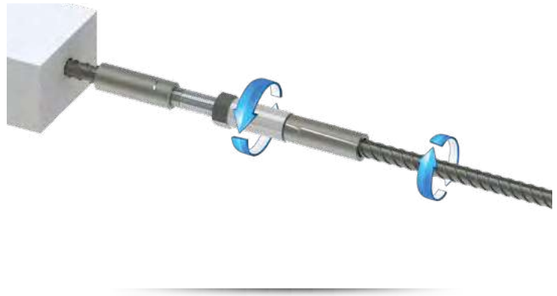
This set consists of a threaded stud, a position nut and a locknut. It is screwed into the female sleeve, and then the nut is screwed back on the male sleeve to accomplish the connection.



Bridging splice

When reinforcement bars cannot be brought butt to butt, Griptec® bridging sets are the answer. This is a variant of the position set, but it uses a longer stud.

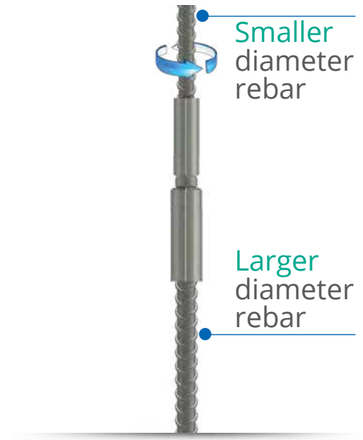
Gaps of up to one bar diameter can be bridged.



Transition splice

When you need to splice bars of different diameters, Griptec® uses standard female couplers on both bars and simply joins them with a transition stud.

This conveniently avoids the difficult task of planning in advance the location of transitions.

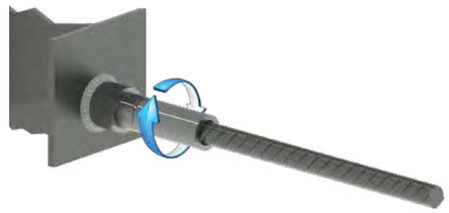


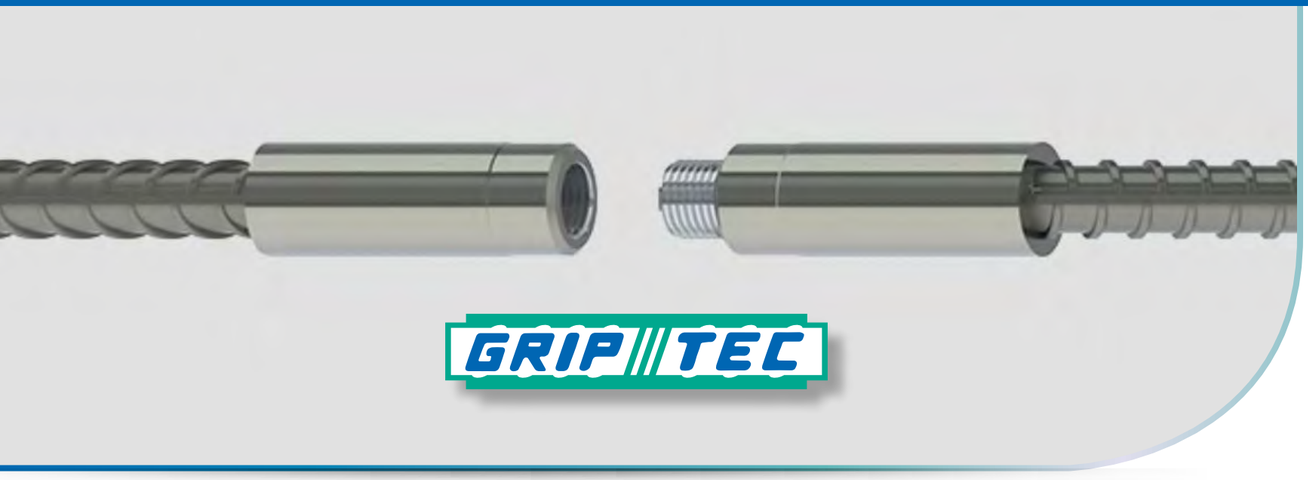
Headed bars

There is a highly efficient alternative to hooked bars when end anchorages need to be placed in congested areas. Griptec® headed bars are round and have a net bearing area of 4 and 9 times the cross-section of the bar.

Weldable couplers

For composite structures in which the reinforcement bars must be connected to structural steel, Griptec® weldable couplers are available. They are specially made from low carbon steel.





Project References


Flamanville EPR, France


Heathrow Airport Terminal 5, UK


Olympic Verodrome, UK


Forrestfield Airport Link, Australia


Geomatikum Hamburg New Building, Germany


Fuqing Reactors 5 & 6, China

Resources

- Brochure
- Datasheet
- Assembly instruction
- Certification
- Webpage

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BARTEC® FORTEC

The only rebar splice that maintains the full ductility of the reinforcing bar while using the same coupler for standard and position connections.

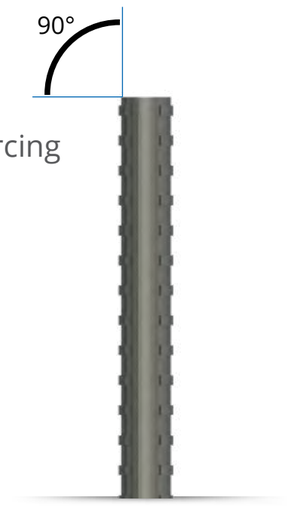
Benefits

- No reduction of the cross section of the bar.
- Allows full ductile elongation of bars.
- Easy installation, no torque wrench required.
- One standard coupler for standard and position splicing.
- Type 2 coupler suitable for seismic areas.
- Tested under reverse cyclic conditions.
- Solves bar congestion problems.

A three-step process

Cutting

The end of the reinforcing bar is sawn square.

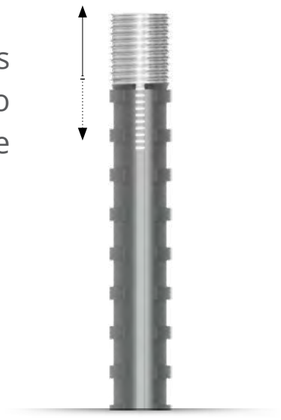


Cold forging

The sawn end of the reinforcing bar is then enlarged by a patented cold forging process. The core diameter of the bar is increased to a pre-determined size.

Threading

Finally, the thread is mechanically formed onto the enlarged end of the bar.



Standard splice (Type A)

Easy connection by bar rotation until full thread engagement. Thanks to the parallel thread:

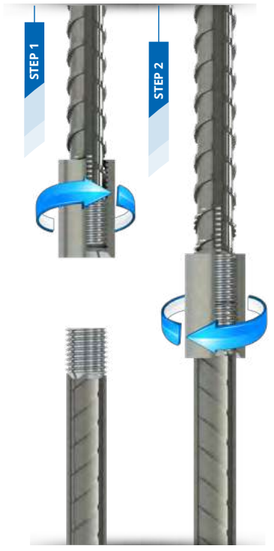
- No risk of thread mismatch.
- No risk of cross-threading.

Position splice (Type B)

The Bartec® position splice, to be used when both bars cannot be rotated, consists of an extended thread on the connecting bar and a standard coupler.

The coupler is fully engaged onto the extended thread of the connecting bar (step 1).

The assembly is completed by butting the bars end to end and screwing the coupler back onto the first bar until full engagement (step 2).



Position splice (Type C)

The assembly method Type C is similar to Type B, with the addition of a lock-nut to maintain the second bar in position.

Splicing methods

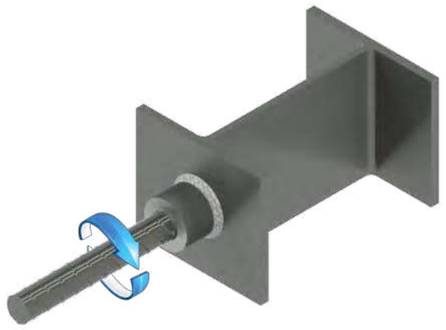
Caging splice

To connect cages that have not been pre-fabricated together or sets of bars that cannot be brought butt to butt, the Bartec® caging assembly is your solution.

Both bars are prepared with a standard Bartec thread. The rotating elements of the assembly will guarantee thread continuity to easily produce the splice.

Weldable couplers

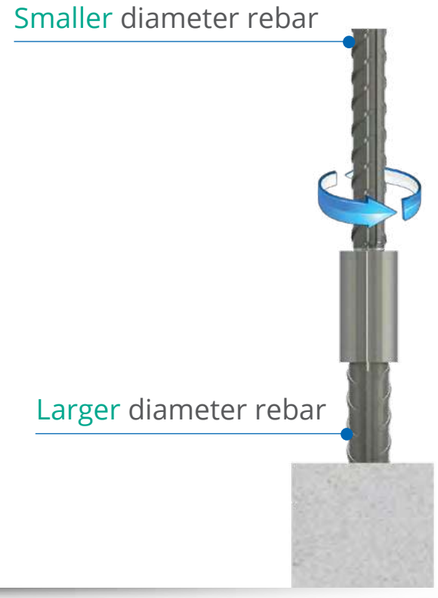
For composite structures in which the reinforcement bars must be connected to structural steel, Bartec® weldable couplers provide the ideal solution. They are specially made from low carbon steel and have a large chamfer for bevel welding.



Transition splice

When you need to splice bars of different diameters, e.g. 40-32 or 32-25, Bartec® offers transition couplers that conveniently allow such a connection.

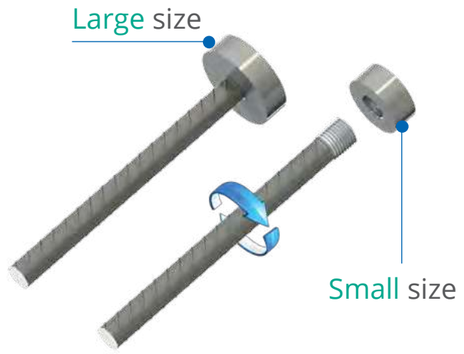
Depending on the diameters, it may also be possible to reduce the size of the end of the larger bar and then use a standard coupler.



Headed bars

Also called “End Anchors”, they are a highly efficient alternative to hooked bars when end anchorages need to be placed in congested areas.

Bartec® headed bars are round and have a net bearing area of 4 times or 9 times the cross-section of the bar.



BARTEC®

FORTEC

Project References

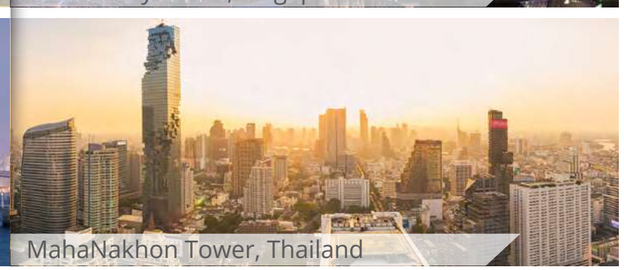
Astravets NPP, Belarus

Yangon Landmark Development and Peninsula Hotel, Myanmar

Dubai Airport, United Arab Emirates

Marina Bay Sands, Singapore

Louvre Abu Dhabi Museum, United Arab Emirates



MahaNakhon Tower, Thailand

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ROLLTEC®

Cost effective alternative to lap splicing.
Reduces steel wastage.
Enables multiple re-use of formworks.

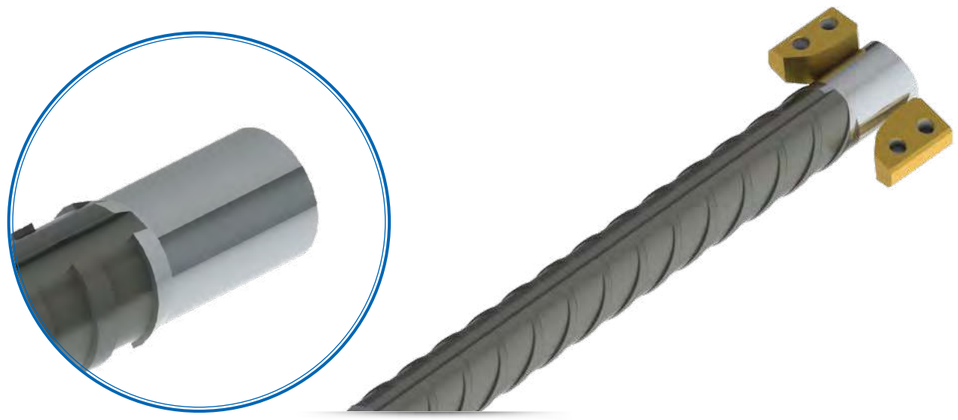
Benefits

- Practical and economical alternative to laps.
- Simple process : only one machine, one operator.
- Fast cycle time : less than 30 seconds per thread!
- One standard coupler for the two main applications, standard and position, to avoid confusion and reduce warehousing on site.
- Easy installation, no torque wrench required.
- Shortens construction cycle times.

Rebar preparation: a two-step process

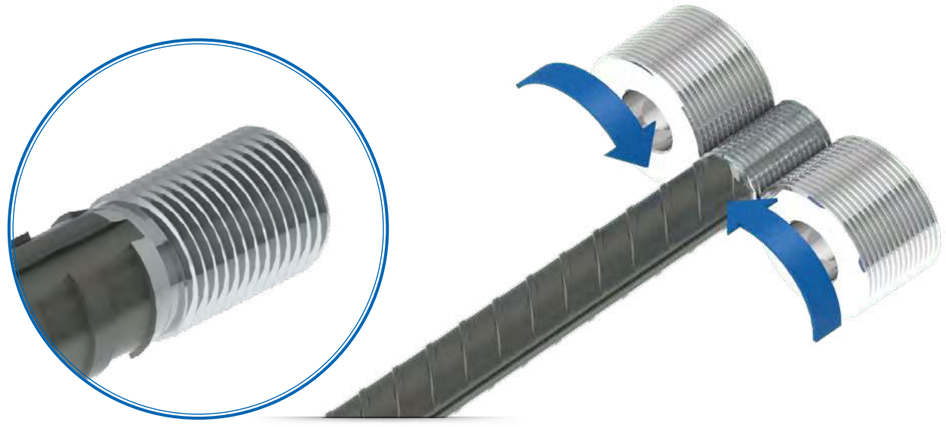
Peeling

The end of the reinforcing bar is peeled.



Thread Rolling

The peeled end of the reinforcing bar is then threaded by rolling.



Standard splice (Type A)

Easy connection by bar rotation until full thread engagement.
Parallel thread :

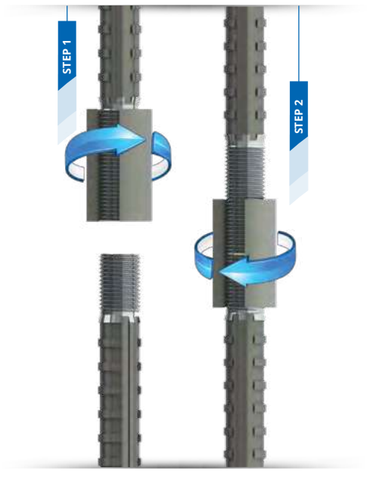
- No risk of thread mismatch.
- No risk of cross-threading.

Position splice (Type B)

The Rolltec® position splice, to be used when both bars cannot be rotated, consists of an extended thread on the connecting bar and a standard coupler.

The coupler is fully engaged onto the extended thread of the connecting bar (step 1).

The assembly is completed by butting the bars end to end and screwing the coupler back onto the first bar until full engagement (step 2).



Position splice (Type C)

The assembly method Type C is similar to Type B, with the addition of a lock-nut to maintain the second bar in position.

Caging splice

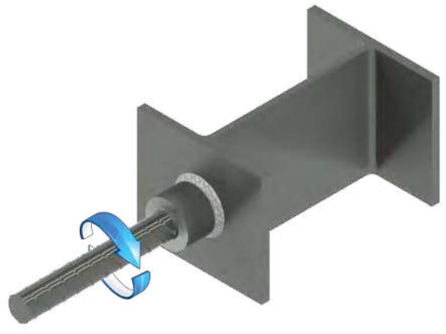
To connect cages that have not been pre-fabricated together or sets of bars that cannot be brought butt to butt, the Rolltec® caging assembly is your solution.

Both bars are prepared with a standard Rolltec thread. The rotating elements of the assembly will guarantee thread continuity to easily produce the splice.

Weldable couplers

For composite structures in which the reinforcement bars must be connected to structural steel, Rolltec® weldable couplers provide the ideal solution.

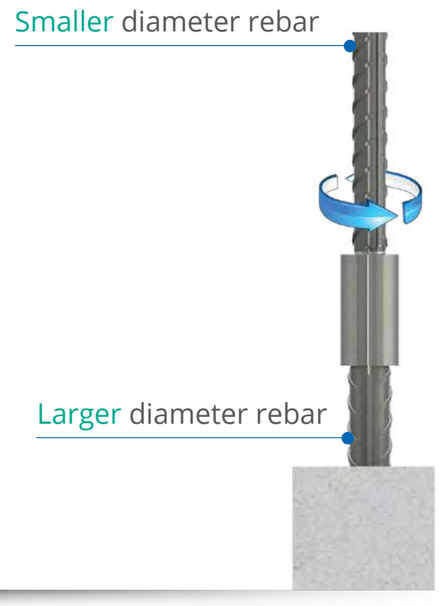
They are specially made from low carbon steel.



Transition splice

When you need to splice bars of different diameters, e.g. 40-32 or 32-25, Rolltec® offers transition couplers that conveniently allow such a connection.

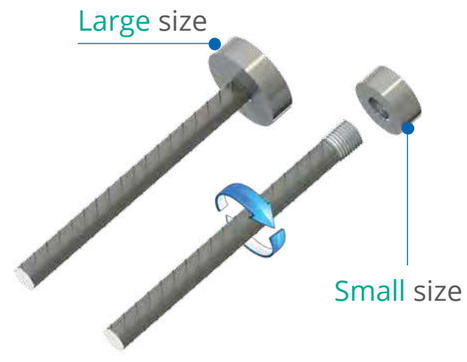
Depending on the situation, it may also be possible to reduce the size of the end of the larger bar and then use a standard coupler.



Headed bars

Also called “End Anchors”, they are a highly efficient alternative to hooked bars when end anchorages need to be placed in congested areas.

Rolltec® headed bars are round and have a net bearing area of 4 times or 9 times the cross-section of the bar.

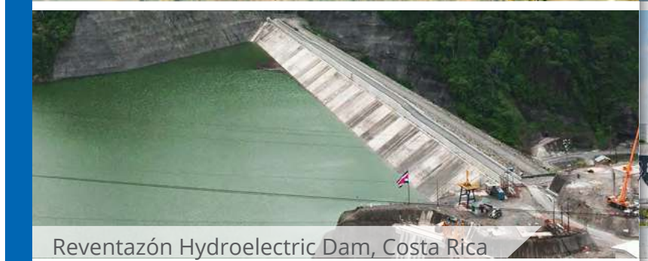


ROLLTEC®

Project References

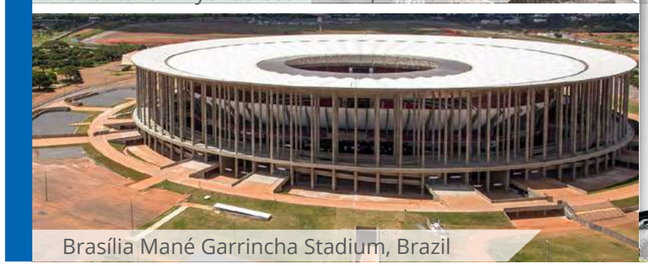
Kuwait International Airport Terminal II, Kuwait

Tanger Med 2 Port, Morocco



Reventazón Hydroelectric Dam, Costa Rica

São Paulo Arena Corinthians, Brazil



Brasília Mané Garrincha Stadium, Brazil

New Champlain Bridge, Canada

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HEADED BARS

Efficient replacement for hooked bars. The solution to congestion.

Product features

- Made of an anchor plate that is fixed to the end of reinforcement bar.
- Convenient alternative to hooks in congested areas.
- Two standard head sizes: net bearing area of 4 or 9 times the cross section of the bar.
- Requires the same bar end preparation as Dextra coupler systems.
- Compatible with Bartec, Fortec, Griptec and Rolltec threads.

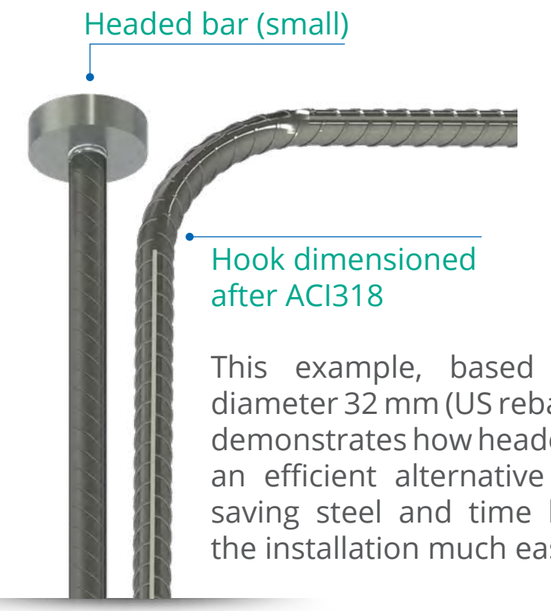
Applications

As main reinforcement

- Less congestion.
- Easier installation.
- No risk of rebar embrittlement due to bar bending.
- Require shorter anchorage (development) length.
- Better anchorage effectiveness (lower bearing stress and less slip).

As transverse reinforcement

- Shear reinforcement in slabs and footings.
- Cross ties in walls, columns and diaphragm walls.
- Faster installation time.
- No more site bending of double-headed 135° or 180° hooks.
- Allow use of larger bars, therefore decreasing the quantity of links.



This example, based on rebar diameter 32 mm (US rebar size #10) demonstrates how headed bars are an efficient alternative to hooks, saving steel and time by making the installation much easier.

Project References


New Bay Bridge of San Francisco, United States


Icon Siam Complex, Thailand


RAPID Petrochemical Complex, Malaysia


Ho Chi Minh City Metro – Line 1, Vietnam


Mecca Mataf Expansion, Saudi Arabia


MahaNakhon Tower, Thailand

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Compatible with

GRIP TEC

BAR TEC FORTEC

ROTEC

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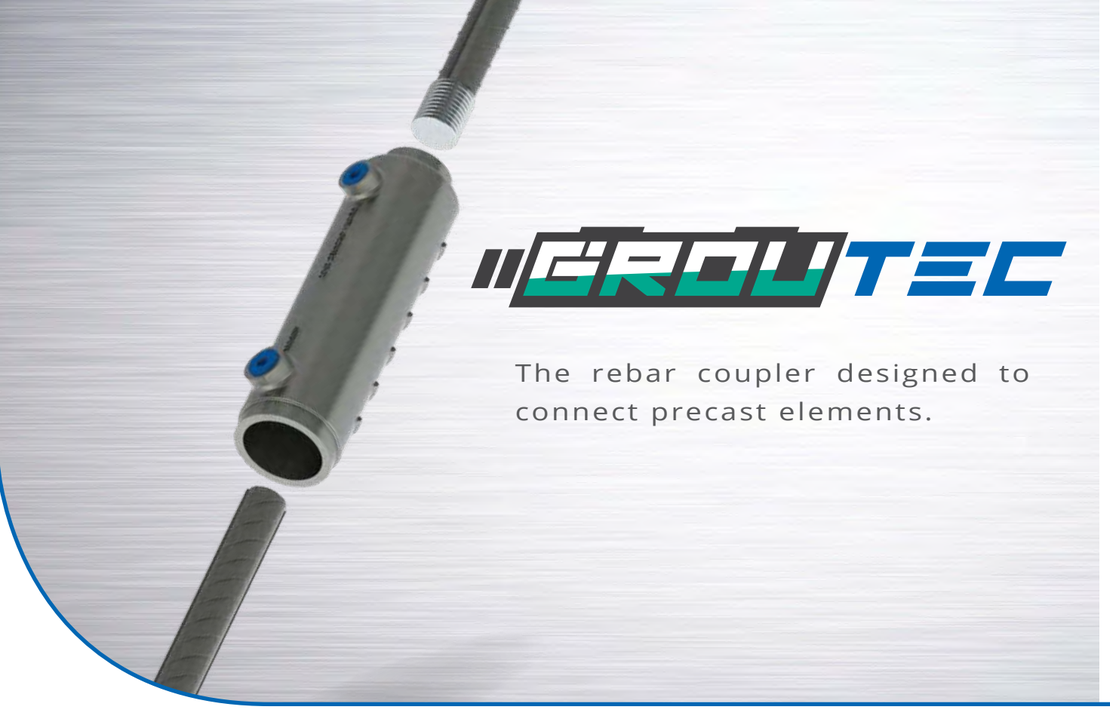


GROUTEC

The rebar coupler designed to connect precast elements.

Benefits

- Requirement for in-situ wet concrete joint.
- Can be used with any standard non-shrink grout.
- Compact and economical splicing solution thanks to its optimized design.
- Even allows connection of bars that are not perfectly aligned.
- Can also be used for the connection of bars of different diameters (transition splice).

Installation

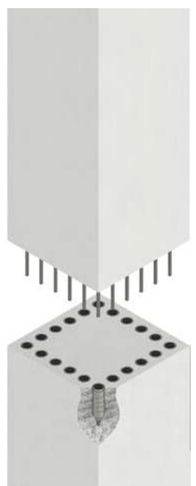
At the precast factory

Groutec is installed on the formwork using a screw or magnetic positioner. The threaded end facilitates the connection of the coupler to the reinforcement cage.

At the construction site

Groutec accomodates both horizontal and vertical connections (with Groutec in the top or the bottom element).

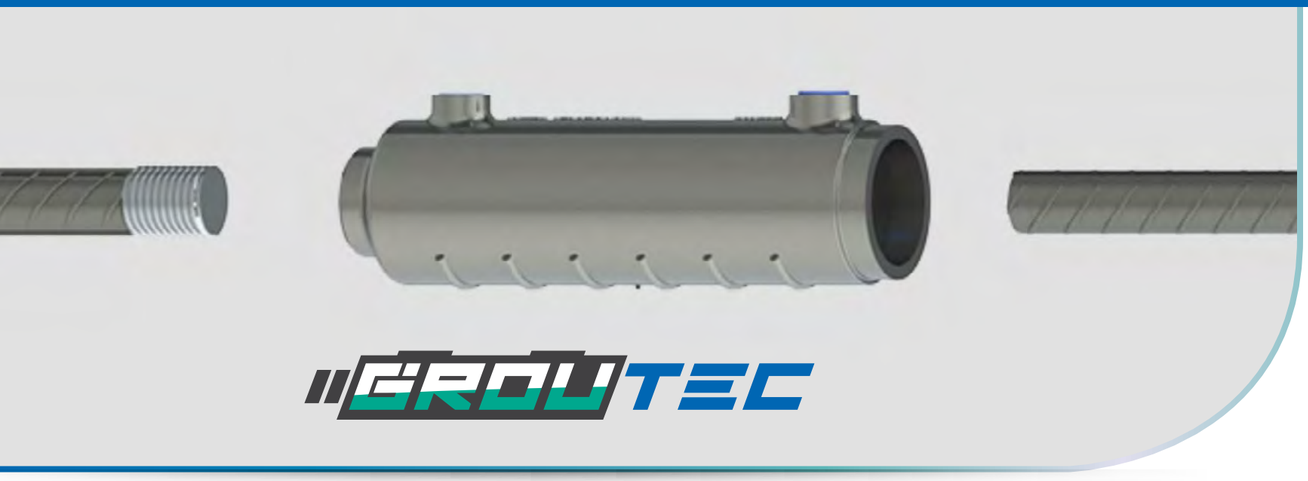
The couplers are then filled with non-shrink grout through the injection holes, or directly by pouring grout into the cavity.



Threaded end
(compatible with Bartec, Fortec, Rolltec, Griptec systems)

Grout injection holes

Cavity for inserting continuation rebar



GROUTEC

Project References

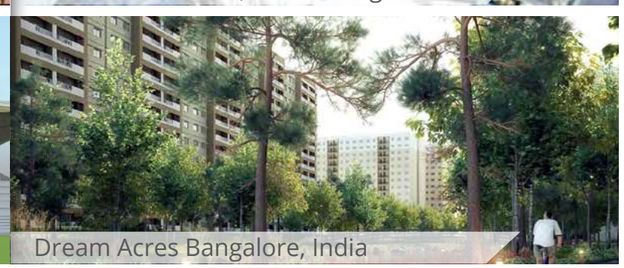

The Plum Condominium, Thailand


Urban Deca Homes Ortigas, Philippines


Jamnagar Refinery Expansion, India


London Wall Place, United Kingdom


Al Haffar Abu Dhabi Police Training Facility, UAE


Dream Acres Bangalore, India

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Benefits

- Easy to use with a standard impact wrench: the heads of the screws just shear off when the required torque is reached.
- No need for bar end preparation.
- Ideal for concrete-embedded bars, repair and retrofit works.
- Type 2 splice as per ACI 318 requirements. Complies with BS 8110 and NF A35-020 standards.

A simple in-situ installation with standard tools

①

Insert the Unitec® coupler over the end of the first bar until contact with the centre pin.

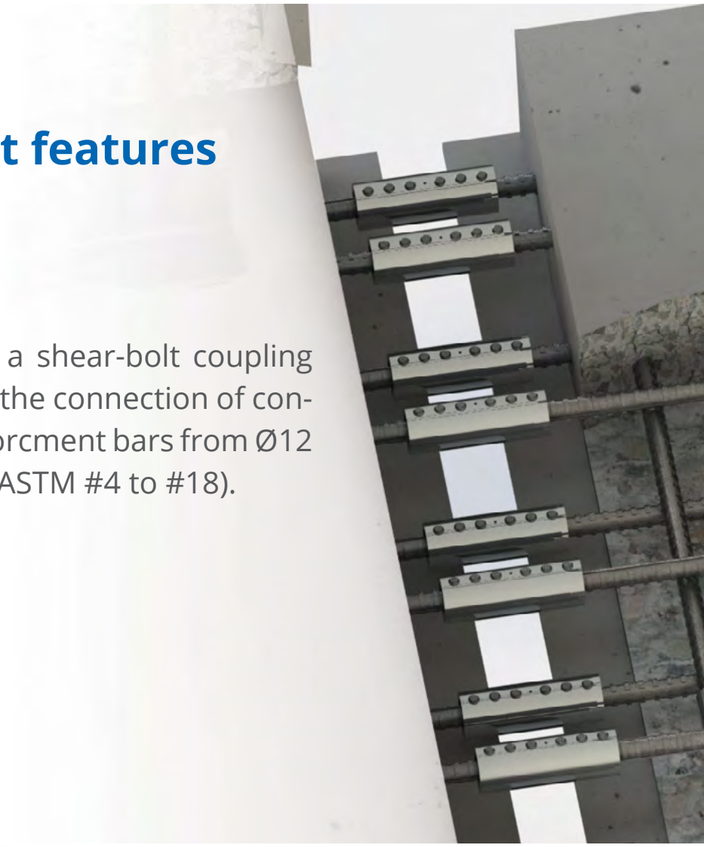
Pre-position the coupler using a ratchet or a wrench. Then proceed with tightening from center to edge of coupler using a standard pneumatic impact wrench.

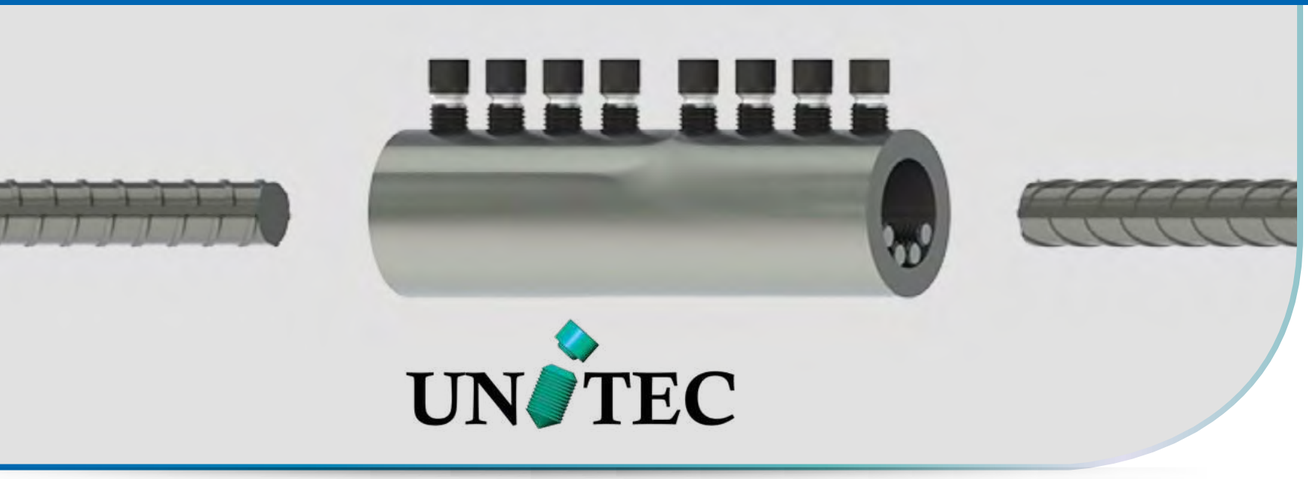
②

Insert the second bar into the coupler until contact with the centre pin and repeat the operation.

Product features

Unitec® is a shear-bolt coupling system for the connection of concrete reinforcment bars from Ø12 to 50 mm (ASTM #4 to #18).





Resources

Brochure

Assembly instruction

Certification

Case study

Webpage

Project References


Parque Da Cidade In São Paulo, Brazil


King Abdullah Financial District, Saudi Arabia

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For repair or retrofit works.

Benefits

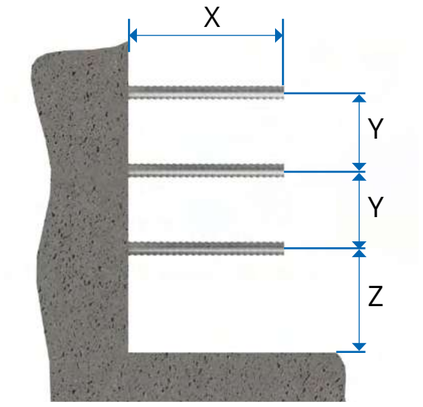
- Fits any cold shear cut bar end.
- Fast installation.
- No reduction of the cross section area of the bar.

Product features

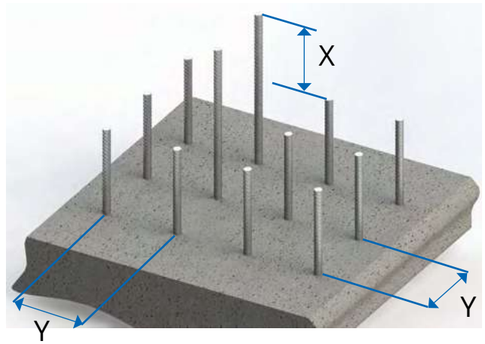
RepairGrip™ is a portable system designed to splice bars in situ. It is a simple and proven method to splice bars when the bar-ends have not been prepared in a shop.

The RepairGrip™ sleeve is swaged onto the bar ends by an hydraulic tool powered by a separate power unit. The resulting connection guarantees a tensile strength of at least 125% of the nominal yield strength on reinforcing bars grade 500 MPa.

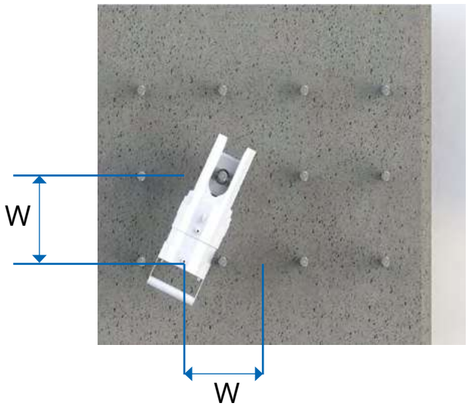
Minimum bar spacing



Start by swaging the bar that is closest to the floor or adjacent wall.

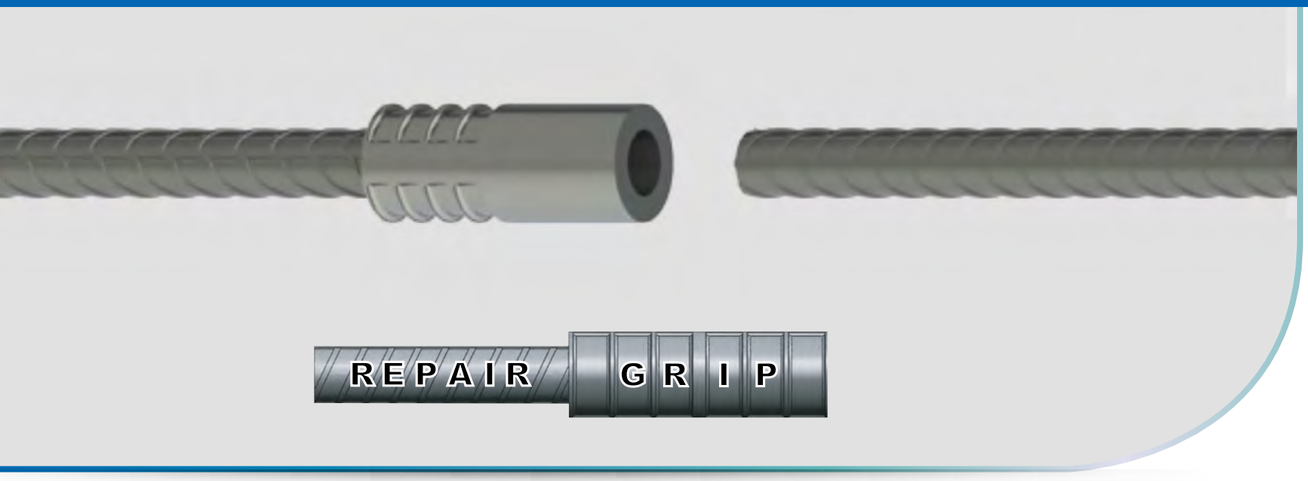


Clustered bars can be spliced if they are staggered and if the central bars are the longest. Start by swaging the central bars.



If clustered bars are not staggered, the required spacing is wider so that the swaging tool can reach the central bars.

	DMG32 (DMG650)							DMG40 (DMG800)	
Bar size (mm)	**12**	**16**	**20**	**22**	**25**	**28**	**32**	**36**	**40**
Bar size (imperial)	**# 4**	**# 5**	**# 6**	**# 7**	**# 8**	**# 9**	**# 10**	**# 11**	**# 12**
X	150			170		160		190	220
Y	95			100		110		120	120
Z	90			90		90		100	100
W	230			230		230		250	250



Resources

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Certification

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Project References


Bangkok MRT Orange Line, Thailand


Corniche Mixed Use Tower, Saudi Arabia


Dubai Metro, Dubai


Mandovi Bridge, India


Embassy Splendid Techzone, India


Mumbai Metro Line 7, India

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Equipment, Network & Service

Dextra **designs, supplies and maintains** highly productive rebar preparation equipment. More than **300 machines** are currently operated around the globe.

A **worldwide team of local after sales engineers** are in charge of the maintenance of Dextra equipment and the training of machine operators.

35+
years of experience
in designing
& manufacturing
concrete reinforcement
products and equipment.

Bar end preparation equipment

Bartec equipment container

Rolltec machine

Griptec machine

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Dextra aims to supply products that exceed the most demanding international technical approvals and it is our goal to create maximum customer satisfaction by complying with our clients' needs and specified requirements.

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CARES ISO 9001 1086 — UKAS MANAGEMENT SYSTEMS 0002

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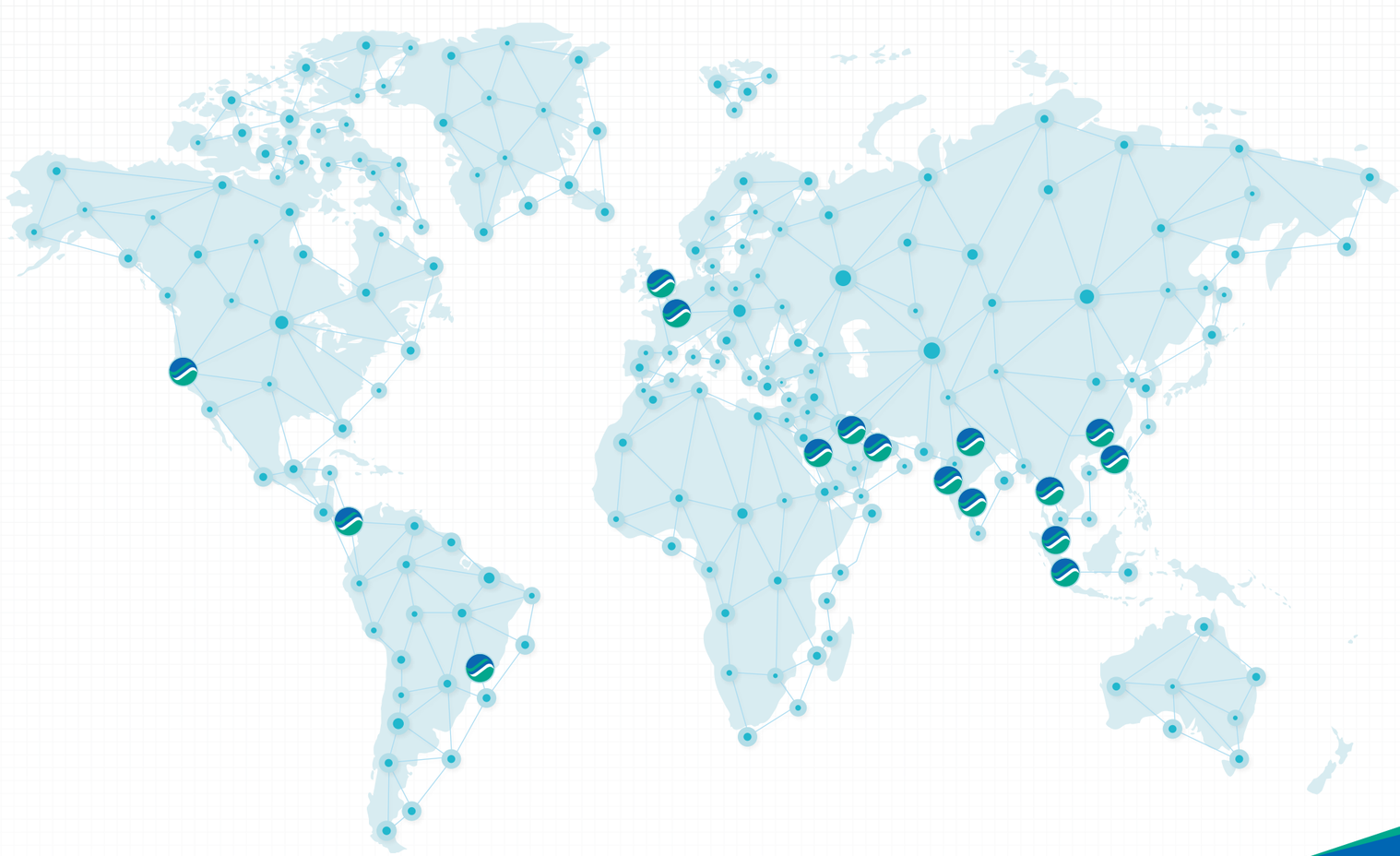

Commercial presence in more than 55 countries

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